

South Carolina Birth Outcomes Initiative Data Workgroup's
Annual Report of the South Carolina Birth Outcomes Initiative

*Laying the Groundwork to Eliminate Maternal and Child Health Disparities
in South Carolina by Addressing the Social Determinants of Health*

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EXECUTIVE SUMMARY

This annual report was created by the SC Birth Outcomes Initiative Data Workgroup to provide other Initiative workgroups and stakeholders baseline data to better target efforts to improve maternal and child health, especially among disparity populations. Below is a summary of some of the notable findings for the state as a whole and for each of the demographic groups included in this report.

TOTAL FOR SOUTH CAROLINA

- **Total Births:** From 2011 to 2013, the total number of births decreased 1.7% from 53,697 to 52,785.
- **Birthweight:** There was a slight increase in the percentage of very low birthweight (VLBW) babies but a decrease in the percentage of moderately low birthweight (MLBW) and low birthweight (LBW) babies from 2011 to 2013.
- **Prenatal Care:** Nearly 19% of women received inadequate prenatal care, but the majority of mothers received adequate or adequate plus care (75%).
- **Elective Inductions:** SC reduced early elective inductions at 37-38 weeks by half from a 2011 rate of 8.81% to a 2013 rate of 4.43%.
- **C-Sections:** Over a third of mothers overall (as well as first-time mothers) delivered via C-Section (CS) in 2013. When applying exclusions to the total CS rate, the rate dropped nearly 15%; however, when the same exclusions were applied to the primary CS rate, the difference was only 3%.

There has been a 2% relative decrease in LBW since 2011.

Early elective inductions at 37-38 weeks were reduced by half, but nearly a third of first-time mothers are still having elective C-Sections.

AGE

- **Total Births:** Younger women had fewer births.
- **Birthweight:** Both very young mothers and mothers over the age of 35 were at greater risk of delivering a VLBW baby.
- **Prenatal Care:** Women ages 19-24 made up 32% of deliveries, but 39% of women receiving inadequate care. Women ages 0-18 were least likely to receive adequate care with a rate of 28.36%.
- **C-Sections:** Women ages 19-24 and 45-54 had a relative increase in total C-Sections from 2011 to 2013. Women ages 19-24 and 25-34 represented 83% of all women receiving C-Sections in 2013. Women ages 19-24 made up a higher percentage of the total elective CS population than they did the total CS delivery population or all delivery population. Nearly half of all women ages 35-44 had a primary CS in 2013. Women over 35 had higher medically unnecessary primary CS rates in 2013. However, women ages 19-34 made up 85% of first-time mothers having these C-Sections.

Mothers ages 0-18 were least likely to receive adequate prenatal care.

Mothers over 35 had higher C-Section rates, but women ages 19-34 made up the majority of women having C-Sections.

RACE

- **Birthweight:** Although the percentage of total LBW babies born to White (50%) and Black (48%) mothers was similar, nearly twice as many Black mothers (14.16%) than White mothers (7.50%) had a LBW baby.
- **Prenatal Care:** White women (30%) were more likely than Black women (24%) to have adequate prenatal care in 2013. Only 40% of women classified as Other race received adequate plus care (compared to 46% of Black women and 47% of White women).
- **Elective Inductions:** White women were more likely (5.08%) than Black women (4.10%) and Other women (2.75%) to have an induction at 37-38 weeks in 2013 and represented 59% of all early elective inductions.
- **C-Sections:** Black women had a higher 2013 CS rate (34.79%) than other race groups, but they represented only 33% of women having a CS compared to 65% of women who were White. A greater percentage of Black (33.30%) and Other women (33.47%) had a primary CS than White women (31.53%) in 2013. 67% of White first-time mothers delivered via CS. Women in the Other race group had a 4% relative increase in medically unnecessary primary C-Sections from 2011 to 2013.

The 2013 LBW rate for Black mothers was nearly twice as high as White mothers.

White mothers had higher elective induction rates and made up the majority of women receiving C-Sections.

ETHNICITY

- **Total Births:** Hispanic women are having fewer births.
- **Prenatal Care:** Access to adequate prenatal care is improving for Hispanic women. Despite this, although Hispanic women represented 8.17% of women delivering, they made up 13.21% of women receiving inadequate prenatal care. Their 2013 rate of inadequate prenatal care was 30.65% compared to 17.90% for Non-Hispanic women.
- **Elective Inductions:** Only 2.93% of Hispanic women had an early elective induction in 2013 as compared to 4.59% of Non-Hispanic women.
- **C-Sections:** Hispanic women had lower CS rates than Non-Hispanic women. Their total CS and primary CS rates decreased 3% and 5%, respectively. They represented only 7% of total CS and 5% of primary CS patients, even though they made up 8% of women delivering.

31% of Hispanic mothers received inadequate prenatal care in 2013 (compared to 18% of Non-Hispanic mothers).

Hispanic mothers had lower elective induction and C-Sections rates than Non-Hispanic mothers.

EDUCATIONAL STATUS

- **Total Births:** Women with less educational attainment are having fewer births.
- **Birthweight:** There was an inverse relationship between level of education and LBW rates. However, women with a college degree were more likely to have a VLBW baby from 2011 to 2013.

Women with less education had higher LBW rates and less adequate prenatal care access.

- **Prenatal Care:** 33% of college-educated mothers received adequate prenatal care compared to only 24% of women with less than a high school education. Mothers with less than a high school graduate made up 17.23% of all deliveries but only 13.94% of mothers receiving adequate plus care.
- **C-Sections:** Women with more education had higher total CS rates, as well as total and elective primary CS rates. However, they were less likely in 2013 than in 2011 to have any type of CS.

Women with more education had the highest C-Section rates.

BODY MASS INDEX

- **Birthweight:** A higher percentage of mothers measured as obese had VLBW babies. Nearly half of LBW babies were born to overweight or obese mothers, but the highest 2013 rate was among mothers measured as underweight (15.13%).
- **Prenatal Care:** Women who were classified as obese (51.26%) were more likely than overweight (46.45%) or normal weight (43.86%) mothers to receive adequate plus care in 2013.
- **Elective Inductions:** A greater percentage of obese women had an early elective induction in 2013 (5.28%) than all other BMI categories, and their relative reduction from 2011 to 2013 was also lower.
- **C-Sections:** Nearly 30% of women measured as obese had a medically unnecessary CS in 2013, and they represented the largest BMI category among the CS population. Only 18.76% of underweight women had a primary CS compared to 46.97% of women measured as obese.

Nearly half of LBW babies were born to overweight or obese mothers. These mothers also had higher elective induction and C-Section rates.

Mothers measured as normal weight had a lower adequate plus prenatal care rate than other mothers.

PAYER

- **Total Births:** Women qualifying for Medicaid are having fewer births.
- **Birthweight:** Babies delivered by women categorized as self-pay had the highest rate of VLBW, and the rate has increased 33% since 2011. All other payer types also had a decrease in the percentage of LBW babies.
- **Prenatal Care:** Women with private insurance were 24% more likely to receive inadequate prenatal care from 2011 to 2013; nevertheless, only 9% of women with private insurance received such care in 2013 (compared to 24% of women qualifying for Medicaid and 29% of self-pay women). Although a greater percentage of women with private insurance received adequate prenatal care, women identifying as Medicaid or self-pay were more likely in 2013 than in 2011 to receive such care.
- **Elective Inductions:** Women identified as self-pay had less of a relative decrease (25%) compared to other payer types.

All payer types but self-pay saw a decrease in LBW from 2011 to 2013. These mothers also made less progress reducing early elective inductions.

Women with private insurance had higher rates of adequate prenatal care, but they also had the highest 2013 C-Section rates.

- **C-Sections:** Women with private insurance had the highest 2013 CS rate of any payer type, regardless of type of CS. All payers decreased their percentage of primary C-Sections, but women designated self-pay had the greatest relative improvement (12%).

PERINATAL LEVEL

- **Birthweight:** Perinatal Level III hospitals were most likely to treat a LBW baby (53%) and had the highest 2013 rate (14.14%).
- **Prenatal Care:** Women served in Perinatal Level III hospitals had the highest 2013 rate of inadequate prenatal care (22%), which represented a 2% relative increase from 2011.
- **Elective Inductions:** The majority of early elective inductions occurred in Perinatal Level II & IIE hospitals in 2013, and they had the highest 2013 rate (5.15%).
- **C-Sections:** Total CS and Primary CS rates were lower in Perinatal Level I facilities than other perinatal levels. These facilities only performed approximately 10% of all C-Sections. Most medically unnecessary primary C-Sections in 2013 were performed in Perinatal Levels II & IIE facilities (57%) followed by Level III (33%) and Level I (9%).

Perinatal Level III hospitals had the highest 2013 LBW rate, as well as rate of inadequate prenatal care.

The majority of elective inductions and C-Sections occurred in Perinatal Level II & IIE facilities.

RURAL-URBAN

- **Total Births:** Women residing in rural areas are having fewer births.
- **Birthweight:** A greater percentage of rural women had very low and MLBW babies (although the percentage of MLBW babies is decreasing for these women).
- **C-Sections:** Rural women had lower CS rates than urban women, regardless of necessity.

Mothers residing in rural areas had a higher LBW rate, but lower C-Section rates.

RECOMMENDED NEXT STEPS

- o **Development of SC BOI Workgroup Strategies:** Each of the specific SC BOI workgroups set goals for 2015 that were used to develop the Initiative's overarching goals for this year. The findings in this report can be used to develop targeted strategies based on areas of greatest need to better meet these goals.
- o **Implementation of Additional Payment Modifiers:** Given the improvement observed for elective inductions at 37-38 weeks gestation, primarily due to SC DHHS and Blue Cross Blue Shield of SC jointly partnering to deny payment for these deliveries, payment modifiers for other clinical outcomes are recommended.

- **Provider Outreach through Perinatal Regional Coordinators:** The highest perinatal level rates of elective inductions and C-Sections are occurring in Perinatal Level II & IIE birthing facilities. Outreach through the perinatal regional coordinators to specific OB/GYN providers in these facilities is recommended. Additionally, better understanding why mothers served in Perinatal Level III had the highest rate of inadequate prenatal care would be beneficial.
- **Targeted Patient Outreach:** Patient education for specific groups of women is recommended. For instance, younger women and women with less education had higher rates of low birthweight and lower rates of adequate prenatal care. These mothers are having fewer births, but continued outreach through the SC Campaign to Prevent Teenage Pregnancy and other SC BOI partner organizations may be beneficial. Likewise, based on 2013 rates by payer type, women with private insurance may need additional patient information on the risks of elective C-Sections. Lastly, rates of elective procedures are lower for Hispanic women than Non-Hispanic women. Better understanding what drives these lower rates may benefit all mothers and babies.
- **Additional Research:** To ensure that all aspects of maternal and child health are addressed (not just those explored in this report), ongoing data reporting for other outcomes is recommended. This includes new measures that have not been previously explored, but for which there has been clinical and public health interest, as well as ongoing research on measures not included in the quarterly hospital reports.



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BACKGROUND OF THE SC BIRTH OUTCOMES INITIATIVE

South Carolina is currently one of many states pursuing an increased focus on issues that negatively impact maternal and child health, including the rate of scheduled, early deliveries. In SC, these maternal and child health improvement efforts are being spearheaded through the South Carolina Birth Outcomes Initiative (SC BOI), a collaboration of the South Carolina Department of Health and Human Services, South Carolina Hospital Association, March of Dimes, Blue Cross Blue Shield of South Carolina, and more than 100 stakeholders to improve the health outcomes for newborns not only in the Medicaid program but throughout the state's population.



Launched in July 2011, this Initiative is focused on:

- Elimination of elective inductions for non-medically indicated deliveries prior to 39 weeks gestation
- Reducing the number of admissions and the average length of stay in neonatal intensive care units
- Reducing health disparities
- Making 17P, a compound that helps prevent pre-term births, available to all at-risk pregnant women with no “hassle factor”
- Implementing a universal screening and referral tool (SBIRT) in the physician's office to screen pregnant women and 12 months post-delivery for tobacco use, substance abuse, alcohol, depression and domestic violence
- Promoting Baby Friendly Certified Hospitals and breastfeeding

Additional areas of focus since its inception have included supporting the Centering Pregnancy Model, inpatient insertion of Long Acting Reversible Contraceptives, innovative program development for the management of Neonatal Abstinence Syndrome in the Level I nursery, and most recently, the reduction of cesarean sections for first-time, low-risk mothers.

In order for the Initiative to meet its core objectives, volunteer members join one of six SC BOI workgroups: Baby-Friendly, Behavioral Health, Care Coordination, Data, Health Disparities, and Quality and Patient Safety. Each year, the workgroups set goals related to their topical area that will ensure the Initiative meets its overarching goals.

Information about the SC Birth Outcomes Initiative Data Workgroup

The data workgroup maintains representative membership from five primary organizations which house healthcare data in South Carolina, including Blue Cross Blue Shield, SC Department of Health and Environmental Control, SC Department of Health and Human Services, SC Hospital Association, and SC Revenue and Fiscal Affairs Office. Data team members are familiar with using clinical and vital records data for quality improvement efforts and serve to translate such data for members of the other workgroups as needed through presentations, reports, and data summaries.

The workgroup seeks to do the following in 2015:

- Provide support for SC BOI workgroups related to linked data sets in support of their efforts

- Identify resources for workgroup requests that cannot be completed with current data workgroup resources
- Provide continued support for reporting at the hospital level MCH health outcomes addressing SC BOI efforts
- Provide to stakeholders an annual statewide report at the population level addressing SC BOI efforts
- Provide the Vision Council support for the development of new areas of inquiry

NAVIGATING THIS REPORT

At the 2011 start of the SC Birth Outcomes Initiative (SC BOI), although the overall infant mortality rate in S.C. had declined, the rate for Black and Other infants was still greater than twice the rate for White infants (White: 5.0 infant deaths per 1,000 live births; Black and Other: 11.8 infant deaths per 1,000 live births).¹

There were a number of related risk factors for this, including the fact that:

- 12.1% of White infants were premature as compared to 18.3% of Black infants.²
- Twice as many Black women reported inadequate prenatal care utilization as compared to White women.¹
- The ratio of Black to White low birthweight babies was 1.93.³

Improving these racial health disparities requires addressing the social determinants of health, such as socioeconomic status, rurality, access to health care, educational attainment, and individual characteristics (e.g., age and chronic disease risk). SC BOI seeks to do this through state policy changes, care coordination, and direct community action focused on health disparities through public-private partnerships. In order to help SC BOI set the groundwork for decreasing these maternal and child health disparities, this report provides some general baseline maternal and child health disparity information for several birth outcomes tracked by the Initiative:

- Total births
- Birthweight: very low, moderately low, low, and normal
- Access to prenatal care: inadequate, intermediate, adequate, and adequate plus
- Elective inductions at 37-38 weeks gestation
- Total C-Sections at 37+ weeks gestation (with and without exclusions)
- Primary C-Sections at 37+ weeks gestation (with and without exclusions)
- Primary C-Sections at 39-40 weeks gestation (with and without exclusions)



¹ Healthy Mothers, Healthy Babies: South Carolina's Plan to Reduce Infant Mortality & Premature Births. Retrieved from <http://www.scdhec.gov/library/cr-010842.pdf>

² March of Dimes 2013 Premature Birth Report Card. Retrieved from <https://www.marchofdimes.org/peristats/pdf/998/premature-birth-report-card-South-Carolina.pdf>

³ SC Health Coordinating Council. General Meeting Notes. September 9, 2014

For each measure, a table is provided with the state total for 2011-2013, as well as a break down for each year by age, race, ethnicity, educational status, BMI, payer, perinatal level, and Rural-Urban Community Area Codes. Report tables also provide the difference between 2011 (when the Initiative started) and 2013 (the last year of available data) and the relative change between these two years. The relative percentage change provides a measure of the relative change taking into account the quantities in the two years. With the exception of normal birthweight and adequate and adequate plus prenatal care, a negative percentage change indicates a better outcome. Full definitions for all of these measures are provided on pages 5 and 6.

In addition, charts are included that provide the percentage of total for each measure. These charts allow users to better understand which subpopulations make up the largest percentage of each measure; whereas, the tables provide a snapshot of disparities between groups and highlight current and past rates (and differences between these rates). For instance, these tables and charts allow one to see that mothers categorized as obese (1) had higher C-Section rates in 2013 than normal weight mothers; (2) had higher rates in 2013 than in 2011; and (3) make up 40% of all mothers having C-Sections. Prior to each set of tables and charts, a summary of key findings is provided for each measure.

Data Sources

Although the SC BOI started in 2011, data were not available until August of 2014, when 2013 vital records data closed, to fully assess its impact. This report provides information from vital records data (e.g., number of births, demographics, gestation, birthweight, prenatal care, and C-Sections) and UB-04 all-payer hospital billing data (e.g., elective inductions and medical exclusions) for births occurring in SC birthing facilities. Medicaid has also been verified as payer when noted by linking to Medicaid recipient records. A full description of data sources may be found in [Appendix A](#).

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DEFINITIONS USED IN THIS REPORT

Birth Facility - SC hospital where the birth occurred. This definition only includes SC birthing hospitals and does not include freestanding birthing centers or home births.

Birthweight, regardless of the period of gestation, was categorized as very low (< 1,500 grams or 3 pounds, 4 ounces), moderately low (1,500-2,499 grams or 3 pounds, 5 ounces to 5 pounds, 7 ounces), low (very low + moderately low or < 2,500 grams or 5 pounds, 8 ounces), and normal (2,500+ grams or at least 5 pounds, 9 ounces).

Cesarean Section (C-Section) – This delivery outcome is based on birth certificate data submitted to SC DHEC by delivering hospitals and not based on billing codes.

Difference between 2013 and 2011 represents the difference between the annual percentages for these two years.

ICD is a classification system developed collaboratively between the World Health Organization (WHO) and 10 international centers so that the medical terms reported by physicians, medical examiners, and coroners on death certificates can be grouped together for statistical purposes.

Induction – An induction is defined for this report as the following ICD-9 procedure codes: 73.01 (induction labor by artificial rupture of membranes), 73.1 (surgical induction of labor, NEC), and 73.4 (medical induction of labor).

Gestation is the obstetric/clinical estimation of gestation and is measured in completed weeks. For instance, 37 weeks means 37 weeks, 0 days to 37 weeks, 6 days.

Kotelchuck Index, also called the Adequacy of Prenatal Care Utilization (APNCU) Index, uses two crucial elements obtained from birth certificate data – when prenatal care began (initiation) and the number of prenatal visits from when prenatal care began until delivery (received services).

- Inadequate – Prenatal care begun after 4th month, or less than 50% of recommended visits. Includes no prenatal care received.
- Intermediate – Prenatal care begun by 4th month, and 50% - 79% of recommended visits.
- Adequate – Prenatal care begun by 4th month, and 80% - 109% of recommended visits.
- Adequate Plus – Prenatal care begun by 4th month, and 110% or more of recommended visits.

More information on how this measure is calculated may be read on pages 162 – 163 of this SC DHEC Vital Records report: <http://www.scdhec.gov/Health/docs/BiostatisticsPubs/vms2013.pdf>.

Maternal Age at the time of delivery as designated on the SC birth certificate was grouped into the following categories: 0-18, 19-24, 25-34, 35-44, and 45-54.

Maternal BMI is a variable provided on the SC birth certificate that represents the mother's weight in pounds divided by her height in inches squared and multiplied by a conversion factor of 703. The BMI values were grouped as underweight < 18.5, normal weight 18.5-24.9, overweight 25-29.9, and obese \geq 30.

Maternal Education as designated on the SC birth certificate was classified as less than high school graduate, earned a high school diploma or high school equivalent, attended some college, and completed at least a college degree.

Maternal Ethnicity – Hispanic origin is reported separately from race. Thus a person with Hispanic origin can be of any race. Mothers were grouped as either (1) Hispanic or Latino or (2) Not Hispanic or Latino.

Maternal Race is the client-specific description for the race of the mother as reported on the SC birth certificate. For this report, race has been grouped into three categories: White (White/Caucasian), Black (Black or African American), or Other (Alaskan Native, American Indian, Cuban, Entrant, Federally Recognized Native American, Hispanic, Mexican, More than One Race Recorded, Native Hawaiian, Oriental/Asian, Other Native American, Other, Puerto Rican, or Refugee).

Payer– With the exception of the elective induction measure which comes from UB-04 all-payer data, payer is the expected pay source listed on the birth certificate. In order to ensure that the birth certificate data submitted to DHEC by delivering hospitals were reconciled with Medicaid eligibility, Medicaid was verified as the actual payer by linking to SC DHHS, Medicaid Claims data.

Perinatal Level describes the level of perinatal care based on the type of patients that are treated, availability of sub-specialty consultation, qualifications of staff, types of equipment available, and volume of high-risk perinatal patients treated.

