



Achievement 2021
Regional Collaborative Database

Southern New Jersey Perinatal Cooperative

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



2021 ACHIEVEMENT

Report of the Regional Collaborative Database

Since its inception in 1981, SNJPC has recorded and documented trends in birth weight, 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 patients 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 patients and newborns
- Appropriate use of perinatal personnel and facilities
- Assurance of reasonable cost effectiveness

Thank You

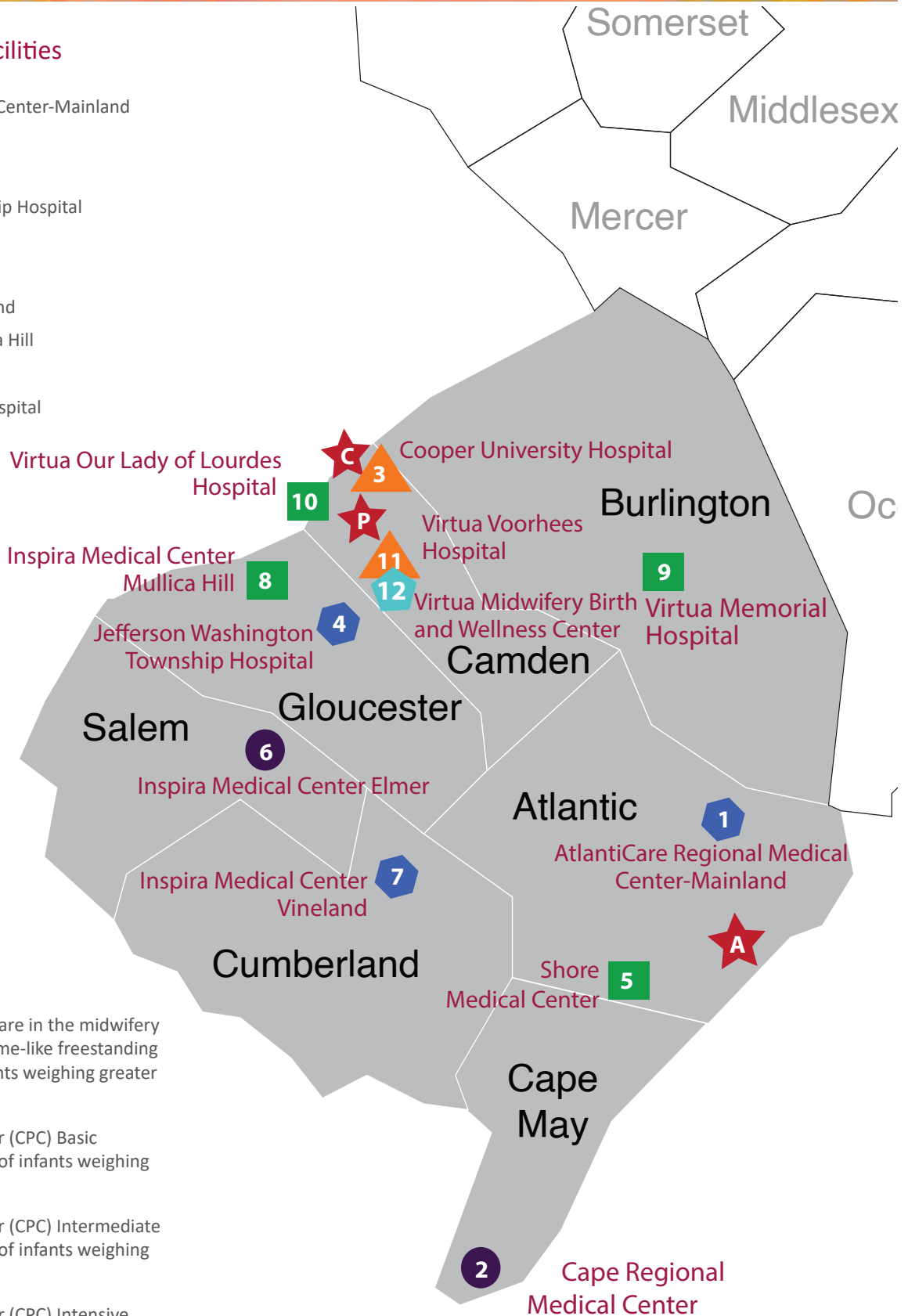
Production of the Regional Collaborative Database report is possible only through the support and assistance of the obstetrical and nursery staffs of our member hospitals. Their contributions are invaluable. We extend our gratitude to these individuals whose consistently high level of professionalism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

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SNJPC Member Birth Facilities

- 1 AtlantiCare Regional Medical Center-Mainland
- 2 Cape Regional Medical Center
- 3 Cooper University Hospital
- 4 Jefferson Washington Township Hospital
- 5 Shore Medical Center
- 6 Inspira Medical Center Elmer
- 7 Inspira Medical Center Vineland
- 8 Inspira Medical Center Mullica Hill
- 9 Virtua Memorial Hospital
- 10 Virtua Our Lady of Lourdes Hospital
- 11 Virtua Voorhees Hospital
- 12 Virtua Midwifery Birth and Wellness Center



Birth Facility Type

-  Birth Center (BC) provides care in the midwifery and wellness model in a home-like freestanding facility for deliveries of infants weighing greater than 2500 grams.
-  Community Perinatal Center (CPC) Basic provides care for deliveries of infants weighing greater than 2500 grams.
-  Community Perinatal Center (CPC) Intermediate provides care for deliveries of infants weighing greater than 1500 grams.
-  Community Perinatal Center (CPC) Intensive provides care for deliveries of infants weighing greater than 1000 grams.
-  Regional Perinatal Center (RPC) provides full range of services for high-risk pregnancies and newborns.

 **Cooperative Offices**
 SNJPC maintains offices in Absecon, Camden City and Pennsauken.

REGIONAL BIRTH FACILITY SUMMARY

	BASIC		INTERMEDIATE		INTENSIVE		RPC		REGION	
	Actual	Rate %	Actual	Rate %	Actual	Rate %	Actual	Rate %	Actual	Rate %
TOTAL HOSPITAL BIRTHS	538		5029		4644		8360		18571	
LIVE BIRTHS IN HOSPITAL	536		4991		4604		8299		18430	
NEONATAL MORTALITY	0	0.00	3	0.601	18	3.910	26	3.133	47	2.550
LBW - LIVE BIRTHS < 2501 GM	10	1.87	370	7.41	468	10.17	679	8.18	1527	8.29
LBW - NEONATAL MORTALITY	0	0.00	1	2.703	16	34.188	23	33.873	40	26.195
VLBW - LIVE BIRTHS < 1501 GM	0	0.00	21	0.42	81	1.76	139	1.67	241	1.31
VLBW - NEONATAL MORTALITY	0	0.00	1	47.619	14	172.84	20	143.885	35	145.228
ELBW - LIVE BIRTHS < 1001 GM	0	0.00	8	0.16	38	0.83	65	0.78	111	0.60
ELBW - NEONATAL MORTALITY	0	0.00	1	125.00	13	342.105	19	292.308	33	297.297
ELBW2 - LIVE BIRTH (500-1000)	0	0.00	7	0.14	31	0.67	54	0.65	92	0.50
ELBW2 - NEONATAL MORTALITY	0	0.00	0	0.00	7	225.806	11	203.704	18	195.652
ELBW3 - LIVE BIRTH (751-1000)	0	0.00	6	0.12	12	0.26	28	0.34	46	0.25
ELBW3 - NEONATAL MORTALITY	0	0.00	0	0.00	1	83.333	2	71.429	3	65.217
FETAL MORTALITY > 499 GM	1	1.88	17	3.395	23	4.978	31	3.726	72	3.895
FETAL MORTALITY > 2500 GM	0	0.00	6	1.297	5	1.207	6	0.787	17	1.005
MATERNAL TRANSPORTS (% of total births + trans)	41	7.14	67	1.31	17	0.36	2	0.02	127	0.68
NEONATAL TRANSPORTS (% of live births)	24	4.52	58	1.16	63	1.37	99	1.19	244	1.32
NEONATAL MORTALITY AFTER TRANSPORTS (% of live births)	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
LIVE BIRTHS OUTSIDE HOSPITAL	4	0.68	24	0.49	16	0.35	17	0.22	61	0.35



Vital Events Registration and Information (VERI) System

In the summer of 2021, all NJ birth facilities transitioned from the Vital Information Platform (VIP) to the Vital Events Registration and Information (VERI) system. VIP had been in use since 2015 when it replaced the DOS-based Electronic Birth Certificate (EBC) which had been the source for this report since 1993. The VERI system is one of the most comprehensive perinatal data systems in the country. Birth record information and perinatal data are tracked for every birth in New Jersey hospitals. VERI's web-based interface complies with federal standards with minimal support from hospitals' IT departments.

The Southern New Jersey Perinatal Cooperative (SNJPC) provided considerable implementation planning, training and user support for regional facilities during this transition and ensured access to data for quality assurance efforts.

On an ongoing basis, SNJPC, Family Health Initiatives (FHI) and the New Jersey Department of Health (NJDOH), coordinate VERI support by meeting regularly to discuss issues with use, definitions and data quality. SNJPC staff support quality improvement and provide technical assistance to regional hospitals related to VERI.

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 18,430 for 2021.

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 18,491 for 2021.

Disclaimer

The VIP/VERI data in the following charts represent 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 NJDOH 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/VERI birth facility.

2021 is a transitional year in New Jersey birth data collection as the old VIP system was retired and the new VERI system was rolled out in hospitals across the state. Several birth certificate items are collected differently in the VIP and VERI systems, so in some instances data had to be recoded to be used in longitudinal reporting. Contact SNJPC with any questions about this process.

