

Health Concern

Poor Birth Outcomes

Birth outcomes describe health at birth and entail both maternal exposure to health risk and a child's current and future morbidity, whether a child has a healthy start in life. Children born preterm and low birth weight are at risk for developmental problems, neurological impairments, higher risk of heart problems and respiratory problems later in life as well as educational and social impairments [1-5]

Poor birth outcomes are a significant problem for Guilford County, with rates of infant mortality and low birth weight considerably higher than national benchmarks and objectives. Preconception health and healthy lifestyle during pregnancy are important factors influencing birth outcomes. Major disparities exist for birth outcomes. African-Americans experience preterm birth, low and very low birth weight and infant mortality at substantially higher rates than whites. Low birth weight and preterm births as well as teen pregnancies occur at higher rates in areas of the county characterized by higher rates of poverty and unemployment, and low educational attainment.

Data Highlights

- Overall infant mortality rates in the county declined between 2009 and 2012.
- Though “only” 45 babies died before their first birthday in 2011, looking at these data in terms of Years of Potential Life Lost reveals that Infant Mortality is the third leading cause of premature mortality.
- Significant racial disparities in birth outcomes persist, but African-American infant mortality rates improved from 18.6 per 1,000 live births in 2009 to a rate of 10.7 in 2012.
- Based on the new 2010 birth certificate measure of entry into prenatal care, 23.7% of pregnant women entered into prenatal care after the first trimester in 2012.
- The five-year (2007 to 2011) average percentage of low and very low birth weight in Guilford County is higher than in the state as a whole.
- Percentages of low and very low birth weight for 2007 to 2011 were about twice as high for African American births as for White births, but Hispanic rates were similar to Whites.
- Preterm births and low birth weight births tend to be concentrated in SE and East Greensboro and Central High Point, areas with lower average incomes and higher proportions of minority residents.
- Minority births as a percentage of all births increased to 58.6% in 2012 from 56.4% in 2011.

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**Infant Deaths and Rates per 1,000 Live Births
Guilford County, by Race/Ethnicity, 2000-2012**

Number of Infant Deaths											
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Guilford County All Races	55	46	60	57	65	60	63	64	57	45	49
White	18	15	16	20	31	21	26	17	25	10	16
African American								45	31	30	26
Hispanic									9	5	5
Infant Mortality Rate per 1,000 Live Births											
Guilford County All Races	9.4	7.8	10.2	9.5	10.6	9.5	9.9	10.4	9.5	7.4	7.9
White	5.1	4.2	4.6	5.8	8.8	5.9	7.4	5.1	6.4	3.9	6.5
African American								18.6	13.2	12.7	10.7
Hispanic									11.8	6.7	6.4
Number of Live Births											
Guilford County All Races	5,831	5,885	5,861	6,000	6,119	6,296	6,381	6,150	6,003	6,049	6,164
White	3,505	3,540	3,445	3,462	3,513	3,548	3,563	3,349	3,013	2,549	2,460
African American								2,418	2,341	2,367	2,429
Hispanic									759	741	790

Source: NC Live Birth File: NC Center for Health Statistics.

NC Resident 2007-2011 Infant (<1 Year) Death Rates per 1,000 Live Births, by County

	Total Infant Deaths	Total Infant Death Rate	White Infant Death Rate	African American Infant Death Rate	Hispanic Infant Death Rate	Non-Hispanic Minority Infant Death rate
North Carolina	4,899	7.9	5.7	14.3	5.8	6.2
Alamance	66	7.0	6.4	10.6	4.1	17.8
Davidson	73	7.9	6.9	15.6	7.2	9.3
Forsyth	248	10.2	6.8	20.2	5.9	3.2
Guilford	289	9.4	5.6	14.6	8.1	4.6
Randolph	61	7.0	7.4	12.4	5.0	0
Rockingham	47	9.3	7.3	19.8	3.5	16.9

Source: County Health Data Book, 2013, NC State Center for Health Statistics.

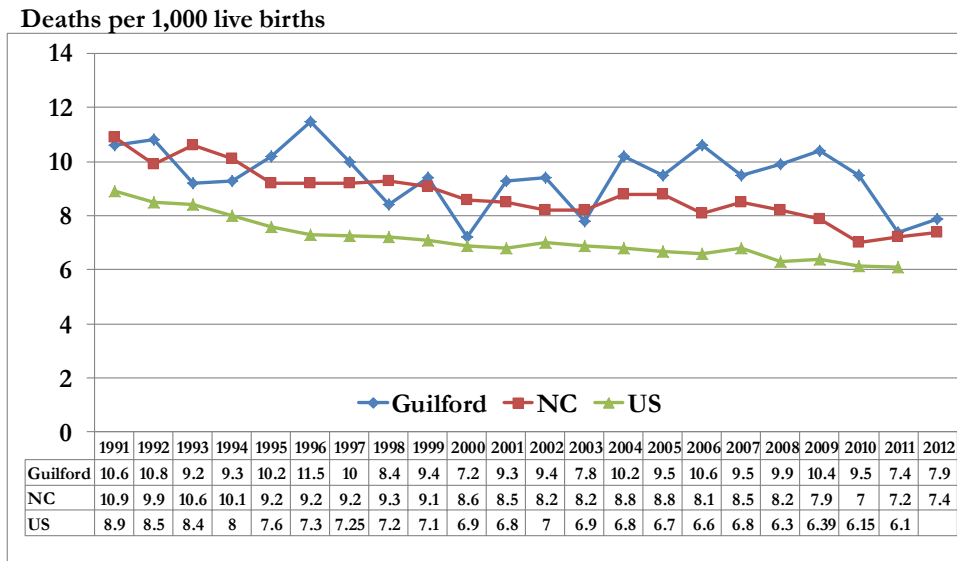
NC Resident 2008-2012 Infant (<1 Year) Death Rates per 1,000 Live Births, by County

