Achievement 2018

Regional Collaborative Database

Southern New Jersey Perinatal Cooperative

The licensed Maternal and Child Health Consortium
serving the seven counties of South Jersey

ACHIEVEMENT 2018

Report of the Regional Collaborative Database

Since its inception in 1981, SNJPC has recorded and documented trends in birthweight, mortality and transport in southern New Jersey and presented these findings in the Regional Collaborative Database. Members of the Cooperative have, as part of the agency's core mission, directed their efforts toward developing and maintaining a regional perinatal system that ensures that high-risk mothers and infants receive optimal care. The effectiveness of these efforts is documented in the Regional Collaborative Database. This Database also follows ongoing concerns and identifies emerging problems.

The regionalization of perinatal services includes these core objectives:

- Accessible quality care for pregnant women and newborns
- Appropriate use of perinatal personnel and facilities
- Assurance of reasonable cost effectiveness

Thank You

Production of the Regional Collaborative Database report is possible only through the support and assistance of the obstetrical and nursery staffs of our member hospitals. Their contributions are invaluable. We extend our gratitude to these individuals whose consistently high level of professionalism is the basis of the information in this report.

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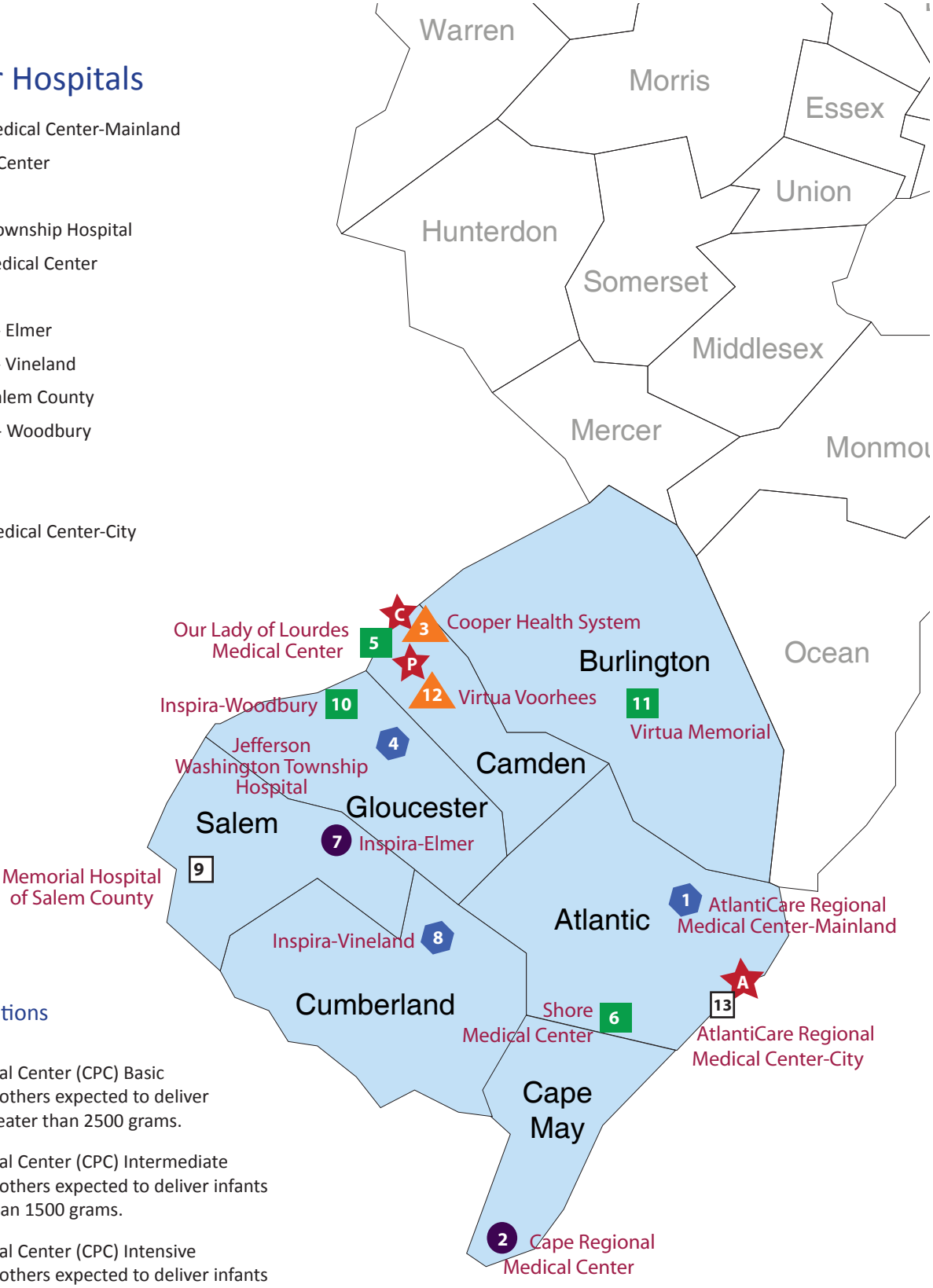


Hospital Designations

Community Perinatal Center (CPC) Basic provides care for mothers expected to deliver infants weighing greater than 2500 grams.

Community Perinatal Center (CPC) Intermediate provides care for mothers expected to deliver infants weighing greater than 1500 grams.

Community Perinatal Center (CPC) Intensive provides care for mothers expected to deliver infants weighing greater than 1000 grams.

Regional Perinatal Center (RPC) provides full range of services for high-risk mothers and newborns.

Cooperative Offices

SNJPC maintains offices in Absecon, Camden City and Pennsauken.

REGIONAL HOSPITAL SUMMARY

	BASIC		INTERMEDIATE		INTENSIVE		RPC		REGION	
	ACTUAL	RATE %	ACTUAL	RATE %	ACTUAL	RATE %	ACTUAL	RATE %	ACTUAL	RATE %
TOTAL HOSPITAL BIRTHS	590		4905		4938		7755		18188	
LIVE BIRTHS IN HOSPITAL	590		4877		4902		7692		18061	
NEONATAL MORTALITY	1	1.695	5	1.025	14	2.856	34	4.420	54	2.990
LBW - LIVE BIRTHS < 2501 GM	22	3.73	361	7.40	413	8.43	712	9.26	1508	8.35
LBW - NEONATAL MORTALITY	1	45.455	4	11.080	11	26.634	33	46.348	49	32.493
VLBW - LIVE BIRTHS < 1501 GM	1	0.17	24	0.49	71	1.45	186	2.42	282	1.56
VLBW - NEONATAL MORTALITY	1	1000.000	3	125.000	11	154.930	28	150.538	43	152.482
ELBW - LIVE BIRTHS < 1001 GM	1	0.17	6	0.12	35	0.71	93	1.21	135	0.75
ELBW - NEONATAL MORTALITY	1	1000.000	2	333.333	8	228.571	28	301.075	39	288.889
ELBW2 - LIVE BIRTH (500-1000)	0	0.00	4	0.08	28	0.57	77	1.00	109	0.60
ELBW2 - NEONATAL MORTALITY	0	0.000	0	0.000	2	71.429	12	155.844	14	128.440
ELBW3 - LIVE BIRTH (751-1000)	0	0.00	3	0.06	17	0.35	36	0.47	56	0.31
ELBW3 - NEONATAL MORTALITY	0	0.000	0	0.000	1	58.824	1	27.778	2	35.714
FETAL MORTALITY > 499 GM	0	0.000	19	3.882	17	3.461	37	4.797	73	4.031
FETAL MORTALITY > 2500 GM	0	0.000	9	1.989	8	1.779	10	1.431	27	1.628
MATERNAL TRANSPORTS (% of total births + trans)	31	4.99	68	1.37	54	1.08	3	0.04	156	0.85
NEONATAL TRANSPORTS (% of live births)	24	4.07	54	1.11	70	1.43	67	0.87	215	1.19
NEONATAL MORTALITY AFTER TRANSPORTS (% of live births)	0	0.00	2	0.04	5	0.10	1	0.01	8	0.04
LIVE BIRTHS OUTSIDE HOSPITAL	1	0.17	39	0.79	28	0.57	49	0.63	117	0.64

Vital Information Platform

The New Jersey Vital Information Platform (VIP) system is one of the most comprehensive perinatal data systems in the country. Birth record information and perinatal data is tracked for every birth in New Jersey's hospitals.

Adopted by all NJ birthing hospitals in 2015, the VIP replaced the DOS-based Electronic Birth Certificate (EBC) which was the source for this report since 1993. Southern New Jersey Perinatal Cooperative (SNJPC), Family Health Initiatives (FHI) and the Department of Health coordinate support by meeting regularly to discuss issues with use, definitions and data quality. VIP's web-based interface complies with federal standards with minimal support from hospitals' IT Departments.

SNJPC staff support quality improvement and provide technical assistance to regional hospitals related to VIP. VIP has transformed how New Jersey's hospitals share birth record information and perinatal data, expanding our possibilities for new insight.

Live Birth Analysis

As you review the data in this document you will see that the denominator used for factors has some variation. In order to present data in the most useful format, SNJPC uses two different live birth denominators. When presenting hospital-based data (including the official Live Births number, Neonatal Mortality Rate, Fetal Mortality Rate and birth weight trends), we use Live Births in Hospitals. This number excludes outside births and was 18,061 for 2018.

For population, disparity and behavioral health-based data (birth and pregnancy characteristics, delivery and feeding method), SNJPC uses Total Live Births. This number includes outside births and was 18,178 for 2018.

Disclaimer

The VIP data in the following charts represents births that occurred in Cooperative member facilities.

Information is limited to those who delivered at or were transferred to a regional facility. This is hospital reported information and is not to be considered official or population-based. These data are preliminary and are not considered official by the New Jersey Department of Health and may not be represented as such.

The accuracy of the data contained in this report is dependent upon the completeness and reliability of the information recorded by each VIP birth facility.

Distribution of Births

Consistent with statewide and national trends, births in southern New Jersey have continued to decline over the past few years with 18,061 births in 2018.

The birth rate for South Jersey is depicted in Figure 1. The annual number of live births peaked in 1990.

