



**Florida's Infant Mortality and  
Low Birth Weight Actual Rate  
Compared with Expected Rate  
by County and Healthy Start Coalition Areas**

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2020 Update

Prepared by:  
**Leticia Hernandez, PhD, MS**  
**MCH Epidemiologist**

**Division of Community Health Promotion**  
Bureau of Family Health Services  
Maternal and Child Health Section  
Florida Department of Health

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## Executive Summary

The public health community uses infant mortality and birth weight statistics extensively as maternal and child health indicators because they are relevant, readily available, and reliable due to a relatively high level of completeness.

The Florida Department of Health produces infant mortality and low birthweight to identify geographic areas in the state that exhibit statistically significant differences in infant mortality and low birth weight rates than would be expected considering the unique demographics of each geographic area.

This report shows information by county and healthy start coalition (HSC) area (tables 1 - 2 for infant mortality and 3 – 4 for low birth weight) it presents current rates of infant mortality compared with the expected values and current percentages of low birth weight compare with expected values. Also included are maps by county and coalition area. Additionally, included in this report are summary tables for the years 2016 through 2020 (tables 5 – 6 for infant mortality and 7 – 8 for low birth weight).

Broward, Dade, Palm Beach, and Collier counties had statistically significantly lower than expected infant mortality rates. The first three also comprise their own healthy start coalition. Collier is in the HSC area of Southwest Florida which had statistically significantly lower than expected infant mortality rates. There were ten counties with statistically significantly higher than expected infant mortality rates, but the higher differences were in Union, Jackson, and Hendry counties. Union is located within the Healthy Start of North Central Florida area which also had higher than expected IM rate. Jackson and Hendry are in Chipola Healthy Start Coalition area and HSC area of Southwest Florida respectively, which did not present significant differences.

Broward, Dade, Monroe, Palm Beach, Collier, and Holmes counties had statistically significantly lower than expected percentages of low birth weight. The first four counties comprise their respective healthy start coalitions. Collier and Holmes are located in the HSC areas of Southwest Florida and the Chipola Healthy Start Coalition area which have results within the expected ranges. Nine counties had statistically significantly higher than expected low birth weight percentages. The higher differences were observed in Hamilton, Madison, and Levy counties. Hamilton and Levy counties are in the Healthy Start of North Central Florida area which also had higher than expected percentages of low birth weight. Madison is in the Healthy Start Coalition area of Jefferson, Madison, and Taylor counties which had higher than expected percentage of low birth weight.

## **Introduction**

Infant mortality (IM) and low birth weight (LBW) rates in Florida vary across geographic areas. This variation is due, in part, to the unique demographic characteristics of the population in different geographic areas. In this analysis, adjustments are made to account for the differences in demographic characteristics. Three demographic characteristics are included to calculate the expected IM and LBW: maternal race, marital status, and maternal education. These variables are used because of their known associations with risk of IM and LBW, and because adjusting provides a way to make valid comparisons among areas with different population sizes based on these characteristics.

Other demographic characteristics, such as young maternal age and smoking status, were not used to adjust IM and LBW estimates, to avoid eliminating differences that could possibly be attributed to public health interventions. For example, counties with lower than expected LBW percentages may have implemented successful smoking cessation programs. If adjustments had been made for smoking status, differences between actual and expected statistics would not be apparent. In another example, births to women under the age of 20 can be influenced by teen pregnancy prevention interventions, and by the same logic, adjustments are not made for maternal age.

IM and LBW rates can also vary due to random variation or chance. In this analysis, statistical methods are used to separate random from non-random variation, so rates reported as significantly higher or lower are most likely a result of non-random influences. Likewise, rates that are higher or lower than expected, but not statically significant, are most likely to be the result of random variation.

## **Methods**

The data used in this analysis were extracted from the birth records for Florida residents who were born in calendar years 2019 and 2020. Infant mortality is defined as the death of a child less than one year of age. Infants born weighing less than 2,500 grams at delivery are considered LBW. This analysis uses three demographic variables to perform statistical adjustment on expected IM and LBW estimates: maternal race, marital status, and maternal education. Each demographic variable has two defined values as follows: maternal race as non-Black or Black, marital status as married or not married, and maternal education as high school or above, or less than high school graduation. All possible combinations of the three demographic variables form nine mutually exclusive categories. The ninth category includes birth records for which any of the three demographic variables had a missing value. The nine categories are as follows:

Category	Maternal Race	Marital Status	Maternal Education
1	Non-Black	Married	High School or More
2	Non-Black	Married	Less than High School
3	Non-Black	Not Married	High School or More
4	Non-Black	Not Married	Less than High School
5	Black	Married	High School or More
6	Black	Married	Less than High School
7	Black	Not Married	High School or More
8	Black	Not Married	Less than High School
9	Unknown	Unknown	Unknown

**Calculating IM and LBW Expected Rates**

Using the classification scheme shown above, nine state-level categories-specific IM expected rates were calculated from the 2019 vital records (the latest year available at the time of this analysis for complete linked birth and infant death data). The infant death linkage indicator is not recorded on the birth record until up to one year after a birth. Therefore, 2020 linked infant birth-death records were not completed at the time of this analysis and 2019 data were instead used to calculate expected IM estimates. This adjustment technique is referred to as “indirect adjustment.” To obtain the 2019 expected number of infant deaths by county or coalition area, each of the nine state-level categories-specific IM rates for 2019 were multiplied by the total number of county-level or coalition area births in 2020 and then summed. To compute the 2020 expected infant mortality rates for each county or coalition area, the 2020 expected number of infant deaths was used as the numerator and the total number of births in 2020 was used as the denominator. Using the nine state-level categories-specific rates to estimate county-specific expected IM counts and rates accounts for the unique sociodemographic composition of mothers in each county who gave birth to an infant and mothers whose infants had died by adjusting for the influence of maternal race, marital status and maternal education.

These methods were applied in the same way to calculate expected LBW counts. However, 2020 state-level birth counts for each category were used to calculate expected county-level LBW percentages because birth weight is recorded at the time of delivery.

The Normal Approximation to the Binomial Distribution was used to test for statistically significant differences between actual and expected rates in most of the counties or coalition areas. In instances where the number of infant deaths or number of low birth weight infants was less than 30, the Poisson formula was used. The correlation between the actual to expected ratios for IM and LBW across the counties was assessed.

In March 2004, the recording of maternal race on the birth record was changed to allow the selection of more than one race. For this analysis, births where the only maternal race recorded was Black were classified as Black and all others were classified as non-Black.

## Results

The results of this analysis are shown in the following tables and maps for IM and LBW. In the tables, actual statistics are compared to expected statistics. The expected statistics are adjusted for the demographic characteristics in each county or coalition area, as described above. Counties or coalitions with statistically significantly higher than expected actual statistics are indicated in the tables with an “H” and those with an “L” indicate statistically significantly lower than expected actual statistics. The maps display the results of the statistical tests for significance. Counties or coalition areas where the actual statistics are significantly higher or lower are shaded, as indicated by the legend on the maps.