	Total Infant Deaths	Total Infant Death Rate	White Infant Death Rate	African American Infant Death Rate	Hispanic Infant Death Rate	Non-Hispanic Minority Infant Death rate
Cumberland	253	8.6	6.6	13.7	5.2	2.7
Durham	150	6.9	3.9	12.8	4.1	2.1
Forsyth	238	10.0	7.0	19.1	5.5	4.9
Guilford	278	9.0	5.5	13.6	8.9	4.4
Mecklenburg	418	5.9	2.9	11.0	4.5	4.9
Wake	427	6.7	4.6	14.3	4.8	3.3
North Carolina	4,675	7.5	5.6	14.0	5.3	5.9

Source: County Health Data Book, NC State Center for Health Statistics.

- In Guilford County the African-American infant mortality rate declined by 42% between 2009 and 2012.
- Among peer counties, only Forsyth had a higher five-year infant mortality rate than did Guilford from 2008-2012. Guilford's rate was 52% higher than that of Mecklenburg County and 34% higher than Wake County.
- Guilford's white infant mortality rate of 5.5 was about the same as the state rate but was 90% higher than the Mecklenburg rate.
- Guilford County's five-year African-American infant mortality rate was lower than the state rate.
- Guilford's five-year 2008-2012 infant mortality rate of 9.0 is a 5.3% improvement over the 2003-2007 baseline rate of 9.5.

Infant Mortality Rate Guilford County, NC and US, 1991-2012



Source: Data provided by the NC Center for Health Statistics.
Chart prepared by the Guilford County Department of Public Health.

- Infant mortality rates in North Carolina are at historically low levels, as they are nationwide, but major racial disparities persist.
- Among area counties, five-year infant mortality rates are highest in Forsyth, Guilford and Rockingham counties.

HEALTHY NORTH CAROLINA 2020 MATERNAL AND INFANT HEALTH

Objective: Reduce the infant mortality rate (per 1,000 live births)

Rationale for selection: Over 1,000 babies (under age 1) died in 2009 in North Carolina. The most prevalent causes of infant mortality are birth defects, prematurity, low birth weight, and Sudden Infant Death Syndrome (SIDS).

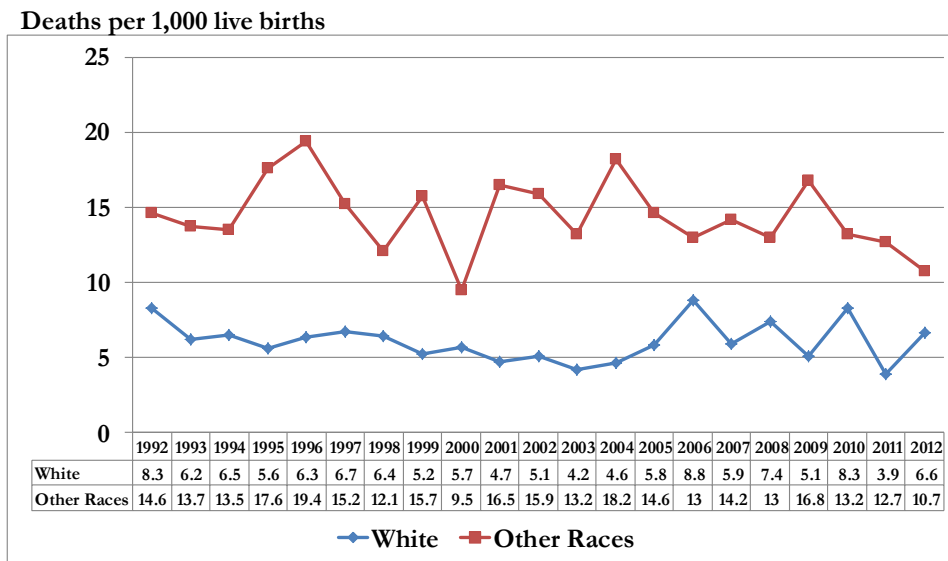
NC BASELINE (2009): 8.2

2020 TARGET: 6.3

GUILFORD (NC-SCHS 2007-2011): 9.4

<http://publichealth.nc.gov/hnc2020/docs/HNC2020-FINAL-March-revised.pdf>

Infant Mortality Rates, by Race, 1992-2012



Source: Data provided by the NC Center for Health Statistics.
 Chart prepared by the Guilford County Department of Public Health.