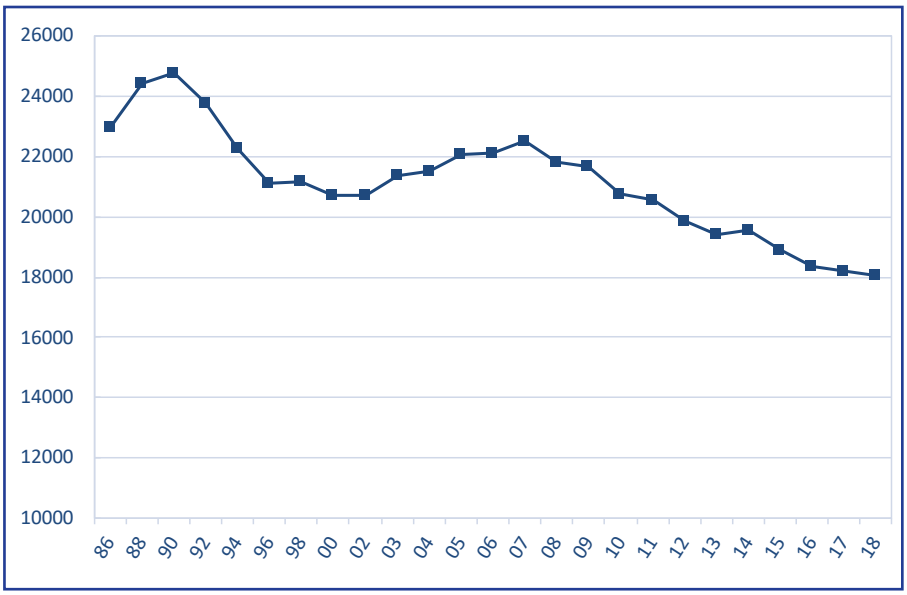
NJ births from 1990-2018 (most recently published) are presented in Figure 2.

NJ experienced an 18% decrease in total births in this time period. South Jersey contributed to this decline with a 27% decrease in the births to mothers in our region.

Economic and public health analysis of the reduction in birth rates nationally points to significant decreases in births to teens, especially Black and Hispanic teens as the driver for the overall reduction.

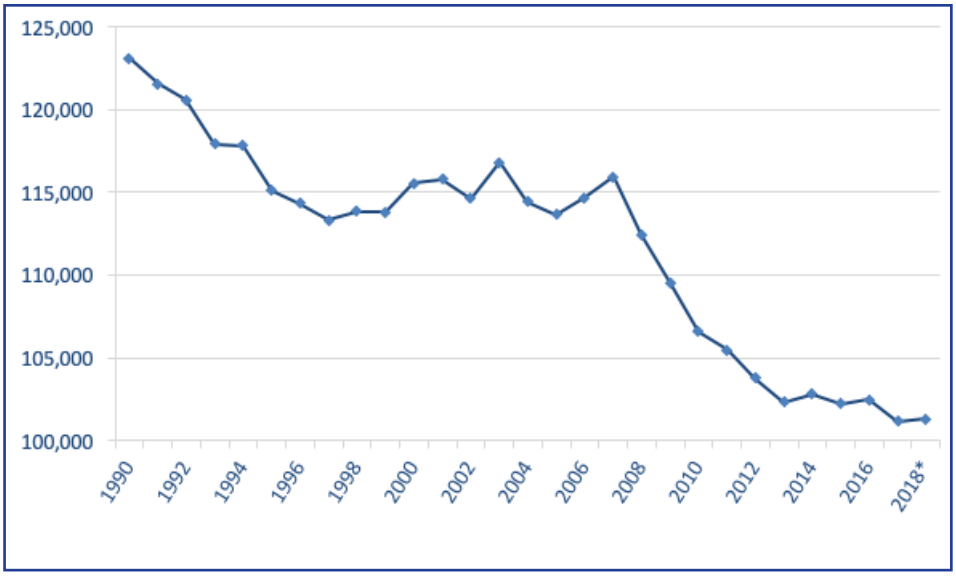
Live Births 1986 - 2018

Figure 1



New Jersey Births 1990-2018

Figure 2



**Provisional: https://www-doh.state.nj.us/doh-shad/view/sharedstatic/Provisional2018Births.pdf*

Characteristics of Births

Of the 18,178 births to residents of the southern region in 2018, 64% were to residents of the region's northern counties (Burlington, Camden and Gloucester) (Figure 3). Nonresidents accounted for 2.7% of births in South Jersey.

Table I depicts the number of births that occurred in each county, comparing the two time periods of 2009 to 2013 and 2014 to 2018.

The decline in live births on average was 8.6%, but the distributions of these changes were quite varied. While the number of births decreased in all counties, the largest decrease occurred in Salem County with the closing of Labor and Delivery at Memorial Hospital of Salem County in 2014.

While disparity in outcomes exists in all regional counties, it is the northern counties and Atlantic City where the population is highest, that are eligible for consistent state and federal funding to address these concerns.

Interventions designed to engage families likely to experience poor outcomes based on access and resources are often supported by local foundations and charities in the Salem, Cumberland and Cape May communities in need.

SNJPC works with our hospitals, coalitions and partner organizations in these areas to bring high quality services that address community needs.

2018 Births by
County of Residence

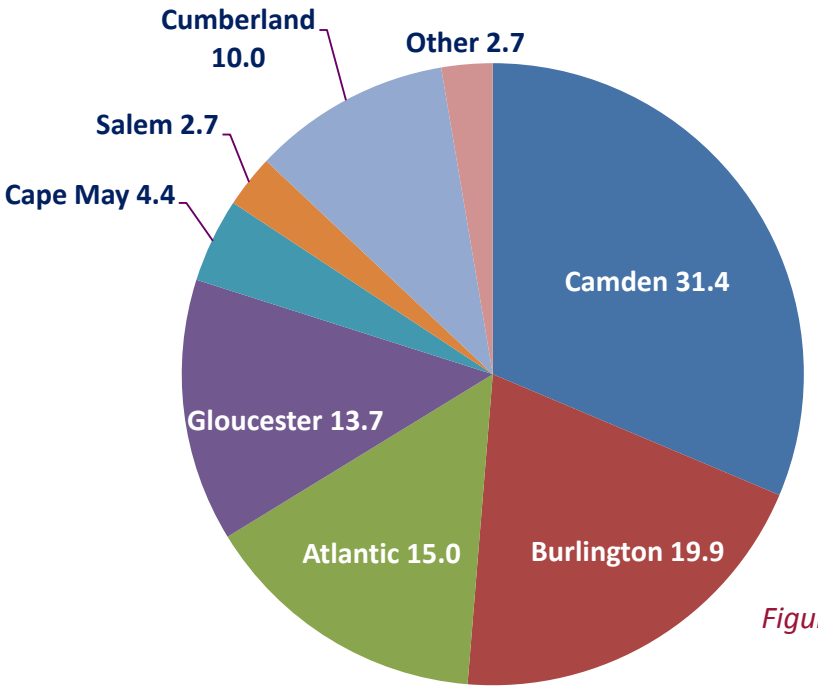


Figure 3

County Birth Totals Five-Year Averages 2009 - 2018

Hospital Births by County	2009-2013	2014-2018	%Change
Atlantic	3587	3157	-11.99%
Burlington	2689	2279	-15.26%
Camden	8951	8714	-2.65%
Cape May	520	397	-23.73%
Cumberland	2073	1922	-7.27%
Gloucester	2104	1922	-8.63%
Salem	525	310	-40.96%
REGION	**20449**	**18701**	**-8.55%**

Table I

Maternal Age

In 2018, the highest percentage of births in the region occurred to mothers aged 30-34 years (32.04%), followed by 25-29 years (27.52%), 35-39 years (17.76%), 20-24 years (15.38%), 40-44 years (3.84%), under 20 years (3.15%) and 45 years and older (0.29%) (Figure 4).

Shifts in the distribution of births by maternal age have been dramatic since 2010. Teen births, discussed in the next section, decreased from 8.56% to 3.15%, a 63% decrease. During the same time period, births to mothers aged 30-34 increased from 26.1% to 32.04%, a 22.76% increase.

Variation in the distribution of births by age group can be seen at the county level in Figure 6. Of the counties in the southern region, Burlington County had the highest percentage of mothers aged 35 and over (26.2%) while Salem had the highest percentage of mothers under 20 (5.6%).

A 31% decrease in teen births was seen in Cumberland County this year, going from 6.8% to 4.7% of county births. While the total number of births is small and can sometimes influence the percent of births without a change in the number of births, there was a decrease in the number of births in each age group of teens in Cumberland county, with total teen births decreasing from 123 to 88 between 2017 and 2018.

