



CESAREAN DELIVERY: COMPARING NEW JERSEY HOSPITALS

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Abstract

This report presents data on cesarean deliveries for individual hospitals, derived from birth certificates. Analysis suggests that no single measure is adequate to summarize cesarean delivery practice at a specific hospital. Rates are presented for five specific categories of birth that reflect substantially different medical contexts and risks of cesarean delivery. A standardized measure allows hypothetical comparisons between hospitals with different mix among the five categories. Data on obstetric practitioners at each hospital are also included. This report is intended for use by hospital administrators, obstetric practitioners, healthcare advocates and expectant parents.

Justification and Purpose

Cesarean delivery of live-born infants has been on the rise for a decade in New Jersey, and the elective and non-elective use of this surgical procedure has been controversial for much longer. Hospital-specific data on cesarean delivery are now publicly available in New Jersey. Comparisons between hospitals can be useful for assessing clinical practice and informing individual choices, but such comparisons are not simple. This report puts the hospital data into a more systematic and interpretable context.

The risk of a cesarean delivery varies considerably according to characteristics of the mother and the pregnancy. To allow comparisons among hospitals in meaningful medical contexts, this report focuses on five categories:



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- Standard presentation (singleton, full term, head down position), nulliparous (no previous live births to mother)
- Standard presentation, multipara, no previous cesarean
- Standard presentation, multipara, cesarean for any previous birth
- Multiple gestation, no previous cesarean, nulliparous or multiparous
- Singleton preterm, no previous cesarean, nulliparous or multiparous

These categories account for 94% of all births and 87% of all cesarean deliveries. Details are given in the “Data and Methods” section below. This methodology follows from a recent analysis of statewide data that has been validated by academic medical peer review (Denk et al., 2006, Surveillance of Cesarean Section Deliveries, New Jersey, 1999-2004. *Birth: Issues in Perinatal Care* 33 (3), 203–209; posted at <http://www.state.nj.us/health/chs/topics0502.pdf>).

For reasons discussed below, we caution against treating these data as a definitive “hospital report card” on cesarean delivery. Nevertheless, the data and observations presented here are meant to capture our best understanding of the data, and the limitations of that understanding. In the meantime, the New Jersey Department of Health and Senior Services (DHSS) continues to encourage and support the array of licensing and quality assurance mechanisms that already exist to promote safe and beneficial cesarean delivery practice. The best way to explore the risks and benefits of cesarean delivery and to plan for a delivery that meets the needs and preferences of parents is an informed, extensive and ongoing conversation between parents and obstetric practitioners. We encourage expectant parents to use this report and other information available from a wide variety of sources as background for that conversation.

Some Explanatory Observations

To make comparisons between hospitals valid, statistical measures should be clinically comparable, directly predictive, comprehensive and reliable.

- ✓ *Clinically comparable*: statistics are based on consistent pools of cases that are medically relatively homogeneous.
- ✓ *Directly predictive*: for an average person in a category identifiable in advance, we can give a meaningful prospective expectation of the probability that a cesarean delivery will occur.
- ✓ *Comprehensive*: categories and outcomes should represent a very large proportion of all cases.
- ✓ *Reliable*: minimal data quality standards should be observed, and limitations should be explicitly identified.

The following observations illustrate the importance of these criteria.

Comparing cesarean delivery rates within specific medical categories is important in considering the choices and risks relevant to an individual mother. Even among “standard” delivery situations—a singleton pregnancy (not twins or higher multiples), full term (at least 37 weeks) and a head-down position at delivery—cesarean risks differ for first-time mothers, those with one or more previous vaginal deliveries, and those who have ever previously had a cesarean delivery. The additional categories of preterm singletons and all multiple gestations experience still different risks. In 2006, the average risk in each category was:

<i>Presentation</i>	<i>History</i>	<i>Average Cesarean Delivery Rate</i>
<i>Standard:</i>	First live birth	35%
singleton, at least 37 weeks, head-down position	All prior deliveries vaginal	11%
	Any prior cesarean delivery	91%
All plural births	No prior cesarean delivery	81%
Preterm singleton	No prior cesarean delivery	28%

The proportion of all births in a given hospital that are cesarean deliveries (total cesarean delivery rate) may vary in part because the mix of patients among the categories is different for that hospital. Comparing outcomes across hospitals with different patient mixes therefore tends to obscure differences in medical practice that might have been clearly observed with a pool of identical cases. For example, a hospital that disproportionately serves women who have many children will likely experience a lower total rate. A statistical tool called *standardization* corrects at least some patient mix differences. In the data that follows, we found that standardizing each hospital's patient mix can raise its estimated cesarean delivery rate (the column labeled *index*) by as much as five percentage points, or lower it as much as four points.