- African American rates are highest in Forsyth and Rockingham counties.
- Hispanic rates tend to be comparable to that of whites.

HEALTHY NORTH CAROLINA 2020 MATERNAL AND INFANT HEALTH

Objective: Reduce the infant mortality racial disparity between whites African-Americans.

Rationale for selection: Racial and ethnic disparities in infant mortality in North Carolina persist. The death rate of African-American babies is nearly 2.5 times the death rate of white babies. Of all infant mortality racial/ethnic disparities in the state, this is the greatest.

NC BASELINE (2009): 2.45

2020 TARGET: 1.92

GUILFORD (NC-SCHS 2007-2011): 2.61

<http://publichealth.nc.gov/hnc2020/docs/HNC2020-FINAL-March-revised.pdf>

Trimester Prenatal Care Begun, Guilford County, 2001-2012

Number of Births by Trimester of Care Begun											
Care Began	2002	2003	2004	2005	2006	2007	2008	2009	2010*	2011**	2012**
1st Trimester	5,005	4,988	4,943	5,114	5,070	5,146	5,277	5,214	N/A	4,466	4,468
2nd Trimester	638	695	725	712	843	939	835	733	N/A	1,134	1,149
3rd Trimester	107	127	116	94	132	135	131	109	N/A	244	248
None	50	63	60	59	63	57	57	64	N/A	83	66
Unknown	0	12	17	21	11	19	81	30	N/A	122	233
Total Number	5,800	5,885	5,861	6,000	6,119	6,296	6,381	6,150	N/A	6,049	6,164
Percent of Births by Trimester of Care Begun											
1st Trimester	86.3	84.8	84.3	85.2	82.9	81.7	82.7	84.8	N/A	73.8	72.5
2nd Trimester	11	11.8	12.4	11.9	13.8	14.9	13.1	11.9	N/A	18.7	18.6
3rd Trimester	1.8	2.2	1.9	1.6	2.2	2.1	2.1	1.8	N/A	4.0	4.0
None	0.8	1.1	1.0	1.0	1.0	0.9	0.9	1.0	N/A	1.4%	1.1
Unknown	0.0	0.2	0.3	0.4	0.2	0.3	1.3	.5	N/A	2.0%	3.8
Late (after 1st Trimester) or No Prenatal Care											
Number	897	918	918	865	1,038	1,131	1,104	906	N/A	1,461	1,696
Percent	15.2	15.7	15.7	14.4	17.0	18.0	17.3	14.7	N/A	24.1	23.7

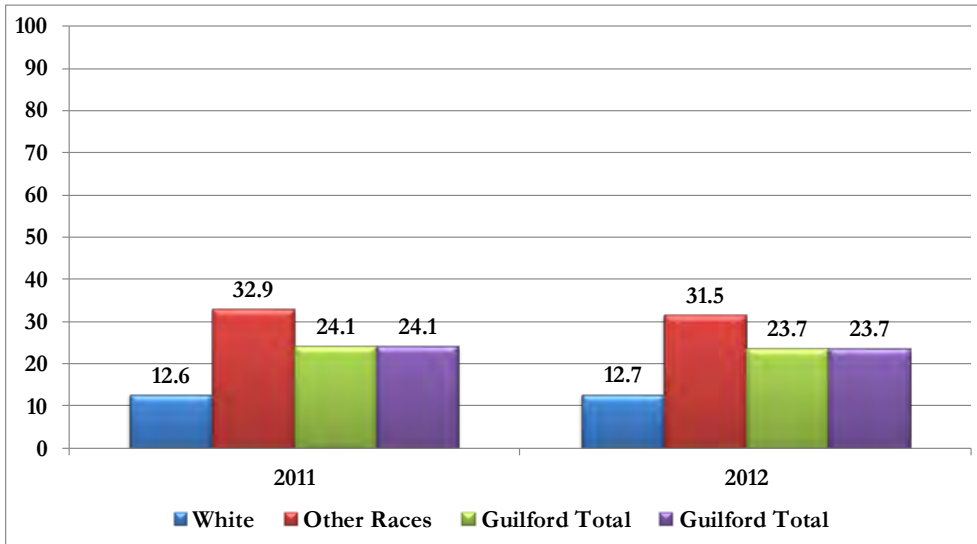
Source: NC Center for Health Statistics; North Carolina Birth Certificate File.

*In 2010 the question asking month of entry into prenatal care was removed from the birth certificate, so data are not available (indicated by N/A).