Birth Trends

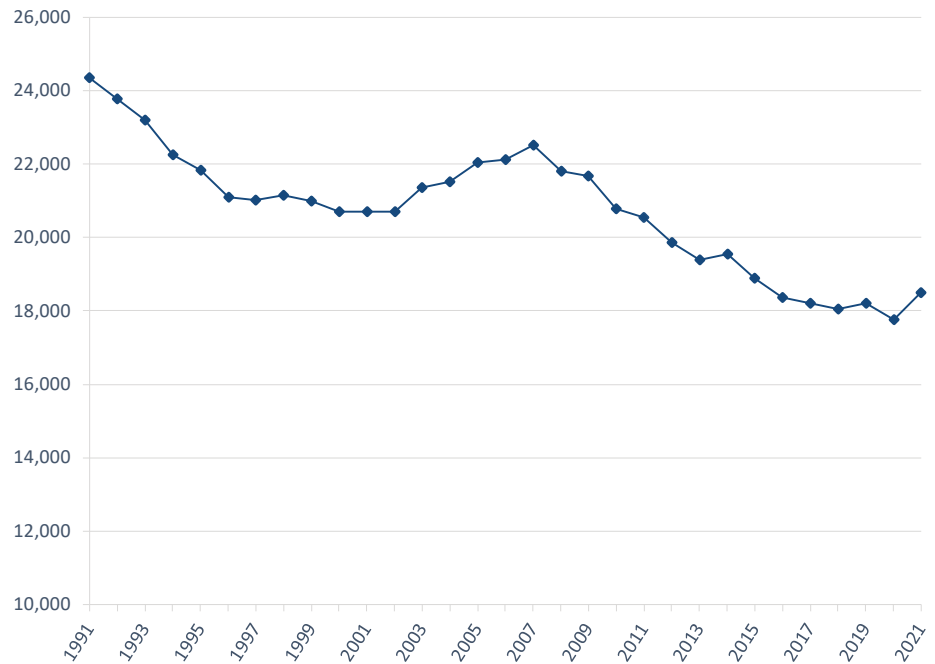
Consistent with statewide and national trends, births in Southern New Jersey peaked in 1990 and have declined rapidly since 2007. However, after dropping by 2.5% in the first year of the pandemic, regional birth rates rose by 4.1% to 18,491 births in 2021, the highest number since 2015. This is the largest one-year increase seen in the past 30 years. (See Figure 1.) This sharp rise is only seen in the second and third quarters of the year, however. In the first quarter, births were lower than in 2019 and 2020, and by the fourth quarter, numbers were only slightly higher than 2019.

Additionally, increases were only seen for residents in four counties in the region: Salem (16.5% increase), Gloucester (10.3%), Camden (5.9%), and Burlington (3.7%). In Atlantic, Cape May, and Cumberland County, births continued to decline.

NJ statewide birth trends, including preliminary 2021 data, are presented in Figure 2. NJ experienced a 21% decrease in total births between 1991 and 2020. South Jersey contributed to this decline with a 27% decrease in births to residents in the region. However, in 2021 births statewide also rose sharply, increasing by 5.1% to 101,457 births. Nationally, births only increased by 1% in 2021.*

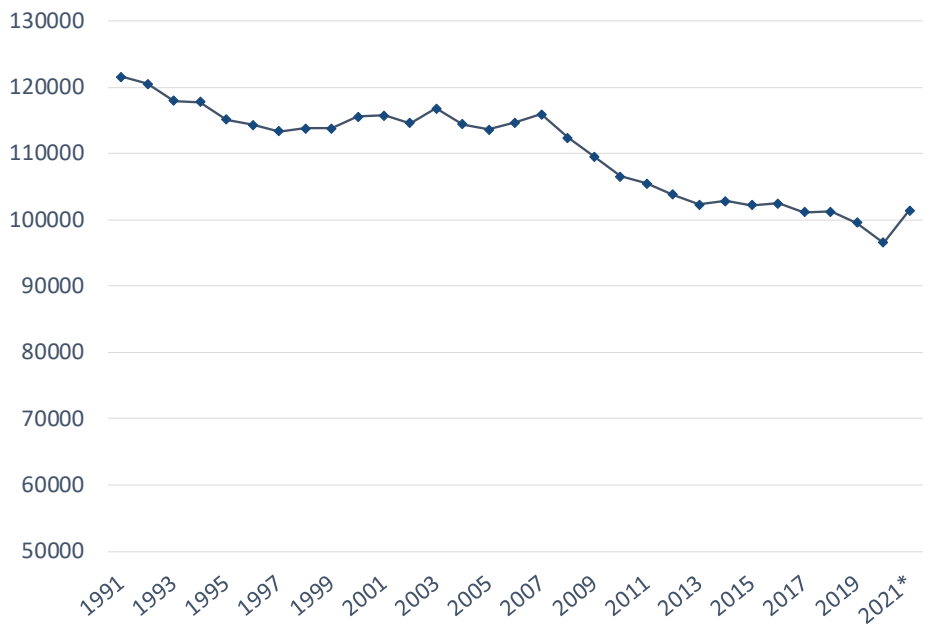
Southern New Jersey Births 1991-2021

Figure 1



New Jersey Births 1991-2021**

Figure 2



*Hamilton BE, Martin JA, Osterman MJ. Births: Provisional data for 2021. Vital Statistics Rapid Release; no 20. Hyattsville, MD: National Center for Health Statistics. May 2022. DOI: <https://dx.doi.org/10.15620/cdc:116027>.

**New Jersey Birth Certificate Database. Retrieved on June 10, 2022 from New Jersey Department of Health, New Jersey State Health Assessment Data website: <http://nj.gov/health/shad>.

Distribution of Births

Of the 18,491 births in the southern region in 2021, 65.4% were to residents of the region's northern counties (Burlington, Camden and Gloucester) (Figure 3). Nonresidents accounted for 4.0% of births in South Jersey. Camden County had the greatest number births in its facilities (48.6%) and the greatest number of residents giving birth (30.9%). Residents of Burlington County and Cape May were the most likely to travel outside their county to give birth.

Table I depicts the total births that occurred in each county, comparing the five-year average from 2012-2016 with 2017-2021. The overall decline in live births across the region was 6.2%, but the size of the change varied widely across counties. Salem County saw the largest decrease (21.1%) with the closing of Memorial Hospital of Salem County in 2014. In contrast, Gloucester County had a 10.9% increase due to the opening of Inspira Mullica Hill in late 2019.

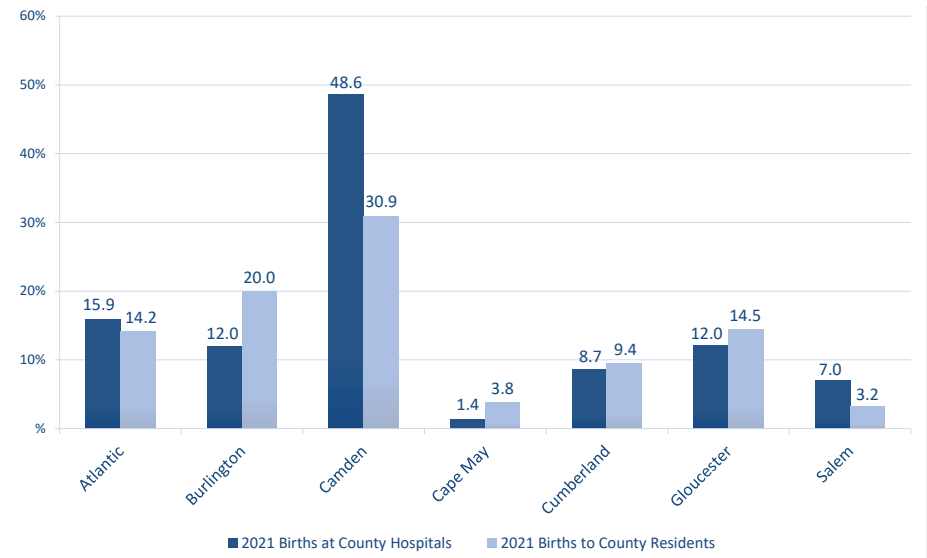
Disparities in birth outcomes exist in all of the counties, but because the population is highest in the northern counties and Atlantic City, they are more frequently eligible for consistent state and federal funding to address these concerns.

In Salem, Cumberland and Cape May Counties, interventions designed to target inequities and to engage those families more likely to experience poor outcomes based on access and resources are often supported by local foundations and charities.

SNJPC works with our member facilities, coalitions, and partner organizations in these areas to bring high quality services that address community needs. Over the past two years, SNJPC has served as the designated Southern Hub to engage and direct NJDOH funding to community and faith-based organizations to expand access to COVID-19 education, community outreach, testing and vaccines to vulnerable populations across the region. This year, with supplemental vaccine funding from NJDOH, SNJPC has established the Lower Southern Counties COVID-19 Vaccine Project, partnering with established community networks in Salem, Cumberland, Atlantic and Cape May counties to reach at-risk groups who have been hesitant or misinformed about the safety and impact of the COVID vaccine.

2021 Percentage of Births by County of Residence

Figure 3



County Birth Totals Five-Year Averages 2012-2021

Births by Hospital County	2012-2016	2017-2021	%Change
Atlantic	3314	2958	-10.75%
Burlington	2377	2486	4.60%
Camden	8845	8044	-9.06%
Cape May	453	397	-12.32%
Cumberland	1970	1756	-10.83%
Gloucester	1914	2122	10.85%
Salem	409	323	-21.09%
REGION	19282	18086	-6.20%

Table I

Maternal Age

In 2021, the highest percentage of births in the region occurred to residents aged 30-34 years (34.8%), followed by 25-29 years (25.1%), 35-39 years (19.4%), 20-24 years (13.8%), 40-44 years (4.1%), under 20 years (2.5%), and 45 years and older (0.3%) (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 8.6% to 2.5%, a 71% decrease. During the same period, births to residents aged 35-39 increased from 12.3% to 19.4%, a 58% increase (Figure 5).