Hospitals may do better or worse at preventing cesarean deliveries in different categories. In other words, the category-specific rates for each hospital are generally only moderately correlated. This means that any one hospital may have higher or lower rates in some categories but be closer to average in others. In spite of the attraction of a standardized measure combining all categories of births, it may not capture all important differences between hospitals. The hospital's standardized total cesarean delivery rate is a relatively inaccurate predictor, specifically, of the rate of cesarean deliveries in the categories of women with previous cesarean deliveries, multiple gestations and premature births.

Whether a trial of labor occurs before a cesarean delivery may be an important indicator about how medical factors associated with cesarean delivery are managed. In general, the underlying medical reasons for a cesarean delivery often dictate whether a trial of labor, hoping for a vaginal delivery, is worthwhile. In categories where the newborn is a singleton, full term and in a head down position and the mother has not previously had a cesarean delivery, the majority of cesarean deliveries come after a trial of labor. The majority of cesarean deliveries in other categories are planned and performed before labor has begun. Since the late 1990s, the number of no-labor cesarean deliveries has been growing faster than those after a trial of labor in every category.

The role of obstetricians and midwives.

Decisions about cesarean delivery are principally made by obstetric practitioners, whether MDs, DOs or certified nurse midwives (CNMs). The relationship between each hospital and affiliated obstetric practices is governed by evolving professional and business models, and not necessarily uniform. Physicians and midwives are directly responsible for medical management and decision making in individual cases. In addition to managing the facility and its nursing staff, the hospital has overall responsibility for record keeping, quality assurance and risk management, and a general stewardship obligation toward their community. Complicating this, individual obstetric practitioners and practices may be affiliated with more than one

hospital, and may deliver any particular case at one hospital rather than another for medical reasons that affect comparisons.

It is not feasible at this time to report on cesarean delivery rates for individual practitioners. (There are several reasons, related to data quality and statistical validity, that are beyond the scope of this report.) It is nonetheless reasonable and useful to provide a description of the set of practitioners delivering newborns at each hospital, compared to their peers across the state. These comparisons are less precise, and therefore kept anonymous.

This report presents two measures for each hospital. First, for all physicians who delivered newborns at that hospital, we report the number whose individual cesarean delivery rate ranked in the highest quarter, middle half, and lowest quarter of all physicians in the state. This generally refers to the “attending” or supervising physician at the delivery. Second, we report the total number of CNMs that delivered newborns at that hospital. In general, the attending physician may refer to a CNM only when the delivery is vaginal. Therefore we do not report cesarean delivery rates for midwives, even though midwifery is generally thought to be associated with lower incidence of cesarean delivery.

One other general observation about hospital services and staff seems warranted. Across all hospitals in New Jersey, there is very little relationship between a hospital’s cesarean delivery rates and its level of perinatal services—the categories of basic, intermediate and intensive care hospitals all have similar ranges of rates. Similarly, there is no consistent relationship between cesarean delivery rates and the hospital’s overall volume of deliveries. Therefore, the search for a lower cesarean risk should not steer an expectant mother away from potentially needed services at larger or higher-tech hospitals.

Data and Methods

Data source.

New Jersey Electronic Birth Certificate files contain an abstract of the medical records for prenatal care, delivery and immediate post-partum and neonatal care. Data fields include method of delivery (including indication of trial of labor), induction of labor, prior cesarean delivery, reproductive history, maternal risk factors of pregnancy, labor and delivery complications, and other variables. Since the birth certificate files capture all births for the analysis period, the statistical tools predicated on sampling variability are not necessary.