**A new measure of entry into prenatal care was added in 2011 based on date of first prenatal care visit and date of last menses. This measure is thought to be more accurate than the previous measure, but is not comparable.

Pregnant Women Receiving Prenatal Care after First Trimester or No Prenatal Care, by Race, 2011-2012

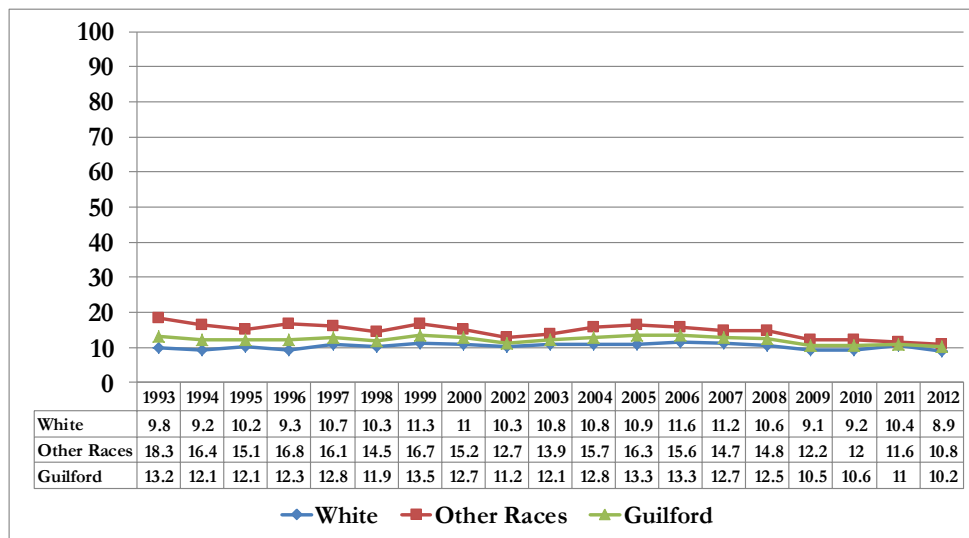
Percent



Source: Data provided by the NC Center for Health Statistics.
Chart prepared by the Guilford County Department of Public Health.

Percent of Births Preterm (Less than 37 Weeks Gestation) By Race, Guilford County, 1993-2012

Percent



Source: Data provided by the NC Center for Health Statistics.
Chart prepared by the Guilford County Department of Public Health.

**Completed Weeks of Gestation, All Births
Guilford County, 2002-2012**

Number of Births by Completed Weeks of Gestation											
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
25 Weeks or Less	33	39	37	38	55	48	37	52	49	44	40
26-30 Weeks	68	57	77	74	65	81	60	78	56	80	59
31-36 Weeks	551	614	639	688	694	671	697	519	530	545	517
37 Weeks or More	5,159	5,172	5,108	5,194	5,302	5,494	5,581	5,501	5,365	5,380	5,537
Total Number	5,811	5,885	5,861	6,000	6,119	6,296	6,381	6,150	6,003	6,049	6,164
Percent of Births by Completed Weeks of Gestation											
25 Weeks or Less	0.6	0.7	0.6	0.6	0.9	0.8	0.6	0.8	0.8	0.7	0.6
26-30 Weeks	1.2	1.0	1.3	1.2	1.1	1.2	0.9	1.3	0.9	1.3	1.0
31-36 Weeks	9.5	10.4	10.9	11.5	11.3	10.7	10.9	8.4	8.8	9.0	8.4
37 Weeks or More	88.8	88.0	87.2	86.6	86.7	87.3	87.5	89.4	89.4	8.9	89.8
Premature Births - Less than 37 Weeks Gestation											
Number	652	710	753	800	814	802	794	649	635	669	627
Percent	11.2	12.1	12.8	13.3	13.3	12.7	12.5	10.5	10.6	11.0	10.2

Source: NC Center for Health Statistics; North Carolina Birth Certificate File.

- Premature births are a leading factor in low birth weight births and infant mortality.
- The problem of preterm births is greatest among African Americans, but the disparity has been reduced in recent years.
- Infant mortality rates have tended to be higher in Guilford County than in the state as a whole, but in 2011 almost reached state levels.

Birth Weights in Guilford County, 2002-2012

Number of Births by Birth Weight Category											
Birth Weights	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1500 grams and under	101	101	135	121	123	144	122	146	111	143	107
1501-2500 grams	422	461	392	441	450	476	473	446	453	451	466
2501+ grams	5,288	5,318	5,334	5,435	5,546	5,676	5,786	5,558	5,439	5,455	5,588
Total Births	5,811	5,885	5,861	6,000	6,119	6,296	6,381	6,150	6,003	6,049	6,164
Percent of Births by Birth Weight Category											
1500 grams and under	2.0	1.7	2.3	2.0	2.0	2.3	1.9	2.4	1.8	2.4	1.7
1501-2500 grams	7	7.3	6.7	7.4	7.4	7.6	7.4	7.3	7.5	7.5	7.6
2501+ grams	91	91	91.0	90.6	90.6	90.2	90.7	90.4	90.6	90.2	90.7
Low Birth Weight Births – Under 2,500 Grams											
Number	559	523	527	562	573	620	595	592	564	594	573
Percent	9	9.0	9.0	9.4	9.4	9.8	9.3	9.7	9.4	9.8	9.7

Source: NC Center for Health Statistics; North Carolina Birth Certificate File.