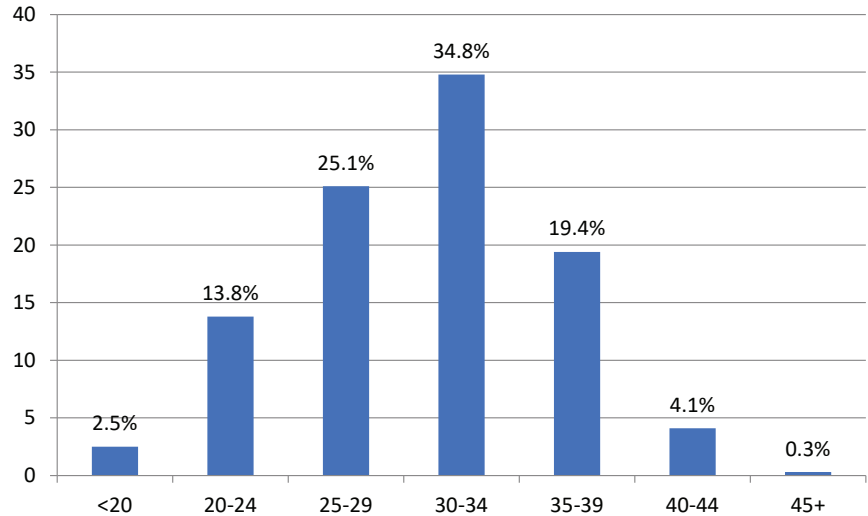
2021 exacerbated this trend. While births to residents under 30 declined in 2020 from 8,197 to 7,646 and remained low in 2021, births among those 30 and over rose slightly in 2020 and then jumped by 7.2% from 10,111 births to 10,835 in 2021.

Variation in the distribution of births by age group can be seen at the county level in Figure 6. Of the counties in the region, Gloucester County had the highest proportion of births to residents 35 and over (27.3%) while Cumberland had the highest percentage of births to residents under 20 (4.5%).

Cumberland County is ranked last in the state for teen births*, but over the past five years it has had a 36.6% decrease in births to teens, even with the slight increase seen in 2020. (The total number of teen births is very small so minor shifts can impact the percent of births.)

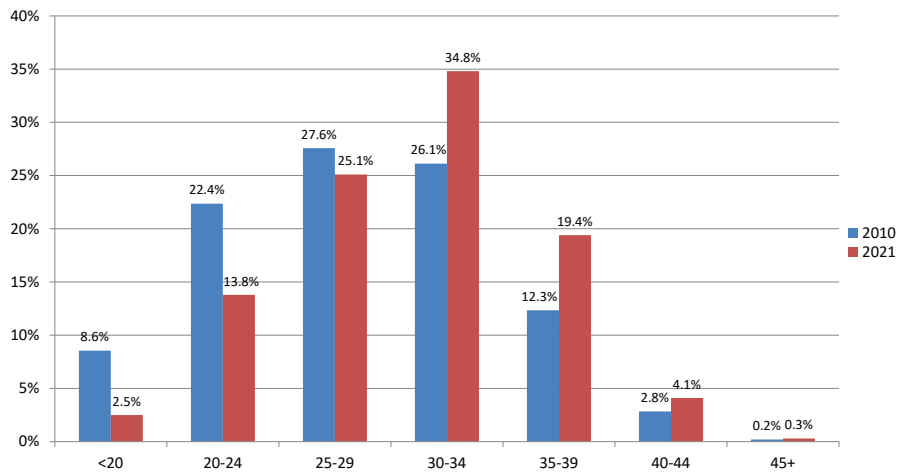
2021 Percent of Births by Maternal Age

Figure 4



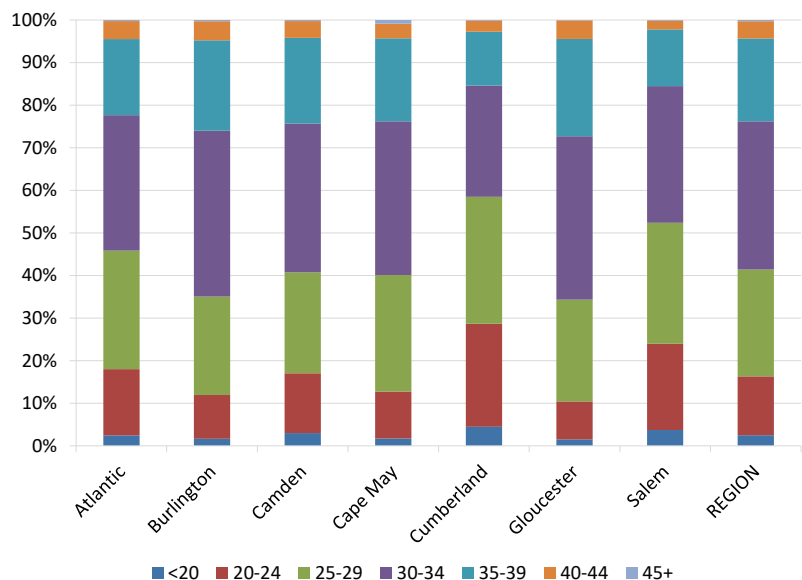
Distribution of Births by Maternal Age in 2010 and 2021

Figure 5



2021 County Births by Maternal Age

Figure 6



*New Jersey Birth Certificate Database. Retrieved on June 10, 2022 from New Jersey Department of Health, New Jersey State Health Assessment Data website: <http://nj.gov/health/shad>.

Births to Teens

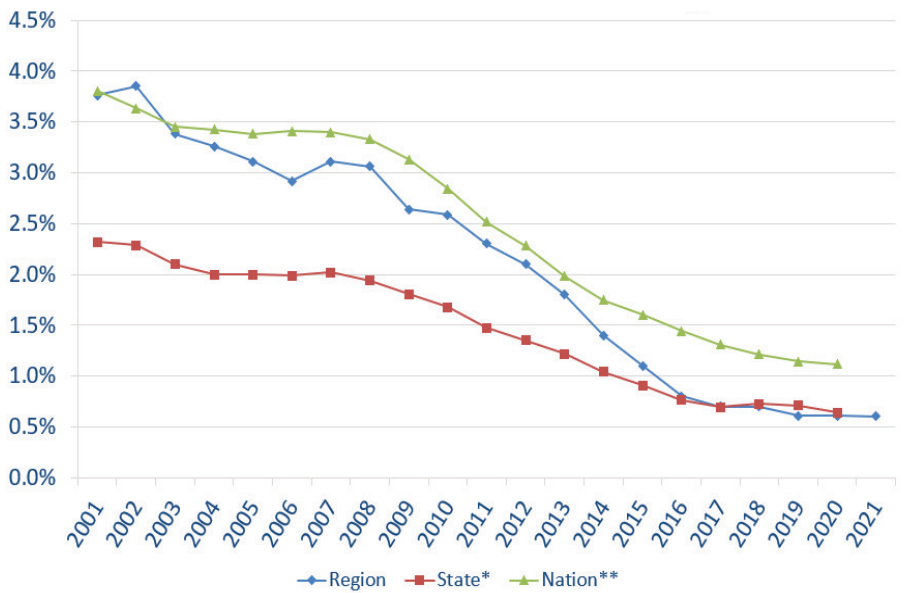
The percentage of births to teens aged 17 years and younger in South Jersey has been on the decline in the past 20 years, decreasing 84% from 3.8% in 2001 to 0.6% in 2021 (Figure 7). While previously much higher than the state average, the gap has closed over time and since 2016 rates in the region have been consistent with statewide rates.

In 2021, the majority (75.8%) of teens giving birth were 18 and 19 years of age while 21.1% were 16- and 17-year-olds. Births among teens under 16 were rare, making up only 3.1% of teen births in 2020 (Figure 8).

SNJPC youth programs work with school and community organizations to influence teen pregnancy rates in the region including in Salem and Cumberland counties which have the highest percentages of births to teenagers in the state. Trained facilitators conduct these programs which address pregnancy prevention and sexually transmitted infection among youth ages 11-19. Program content includes evidence-based curriculum focused on factual information using the principles of harm reduction and youth development.

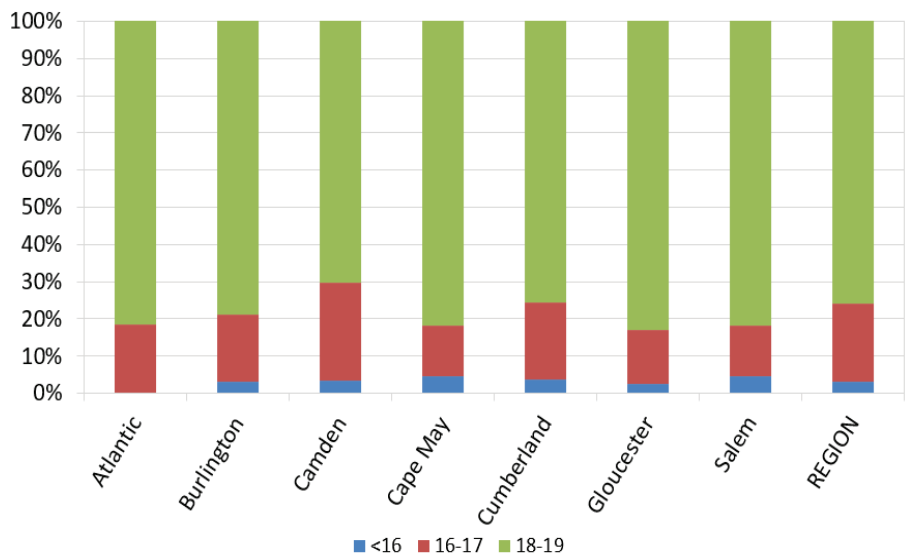
Births to Teens 17 and Younger as Percent of Total Births

Figure 7



2021 Births to Teens in Different Age Groups by County

Figure 8



*Source: Center for Health Statistics, New Jersey Department of Health. <https://www-doh.state.nj.us/doh-shad/query/builder/birth/BirthBirthCnty/Count.html> 6/10/2022

**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 2007-2021, on CDC WONDER Online Database, June 2022. Accessed at <https://wonder.cdc.gov/natality-current.html> on Jun 10, 2022, 2:23:53 PM

Pregnancy Characteristics

Prenatal Care

Early and regular prenatal care is an important strategy to assure healthy pregnancy outcomes for patients and infants. Two of the most significant benefits are improved birth weight and decreased risk of preterm delivery. Pregnant patients who do not receive adequate prenatal care are at risk for complications that may not be detected or managed in a timely manner. Additionally, critical preventative messages and infant care education is included in prenatal care. Information about safe sleep, lactation, and postpartum warning signs are shared with patients. Referrals to community-based support services are also provided during scheduled visits with the care team.