- Level I – Community Perinatal Center – Term, at least 2,000 grams, low risk
- Level II – Specialty Perinatal Center – At least 32 weeks and 1,500 grams, low and moderate risk
- Level IIE – Enhanced Perinatal Center – At least 30 weeks and 1,250 grams, low, moderate, and moderately high risk
- Level III – Subspecialty Perinatal Center – All levels of care
- Regional Perinatal Center (RPC) – Level III, Subspecialty perinatal care plus regional education and transport responsibilities

Relative percentage change provides a measure of the relative change taking into account the quantities in 2011 and 2013. The equation used was $(2013 - 2011) / 2011$. If there were no data provided for the relative percentage change, the value for 2011 was 0.00%, or there were 0 births in either 2011 or 2013. With the exception of the normal birthweight measure and access to adequate or adequate plus prenatal care, **a negative percentage change indicates a better outcome.**

Rural-Urban Community Area Codes – Utilizing standard Bureau of Census Urbanized Area and Urban Cluster definitions in combination with work community information, The US Census Bureau classifies all individuals in the nation as either “urban” or “rural” residents. Mothers living in census-designated Urbanized Areas of 50,000 or more people or Urban Clusters of 2,500 to 49,999 people were classified as “urban.” All other mothers were classified as “rural.”

The Joint Commission Exclusion Criteria - For the C-Section measures with exclusions ICD-9 codes included in the *Table Number 11.09: Contraindications to Vaginal Delivery* were removed. For the early elective delivery measure, ICD-9 codes included in *Table Number 11.07: Conditions Possibly Justifying Elective Delivery Prior to 39 Weeks Gestation* were removed. These tables are included in the *Specifications Manual for Joint Commission National Quality Measures (v2013A1)* and are part of the Perinatal Care measure set for measures PC-01 (elective delivery) and PC-02 (Cesarean Section). For more information on these criteria, please see [Appendix B](#).

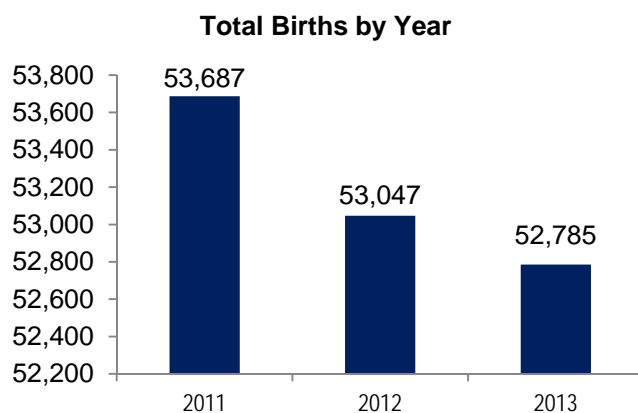
NOTES FOR THE INTERPRETATION OF FINDINGS

1. Deliveries – Caution should be taken when interpreting data for mothers ages 45-54, as this subpopulation only represented 45 deliveries in 2013 (0.09% of all deliveries). Likewise, the number of deliveries used to calculate each of the measures may vary based on whether the measure was restricted to certain gestational weeks or exclusions were applied. Deliveries only reflect data from SC birthing facilities and not births occurring in freestanding birthing centers or at home.
2. For accuracy's sake, state totals represent the percentages for all available data. These percentages may not always match all payer percentages, as at times payer data were missing.
3. Payer data are excluded from the percentage of total charts, as the payer categories across vital records and UB-04 all-payer data are not an exact match and, therefore, some payer categories were excluded. Thus, percentages could not add up to 100.0%.
4. The terms medically unnecessary and elective are used interchangeably in this report. For this report, these two terms refer to procedures that occurred even though one of the ICD-9 codes indicating their necessity (as defined by The Joint Commission) were not present on UB-04 all-payer claims data.
5. For all outcomes but the elective induction measure which originated from UB-04 all-payer data, self-pay does not include indigent patients as these are grouped in Other, which encompasses patients labeled as Tricare, indigent, Medicare, and any other category not included in Medicaid, private insurance, self-pay, or unknown. For the elective induction measure, self-pay includes indigent patients.
6. As ethnicity was reported separately, Hispanic and Latina race mothers were grouped into the Other race category, which allowed for a more concise presentation of data. The Other race category includes many different races which are defined in the Definitions section of this report.
7. In the percentage of total charts, percentages may not add up to 100.00% due to rounding.

KEY FINDINGS

Total Births

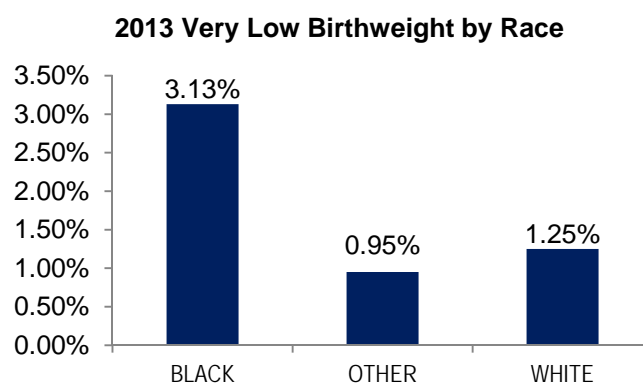
- From 2011 to 2013, the number of births in SC has decreased 1.7%. Women identifying as Hispanic, qualifying for Medicaid, residing in rural areas, with less education, and in younger age groups had fewer babies in 2013. The majority of deliveries in 2013 were for women with the following demographics: White (65%), Non-Hispanic (92%), urban (73%), and ages 25-34 (52%).



Birthweight

- After a promising decrease in 2012, there was a slight relative 1.64% increase in the percentage of very low birthweight (VLBW) babies in SC in 2013.

- Although Black women only delivered 33% of babies that year, they delivered 55% of VLBW babies with 3% of Black women delivering a VLBW baby compared to 1% of White women. The majority of VLBW babies were delivered in Perinatal Level III facilities (81%). A higher percentage of mothers measured as obese had VLBW babies (2.39%) than all other BMI categories. Both very young mothers and mothers over the age of 35 were at greater risk of delivering of a VLBW baby in 2013, as were women categorized as self-pay.

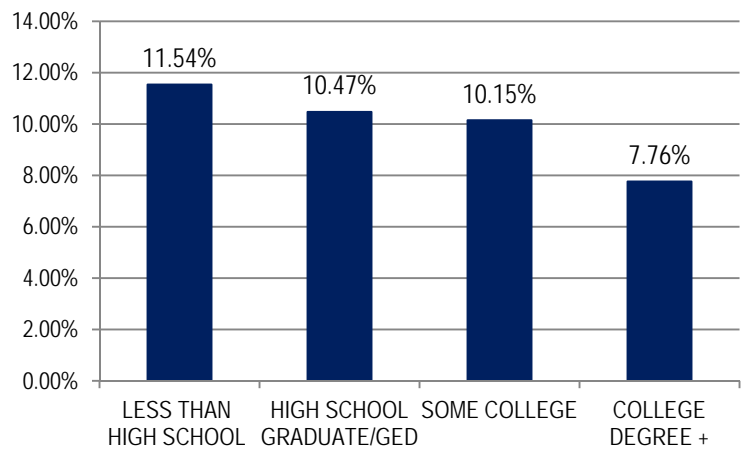


- There was a 3% relative decrease in the percentage of moderately low birthweight (MLBW) babies from 8.06% in 2011 to 7.84% in 2013. Women with a college degree were more likely to have VLBW babies from 2011 to 2013 but slightly less likely to have MLBW babies. The overall percentage of MLBW babies decreased for mothers residing in rural areas, but a greater percentage of rural women than urban women had both VLBW and MLBW babies in 2013. The

racial disparity for this measure was considerable with 11.03% of Black women having a MLBW baby in 2013 compared to 6.25% of White women.

- The overall low birthweight (LBW) measure decreased slightly from 9.89% in 2011 to 9.70% in 2013. Although the percentage of total LBW babies born in 2013 to White (50%) and Black (48%) mothers was similar, nearly twice as many Black mothers (14.16%) than White mothers (7.50%) had a LBW baby. Perinatal Level III hospitals were most likely to treat LBW babies (representing 53% of LBW babies in 2013) and also had the highest 2013 rate (14.14%).
- Slightly half of LBW babies were born to overweight (22.81%) and obese (28.81%) mothers, but the highest 2013 rate was among mothers measured as underweight (15.13%). All payer types had a decrease in the percentage of LBW babies, but self-pay.
- There was a direct inverse relationship between level of education and LBW, and women with less than a high school degree were more likely in 2013 than 2011 to have a LBW baby.
- Black women (85.81%); younger women ages 0-18 (88.85%) and older women ages 35-44 (88.65%) or 45-64 (86.67%); underweight women (84.82%), women qualifying for Medicaid (88.97%), women delivering in Perinatal Level III facilities (85.81%), and rural women (89.92%) were less likely in 2013 than other subpopulations to have a normal birthweight baby.

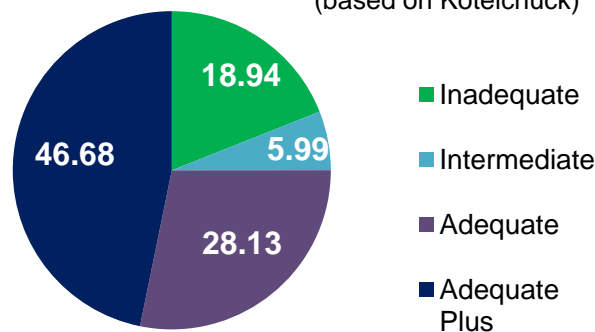
2013 Low Birthweight by Educational Attainment



Prenatal Care

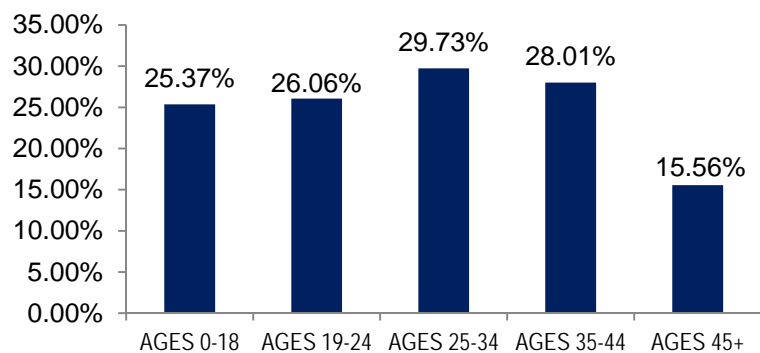
- Nearly 19% of women in SC received inadequate prenatal care as measured by the Kotelchuck Index in 2013; yet, almost three fourths of women receive adequate or adequate plus care.

2013 Prenatal Care Adequacy (based on Kotelchuck)



- Women ages 19-24 represented 32.07% of deliveries, but made up 39.15% of women receiving inadequate care. Women with private insurance were 24% more likely to receive inadequate care. Nevertheless, only 9% of women with private insurance, compared to 24% of women qualifying for Medicaid and 29% of self-pay women, received inadequate care. A greater percentage of younger women and women with less education received inadequate care in 2013. Women served in Perinatal Level III hospitals were more likely to receive inadequate prenatal care. Women identifying as Hispanic were less likely in 2013 than 2011 to receive inadequate care. In spite of this, even though Hispanic women only represented 8.17% of women delivering, they represented 13.21% of women receiving inadequate prenatal care.
- Although there was little overall change in the percentage of SC women receiving inadequate prenatal care (RC: 0.11%), there was a larger negative shift in the percentage receiving intermediate care (RC: -10%). There was an inverse relationship between age and intermediate care with younger women having a higher rate than older women. A similar trend was seen with BMI with a greater percentage of underweight and normal weight women having intermediate care than overweight and obese women.
- Approximately 28% of SC women delivering received adequate care in 2013, which is a decrease from 29% in 2011 and 2012. Some of this decrease is likely due to a shift towards more mothers receiving adequate plus care (RC: 2.75%), as other prenatal care categories either decreased or only slightly increased.
- The inverse trend for education and adequate prenatal care in 2013 was striking; 33% of college educated mothers received adequate care compared to only 24% of women with less than a high school education, a difference of 9%. White women were more likely than Black women and women categorized as Other race to have adequate care in 2013 (30.26% vs. 23.80% and 29.71%, respectively). Although a greater percentage of women with private insurance received adequate care, women identifying as Medicaid and self-pay were more likely in 2013 than in 2011 to receive adequate care.

2013 Adequate Prenatal Care



- Nearly half of all mothers in SC receive adequate plus care (46.68%), and the percentage of women receiving such care has increased since 2011 (RC: +2.75%). Age and adequacy of care were inversely related in 2013, with a smaller percentage of women ages 0-18 receiving adequate plus care than any other age group (39.71% compared to 55.56% for women ages 45-54).
- There was a 6.09% increase in the percentage of Hispanic women receiving adequate plus care, a relative change of +21%. They were also less likely to receive inadequate and intermediate care and more likely to receive adequate care. However, Hispanic mothers made up only 6.09% of mothers receiving adequate plus care, but 8.17% of all women delivering. Only 40% of women

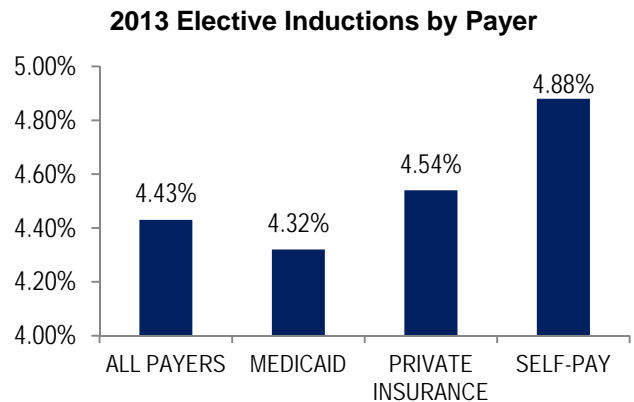
classified as Other race received adequate plus care in 2013 (when 46% of Black women and 47% of White women secured such care).

- Women who were classified as obese (51.26%) were more likely than overweight (46.45%) and normal weight (43.86%) mothers to receive adequate plus prenatal care in 2013.
- Mothers with less than a high school graduation in 2013 made up 17.23% of all deliveries but only 13.94% of mothers receiving adequate plus care. Conversely, they represented 27.84% of mothers with inadequate prenatal care.

Elective Inductions at 37-38 Weeks Gestation

- SC reduced early elective inductions at 37-38 weeks gestation by half from a rate of 8.81% in 2011 to 4.43% in 2013. Every demographic group saw a decrease in this measure except for those women whose rural-urban category could not be defined.
- The majority of all early elective inductions occurred in Perinatal Level II & IIE hospitals in 2013 (65.67%); 5.15% of women treated at one of these hospitals had an early elective induction. Likewise, White women (5.08%) were more likely than Black women (4.10%) and Other women (2.75%) to have an induction at 37-38 weeks in 2013. They represented 58.58% of all early elective inductions that year.

- Women identified as self-pay had less of a relative decrease, 25%, compared to women with private insurance (53%), Medicaid (49%), or all payers in general (50%), in elective inductions at 37-38 weeks gestation from 2011 to 2013. They also had the highest 2013 percentage of any payer type (4.88%).

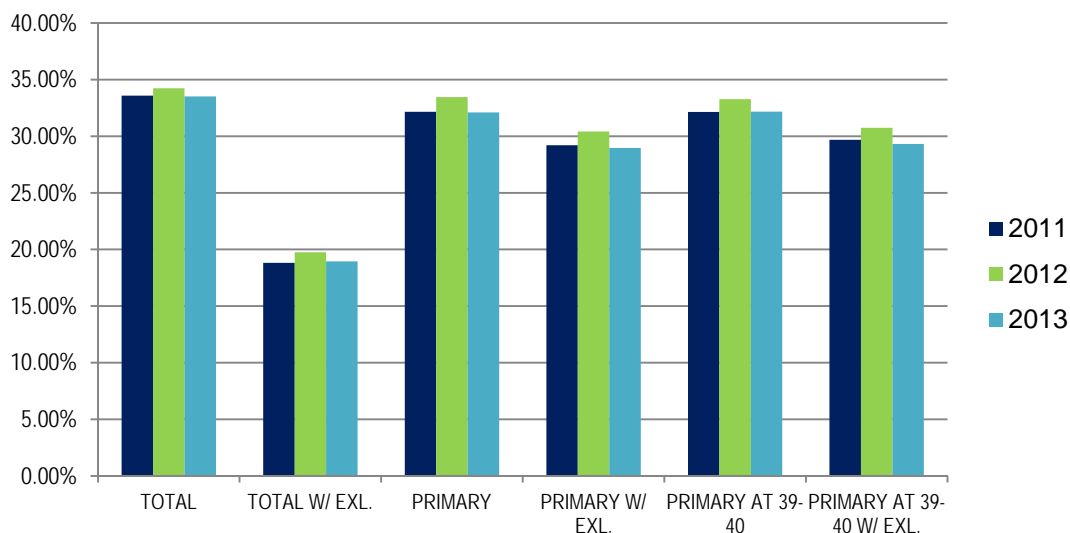


- A greater percentage of obese women were likely to have an early elective induction (5.28%) compared to all other BMI categories. Although the percentage of women receiving an early elective induction among this group did decrease 2.72% from 2011 to 2013, the relative reduction was only 34% compared to 58% for normal weight and 49% for overweight women.
- Only 2.93% of women identifying as Hispanic had an early elective induction in 2013 as compared to 4.59% of women of Non-Hispanic ethnicity.

Total C-Sections at 37+ Weeks Gestation

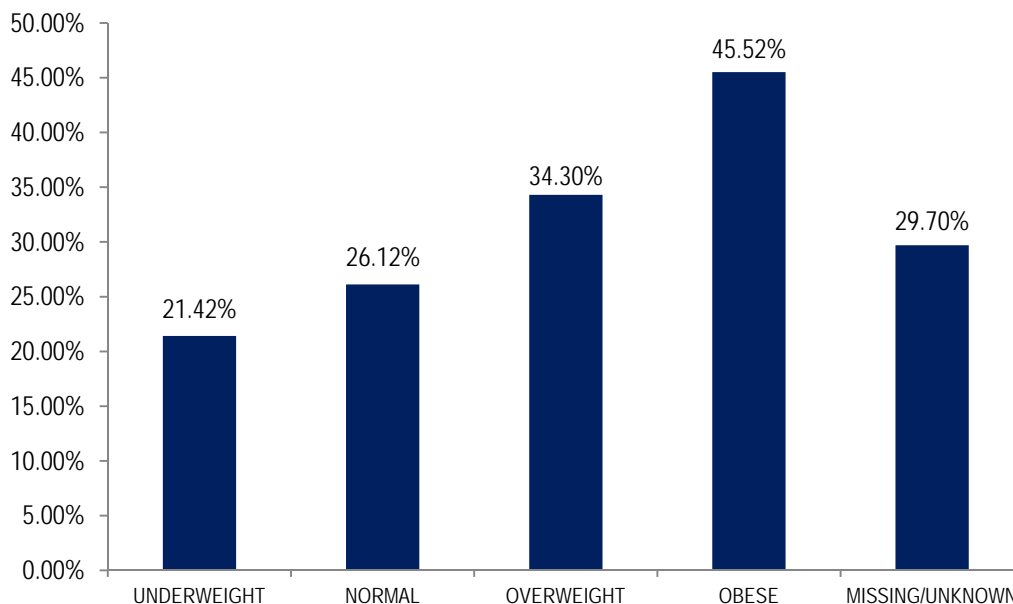
- Over a third of all pregnant women delivered via C-Section (CS) at 37+ weeks gestation in 2013 (33.52%).

C-Section Rates by Year



- Women ages 19-24, representing 29% of patients having a CS at 37+ weeks gestation, saw a relative increase in C-Sections (.41%; 29% of population), which stands as an exception to all other age groups (save 45-54).
- Black women were slightly more likely to have a CS in 2013 (34.79%) than White women (32.96%), but they only represented 32.98% of all women having a CS. Nearly 65% of women delivering via CS were White.
- Women with more education were more likely to get a CS. College educated women had a rate of 35.97% compared to 28.54% for women with less than a high school graduation. However, they were less likely in 2013 than in 2011 to have any type of CS.
- Further, women with private insurance had the highest 2013 CS rate of any payer type (36.26%).
- When The Joint Commission's exclusions for a primary CS were removed from the total CS measure, 18.94% of women still had a CS in 2013, representing a slight increase from 2011 (0.12%, RC: 0.64%).
- Women ages 19-24 and 25-34 represented about 83% of all women receiving C-Sections in 2013 (regardless of necessity). In addition, women ages 19-24 made up a greater percentage of medically unnecessary C-Sections (34.71%) than they did the total C-Section delivery population (28.50%) or all delivery population (32.07%).
- Nearly 30% of women measured as obese had a medically unnecessary CS in 2013, and these women represented 38% of all women having medically unnecessary C-Sections, the largest BMI category present among that population.