The clinical categories used here are based on a similar typology developed by the British obstetric researcher Michael Robson (Robson, MS. Classification of cesarean sections. *Fetal and Maternal Medicine Review* 2001;12:23-29.). Three categories represent full term singleton deliveries with head down presentation (referred to as “standard” deliveries); they are distinguished by parity—*nulliparous*, i.e., women with no previous live births, versus *multiparous*, i.e., one or more prior live births—and multiparous women who have had a previous cesarean delivery.

Another two categories reflect preterm delivery and multiple gestation, two major indications for cesarean delivery. In these two categories, we do not include mothers who have previously had a cesarean delivery. Their experience is about the same as all other women with a previous cesarean delivery, so it is more informative to look at the remainder.

Due to small numbers at the hospital level, we do not report on positions other than head-down, i.e., breech, oblique and transverse presentations. About 3.4% of births are presentations other than head-down.

Full-term is defined as 37 or more weeks of gestation. In this report, *preterm* includes only newborns delivered between 32 and 36 weeks of gestation. Preterm deliveries of even shorter gestation are a special case which would complicate the analysis here. Fewer than 0.5% of all births are excluded by this criterion.

Calculation of rates.

Rates of cesarean delivery are generally defined as the number of cesarean deliveries divided by the number of live-born infants. In this report, the *total cesarean delivery rate* includes all live births of 32 weeks or more gestation. For category-specific rates, the denominator is the total number of births within the specified category. The exclusion for less than 32 weeks gestation applies to the total rate and to the multiple gestation and preterm categories.

In each category, rates are calculated for cesarean deliveries after a trial of labor and without trial of labor separately. Trial of labor indicates that a vaginal delivery was attempted, and includes induction of labor. Both rates use the same denominator, and could be added together for a total rate in the category. When there are fewer than 50 births at the hospital in a specific category, both rates are omitted.

Index is standardized to represent what each hospital might experience if they all had the same composition of births. To calculate this index, we weighted the hospital's set of category-specific rate by the statewide distribution of cases in the five categories discussed. It can be compared, with caution, to the total cesarean delivery rate given in the attached tables. If the total rate is very different from the index, it means that the mix of cases at that hospital is very different from the state average. For example, if the index rate is higher, that indicates the case mix was skewed toward categories with lower cesarean risk.

Ranking physicians within hospitals.

As noted, decisions about cesarean delivery are largely determined by obstetric practitioners, whether MDs, DOs or certified nurse midwives (CNMs). While this report does not list cesarean delivery rates by practitioner, such rates may be relevant to hospital comparisons. With some limitations and cautions, we can compute a relative ranking for the practitioner who is listed on the birth certificate as the *attending physician*, which we do in three steps:

1. Compute category-specific cesarean delivery rates by practitioner, for all physicians (CNMs are rarely recorded as the attending physician when a cesarean delivery is performed)
2. Using the category-specific rates, calculate a score (similar to the index used for hospitals) for each practitioner
3. Determine which quartile the practitioner's score falls into: lowest 25% of physician cesarean delivery rates, middle 50%, or highest 25% of physician cesarean delivery rates

The accompanying table indicates for each hospital how many practitioners in each quartile delivered newborns at the hospital during the year. Only MDs and DOs who delivery at least ten newborns during the year are included. For CNMs, only the total number who delivered at least ten newborns at that hospital is reported.

Limitations of this report.

Additional caveats to the use of the data reported here include:

- There are many other medical factors which modify the risk of a cesarean delivery but are not available for analysis. Risk adjusted or detailed measures only describe the average risk within a subgroup.
- Certain complications, such as postoperative infection, have long been linked to cesarean delivery. Recent evidence in New Jersey suggests that those relationships are changing. Declining incidence rates for some complications may be attributable to improving technique due to volume, or to advantageous selection effects.
- The MCH Epidemiology Program is systematically monitoring these complications at delivery and for hospital readmissions. A report for an upcoming public health conference indicates that even while cesarean deliveries are increasing, no increase in cesarean-related complications has occurred. It appears that improvements in obstetric care and the changing population of women utilizing cesarean delivery are making the procedure safer. For example, the incidence of postpartum infections after cesarean deliveries has declined by half in the last decade.
- Attending physician is recorded as text data entry, and spelling errors may occur. We used a *soundex function* to reduce the effects of spelling errors in first names only. The elimination of presumably distinct practitioners with fewer than ten deliveries may eliminate most random misspellings without seriously biasing estimates for the remaining entries. A potential area for improvement in this report is to use more sophisticated methods for aggregating data by practitioner.