2018 Births by Maternal Age

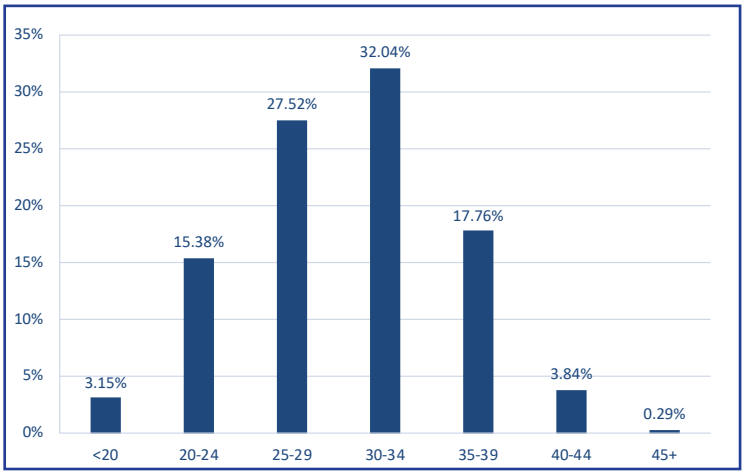


Figure 4

2018 Births by Maternal Age

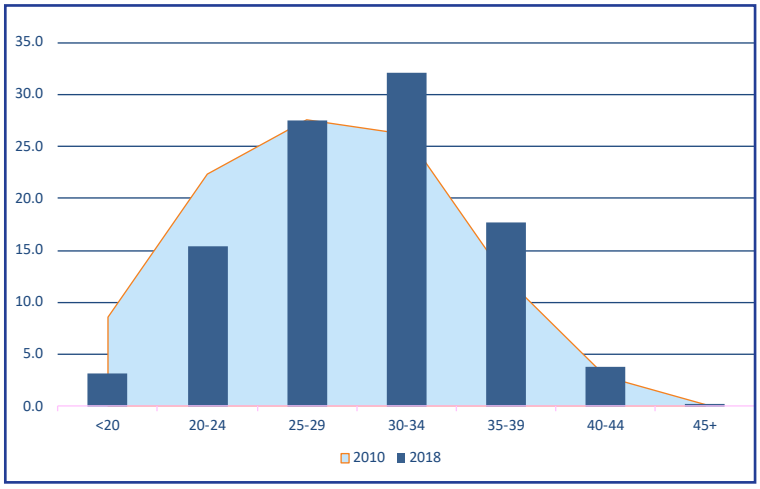


Figure 5

2018 County Births by Maternal Age

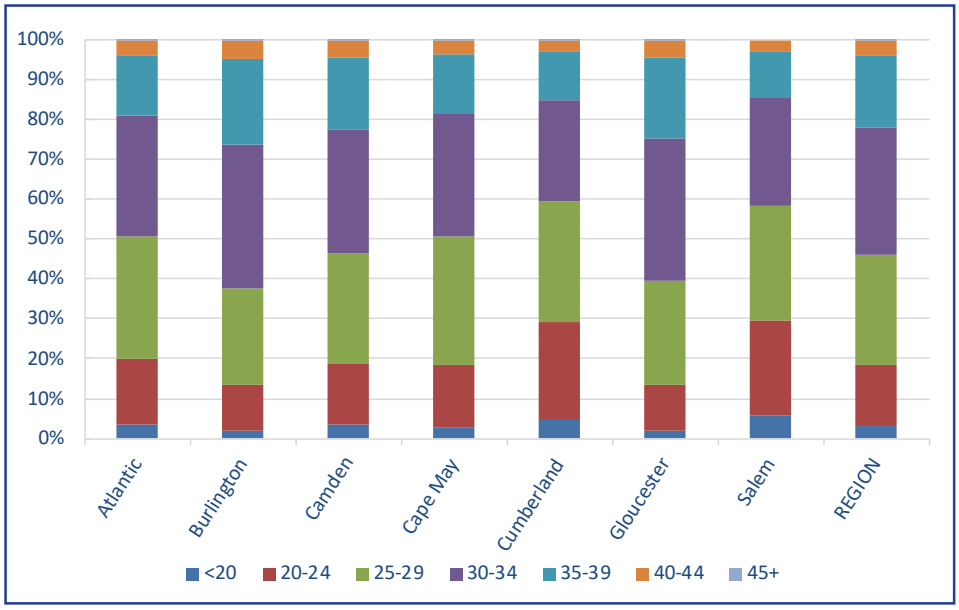


Figure 6

Births to Teens

The US has experienced a significant decrease in births to teens since 2009. Improved access to contraception, especially Long Acting Reversible Contraceptive (LARC) options, educational opportunities and economic factors are drivers for this positive trend.

The majority (77.8%) of teens giving birth were 18 and 19 years of age compared with 18.9% of 16 and 17 year olds. In 2018, there was a slight increase in births to the youngest teens, going from 2.6% in 2017 to 3.3% for teens less than 16 years of age (Figure 8). This was an increase of 5 births in the region.

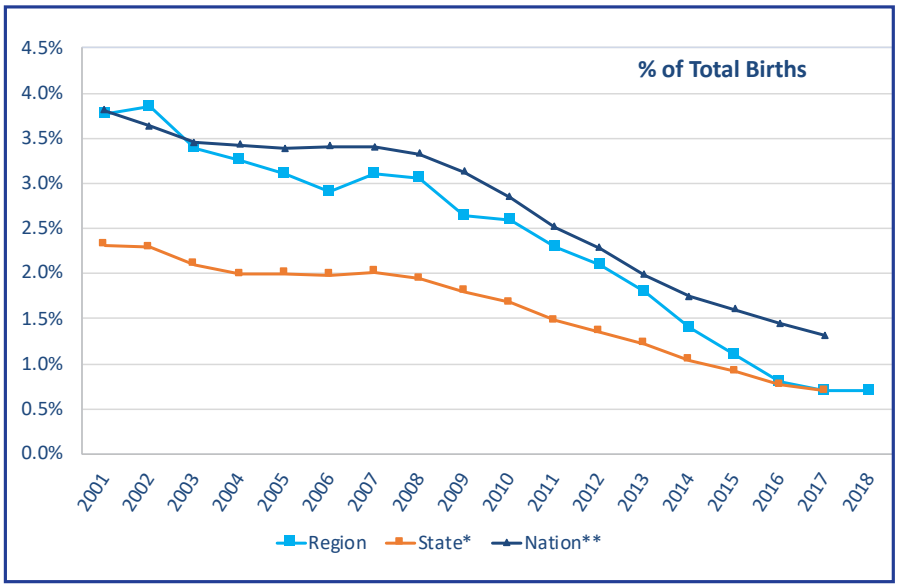
While NJ and the entire northeastern region of the US experience the lowest rates of birth to teens in the country, areas of South Jersey continue to be at the top of the list for this indicator of poor community health. As Figure 7 highlights, regional counties have followed the positive trend for births to young teens (under 17) over the past 10 years.

SNJPC programs work with local leaders to influence teen pregnancy rates in Salem and Cumberland counties, the NJ counties with the highest percentage of births to young mothers.

In 2018, youth leadership training coordinated by SNJPC was expanded from one community based training to three on-site school based trainings to increase participation. These trainings included nine after school sessions and a media project. Pre-test scores went from 49.5% to 91.25% at Post-test for students in one participating school.

Another leadership training is being planned for the summer school session in 2019. Salem County will have its own youth conference in 2019 as well. Improvements in access to LARCs and emergency birth control for residents in these counties has impacted unintended pregnancy in the six years SNJPC has worked with local agencies to address the high rates of teen pregnancy.

Teen Births as Percent of Total Births
17 and Younger



Source: Center for Health Statistics, New Jersey Department of Health. http-https://www26.state.nj.us/doh-shad/query/selection/birth/BirthSelection.html. 4/18/18.

***Source. United States Department of Health and Human Services (US DHHS), Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS), Division of Vital Statistics, Natality public –use data 2007-2017, on CDC WONDER Online Database, October 2018. Accessed at htt;://wonder.cdc.gov/natality-current.html on May 30, 2019 3:36:10 PM.*

Figure 7

2018 Births to Teens by County

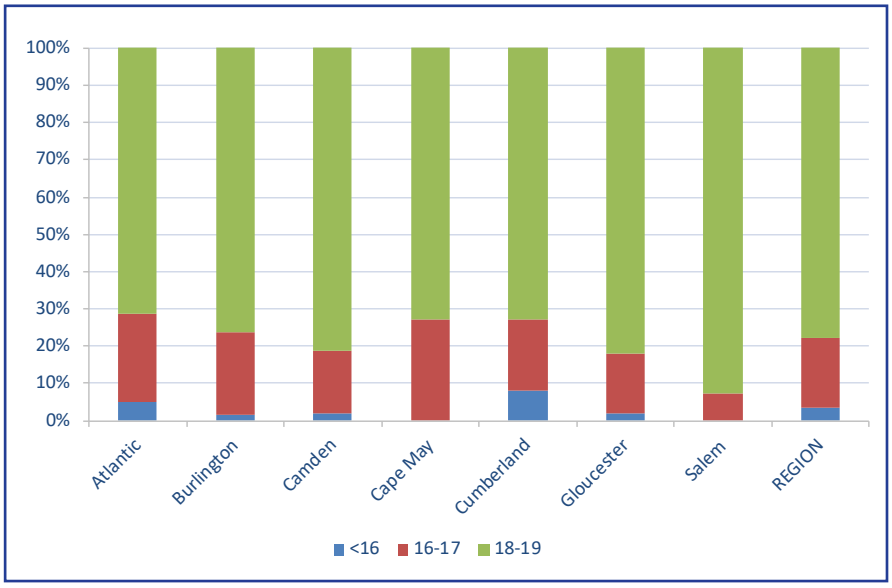


Figure 8

Pregnancy Characteristics

Prenatal Care

Early and regular prenatal care is an important strategy to assure healthy pregnancy outcomes for mothers and infants. Two of the most significant benefits are improved birth weight and decreased risk of preterm delivery. Pregnant women who do not receive adequate prenatal care are at risk for complications that may not be detected or managed in a timely manner.

As shown in Figure 9, first trimester entry to prenatal care remains consistent with statewide numbers at 71.1% in 2018. No care is low at 1.8%.

Cooperative programs work to support early and adequate access to prenatal care for all South Jersey women.

Plurality

In 2018, singleton births represented 96.17% of all births in the region, twin births represented 3.73% and triplet births represented 0.1% of all births. There were no quadruplet births in 2018 (Table II).

The decline in higher order multiples is seen after 2005, with only one set of quadruplets born in the past 10 years. These births often result in preterm, extremely low birthweight deliveries and fetal losses; surviving infants often experience lifelong health problems related to prematurity. Improvements in reproductive technologies were critical to the reduction in these high-risk births.