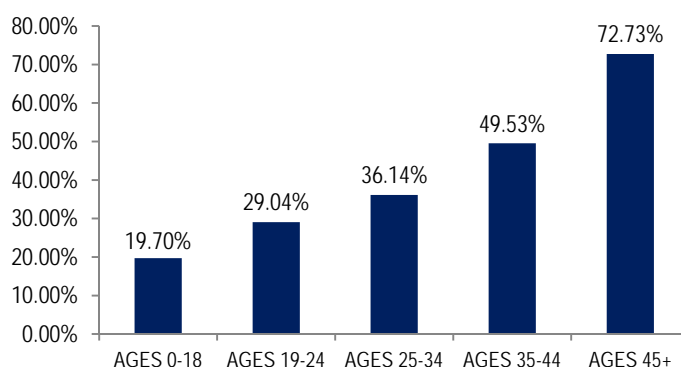
2013 Total C-Sections by BMI



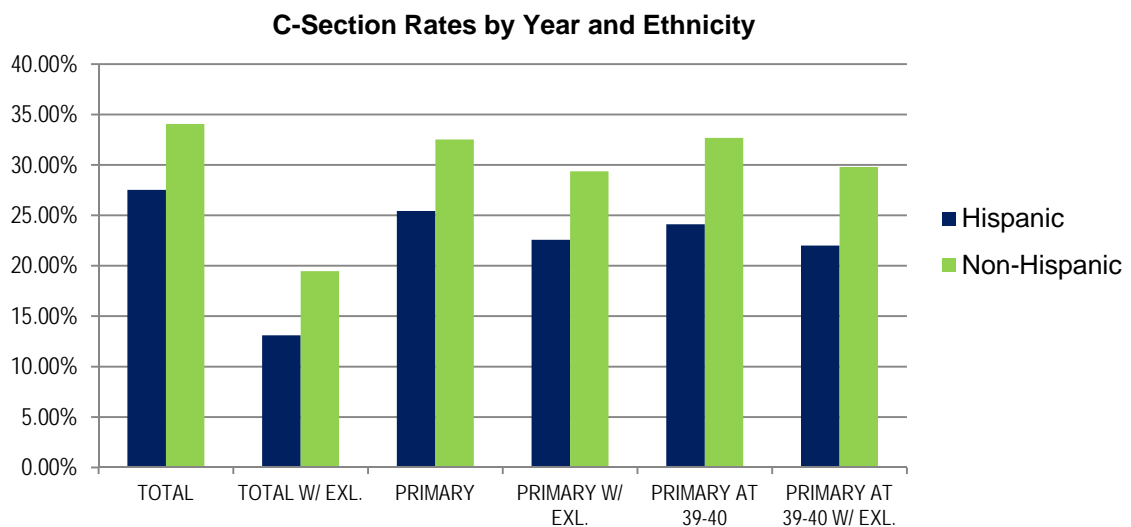
Primary C-Sections for First-Time Mothers at 37+ Weeks Gestation

- Approximately one in three SC first-time mothers delivering at 37+ weeks gestation had a primary CS in 2013 (32.10%).
- Women were less likely to have a CS (32.50%) and primary CS (29.63%) in a Perinatal Level I facility than any other type of facility, and these facilities only performed approximately 10% of total C-Sections and 9% of primary C-Sections.
- Women identifying as White were slightly less likely to have a primary CS in 2013 (31.53%) than women identifying as Black (33.30%) or Other (33.47%) race. White and black race mothers represented the majority of the primary C-Sections, making up 67% and 31%, respectively.
- First-time mothers ages 25-34 had a slight relative increase of 1% in primary C-Sections at 37+ weeks gestation with a 2013 rate of 36.14%. They represented 46% of women having a primary CS. Nearly half of all women ages 35-44 had a primary CS in 2013.
- All payers decreased their percentage of primary C-Sections, although women designated self-pay had the greatest decrease (-3.75%, RC: -12%). Women with private insurance in 2013 were most likely to have both a medically necessary (35.46%) and unnecessary (31.33%) primary CS.

2013 Primary C-Sections by Age Group



- Similarly to the total CS measure, women with a college degree had the highest percentage of primary C-Sections in 2013 (34.86%).
- Although rural women represented 26% of all deliveries, they only represented 23% of all primary C-Sections in 2013. Approximately 30% of women residing in rural areas versus 33% of women residing in urban areas had a primary CS.
- Hispanic women were less likely than Non-Hispanic women to have a primary CS in 2013 with a rate of 25.43% for Hispanic women compared to 32.52% for Non-Hispanic women. Both their total CS and primary CS rates decreased, 3% and 5%, respectively. They represented only 7% of total CS and 5% of primary CS patients, even though they made up 8% of all women delivering in 2013.

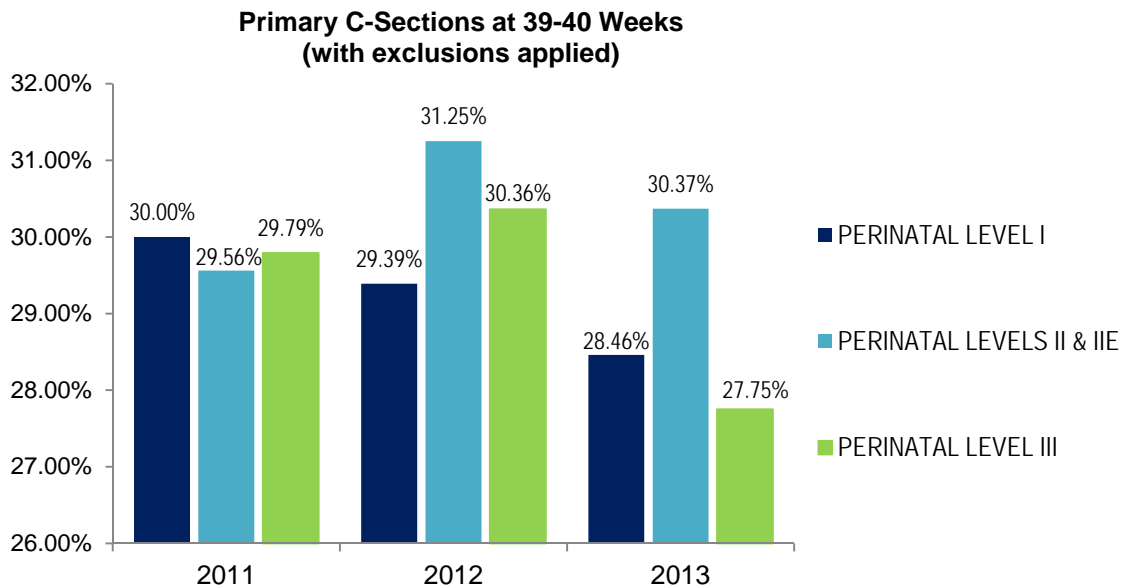


- There was an inverse relationship between BMI and a mother's likelihood of having a primary CS with only 18.76% of underweight women having a primary CS compared to 46.97% of women measured as obese. However, 35% of mothers having a primary CS were of normal weight.
- When applying exclusions to the total state CS rate, the rate dropped from 33.52% to 18.94%, a difference of nearly 15%. However, when the same exclusions were applied to the primary CS rate, the difference was only 3.13% (with a decrease from 32.10% to 28.97%).
- Women over 35 were more likely to have a medically unnecessary primary CS in 2013 than other age groups. Nevertheless, younger women in the age bands 19-24 and 25-34 formed the majority of medically unnecessary primary C-Sections at 37+ weeks gestation: 40% and 45%, respectively.
- In 2013, Black women were more likely to have a medically unnecessary primary CS (31.68%) than women identifying as White (27.69%) or Other (30.99%) race. Likewise, women in the Other race group had a 4% relative increase in medically unnecessary primary C-Sections.

- Most medically unnecessary primary C-Sections in 2013 were performed in Perinatal Levels II & IIE facilities (57%) followed by Level III (33%) and Level I (9%). Nearly 27% of women served in Perinatal Level I facilities and 30% of women served in Perinatal Levels II & IIE facilities had an elective primary CS. Urban women (29.41%) were more likely than rural women (27.77%) to have an elective primary CS.

Total Primary C-Sections for First-Time Mothers at 39-40 Weeks Gestation

- The 2013 percentage of primary CS for first-time mothers at 39-40 weeks was similar to the percentage at 37+ weeks (32.17% and 32.10%, respectively). In fact, results for this measure mirrored the findings for 37+ weeks primary C-Sections for most demographic characteristics.
- When comparing different payers, women categorized as self-pay were least likely to have a primary CS at 39-40 weeks (27.01%) in 2013 and saw the greatest improvement in this measure with a relative decrease of 23%. This exceeded the improvement of 12% for primary CS at 37+ weeks.
- Women ages 0-18 (19.76%) and women categorized as underweight (19.93%) were least likely to have a primary CS at 39-40 weeks gestation, as well as at 37+ weeks gestation (19.70% and 21.42%, respectively). These findings are consistent with higher CS percentages among mothers of advanced maternal age and obese mothers, as described previously.
- There was a slight decrease in elective primary C-Sections for first-time mothers at 39-40 weeks. The percentage of these medically unnecessary C-Sections decreased for both Perinatal Level I and III facilities, but increased slightly for Perinatal Level II & IIE facilities.



- Mothers under the age of 35 (92%), identifying as White (66%), Non-Hispanic ethnicity (95%), served at a Perinatal Level II & IIE facility (59%), and who resided in urban areas (75%) made up the profile of the majority of mothers having medically unnecessary primary C-Sections at 39-40 weeks in 2013. These percentages were slightly higher than the general birth profile for 2013.

DISCUSSION

This annual report was created by the SC Birth Outcomes Initiative Data Workgroup to provide other Initiative workgroups and stakeholders baseline data to hopefully prompt meaningful conversations regarding where targeted efforts to improve maternal and child health, especially among disparity populations, should focus. Data provided in this report reveal the immense progress we have made in some areas, such as reducing the percentage of elective deliveries at 37-38 weeks gestation and moderately low birthweight babies, both initial focuses of the Initiative, as well as areas where more improvement is needed (e.g., reducing the percentage of very low birthweight babies and medically unnecessary C-Section rates).



Likely due to the ongoing recession, women with fewer resources, such as women qualifying for Medicaid and women with less education, are having fewer babies. Additional data is needed to track whether or not SC BOI work to expand access to Long-acting reversible contraception will have a lasting impact on reducing the number of unplanned births in our state.

The percentage of very low birthweight is increasing, and racial and geographic disparities are persistent for both very low birthweight and moderately low birthweight. There is no easy fix for this, but initial evaluations of the expansion of Centering group prenatal care programs are showing promise at reducing low birthweight (LBW) and preterm rates for low-risk women. In addition, SC BOI is supporting the implementation of obstetrics & gynecology telemedicine in rural areas of our states. Interventions targeting high-risk women are needed. Efforts to address associated risk factors, such as obesity, are warranted given that more than half of women having LBW babies were overweight or obese. However, these efforts will not fully address the problem given that mothers measured as underweight actually had the highest rates of low birthweight, and women classified as obese were more likely to receive adequate plus prenatal care in 2013 than women in other BMI categories. Given the inverse relationship between LBW and educational attainment, attempts to expand health education and health literacy may be justified.

The majority of women in SC are receiving adequate or adequate plus prenatal care. However, women with greater resources are more likely to receive such care, as evidenced by the lower percentage of women with private insurance and more education receiving inadequate care. Some progress is being made in this area though, as women identified as Medicaid, self-pay, and Hispanic were more likely in 2013 than in 2011 to receive adequate care.

Due in large part to SC BOI collaborative efforts, including payment reform as substantiated by lower rates among women with private insurance and Medicaid than self-pay women, SC has reduced elective inductions at 37-38 weeks by half. To get this measure to 0%, targeted interventions among Perinatal Level II & IIE hospitals are needed, as the majority of early elective inductions occur in these facilities, and they had the highest perinatal level rate in 2013. In addition, a higher percentage of these elective procedures are happening for women of White race than Black or Other races, as well as for women identifying as Non-Hispanic ethnicity rather than Hispanic ethnicity. Likewise, rates are not decreasing as fast for women categorized as obese as compared to normal and overweight women.

Demonstrating the need for SC BOI's Supporting Vaginal Birth Initiative, over a third of all pregnant women in SC, as well as a third of all first-time mothers, delivered via C-Section in 2013. Women ages

19-24 had an increase in their percentage of C-Sections from 2011 to 2013, and they represented 29% of all women having C-Sections. Although Black women were slightly more likely than White women to have a C-Section in 2013, nearly 65% of women having C-Sections were White. Likewise, women with more education and with private insurance had higher C-Section rates, regardless of necessity. Conversely, self-pay women were least likely to have C-Sections. These findings indicate the need to continue to partner with payers to disincentivize C-Section deliveries.

Further, women over the age of 35 and women measured as overweight and obese were more likely to have any type of C-Section, indicating that clinicians may view these as risk factors even though they are not considered medical exemptions by The Joint Commission. However, women of advanced maternal age were least likely to have a baby in 2013. Therefore, clinical and quality improvement efforts focused on reduction unnecessary C-Sections will likely be more successful if they focus on BMI rather than age, as obese women made up 38% of all women having medically unnecessary C-Sections in 2013. Lastly, women identifying as Hispanic were less likely than Non-Hispanic women to have a C-Section. A better understanding of the protective factors existing in this community may benefit all women.

Recommended Next Steps

- The data provided in this report indicates that there is not one solution that will improve all birth outcomes. Indeed, while racial disparities are front and center for low birthweight, high BMI appears to be a more pressing issue for higher C-Section rates. It is recommended that SC BOI workgroups review the findings in this report to better target different subpopulations of women as needed to address varying outcomes.
- Given the improvement observed for elective inductions at 37-38 weeks gestation, primarily due to SC DHHS and SC Blue Cross Blue Shield jointly partnering to deny payment for these deliveries, payment modifiers for other areas, including incentivizing additional Centering prenatal care visits and reducing unnecessary C-Sections among low-risk, first-time mothers, are recommended.
- The highest perinatal level rates of elective inductions and C-Sections are occurring in Perinatal Level II & IIE birthing facilities. Outreach to specific OB/GYN providers in these facilities is recommended.
- Younger women and women with less education had higher rates of low birthweight and lower rates of adequate prenatal care. These mothers are having fewer births, but continued outreach through the SC Campaign to Prevent Teenage Pregnancy and other SC BOI partner organizations may be beneficial.
- Exploring why a lower percentage of Hispanic women than Non-Hispanic women had medically unnecessary deliveries in 2013 may help the Initiative decrease these deliveries for all women.



Although this report provides baseline maternal and child health disparity information for a number of measures reported on a quarterly basis to birthing facilities, ongoing data reporting for other measures will be provided, as needed, by the Data Workgroup. For instance, a better understanding of maternal

morbidity and mortality, as well as other clinical outcomes such as congenital heart disease, is warranted. In addition, continued evaluation of other SC BOI-related efforts, including, but not limited to, Centering, the expansion of Screening, Brief Intervention, Treatment, and Referral, the establishment of the Milk Bank, payment for inpatient LARC insertion, and support of breastfeeding through Baby-Friendly hospitals is needed and will be supported by the Data Workgroup. If necessitated, additional measures will be added to the quarterly hospital report, and as requested, separate reports will be developed and presented when Data Workgroup resources are available.

Total Births

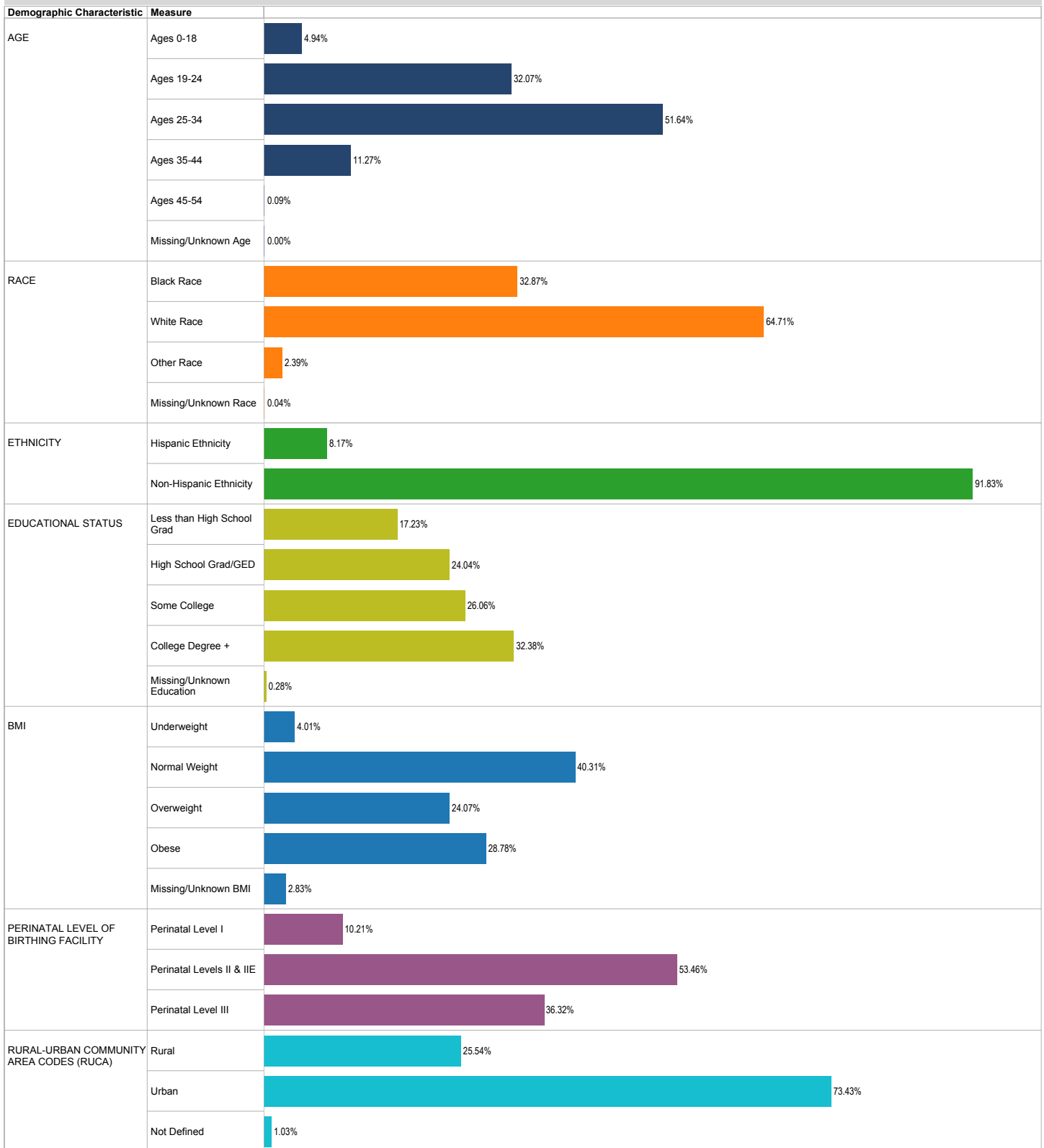
Summary of Findings: Total Births

- There were 902 fewer SC births in 2013 than in 2011, a decrease of 1.70%.
- Although there has been an approximately 27% increase in births for women ages 45-54, this only represented 9 births, as these women were least likely to give birth. However, younger women, who represented a larger percentage of total births, had fewer babies. Women ages 0-18 had 806 fewer births (-27%), and women ages 19-24 had 1,050 fewer births (-6%).
- These trends in age mirror trends in education, with -1,707 fewer births for women with less than a high school graduation (-17%) and 1,261 more births for women with some college (+3%) or a college degree (+5%). In addition, the percentage of women with some college or a college degree increased each year from 2011 to 2013, while the percentage of women with less than high school graduation decreased each year.
- Fewer women are being delivered in smaller, Perinatal Level I hospitals (-1,467, -0.23%), which may reflect fewer births occurring for women living in rural areas (-587, -4%). However, 1 in 4 women delivering in SC resided in a rural area in 2013.
- There has been very little change in the percentage of babies born to overweight (-0.48%) or obese (-0.88%) women, although slightly more than half of women delivering in 2013 were overweight or obese at the start of their pregnancies (53%). However, there were 816 fewer babies born to women who were categorized as underweight (-8%) or normal weight (-3%).
- There was not very much change in the percentage of births by different race groups, but there were 397 fewer births for women of Hispanic ethnicity, a decrease of 9%.
- There were 1,525 fewer births to women who were Medicaid recipients (-5%).
- Women ages 25-34 represented the largest percentage of births in 2013 (52%).
- The majority of deliveries in 2013 were for White (65%), Non-Hispanic (92%), and urban women (73%).