Note: Birth weights under 2,500 grams (five pounds eight ounces) are classified as low birth weight; Birth weights under 1,500 grams (three pounds five ounces) are classified as very low birth weight.

Number and Percent of Low (Less Than or Equal to 2,500 grams) and Very Low (Less Than or Equal to 1,500 grams) Weight Births by Race and Ethnicity, Guilford County and North Carolina, 2007-2011

	Birth Weight	Total		White		Black		Hispanic	
		Births	Percent	Births	Percent	Births	Percent	Births	Percent
North Carolina	Low	57,000	9.1	26,816	7.6	21,411	14.3	6,506	6.5
	Very Low	11,257	1.8	4,621	1.3	4,991	3.3	1,192	1.2
Guilford County	Low	2,964	9.6	957	7.5	1,518	12.8	290	6.9
	Very Low	666	2.2	183	1.4	382	3.2	77	1.8

Source: NC Center for Health Statistics, County Health Databook.

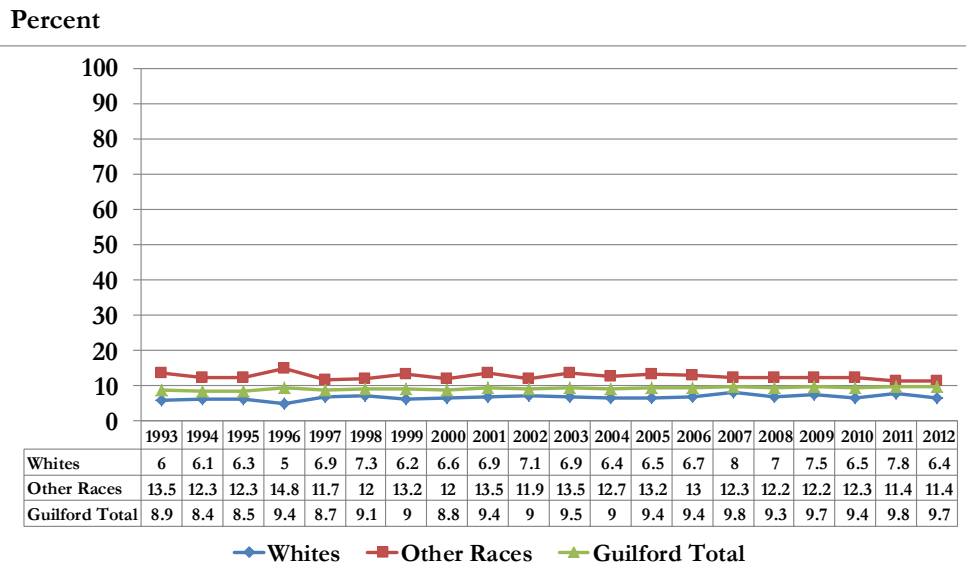
**Number and Percent of Low (Less Than or Equal to 2,500 grams) and
Very Low (Less Than or Equal to 1,500 grams) Weight Births
by Race and Ethnicity, Guilford County and North Carolina, 2008-2012**

	Birth Weight	Total		White		Black		Hispanic	
		Births	Percent	Births	Percent	Births	Percent	Births	Percent
Cumberland	Low	2,834	9.7	1,050	7.4	1,399	14.0	275	7.5
	Very Low	593	2.0	214	1.5	309	3.1	58	1.6
Durham	Low	2,062	9.4	580	7.2	1,066	14.3	314	6.4
	Very Low	405	1.9	93	1.2	243	3.3	51	1.0
Forsyth	Low	2,475	10.4	909	8.4	1,083	16.1	419	7.4
	Very Low	530	2.2	157	1.4	273	4.1	93	1.6
Guilford	Low	2,917	9.5	905	7.1	1,539	12.8	272	6.7
	Very Low	629	2.0	166	1.3	370	3.1	69	1.7
Mecklenburg	Low	6,722	9.5	2,028	6.8	3,189	14.3	974	7.0
	Very Low	1,233	1.7	310	1.0	691	3.1	162	1.2
Wake	Low	5,154	8.1	2,265	6.7	1,083	12.7	682	6.3
	Very Low	1,041	1.6	409	1.2	463	3.3	118	1.1
North Carolina	Low	56,086	9.0	26,156	7.6	20,791	14.1	6,279	6.5
	Very Low	10,920	1.8	4,525	1.3	4,832	3.3	1,117	1.2

Source: NC Center for Health Statistics, County Health Databook.