There was a statistically significant correlation between the actual to expected LBW ratios and the actual to expected infant death ratios (Kendall’s rank correlation coefficient = 0.27; p value of 0.03).

Also included in this report are summary tables for the years 2016 through 2020 that show the Hs and Ls for the counties and coalitions for each of the past five years.

## Summary

For 2020 IM rates: Actual vs. Expected

- Broward (5.06 vs. 6.31), Collier (1.58 vs. 5.14), Dade (4.12 vs. 5.47), and Palm Beach (3.83 vs. 6.17) counties (Tables 1 and 2) had statistically significantly lower than expected IM rates. Broward, Dade, and Palm Beach also comprise their own Healthy Start Coalition (HSC) areas. Collier is in the HSC area of Southwest Florida, (4.19 vs. 5.34) which had statistically significantly lower IM rates than expected, as a whole, the Healthy Start Prenatal & Infant Coalition Area of Flagler and Volusia Counties (4.01 vs. 5.74) had statistically significantly lower than expected IM rates. These coalitions are in the southeastern region of the state (Maps 1 and 2). Broward, Dade, and Palm Beach counties and their respective Healthy Start Coalition areas presented lower IM rates than expected for all the five years studied (Tables 5 and 6).
- Alachua (9.41 vs. 5.94), Columbia (12.06 vs. 5.79), and Union (21.43 vs. 5.27) counties had statistically significantly higher than expected IM rates. Alachua, Columbia, and Union counties are located within the Healthy Start of North Central Florida area, which also had a

higher than expected IM rate (9.02 vs. 5.85), (Tables 1 and 2). Jackson (16.56 vs. 6.15) had statistically significantly higher than expected IM rate, but its associated Chipola Healthy Start Coalition Area (10.03 vs. 5.85) did not have statistically significant difference. Duval (7.85 vs. 6.54) had statistically significantly higher than expected IM rate but its associated Northeast Florida Healthy Start Coalition Area (7.14 vs. 6.14), did not. Hendry (14.06 vs. 6.01) had statistically significantly higher than expected IM rates, but it's associated the Healthy Start Coalition area of Southwest Florida (4.19 vs. 5.34), did not have statistically significant difference. Hillsborough (7.17 vs. 5.65) and Seminole (7.44 vs 5.19) counties and coalition areas had significantly higher percentages of IM rates than expected. Leon (10.22 vs. 6.65) had statistically significantly higher IM rate than expected. Leon is in the Capital Area Healthy Start Coalition, which had a higher than expected IM rate (10.17 vs. 6.47). Polk (7.39 vs. 5.72) had statistically significantly higher than expected IM rate, but the Healthy Start Coalition Area of Hardee/ Highland/ Polk Counties (7.03 vs. 5.69), did not have statistically significant difference (Tables 1 and 2). These counties and coalitions are in the northcentral and central regions of the state (Maps 1 and 2). The North Central Florida Coalition Area experienced five years of higher IM rates (Table 6).

For 2020 low birth weight percentages: Actual vs. Expected

- Broward (9.14% vs 9.52%), Dade (7.87% vs. 8.51%), Monroe (5.32% vs. 8.10%), and Palm Beach (8.27% vs. 8.98%) counties which also comprise their own respective Healthy Start Coalition areas, each had statistically significantly lower percentages of LBW than expected (Tables 3 and 4). Collier (7.01% vs. 8.09%) had statistically significantly lower percentage of LBW than expected. Collier is located within the Healthy Start Coalition Area of Southwest Florida (8.46% vs. 8.26%) with results within the expected range. Holmes (3.85% vs. 7.48%) had statistically significantly lower percentage of LBW than expected. Holmes is located within the Chipola Healthy Start Coalition Area (7.30% vs. 8.57%) with results within the expected range. These counties and HSCs with lower percentages of LBW are in the southeastern region of the state (Maps 3 and 4). Counties and their respective HSC areas with significantly lower or higher LBW percentages than expected for the years studied are presented in Tables 7 and 8.
- Charlotte (10.07% vs. 7.93%), Escambia (11.39% vs. 9.53%), and Gadsden (14.87% vs. 11.90%) counties which also comprise their own respective Healthy Start Coalition areas, each had statistically significantly higher percentages of LBW than expected (Tables 3 and 4). Columbia (10.86% vs 8.80%), Hamilton (17.34% vs. 9.81%), and Levy (11.58% vs. 8.39%) counties had statistically significantly higher percentages of LBW than expected. Columbia, Hamilton, and Levy counties are included in the Healthy Start of North Central Florida Area (9.59% vs. 8.92%) which had higher than expected LBW

percentages as well. Lee (9.00% vs. 8.31%) county had statistically significantly higher percentage of LBW than expected. Lee is located within the Healthy Start Coalition Area of Southwest Florida with results within the expected range. Madison (14.02% vs. 9.90%) county had statistically significantly higher percentage of LBW than expected. Madison is located within the Healthy Start Coalition Area of Jefferson / Madison / Taylor counties (12.15% vs. 9.34%) with significantly higher than expected percentages as well. Polk (9.43% vs. 8.79%) county had statistically significantly higher percentage of LBW than expected. Polk is located within the Healthy Start Coalition Area of Hardee / Highlands / Polk Counties (9.37% vs. 8.75%) which statistically significantly higher percentage of LBW than expected. Of note, Baker, Clay, Duval, Nassau, and Saint Johns separately did not have higher than expected LBW, as a whole the Northeast Florida Healthy Start Coalition Area (9.47% vs. 9.08%) had a statistically significantly higher percentage of LBW than expected (Tables 3 and 4). These counties and HSCs with higher percentages of LBW are in the north and central regions of the state (Maps 3 and 4). The Healthy Start of North Central Florida Area experienced five years of higher percentages of LBW infants than expected (Table 8).

## **Discussion**

This analysis should be considered a preliminary step in the continuing endeavor to reduce IM and LBW in Florida. The results of this analysis can be used to focus further studies and public health efforts on areas of the state where the risks of poor infant health outcomes are significantly higher and analyze factors that contribute to the lower risks seen in some areas.

One limitation of this analysis is the high variability of rates in smaller populations compared to those with larger populations. Consequently, larger differences in rates for small counties or coalitions may not be statistically significant while the same or smaller differences may be statistically significant in larger counties or coalitions. Actual rates that are statistically significantly higher than the expected rates are most likely not a result of random fluctuations and may indicate a public health problem requiring further investigation and intervention; however, higher rates that are not statistically significant may warrant further investigation as well. Smaller counties or coalitions with higher than expected rates for a period of several years may also be cause for concern.