Entry to Prenatal Care by Trimester
SNJPC Member Hospital Births

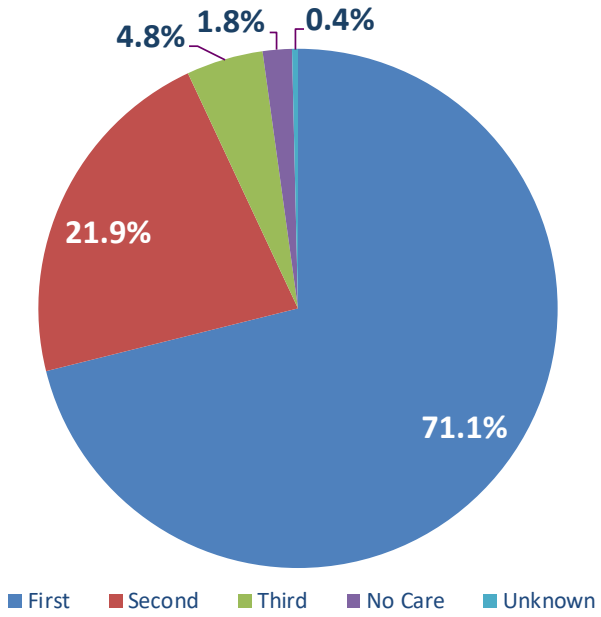


Figure 9

Plurality

Table II

Year	Singleton		Twin		Triplet		Quadruplet		Total Multiples
	N	%	N	%	N	%	N	%	N
2009	21034	95.88	859	3.92	44	0.2	0	0	903
2010	20202	96.16	785	3.74	21	0.1	0	0	806
2011	19844	95.51	888	4.27	45	0.22	0	0	933
2012	19276	95.99	787	3.92	19	0.09	0	0	806
2013	18662	95.89	767	3.941	33	0.17	0	0	800
2014	18865	96.06	745	3.79	27	0.14	1	0.01	773
2015	18231	95.98	741	3.9	22	0.12	0	0	763
2016	17723	96.00	715	3.87	24	0.13	0	0	739
2017	17561	95.90	725	3.99	24	0.13	0	0	749
2018	17482	96.17	678	3.73	18	0.1	0	0	696

Risk Assessment

Conducting risk assessment during pregnancy identifies women who are at high-risk for fetal or infant death or infant morbidity. Early identification and intervention are keys to prevention. Because of this, risk assessment occurs at the first prenatal visit and is updated throughout the course of prenatal care.

Pregnant women, identified as being at-risk, receive high quality prevention or treatment for their conditions. Providers assure linkage to appropriate services and resources through referral. Reducing the impact of these factors, associated with poor pregnancy outcomes, is critical to both mother and baby.

Table III depicts some of the risk factors that were associated with Very Low Birth Weight (VLBW) births in 2018.

The association between no prenatal care and late entry to care, and the occurrence of low birthweight is clear from this analysis. While 1.8% of all deliveries were to women who did not receive prenatal care, 10 percent of VLBW deliveries were to women who were in the same group.

Inadequate prenatal care, tobacco use and multiple births (twins, triplets) are more likely to result in the birth of a VLBW infant. Maternal risks such as hypertension, pre-eclampsia and advanced maternal age can also be associated with decreased birth weight.

In data reflective of national reports, black women in South Jersey continue to have a higher proportion of low birthweight babies. Table III shows that while 19% of the births in the region were to black women, higher proportions (41%) of the VLBW births were to black women.

Since low birth weight is closely associated with infant mortality, reducing the incidence of VLBW infants born to black women is essential to reducing the racial disparity that has long challenged the perinatal healthcare community.

Table III

Southern Region	ALL	<1501 grams	>1500 grams
Live Births	***18178***	*289*	*17889*
Mother's race: White	**62%**	41%	62%
Mother's race: Black	**19%**	41%	19%
Mother's ethnicity: Hispanic	**24%**	20%	24%
1st trimester entry to prenatal care	**71%**	64%	71%
No prenatal care	**2%**	10%	2%
Used tobacco during pregnancy	**8%**	10%	8%
Plurality of 2 or more	**4%**	33%	3%
Mother's age less than 20 years	**3%**	3%	3%
Mother's age 35 years or greater	**22%**	27%	22%
Primigravida	**28%**	25%	28%
Maternal risk: Hypertension in pregnancy	**6%**	16%	6%
Maternal risk: Pre-eclampsia	**0.1%**	1%	0%

Racial Disparity

Racial disparity in birth outcomes is a well-established truth in American public health. Black infants in America are more than twice as likely to die as white infants — 11.3 per 1,000 black babies compared with 4.9 per 1,000 white babies, according to the most recent government data.

Regional data reflect these same patterns of disparity. In South Jersey in 2017, the Neonatal Mortality Rate (NMR) for white babies was 1.97 per 1,000 births and the NMR for black babies was 6.57 per 1,000.

Much of the work of SNJPC focuses on eliminating these disparities using evidence-based strategies that seek to even the playing field for families across our region.

Some of the most striking data presented on this important topic demonstrate that the impact of some factors, thought to be protective, actually have no positive impact on outcomes. Figure 12 presents information on educational attainment, birth outcome and race for South Jersey mothers. What these data show is that black women with advanced degrees have a higher rate of babies born weighing less than 3.3 lbs (1500 grams) than white women who have less than a high school diploma.

While the single year numbers for VLBW are small (289) this does reflect the national data.

In 2019, New Jersey's First Lady announced the Nurture NJ program, targeting state resources at making significant impact on disparity in maternal and infant health.

The addition of grants for doula birth support, increased CHW resources in communities with high rates of Bblack infant mortality and a support program for access to 17P therapy are all efforts aimed at dealing with the root causes of disparate outcomes.

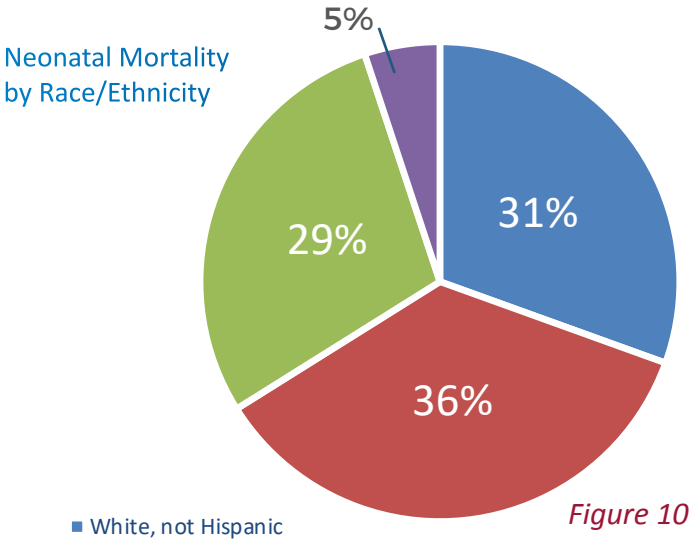


Figure 10

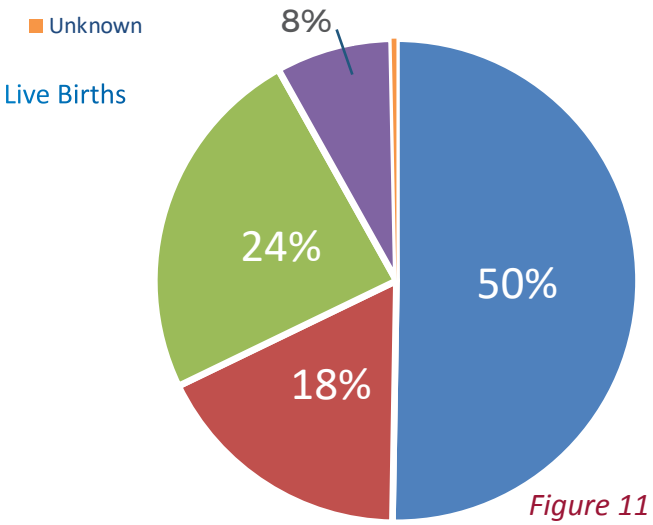


Figure 11

Racial Disparities in VLBW Births

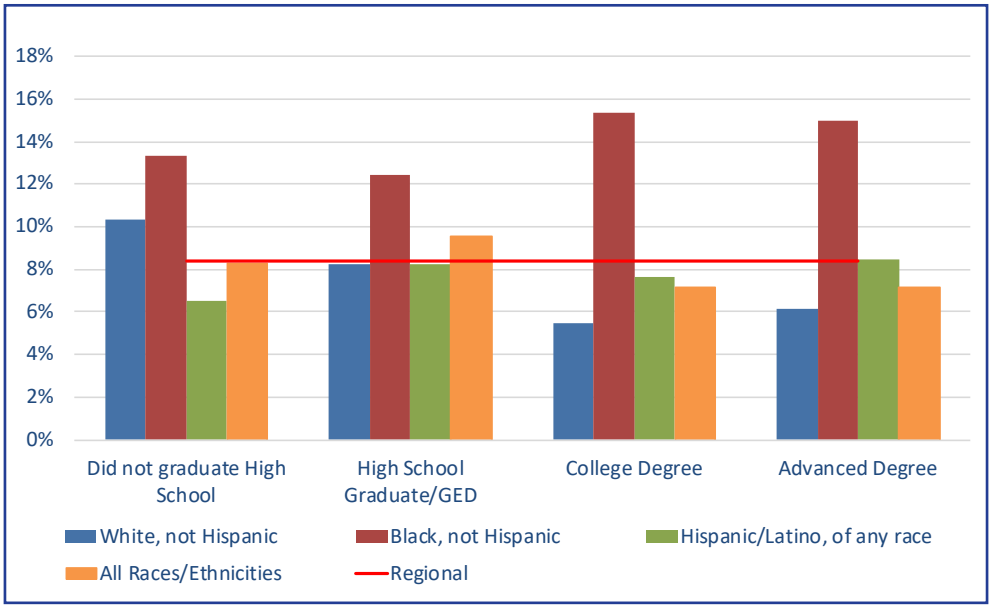


Figure 12

NJBIZ
ALL BUSINESS • ALL NEW JERSEY

Murphy signs maternal health legislation

By: Anthony Vecchione
May 9, 2019 7:00 am

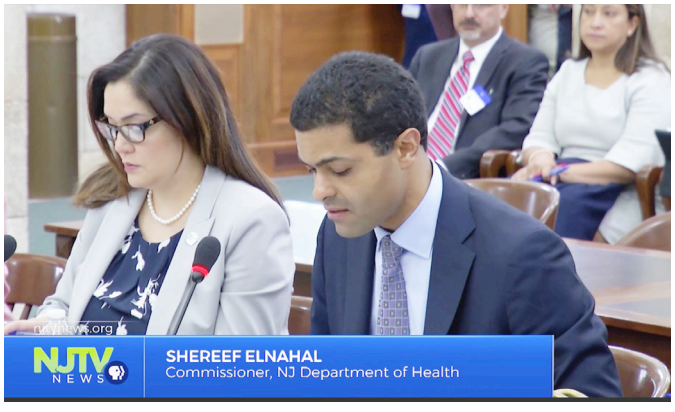
Gov. Phil Murphy signs legislation on maternal health, joined by First Lady Tammy Murphy, legislators, Newark Mayor Ras Baraka, and community leaders at University hospital on May 8, 2019. – EDWIN J. TORRES/GOVERNOR'S OFFICE

NJTV NEWS

HEALTH

Budget hearing focuses on maternal health and opioid epidemic

BY **Joanna Gagis**, Producer/Correspondent | April 11, 2019, 5PM EST



"It's important to remember that New Jersey has one of the nation's highest maternal and infant health disparities. This is an administration that recognizes that that disparity is rooted in institutional and structural racism," he said. "The department has increased outreach, support and services to women of color to improve health and birth outcomes."