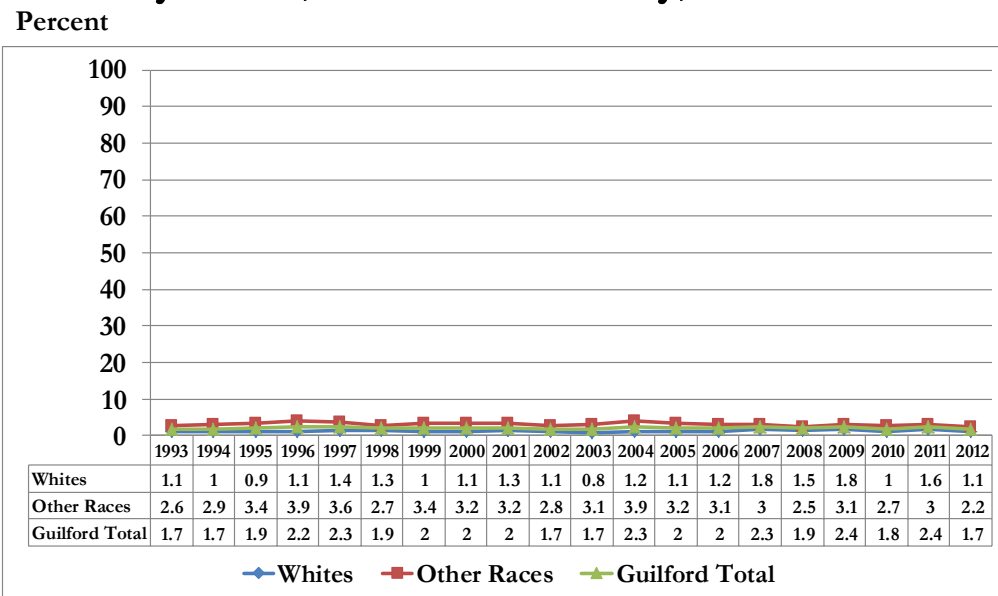
- The percentage of low and very low birthweight births in Guilford County is consistently higher than the state as a whole and did not improve appreciably between 2002 and 2012.
- The low birthweight rate in Guilford County was 17% higher than that of peer county Wake over the five year period, 2008-2012.
- Guilford County's five-year African-American low birthweight rate was lower than the state as a whole and was 20% lower than the Forsyth County rate over the 2008-2012 period.

Percent of Births Low Birthweight* by Race Guilford County, 1993-2012



Note: *2,500 grams (about 5½ pounds) and under
 Source: Data provided by the NC Center for Health Statistics;
 Chart prepared by the Guilford County Department of Public Health

Percent of Births Very Low Birth Weight* by Race, Guilford County, 1992-2012



Note: *1500 grams (about 3½ pounds) and under.
 Source: Data provided by the NC Center for Health Statistics.
 Chart prepared by the Guilford County Department of Public Health.

**Regional Variation in Low and Very Low Birthweight Births
NC Resident 2007-2011 Percent of Low Weight (Less than 2500 grams) Births
by Race and Ethnicity, by County**

Residence	Total	White, non-Hispanic	African American, non-Hispanic	Other, non-Hispanic	Hispanic
North Carolina	9.1	7.7	14.3	9.4	6.5
Alamance	9.4	8.3	14.9	14.2	6.8
Davidson	9.6	9.4	15.5	9.3	6.8
Forsyth	10.4	8.4	16.6	9.9	7.2
Guilford	9.6	7.5	12.8	10.1	6.9
Randolph	8.5	8.7	12.8	11.4	6.2
Rockingham	9.5	8.7	14.3	8.5	6.5

Source: NC County Health Data Book, 2013; NC State Center for Health Statistics.