Cesarean Delivery Rates by Hospital, Live Births 2006

state		all births†			standard,* nullipara**		standard, multipara**	
		births†	total cesarean delivery rate	index	No trial	Trial labor	No trial	Trial labor
		109,553	37.5%	0.379	8.1%	26.4%	4.9%	5.8%
Northern NJ	Pascack Valley Hospital	977	31.0%	0.301	3.6%	23.0%	2.6%	1.8%
	Englewood Hospital and Medical Center	2,046	34.7%	0.339	5.6%	25.2%	2.0%	3.4%
	Saint Clare's Hospital/Denville	1,862	38.3%	0.367	5.3%	25.6%	2.9%	6.2%
	St. Mary's Hospital Passaic	1,314	36.0%	0.368	6.6%	23.3%	3.8%	5.2%
	Chilton Memorial Hospital	1,066	38.1%	0.379	7.9%	27.8%	2.3%	5.4%
	Holy Name Hospital	1,111	39.5%	0.396	12.3%	21.9%	9.4%	2.8%
	The Valley Hospital	2,994	43.3%	0.397	14.1%	25.8%	3.6%	4.0%
	Columbus Hospital	848	38.2%	0.408	12.3%	27.4%	5.3%	8.4%
	Saint Barnabas Medical Center	6,158	45.0%	0.427	10.2%	31.3%	5.8%	8.1%
	St. Joseph's Regional Medical Center	2,729	45.1%	0.441	9.7%	33.1%	5.9%	7.9%
Barnert Hospital	809	45.7%	0.456	20.3%	23.4%	10.7%	8.5%	
Hudson	Palisades Medical Center - New York Presbyterian Heathcare System	1,394	29.3%	0.326	4.5%	21.1%	3.3%	6.0%
	St. Mary Hospital	1,146	37.8%	0.370	5.0%	27.8%	4.5%	6.1%
	Liberty HealthCare System, Inc. - Jersey City Medical Center	1,749	38.6%	0.376	4.5%	29.8%	2.6%	8.6%
	Bayonne Medical Center	<100	63.9%	0.379	.	.	.	.
	Christ Hospital	1,188	41.3%	0.426	6.0%	32.8%	6.6%	9.6%
	Liberty HealthCare System, Inc. - Meadowlands Hospital Medical Center	625	48.2%	0.460	10.0%	37.8%	6.3%	10.4%
Gateway Northwest	Trinitas Hospital (fmr. St. Elizabeth)	1,764	27.5%	0.303	3.6%	18.6%	3.1%	6.6%
	Raritan Bay Medical Center	1,024	30.8%	0.321	5.3%	16.7%	3.5%	5.4%
	Morristown Memorial Hospital	3,361	37.4%	0.335	3.8%	27.1%	2.5%	3.1%
	Newton Memorial Hospital	714	31.2%	0.345	4.4%	24.4%	3.7%	5.6%
	University of Medicine & Dentistry of New Jersey - University Hospital	1,948	32.8%	0.345	5.0%	26.2%	3.5%	8.5%
	Hackettstown Community Hospital	728	29.2%	0.351	4.7%	23.0%	2.9%	3.8%
	JFK Medical Center	2,661	33.6%	0.351	5.0%	26.0%	4.1%	3.1%
	Newark Beth Israel Medical Center	2,651	34.8%	0.357	5.6%	24.3%	3.7%	7.4%
	Overlook Hospital	2,389	38.4%	0.358	9.6%	24.7%	3.9%	2.7%
	The General Hospital Center at Passaic	408	38.9%	0.396	11.0%	23.6%	7.5%	4.5%
	Clara Maass Medical Center	1,244	37.8%	0.397	5.6%	28.4%	5.7%	9.0%
	The Mountainside Hospital	763	38.0%	0.400	11.5%	30.3%	3.7%	7.3%
	Hackensack University Medical Center	4,743	48.6%	0.481	18.5%	29.3%	9.9%	8.7%
	Warren Hospital	362	45.1%	0.482	14.0%	35.3%	11.9%	8.8%