NJ SPOTLIGHT
NEWS, ISSUES AND INSIGHT FOR NEW JERSEY

PRESSING TO IMPROVE NJ'S MATERNAL, INFANT HEALTH AND REDUCE RACIAL DISPARITIES

LILO H. STAINTON | NOVEMBER 13, 2018

A multipronged approach to addressing New Jersey's worrisome maternal mortality rate is underway

Doula who were newly certified in November, 2018 are expected to help drive down the state's maternal mortality rate.

State House News ™

At Trenton Nurture NJ Roundtable, First Lady Touts Investments in Governor's Proposed Budget to Combat Maternal and Infant Health Crisis

Institute for Healthcare Improvement

Improving Health and Health Care Worldwide

Behind the Headlines about Maternal Mortality

*By **Neel Shah** | Thursday, March 14, 2019*

Method of Delivery

New Jersey remains in the top 5 states for high rates of Cesarean births, however, improvements have been made over the past 5 years. Figure 13 depicts the relationship between C-section rates in South Jersey and those for the state. The overall trend aligns since 2000, but South Jersey hospitals decreased 16.6% while the state decreased only 10.5% since 2009.

Since 2013, SNJPC member hospitals have reduced the region's overall C-section rate by 16.7% with 8 of 11 member hospitals achieving a 10% or greater decrease.

In spring 2019, NJDOH released 2016 hospital data for low risk NTSV C-sections, and 4 southern regional hospitals met or exceeded the national target of 23.9%.†

The Joint Commission on Accreditation of Hospitals announced in December of 2018 that by 2020 they will be publishing hospital data on C-section rates* and that the goal will be <30% of deliveries in 2018 and 2019. In 2018, Cooper, Inspira Elmer and Our Lady Of Lourdes met this criteria with Inspira Woodbury and Virtua Voorhees only just over the goal based on VIP data. With continued focus and planning, most regional hospitals are in strong positions to meet this benchmark.

Improvements in the regional percentage of C-sections for mothers who experience spontaneous labor as well as an increase in vaginal deliveries is good news. There is a minor increase in the percentage of mothers who have no trial of labor before a C-section between 2010 and 2018. The last five years have seen a decline in these procedures. Vaginal deliveries increased 11.62 since 2009.

† *https://nj.gov/health/maternal/documents/MM_surgical_births_byhospital.pdf*

* *https://www.jointcommission.org/assets/1/18/Peformance_Measure_PC-02_JCP1218.pdf*

New Jersey and South Jersey Overall C-Section Trends

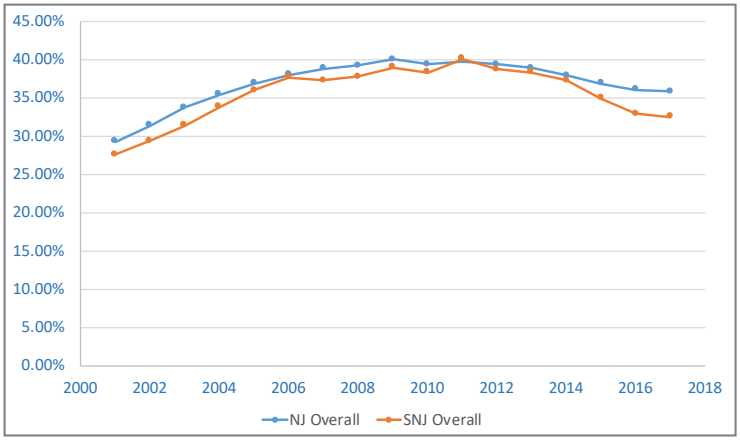


Figure 13

C sections By Hospital - 5 Year Comparison

Hospital	2013	2018	% Change
AtlantiCare Regional Medical Center	41.5%	37.5%	-9.7%
Cape Regional Medical Center	37.9%	37.0%	-2.4%
Cooper University Hospital	28.4%	25.6%	-10.1%
Inspira Medical Center Elmer	23.3%	20.1%	-13.7%
Inspira Medical Center Vineland	37.4%	35.9%	-4.0%
Inspira Medical Center Woodbury	38.7%	30.8%	-20.4%
Jefferson Washington Township Hospital	33.4%	32.0%	-4.2%
Our Lady of Lourdes Medical Center	33.5%	27.9%	-16.8%
Shore Memorial Hospital	44.7%	36.3%	-19.0%
Virtua Memorial Hospital	42.4%	35.0%	-17.3%
Virtua Voorhees Hospital	40.7%	30.2%	-25.8%
REGION	**38.4%**	**32.0%**	**-16.7%**

Table IV

2009-2018 Method of Delivery

Year	Vaginal	C-Section/ Failed Trial of Labor	C-Section/ No Trial of Labor
2009	61.01	15.01	23.98
2010	61.63	14.61	23.75
2011	59.91	15.3	24.79
2012	61.24	14.99	23.77
2013	61.65	12.88	25.48
2014	62.74	11.61	25.66
2015	65.09	8.89	26.02
2016	67.09	7.47	25.43
2017	67.49	7.79	24.71
2018	68.1	7.55	24.4
Change over time	**11.62%**	**-49.70%**	**1.75%**

Table V

ISSUES

South Jersey Cesarean Births, & Inductions

1. Reducing C-sections among low risk, first time mothers (NTSV) is key to reducing the overall C-section rate. As Figure 16 shows, SNJPC member hospitals have reduced the NTSV section percent by 29.71% since NJ's NTSV reduction reduced 18.18% in the same time frame.

2. Nullipara Cesareans for standard presenting women. (First-time, live births, baby head down) In 2018, the percent of Cesarean births to standard presenting women was 22.9%, a 34% decrease for the region since 2009. The statewide rate decreased only 13.9% in that time.

3. The greatest predictor of C-section is prior C-section, and while a 4.4% decrease has occurred since 2009, over 80% of women in the region had a repeat C-section in 2018.

4. Vaginal Delivery after Cesarean (VBAC) has increased regionally by nearly 50% since 2009, and while the repeat C-section rate remains high, increased interest by mothers and support of providers have combined to impact the prevalence of this delivery method.

NTSV by Method of Delivery

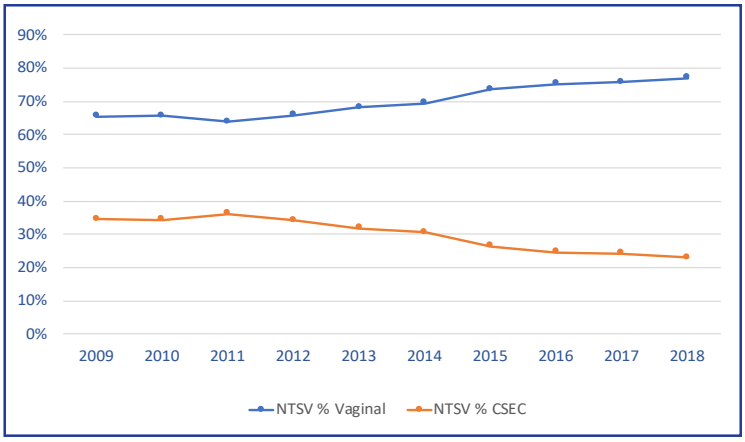


Figure 14

Labor Initiation for Cesarean Deliveries, First-time Mothers, Singleton, Full-Term, Head Down

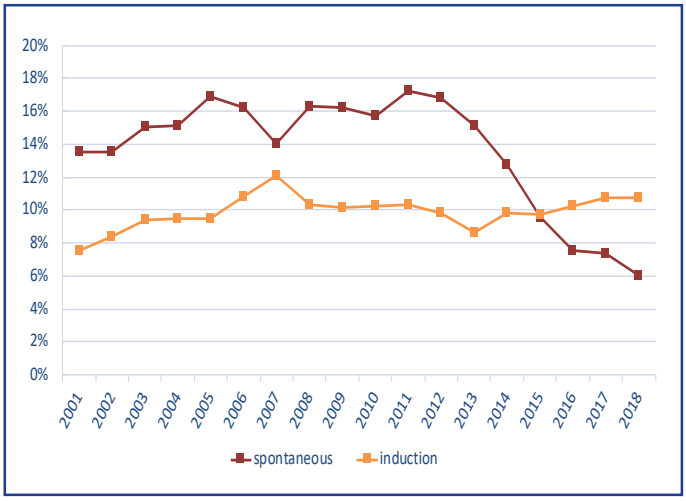


Figure 15

New Jersey and South Jersey NTSV C-section Trends

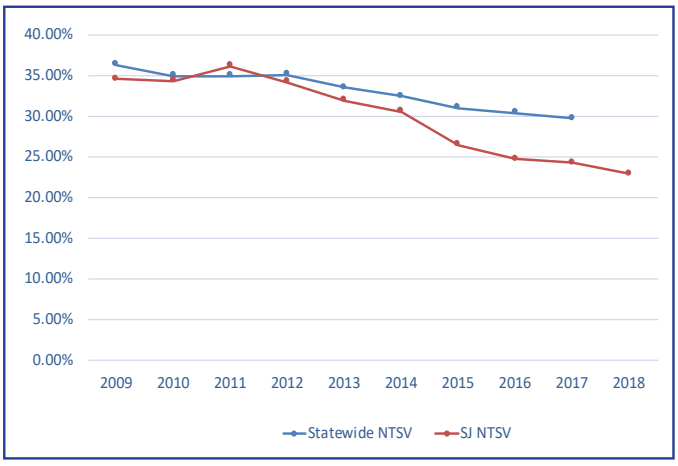


Figure 16

2009-2018 Cesarean and VBAC

Year	Cesarean Rate	Nullipara C-section	No Trial Repeat C-section	Vaginal Birth After C-section
2009	38.99%	34.50%	84.70%	52.60%
2010	38.37%	34.30%	84.50%	58.50%
2011	40.09%	36.12%	83.96%	51.18%
2012	38.76%	34.15%	83.07%	57.49%
2013	38.35%	30.20%	82.97%	64.71%
2014	37.26%	30.51%	83.55%	72.66%
2015	34.91%	26.42%	83.24%	77.68%
2016	32.91%	24.72%	82.21%	81.36%
2017	32.51%	24.27%	80.75%	76.96%
2018	31.95%	22.92%	80.96%	78.87%
Change over time	**-17.95%**	**-33.57%**	**-4.42%**	**49.94%**

Table VI

Newborn Feeding Method

Because of the many positive benefits of breastfeeding for maternal health and child survival, growth and development, exclusive breastfeeding - which means that an infant receives only breast milk with no additional formula or water - is recommended by the World Health Organization for all infants.