Since adjustments were used to account for the differing demographic composition in each county or coalition, further analysis could focus on other factors not included in this report, such as smoking rates and mother's age at birth. Unique factors in each county or coalition contribute to IM and LBW. Local area analysis of factors associated with these outcomes should be undertaken to better understand the reasons for statistically significantly lower or higher than expected rates with separate analyses performed for each area of concern. Finally, it should be noted that in this analysis, rates for each county or coalition are compared to the statewide



rates, after adjustment for maternal race, marital status, and maternal education. The issue of whether the statewide rates should be used as a baseline in these comparisons is not addressed in this analysis.

**Table 1. Florida Actual Vs. Expected Infant Mortality Rates per 1,000 Live Births by County, 2020**

Mother's Resident County	Births <sup>1</sup>	Expected <sup>2</sup> Infant Deaths	Actual Infant Deaths	Expected IMR Per 1,000 Live Births	Actual IMR Per 1,000 Live Births	Actual Rate <sup>3</sup>
Counties with significantly lower infant mortality rate than expected						
Broward	19,943	126	101	6.31	5.06	L
Collier	3,166	16	5	5.14	1.58	L
Dade	27,663	151	114	5.47	4.12	L
Palm Beach	14,112	87	54	6.17	3.83	L
Counties with significantly higher infant mortality rate than expected						
Alachua	2,551	15	24	5.94	9.41	H
Columbia	746	4	9	5.79	12.06	H
Duval	12,490	82	98	6.54	7.85	H
Hendry	498	3	7	6.01	14.06	H
Hillsborough	16,586	94	119	5.65	7.17	H
Jackson	483	3	8	6.15	16.56	H
Leon	2,936	20	30	6.65	10.22	H
Polk	7,984	46	59	5.72	7.39	H
Seminole	4,436	23	33	5.19	7.44	H
Union	140	1	3	5.27	21.43	H
Counties with non-significantly differences between actual versus expected infant mortality rate						
Baker	358	2	4	5.40	11.17	
Bay	1,896	14	21	7.52	11.08	
Bradford	300	2	3	5.69	10.00	
Brevard	4,918	26	32	5.34	6.51	
Calhoun	126	1	0	5.95	0.00	
Charlotte	1,043	6	3	5.39	2.88	
Citrus	1,055	6	8	5.40	7.58	
Clay	2,107	11	11	5.37	5.22	
Desoto	359	2	3	5.85	8.36	
Dixie	172	1	2	5.18	11.63	
Escambia	3,731	24	30	6.35	8.04	
Flagler	759	4	3	5.75	3.95	
Franklin	101	1	0	5.58	0.00	
Gadsden	491	4	4	8.11	8.15	
Gilchrist	184	1	0	5.01	0.00	
Glades	71	0	0	0.00	0.00	
Gulf	120	1	1	8.33	8.33	
Hamilton	173	1	3	6.96	17.34	
Hardee	348	2	3	5.06	8.62	
Hernando	1,589	10	9	6.17	5.66	

**Table 1. Florida Actual Vs. Expected Infant Mortality Rates per 1,000 Live Births by County, 2020 (Cont.)**

Mother's Resident County	Births <sup>1</sup>	Expected <sup>2</sup> Infant Deaths	Actual Infant Deaths	Expected IMR per 1,000 Live Births	Actual IMR Per 1,000 Live Births	Actual Rate <sup>3</sup>
Highlands	768	4	2	5.65	2.60	
Holmes	182	1	2	5.31	10.99	
Indian River	1,194	6	4	5.35	3.35	
Jefferson	129	1	2	6.75	15.50	
Lafayette	61	0	0	0.00	0.00	
Lake	3,300	18	19	5.39	5.76	
Lee	6,775	36	32	5.37	4.72	
Levy	406	2	2	5.39	4.93	
Liberty	66	0	1	0.00	15.15	
Madison	214	1	1	6.83	4.67	
Manatee	3,393	19	22	5.66	6.48	
Marion	3,422	20	25	5.76	7.31	
Martin	1,247	7	7	5.35	5.61	
Monroe	677	4	2	5.18	2.95	
Nassau	817	4	4	4.72	4.90	
Okaloosa	2,559	13	13	5.10	5.08	
Okeechobee	506	3	0	5.32	0.00	
Orange	15,703	91	82	5.79	5.22	
Osceola	4,482	23	20	5.10	4.46	
Pasco	4,968	26	35	5.18	7.05	
Pinellas	7,461	45	43	6.03	5.76	
Putnam	835	6	10	6.71	11.98	
Saint Johns	2,148	11	11	5.21	5.12	
Saint Lucie	3,025	19	14	6.39	4.63	
Santa Rosa	1,844	9	6	4.61	3.25	
Sarasota	2,650	16	14	5.86	5.28	
Sumter	456	3	4	5.85	8.77	
Suwannee	434	2	4	5.54	9.22	
Taylor	192	1	1	6.09	5.21	
Volusia	4,726	27	19	5.74	4.02	
Wakulla	308	1	3	4.74	9.74	
Walton	809	4	5	4.98	6.18	
Washington	240	1	0	5.70	0.00	
<b>TOTAL</b>	<b>209,632</b>	<b>1,213</b>	<b>1,213</b>	<b>5.79</b>	<b>5.79</b>	

1/ Total birth excluded 13 births with county unknown.

2/ Calculated adjusting for maternal race, marital status and education characteristics of the mother.

3/ L = Significantly lower than expected, H = Significantly higher than expected. The significant level used is 0.05.

**Table 2. Florida Actual Vs. Expected Infant Mortality Rates per 1,000 Live Births by Healthy Start Coalition Area, 2020**