	Saint James Hospital	829	48.9%	0.497	10.1%	39.5%	4.7%	14.7%
	Central NJ	Muhlenberg Regional Medical Center	1,021	22.8%	0.287	1.6%	15.2%	2.1%	1.7%
Capital Health System - Mercer Campus		2,363	29.1%	0.296	3.4%	18.4%	3.9%	4.2%
Medical Center at Princeton		1,932	31.1%	0.328	4.7%	22.5%	4.8%	3.3%
Hunterdon Medical Center		1,119	35.8%	0.352	7.1%	27.8%	3.1%	2.9%
Robert Wood Johnson University Hospital		1,998	37.4%	0.354	7.3%	24.7%	4.4%	5.1%
RWJ University Hospital at Hamilton		1,371	32.4%	0.357	8.5%	25.3%	2.4%	5.3%
Somerset Medical Center		1,534	36.0%	0.360	4.1%	30.9%	2.4%	5.5%
Saint Peter's University Hospital		5,727	37.5%	0.369	5.4%	26.8%	4.3%	5.9%
Monmouth & Ocean	Kimball Medical Center	1,605	20.5%	0.262	3.3%	22.2%	0.4%	3.4%
	Monmouth Medical Center	3,840	27.9%	0.335	11.3%	17.2%	6.9%	2.7%
	Meridian Hospitals Corporation - Medical Center of Ocean County	965	33.0%	0.341	5.6%	24.5%	3.3%	4.0%
	Community Medical Center	1,663	38.2%	0.376	7.2%	24.4%	5.9%	6.3%
	Meridian Hospitals Corporation - Jersey Shore Medical Center Division	1,700	40.8%	0.421	15.4%	21.7%	10.9%	8.8%
	Meridian Hospitals Corporation - Riverview Medical Center	1,649	43.6%	0.430	12.8%	29.3%	7.9%	4.1%
	Southern Ocean County Hospital	237	40.0%	0.434	14.4%	21.2%	18.5%	5.0%
	CentraState Healthcare System	1,768	47.7%	0.457	13.5%	34.0%	3.9%	7.9%
Southern NJ	South Jersey - Elmer	280	19.7%	0.274	3.0%	10.4%	2.1%	2.1%
	Our Lady of Lourdes Medical Center	1,164	30.0%	0.317	4.8%	21.2%	2.7%	5.0%
	The Cooper Health System	2,025	30.2%	0.326	19.4%	7.6%	11.3%	1.3%
	Kennedy Memorial Hospitals UMC Stratford	175	31.2%	0.341	5.5%	17.6%	6.0%	6.0%
	Underwood Memorial Hospital	1,138	33.1%	0.348	5.5%	24.9%	3.1%	4.8%
	Lourdes MC - Burlington	826	36.0%	0.361	6.1%	26.1%	2.4%	4.4%
	Virtua Memorial Hospital of Burlington County	2,135	39.3%	0.371	6.7%	27.1%	4.9%	4.9%
	Burdette Tomlin Memorial Hospital	460	34.1%	0.374	4.8%	29.4%	3.3%	6.2%
	Atlantic City Medical Center - City Division	<100	13.9%	0.379	.	.	.	.
	Shore Memorial Hospital	1,265	38.0%	0.383	6.2%	28.7%	3.8%	8.2%
	The Memorial Hospital of Salem County, Inc.	325	34.8%	0.398	9.5%	25.2%	7.9%	7.3%
	South Jersey Hospital - Newcomb	2,098	37.5%	0.408	6.1%	28.2%	5.7%	9.0%
	Virtua West Jersey Hospital - Voorhees	5,164	42.0%	0.413	5.2%	34.7%	4.4%	8.4%
	Kennedy Memorial Hospitals UMC Washington Township	1,196	40.3%	0.422	9.8%	32.1%	6.9%	7.3%
	Atlantic City Medical Center - Mainland Division	2,266	41.5%	0.422	8.8%	31.1%	7.5%	6.1%