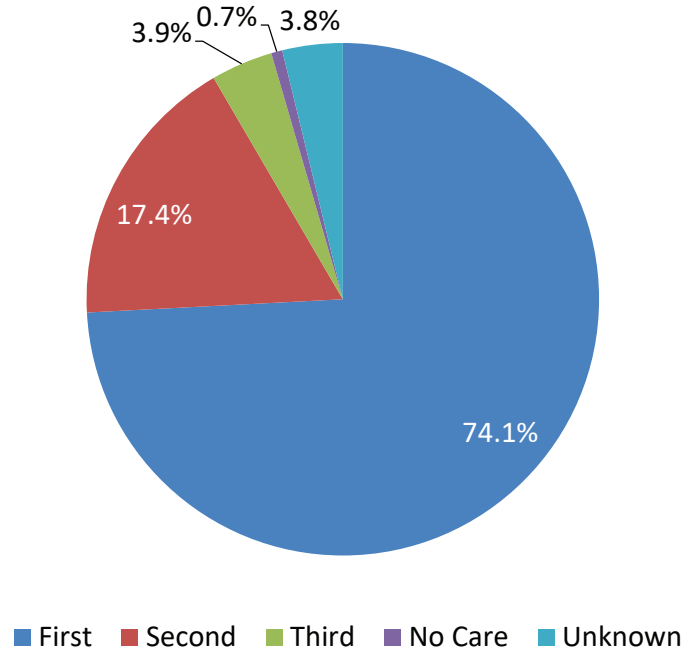
As shown in Figure 9, first trimester entry to prenatal care in the region remains consistent with statewide numbers at 74.1% in 2021.

Only 0.7% of patients in the region received no prenatal care prior to delivery. Cumberland County has the lowest first trimester entry to care rate, with only 67.3% accessing care in the first trimester.

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

Entry to Prenatal Care by Trimester
SNJPC Member Hospital Births

Figure 9



Plurality

The risk of perinatal complications, including preterm birth, increases with multiple births. In 2021, singleton births represented 96.50% of all births in the region, twin births accounted for 3.39% and triplet births represented 0.11% of all births. There were no quadruplet births in 2021 (Table II).

Multiple births climbed dramatically for several decades due to a shift in maternal age at conception and an increased use of assisted reproductive technology. However, twin births as a percent of all births have been trending downward in the past decade. In 2021 the percent of twin births was more than 20.6% lower than the recent peak in 2011. Similarly, the percent of triplet births was half of the recent peak in 2011. In 2021, only 15% of live births resulting from infertility treatment were multiples, down from 24% in 2016.

Plurality

Year	Singleton		Twin		Triplet		Quadruplet		Total Multiples
	N	%	N	%	N	%	N	%	N
2010	20202	96.16	785	3.74	21	0.10	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	3.94	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	3.90	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	0.10	0	0	696
2019	17573	96.50	612	3.36	14	0.08	0	0	626
2020	17763	96.31	632	3.56	24	0.14	0	0	656
2021	17846	96.50	627	3.39	20	0.11	0	0	647

Table II

Risk Assessment

Risk assessments conducted during pregnancy identify patients who are at high risk for maternal, fetal or infant morbidity or mortality. Early identification and intervention are keys to prevention. Because of this, a risk assessment screening occurs at the first prenatal visit and is updated throughout the course of prenatal care.

Pregnant patients identified as being at-risk receive high-quality prevention services or treatment for their conditions and those that might impact infant wellbeing. Providers assure linkage to appropriate clinical care and community resources through referral. Reducing the impact of factors associated with poor pregnancy outcomes is critical to both patients and babies.

Table III depicts some of the risk factors that were associated with Very Low Birth Weight (VLBW) births in 2021.

The association between tobacco use during pregnancy and the occurrence of low birth weight births is clear from this analysis. While 3% of all deliveries were to patients who used tobacco in pregnancy, 7% of VLBW deliveries were to those in the group.

Lack of prenatal care and multiple births (twins, triplets) are more likely to result in the birth of a VLBW infant. Age-related risks are consistently identified as putting patients under 20 or over 35 years at increased risk. Health risks such as hypertension and pre-eclampsia are also associated with decreased birth weight.

In data reflective of national reports, Black patients 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 patients, a much higher proportion of the VLBW births (34%) were to Black patients.

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

Prevalence of Risk Factors Among All Patients and Those with VLBW Births in 2021

Southern Region	ALL	<1501 grams	>1500 grams
Live Births	18491	250	18241
Mother's race: White	62%	48%	63%
Mother's race: Black	19%	34%	19%
Mother's ethnicity: Hispanic	25%	30%	24%
1st trimester entry to prenatal care	74%	71%	74%
No prenatal care	1%	2%	1%
Used tobacco during pregnancy	3%	7%	3%
Plurality of 2 or more	3%	23%	3%
Mother's age less than 20 years	2%	4%	2%
Mother's age 35 years or greater	24%	29%	24%
Primigravida	16%	23%	16%
Maternal risk: Hypertension in pregnancy	12%	25%	12%
Maternal risk: Eclampsia	0.1%	1.6%	0.1%

Table III



The New York Times

One State's Approach to Maternal Deaths: Free Nurse Visits After Birth

New Jersey has one of the highest maternal mortality rates in the country. The governor signed a bill enabling new parents to receive free at-home wellness checks from registered nurses.



Death rate for N.J. Black women after pregnancy is among nation's worst. Tammy Murphy has ideas to change that.

Governor Murphy Signs Landmark Legislation to Improve New Jersey's Maternal and Infant Health Outcomes



N.J. coronavirus update: South Jersey now leads the state in the number of infections

Are You Pregnant? The CDC Really Wants You To Get Vaccinated Against COVID-19



Governor Murphy Signs Legislation Requiring Maternal Health Care Professionals to Undergo Explicit and Implicit Bias Training



Newborn Feeding Method

Because of the many positive benefits of breastfeeding for child survival, growth, and development, exclusive breastfeeding with an infant receiving only breast milk with no additional formula or supplementation, is recommended by the World Health Organization for all infants.

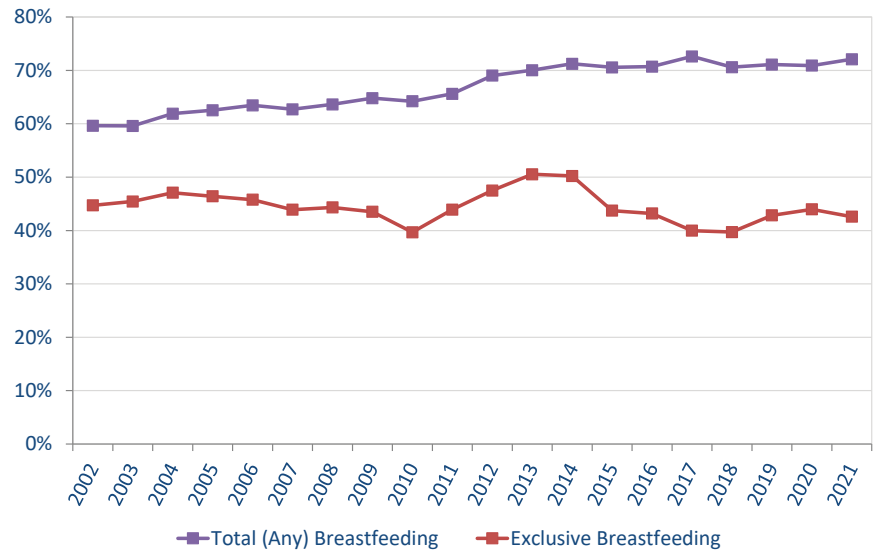
Despite the clear benefits, many birthing people do not breastfeed exclusively. In 2021, 72.1% of patients who gave birth in member birth facilities breastfed their newborns, and 42.7% breastfed exclusively during their stay.

Efforts to improve supportive messages and lactation resources as a part of prenatal delivery and postpartum care have been standardized by most Southern NJ providers. Regional breastfeeding rates have risen sharply since 2000 and have consistently stayed above 70% in recent years (see Figure 10). Unfortunately, exclusive breastfeeding during the hospital stay peaked at 50.5% in 2013 and fell to 39.7% in 2018 before rebounding slightly in the last few years, so there is still work to be done.

In Southern NJ, as elsewhere in the United States, breastfeeding rates vary by race and ethnicity. Table IV depicts these trends over time. Between 2010 and 2021 the percentage of non-Hispanic Black birthing people breastfeeding at discharge increased by 27.8%, however non-Hispanic white and Hispanic birthing people continue to have higher breastfeeding rates. Community programs that work to address these differences must address the legacy of institutional racism that continues to impact Black, and specifically African American, birthing peoples' choices about breastfeeding their infants.