Healthy Start Coalition (HSC) Area	Births <sup>1</sup>	Exp. <sup>2</sup> Infant Deaths	Actual Infant Deaths	Exp. IMR Per 1,000 Live Births	Actual IMR Per 1,000 Live Births	Actual Rate <sup>3</sup>
<b>Multiple Counties HSC Areas</b>						
Bay, Franklin, Gulf Healthy Start Coalition Area	2,117	16	22	7.38	10.39	
Capital Area Healthy Start Coalition	3,244	21	33	6.47	10.17	H
Central Healthy Start Area	6,400	36	40	5.62	6.25	
Chipola Healthy Start Coalition Area	1,097	6	11	5.85	10.03	
Healthy Start Community Coalition Area of Okaloosa and Walton Counties	3,368	17	18	5.07	5.34	
Healthy Start of North Central Florida Area	9,424	55	85	5.85	9.02	H
Healthy Start Coalition Area of Hardee / Highlands / Polk Counties	9,100	52	64	5.69	7.03	
Healthy Start Coalition Area of Jefferson / Madison / Taylor Counties	535	4	4	6.55	7.48	
Healthy Start Coalition Area of Southwest Florida	10,510	56	44	5.34	4.19	L
Northeast Florida Healthy Start Coalition Area	17,920	110	128	6.14	7.14	
The Healthy Start Prenatal & Infant Coalition Area of Flagler and Volusia Counties	5,485	32	22	5.74	4.01	L
<b>Single County HSC<sup>4</sup> Areas</b>						
Broward Healthy Start Coalition Area	19,943	126	101	6.31	5.06	L
Charlotte County Healthy Start Coalition Area	1,043	6	3	5.39	2.88	
Florida Department of Health in Desoto County	359	2	3	5.85	8.36	
Escambia County Healthy Start Coalition Area	3,731	24	30	6.35	8.04	
Florida Keys Healthy Start Coalition Area	677	4	2	5.18	2.95	
Gadsden County Healthy Start Coalition Area	491	4	4	8.11	8.15	
Healthy Start Coalition of Miami-Dade Area	27,663	151	114	5.47	4.12	L
Healthy Start Coalition Area of Sarasota County	2,650	16	14	5.86	5.28	
Healthy Start Coalition Area of Hillsborough County	16,586	94	119	5.65	7.17	H
Healthy Start Coalition Area of Manatee County	3,393	19	22	5.66	6.48	
Healthy Start Coalition Area of Palm Beach County	14,112	87	54	6.17	3.83	L
Healthy Start Coalition Area of Pasco County	4,968	26	35	5.18	7.05	
Healthy Start Coalition Area of Pinellas County	7,461	45	43	6.03	5.76	
Healthy Start Coalition Area of Santa Rosa County	1,844	9	6	4.61	3.25	
Healthy Start Coalition Area of St. Lucie County	3,025	19	14	6.39	4.63	
Indian River County Healthy Start Coalition Area	1,194	6	4	5.35	3.35	
Martin County Healthy Start Coalition Area	1,247	7	7	5.35	5.61	
Okeechobee County Family Health / Healthy Start Coalition Area	506	3	0	5.32	0.00	
Orange County Healthy Start Coalition Area	15,703	91	82	5.79	5.22	
Healthy Start Coalition Area of Brevard County.	4,918	26	32	5.34	6.51	
Florida Department of Health in Seminole County	4,436	23	33	5.19	7.44	H
The Healthy Start Coalition Area of Osceola County	4,482	23	20	5.10	4.46	
<b>TOTAL</b>	<b>209,632</b>	<b>1,213</b>	<b>1,213</b>	<b>5.79</b>	<b>5.79</b>	

1/ Total birth excluded 13 births with county unknown.

2/ The expected number of infant deaths is calculated adjusting for maternal race, marital status and education characteristics of the mother.

3/ The significantly level is 0.05.

4/ For each coalition that is comprised of a county health department, their values are the same as in Table 1.

**Table 3. Florida Actual Vs. Expected Low Birth Weight Percentages by County, 2020**

Mother's Resident County	Births <sup>1</sup>	Expected <sup>2</sup> LBW <sup>3</sup> Births	Actual LBW Births	Expected LBW Percent	Actual LBW Percent	Actual Rate <sup>4</sup>
<b>Counties with significantly lower LBW percentage than expected</b>						
Broward	19,943	1,899	1,823	9.52%	9.14%	L
Collier	3,166	256	222	8.09%	7.01%	L
Dade	27,663	2,353	2,178	8.51%	7.87%	L
Holmes	182	14	7	7.48%	3.85%	L
Monroe	677	56	36	8.10%	5.32%	L
Palm Beach	14,112	1,267	1,167	8.98%	8.27%	L
<b>Counties with significantly higher LBW percentage than expected</b>						
Charlotte	1,043	83	105	7.93%	10.07%	H
Columbia	746	66	81	8.80%	10.86%	H
Escambia	3,731	355	425	9.53%	11.39%	H
Gadsden	491	58	73	11.90%	14.87%	H
Hamilton	173	17	30	9.81%	17.34%	H
Lee	6,775	563	610	8.31%	9.00%	H
Levy	406	34	47	8.39%	11.58%	H
Madison	214	21	30	9.90%	14.02%	H
Polk	7,984	702	753	8.79%	9.43%	H
<b>Counties with non-significantly differences between actual versus expected low birth weight percentage</b>						
Alachua	2,551	240	264	9.42%	10.35%	
Baker	358	30	39	8.24%	10.89%	
Bay	1,896	165	160	8.70%	8.44%	
Bradford	300	26	25	8.51%	8.33%	
Brevard	4,918	408	428	8.29%	8.70%	
Calhoun	126	10	13	7.84%	10.32%	
Citrus	1,055	82	75	7.73%	7.11%	
Clay	2,107	170	175	8.08%	8.31%	
Desoto	359	30	34	8.44%	9.47%	
Dixie	172	14	17	8.17%	9.88%	
Duval	12,490	1,211	1,256	9.70%	10.06%	
Flagler	759	63	66	8.28%	8.70%	
Franklin	101	8	6	8.17%	5.94%	
Gilchrist	184	14	13	7.54%	7.07%	
Glades	71	6	5	8.95%	7.04%	
Gulf	120	10	10	8.01%	8.33%	
Hardee	348	28	31	7.95%	8.91%	

**Table 3. Florida Actual Vs. Expected Low Birth Weight Percentages by County, 2020  
Cont.**

Mother's Resident County	Births <sup>1</sup>	Expected <sup>2</sup> LBW <sup>3</sup> Births	Actual LBW Births	Expected LBW Percent	Actual LBW Percent	Actual Rate <sup>4</sup>
Hendry	498	42	52	8.52%	10.44%	
Hernando	1,589	126	135	7.91%	8.50%	
Highlands	768	66	69	8.65%	8.98%	
Hillsborough	16,586	1,449	1,447	8.74%	8.72%	
Indian River	1,194	99	107	8.33%	8.96%	
Jackson	483	45	54	9.23%	11.18%	
Jefferson	129	14	17	10.57%	13.18%	
Lafayette	61	5	5	7.74%	8.20%	
Lake	3,300	272	262	8.25%	7.94%	
Leon	2,936	304	293	10.34%	9.98%	
Liberty	66	5	4	8.26%	6.06%	
Manatee	3,393	283	276	8.35%	8.13%	
Marion	3,422	300	277	8.77%	8.09%	
Martin	1,247	97	84	7.78%	6.74%	
Nassau	817	60	71	7.38%	8.69%	
Okaloosa	2,559	199	213	7.77%	8.32%	
Okeechobee	506	41	35	8.19%	6.92%	
Orange	15,703	1,386	1,388	8.83%	8.84%	
Osceola	4,482	362	366	8.09%	8.17%	
Pasco	4,968	384	415	7.74%	8.35%	
Pinellas	7,461	636	633	8.52%	8.48%	
Putnam	835	78	92	9.29%	11.02%	
Saint Johns	2,148	156	156	7.25%	7.26%	
Saint Lucie	3,025	278	277	9.19%	9.16%	
Santa Rosa	1,844	133	151	7.24%	8.19%	
Sarasota	2,650	207	189	7.80%	7.13%	
Seminole	4,436	359	371	8.08%	8.36%	
Sumter	456	38	43	8.42%	9.43%	
Suwannee	434	36	40	8.36%	9.22%	
Taylor	192	17	18	8.73%	9.38%	
Union	140	11	13	7.91%	9.29%	
Volusia	4,726	404	378	8.55%	8.00%	
Wakulla	308	24	27	7.90%	8.77%	
Walton	809	60	66	7.43%	8.16%	
Washington	240	20	24	8.53%	10.00%	
<b>TOTAL</b>	<b>209,632</b>	<b>18,255</b>	<b>18,252</b>	<b>8.71%</b>	<b>8.71%</b>	

1/ Total birth excluded 13 births with county unknown.