* Standard = singleton, 37+ weeks gestation, head-down position

** Nullipara = women with no previous live births; multipara = women with 1+ previous live births, no previous cesarean; prior C = multipara with a previous cesarean

† Excludes gestations <32 weeks

Rates omitted when category has fewer than 50 births.

Cesarean Delivery Rates by Hospital, Live Births 2006

state	births†	standard, prior C**		all multiple gestations†		all singleton preterm†	
		No trial	Trial labor	No trial	Trial labor	No trial	Trial labor
state	109,553	83.4%	7.7%	65.1%	16.1%	14.7%	13.9%
Northern NJ							
	Pascack Valley Hospital	977	70.3%	10.9%	.	10.5%	2.6%
	Englewood Hospital and Medical Center	2,046	84.6%	4.4%	57.9%	3.5%	19.8%
	Saint Clare's Hospital/Denville	1,862	89.2%	5.1%	51.9%	31.5%	14.9%
	St. Mary's Hospital Passaic	1,314	92.8%	5.9%	.	13.2%	10.5%
	Chilton Memorial Hospital	1,066	94.0%	3.0%	61.9%	16.7%	.
	Holy Name Hospital	1,111	96.3%	1.1%	.	24.5%	13.2%
	The Valley Hospital	2,994	78.9%	14.2%	62.9%	22.8%	16.4%
	Columbus Hospital	848	89.2%	1.8%	.	16.1%	16.1%
	Saint Barnabas Medical Center	6,158	79.9%	16.4%	69.4%	23.5%	15.9%
	St. Joseph's Regional Medical Center	2,729	94.6%	1.3%	80.6%	6.5%	14.6%
	Barnert Hospital	809	97.4%	0.0%	.	.	.
Hudson							
	Palisades Medical Center - New York Presbyterian Heathcare System	1,394	85.4%	3.8%	.	2.3%	11.4%
	St. Mary Hospital	1,146	85.2%	4.9%	.	10.9%	17.2%
	Liberty HealthCare System, Inc. - Jersey City Medical Center	1,749	84.1%	4.4%	85.1%	2.1%	13.4%
	Bayonne Medical Center	<100	.	.	.	.	.
	Christ Hospital	1,188	91.7%	2.6%	.	11.6%	23.3%
	Liberty HealthCare System, Inc. - Meadowlands Hospital Medical Center	625	92.3%	3.8%	.	.	.
Gateway Northwest							
	Trinitas Hospital (fmr. St. Elizabeth)	1,764	71.4%	9.4%	.	9.7%	6.9%
	Raritan Bay Medical Center	1,024	97.2%	0.0%	.	8.3%	6.3%
	Morristown Memorial Hospital	3,361	84.7%	4.0%	67.7%	8.8%	9.8%
	Newton Memorial Hospital	714	85.3%	1.1%	.	.	.
	University of Medicine & Dentistry of New Jersey - University Hospital	1,948	67.3%	8.9%	63.8%	12.8%	13.4%
	Hackettstown Community Hospital	728	100.0%	0.0%	.	.	.
	JFK Medical Center	2,661	86.5%	7.8%	81.8%	2.3%	11.4%
	Newark Beth Israel Medical Center	2,651	85.9%	4.9%	64.9%	14.3%	9.3%
	Overlook Hospital	2,389	90.0%	2.2%	66.4%	7.3%	16.3%
	The General Hospital Center at Passaic	408	97.6%	1.2%	.	.	.