2011-2013 Total Births

Demographic Characteristic	Measure	2011 Total Births	2012 Total Births	2013 Total Births	Difference Between 2013 and 2011 (Births)	Relative Percentage Change (Births)
AGE	Ages 0-18	3,415	3,026	2,609	-806	-26.64%
	Ages 19-24	17,977	17,639	16,927	-1,050	-5.95%
	Ages 25-34	26,542	26,542	27,256	714	2.69%
	Ages 35-44	5,715	5,806	5,947	232	4.00%
	Ages 45-54	36	33	45	9	27.27%
	Missing/Unknown Age	2	1	1	-1	-100.00%
RACE	Black Race	17,812	17,681	17,348	-464	-2.62%
	White Race	34,586	33,981	34,157	-429	-1.26%
	Other Race	1,261	1,355	1,259	-2	-0.15%
	Missing/Unknown Race	28	30	21	-7	-23.33%
ETHNICITY	Hispanic Ethnicity	4,707	4,468	4,310	-397	-8.89%
	Non-Hispanic Ethnicity	48,980	48,579	48,475	-505	-1.04%
EDUCATIONAL STATUS	Less than High School Grad	10,801	10,009	9,094	-1,707	-17.05%
	High School Grad/GED	13,142	12,744	12,692	-450	-3.53%
	Some College	13,371	13,548	13,756	385	2.84%
	College Degree +	16,218	16,583	17,094	876	5.28%
	Missing/Unknown Education	155	163	149	-6	-3.68%
BMI	Underweight	2,274	2,085	2,115	-159	-7.63%
	Normal Weight	21,934	21,676	21,277	-657	-3.03%
	Overweight	12,767	12,502	12,707	-60	-0.48%
	Obese	15,065	14,596	15,194	129	0.88%
	Missing/Unknown BMI	1,647	2,188	1,492	-155	-7.08%
PAYER	All Payers	53,685	53,034	52,743	-942	-1.78%
	Medicaid	31,013	30,886	29,488	-1,525	-4.94%
	Private Insurance	16,104	15,940	16,311	207	1.30%
	Self-Pay	743	660	687	-56	-8.48%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	6,857	6,347	5,390	-1,467	-23.11%
	Perinatal Level II & IIE	27,898	27,755	28,220	322	1.16%
	Perinatal Level III	18,932	18,945	19,173	241	1.27%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	14,070	13,748	13,483	-587	-4.27%
	Urban	39,111	38,803	38,759	-352	-0.91%
	Not Defined	506	496	543	37	7.46%
TOTAL	STATE TOTAL	53,687	53,047	52,785	-902	-1.70%

2013 Percentage of Total Births



Birthweight

Summary of Findings: Very Low Birthweight

- For the state as a whole, there was a slight increase in the percentage of very low birthweight (VLBW) babies from 1.83% in 2011 to 1.86% in 2013 (0.03%, RC: +1.64%). This was after a decrease to 1.76% in 2012.
- The percentage of Black women delivering VLBW babies increased 0.11% from 2011 to 2013, a relative increase of nearly 4%. Although Black women only delivered 33% of babies in 2013, they delivered 55% of VLBW babies. Approximately 3% of Black mothers delivered VLBW babies in 2013 compared to only slightly more than 1% of White mothers.
- From 2011 to 2013, there was a 0.42% increase in the percentage of VLBW babies born to mothers of Hispanic ethnicity (RC: +41%). However, these women only delivered 6% of VLBW babies in 2013.
- Younger women ages 0-18 (-0.36%, RC: -15%) and 19-24 (-0.32%, RC: -16%) were less likely to deliver a VLBW baby; whereas, women ages 25-34 (0.26%, RC: 17%) and 35-44 (0.28%, RC: 12%) were more likely to deliver a VLBW baby. In addition, a greater percentage of very young mothers (2.07%) and mothers over the age of 35 (35-44: 2.54%, 45-54: 2.22%) delivered VLBW babies in 2013 than mothers between the ages of 19-34 (19-24: 1.65%, 25-34: 1.82%).
- The percentage of VLBW babies delivered for women with some college (RC: -3%) decreased; whereas, women with less than high school graduation (RC: 4%) or a high school degree (RC: 1%) were more likely to deliver a VLBW baby in 2013 than 2011. Women with a college degree had a 9% relative increase in their percentage of VLBW babies.
- There was a 4% relative increase in the percentage of women with private insurance delivering VLBW babies, but a 3% relative decrease in the percentage of women who were Medicaid recipients delivering VLBW babies. Women categorized as self-pay had the highest percentage of VLBW in 2013 (2.33%), which was a relative increase of 33%.
- 81% of VLBW babies were delivered in Perinatal Level III hospitals in 2013. Less than 1% of babies born in Perinatal Level I and Levels II & IIE were measured as VLBW as compared to slightly more than 4% in Perinatal Level III hospitals.
- Nearly two thirds of VLBW babies in 2013 were born to women who were overweight (26%) or obese (37%). A higher percentage of mothers measured as obese had VLBW babies (2.39%) than all other BMI categories.

2011-2013 Percentage of Very Low Birthweight Babies

Demographic Characteristic	Measure	2011 % VLBW	2012 % VLBW	2013 % VLBW	Difference Between 2013 and 2011 (VLBW)	Relative Percentage Change (VLBW)
AGE	Ages 0-18	2.43%	1.98%	2.07%	-0.36%	-14.81%
	Ages 19-24	1.97%	1.79%	1.65%	-0.32%	-16.24%
	Ages 25-34	1.56%	1.63%	1.82%	0.26%	16.67%
	Ages 35-44	2.26%	2.12%	2.54%	0.28%	12.39%
	Ages 45-54	0.00%	0.00%	2.22%	2.22%	N/A
	Missing/Unknown Age	0.00%	0.00%	0.00%	0.00%	N/A
RACE	Black Race	3.02%	3.08%	3.13%	0.11%	3.64%
	White Race	1.23%	1.09%	1.25%	0.02%	1.63%
	Other Race	1.51%	1.18%	0.95%	-0.56%	-37.09%
	Missing/Unknown Race	0.00%	3.33%	0.00%	0.00%	N/A
ETHNICITY	Hispanic Ethnicity	1.02%	0.83%	1.44%	0.42%	41.18%
	Non-Hispanic Ethnicity	1.91%	1.84%	1.90%	-0.01%	-0.52%
EDUCATIONAL STATUS	Less than High School Grad	2.01%	1.89%	2.09%	0.08%	3.98%
	High School Grad/GED	1.89%	1.96%	1.91%	0.02%	1.06%
	Some College	2.09%	2.06%	2.03%	-0.06%	-2.87%
	College Degree +	1.39%	1.27%	1.52%	0.13%	9.35%
	Missing/Unknown Education	7.10%	1.84%	6.71%	-0.39%	-5.49%
BMI	Underweight	1.93%	1.77%	1.84%	-0.09%	-4.66%
	Normal Weight	1.50%	1.42%	1.42%	-0.08%	-5.33%
	Overweight	1.72%	1.68%	1.98%	0.26%	15.12%
	Obese	2.43%	2.31%	2.39%	-0.04%	-1.65%
	Missing/Unknown BMI	1.40%	1.83%	1.74%	0.34%	24.29%
PAYER	All Payers	1.83%	1.75%	1.86%	0.03%	1.64%
	Medicaid	2.08%	2.00%	2.02%	-0.06%	-2.88%
	Private Insurance	1.32%	1.09%	1.37%	0.05%	3.79%
	Self-Pay	1.75%	1.97%	2.33%	0.58%	33.14%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	0.54%	0.58%	0.45%	-0.09%	-16.67%
	Perinatal Level II & IIE	0.51%	0.53%	0.57%	0.06%	11.76%
	Perinatal Level III	4.24%	3.94%	4.15%	-0.09%	-2.12%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	2.35%	2.03%	2.00%	-0.35%	-14.89%
	Urban	1.64%	1.63%	1.79%	0.15%	9.15%
	Not Defined	2.37%	4.03%	3.31%	0.94%	39.66%
TOTAL	STATE TOTAL	1.83%	1.76%	1.86%	0.03%	1.64%

2013 Percentage of Total Very Low Birthweight Babies

Demographic Characteristic	Measure	Percentage
AGE	Ages 0-18	5.50%
	Ages 19-24	28.41%
	Ages 25-34	50.61%
	Ages 35-44	15.38%
	Ages 45-54	0.10%
	Missing/Unknown Age	0.00%
	RACE	Black Race
White Race		43.48%
Other Race		1.22%
Missing/Unknown Race		0.00%
ETHNICITY	Hispanic Ethnicity	6.31%
	Non-Hispanic Ethnicity	93.69%
EDUCATIONAL STATUS	Less than High School Grad	19.35%
	High School Grad/GED	24.75%
	Some College	28.41%
	College Degree +	26.48%
	Missing/Unknown Education	1.02%
BMI	Underweight	3.97%
	Normal Weight	30.86%
	Overweight	25.56%
	Obese	36.97%
	Missing/Unknown BMI	2.65%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	2.44%
	Perinatal Levels II & IIE	16.50%
	Perinatal Level III	81.06%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	27.39%
	Urban	70.77%
	Not Defined	1.83%

Summary of Findings: Moderately Low Birthweight

- Although there was a slight increase in the percentage of VLBW babies from 2011 to 2013 (0.03%, RC: 2%), there was a decrease in the percentage of moderately low birthweight (MLBW) babies from 8.06% in 2011 to 7.84% in 2013 (-0.22%, RC: -3%). The Initiative specifically focused on this weight category with its focus on reducing elective inductions at 37-38 weeks gestation.
- There was a relative increase of 14% in the percentage of babies of Hispanic origin born with MLBW. However, a greater percentage of Non-Hispanic women had MLBW babies (8.06%) than Hispanic women (5.31%).
- There was a 3% relative increase in the percentage of women with less than a high school education having babies with MLBW; women in all other educational categories had a decrease. The more education a mother had, the less likely she was to have a MLBW baby in 2013.
- There was a .93% increase in the percentage of women categorized as self-pay having MLBW babies (RC: +15%). With a rate of 8.98% in 2013, mothers qualifying for Medicaid had the highest percentage of MLBW babies. Even though self-pay mothers had the highest percentage of VLBW babies in 2013, they had one of the lowest percentages of MLBW babies (6.99%).
- Fewer MLBW babies were born in Perinatal Level I (-0.28%, RC: -5%) and Perinatal Level III hospitals (-0.84%, RC: -8%), while slightly more were born in Perinatal Level II & IIE hospitals (0.09%, RC: +1%). Nearly 10% of babies born in Perinatal Level III hospitals, 7% born in Perinatal Level II & IIE, and 6% born in Perinatal Level I had MLBW.
- Not surprisingly, given the decrease in Perinatal Level I hospitals, the overall percentage of MLBW babies born to mothers residing in rural areas also decreased (-0.78%, RC: -9%). However, rural women were more likely to have VLBW (2.00%) and MLBW (8.05%) babies in 2013 than urban women (1.79% and 7.72%, respectively).
- In 2013, 46% of MLBW babies were born in Perinatal Level II & IIE hospitals, and another 46% were born in Perinatal Level III hospitals. However, only approximately 7% of babies born in Perinatal Level II & IIE hospitals were measured MLBW compared to nearly 10% in Perinatal Level III hospitals.
- More mothers identifying as White than any other race group had MLBW babies in 2013 (52%). Nevertheless, the disparity between Black and White women was considerable with 11.03% of Black women having a MLBW baby compared to 6.25% of White women.
- Women delivering MLBW babies in 2013 were most likely to have normal weight (42%), although a combined 49% were measured as overweight (22%) or obese (27%). A greater percentage of underweight (13.29%) and normal weight (8.10%) mothers had MLBW babies in 2013 than overweight (7.22%) and obese (7.32%) mothers.

2011-2013 Percentage of Moderately Low Birthweight Babies

Demographic Characteristic	Measure	2011 % MLBW	2012 % MLBW	2013 % MLBW	Difference Between 2013 and 2011 (MLBW)	Relative Percentage Change (MLBW)
AGE	Ages 0-18	9.72%	9.52%	8.97%	-0.75%	-7.72%
	Ages 19-24	8.58%	8.30%	8.42%	-0.16%	-1.86%
	Ages 25-34	7.33%	7.23%	7.16%	-0.17%	-2.32%
	Ages 35-44	8.80%	8.49%	8.79%	-0.01%	-0.11%
	Ages 45-54	11.11%	15.15%	11.11%	0.00%	0.00%
	Missing/Unknown Age	0.00%	0.00%	0.00%	0.00%	N/A
RACE	Black Race	11.62%	11.23%	11.03%	-0.59%	-5.08%
	White Race	6.24%	6.18%	6.25%	0.01%	0.16%
	Other Race	7.77%	6.05%	7.15%	-0.62%	-7.98%
	Missing/Unknown Race	7.14%	0.00%	0.00%	-7.14%	-100.00%
ETHNICITY	Hispanic Ethnicity	4.65%	5.04%	5.31%	0.66%	14.19%
	Non-Hispanic Ethnicity	8.39%	8.12%	8.06%	-0.33%	-3.93%
EDUCATIONAL STATUS	Less than High School Grad	9.14%	9.18%	9.45%	0.31%	3.39%
	High School Grad/GED	9.19%	8.46%	8.56%	-0.63%	-6.86%
	Some College	8.21%	8.06%	8.12%	-0.09%	-1.10%
	College Degree +	6.26%	6.42%	6.24%	-0.02%	-0.32%
	Missing/Unknown Education	11.61%	9.20%	5.37%	-6.24%	-53.75%
BMI	Underweight	13.02%	13.14%	13.29%	0.27%	2.07%
	Normal Weight	8.27%	7.93%	8.10%	-0.17%	-2.06%
	Overweight	6.92%	7.33%	7.22%	0.30%	4.34%
	Obese	8.01%	7.62%	7.32%	-0.69%	-8.61%
	Missing/Unknown BMI	7.83%	6.76%	6.97%	-0.86%	-10.98%
PAYER	All Payers	8.06%	7.86%	7.84%	-0.22%	-2.73%
	Medicaid	9.32%	9.01%	8.98%	-0.34%	-3.65%
	Private Insurance	6.16%	5.95%	6.08%	-0.08%	-1.30%
	Self-Pay	6.06%	6.21%	6.99%	0.93%	15.35%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	5.96%	4.96%	5.68%	-0.28%	-4.70%
	Perinatal Level II & IIE	6.70%	6.94%	6.79%	0.09%	1.34%
	Perinatal Level III	10.83%	10.17%	9.99%	-0.84%	-7.76%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	8.83%	8.53%	8.05%	-0.78%	-8.83%
	Urban	7.75%	7.60%	7.72%	-0.03%	-0.39%
	Not Defined	10.08%	9.27%	10.68%	0.60%	5.95%
TOTAL	STATE TOTAL	8.06%	7.86%	7.84%	-0.22%	-2.73%

2013 Percentage of Total Moderately Low Birthweight Babies

Demographic Characteristic	Measure	Percentage
AGE	Ages 0-18	5.65%
	Ages 19-24	34.44%
	Ages 25-34	47.15%
	Ages 35-44	12.64%
	Ages 45-54	0.12%
	Missing/Unknown Age	0.00%
RACE	Black Race	46.23%
	White Race	51.59%
	Other Race	2.17%
	Missing/Unknown Race	0.00%
ETHNICITY	Hispanic Ethnicity	5.53%
	Non-Hispanic Ethnicity	94.47%
EDUCATIONAL STATUS	Less than High School Grad	20.76%
	High School Grad/GED	26.27%
	Some College	26.99%
	College Degree +	25.79%
	Missing/Unknown Education	0.19%
BMI	Underweight	6.79%
	Normal Weight	41.66%
	Overweight	22.16%
	Obese	26.87%
	Missing/Unknown BMI	2.51%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	7.39%
	Perinatal Levels II & IIE	46.28%
	Perinatal Level III	46.30%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	26.24%
	Urban	72.35%
	Not Defined	1.40%

Summary of Findings: Low Birthweight

- The overall LBW measure decreased slightly from 9.89% in 2011 to 9.70% in 2013 (-0.19%, RC: -1.92%). However, both the VLBW and LBW measures increased in 2013 compared to 2012.
- The percentage of LBW babies born in 2013 to White (50.04%) and Black (47.97%) mothers was similar. However, twice as many Black mothers had a LBW baby, with a rate of 14.16% compared to 7.50% for White mothers.
- Perinatal Level III hospitals were most likely to treat LBW babies (representing 53% of 2013 LBW babies). They also had the highest 2013 LBW rate (14.14%), which was more than double the rate of Perinatal Level I hospitals (6.12%) and nearly double the rate of Perinatal Level II & IIE hospitals (7.36%). Perinatal Level I and Perinatal Level III hospitals treated fewer LBW babies from 2011 to 2013 (RC: -6%). Perinatal Level II & IIE hospitals treated slightly more LBW babies (RC: +2%).
- In 2013, women ages 25-34 were most likely to have LBW babies (47.81%). However, they also represented 51.64% of all births that year.
- Slightly more than half of women delivering LBW babies were measured as overweight (22.81%) or obese (28.81%). Nearly 40% were normal weight. However, the 2013 rate among underweight women was the highest of any BMI category (15.13%).
- Women residing in rural areas were less likely to deliver a LBW baby in 2013 compared to 2011 (-1.13%, RC: -10.11%). However, slightly more rural women (10.05%) than urban women (9.52%) had a LBW baby. Seventy-two percent of LBW babies were born to mothers residing in urban areas.
- With the exception of self-pay (1.51%, RC: +19%), all payer types had a decrease in the percentage of LBW babies from 2011 to 2013. Mothers receiving Medicaid benefits had the highest LBW rate in 2013 (11%). Conversely, women with private insurance had the lowest rate (7.44%).
- In 2013, there was a direct inverse relationship between level of education and LBW. However, improvement over time was not as clear. Women who had not graduated from high school (0.39%, RC: 3.50%) and those who had a graduated from college (0.11%, RC: 1.44%) were more likely to have a LBW baby in 2013 than in 2011; whereas, women with a high school diploma or equivalent (-0.61%, RC: -5.51%) or some college (-0.15%, RC: -1.46%) were less likely.

2011-2013 Percentage of Low Birthweight Babies

Demographic Characteristic	Measure	2011 % LBW	2012 % LBW	2013 % LBW	Difference Between 2013 and 2011 (LBW)	Relative Percentage Change (LBW)
AGE	Ages 0-18	12.15%	11.50%	11.04%	-1.11%	-9.14%
	Ages 19-24	10.56%	10.09%	10.07%	-0.49%	-4.64%
	Ages 25-34	8.89%	8.86%	8.98%	0.09%	1.01%
	Ages 35-44	11.06%	10.61%	11.33%	0.27%	2.44%
	Ages 45-54	11.11%	15.15%	13.33%	2.22%	19.98%
	Missing/Unknown Age	0.00%	0.00%	0.00%	0.00%	N/A
RACE	Black Race	14.64%	14.31%	14.16%	-0.48%	-3.28%
	White Race	7.47%	7.27%	7.50%	0.03%	0.40%
	Other Race	9.28%	7.23%	8.10%	-1.18%	-12.72%
	Missing/Unknown Race	7.14%	3.33%	0.00%	-7.14%	-100.00%
ETHNICITY	Hispanic Ethnicity	5.67%	5.86%	6.75%	1.08%	19.05%
	Non-Hispanic Ethnicity	10.29%	9.96%	9.96%	-0.33%	-3.21%
EDUCATIONAL STATUS	Less than High School Grad	11.15%	11.07%	11.54%	0.39%	3.50%
	High School Grad/GED	11.08%	10.42%	10.47%	-0.61%	-5.51%
	Some College	10.30%	10.12%	10.15%	-0.15%	-1.46%
	College Degree +	7.65%	7.69%	7.76%	0.11%	1.44%
	Missing/Unknown Education	18.71%	11.04%	12.08%	-6.63%	-35.44%
BMI	Underweight	14.95%	14.92%	15.13%	0.18%	1.20%
	Normal Weight	9.77%	9.35%	9.53%	-0.24%	-2.46%
	Overweight	8.64%	9.01%	9.19%	0.55%	6.37%
	Obese	10.43%	9.93%	9.71%	-0.72%	-6.90%
	Missing/Unknown BMI	9.23%	8.59%	8.71%	-0.52%	-5.63%
PAYER	All Payers	9.89%	9.61%	9.70%	-0.19%	-1.92%
	Medicaid	11.40%	11.01%	11.00%	-0.40%	-3.51%
	Private Insurance	7.48%	7.03%	7.44%	-0.04%	-0.53%
	Self-Pay	7.81%	8.18%	9.32%	1.51%	19.33%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	6.50%	5.55%	6.12%	-0.38%	-5.85%
	Perinatal Level II & IIE	7.21%	7.47%	7.36%	0.15%	2.08%
	Perinatal Level III	15.06%	14.11%	14.14%	-0.92%	-6.11%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	11.18%	10.56%	10.05%	-1.13%	-10.11%
	Urban	9.39%	9.23%	9.52%	0.13%	1.38%
	Not Defined	12.45%	13.31%	14.00%	1.55%	12.45%
TOTAL	STATE TOTAL	9.89%	9.61%	9.70%	-0.19%	-1.92%

2013 Percentage of Total Low Birthweight Babies

Demographic Characteristic	Measure	Percentage
AGE	Ages 0-18	5.63%
	Ages 19-24	33.28%
	Ages 25-34	47.81%
	Ages 35-44	13.16%
	Ages 45-54	0.12%
	Missing/Unknown Age	0.00%
RACE	Black Race	47.97%
	White Race	50.04%
	Other Race	1.99%
	Missing/Unknown Race	0.00%
ETHNICITY	Hispanic Ethnicity	5.68%
	Non-Hispanic Ethnicity	94.32%
EDUCATIONAL STATUS	Less than High School Grad	20.49%
	High School Grad/GED	25.98%
	Some College	27.27%
	College Degree +	25.92%
	Missing/Unknown Education	0.35%
BMI	Underweight	6.25%
	Normal Weight	39.59%
	Overweight	22.81%
	Obese	28.81%
	Missing/Unknown BMI	2.54%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	6.45%
	Perinatal Levels II & IIE	40.57%
	Perinatal Level III	52.97%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	26.46%
	Urban	72.05%
	Not Defined	1.48%

Summary of Findings: Normal Birthweight

- Across demographic groups, there were only slight changes in the percentage of normal weight babies born in 2013 as compared to 2011. Rural women were more likely to have a normal weight baby (1.11%, RC: +1%), and women of Hispanic ethnicity were less likely (-1.08%, RC: -1%). However, other demographic shifts were negligible.
- In 2013, a greater proportion of normal birthweight babies were present among women who were ages 25-34 (52.05%), White (66.28%), Non-Hispanic ethnicity (91.57%), normal weight (40.39%), residing in an urban area (73.58%), and delivered in a Perinatal Level II or IIE hospital (54.86%). However, as the majority of babies born are of normal weight (90.28%), this also represented the general birth profile in SC.
- Women of Hispanic ethnicity were more likely to have a normal birthweight baby in 2013 than women of Non-Hispanic ethnicity (93.25% and 90.01%, respectively).
- As expected, given the inverse relationship between educational attainment and LBW, the rate of normal birthweight was highest among women with a college degree (92.21%).
- Lower 2013 rates of normal weight were present among Black women (85.81%); younger women ages 0-18 (88.85%) and older women ages 35-44 (88.65%) or 45-64 (86.67%); underweight women (84.82%), women qualifying for Medicaid (88.97%), women delivering in Perinatal Level III facilities (85.81%), and rural women (89.92%).