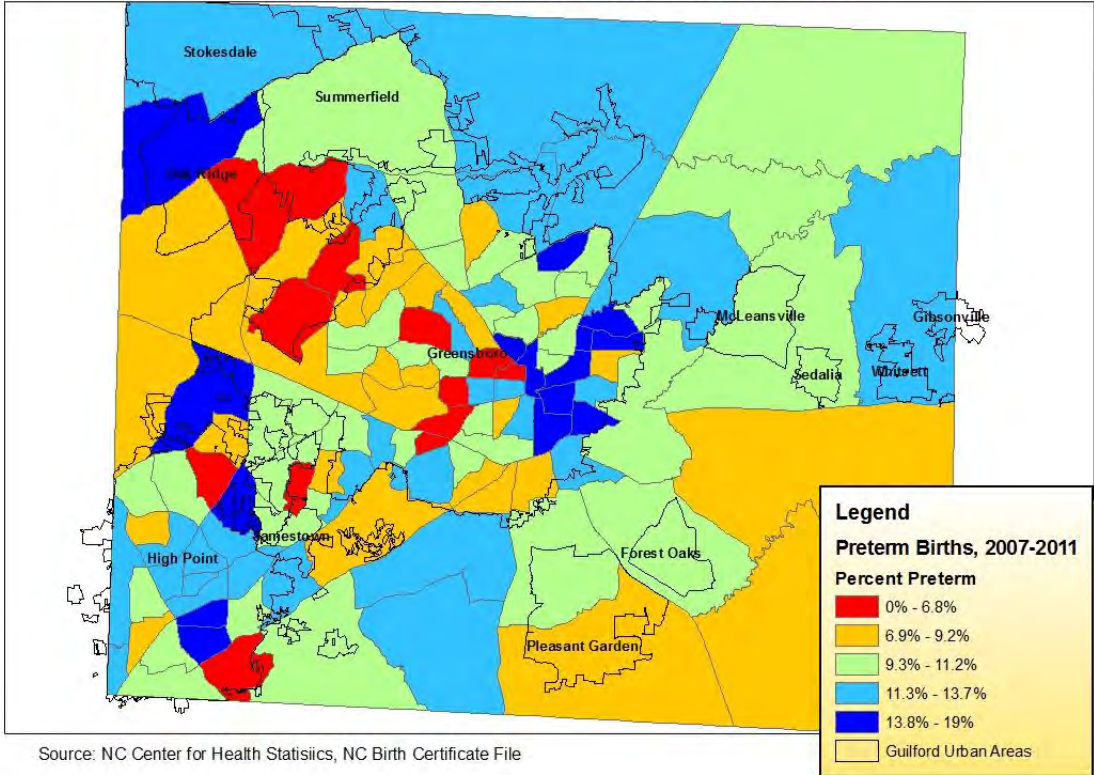
**NC Resident 2007-2011 Percent Very Low Weight(Less than 1500 Grams) Births
by Race and Ethnicity, by County**

Residence	Total	White, non-Hispanic	African American, non-Hispanic	Other, non-Hispanic	Hispanic
North Carolina	1.8	1.3	3.3	1.5	1.2
Alamance	1.8	1.5	3.4	2.7	1.0
Davidson	1.5	1.4	3.4	0.9	1.0
Forsyth	2.2	1.4	4.2	1.1	1.6
Guilford	2.2	1.4	3.2	1.2	1.8
Randolph	1.5	1.4	2.7	1.7	1.3
Rockingham	1.9	1.7	3.1	1.7	1.0

Source: NC County Health Data Book, 2013; NC State Center for Health Statistics.

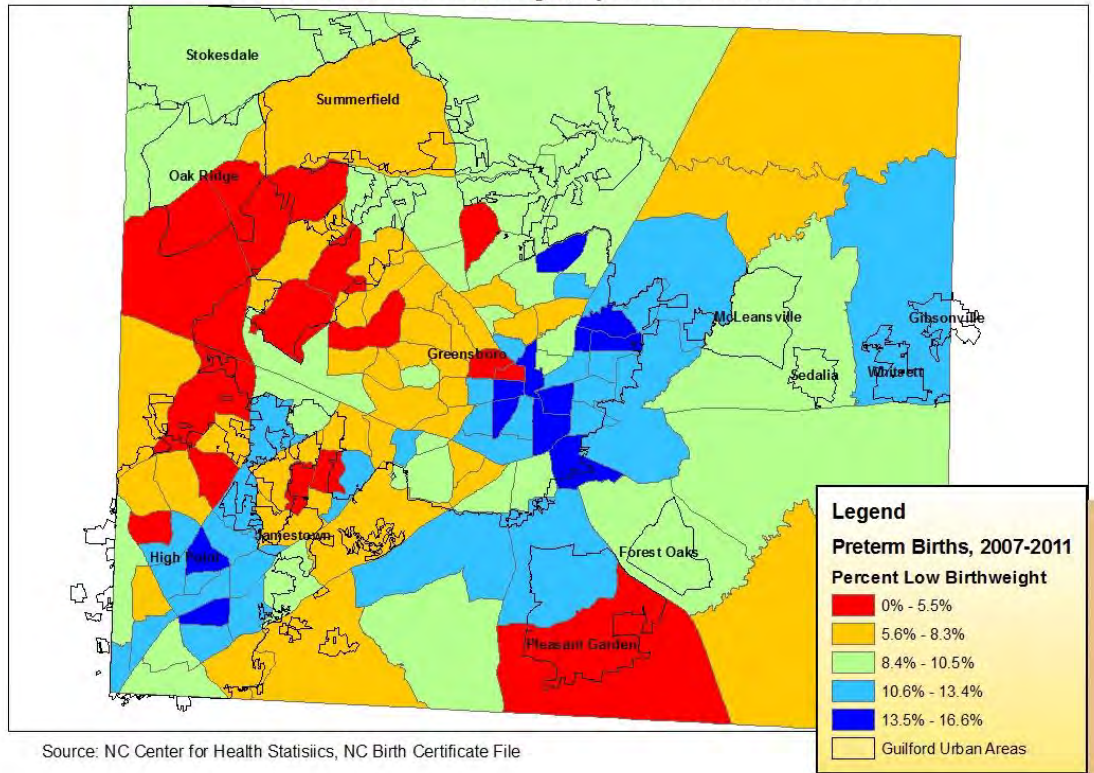
- Statewide, major African American- white racial disparities exist for both low birth weight and very low birth weight, with blacks about twice as likely to have a low or very low weight birth.
- Regionally, the highest rate of low birth weight is in Forsyth County, along with Davidson and Guilford; the highest rates among blacks are found in Forsyth and Davidson counties.
- The highest rates of very low birth weight are found among blacks in Forsyth County.