2/ Calculated adjusting for maternal race, marital status and education characteristics of the mother.

3/LBW = Low birth weight, defined as birth that weight below 2,500 grams.

4/ L = Significantly lower than expected, H = Significantly higher than expected. The significant level used is 0.05.

**Table 4. Florida Actual Vs. Expected Low Birth Weight Percentages by Healthy Start Coalition Area, 2020**

Healthy Start Coalition (HSC) Area	Births <sup>1</sup>	Exp. <sup>2</sup> LBW <sup>3</sup> Births	Actual LBW Births	Exp. LBW Percent	Actual LBW Percent	Actual Rate <sup>4</sup>
<b>Multiple Counties HSC Areas</b>						
Bay, Franklin, Gulf Healthy Start Coalition Area	2,117	183	176	8.63%	8.31%	
Capital Area Healthy Start Coalition	3,244	328	320	10.11%	9.86%	
Central Healthy Start Area	6,400	518	515	8.09%	8.05%	
Chipola Healthy Start Coalition Area	1,097	94	102	8.57%	9.30%	
Healthy Start Community Coalition Area of Okaloosa and Walton Counties	3,368	259	279	7.68%	8.28%	
Healthy Start of North Central Florida Area	9,424	840	904	8.92%	9.59%	H
Healthy Start Coalition Area of Hardee / Highlands / Polk Counties	9,100	796	853	8.75%	9.37%	H
Healthy Start Coalition Area of Jefferson / Madison / Taylor Counties	535	52	65	9.64%	12.15%	H
Healthy Start Coalition Area of Southwest Florida	10,510	868	889	8.26%	8.46%	
Northeast Florida Healthy Start Coalition Area	17,920	1,627	1,697	9.08%	9.47%	H
The Healthy Start Prenatal & Infant Coalition Area of Flagler and Volusia Counties	5,485	467	444	8.51%	8.09%	
<b>Single County HSC<sup>5</sup> Areas</b>						
Broward Healthy Start Coalition Area	19,943	1,899	1,823	9.52%	9.14%	L
Charlotte County Healthy Start Coalition Area	1,043	83	105	7.93%	10.07%	H
Florida Department of Health in Desoto County	359	30	34	8.44%	9.47%	
Escambia County Healthy Start Coalition Area	3,731	355	425	9.53%	11.39%	H
Florida Keys Healthy Start Coalition Area	677	55	36	8.10%	5.32%	L
Gadsden County Healthy Start Coalition Area	491	58	73	11.90%	14.87%	H
Healthy Start Coalition of Miami-Dade Area	27,663	2,353	2,178	8.51%	7.87%	L
Healthy Start Coalition Area of Sarasota County	2,650	207	189	7.80%	7.13%	
Healthy Start Coalition Area of Hillsborough County	16,586	1,449	1,447	8.74%	8.72%	
Healthy Start Coalition Area of Manatee County	3,393	283	276	8.35%	8.13%	
Healthy Start Coalition Area of Palm Beach County	14,112	1,267	1,167	8.98%	8.27%	L
Healthy Start Coalition Area of Pasco County	4,968	384	415	7.74%	8.35%	
Healthy Start Coalition Area of Pinellas County	7,461	636	633	8.52%	8.48%	
Healthy Start Coalition Area of Santa Rosa County	1,844	133	151	7.24%	8.19%	
Healthy Start Coalition Area of St. Lucie County	3,025	278	277	9.19%	9.16%	
Indian River County Healthy Start Coalition Area	1,194	99	107	8.33%	8.96%	
Martin County Healthy Start Coalition Area	1,247	97	84	7.78%	6.74%	
Okeechobee County Family Health / Healthy Start Coalition Area	506	41	35	8.19%	6.92%	
Orange County Healthy Start Coalition Area	15,703	1,386	1,388	8.83%	8.84%	
Healthy Start Coalition Area of Brevard County.	4,918	408	428	8.29%	8.70%	
Florida Department of Health in Seminole County	4,436	359	371	8.08%	8.36%	
The Healthy Start Coalition Area of Osceola County	4,482	362	366	8.09%	8.17%	
<b>TOTAL</b>	<b>209,632</b>	<b>18,252</b>	<b>18,252</b>	<b>8.71%</b>	<b>8.71%</b>	

1/ Total birth excluded 13 births with county unknown.

2/ Calculated adjusting for maternal race, marital status and education characteristics of the mother.

3/ LBW = Low birth weight, defined as birth that weight below 2,500 grams.

4/ L = Significantly lower than expected, H = Significantly higher than expected. The significant level used is 0.05.

5/ For each coalition that is comprised of a county health department, their values are the same as in Table 2.

**Table 5. Florida Actual Vs. Expected Infant Mortality Statistical Significance<sup>1</sup> Summary by County, 2016–2020**

Mother's Resident County	2016	2017	2018	2019	2020	Total L	Total H
Alachua			H	H	H		3
Baker							
Bay			H				1
Bradford		H					1
Brevard							
Broward	L	L	L	L	L	5	
Calhoun							
Charlotte							
Citrus			H				1
Clay							
Collier					L	1	
Columbia				H	H		2
Dade	L	L	L	L	L	5	
Desoto							
Dixie							
Duval	H	H	H		H		4
Escambia							
Flagler							
Franklin							
Gadsden							
Gilchrist							
Glades							
Gulf			H				1
Hamilton							
Hardee							
Hendry					H		1
Hernando		H					1
Highlands			H				1
Hillsborough	H				H		2
Holmes							
Indian River			L			1	
Jackson				H	H		2
Jefferson							
Lafayette	H						1
Lake				H			1
Lee							
Leon					H		1



**Table 5. Florida Actual Vs. Expected Infant Mortality Statistical Significance<sup>1</sup> Summary by County, 2016–2020. Cont.**

Mother's Resident County	2016	2017	2018	2019	2020	Total L	Total H
Levy		H					1
Liberty							
Madison							
Manatee			L			1	
Marion	H	H	H				3
Martin							
Monroe							
Nassau		H					1
Okaloosa			H				1
Okeechobee							
Orange		H					1
Osceola							
Palm Beach	L	L	L	L	L	5	
Pasco							
Pinellas							
Polk			H		H		2
Putnam		H					1
Saint Johns							
Saint Lucie			L			1	
Santa Rosa			H	H			2
Sarasota							
Seminole					H		1
Sumter				H			1
Suwannee							
Taylor							
Union					H		1
Volusia							
Wakulla			H				1
Walton							
Washington				H			1

1/ The significance level used is .05. "L" indicates the actual infant death rate was statistically significantly lower than the expected for the county. "H" indicates that the actual infant death rate was statistically significantly higher than expected after adjusting of maternal race, marital status and maternal education in each county.