2011-2013 Percentage of Normal Birthweight Babies

Demographic Characteristic	Measure	2011 % NBW	2012 % NBW	2013 % NBW	Difference Between 2013 and 2011 (NBW)	Relative Percentage Change (NBW)
AGE	Ages 0-18	87.85%	88.50%	88.85%	1.00%	1.14%
	Ages 19-24	89.44%	89.90%	89.90%	0.46%	0.51%
	Ages 25-34	91.10%	91.13%	90.99%	-0.11%	-0.12%
	Ages 35-44	88.92%	89.39%	88.65%	-0.27%	-0.30%
	Ages 45-54	88.89%	84.85%	86.67%	-2.22%	-2.50%
	Missing/Unknown Age	100.00%	100.00%	100.00%	0.00%	0.00%
RACE	Black Race	85.35%	85.67%	85.81%	0.46%	0.54%
	White Race	92.53%	92.73%	92.47%	-0.06%	-0.06%
	Other Race	90.72%	92.77%	91.90%	1.18%	1.30%
	Missing/Unknown Race	92.86%	96.67%	100.00%	7.14%	7.69%
ETHNICITY	Hispanic Ethnicity	94.33%	94.14%	93.25%	-1.08%	-1.14%
	Non-Hispanic Ethnicity	89.70%	90.03%	90.01%	0.31%	0.35%
EDUCATIONAL STATUS	Less than High School Grad	88.84%	88.92%	88.42%	-0.42%	-0.47%
	High School Grad/GED	88.91%	89.57%	89.51%	0.60%	0.67%
	Some College	89.69%	89.87%	89.82%	0.13%	0.14%
	College Degree +	92.34%	92.31%	92.21%	-0.13%	-0.14%
	Missing/Unknown Education	80.65%	88.96%	87.92%	7.27%	9.01%
BMI	Underweight	85.05%	85.08%	84.82%	-0.23%	-0.27%
	Normal Weight	90.23%	90.65%	90.45%	0.22%	0.24%
	Overweight	91.36%	90.99%	90.78%	-0.58%	-0.63%
	Obese	89.57%	90.05%	90.25%	0.68%	0.76%
	Missing/Unknown BMI	90.71%	91.36%	91.29%	0.58%	0.64%
PAYER	All Payers	90.11%	90.38%	90.28%	0.17%	0.19%
	Medicaid	88.60%	88.98%	88.97%	0.37%	0.42%
	Private Insurance	92.52%	92.96%	92.53%	0.01%	0.01%
	Self-Pay	92.19%	91.82%	90.68%	-1.51%	-1.64%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	93.48%	94.44%	93.82%	0.34%	0.36%
	Perinatal Level II & IIE	92.79%	92.52%	92.62%	-0.17%	-0.18%
	Perinatal Level III	84.93%	85.88%	85.81%	0.88%	1.04%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	88.81%	89.44%	89.92%	1.11%	1.25%
	Urban	90.60%	90.76%	90.45%	-0.15%	-0.17%
	Not Defined	87.55%	86.69%	86.00%	-1.55%	-1.77%
TOTAL	STATE TOTAL	90.11%	90.38%	90.27%	0.16%	0.18%

2013 Percentage of Total Normal Birthweight Babies

Demographic Characteristic	Measure	Percentage
AGE	Ages 0-18	4.86%
	Ages 19-24	31.94%
	Ages 25-34	52.05%
	Ages 35-44	11.06%
	Ages 45-54	0.08%
	Missing/Unknown Age	0.00%
RACE	Black Race	31.24%
	White Race	66.28%
	Other Race	2.43%
	Missing/Unknown Race	0.04%
ETHNICITY	Hispanic Ethnicity	8.43%
	Non-Hispanic Ethnicity	91.57%
EDUCATIONAL STATUS	Less than High School Grad	16.88%
	High School Grad/GED	23.84%
	Some College	25.93%
	College Degree +	33.08%
	Missing/Unknown Education	0.27%
BMI	Underweight	3.77%
	Normal Weight	40.39%
	Overweight	24.21%
	Obese	28.78%
	Missing/Unknown BMI	2.86%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	10.61%
	Perinatal Levels II & IIE	54.86%
	Perinatal Level III	34.53%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	25.44%
	Urban	73.58%
	Not Defined	0.98%

Access to Prenatal Care

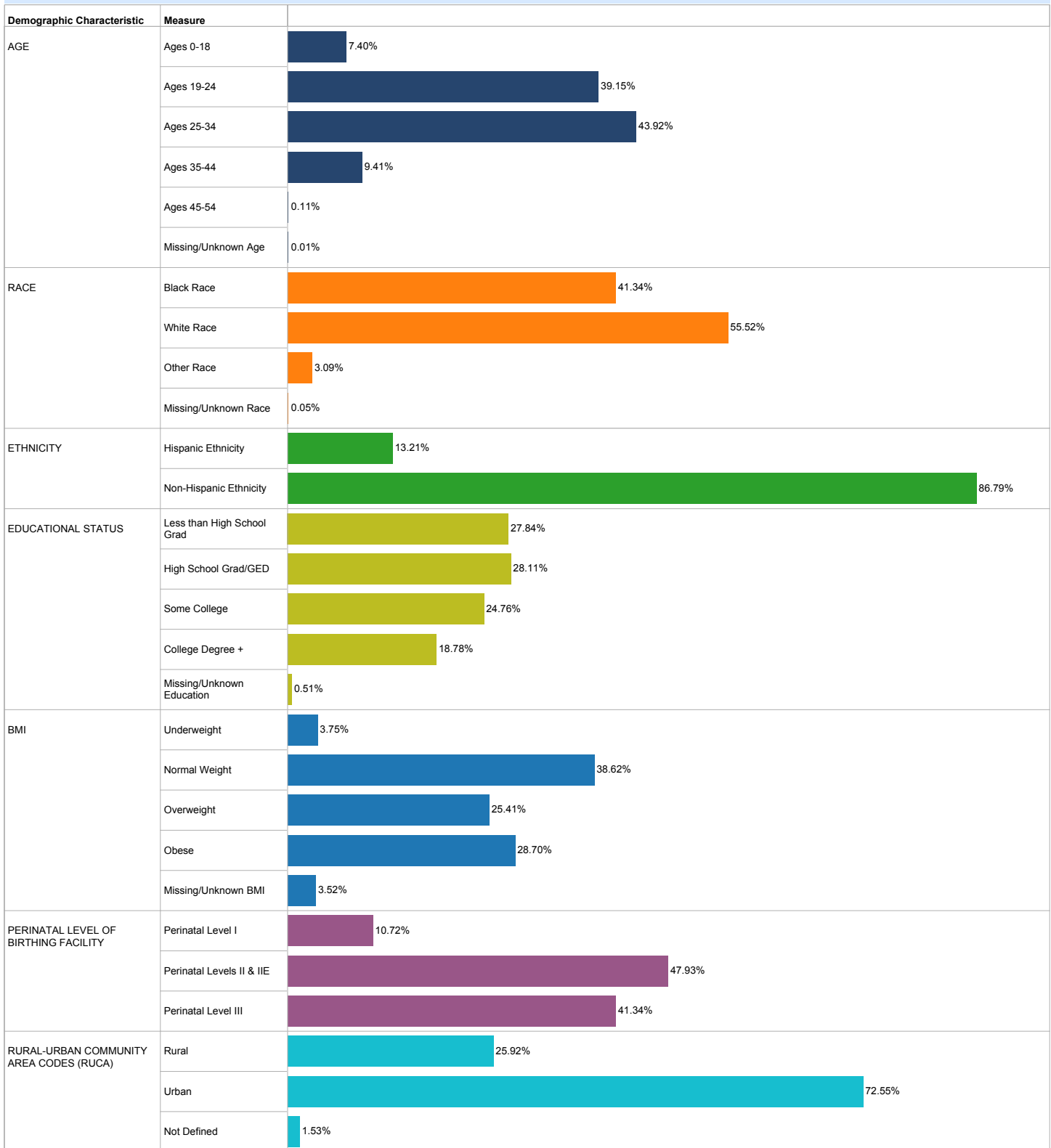
Summary of Findings: Inadequate Prenatal Care

- Nearly 19% of women in SC received inadequate prenatal care as measured by the Kotelchuck Index in 2013.
- Women ages 45-54 were more likely to experience inadequate prenatal care in 2013 as compared to 2011 (5.00%, RC: 26%), as were women identifying as Other race (4.56%, RC: 23%) and those with a college degree (1.90%, RC: 21%).
- Across age groups, women ages 25-34 represented 51.64% of deliveries, but only 43.92% of women receiving inadequate care. Conversely, women ages 19-24 represented 32.07% of deliveries, but made up 39.15% of women receiving inadequate care.
- When comparing 2013 to 2011, teenage mothers ages 0-18 were less likely to experience inadequate prenatal care (-2.36%, RC: -8%), as were mothers with less than a high school degree (-1.42%, RC: -4%). However, in 2013, a greater percentage of women ages 0-18 received inadequate care (28.36%) than any other age group, while women ages 35-44 were least likely to receive inadequate care (15.82%). Comparably, nearly 31% of women with less than a high school graduation, but only 11% of women with a college degree, had inadequate care.
- Women with private insurance were more likely in 2013 than in 2011 to experience inadequate prenatal care (1.74%, RC: +24%); whereas, women qualifying for Medicaid were slightly less likely to experience inadequate prenatal care (-0.54%, RC: -2%). Nevertheless, only 8.98% of women with private insurance, compared to 23.94% of women qualifying for Medicaid and 29.40% of self-pay women, received inadequate care.
- In 2013, women giving birth in Perinatal Level II & IIE facilities were slightly less likely to receive inadequate prenatal care than they were in 2011 (-0.24%, RC: -1%), and women served in Perinatal Level III hospitals were slightly more likely (0.44%, RC: +2%). Nearly 22% of women in Perinatal Level III hospitals compared to 17% in Perinatal Level II & IIE hospitals received inadequate care.
- Women identifying as Hispanic ethnicity were less likely in 2013 than in 2011 to receive inadequate prenatal care (-4.34%, RC: -12%). In spite of this, even though Hispanic women only represented 8.17% of women delivering, they represented 13.21% of women receiving inadequate prenatal care. Similarly, Black women represented 32.87% of women delivering, but 41.34% of women receiving inadequate prenatal care. In 2013, nearly 24% of Black women and 25% of women in the Other race category received inadequate care compared to only 16% of White women. Relatedly, 31% of women of Hispanic ethnicity received inadequate care compared to 18% of women categorized as Non-Hispanic.

2011-2013 Percentage of Inadequate Prenatal Care (as measured by the Kotelchuck Index)

Demographic Characteristic	Measure	2011 % Inadeq. K.	2012 % Inadeq. K.	2013 % Inadeq. K.	Difference Between 2013 and 2011 (Inadeq. K.)	Relative Percentage Change (Inadeq. K.)
AGE	Ages 0-18	30.72%	28.72%	28.36%	-2.36%	-7.68%
	Ages 19-24	23.21%	22.97%	23.13%	-0.08%	-0.34%
	Ages 25-34	15.59%	15.23%	16.11%	0.52%	3.34%
	Ages 35-44	13.88%	14.66%	15.82%	1.94%	13.98%
	Ages 45-54	19.44%	15.15%	24.44%	5.00%	25.72%
	Missing/Unknown Age	0.00%	0.00%	100.00%	100.00%	N/A
RACE	Black Race	23.94%	23.68%	23.83%	-0.11%	-0.46%
	White Race	16.29%	15.73%	16.25%	-0.04%	-0.25%
	Other Race	19.98%	20.44%	24.54%	4.56%	22.82%
	Missing/Unknown Race	28.57%	33.33%	23.81%	-4.76%	-16.66%
ETHNICITY	Hispanic Ethnicity	34.99%	33.12%	30.65%	-4.34%	-12.40%
	Non-Hispanic Ethnicity	17.38%	17.17%	17.90%	0.52%	2.99%
EDUCATIONAL STATUS	Less than High School Grad	32.03%	31.41%	30.61%	-1.42%	-4.43%
	High School Grad/GED	21.29%	21.36%	22.15%	0.86%	4.04%
	Some College	17.84%	17.52%	18.00%	0.16%	0.90%
	College Degree +	9.09%	9.24%	10.99%	1.90%	20.90%
	Missing/Unknown Education	27.10%	28.22%	34.23%	7.13%	26.31%
BMI	Underweight	18.82%	20.19%	17.73%	-1.09%	-5.79%
	Normal Weight	18.17%	17.48%	18.15%	-0.02%	-0.11%
	Overweight	19.28%	18.74%	20.00%	0.72%	3.73%
	Obese	18.87%	18.47%	18.89%	0.02%	0.11%
	Missing/Unknown BMI	26.84%	26.01%	23.59%	-3.25%	-12.11%
PAYER	All Payers	18.92%	18.51%	18.95%	0.03%	0.16%
	Medicaid	24.48%	23.67%	23.94%	-0.54%	-2.21%
	Private Insurance	7.24%	6.98%	8.98%	1.74%	24.03%
	Self-Pay	29.61%	30.61%	29.40%	-0.21%	-0.71%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	19.79%	20.70%	19.89%	0.10%	0.51%
	Perinatal Level II & IIE	17.22%	16.52%	16.98%	-0.24%	-1.39%
	Perinatal Level III	21.12%	20.70%	21.56%	0.44%	2.08%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	19.48%	18.96%	19.22%	-0.26%	-1.33%
	Urban	18.62%	18.24%	18.72%	0.10%	0.54%
	Not Defined	26.88%	27.02%	28.18%	1.30%	4.84%
TOTAL	STATE TOTAL	18.92%	18.51%	18.94%	0.02%	0.11%

2013 Percentage of Total Inadequate Prenatal Care (as measured by the Kotelchuck Index)



Summary of Findings: Intermediate Prenatal Care

- Although there was little overall change in the percentage of SC women receiving inadequate prenatal care (0.02%, RC: 0.11%), there was a larger negative shift in the percentage receiving intermediate care (-0.66%, RC: -10%).
- With the exception of women ages 0-18 & 45-54 and those served in Perinatal Level I hospitals, all demographic groups had fewer women receiving intermediate care in 2013 than in 2011. The greatest decreases were seen for women identifying as Other race (-1.97%, RC: -26%) and Hispanic ethnicity (-2.67%, RC: -29%).
- The 2013 percent of total intermediate prenatal care coincided with the 2013 demographic birth profile.
- Women with less than a high school degree or equivalent had the highest percentage of intermediate prenatal care in 2013 (7.06%) compared to women of any other educational attainment.
- There was an inverse relationship between age and intermediate care with younger women having a higher rate than older women. A similar trend was seen with BMI with a greater percentage of underweight and normal weight women having intermediate care than overweight and obese women.
- Nearly 8% of mothers identified as self-pay received intermediate care compared to 6% for all other payer types.

2011-2013 Percentage of Intermediate Prenatal Care (as measured by the Kotelchuck Index)

Demographic Characteristic	Measure	2011 % Intermed. K.	2012 % Intermed. K.	2013 % Intermed. K.	Difference Between 2013 and 2011 (Intermed. K.)	Relative Percentage Change (Intermed. K.)
AGE	Ages 0-18	5.56%	6.51%	6.44%	0.88%	15.83%
	Ages 19-24	6.70%	6.73%	6.16%	-0.54%	-8.06%
	Ages 25-34	6.80%	6.84%	5.93%	-0.87%	-12.79%
	Ages 35-44	6.44%	6.37%	5.58%	-0.86%	-13.35%
	Ages 45-54	2.78%	0.00%	4.44%	1.66%	59.71%
	Missing/Unknown Age	0.00%	0.00%	0.00%	0.00%	N/A
RACE	Black Race	6.06%	6.49%	5.82%	-0.24%	-3.96%
	White Race	6.92%	6.85%	6.10%	-0.82%	-11.85%
	Other Race	7.53%	6.94%	5.56%	-1.97%	-26.16%
	Missing/Unknown Race	10.71%	6.67%	0.00%	-10.71%	-100.00%
ETHNICITY	Hispanic Ethnicity	9.35%	7.01%	6.68%	-2.67%	-28.56%
	Non-Hispanic Ethnicity	6.39%	6.70%	5.93%	-0.46%	-7.20%
EDUCATIONAL STATUS	Less than High School Grad	7.18%	7.40%	7.06%	-0.12%	-1.67%
	High School Grad/GED	6.46%	6.14%	5.96%	-0.50%	-7.74%
	Some College	5.98%	6.10%	5.48%	-0.50%	-8.36%
	College Degree +	7.02%	7.22%	5.85%	-1.17%	-16.67%
	Missing/Unknown Education	4.52%	12.88%	6.04%	1.52%	33.63%
BMI	Underweight	7.48%	6.71%	6.62%	-0.86%	-11.50%
	Normal Weight	7.26%	7.31%	6.69%	-0.57%	-7.85%
	Overweight	6.70%	6.78%	5.57%	-1.13%	-16.87%
	Obese	5.54%	5.73%	5.23%	-0.31%	-5.60%
	Missing/Unknown BMI	7.10%	7.31%	6.30%	-0.80%	-11.27%
PAYER	All Payers	6.65%	6.73%	5.99%	-0.66%	-9.92%
	Medicaid	6.52%	6.45%	5.99%	-0.53%	-8.13%
	Private Insurance	6.90%	7.33%	5.80%	-1.10%	-15.94%
	Self-Pay	8.34%	6.82%	7.57%	-0.77%	-9.23%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	6.20%	9.00%	6.35%	0.15%	2.42%
	Perinatal Level II & IIE	7.46%	7.00%	6.24%	-1.22%	-16.35%
	Perinatal Level III	5.62%	5.58%	5.51%	-0.11%	-1.96%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	6.84%	7.08%	6.60%	-0.24%	-3.51%
	Urban	6.59%	6.62%	5.74%	-0.85%	-12.90%
	Not Defined	6.13%	6.05%	8.29%	2.16%	35.24%
TOTAL	STATE TOTAL	6.65%	6.73%	5.99%	-0.66%	-9.92%

**2013 Percentage of Total Intermediate Prenatal Care
(as measured by the Kotelchuck Index)**

Demographic Characteristic	Measure	
AGE	Ages 0-18	5.31%
	Ages 19-24	33.00%
	Ages 25-34	51.12%
	Ages 35-44	10.50%
	Ages 45-54	0.06%
	Missing/Unknown Age	0.00%
RACE	Black Race	31.92%
	White Race	65.87%
	Other Race	2.21%
	Missing/Unknown Race	0.00%
ETHNICITY	Hispanic Ethnicity	9.11%
	Non-Hispanic Ethnicity	90.89%
EDUCATIONAL STATUS	Less than High School Grad	20.31%
	High School Grad/GED	23.92%
	Some College	23.85%
	College Degree +	31.64%
	Missing/Unknown Education	0.28%
BMI	Underweight	4.43%
	Normal Weight	45.05%
	Overweight	22.40%
	Obese	25.15%
	Missing/Unknown BMI	2.97%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	10.82%
	Perinatal Levels II & IIE	55.74%
	Perinatal Level III	33.41%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	28.16%
	Urban	70.42%
	Not Defined	1.42%

Summary of Findings: Adequate Prenatal Care

- Approximately 28% received adequate care in 2013, which was a decrease from 29% in 2011 and 2012. When comparing 2013 to 2011, fewer women received adequate prenatal care in SC (-0.57%, RC: -1.99%). Some of this decrease is likely because a greater percentage of mothers received adequate plus care (1.25%, RC: 2.75%), as intermediate care decreased (-.66%, RC: -9.92%) and inadequate care only slightly increased (0.02%, RC: +0.11%).
- A greater percentage of women ages 25-34 received adequate care in 2013 than any other age group (29.73%). Younger women were more likely to receive adequate prenatal care in 2013 as compared to 2011 (*Ages 0-18*: 2.85%, RC: +13%; *Ages 19-24*: 0.28%, RC: +1%). Women over the age of 24 were less likely to receive adequate care, with the largest drop being for women ages 45-54 (-6.66%, RC: -30%).
- A similar trend was seen for educational status with women with less than high school (1.75%, RC: +8%) or high school graduation (0.04%, RC: 0.16%) being more likely to receive adequate care in 2013 than they were in 2011, and women with some college (-1.07%, RC: -4%) or a college degree (-2.90%, RC: -8%) less likely. However, the inverse trend for education and adequate prenatal care in 2013 was striking; 33% of college educated mothers received adequate care compared to only 24% of women with less than a high school education, a difference of 9%.
- White women were more likely than Black women and women categorized as Other race to have adequate care in 2013 (30.26% vs. 23.80% and 29.71%, respectively).
- Women identified as Medicaid recipients (0.81%, RC: +3%) or self-pay (2.71%, RC: +10%) were more likely to receive adequate care; whereas, women with private insurance were less likely (-3.14%, RC: -9%). However, a greater percentage of women with private insurance (nearly 34%) received adequate care than all other payer types.
- Women served in Perinatal Level I hospitals in 2013 were more likely to receive adequate care than they were in 2011 (1.02%, RC: +3%), as were women delivering in Perinatal Level III hospitals (0.21%, RC: +0.79%). However, women delivering in Perinatal Level II & IIE hospitals were less likely to receive adequate care (-1.30%, RC: -4%). This mirrored findings for rural and urban women with rural women more likely to receive adequate care (1.05%, RC: +4%) and urban women less likely (-1.17%, RC: -4%). Some of this decrease can likely be accounted for by an increase in the percentage of these women receiving adequate plus care (*PL II & IIE*: 2.84%, RC: +6%; *Urban*: 1.94%, RC: +4%).
- A greater percentage of women served in Perinatal Level I facilities (31.65%) received adequate care than in Perinatal Levels II & IIE (28.28%) and Perinatal Level III (26.91%). However, the rate of adequate plus care for these mothers was lower than it was for those served in other facilities.