Despite its many benefits, many women do not breastfeed exclusively. In 2018, 70.6% of women who gave birth in SNJPC member hospitals breastfed their newborns (based on feeding method at discharge from the hospital). There has been a steady increase in breastfeeding over the past ten years as can be seen in Figure 17.

Regional breastfeeding rates have been on the rise since 2000 and have consistently stayed above 70%. Since 2013, efforts to improve supportive messages and lactation resources as a part of prenatal delivery and postpartum care have been standardized by most regional providers.

In NJ, differences have been observed by race and ethnicity. Table VII depicts these trends over time. Between 2009 and 2018, the percentage of breastfeeding at discharge for Black mothers increased 21.7%, however white and Hispanic mothers continue to have greater percentages of breastfeeding. Community programs that work to address these differences must address cultural norms and historical associations that may decrease Black, and specifically African American women's feelings about breastfeeding their infants.

Breastfeeding at Discharge 2000-2018

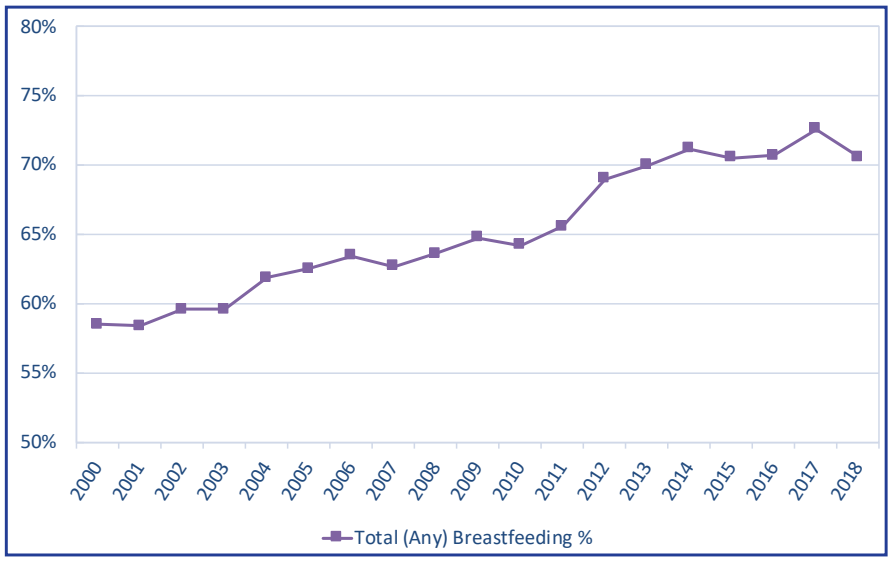


Figure 17

Breastfeeding at Discharge by Race/Ethnicity

Year	Black	White	Hispanic
2009	51.5%	66.8%	70.4%
2010	50.8%	64.6%	70.6%
2011	53.5%	66.5%	66.8%
2012	57.5%	69.7%	73.0%
2013	57.0%	70.9%	73.7%
2014	59.9%	73.3%	74.0%
2015	59.6%	73.0%	72.6%
2016	62.2%	72.6%	73.6%
2017	64.1%	74.2%	74.3%
2018	62.7%	72.3%	72.2%
Change over time	**21.7%**	**8.2%**	**2.6%**

Table VII

Infants Born Outside the Hospital

The regional database also tracks the number of infants born outside of hospital labor and delivery units. Outside births include emergency births at home, in transit or in the hospital emergency room. This number does not include planned home deliveries.

In 1988, the number of births outside the hospital rose sharply and continued until 1993 when the trend reversed. This rate had remained very low for the past decade, however in 2015, the rate returned to the high levels of the early 1990s (Figure 18).

In 2018, 0.65% of births were outside births, the highest percentage ever recorded. As the overall birth rate decreases in the region, it is not surprising to see higher percentages even in population level analysis. However, with 117 occurrences in 2018, this is also the highest number recorded.

Changes in VIP for categorization of birth location may have improved identification of births in the hospital outside of labor and delivery. Additional tracking and analysis will be focused on this group of high risk deliveries.

Although the majority of these infants are full-term, the fetal and neonatal mortality risk is higher than for infants born in a hospital with appropriate care and support. Therefore, continued surveillance is needed to determine preventable causes of these occurrences.

Outside Birth Trend

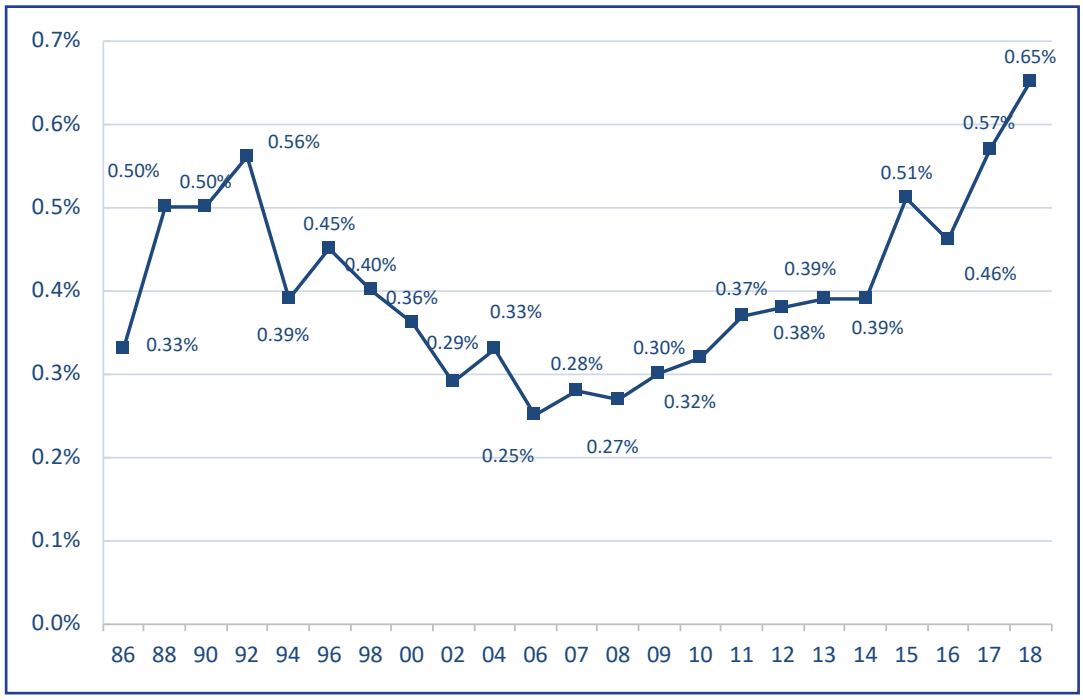


Figure 18

Birthweight Trends

Changes in medical management and the coordination provided by perinatal regionalization since 1995 set the stage for the increased survival of very small babies since the late 1990s. Technological and medical advances now support the live birth of many tiny, premature infants who would have died prior to delivery just 15-20 years ago, when the regional database was first developed.

As seen in Figure 19, a greater percent of infants weighing less than 5.5 lbs. were born in 2018 (8.4%) than in the baseline year of 1984. Table VIII depicts five year averages for 2009 – 2018 in which decreases were seen for every weight group.

In 2018, 282 (1.6%) babies born in member hospitals were categorized as VLBW because they weighed less than 1500 grams (3.3 lbs). This group of infants are the most vulnerable and have the greatest impact on the neonatal mortality rate. When examined over time, the birth rate of Very Low Birth Weight (VLBW) infants has remained relatively stable since 1999.

In 2018, 135 babies born in member hospitals were categorized as Extremely Low Birth Weight (ELBW) because they weighed less than 1000 grams. Figure 20 shows the birthweight trends for these tiniest of infants from the baseline year to the present.