**Table 6. Florida Actual Vs. Expected Infant Mortality Statistical Significance<sup>1</sup> Summary by Healthy Start Coalition Area, 2016–2020**

Healthy Start Coalition (HSC) Area	2016	2017	2018	2019	2020	Total L	Total H
<b>Multiple Counties HSC Areas</b>							
Bay, Franklin, Gulf Healthy Start Coalition Area			H				1
Capital Area Healthy Start Coalition					H		1
Central Healthy Start Area		H		H			2
Chipola Healthy Start Coalition Area				H			1
Healthy Start Community Coalition Area of Okaloosa and Walton Counties							
Healthy Start of North Central Florida Area	H	H	H	H	H		5
Healthy Start Coalition Area of Hardee / Highlands / Polk Counties		H	H		H		3
Healthy Start Coalition Area of Jefferson / Madison / Taylor Counties					H		1
Healthy Start Coalition Area of Southwest Florida					L	1	
Northeast Florida Healthy Start Coalition Area		H	H		H		3
The Healthy Start Prenatal & Infant Coalition Area of Flagler and Volusia Counties					L	1	
<b>Single County HSC<sup>2</sup> Areas</b>							
Broward Healthy Start Coalition Area	L	L	L	L	L	5	
Charlotte County Healthy Start Coalition Area							
Florida Department of Health in Desoto County							
Escambia County Healthy Start Coalition Area							
Florida Keys Healthy Start Coalition Area							
Gadsden County Healthy Start Coalition Area							
Healthy Start Coalition of Miami-Dade Area	L	L	L	L	L	5	
Healthy Start Coalition Area of Sarasota County							
Healthy Start Coalition Area of Hillsborough County	H				H		2
Healthy Start Coalition Area of Manatee County			L			1	
Healthy Start Coalition Area of Palm Beach County	L	L	L	L	L	5	
Healthy Start Coalition Area of Pasco County							
Healthy Start Coalition Area of Pinellas County							
Healthy Start Coalition Area of Santa Rosa County			H	H			2
Healthy Start Coalition Area of St. Lucie County			L			1	
Indian River County Healthy Start Coalition Area			L			1	
Martin County Healthy Start Coalition Area							
Okeechobee County Family Health / Healthy Start Coalition Area							
Orange County Healthy Start Coalition Area		H					1
Healthy Start Coalition Area of Brevard County.							
Florida Department of Health in Seminole County					H		1
The Healthy Start Coalition Area of Osceola County							

1/ The significant level used was .05. "L" indicates the actual infant death rate was statistically significantly lower than the expected for the county. "H" indicates that the actual infant mortality rate was significantly higher than expected after adjusting for maternal race, marital status, and maternal education in each county. 2/For each coalition comprised of a single county, their values are the same as in table 5.

**Table 7. Florida Actual Vs. Expected Low Birth Weight Statistical Significance<sup>1</sup> Summary by County, 2016–2020**

Mother's Resident County	2016	2017	2018	2019	2020	Total L	Total H
Alachua	H	H	H	H			4
Baker			H				1
Bay							
Bradford				H			1
Brevard							
Broward					L	1	
Calhoun							
Charlotte					H		1
Citrus							
Clay							
Collier	L			L	L	3	
Columbia	H			H	H		3
Dade					L	1	
Desoto		L				1	
Dixie	H			H			2
Duval	H						1
Escambia	H		H	H	H		4
Flagler							
Franklin							
Gadsden					H		1
Gilchrist							
Glades							
Gulf							
Hamilton					H		1
Hardee							
Hendry							
Hernando	H			H			2
Highlands			H				1
Hillsborough		H					1
Holmes		H			L	1	1
Indian River							
Jackson							
Jefferson							
Lafayette							
Lake							
Leon				H			1

**Table 7. Florida Actual Vs. Expected Low Birth Weight Statistical Significance<sup>1</sup> Summary by County, 2016–2020. Cont.**

Mother's Resident County	2016	2017	2018	2019	2020	Total L	Total H
Levy					H		1
Liberty							
Madison					H		1
Manatee	L		L			2	
Marion							
Martin				L		1	
Monroe	L	L			L	3	
Nassau		H					1
Okaloosa							
Okeechobee			L			1	
Orange							
Osceola							
Palm Beach	L	L	L		L	4	
Pasco							
Pinellas			L	L		2	
Polk	L				H	1	1
Putnam		H		H			2
Saint Johns	L			L		2	
Saint Lucie				L		1	
Santa Rosa				H			1
Sarasota		L				1	
Seminole			L	L		2	
Sumter							
Suwannee		H					1
Taylor				H			1
Union		H					1
Volusia		H					1
Wakulla	L					1	
Walton				H			1
Washington				H			1