2011-2013 Percentage of Adequate Prenatal Care (as measured by the Kotelchuck Index)

Demographic Characteristic	Measure	2011 % Adeq. K.	2012 % Adeq. K.	2013 % Adeq. K.	Difference Between 2013 and 2011 (Adeq. K.)	Relative Percentage Change (Adeq. K.)
AGE	Ages 0-18	22.52%	23.56%	25.37%	2.85%	12.66%
	Ages 19-24	25.78%	26.15%	26.06%	0.28%	1.09%
	Ages 25-34	31.23%	31.09%	29.73%	-1.50%	-4.80%
	Ages 35-44	29.87%	28.71%	28.01%	-1.86%	-6.23%
	Ages 45-54	22.22%	18.18%	15.56%	-6.66%	-29.97%
	Missing/Unknown Age	50.00%	0.00%	0.00%	-50.00%	-100.00%
RACE	Black Race	23.92%	23.44%	23.80%	-0.12%	-0.50%
	White Race	31.12%	31.38%	30.26%	-0.86%	-2.76%
	Other Race	29.50%	32.18%	29.71%	0.21%	0.71%
	Missing/Unknown Race	39.29%	26.67%	38.10%	-1.19%	-3.03%
ETHNICITY	Hispanic Ethnicity	26.56%	26.88%	27.59%	1.03%	3.88%
	Non-Hispanic Ethnicity	28.90%	28.92%	28.18%	-0.72%	-2.49%
EDUCATIONAL STATUS	Less than High School Grad	22.60%	23.96%	24.35%	1.75%	7.74%
	High School Grad/GED	25.42%	26.18%	25.46%	0.04%	0.16%
	Some College	27.73%	26.73%	26.66%	-1.07%	-3.86%
	College Degree +	36.29%	35.39%	33.39%	-2.90%	-7.99%
	Missing/Unknown Education	20.65%	17.18%	19.46%	-1.19%	-5.76%
BMI	Underweight	28.54%	28.15%	27.85%	-0.69%	-2.42%
	Normal Weight	31.62%	31.71%	31.06%	-0.56%	-1.77%
	Overweight	28.67%	28.04%	27.76%	-0.91%	-3.17%
	Obese	24.59%	25.25%	24.39%	-0.20%	-0.81%
	Missing/Unknown BMI	27.81%	27.42%	27.88%	0.07%	0.25%
PAYER	All Payers	28.70%	28.76%	28.13%	-0.57%	-1.99%
	Medicaid	24.27%	25.26%	25.08%	0.81%	3.34%
	Private Insurance	36.90%	36.51%	33.76%	-3.14%	-8.51%
	Self-Pay	27.86%	26.21%	30.57%	2.71%	9.73%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	30.63%	31.37%	31.65%	1.02%	3.33%
	Perinatal Level II & IIE	29.58%	28.70%	28.28%	-1.30%	-4.39%
	Perinatal Level III	26.70%	27.95%	26.91%	0.21%	0.79%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	25.97%	27.31%	27.02%	1.05%	4.04%
	Urban	29.78%	29.32%	28.61%	-1.17%	-3.93%
	Not Defined	20.55%	24.40%	21.55%	1.00%	4.87%
TOTAL	STATE TOTAL	28.70%	28.75%	28.13%	-0.57%	-1.99%

2013 Percentage of Total Adequate Prenatal Care (as measured by the Kotelchuck Index)

Demographic Characteristic	Measure	Percentage
AGE	Ages 0-18	4.46%
	Ages 19-24	29.71%
	Ages 25-34	54.57%
	Ages 35-44	11.22%
	Ages 45-54	0.05%
	Missing/Unknown Age	0.00%
RACE	Black Race	27.81%
	White Race	69.62%
	Other Race	2.52%
	Missing/Unknown Race	0.05%
ETHNICITY	Hispanic Ethnicity	8.01%
	Non-Hispanic Ethnicity	91.99%
EDUCATIONAL STATUS	Less than High School Grad	14.91%
	High School Grad/GED	21.76%
	Some College	24.70%
	College Degree +	38.44%
	Missing/Unknown Education	0.20%
BMI	Underweight	3.97%
	Normal Weight	44.51%
	Overweight	23.76%
	Obese	24.96%
	Missing/Unknown BMI	2.80%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	11.49%
	Perinatal Levels II & IIE	53.76%
	Perinatal Level III	34.75%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	24.54%
	Urban	74.68%
	Not Defined	0.79%

Summary of Findings: Adequate Plus Prenatal Care

- Nearly half of all mothers in SC receive adequate plus care (46.68%), and the percentage of women receiving such care has increased since 2011 (1.25%, RC: +2.75%).
- Age and adequacy of care were inversely related in 2013, with a smaller percentage of women ages 0-18 receiving adequate plus care than any other age group (39.71% compared to 55.56% for women ages 45-54).
- More than half of all women with private insurance had adequate plus prenatal care (51.22%). In contrast, less than a third of women categorized as self-pay received adequate plus care (31.73%). From 2011 to 2013, there was a slight improvement for both Medicaid (0.39%, RC: 0.88%) and Private insurance (2.46%, RC: +6%) for this measure.
- Mothers giving birth in Perinatal Levels II & IIE facilities in 2013 were most likely to receive adequate plus care (48.34%), with those delivering in Perinatal Level I facilities less likely (42.00%). More than half of all mothers receiving adequate plus care gave birth in Perinatal Levels II & IIE facilities (55.36%), which was slightly higher than the percentage of births in those facilities (53.46%).
- Hispanic women received better care in 2013 than they did in 2011. There was a 6.09% increase in the percentage of Hispanic women receiving adequate plus care, a relative change of +21%. They were also less likely to receive inadequate and intermediate care and more likely to receive adequate care (see above). However, only approximately 35% of Hispanic women obtained adequate plus care compared to 48% of Non-Hispanic women. Hispanic mothers made up only 6.09% of mothers receiving adequate plus care, but 8.17% of all women delivering.
- Fewer women identifying as Other race received adequate plus care from 2011 to 2013 (-2.79%, RC: -7%), with only 40.03% of women classified as Other race received adequate plus care in 2013 (when 46.28% of Black women and 47.14% of White women secured such care).
- About 47% of both rural and urban women obtained adequate plus prenatal care in 2013.
- Women who were classified as obese (51.26%) were more likely than overweight (46.45%) and normal weight (43.86%) mothers to receive adequate plus prenatal care in 2013.
- Mothers with less than a high school graduation in 2013 made up 17.23% of all deliveries but only 13.94% of mothers receiving adequate plus care. Conversely, they represented 27.84% of mothers with inadequate prenatal care.

2011-2013 Percentage of Adequate Plus Prenatal Care (as measured by the Kotelchuck Index)

Demographic Characteristic	Measure	2011 % Adeq. + K.	2012 % Adeq. + K.	2013 % Adeq. + K.	Difference Between 2013 and 2011 (Adeq. + K.)	Relative Percentage Change (Adeq. + K.)
AGE	Ages 0-18	40.61%	40.85%	39.71%	-0.90%	-2.22%
	Ages 19-24	44.02%	43.86%	44.39%	0.37%	0.84%
	Ages 25-34	46.12%	46.58%	47.97%	1.85%	4.01%
	Ages 35-44	49.48%	49.93%	50.29%	0.81%	1.64%
	Ages 45-54	55.56%	66.67%	55.56%	0.00%	0.00%
	Missing/Unknown Age	50.00%	100.00%	0.00%	-50.00%	-100.00%
RACE	Black Race	45.67%	46.04%	46.28%	0.61%	1.34%
	White Race	45.43%	45.80%	47.14%	1.71%	3.76%
	Other Race	42.82%	40.22%	40.03%	-2.79%	-6.52%
	Missing/Unknown Race	17.86%	30.00%	38.10%	20.24%	113.33%
ETHNICITY	Hispanic Ethnicity	28.74%	32.72%	34.83%	6.09%	21.19%
	Non-Hispanic Ethnicity	47.04%	46.93%	47.73%	0.69%	1.47%
EDUCATIONAL STATUS	Less than High School Grad	37.81%	37.02%	37.78%	-0.03%	-0.08%
	High School Grad/GED	46.58%	46.01%	46.23%	-0.35%	-0.75%
	Some College	48.17%	49.37%	49.67%	1.50%	3.11%
	College Degree +	47.37%	47.93%	49.50%	2.13%	4.50%
	Missing/Unknown Education	40.00%	31.29%	28.86%	-11.14%	-27.85%
BMI	Underweight	44.94%	44.60%	47.47%	2.53%	5.63%
	Normal Weight	42.67%	43.19%	43.86%	1.19%	2.79%
	Overweight	45.09%	46.23%	46.45%	1.36%	3.02%
	Obese	50.72%	50.38%	51.26%	0.54%	1.06%
	Missing/Unknown BMI	37.22%	38.12%	40.95%	3.73%	10.02%
PAYER	All Payers	45.43%	45.73%	46.67%	1.24%	2.73%
	Medicaid	44.41%	44.39%	44.80%	0.39%	0.88%
	Private Insurance	48.76%	48.99%	51.22%	2.46%	5.05%
	Self-Pay	33.51%	35.61%	31.73%	-1.78%	-5.31%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	43.24%	38.81%	42.00%	-1.24%	-2.87%
	Perinatal Level II & IIE	45.50%	47.54%	48.34%	2.84%	6.24%
	Perinatal Level III	46.13%	45.39%	45.56%	-0.57%	-1.24%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	47.34%	46.33%	46.90%	-0.44%	-0.93%
	Urban	44.74%	45.57%	46.68%	1.94%	4.34%
	Not Defined	45.85%	41.53%	41.44%	-4.41%	-9.62%
TOTAL	STATE TOTAL	45.43%	45.73%	46.68%	1.25%	2.75%

2013 Percentage of Total Adequate Plus Prenatal Care (as measured by the Kotelchuck Index)

Demographic Characteristic	Measure	Percentage
AGE	Ages 0-18	4.20%
	Ages 19-24	30.50%
	Ages 25-34	53.06%
	Ages 35-44	12.14%
	Ages 45-54	0.10%
	Missing/Unknown Age	0.00%
	RACE	Black Race
White Race		65.34%
Other Race		2.05%
Missing/Unknown Race		0.03%
ETHNICITY	Hispanic Ethnicity	6.09%
	Non-Hispanic Ethnicity	93.91%
EDUCATIONAL STATUS	Less than High School Grad	13.94%
	High School Grad/GED	23.81%
	Some College	27.73%
	College Degree +	34.34%
	Missing/Unknown Education	0.17%
BMI	Underweight	4.07%
	Normal Weight	37.88%
	Overweight	23.96%
	Obese	31.61%
	Missing/Unknown BMI	2.48%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	9.19%
	Perinatal Levels II & IIE	55.36%
	Perinatal Level III	35.45%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	25.67%
	Urban	73.42%
	Not Defined	0.91%

Elective Inductions at 37-38 Weeks Gestation

Summary of Findings: Elective Inductions at 37-38 Weeks Gestation

- SC reduced early elective inductions at 37-38 weeks gestation by half from a rate of 8.81% in 2011 to 4.43% in 2013. Every demographic group saw a decrease in this measure except for those women whose rural-urban category could not be defined.
- Women ages 25-34, the age group most likely to have an elective induction (45.52%), had the largest reduction of any age group (-5.03%, RC: -56%).
- Of the three perinatal levels, Perinatal Level III hospitals obtained the greatest reduction in early elective inductions from 2011 to 2013 with a decrease of 5.14% (RC: -64%). 65.67% of all early elective inductions occurred in Perinatal Level II & IIE hospitals in 2013; 5.15% of women treated at one of these hospitals had an early elective induction.
- Similarly, White women, the predominantly reported race, saw the largest reductions (-5.70%, RC: -53%), although women identifying as Other and Black also had substantial reductions (-49% and -43% RC, respectively). White women (5.08%) were more likely than Black women (4.10%) and Other women (2.75%) to have an induction at 37-38 weeks in 2013. They represented 58.58% of all early elective inductions that year.
- Women identified as self-pay had less of a relative decrease, 25%, compared to women with private insurance (53%), Medicaid (49%), or all payers in general (50%), in elective inductions at 37-38 weeks gestation from 2011 to 2013. They also had the highest 2013 percentage of any payer type (4.88%).
- A greater percentage of obese women were likely to have an early elective induction (5.28%) compared to all other BMI categories. Although the percentage of women receiving an early elective induction among this group did decrease 2.72% from 2011 to 2013, the relative reduction was only 34% compared to 58% for normal weight and 49% for overweight women. Underweight women had the least change with a reduction of only 1.13% (RC: 20%). Normal weight women represented 39.93% of women receiving an early elective induction, followed by obese women (25.75%), overweight women (24.25%), and underweight women (5.60%).
- Only 2.93% of women identifying as Hispanic had an early elective induction in 2013 (RC: -53%) as compared to 4.59% of women of Non-Hispanic ethnicity (RC: -49%).

2011-2013 Percentage of Elective Inductions at 37-38 Weeks Gestation

Demographic Characteristic	Measure	2011 % Elective Inductions 37-38	2012 % Elective Inductions 37-38	2013 % Elective Inductions 37-38	Difference Between 2013 and 2011 (EI 37-38)	Relative Percentage Change (EI 37-38)
AGE	Ages 0-18	8.39%	3.58%	6.08%	-2.31%	-27.53%
	Ages 19-24	8.69%	4.57%	4.52%	-4.17%	-47.99%
	Ages 25-34	9.04%	6.05%	4.01%	-5.03%	-55.64%
	Ages 35-44	8.27%	4.92%	5.41%	-2.86%	-34.58%
	Ages 45-54	33.33%	0.00%	0.00%	-33.33%	-100.00%
	Missing/Unknown Age	0.00%	0.00%	0.00%	0.00%	N/A
RACE	Black Race	7.13%	3.94%	4.10%	-3.03%	-42.50%
	White Race	10.78%	6.85%	5.08%	-5.70%	-52.88%
	Other Race	5.35%	2.60%	2.75%	-2.60%	-48.60%
	Missing/Unknown Race	0.00%	33.33%	0.00%	0.00%	N/A
ETHNICITY	Hispanic Ethnicity	6.67%	2.99%	2.93%	-3.74%	-56.07%
	Non-Hispanic Ethnicity	9.04%	5.52%	4.59%	-4.45%	-49.23%
EDUCATIONAL STATUS	Less than High School Grad	7.78%	4.19%	3.74%	-4.04%	-51.93%
	High School Grad/GED	8.32%	5.49%	4.72%	-3.60%	-43.27%
	Some College	9.36%	5.13%	5.35%	-4.01%	-42.84%
	College Degree +	9.50%	6.05%	3.89%	-5.61%	-59.05%
	Missing/Unknown Education	15.79%	0.00%	0.00%	-15.79%	-100.00%
BMI	Underweight	5.68%	3.97%	4.55%	-1.13%	-19.89%
	Normal Weight	8.87%	4.71%	3.77%	-5.10%	-57.50%
	Overweight	9.25%	5.54%	4.68%	-4.57%	-49.41%
	Obese	8.00%	6.70%	5.28%	-2.72%	-34.00%
	Missing/Unknown BMI	14.66%	4.43%	6.45%	-8.21%	-56.00%
PAYER	All Payers	8.81%	5.26%	4.43%	-4.38%	-49.72%
	Medicaid	8.39%	4.42%	4.32%	-4.07%	-48.51%
	Private Insurance	9.67%	6.87%	4.54%	-5.13%	-53.05%
	Self-Pay	6.47%	3.70%	4.88%	-1.59%	-24.57%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	9.25%	3.21%	4.85%	-4.40%	-47.57%
	Perinatal Level II & IIE	9.09%	6.47%	5.15%	-3.94%	-43.34%
	Perinatal Level III	8.04%	4.07%	2.90%	-5.14%	-63.93%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	9.59%	5.73%	4.54%	-5.05%	-52.66%
	Urban	8.54%	5.16%	4.28%	-4.26%	-49.88%
	Not Defined	6.67%	1.16%	10.81%	4.14%	62.07%
TOTAL	STATE TOTAL	8.81%	5.26%	4.43%	-4.38%	-49.72%

Note: For this measure, Self-Pay payer type includes both Self Pay and Indigent Care. This measure originates from the all-payer database, which combines these two categories.

2013 Percentage of Total Elective Inductions at 37-38 Weeks Gestation

Demographic Characteristic	Measure	
AGE	Ages 0-18	7.46%
	Ages 19-24	35.45%
	Ages 25-34	45.52%
	Ages 35-44	11.57%
	Ages 45-54	0.00%
	Missing/Unknown Age	0.00%
RACE	Black Race	33.58%
	White Race	58.58%
	Other Race	7.84%
	Missing/Unknown Race	0.00%
ETHNICITY	Hispanic Ethnicity	6.34%
	Non-Hispanic Ethnicity	93.66%
EDUCATIONAL STATUS	Less than High School Grad	16.79%
	High School Grad/GED	26.87%
	Some College	30.97%
	College Degree +	25.37%
	Missing/Unknown Education	0.00%
BMI	Underweight	5.60%
	Normal Weight	39.93%
	Overweight	24.25%
	Obese	25.75%
	Missing/Unknown BMI	4.48%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	14.55%
	Perinatal Levels II & IIE	65.67%
	Perinatal Level III	19.78%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	27.99%
	Urban	69.03%
	Not Defined	2.99%

**Total C-Sections at 37+ Weeks Gestation
(with and without exclusions applied)**

Summary of Findings: Total C-Sections at 37+ Weeks Gestation

- Over a third of all pregnant women delivered via C-Section (CS) at 37+ weeks gestation in 2013 (33.52%). This was a slight decrease from the baseline percentage of 33.59% in 2011 (-0.07%, RC: -0.21%) after an increase to 34.23% in 2012.
- Women ages 19-24, representing 29% of patients having a CS at 37+ weeks gestation (but 32% of total births), saw a relative increase in C-Sections (.41%), which stands as an exception to all other age groups (save 45-54) that experienced relative percentage decreases.
- Black women saw a relative increase in C-Sections at 37+ weeks gestation (.52%; 33% of population), which stands at odds with the decreases seen in all other race categories. Black women were slightly more likely to have a CS in 2013 (34.79%) than White women (32.96%), but they only represented 32.98% of all women having a CS. Nearly 65% of women delivering via CS were White.
- Women with some college education or less than high school education had increases in C-Sections at 37+ weeks gestation (1.50% and 1.13% relative changes, respectively) contrary to decreases in all other groups of educational attainment. These two groups, some college and less than high school education, represented roughly 41% of the population of women receiving C-Sections at 37+ weeks gestation. Women with more education had higher CS rates. College educated women had a rate of 35.97% compared to 28.54% for women with less than a high school graduation.
- Facilities classified as perinatal levels II and IIE, which represented 56% of birthing facilities performing C-Sections in 2013, had a relative 1.16% increase in C-Sections at 37+ weeks gestation. These facilities also had the highest 2013 CS rate (33.87%).
- Older women were more likely have a CS than younger women; 42.86% of women ages 35-44 and 59.46% of women ages 45-54 had a CS in 2013, representing some of the highest percentages of any demographic subpopulation. However, the majority of C-Sections (83%) occurred in younger women, with 28.50% undertaken for patients ages 19-24 and 54.48% for patients ages 25-34.
- C-Sections were also higher among overweight (34.30%) and obese (45.52%) women than normal (26.12%) and underweight (21.42%) women. Combined, overweight and obese women made up 63.26% of all C-Sections in 2013. However, 31.69% of C-Sections still occurred among women of normal weight, indicating that obesity is not the only CS risk factor.
- Women identifying as Hispanic (27.52%) were less likely than Non-Hispanic women to have a CS (34.07%).
- Women with private insurance had the highest 2013 CS rate of any payer type (36.26%).