Breastfeeding at Discharge 2002-2021

Figure 10



Breastfeeding at Discharge by Race/Ethnicity

Year	Black	White	Hispanic
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%
2019	61.5%	72.8%	71.7%
2020	63.8%	72.8%	69.4%
2021	64.9%	74.1%	70.6%
Change over time	27.8%	14.7%	0.0%

Table IV

Method of Delivery

New Jersey remains in the top 15 states for high rates of Cesarean births; however, significant improvements have been made in recent years. Figure 11 compares the Cesarean rates in South Jersey and statewide. (The 2021 New Jersey rates are preliminary.) C-section rates in the region have decreased more rapidly than statewide rates since 2014, although they have largely plateaued since 2019. In 2021, the statewide rate was 32.5%* in comparison with the regional rate of 30.5%.

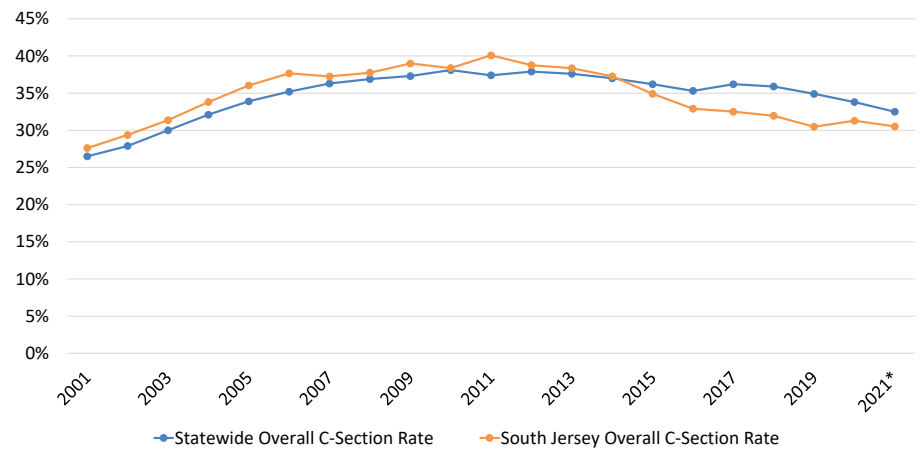
Since 2017, SNJPC member hospitals have reduced the region's overall C-section rate by 6.2% with six of the ten member facilities open in 2017 achieving a 5% or greater decrease.

The Joint Commission on Accreditation of Hospitals has established a goal of reducing overall C-section rates to less than 30%. As can be seen in Table V, in 2021 Cooper, Inspira Elmer, Virtua Our Lady of Lourdes, and Virtua Voorhees met this criterion with Inspira Mullica Hill and Virtual Memorial only just over the goal based on VIP/VERI data. With continued focus and planning, most regional hospitals are in strong positions to meet this benchmark in the near future.

Declines in the regional percentage of patients who have C-sections without trying to deliver vaginally are good news. There was a 5.9% decrease in the percentage of patients who had no trial of labor before a C-section between 2010 and 2021 (see Table VI). The last six years have seen a decline in these procedures.

New Jersey and South Jersey Overall C-Section Trends

Figure 11



Cesarean Section Rates by Hospital: 5-Year Comparisons

Hospital	2017	2021	% Change
AtlanticCare Regional Medical Center	35.0%	35.1%	0.4%
Cape Regional Medical Center	35.8%	41.8%	16.8%
Cooper University Hospital	24.2%	25.4%	5.1%
Inspira Medical Center Elmer	21.1%	16.5%	-21.9%
Inspira Medical Center Vineland	33.7%	33.0%	-2.0%
Inspira Medical Center Mullica Hill**		30.8%	
Jefferson University Hospital - Washington Twp.	36.9%	33.2%	-10.1%
Virtua Our Lady Lourdes Hospital	29.3%	23.0%	-21.4%
Shore Medical Center	43.6%	39.4%	-9.7%
Virtua Memorial Hospital	35.3%	31.1%	-11.9%
Virtua Voorhees Hospital	31.2%	29.1%	-6.6%
REGION	32.5%	30.5%	-6.2%

Table V

2010-2021 Method of Delivery

Year	Vaginal	C-Section/Failed Trial of Labor	C-Section/No Trial of Labor
2010	61.63%	14.61%	23.75%
2011	59.91%	15.30%	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	68.10%	7.55%	24.40%
2019	69.50%	6.30%	24.20%
2020	68.68%	6.76%	24.53%
2021	69.48%	8.17%	22.35%
Change over time	12.74%	-44.07%	-5.90%

Table VI

*Hamilton BE, Martin JA, Osterman MJ. Births: Provisional data for 2021. Vital Statistics Rapid Release; no 20. Hyattsville, MD: National Center for Health Statistics. May 2022. DOI: <https://dx.doi.org/10.15620/cdc.116027>.

**Inspira Medical Center Mullica Hill opened November 2019.

Key Steps to Reduce Overall Cesarean Rates in the Region

Reduce low risk Nulliparous, Term, Singleton, Vertex (NTSV) Cesarean births.

In 2021, the percent of Cesarean births to standard presenting birthing people in South Jersey hospitals was 22.5%. The rate had been steadily increasing and reached a high point of 36.1% in 2011 before beginning to decline (see Figure 12). Making a change in rates for this group of low-risk first time deliveries is critical to a statewide reduction in C-section rates.

In recent years, a far greater percent of NTSV Cesarean deliveries have been occurring after induction rather than spontaneous labor (see Figure 13). In 2021, 10.9% of NTSV deliveries were C-Sections that occurred after an induction while 4.9% were Cesareans after a spontaneous delivery. This represents a 71.6% reduction in Cesarean deliveries following spontaneous labor for these lower-risk patients between 2011 and 2021.

Reduce repeat Cesareans without a trial of labor (i.e., birthing people who have had a previous Cesarean birth who are scheduled for the procedure before the onset of labor).

In 2021, 73.95% of deliveries to birthing people who had repeat Cesareans were C-sections without a trial of labor (see Table VII). This type of delivery has been on the decline overall in South Jersey. Since 2010 there has been a 11.9% decrease in no trial repeat C-sections.

Increase successful Vaginal Birth After Cesarean (VBAC) births

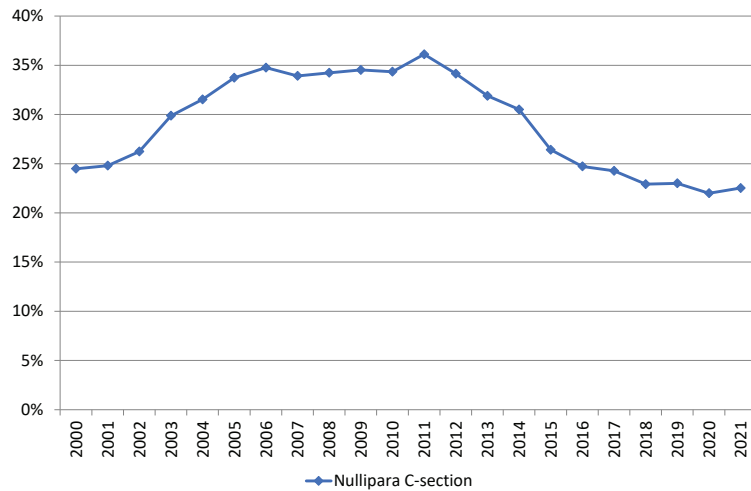
Between 2010 and 2016, the percent of VBACs that were successful rose dramatically from 58.50% to 81.36%. More recently, rates have leveled off. In 2021, 81.26% of VBAC deliveries were successful (see Table VII).

Decrease induction of labor before 39 completed weeks of gestation.

Because of the concern about the problems encountered by babies who are born less than but near term, this is an issue which is the focus of quality improvement activities across the US.

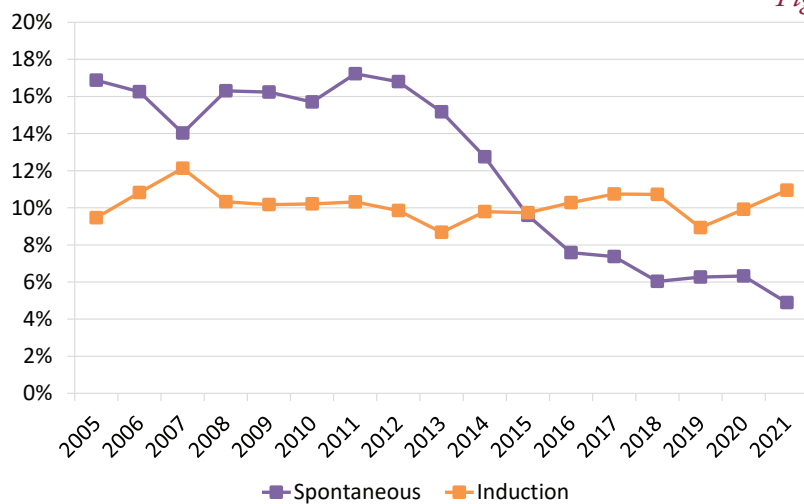
NTSV Cesarean Births

Figure 12



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

Figure 13



Total Cesarean Rate, Rate for First Deliveries, and Percent of Repeat C-Sections with No Trial of Labor, and Failed and Successful VBAC Deliveries

Year	Cesarean Rate	Nullipara C-section	No Trial Repeat C-section	Failed VBAC	Successful VBAC
2010	38.37%	34.30%	84.50%	41.50%	58.50%
2011	40.09%	36.12%	83.96%	48.82%	51.18%
2012	38.76%	34.15%	83.07%	42.51%	57.49%
2013	38.35%	30.20%	82.97%	35.29%	64.71%
2014	37.26%	30.51%	83.55%	27.34%	72.66%
2015	34.91%	26.42%	83.24%	22.32%	77.68%
2016	32.91%	24.72%	82.21%	18.64%	81.36%
2017	32.51%	24.27%	80.75%	23.04%	76.96%
2018	31.95%	22.92%	80.96%	21.13%	78.87%
2019	30.48%	23.01%	81.07%	17.30%	82.70%
2020	31.29%	21.99%	78.55%	18.77%	81.23%
2021	30.52%	22.53%	73.95%	18.74%	81.26%
Change over time	-20.46%	-34.32%	-12.48%	-54.83%	38.90%

Table VII

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 in delivery just 15 to 20 years ago, when the regional database was first developed.