	Clara Maass Medical Center	1,244	96.3%	0.6%	.	11.5%	10.3%
	The Mountainside Hospital	763	82.6%	6.4%	.	9.3%	16.3%
	Hackensack University Medical Center	4,743	92.8%	1.6%	87.9%	5.3%	28.5%
	Warren Hospital	362	96.2%	0.0%	.	.	.
	Saint James Hospital	829	86.6%	10.1%	.	23.3%	27.9%
Central NJ							
	Muhlenberg Regional Medical Center	1,021	89.6%	2.4%	.	.	.
	Capital Health System - Mercer Campus	2,363	74.5%	6.8%	56.7%	14.4%	12.3%
	Medical Center at Princeton	1,932	88.5%	3.7%	50.6%	15.7%	7.6%
	Hunterdon Medical Center	1,119	82.3%	3.0%	.	.	.
	Robert Wood Johnson University Hospital	1,998	73.9%	11.0%	43.4%	19.2%	22.8%
	RWJ University Hospital at Hamilton	1,371	88.8%	1.8%	.	10.7%	16.0%
	Somerset Medical Center	1,534	51.9%	36.5%	33.3%	31.0%	7.9%
	Saint Peter's University Hospital	5,727	70.2%	20.2%	55.5%	31.7%	12.5%
Monmouth & Ocean							
	Kimball Medical Center	1,605	52.0%	10.9%	.	7.1%	8.9%
	Monmouth Medical Center	3,840	73.1%	6.3%	70.8%	10.6%	16.2%
	Meridian Hospitals Corporation - Medical Center of Ocean County	965	93.8%	0.7%	.	4.5%	9.1%
	Community Medical Center	1,663	89.3%	4.4%	54.7%	7.5%	15.0%
	Meridian Hospitals Corporation - Jersey Shore Medical Center Division	1,700	81.2%	5.5%	74.0%	6.0%	21.7%
	Meridian Hospitals Corporation - Riverview Medical Center	1,649	94.7%	1.1%	92.9%	1.8%	22.2%
	Southern Ocean County Hospital	237	.	.	.	.	.
	CentraState Healthcare System	1,768	94.2%	3.4%	94.7%	0.0%	16.4%
Southern NJ							
	South Jersey - Elmer	280	.	.	.	.	.
	Our Lady of Lourdes Medical Center	1,164	62.7%	19.5%	.	11.7%	9.1%
	The Cooper Health System	2,025	81.7%	1.8%	65.6%	4.9%	14.3%
	Kennedy Memorial Hospitals UMC Stratford	175	.	.	.	.	.
	Underwood Memorial Hospital	1,138	78.3%	17.4%	.	4.9%	9.8%
	Lourdes MC - Burlington	826	92.3%	1.9%	.	9.8%	17.1%
	Virtua Memorial Hospital of Burlington County	2,135	90.7%	2.0%	49.1%	26.4%	13.4%
	Burdette Tomlin Memorial Hospital	460	90.5%	1.6%	.	.	.
	Atlantic City Medical Center - City Division	<100	.	.	.	.	.
	Shore Memorial Hospital	1,265	92.1%	1.0%	.	12.2%	7.3%
	The Memorial Hospital of Salem County, Inc.	325	.	.	.	.	.
	South Jersey Hospital - Newcomb	2,098	92.0%	6.5%	58.5%	24.5%	12.7%
	Virtua West Jersey Hospital - Voorhees	5,164	69.3%	22.6%	46.9%	37.8%	11.8%
	Kennedy Memorial Hospitals UMC Washington Township	1,196	84.5%	4.0%	.	21.4%	17.9%
	Atlantic City Medical Center - Mainland Division	2,266	91.9%	2.4%	68.7%	15.7%	17.5%