Birthrate of LBW Infants 1984-2017

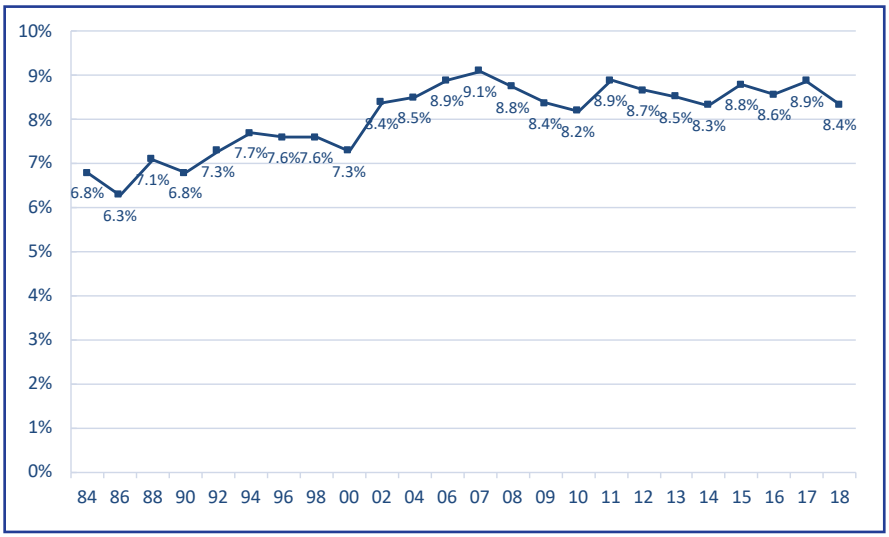


Figure 19

Birthweight Distribution

Weight Group	2009-2013	2014-2018	% Change
<2501g (LBW)	8.53	8.58	0.59%
<1501 (VLBW)	1.69	1.64	-2.96%
<1001 (ELBW)	0.87	0.80	-8.05%

Table VIII

ELBW/VLBW Birthrate Comparison

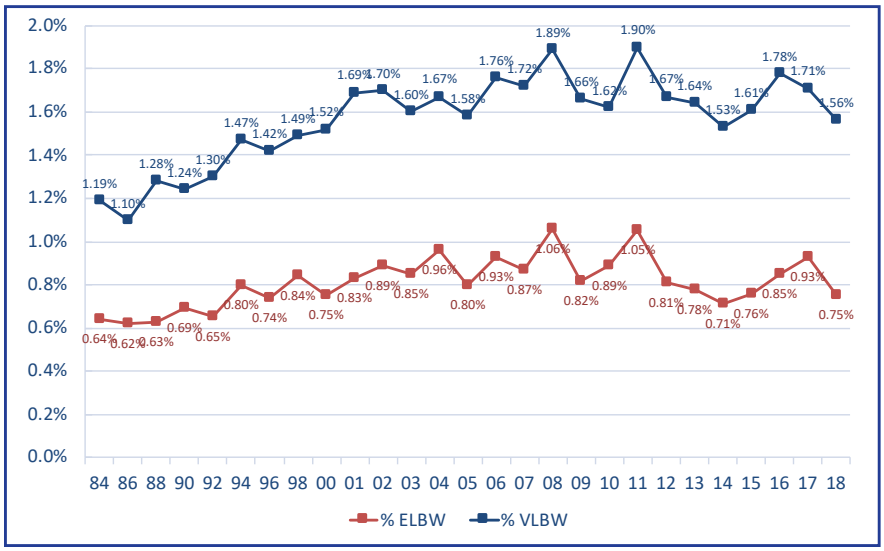


Figure 20

Neonatal Mortality

Since low birthweight is the single most important factor contributing to neonatal mortality, SNJPC monitors the relationship between the incidence of LBW and NMR.

Figure 21 depicts the regional neonatal mortality rate trend from 1984 to present. At 2.99 deaths per 1000 live births, the 2018 Neonatal Mortality Rate (NMR) is 58% lower than the baseline year of 1984. The average NMR for infants of all weights over the past ten years is approximately 4 deaths per 1000 live births.

2018's NMR is the lowest since SNJPC began tracking these data. With 30 fewer babies born under 1500 grams and 25 fewer deaths among them, the reason for this massive shift from 2017 to 2018 is clear. Preventing low birthweight is key to improving infant outcomes.

Table IX shows the five year averages for neonatal mortality by weight group for low birthweight babies since 2009. Between 2009 and 2013, the mortality rate for babies born under 2500 grams was 51.56, in the past five years the average rate was 42.90 per 1000 live births. In 2018, there were 32.49 deaths of babies under 2500 grams per 1000 live births. An examination of the distribution of births across categories demonstrates the impact of ELBW on the overall NMR for the region. The ability to take a step back and examine longitudinal trends is a strength of the SNJPC regional collaborative database.

Neonatal Mortality 1984-2018

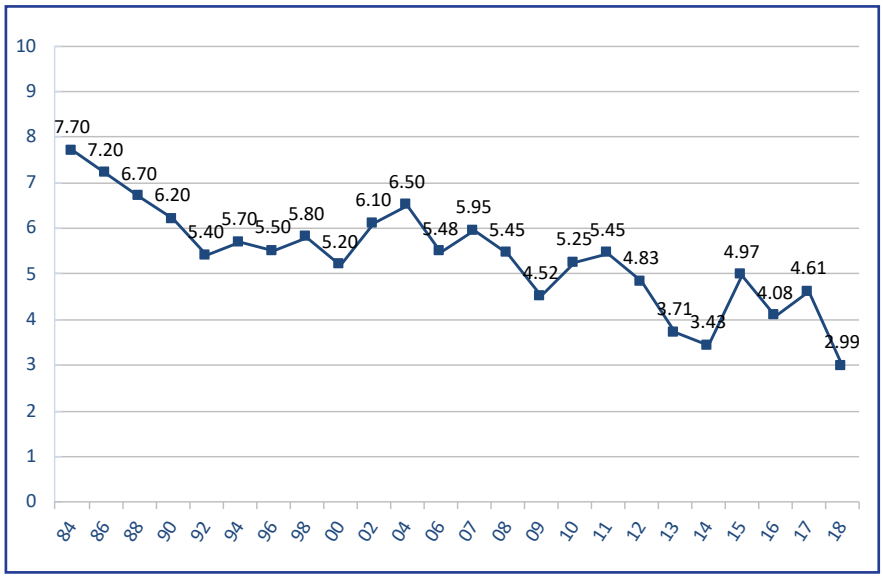


Figure 21

Neonatal Mortality Rate Birthweight Distribution

Weight Group	5 Year Average 09-13	5 Year Average 14-18	2018
Overall	4.75	4.02	2.99
<2501 g (LBW)	51.56	42.9	32.49
<1501 g (VLBW)	241.29	207.3	152.48
<1001 g (ELBW)	431.61	396.93	288.89

Table IX

Fetal Mortality

The Fetal Mortality Rate (FMR) is reported in two ways: deaths of all fetuses weighing more than 500 grams and the subset of fetal deaths in later pregnancy, when the fetus weighs more than 2500 grams. Fetal deaths >20 weeks gestation are collected in VIP as of 2017.

In 2018, the FMR for births over 500 grams was 4.03, a decrease of 49% since 1986, but has been fairly stable since 2000. The average FMR since 2000 was 4.27 per 1000 births.

Since 1988, the FMR among infants weighing more than 2500 grams, a marker of late pregnancy complications and management, decreased 27.6%.

These cases are uncommon and the small numbers can result in high levels of variability from year to year. In 2018, the rate for this group was 1.63 losses per 1000 births.

Complementing programs aimed at reducing neonatal mortality, the Cooperative has coordinated educational and consultation activities directed at reducing the FMR.

Fetal Mortality Rate

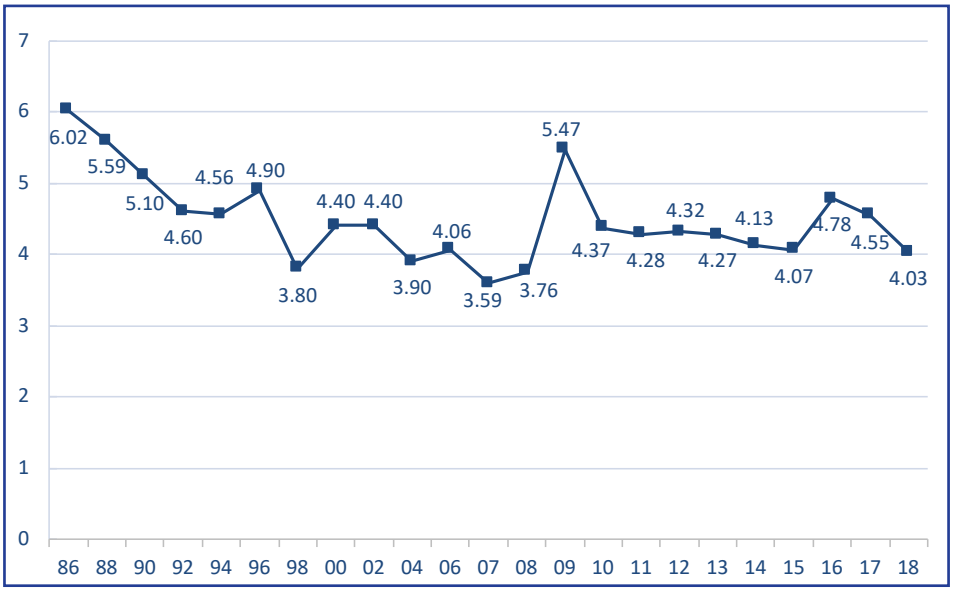


Figure 22

Fetal Mortality Rate >2500

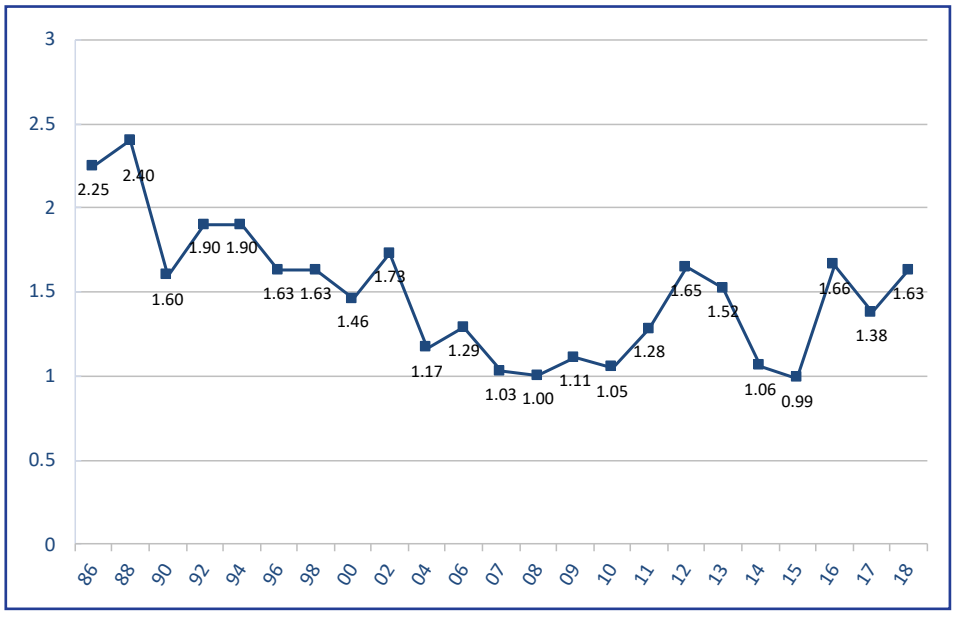


Figure 23

Transport Patterns

Neonatal Transports

The maternal transport system ensures mothers deliver in hospitals prepared to care for their infants at any weight. In 2018, 215 infants were transported from South Jersey hospitals for neonatal intensive care (Figure 24). Of these infants, only 28.6% weighed less than 1500 grams, demonstrating the effectiveness of the maternal transport system in our region. Correspondingly, 51.4% of the transported infants weighed more than 2500 grams. Many of these larger infants who were transported required surgery or other specialized care in New Jersey and neighboring states.