2011-2013 Percentage of Total C-Sections at 37+ Weeks Gestation

Demographic Characteristic	Measure	2011 % C-Sections 37+	2012 % C-Sections 37+	2013 % C-Sections 37+	Difference Between 2013 and 2011 (CS 37+)	Relative Percentage Change (CS 37+)
AGE	Ages 0-18	21.54%	23.03%	19.70%	-1.84%	-8.54%
	Ages 19-24	29.46%	29.91%	29.58%	0.12%	0.41%
	Ages 25-34	35.39%	36.13%	35.30%	-0.09%	-0.25%
	Ages 35-44	45.59%	44.96%	42.86%	-2.73%	-5.99%
	Ages 45-54	56.67%	44.44%	59.46%	2.79%	4.92%
	Missing/Unknown Age	50.00%	0.00%	100.00%	50.00%	100.00%
RACE	Black Race	34.61%	35.22%	34.79%	0.18%	0.52%
	White Race	33.11%	33.77%	32.96%	-0.15%	-0.45%
	Other Race	32.83%	33.60%	32.28%	-0.55%	-1.68%
	Missing/Unknown Race	33.33%	29.63%	15.79%	-17.54%	-52.63%
ETHNICITY	Hispanic Ethnicity	28.43%	29.03%	27.52%	-0.91%	-3.20%
	Non-Hispanic Ethnicity	34.10%	34.73%	34.07%	-0.03%	-0.09%
EDUCATIONAL STATUS	Less than High School Grad	28.22%	30.20%	28.54%	0.32%	1.13%
	High School Grad/GED	32.93%	33.37%	32.83%	-0.10%	-0.30%
	Some College	33.93%	34.37%	34.44%	0.51%	1.50%
	College Degree +	37.36%	37.21%	35.97%	-1.39%	-3.72%
	Missing/Unknown Education	30.65%	30.22%	23.85%	-6.80%	-22.19%
BMI	Underweight	21.89%	22.58%	21.42%	-0.47%	-2.15%
	Normal Weight	27.08%	27.47%	26.12%	-0.96%	-3.55%
	Overweight	33.85%	34.91%	34.30%	0.45%	1.33%
	Obese	45.07%	46.29%	45.52%	0.45%	1.00%
	Missing/Unknown BMI	31.52%	29.62%	29.70%	-1.82%	-5.77%
PAYER	All Payers	33.59%	34.24%	33.52%	-0.07%	-0.21%
	Medicaid	32.20%	33.09%	32.48%	0.28%	0.87%
	Private Insurance	37.35%	37.93%	36.26%	-1.09%	-2.92%
	Self-Pay	30.51%	27.57%	30.62%	0.11%	0.36%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	34.44%	33.10%	32.50%	-1.94%	-5.63%
	Perinatal Level II & IIE	33.48%	34.35%	33.87%	0.39%	1.16%
	Perinatal Level III	33.42%	34.46%	33.29%	-0.13%	-0.39%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	34.02%	33.26%	33.29%	-0.73%	-2.15%
	Urban	33.42%	34.53%	33.65%	0.23%	0.69%
	Not Defined	34.67%	37.74%	29.66%	-5.01%	-14.45%
TOTAL	STATE TOTAL	33.59%	34.23%	33.52%	-0.07%	-0.21%

2013 Percentage of Total: Total C-Sections at 37+ Weeks Gestation

Demographic Characteristic	Measure	Percentage
AGE	Ages 0-18	2.92%
	Ages 19-24	28.50%
	Ages 25-34	54.48%
	Ages 35-44	13.96%
	Ages 45-54	0.14%
	Missing/Unknown Age	0.01%
RACE	Black Race	32.98%
	White Race	64.67%
	Other Race	2.33%
	Missing/Unknown Race	0.02%
ETHNICITY	Hispanic Ethnicity	6.86%
	Non-Hispanic Ethnicity	93.14%
EDUCATIONAL STATUS	Less than High School Grad	14.52%
	High School Grad/GED	23.39%
	Some College	26.82%
	College Degree +	35.07%
	Missing/Unknown Education	0.20%
BMI	Underweight	2.49%
	Normal Weight	31.69%
	Overweight	24.72%
	Obese	38.54%
	Missing/Unknown BMI	2.55%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	10.33%
	Perinatal Levels II & IIE	55.63%
	Perinatal Level III	34.04%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	25.28%
	Urban	73.88%
	Not Defined	0.84%

Summary of Findings: Total C-Sections at 37+ Weeks Gestation (with exclusions applied)

- From 2011 to 2013, very little improvement was seen for this measure, which represents medically unnecessary C-Sections. When The Joint Commission's exclusions for a primary CS were removed from the total CS measure, 18.94% of women still had a CS in 2013, representing a slight increase from 2011 (0.12%, RC: 0.64%).
- Age bands 19-24 and 25-34 experienced relative increases in medically unnecessary C-Sections: 0.90% and 3.92%, respectively. Women in these age groups represented about 83% of all women receiving C-Sections in 2013 (regardless of necessity). However, only 19% of these women had unnecessary C-Sections, as compared to nearly 44% of women ages 45-54. In fact, women ages 45-54 saw an 8.48% increase in the percentage of unnecessary C-Sections, a relative increase of 24%, from 2011 to 2013.
- In addition, women ages 19-24 made up a greater percentage of medically unnecessary C-Sections (34.71%) than they did the total C-Section delivery population (28.50%) or all delivery population (32.07%).
- Women with a college degree were less likely to have a medically unnecessary CS in 2013 than in 2011 (-1.09%, RC: -5%). However, they were also less likely in 2013 than in 2011 to have any type of CS. Interestingly, although they had the highest total CS rate, they did not have the highest total elective CS rate.
- Although women measured as obese experienced a .45% increase in total C-Sections (RC: 1%), they had a 1.35% increase in medically unnecessary C-Sections, a relative increase of 5% from 2011 to 2013. Nearly 30% of obese women had a medically unnecessary CS in 2013, and these women represented 38% of all women having a medically unnecessary CS, the largest BMI category present among the medically unnecessary CS population.

2011-2013 Percentage of Total C-Sections at 37+ Weeks Gestation (with exclusions applied)

Demographic Characteristic	Measure	2011 % C-Sections 37+ Excl.	2012 % C-Sections 37+ Excl.	2013 % C-Sections 37+ Excl.	Difference Between 2013 and 2011 (CS 37+ Excl.)	Relative Percentage Change (CS 37+ Excl.)
AGE	Ages 0-18	18.41%	19.57%	16.88%	-1.53%	-8.31%
	Ages 19-24	18.80%	19.46%	18.97%	0.17%	0.90%
	Ages 25-34	17.86%	19.15%	18.56%	0.70%	3.92%
	Ages 35-44	24.29%	24.07%	21.90%	-2.39%	-9.84%
	Ages 45-54	35.00%	25.00%	43.48%	8.48%	24.23%
	Missing/Unknown Age	50.00%	0.00%	100.00%	50.00%	100.00%
RACE	Black Race	20.44%	21.29%	20.42%	-0.02%	-0.10%
	White Race	18.01%	19.01%	18.23%	0.22%	1.22%
	Other Race	18.95%	19.25%	19.31%	0.36%	1.90%
	Missing/Unknown Race	25.00%	5.00%	0.00%	-25.00%	-100.00%
ETHNICITY	Hispanic Ethnicity	13.04%	14.83%	13.10%	0.06%	0.46%
	Non-Hispanic Ethnicity	19.39%	20.22%	19.47%	0.08%	0.41%
EDUCATIONAL STATUS	Less than High School Grad	14.56%	16.45%	14.65%	0.09%	0.62%
	High School Grad/GED	18.80%	19.01%	18.70%	-0.10%	-0.53%
	Some College	19.41%	20.61%	20.58%	1.17%	6.03%
	College Degree +	21.27%	21.65%	20.18%	-1.09%	-5.12%
	Missing/Unknown Education	18.75%	19.30%	10.48%	-8.27%	-44.11%
BMI	Underweight	12.32%	12.50%	11.10%	-1.22%	-9.90%
	Normal Weight	14.63%	15.42%	14.01%	-0.62%	-4.24%
	Overweight	19.69%	20.13%	19.68%	-0.01%	-0.05%
	Obese	26.59%	28.85%	27.94%	1.35%	5.08%
	Missing/Unknown BMI	16.99%	15.63%	16.53%	-0.46%	-2.71%
PAYER	All Payers	18.82%	19.75%	18.94%	0.12%	0.64%
	Medicaid	18.24%	19.20%	18.44%	0.20%	1.10%
	Private Insurance	20.76%	21.99%	20.61%	-0.15%	-0.72%
	Self-Pay	15.52%	14.59%	14.75%	-0.77%	-4.96%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	18.08%	17.74%	17.17%	-0.91%	-5.03%
	Perinatal Level II & IIE	19.23%	19.99%	19.49%	0.26%	1.35%
	Perinatal Level III	18.44%	20.10%	18.60%	0.16%	0.87%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	18.31%	18.60%	18.21%	-0.10%	-0.55%
	Urban	18.99%	20.09%	19.19%	0.20%	1.05%
	Not Defined	19.57%	24.47%	19.20%	-0.37%	-1.89%
TOTAL	STATE TOTAL	18.82%	19.75%	18.94%	0.12%	0.64%

2013 Percentage of Total: Total C-Sections at 37+ Weeks Gestation (with exclusions applied)

Demographic Characteristic	Measure	Percentage
AGE	Ages 0-18	5.34%
	Ages 19-24	34.71%
	Ages 25-34	48.73%
	Ages 35-44	11.07%
	Ages 45-54	0.14%
	Missing/Unknown Age	0.01%
RACE	Black Race	34.06%
	White Race	63.44%
	Other Race	2.50%
	Missing/Unknown Race	0.00%
ETHNICITY	Hispanic Ethnicity	5.80%
	Non-Hispanic Ethnicity	94.20%
EDUCATIONAL STATUS	Less than High School Grad	13.43%
	High School Grad/GED	23.78%
	Some College	28.66%
	College Degree +	33.97%
	Missing/Unknown Education	0.16%
BMI	Underweight	2.47%
	Normal Weight	31.68%
	Overweight	25.01%
	Obese	38.28%
	Missing/Unknown BMI	2.55%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	9.72%
	Perinatal Levels II & IIE	57.06%
	Perinatal Level III	33.22%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	24.29%
	Urban	74.67%
	Not Defined	1.04%

**Total Primary C-Sections at 37+ Weeks Gestation
(with and without exclusions applied)**

Summary of Findings: Total Primary C-Sections at 37+ Weeks Gestation

- Approximately one in three SC first-time mothers delivering at 37+ weeks gestation had a primary CS in 2013 (32.10%). This represented a slight relative decrease from 2011 (-0.19%).
- Perinatal Level I facilities decreased both their overall CS rates (-1.94%, RC: -6%) and their primary CS rates (-2.53%, RC: -8%). Women were less likely to have a CS (32.50%) and primary CS (29.63%) in a Perinatal Level I facility than any other type of facility, and these facilities only performed approximately 10% of total C-Sections and 9% of primary C-Sections. Both CS (33.87%) and Primary CS (32.90%) rates were highest in Perinatal Level II & IIE hospitals, and 56% of total C-Sections and 58% of primary C-Sections occurred in these facilities.
- First-time mothers ages 25-34 had a slight relative increase of 1% in primary C-Sections at 37+ weeks gestation with a 2013 rate of 36.14%. They represented 46% of women having a primary CS. Women ages 35-44 were less likely to have a primary CS in 2013 than in 2011 (-3.97%, RC: -7%), although nearly half of all women in this age group still had a primary CS in 2013 (49.53%).
- Hispanic women were less likely than Non-Hispanic women to have a primary CS in 2013 with a rate of 25.43% for Hispanic women compared to 32.52% for Non-Hispanic women. Both their total CS and primary CS rates decreased, 3% and 5%, respectively. They represented only 7% of total CS and 5% of primary CS patients, even though they made up 8% of all women delivering in 2013.
- Women identifying as White were slightly less likely to have a primary CS in 2013 (31.53%) than women identifying as Black (33.30%) or Other (33.47%) race. White and black race mothers represented the majority of the primary C-Sections, making up 67% and 31%, respectively.
- All payers decreased their percentage of primary C-Sections, although women designated self-pay had the greatest decrease (-3.75%, RC: -12%). Women with private insurance had the highest 2013 rate (35.46%).
- Mothers with some college (28.23%) or a college degree (37.99%) represented the largest groupings in the primary CS data by educational attainment with smaller groups having a high school diploma or equivalent (22.14%) or having less than a high school education (11.44%). Similarly to the total CS measure, women with a college degree had the highest percentage of primary C-Sections in 2013 (34.86%).
- BMI categories of normal (34.49%), overweight (24.76%), and obese (35.33%) made up the plurality of those receiving primary C-Sections. There was an inverse relationship between BMI and a mother's likelihood of having a primary CS with only 18.76% of underweight women having a primary CS compared to 46.97% of women measured as obese.
- Although rural women represented nearly 26% of all deliveries, they only represented 23% of all primary C-Sections in 2013. Approximately 30% of women residing in rural areas versus 33% of women residing in urban areas had a primary CS.

2011-2013 Percentage of Primary C-Sections for First-Time Mothers at 37+ Weeks Gestation

Demographic Characteristic	Measure	2011 % Primary C-Sections 37+	2012 % Primary C-Sections 37+	2013 % Primary C-Sections 37+	Difference Between 2013 and 2011 (PCS 37+)	Relative Percentage Change (PCS 37+)
AGE	Ages 0-18	21.30%	22.89%	19.70%	-1.60%	-7.51%
	Ages 19-24	29.63%	29.90%	29.04%	-0.59%	-1.99%
	Ages 25-34	35.80%	38.04%	36.14%	0.34%	0.95%
	Ages 35-44	53.50%	52.70%	49.53%	-3.97%	-7.42%
	Ages 45-54	71.43%	20.00%	72.73%	1.30%	1.82%
	Missing/Unknown Age	100.00%	0.00%	100.00%	0.00%	0.00%
RACE	Black Race	33.41%	34.66%	33.30%	-0.11%	-0.33%
	White Race	31.54%	32.91%	31.53%	-0.01%	-0.03%
	Other Race	33.13%	33.21%	33.47%	0.34%	1.03%
	Missing/Unknown Race	50.00%	25.00%	16.67%	-33.33%	-66.66%
ETHNICITY	Hispanic Ethnicity	26.70%	28.23%	25.43%	-1.27%	-4.76%
	Non-Hispanic Ethnicity	32.52%	33.79%	32.52%	0.00%	0.00%
EDUCATIONAL STATUS	Less than High School Grad	25.26%	27.87%	24.90%	-0.36%	-1.43%
	High School Grad/GED	31.84%	31.84%	30.97%	-0.87%	-2.73%
	Some College	32.54%	33.92%	33.44%	0.90%	2.77%
	College Degree +	35.78%	36.98%	34.86%	-0.92%	-2.57%
	Missing/Unknown Education	31.91%	32.69%	29.27%	-2.64%	-8.27%
BMI	Underweight	20.35%	19.67%	18.76%	-1.59%	-7.81%
	Normal Weight	25.69%	26.79%	24.60%	-1.09%	-4.24%
	Overweight	34.49%	34.94%	34.54%	0.05%	0.14%
	Obese	45.66%	49.19%	46.97%	1.31%	2.87%
	Missing/Unknown BMI	31.37%	27.84%	28.44%	-2.93%	-9.34%
PAYER	All Payers	32.16%	33.46%	32.09%	-0.07%	-0.22%
	Medicaid	30.75%	31.93%	30.53%	-0.22%	-0.72%
	Private Insurance	35.86%	37.42%	35.46%	-0.40%	-1.12%
	Self-Pay	32.24%	28.32%	28.49%	-3.75%	-11.63%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	32.16%	31.09%	29.63%	-2.53%	-7.87%
	Perinatal Level II & IIE	32.22%	33.69%	32.90%	0.68%	2.11%
	Perinatal Level III	32.03%	33.91%	31.50%	-0.53%	-1.65%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	31.84%	31.29%	30.13%	-1.71%	-5.37%
	Urban	32.27%	34.13%	32.79%	0.52%	1.61%
	Not Defined	31.58%	37.63%	28.22%	-3.36%	-10.64%
TOTAL	STATE TOTAL	32.16%	33.46%	32.10%	-0.06%	-0.19%

2013 Percentage of Total Primary C-Sections at 37+ Weeks Gestation

Demographic Characteristic	Measure	
AGE	Ages 0-18	6.77%
	Ages 19-24	38.19%
	Ages 25-34	46.30%
	Ages 35-44	8.59%
	Ages 45-54	0.13%
	Missing/Unknown Age	0.02%
RACE	Black Race	30.67%
	White Race	66.63%
	Other Race	2.68%
	Missing/Unknown Race	0.02%
ETHNICITY	Hispanic Ethnicity	4.67%
	Non-Hispanic Ethnicity	95.33%
EDUCATIONAL STATUS	Less than High School Grad	11.44%
	High School Grad/GED	22.14%
	Some College	28.23%
	College Degree +	37.99%
	Missing/Unknown Education	0.20%
BMI	Underweight	2.95%
	Normal Weight	34.49%
	Overweight	24.76%
	Obese	35.33%
	Missing/Unknown BMI	2.49%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	9.25%
	Perinatal Levels II & IIE	57.66%
	Perinatal Level III	33.09%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	22.70%
	Urban	76.36%
	Not Defined	0.94%

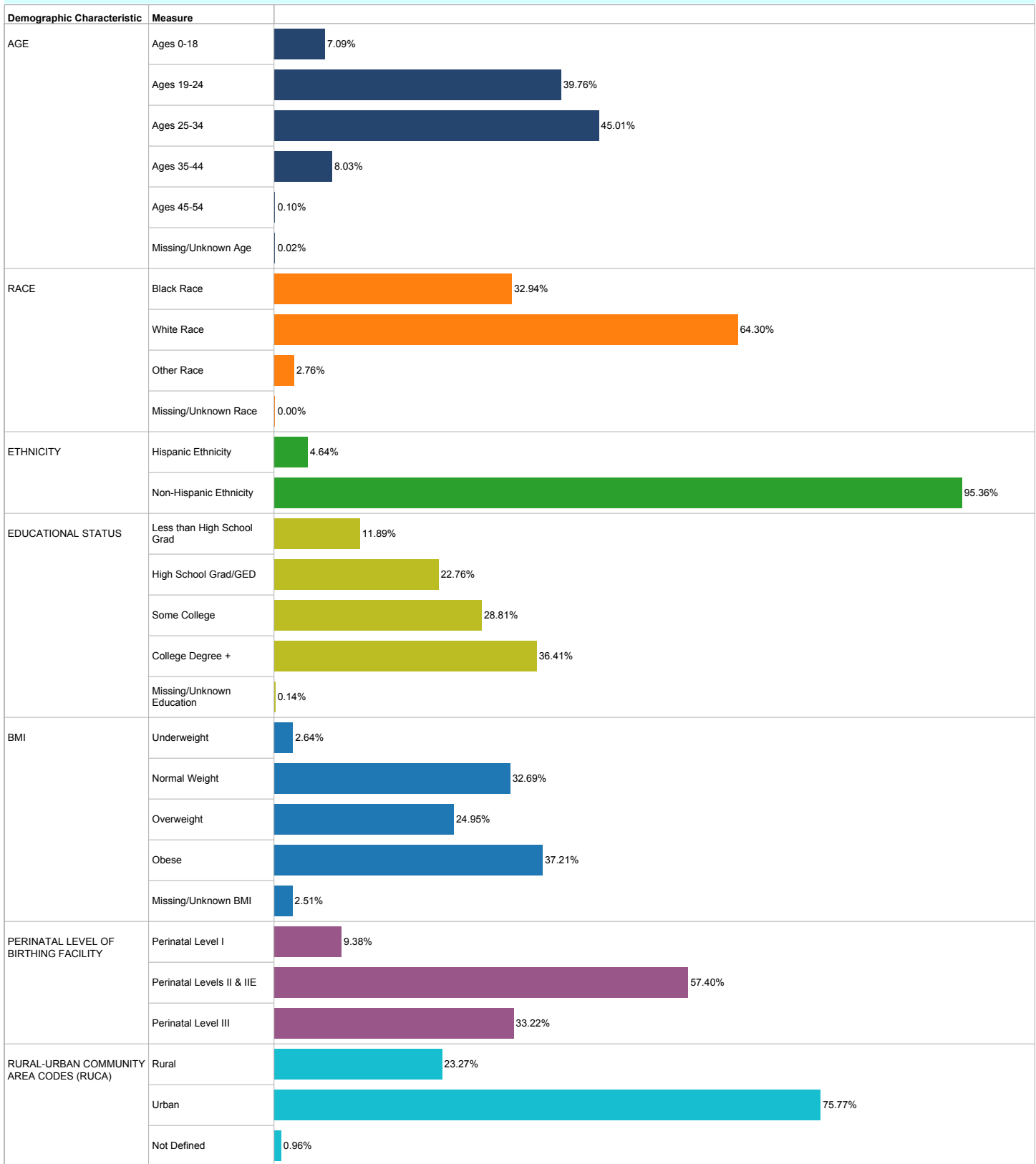
Summary of Findings: Total Primary C-Sections at 37+ Weeks Gestation (with exclusions applied)