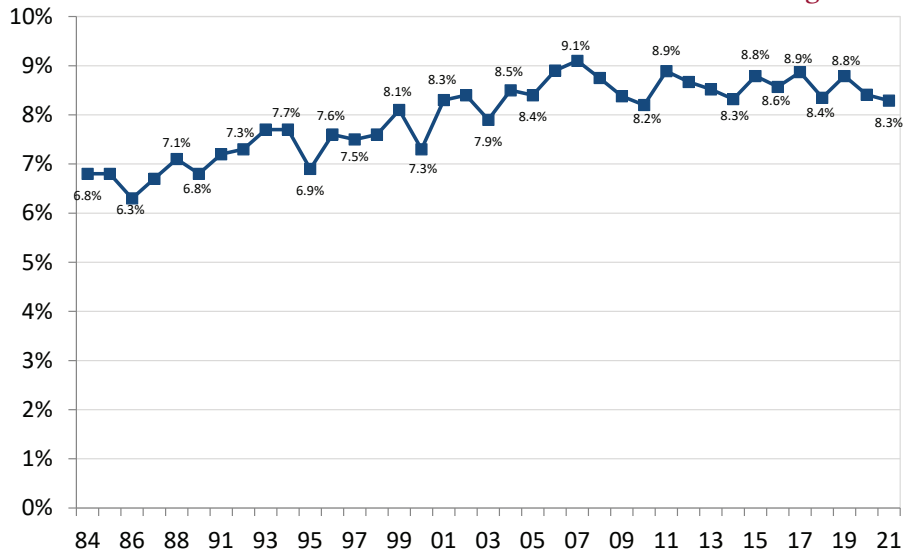
As shown in Figure 14, 8.3 percent of infants born in 2021 weighed less than 2501 grams (5.5 lbs.), an increase of 22.1% from the baseline year of 1984. Table VIII depicts five-year averages for 2012 – 2021; decreases were seen for every weight group between these time periods.

In 2021, 241 (1.31%) babies born in member hospitals were categorized as Very Low Birth Weight (VLBW) because they weighed less than 1501 grams (3.3 lbs.). The birth rate of VLBW infants has dropped by 27.5% since 2016 (see Figure 15).

In 2021, 111 (0.60%) babies born in member facilities were categorized as Extremely Low Birth Weight (ELBW) weighing less than 1001 grams (2.2 lbs.). This group of infants are the most vulnerable and have the greatest impact on the neonatal mortality rate. Figure 15 shows birth trends for these tiniest of infants over time. The percent of ELBW births in 2021 is the lowest it has been in the past 20 years.

Birthrate of Low Birth Weight (LBW) Infants 1984-2021

Figure 14



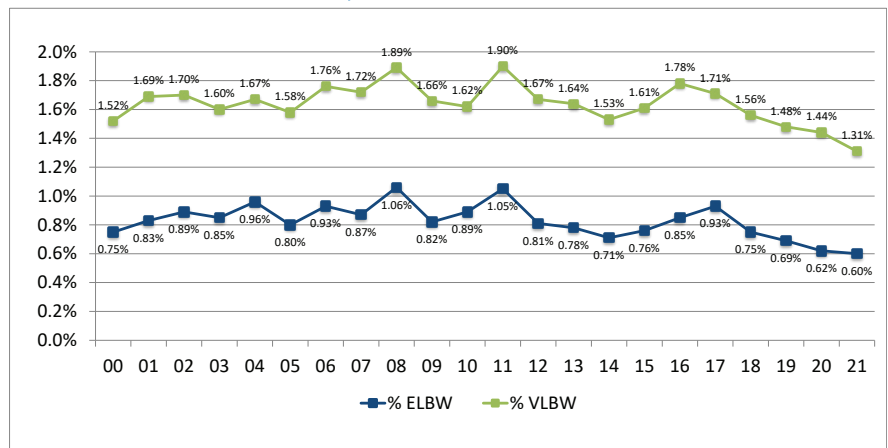
Birthweight Distribution

Weight Group	2012-2016	2017-2021	% Change
All Weights	19216	18145	-5.57%
<2501g (LBW)	8.57%	8.54%	-0.35%
<1501g (VLBW)	1.65%	1.50%	-9.09%
<1001g (ELBW)	0.78%	0.72%	-7.69%

Table VIII

ELBW/VLBW Birth Rate Comparison

Figure 15



Neonatal Mortality

Since low birth weight (LBW) is the single most important factor contributing to neonatal mortality, SNJPC monitors the relationship between the incidence of LBW and neonatal mortality.

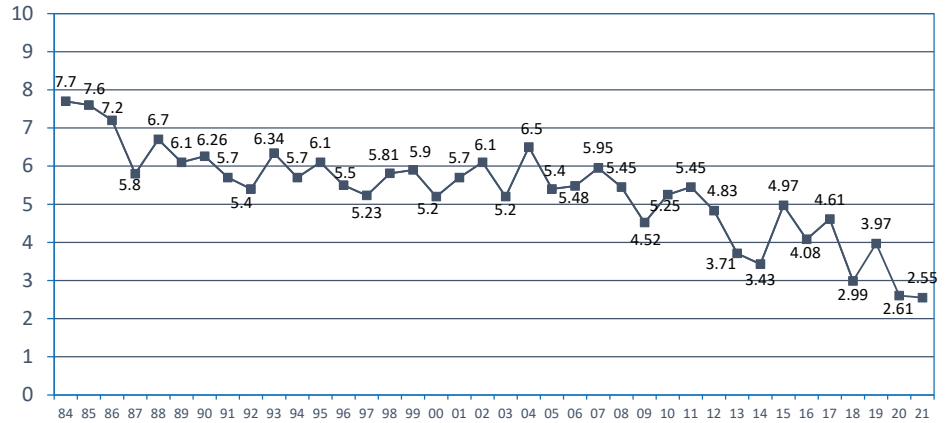
Figure 16 depicts the regional neonatal mortality rate trend from 1984 to present. At 2.55 deaths per 1000 live births, the 2021 Neonatal Mortality Rate (NMR) is 67% lower than the baseline year of 1984. The average NMR for infants of all weights over the past 10 years is approximately 4 deaths per 1000 live births.

The 2021 NMR is the lowest since SNJPC began tracking these data. Reductions in the number of infants born under 1501 grams (27 fewer in 2021 than 2019) is a major reason for the change in this rate. In 2021, 23 fewer infants born under 1501 grams died in the neonatal period than in 2019. There was a 36% decrease in NMR from 2019 to 2021.

Table IX shows the five-year averages for neonatal mortality by weight group for low birthweight babies since 2012. Between 2012 and 2016 the neonatal mortality rate for babies born under 2501 grams was 45.32; in the most recent five years, the average rate was 34.55 deaths per 1000 live births. In 2021, there were 26.20 deaths of babies under 2501 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 1984-2021

Figure 16



Neonatal Mortality Rate Birth Weight Distribution

Weight Group	5 Year Average 2012-2016	5 Year Average 2017-2021	2021
Overall	4.20	3.35	2.55
<2501g (LBW)	45.32	34.55	26.20
<1501g (VLBW)	221.10	173.19	145.23
<1001g (ELBW)	428.08	334.39	297.30

Table IX

Fetal Mortality

The Fetal Mortality Rate (FMR) is reported in two ways: deaths of all fetuses weighing more than 500 grams (1.1 pounds) and the subset of fetal deaths in later pregnancy, when the fetus weighs more than 2500 grams (5.5 pounds). Fetal deaths at or after 20 weeks gestation are collected in VIP/VERI as of 2017.

After trending downward since 2016, the FMR for births over 500 grams jumped by 58.9% in 2020 before dropping again in 2021 to a more typical rate of 3.90 losses per 1000 births (see Figure 17).

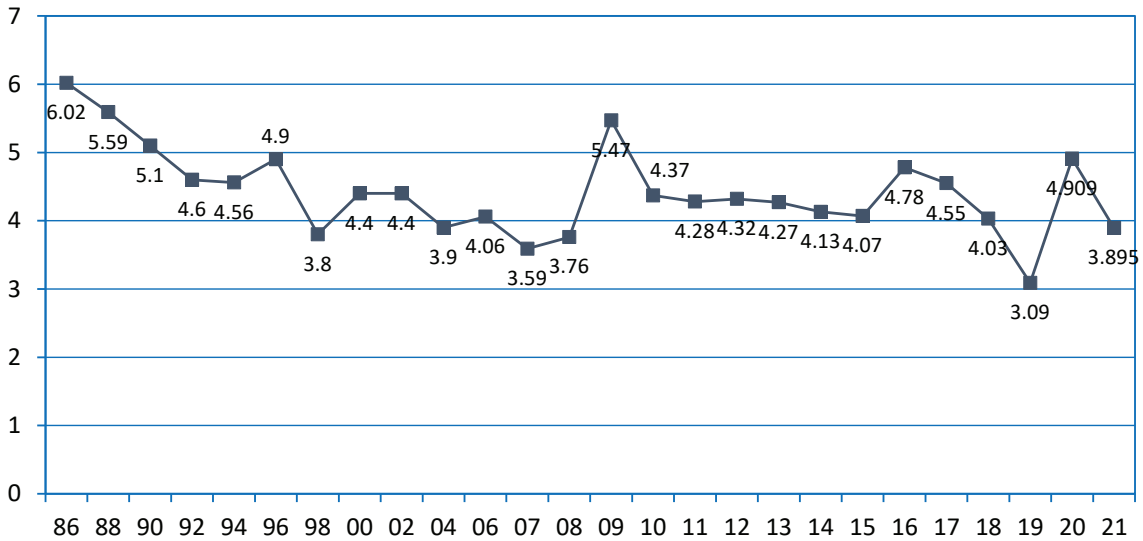
Since 1986, the FMR among infants weighing more than 2500 grams, a marker of late pregnancy complications and management, decreased 55.1%. As shown in Figure 18, these cases are uncommon, and

the small numbers can result in high levels of variability from year to year. In 2021, the FMR rate for this group was 1.01 losses per 1000 births.