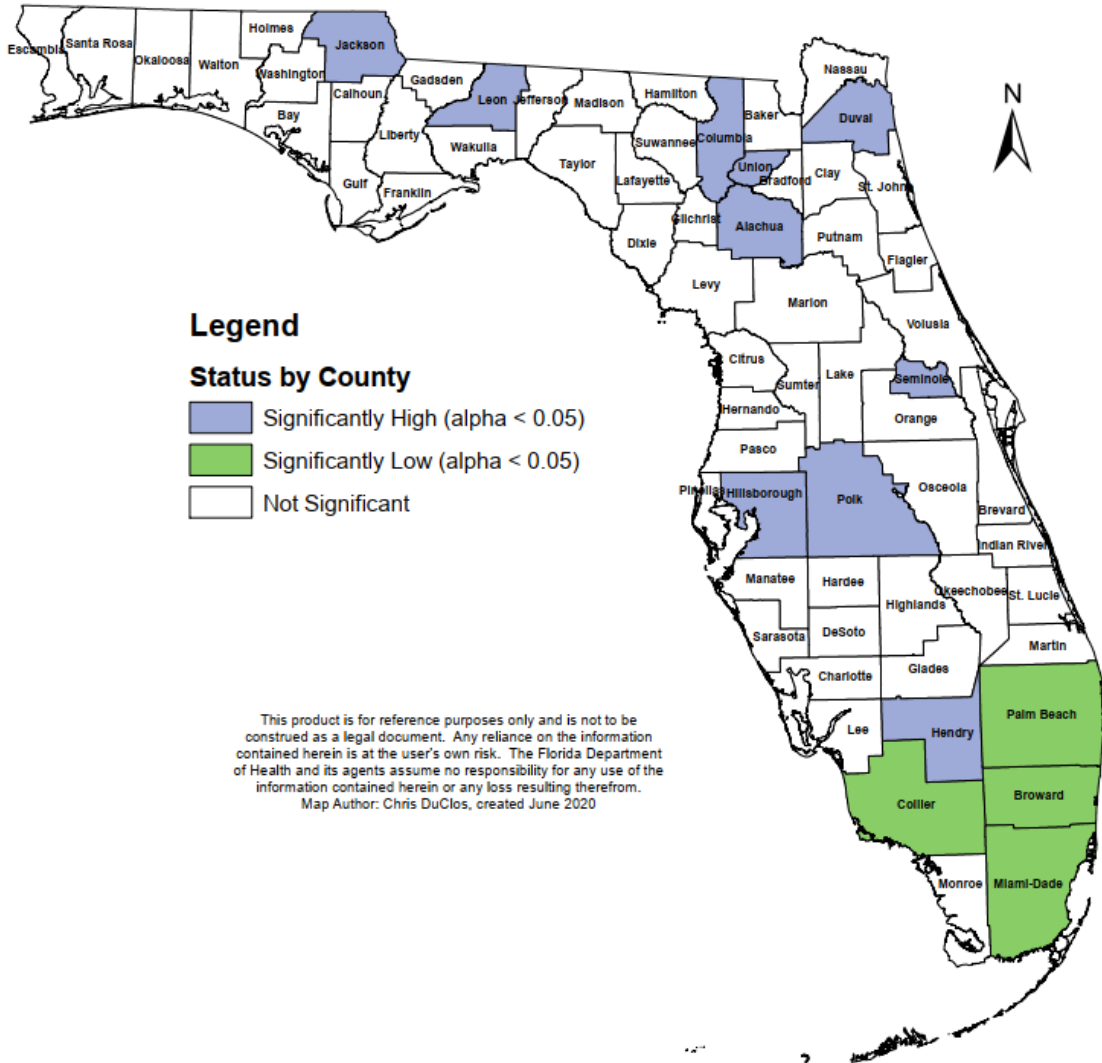
1/ The significance level used is .05. "L" Indicates the actual low birth weight rate was statistically significantly lower than the expected for the county. "H" indicates that the actual low birth weight rate was statistically significantly higher than expected after adjusting of maternal race, marital status and maternal education in each county.

**Table 8. LBW (<2,500 Grams) Percentage Actual Vs. Expected Statistical Significance<sup>1</sup> Summary by Healthy Start Coalition Area, 2016–2020**

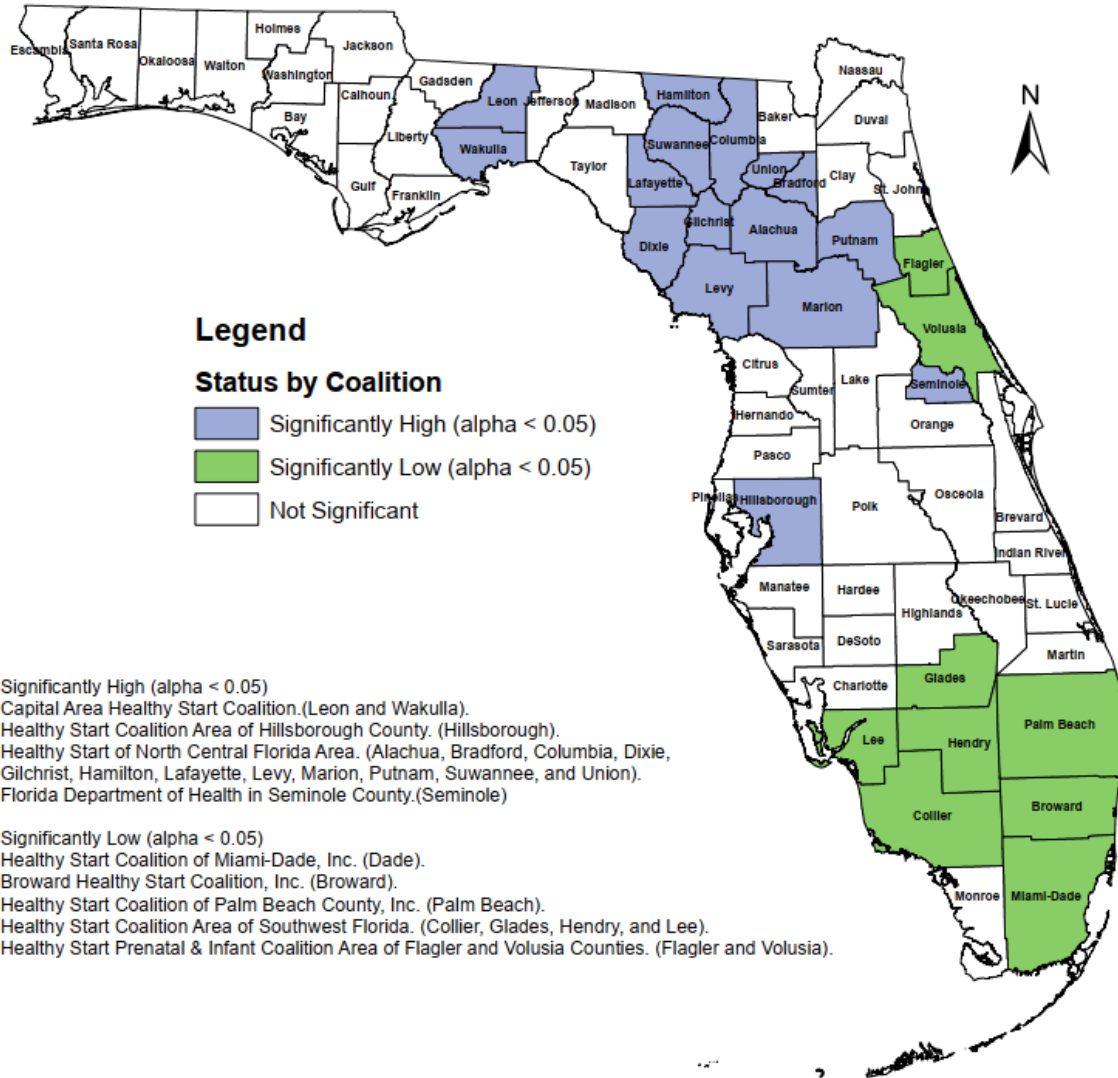
Healthy Start Coalition (HSC) Area	2016	2017	2018	2019	2020	Total L	Total H
<b>Multiple Counties HSC Areas</b>							
Bay, Franklin, Gulf Healthy Start Coalition Area							
Capital Area Healthy Start Coalition	L			H		1	1
Central Healthy Start Area	H						1
Chipola Healthy Start Coalition Area							
Healthy Start Community Coalition Area of Okaloosa and Walton Counties				H			1
Healthy Start of North Central Florida Area	H	H	H	H	H		5
Healthy Start Coalition Area of Hardee / Highlands / Polk Counties	L				H	1	1
Healthy Start Coalition Area of Jefferson / Madison / Taylor Counties				H	H		2
Healthy Start Coalition Area of Southwest Florida		L	L			2	
Northeast Florida Healthy Start Coalition Area			H		H		2
The Healthy Start Prenatal & Infant Coalition Area of Flagler and Volusia Counties		H					1
<b>Single County HSC<sup>2</sup> Areas</b>							
Broward Healthy Start Coalition Area					L	1	
Charlotte County Healthy Start Coalition Area					H		
Florida Department of Health in Desoto County		L				1	
Escambia County Healthy Start Coalition Area	H	H		H	H		4
Florida Keys Healthy Start Coalition Area	L	L			L	3	
Gadsden County Healthy Start Coalition Area					H		1
Healthy Start Coalition of Miami-Dade Area		L			L	2	
Healthy Start Coalition Area of Sarasota County		L				1	
Healthy Start Coalition Area of Hillsborough County		H					1
Healthy Start Coalition Area of Manatee County	L		L			2	
Healthy Start Coalition Area of Palm Beach County	L	L	L		L	4	
Healthy Start Coalition Area of Pasco County							
Healthy Start Coalition Area of Pinellas County			L	L		2	
Healthy Start Coalition Area of Santa Rosa County				H			1
Healthy Start Coalition Area of St. Lucie County				L		1	
Indian River County Healthy Start Coalition Area							
Martin County Healthy Start Coalition Area				L		1	
Okeechobee County Family Health / Healthy Start Coalition Area			L			1	
Orange County Healthy Start Coalition Area							
Healthy Start Coalition Area of Brevard County.							
Florida Department of Health in Seminole County			L	L		2	
The Healthy Start Coalition Area of Osceola County							