Percent of Births Preterm, by Census Tract, 2007-2011



Source: NC Center for Health Statistics, NC Birth Certificate File

Percent of Births Low Birthweight, by Census Tract, 2007-2011



Source: NC Center for Health Statistics, NC Birth Certificate File

Guilford County Live Births by White and Minority Race Status, 1988-2012					
Year	Total Births	White Births	White %	Minority Births	Minority %
1988	4,914	3,069	62.5%	1,845	37.5%
1989	5,289	3,285	62.1%	2,004	37.9%
1990	5,195	3,186	61.3%	2,009	38.7%
1991	5,276	3,232	61.3%	2,044	38.7%
1992	5,194	3,137	60.4%	2,057	39.6%
1993	5,110	3,066	60%	2,044	40.0%
1994	5,053	3,057	60.5%	1,996	39.5%
1995	5,171	3,186	61.6%	1,985	38.4%
1996	5,229	3,168	60.6%	2,061	39.4%
1997	5,310	3,277	61.6%	2,042	38.4%
1998	5,607	3,450	61.5%	2,157	38.5%
1999	5,724	3,434	60%	2,290	40.0%
2000	6,095	3,671	60.2%	2,424	39.8%
2001	5,918	3,609	61.0%	2,309	39.0%
2002	5,810	3,497	60.2%	2,312	39.8%
2003	5,885	3,540	60.2%	2,345	39.8%
2004	5,861	3,445	58.8%	2,416	41.2%
2005	6,000	3,462	57.7%	2,538	42.3%
2006	6,119	3,513	57.4%	2,606	42.6%
2007	6,296	3,548	56.4%	2,748	43.6%
2008	6,381	3,536	55.4%	2,845	44.6%
2009	6,150	3,349	54.4%	2,801	45.5%
2010	6,003	3,013	50.2%	2,990	49.8%
2011	6,049	2,635	43.6%	3,414	56.4%
2012	6,164	2,553	41.4%	3,611	58.6%

Source: NC Center for Health Statistics; North Carolina Birth Certificate File.

Hispanic Births in Guilford County, 1994-2012		
Year	Number of Hispanic Births	Percentage of All Births
1994	83	1.6%
1995	121	2.3%
1996	144	2.8%
1997	247	4.7%
1998	266	4.7%
1999	332	5.8%
2000	506	8.3%
2001	628	10.6%
2002	615	10.6%
2003	676	11.5%
2004	708	12.1%
2005	826	13.8%
2006	878	14.3%
2007	951	15.1%
2008	920	14.4%
2009	823	13.4%
2010	757	12.6%
2011	741	12.2%
2012	790	12.8%

Source: NC Center for Health Statistics; North Carolina Birth Certificate File.

Highlights from Focus Groups

- There is a continued need to encourage mothers to breast-feed or give breast milk to their babies. However, if the Women's hospital is promoting breastfeeding, community members believe that the hospital has a responsibility to ensure that mothers have the support needed to breastfeed after hospital discharge.
- Hospitals and community organizations should provide meeting places that are child friendly to increase mothers' participation in health classes, community meetings and health care.
- Mothers may be burdened by lack of child care and may feel more comfortable bringing their children with them while they attend classes or obtain care.
- Scheduling appointments with the Women's Clinic located at the Guilford County Department of Public Health can be challenging. If a Spanish-speaking interpreter is needed, appointments are scheduled sometimes months in advance. Women have been told to go to the Emergency Department (ED) because they will be seen quicker there; however, a visit to the ED is more costly for the patient and society as a whole. Residents also noted that they were able to get appointments more quickly if they spoke English.
- Appointments are difficult to schedule for healthy children as well. When participants can get through, they are often told to call back next month. Participants also stated that they have repeatedly been hung up on when calling the service provider to schedule a well-child check-up. Excessive wait times for appointments have the potential to negatively affect pregnant women or mothers and their children.

A Spanish-speaking resident without a medical home felt that she lost her baby for unnecessary reasons. This participant lost her baby during pregnancy as a result of an infection.

She had previously visited the emergency department multiple times and received treatment for inflammation of her abdomen, but she felt that she was not examined thoroughly.

Eventually she was seen by a private physician, and the participant ultimately had to have a hysterectomy as a result of the infection.

-Experience described by focus group participant

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