Neonatal Transports

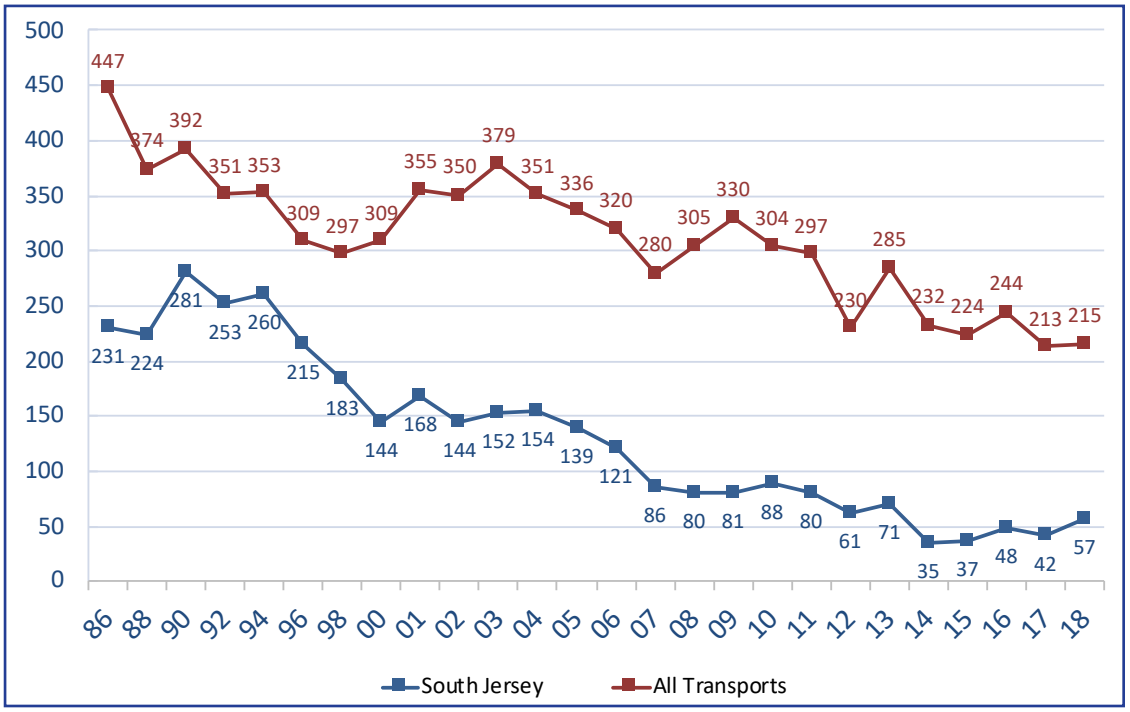


Figure 24

Transport Patterns

Maternal Transports

Maternal transport patterns have contributed to the reduction in the mortality rate for ELBW infants.

Survival rates for tiny infants, those weighing less than 1500 grams, improve when they are born at a hospital with a Neonatal Intensive Care Unit (NICU).

In 2018, 232 pregnant women were transported to high-risk perinatal centers.

The proportion of these transports going to South Jersey Regional Perinatal Centers (RPC) has consistently exceeded 89% (Figure 25). Nearly eighty percent (78.5%) of the mothers transported to centers were 32 weeks gestation or less. This trend corresponds with the decreased incidence of small babies born in hospitals without NICUs and the increased survival of tiny infants.

Through the years, the SNJPC Regional Database Report has consistently demonstrated the effectiveness of the regional maternal transport system. Few infants weighing less than 2 lbs are born at community hospitals without NICUs. Although every Community Perinatal Center (CPC) Intermediate and CPC Basic hospital is appropriately staffed and equipped to stabilize and care for tiny infants, having to transport these babies to a hospital with a NICU is a risk that can be avoided if the mothers can be transported prior to delivery.

Early identification, referral and transport of high-risk mothers helps the majority of the smallest infants, who benefit the most from specialized neonatal care, born at hospitals with these services. Figure 26 depicts the great change in where these infants are born since the first year these data were collected, when only 68% of the infants weighing 1 and 2 lbs. were born at hospitals with NICUs. In 2018, 96% of the tiniest infants were born at RPCs and CPCs-Intensive.

Maternal Transports

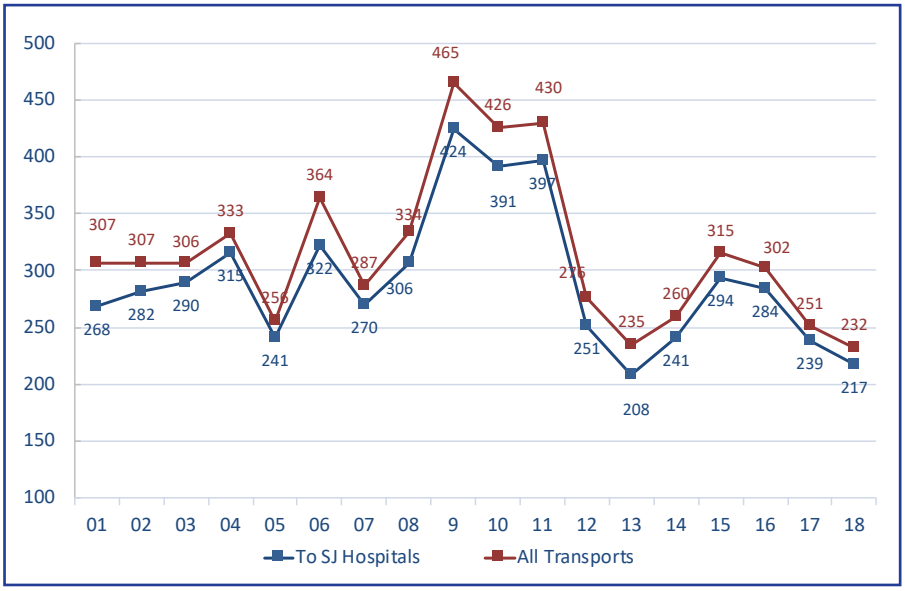


Figure 25

500-1000 gm Born at RPC & Intensive

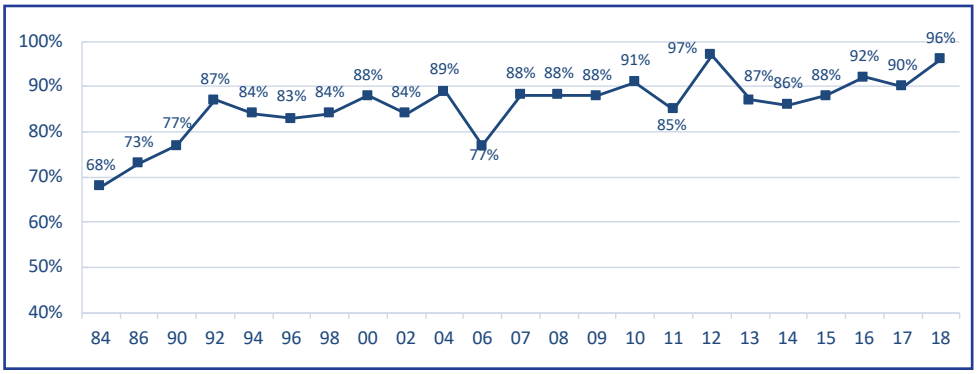


Figure 26

Definitions

Live Births
Births of infants who take at least one breath regardless of gestational age or weight. Unless otherwise indicated, "births" in this document refers to live births.

Total Births
Live births of any gestation and fetal deaths greater than 19 weeks gestation.

Birth Rate
Annual number of births to women at SNJPC member hospitals.

Birth Weight
The first weight of the newborn obtained after delivery. Birth weight is recorded in grams.

Extremely Low Birth Weight (ELBW)
Birth weight of less than 1,000 grams, which is approximately 2 pounds, 3 ounces.

Gestational Age
Clinical estimate of the length of time from the first day of the mother's last normal menstrual period to the date of delivery.

Induction
Labor brought on by medical intervention.

Low Birth Weight (LBW)
Birth weight of less than 2,500 grams, or approximately 5 pounds, 8 ounces.

Newborn Feeding Method
The type of feedings (breast, formula or both) given in the 24 hours prior to discharge from the hospital.

Nullipara
A woman who has not previously delivered a live infant.

Teen Birth
Birth to a mother under 20 years of age.

Tobacco, alcohol and drug use during pregnancy
Use of these substances as self-reported by mother.

Trimester of Pregnancy:
The first trimester includes the first 12 weeks of pregnancy, the second trimester encompasses the 13th through the 27th weeks and the third trimester is the period after the 27th week through delivery.

Vaginal Birth After Previous Cesarean (VBAC)
Vaginal delivery of a woman who has previously had a cesarean delivery.

Very Low Birth Weight (VLBW)
Birth weight of less than or equal to 1,500 grams, or approximately 3 pounds, 5 ounces.

Fetal Death:
Death of a fetus prior to birth and after 19 weeks gestation.

Neonatal Death:
Death of an infant within the first 27 days of life.

Perinatal Mortality
The sum of fetal deaths of 20 or more weeks gestation plus neonatal deaths.

Post Neonatal Death
Death of an infant aged 28 days to one year of life.

Southern New Jersey
PERINATAL COOPERATIVE

MAIN OFFICE

Southern New Jersey Perinatal Cooperative
2500 McClellan Avenue, Suite 250
Pennsauken, NJ 08109

856.665.6000
856.665.7711 fax

snjpc.org

SATELLITE OFFICES

Pleasantville 609.345.6420
Camden City 856.963.1013

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