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

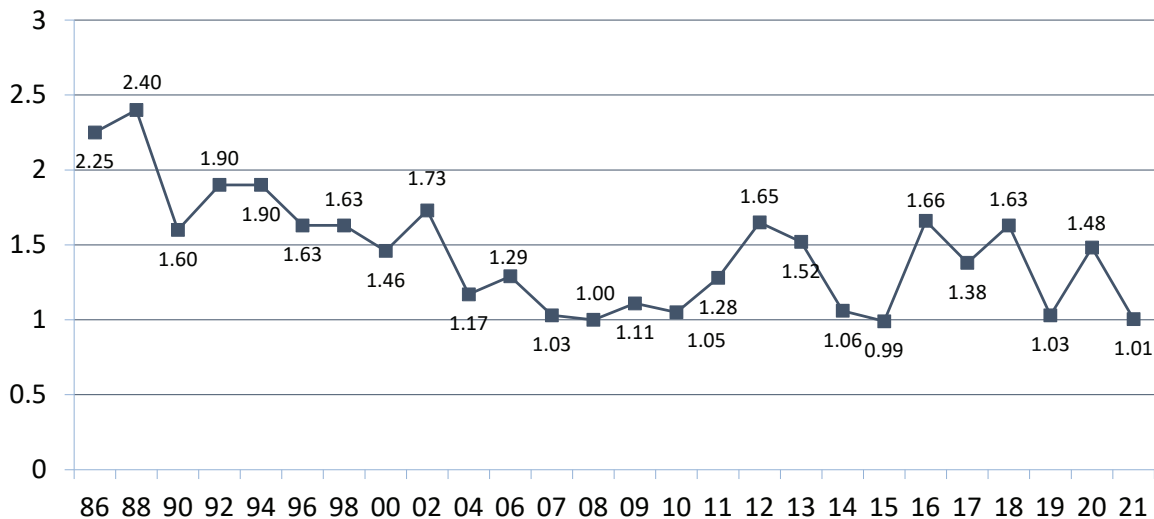
Fetal Mortality Rate 1986-2021

Figure 17



Fetal Mortality Rate >2500g 1986-2021

Figure 18





Racial Disparity

In order to make further progress in improving birth outcomes in the United States, persistent racial disparities must be confronted head on. Black infants in America are more than twice as likely to die as white infants - 10.6 deaths per 1,000 births, compared with 4.5 per 1,000 births for white babies, according to the most recent government data.* While socio-economic factors play a role, because racial disparities are seen even among college-educated birthing people with private insurance in the United States, other factors, such as structural and societal racism, physiologic changes related to persistent stress, and resulting epigenetic changes may be driving this difference.

In South Jersey in 2021, the Neonatal Mortality Rate (NMR) for white babies was 2.25 deaths per 1,000 births while the NMR for non-Hispanic Black babies was 6.97, over three times as high (Table X). As seen in Figures 19 and 20, Black babies made up only 17% of live births in the region in 2021 but accounted for 27% of neonatal mortality cases. This is largely due to a higher rate of preterm births among Black patients, with 13.3% of Black babies born preterm in 2021 in contrast with only 8.8% of white babies. Black infants were over three times more likely to be among the tiniest babies (less than 1001 grams or 2.2 pounds) and more than twice as likely to be among those under 1501 grams (3.3 pounds). (See Table X.)

Hispanic/Latino infants are also at a heightened risk of poor birth outcomes, but to a lesser extent. They are more likely than non-Hispanic white infants in the region to be born preterm (9.8% versus 8.8%) and at a low birth weight (8.5% versus 6.6%) and are twice as likely to be among the smallest of infants under 1001 grams. They are also more likely to die in the first 28 days of life with a neonatal mortality rate of 2.55 versus 2.25 for non-Hispanic white infants.

On January 25, 2021, the Nurture NJ Maternal and Infant Health Plan was unveiled with the aim of reducing maternal mortality by 50% over five years and eliminating racial disparities in birth outcomes. To do so, the plan seeks to:

- (1) ensure all women are healthy and have access to care before pregnancy;
- (2) build a safe, high quality equitable system of care for all women prenatally through postpartum care; and
- (3) ensure supportive community environments during every other part of a woman's life so that the conditions and opportunities for health are always available.**

SNJPC is working with all regional birth facilities, the NJ Department of Health, the NJ Hospital Association and our vital community partners on strategic initiatives to meet the challenges set by the plan. Key activities include supporting the training and availability of community doulas, offering implicit bias training to partners in the region, and continuing to offer programs designed to target Black infant and maternal mortality, including the Health Women Healthy Families and Healthy Start programs.

2021 Regional Neonatal Mortality by Race/Ethnicity

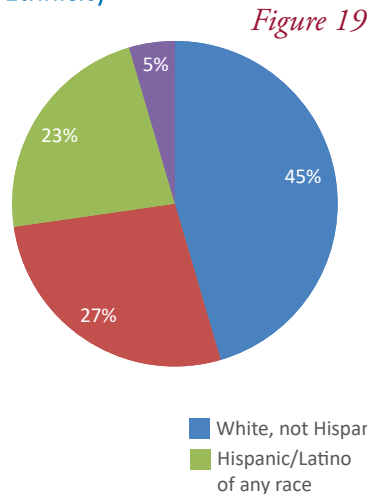


Figure 19

2021 Regional Live Births by Race/Ethnicity

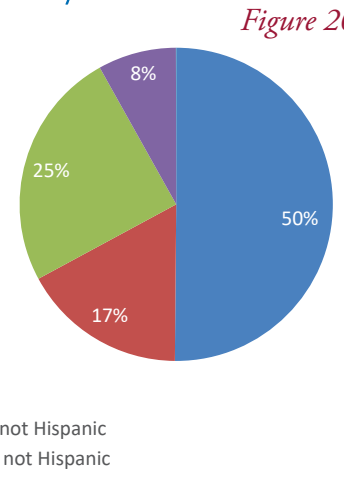


Figure 20

2021 Regional Birth Outcomes by Race/Ethnicity

	White, not Hispanic	Black, not Hispanic	Hispanic/Latino, of any race
All Live Births	9320	3101	4359
Preterm Births <37 weeks	8.8%	13.3%	9.8%
LBW <2501 grams	6.6%	12.9%	8.5%
VLBW <1501 grams	0.9%	2.4%	0.8%
ELBW <1001 grams	0.4%	1.3%	0.8%
NMR	2.25	4.19	2.55

Table X

* Ely DM, Driscoll AK. Infant mortality in the United States, 2019: Data from the period linked birth/infant death file. National Vital Statistics Reports; vol 70 no 14. Hyattsville, MD: National Center for Health Statistics. 2021. DOI: <https://dx.doi.org/10.15620/cdc:111053>

**Retrieved on June 10, 2022 from <https://www.nj.gov/governor/news/news/562021/20210125a.shtml>

Transport Patterns

Maternal Transports

An effective maternal transport system has been critical to the reduction in the mortality rate for ELBW infants in the region.

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 2021, 262 pregnant patients were transported to high-risk perinatal centers (see Figure 21).

The proportion of these transports going to South Jersey Regional Perinatal Centers (RPCs) has consistently exceeded 85%. Just over 75% (75.8%) of the patients transported to centers were 32 weeks gestation or less.

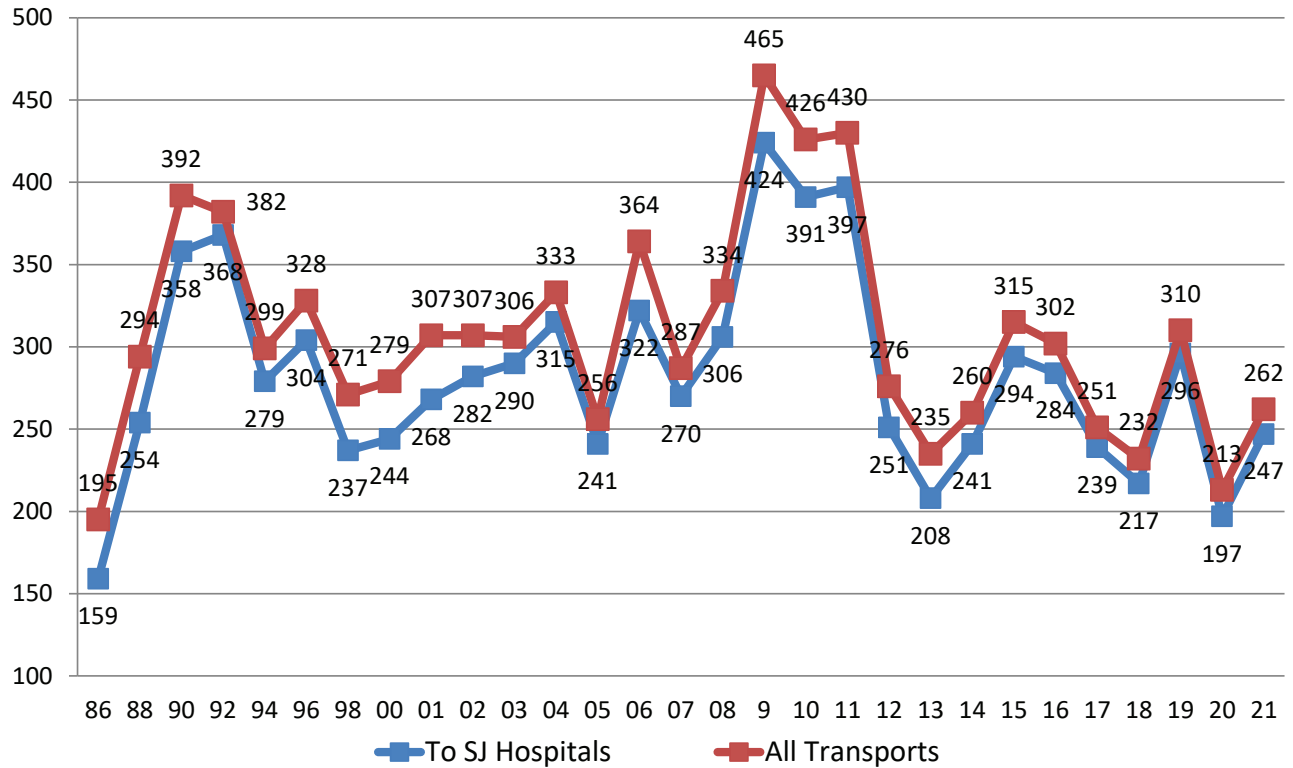
This trend corresponds with the decreased incidence of small babies born in hospitals without NICUs and the increased survival of tiny infants.