- When applying exclusions to the total CS rate, the rate dropped from 33.52% to 18.94%, a difference of nearly 15%. However, when the same exclusions were applied to the primary CS rate, the difference was only 3.13% (with a decrease from 32.10% to 28.97%).
- Women over 35 were more likely to have a medically unnecessary primary CS in 2013 than other age groups (44.42% of women ages 35-44 and 71.43% of women ages 45-54). The rate for women ages 35-44 did, however, decrease 3.99%, a relative decrease of nearly 8%.
- Nevertheless, younger women in the age bands 19-24 and 25-34 formed the majority of medically unnecessary primary C-Sections at 37+ weeks gestation: 39.76% and 45.01%, respectively.
- In 2013, Black women were more likely to have a medically unnecessary primary CS (31.68%) than women identifying as White (27.69%) or Other (30.99%) race. Women in the Other race group had a 4% relative increase in medically unnecessary primary C-Sections.
- Black women represented nearly a third of mothers receiving medically unnecessary CS, with White mothers making up the majority (66%). These percentages matched the overall profile of births in 2013.
- Ninety-five percent of medically unnecessary primary C-Sections were performed on Non-Hispanic mothers in 2013. Only 22.57% of mothers identifying as Hispanic had an elective primary CS compared to 29.37% of Non-Hispanic mothers.
- Women with more education formed the plurality of first-time mothers having medically unnecessary C-Sections in 2013; 36% had a college degree.
- Again, most mothers experiencing a medically unnecessary primary C-Section were in the normal weight (33%), overweight (25%), or obese (37%) BMI categories in 2013.
- Most medically unnecessary primary C-Sections in 2013 were performed in Perinatal Levels II & IIE facilities (57%) followed by Level II (33%) and Level I (9%). Contrasted, nearly 27% of women served in Perinatal Level I facilities and 30% of women served in Perinatal Levels II & IIE facilities had an elective primary CS.
- About 76% of women having a medically unnecessary primary CS in 2013 were coded urban, and 23% were coded rural. Urban women (29.41%) were more likely than rural women (27.77%) to have an elective primary CS.
- Compared to all other payer categories, women with private insurance in 2013 were most likely to have both a medically necessary (35.46%) and unnecessary (31.33%) primary CS.

2011-2013 Percentage of Primary C-Sections for First-Time Mothers at 37+ Weeks Gestation (with exclusions applied)

Demographic Characteristic	Measure	2011 % Primary C-Sections 37+ Excl.	2012 % Primary C-Sections 37+ Excl.	2013 % Primary C-Sections 37+ Excl.	Difference Between 2013 and 2011 (PCS 37+ Excl.)	Relative Percentage Change (PCS 37+ Excl.)
AGE	Ages 0-18	20.08%	20.95%	18.15%	-1.93%	-9.61%
	Ages 19-24	27.56%	27.83%	26.86%	-0.70%	-2.54%
	Ages 25-34	31.92%	34.21%	32.18%	0.26%	0.81%
	Ages 35-44	48.41%	47.38%	44.42%	-3.99%	-8.24%
	Ages 45-54	71.43%	33.33%	71.43%	0.00%	0.00%
	Missing/Unknown Age	100.00%	0.00%	100.00%	0.00%	0.00%
RACE	Black Race	31.66%	33.02%	31.68%	0.02%	0.06%
	White Race	28.04%	29.24%	27.69%	-0.35%	-1.25%
	Other Race	29.68%	28.96%	30.99%	1.31%	4.41%
	Missing/Unknown Race	50.00%	25.00%	0.00%	-50.00%	-100.00%
ETHNICITY	Hispanic Ethnicity	24.59%	25.16%	22.57%	-2.02%	-8.21%
	Non-Hispanic Ethnicity	29.52%	30.76%	29.37%	-0.15%	-0.51%
EDUCATIONAL STATUS	Less than High School Grad	23.68%	25.71%	22.97%	-0.71%	-3.00%
	High School Grad/GED	29.53%	29.51%	28.45%	-1.08%	-3.66%
	Some College	29.46%	31.41%	30.62%	1.16%	3.94%
	College Degree +	31.88%	32.69%	30.69%	-1.19%	-3.73%
	Missing/Unknown Education	28.57%	30.00%	19.44%	-9.13%	-31.96%
BMI	Underweight	17.75%	16.72%	15.29%	-2.46%	-13.86%
	Normal Weight	22.24%	23.42%	21.05%	-1.19%	-5.35%
	Overweight	31.90%	32.00%	31.40%	-0.50%	-1.57%
	Obese	43.31%	46.69%	44.57%	1.26%	2.91%
	Missing/Unknown BMI	28.37%	25.58%	25.86%	-2.51%	-8.85%
PAYER	All Payers	29.21%	30.42%	28.96%	-0.25%	-0.86%
	Medicaid	28.59%	29.56%	27.94%	-0.65%	-2.27%
	Private Insurance	31.56%	33.30%	31.33%	-0.23%	-0.73%
	Self-Pay	28.06%	25.16%	25.58%	-2.48%	-8.84%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	29.59%	28.44%	26.79%	-2.80%	-9.46%
	Perinatal Level II & IIE	29.37%	30.60%	29.74%	0.37%	1.26%
	Perinatal Level III	28.81%	30.81%	28.35%	-0.46%	-1.60%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	29.11%	28.84%	27.77%	-1.34%	-4.60%
	Urban	29.24%	30.91%	29.41%	0.17%	0.58%
	Not Defined	29.89%	33.73%	25.52%	-4.37%	-14.62%
TOTAL	STATE TOTAL	29.21%	30.42%	28.97%	-0.24%	-0.82%

2013 Percentage of Total Primary C-Sections at 37+ Weeks Gestation (with exclusions applied)



**Total Primary C-Sections at 39-40 Weeks Gestation
(with and without exclusions applied)**

Summary of Findings: Total Primary C-Sections at 39-40 Weeks Gestation

- The 2013 percentage of primary CS for first-time mothers at 39-40 weeks was similar to the percentage at 37+ weeks (32.17% and 32.10%, respectively). The rate increased only .02% (RC: 0.06%). In fact, results for this measure mirrored the findings for 37+ weeks primary C-Sections for most demographic characteristics.
- When comparing different payers, women categorized as self-pay were least likely to have a primary CS at 39-40 weeks (27.01%) in 2013 and saw the greatest improvement in this measure with a relative decrease of 23%. This exceeded the improvement of 12% for primary CS at 37+ weeks.
- CS rates among Hispanic women have decreased for all CS categories. They experienced a relative decrease of 11% for primary CS at 39-40 weeks. They also represented only 4.50% of all primary CS at 39-40 weeks, even though they comprised 8.17% of all births.
- Women ages 0-18 (19.76%) and women categorized as underweight (19.93%) were least likely to have a primary CS at 39-40 weeks gestation, as well as at 37+ weeks gestation (19.70% and 21.42%, respectively). These findings are consistent with higher CS percentages among mothers of advanced maternal age and obese mothers, as described previously.

2011-2013 Percentage of Primary C-Sections for First-Time Mothers at 39-40 Weeks Gestation

Demographic Characteristic	Measure	2011 % Primary C-Sections 39-40	2012 % Primary C-Sections 39-40	2013 % Primary C-Sections 39-40	Difference Between 2013 and 2011 (PCS 39-40)	Relative Percentage Change (PCS 39-40)
AGE	Ages 0-18	21.95%	23.38%	19.76%	-2.19%	-9.98%
	Ages 19-24	29.64%	30.30%	29.53%	-0.11%	-0.37%
	Ages 25-34	35.62%	37.21%	35.62%	0.00%	0.00%
	Ages 35-44	54.25%	51.91%	51.00%	-3.25%	-5.99%
	Ages 45-54	80.00%	0.00%	80.00%	0.00%	0.00%
	Missing/Unknown Age	100.00%	0.00%	0.00%	-100.00%	-100.00%
RACE	Black Race	33.87%	35.81%	33.29%	-0.58%	-1.71%
	White Race	31.35%	32.17%	31.68%	0.33%	1.05%
	Other Race	33.33%	32.79%	33.02%	-0.31%	-0.93%
	Missing/Unknown Race	40.00%	25.00%	0.00%	-40.00%	-100.00%
ETHNICITY	Hispanic Ethnicity	27.05%	26.19%	24.12%	-2.93%	-10.83%
	Non-Hispanic Ethnicity	32.48%	33.70%	32.68%	0.20%	0.62%
EDUCATIONAL STATUS	Less than High School Grad	25.70%	27.60%	25.15%	-0.55%	-2.14%
	High School Grad/GED	31.63%	32.53%	31.12%	-0.51%	-1.61%
	Some College	32.88%	33.46%	33.16%	0.28%	0.85%
	College Degree +	35.26%	36.34%	34.99%	-0.27%	-0.77%
	Missing/Unknown Education	38.71%	35.14%	29.17%	-9.54%	-24.64%
BMI	Underweight	20.28%	18.38%	19.93%	-0.35%	-1.73%
	Normal Weight	25.20%	26.42%	24.76%	-0.44%	-1.75%
	Overweight	35.40%	35.33%	35.40%	0.00%	0.00%
	Obese	46.17%	49.34%	46.43%	0.26%	0.56%
	Missing/Unknown BMI	29.01%	26.28%	26.67%	-2.34%	-8.07%
PAYER	All Payers	32.15%	33.28%	32.16%	0.01%	0.03%
	Medicaid	30.77%	32.30%	30.43%	-0.34%	-1.10%
	Private Insurance	35.59%	36.49%	35.47%	-0.12%	-0.34%
	Self-Pay	35.04%	24.27%	27.01%	-8.03%	-22.92%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	32.41%	31.39%	30.90%	-1.51%	-4.66%
	Perinatal Level II & IIE	31.96%	33.77%	33.20%	1.24%	3.88%
	Perinatal Level III	32.38%	33.07%	30.75%	-1.63%	-5.03%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	32.44%	32.01%	30.62%	-1.82%	-5.61%
	Urban	32.10%	33.62%	32.72%	0.62%	1.93%
	Not Defined	27.59%	39.20%	28.35%	0.76%	2.75%
TOTAL	STATE TOTAL	32.15%	33.27%	32.17%	0.02%	0.06%

2013 Percentage of Total Primary C-Sections at 39-40 Weeks Gestation

Demographic Characteristic	Measure	
AGE	Ages 0-18	6.80%
	Ages 19-24	38.64%
	Ages 25-34	45.69%
	Ages 35-44	8.76%
	Ages 45-54	0.10%
	Missing/Unknown Age	0.00%
RACE	Black Race	29.49%
	White Race	67.89%
	Other Race	2.62%
	Missing/Unknown Race	0.00%
ETHNICITY	Hispanic Ethnicity	4.50%
	Non-Hispanic Ethnicity	95.50%
EDUCATIONAL STATUS	Less than High School Grad	11.36%
	High School Grad/GED	22.22%
	Some College	27.75%
	College Degree +	38.50%
	Missing/Unknown Education	0.17%
BMI	Underweight	2.96%
	Normal Weight	35.24%
	Overweight	25.38%
	Obese	34.17%
	Missing/Unknown BMI	2.25%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	9.52%
	Perinatal Levels II & IIE	59.08%
	Perinatal Level III	31.40%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	23.23%
	Urban	75.89%
	Not Defined	0.88%

Summary of Findings: Total Primary C-Sections at 39-40 Weeks Gestation (with exclusions applied)

- There was a slight decrease in this measure for the state as a whole from 29.68% in 2011 to 29.32% in 2013 (-0.36%, RC: -1.21%).
- The percentage of medically unnecessary primary CS at 39-40 weeks decreased for both Perinatal Level I (-1.54%, RC: -5%) and III (-2.04%, RC: -7%) hospitals, but increased slightly for Perinatal Level II & IIE hospitals (0.81%, RC: +3%).
- There was a relative decrease of 12% in the percentage of women identified as overweight having a medically unnecessary primary CS at 39-40 weeks (as compared to only a 2% decrease for all primary CS at 39-40 weeks). Likewise, underweight women only represented 2.68% of all women included in this measure, and like all other CS measures, they had the lowest 2013 rate (16.58% for this measure).
- Nearly 67% of mothers ages 45-54 had an elective primary CS at 39-40 weeks. However, caution should be used when interpreting these data, as there were only 3 mothers in this age group that met measure criteria.
- Mothers under the age of 35 (92%), identifying as White (66%), Non-Hispanic ethnicity (95%), served at a Perinatal Level II & IIE facility (59%), and who resided in urban areas (75%) made up the profile of the majority of mothers having medically unnecessary primary C-Sections at 39-40 weeks in 2013. These percentages were slightly higher than the general birth profile for 2013.

2011-2013 Percentage of Primary C-Sections for First-Time Mothers at 39-40 Weeks Gestation (with exclusions applied)

Demographic Characteristic	Measure	2011 % Primary C-Sections 39-40 Excl.	2012 % Primary C-Sections 39-40 Excl.	2013 % Primary C-Sections 39-40 Excl.	Difference Between 2013 and 2011 (PCS 39-40 Excl.)	Relative Percentage Change (PCS 39-40 Excl.)
AGE	Ages 0-18	20.92%	22.26%	18.37%	-2.55%	-12.19%
	Ages 19-24	27.86%	28.48%	27.52%	-0.34%	-1.22%
	Ages 25-34	32.35%	33.87%	32.08%	-0.27%	-0.83%
	Ages 35-44	50.54%	48.08%	46.15%	-4.39%	-8.69%
	Ages 45-54	80.00%	0.00%	66.67%	-13.33%	-16.66%
	Missing/Unknown Age	100.00%	0.00%	0.00%	-100.00%	-100.00%
RACE	Black Race	32.37%	34.50%	31.81%	-0.56%	-1.73%
	White Race	28.43%	29.15%	28.20%	-0.23%	-0.81%
	Other Race	30.98%	28.74%	31.07%	0.09%	0.29%
	Missing/Unknown Race	40.00%	25.00%	0.00%	-40.00%	-100.00%
ETHNICITY	Hispanic Ethnicity	25.57%	23.63%	22.01%	-3.56%	-13.92%
	Non-Hispanic Ethnicity	29.95%	31.19%	29.79%	-0.16%	-0.53%
EDUCATIONAL STATUS	Less than High School Grad	24.17%	26.29%	23.29%	-0.88%	-3.64%
	High School Grad/GED	29.68%	30.41%	29.05%	-0.63%	-2.12%
	Some College	30.43%	31.33%	30.75%	0.32%	1.05%
	College Degree +	32.04%	32.75%	31.01%	-1.03%	-3.21%
	Missing/Unknown Education	35.71%	33.33%	15.00%	-20.71%	-57.99%
BMI	Underweight	18.75%	15.97%	16.58%	-2.17%	-11.57%
	Normal Weight	22.25%	23.53%	21.52%	-0.73%	-3.28%
	Overweight	33.36%	33.00%	32.71%	-0.65%	-1.95%
	Obese	44.07%	47.25%	44.16%	0.09%	0.20%
	Missing/Unknown BMI	27.00%	24.89%	24.39%	-2.61%	-9.67%
PAYER	All Payers	29.68%	30.76%	29.31%	-0.37%	-1.25%
	Medicaid	28.88%	30.36%	28.07%	-0.81%	-2.80%
	Private Insurance	32.16%	33.10%	31.82%	-0.34%	-1.06%
	Self-Pay	32.03%	23.23%	24.00%	-8.03%	-25.07%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	30.00%	29.39%	28.46%	-1.54%	-5.13%
	Perinatal Level II & IIE	29.56%	31.25%	30.37%	0.81%	2.74%
	Perinatal Level III	29.79%	30.36%	27.75%	-2.04%	-6.85%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	30.02%	30.15%	28.54%	-1.48%	-4.93%
	Urban	29.60%	30.89%	29.63%	0.03%	0.10%
	Not Defined	26.85%	35.90%	25.41%	-1.44%	-5.36%
TOTAL	STATE TOTAL	29.68%	30.75%	29.32%	-0.36%	-1.21%

2013 Percentage of Total Primary C-Sections at 39-40 Weeks Gestation (with exclusions applied)

Demographic Characteristic	Measure	Percentage
AGE	Ages 0-18	7.12%
	Ages 19-24	40.06%
	Ages 25-34	44.56%
	Ages 35-44	8.21%
	Ages 45-54	0.06%
	Missing/Unknown Age	0.00%
RACE	Black Race	31.57%
	White Race	65.70%
	Other Race	2.74%
	Missing/Unknown Race	0.00%
ETHNICITY	Hispanic Ethnicity	4.56%
	Non-Hispanic Ethnicity	95.44%
EDUCATIONAL STATUS	Less than High School Grad	11.77%
	High School Grad/GED	22.99%
	Some College	28.40%
	College Degree +	36.75%
	Missing/Unknown Education	0.09%
BMI	Underweight	2.68%
	Normal Weight	33.56%
	Overweight	25.73%
	Obese	35.75%
	Missing/Unknown BMI	2.28%
PERINATAL LEVEL OF BIRTHING FACILITY	Perinatal Level I	9.72%
	Perinatal Levels II & IIE	59.06%
	Perinatal Level III	31.23%
RURAL-URBAN COMMUNITY AREA CODES (RUCA)	Rural	23.85%
	Urban	75.27%
	Not Defined	0.88%

APPENDIX A

DATA SOURCES:

A. SC DHEC, Division of Biostatistics, Birth Certificate Data

- Gestation
- Birthweight
- Total Cesarean Sections
- Primary Cesarean Sections - (**Note:** *This definition is limited to first-time mothers.*)

Note: These data are based on birth certificate data submitted to DHEC by delivering hospitals and are not based on billing codes.

B. Linkage of the UB-04 all-payer database AND the Vital Records Birth file

- All measures with the exclusions applied (including elective inductions at 37-38 weeks gestation which was the only measure which originated from UB-04 all-payer data)

Note: All data sources are linked to Medicaid recipient records.

APPENDIX B

Detailed Information about the Joint Commission Exclusion Criteria

Each of the C-section measures is presented twice, with and without the excluded populations removed from the denominator (i.e., the number of deliveries used to calculate the percentage). The percentage Total and Primary C-Sections represents the overall percentage as indicated on the vital records **without any exclusions applied**, and the percentage of Total and Primary C-Sections with the exclusions removed indicates the percentage that may have been elective or non-medically indicated. For these measures, as specified by The Joint Commission PC-02 measure criteria, excluded from the denominator are the following populations: less than 8 years of age, greater than or equal to 65 years of age, length of stay > 120 days, gestational age <37 weeks, and *ICD-9-CM Principal Diagnosis Code* or *ICD-9-CM Other Diagnosis Codes* for contraindications to vaginal delivery. To apply the exclusions required the linkage of the UB-04 all-payer database and the Vital Records Birth file. However, **exclusions cannot be made** for clinical trials, which is an additional exclusion criteria; therefore, the numbers may differ based on a review of the patient clinical records.

For the early elective delivery measure, based on The Joint Commission PC-01 measure criteria, excluded from the denominator are the following populations: less than 8 years of age, greater than or equal to 65 years of age, length of stay > 120 days, and *ICD-9-CM Principal Diagnosis Code* or *ICD-9-CM Other Diagnosis Codes* for conditions possibly justifying elective delivery prior to 39 weeks gestation. These measures are also limited to 37-38 weeks gestation (early-term deliveries). However, **exclusions cannot be made** for active labor, spontaneous rupture of membranes, clinical trials, and prior uterine surgery (a population characteristic added to the early elective measure definition as of July 1, 2012); therefore, the numbers may differ based on a review of the patient clinical records.