1/ The significance level used is .05. "L" indicates the actual low birth weight rate was statistically significantly lower than the expected for the county. "H" indicates that the actual low birth weight rate was statistically significantly higher than expected after adjusting of maternal race, marital status and maternal education in each county. 2/For each coalition comprised of a single county, their values are the same as in table 7.

**Map 1. Actual vs. Expected Infant Mortality Rates per 1,000 Live Births by County, Florida 2020**

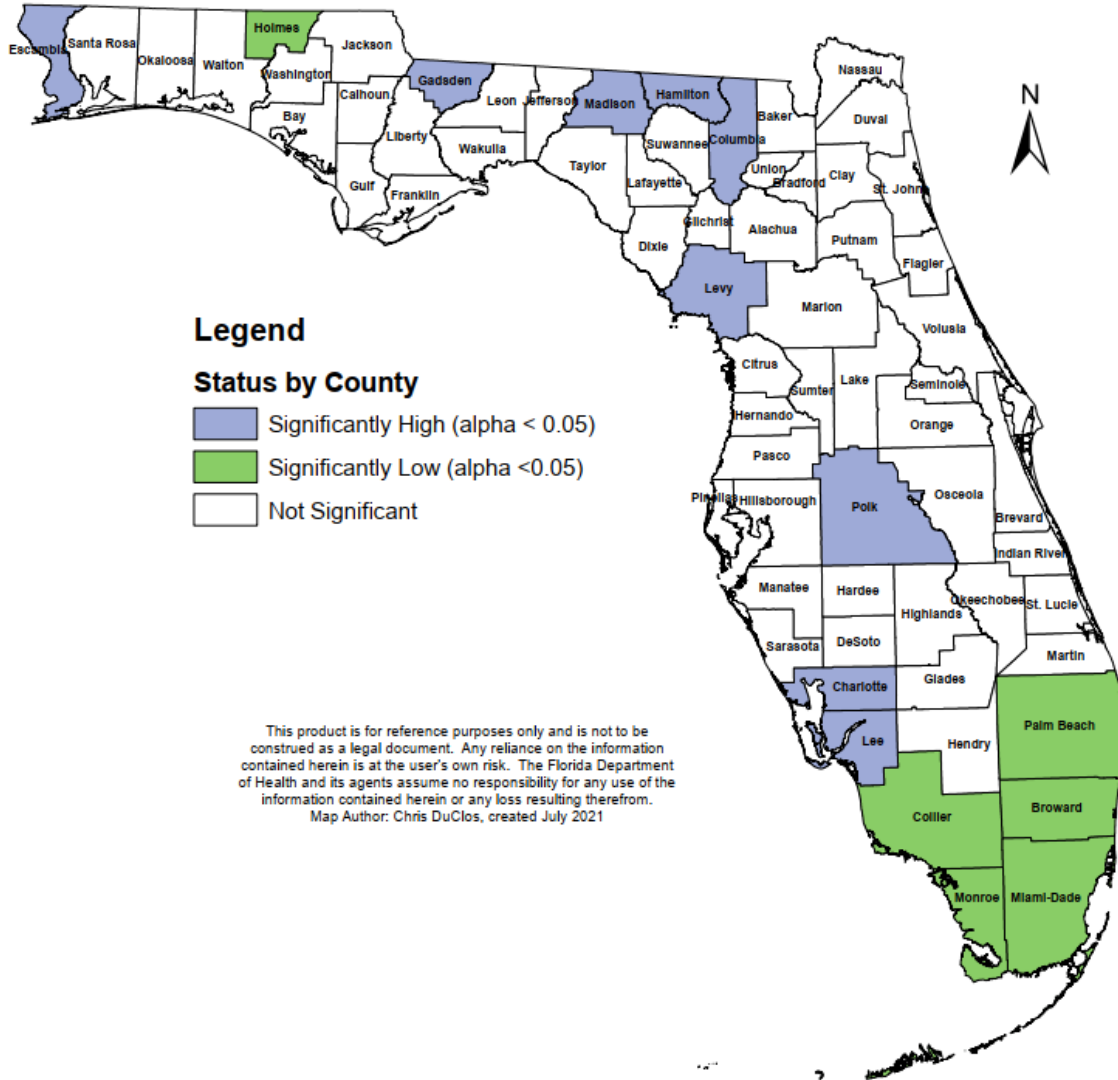


**Map 2. Actual vs. Expected Infant Mortality Rates per 1,000 Live Births by Healthy Start Coalition, Florida 2020**



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 Map Author: Chris DuClos, created July 2021

**Map 3. Actual vs. Expected Low Birth Weight Percentages by County, Florida 2020**





**Map 4. Actual vs. Expected Low Birth Weight Percentages by Healthy Start Coalition Area, Florida 2020**