Through the years, the SNJPC Regional Database Report has consistently demonstrated the effectiveness of the regional maternal transport system. Few infants weighing less than two pounds 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 patients can be transported prior to delivery.

More recently, the state has begun to explore establishing maternal levels of care for birthing facilities in the state in addition to neonatal levels of care. As an initial step, in 2021, hospitals statewide were engaged in a new initiative coordinated by the NJ Hospital Association, completing the CDC's Levels of Care Assessment Tool (LOCATE). Such an effort would build on the success of the current neonatal levels of care established in our hospital regulations and monitored by our collaborations to ensure connected care for pregnant residents and their children in South Jersey.

Maternal Transports

Figure 21



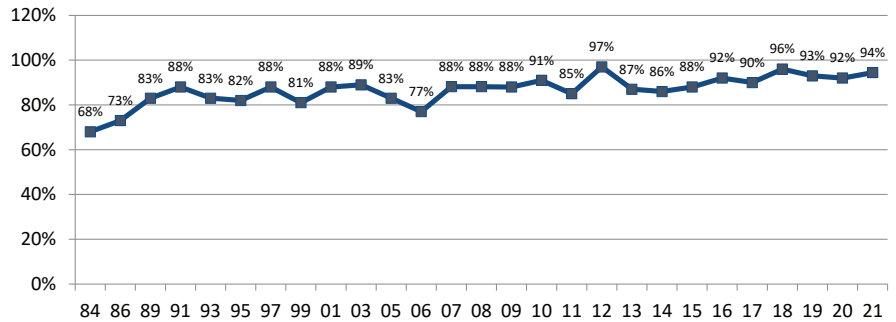
Neonatal Transports

Early identification, referral and transport of high-risk pregnant patients helps ensure that the majority of the smallest infants, who benefit the most from specialized neonatal care, are born at hospitals with these services. Figure 22 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 one and two pounds were born at hospitals with NICUs. In 2021, 94% of the tiniest infants were born at RPCs and CPCs-Intensive facilities.

The maternal transport system ensures pregnant patients deliver in hospitals prepared to care for their infants at any weight. In 2021, 244 infants were transported from South Jersey hospitals for neonatal intensive care (Figure 23). Of these infants, only 30.3% weighed 1500 grams or less, demonstrating the effectiveness of the maternal transport system in our region. Correspondingly, 49.6% 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.

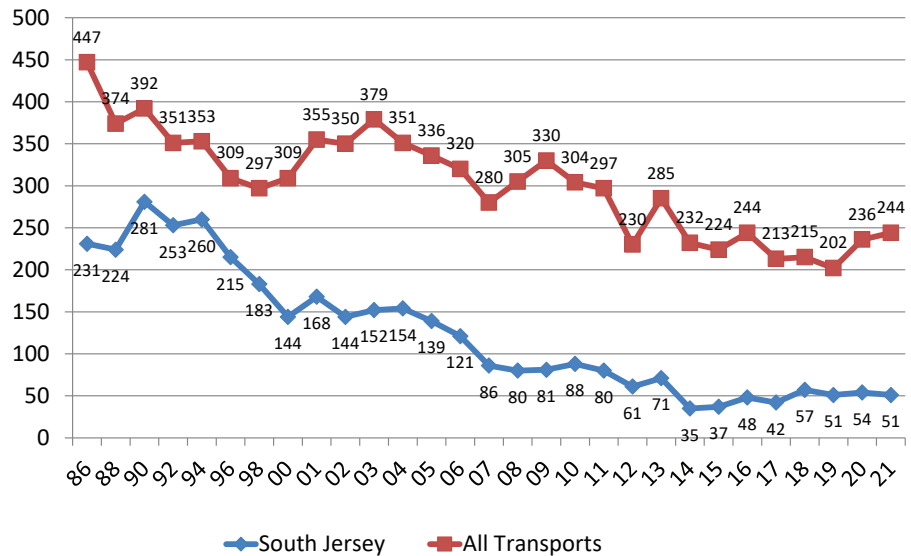
500-1000g Born at RPC & CPC Intensive Facilities

Figure 22



Neonatal Transports

Figure 23





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 to climb until 1993 when the trend reversed. This rate remained relatively low until 2015 when it returned to the high levels of the early 1990s (Figure 17).

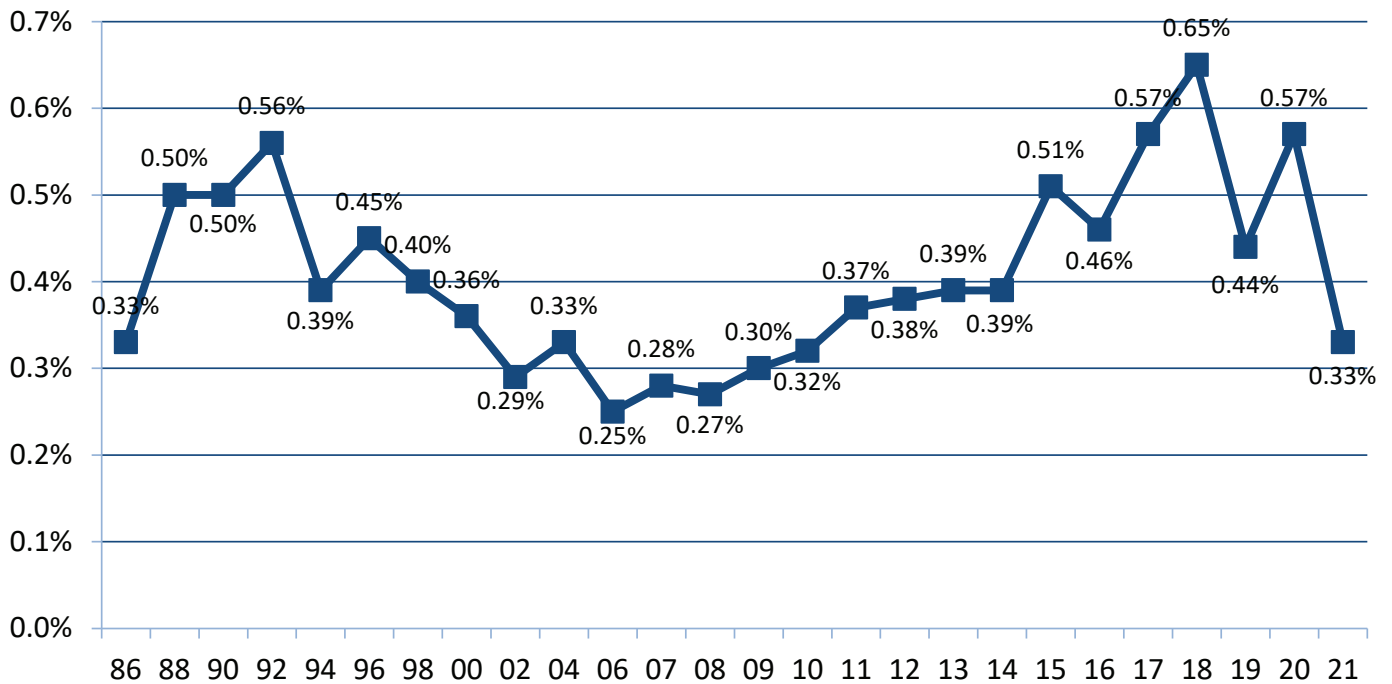
In 2021, 0.33% of births were outside births, a sharp drop from the previous year. The highest number of recorded occurrences was 117 in 2018. The percent of births outside the hospital has decreased by 47.9% since 2018, with 61 births occurring outside the hospital in 2021.

Changes in VIP and later VERI in the categorization of birth location may have improved identification of births in the hospital outside of labor and delivery. In 2021, 25 deliveries occurred in the hospital, but not in Labor and Delivery and 9 were born on the way to the hospital. The majority, 27, were unintended home births.

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.

Percent Outside Births From 1986 to 2021

Figure 24



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 1,001 grams, which is approximately 2 pounds 3 ounces.

Gestational Age

Clinical estimate of the length of time from the first day of the patient’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 2,501 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 patient who has not previously delivered a live infant.

Teen Birth

Birth to a patient under 20 years of age.

Tobacco, alcohol, and drug use during pregnancy

Use of these substances as self-reported by patient.

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 patient who has previously had a cesarean delivery.

Very Low Birth Weight (VLBW)

Birth weight of less than or equal to 1,501 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.

Primigravida

An individual pregnant for the first time.



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