* Standard = singleton, 37+ weeks gestation, head-down position

** Nullipara = women with no previous live births; multipara = women with 1+ previous live births, no previous cesarean; prior C = multipara with a previous cesarean

† Excludes gestations <32 weeks

Rates omitted when category has fewer than 50 births.

Cesarean Delivery Rates by Hospital, Live Births 2006

		Physicians attending at this hospital by statewide rank on cesarean delivery			CNMs attending at this hospital	Perinatal care level	index	
		lowest 25%	middle 50%	highest 25%				
Northern NJ	Pascack Valley Hospital	8	8	4	5	intermediate	0.301	
	Englewood Hospital and Medical Center	12	14	3	0	intensive	0.339	
	Saint Clare's Hospital/Denville	7	15	2	1	intensive	0.367	
	St. Mary's Hospital Passaic	2	5	9	7	basic	0.368	
	Chilton Memorial Hospital	2	8	4	0	intermediate	0.379	
	Holy Name Hospital	2	13	4	1	intensive	0.396	
	The Valley Hospital	9	18	6	0	intensive	0.397	
	Columbus Hospital	0	3	4	0	intermediate	0.408	
	Saint Barnabas Medical Center	5	41	17	0	intermediate	0.427	
	St. Joseph's Regional Medical Center	2	11	16	7	intensive	0.441	
	Barnert Hospital	0	5	9	0	intermediate	0.456	
Hudson	Palisades Medical Center - New York	4	5	1	0	intermediate	0.326	
	Presbyterian Healthcare System	6	7	2	0	intermediate	0.370	
	St. Mary Hospital	4	7	2	1	intensive	0.376	
	Liberty HealthCare System, Inc. - Jersey City Medical Center	0	1	2	0	basic	0.379	
	Christ Hospital	2	9	3	0	basic	0.426	
	Liberty HealthCare System, Inc. - Meadowlands Hospital Medical Center	4	6	8	0	intermediate	0.460	
	Gateway Northwest	Trinitas Hospital (fmr. St. Elizabeth)	2	6	6	7	intermediate	0.303
		Raritan Bay Medical Center	8	13	0	2	intermediate	0.321
Morristown Memorial Hospital		22	35	12	2	intensive	0.335	
Newton Memorial Hospital		2	5	1	2	intermediate	0.345	
University of Medicine & Dentistry of New Jersey - University Hospital		12	12	10	0	intensive	0.345	
Hackettstown Community Hospital		0	3	4	8	basic	0.351	
JFK Medical Center		10	21	0	0	intermediate	0.351	
Newark Beth Israel Medical Center		4	17	6	11	intensive	0.357	
Overlook Hospital		6	29	4	0	intensive	0.358	
The General Hospital Center at Passaic		1	7	6	0	intermediate	0.396	
Clara Maass Medical Center		3	15	4	0	intermediate	0.397	
The Mountainside Hospital		3	6	4	4	intermediate	0.400	
Hackensack University Medical Center		8	17	36	0	intensive	0.481	
Warren Hospital		0	1	3	2	basic	0.482	
Saint James Hospital		0	5	2	0	intermediate	0.497	
Central NJ	Muhlenberg Regional Medical Center	4	3	3	11	intermediate	0.287	
	Capital Health System - Mercer Campus	9	11	8	20	intensive	0.296	
	Medical Center at Princeton	13	8	3	4	intermediate	0.328	
	Hunterdon Medical Center	2	9	1	4	intermediate	0.352	
	Robert Wood Johnson University Hospital	17	27	6	0	intensive	0.354	
	RWJ University Hospital at Hamilton	2	6	3	4	intermediate	0.357	
	Somerset Medical Center	8	12	7	4	intermediate	0.360	
	Saint Peter's University Hospital	19	39	10	2	intensive	0.369	
Monmouth & Ocean	Kimball Medical Center	6	4	2	6	intermediate	0.262	
	Monmouth Medical Center	13	19	13	7	intensive	0.335	
	Meridian Hospitals Corporation - Medical Center of Ocean County	6	5	2	0	intermediate	0.341	
	Community Medical Center	1	11	5	7	intermediate	0.376	
	Meridian Hospitals Corporation - Jersey Shore Medical Center Division	5	14	7	2	intensive	0.421	
	Meridian Hospitals Corporation - Riverview Medical Center	2	14	5	0	intermediate	0.430	
	Southern Ocean County Hospital	0	3	1	0	basic	0.434	
	CentraState Healthcare System	1	10	7	0	intermediate	0.457	
	Southern NJ	South Jersey - Elmer	1	0	1	3	basic	0.274
Our Lady of Lourdes Medical Center		11	7	1	2	intensive	0.317	
The Cooper Health System		19	15	3	0	intensive	0.326	
Kennedy Memorial Hospitals UMC Stratford		1	2	3	0	intensive	0.341	
Underwood Memorial Hospital		2	5	0	0	intermediate	0.348	
Lourdes MC - Burlington		5	9	0	0	intermediate	0.361	
Virtua Memorial Hospital of Burlington County		9	24	0	0	intermediate	0.371	
Burdette Tomlin Memorial Hospital		1	2	1	1	intermediate	0.374	
Atlantic City Medical Center - City Division		3	1	0	0	intensive	0.379	
Shore Memorial Hospital		1	7	3	3	intermediate	0.383	
The Memorial Hospital of Salem County, Inc.		0	1	2	1	basic	0.398	
South Jersey Hospital - Newcomb		1	1	9	8	intermediate	0.408	
Virtua West Jersey Hospital - Voorhees		3	27	12	4	intensive	0.413	
Kennedy Memorial Hospitals UMC Washington Township		1	7	9	4	intermediate	0.422	
Atlantic City Medical Center - Mainland Division		6	8	9	8	intermediate	0.422	