

V10.2 Special Report: Expanded Set of Perinatal Indicators

I. Report Overview

This **Special Report: Expanded Set of Perinatal Indicators** is designed to consolidate the OB Quality Indicators on Table OB 10 and Neonatal Quality Indicators on Table N 11 of your standard quarterly report, eliminate indicators that are no longer relevant and expand to include new indicators that are tracked by other national groups (AHRQ, National Quality Forum (NQF)) and are currently or have been tracked by NPIC/QAS.

As many of you know, The Joint Commission (TJC) replaced the three Pregnancy and Related Conditions Core Measures (PR) with five Perinatal Care (PC) Measures beginning with 4/1/2010 discharges. The three previous measures could be calculated using 100% of your eligible perinatal discharges since the algorithm used administrative data. Four of the five new measures require abstraction of variables not currently included in the administrative data set and allow for submission of a sample of perinatal discharges. Many hospitals have elected NOT to submit the Perinatal Care Measures to TJC.

Since the V10.2 Quarterly Report date range begins with 4/1/2010 discharges, we felt it was an opportune time to make revisions to the indicators reflected in our reports. Our plan is to replace Tables OB 10 and N 11 with the current tabular display for the V10.3 Quarterly Report.

As always, we welcome your feedback and suggestions for additional indicators to display in this Report. Comments can be sent to mservices@npic.org.

The Report is divided into four sections:

- I. Report Overview
- II. Report Tables subdivided into three sections
 - A. Maternal Indicators
 - B. Neonatal Indicators
 - C. Linked Mother/Baby Indicators
- III. Types of Indicators
 - A. AHRQ Patient Safety, Inpatient Quality and Pediatric Quality Indicators
 - B. National Quality Forum Incidence of Episiotomy
 - C. NPIC/QAS Indicators
 - D. The Joint Commission Perinatal Care Measure PC-04: Health Care-Associated Blood Stream Infections in Newborns

The Appendices, which include calculation algorithms, are attached as a separate document due to file size
- IV. Graphs

II. Report Tables

- A. The **Maternal** section displays two critical counts:
 - Total All Patient Refined (APR) Major Diagnostic Category (MDC 14) Pregnancy, Childbirth and the Puerperium Cases: total cases falling into MDC 14 APR DRGs 540-566 which includes all antepartum, delivered and postpartum discharges
 - Total Deliveries: total cases delivered during the timeframe referenced

The **Maternal** section of the Table includes 15 indicators: 6 Agency for Healthcare Quality (AHRQ www.ahrq.gov) indicators drawn from the Patient Safety and Inpatient Quality Indicator sets; a National Quality Forum (NQF www.qualityforum.org) indicator which can be calculated using administrative data and is currently part of the 17 endorsed NQF perinatal indicators; and 8 NPIC/QAS measures that are currently displayed in our reports or have been profiled in previous versions.

B. The **Neonatal** section includes two counts:

- Total neonates which includes all inborns and discharges 0-28 days old at admission
- Total inborns which includes only those infants born at your facility during the timeframe referenced

The Neonatal section also includes 6 indicators: 4 AHRQ measures from the Patient Safety and Newborn Quality Indicator set, the new TJC Perinatal Care measure that can be calculated using administrative data- PC-04, Health Care-Associated Bloodstream Infections in Newborns; and an NPIC/QAS measure: Total Inborn Birth Trauma Rate.

C. The **Linked Mother/Baby Indicators** section displays three critical counts:

- Total deliveries
- Total deliveries linked to an inborn(s)
- Deliveries linked to an inborn(s) as a percent of total deliveries

(If your hospital's NPIC/QAS data submission does not provide mother's medical record on the baby's record, we will not be able to link mother/baby records. Your report will only display your subgroup and the data base averages.)

The Linked Mother/Baby Indicator section also displays 7 maternal indicators with neonatal outcome.

Each section of the Report provides the numerator count, denominator count and rate for your hospital along with upper and lower confidence intervals, your subgroup average, data base average and the AHRQ 2008 comparative provider rates for the AHRQ indicators displayed.

III. Types of Indicators

A. AHRQ (Agency for Research and Quality) Indicators

The AHRQ **Perinatal Patient Safety Indicators (PSI), Inpatient Quality Indicators (IQI) and Pediatric Quality Indicators (PQI)**, of which the **Newborn Quality Indicators (NQI)** are a subset, utilize administrative data to calculate the 10 rates profiled in this Report and have national 2008 provider benchmarks associated with them. The AHRQ makes the software to calculate these rates publically available and many states use these rates for state-wide benchmarking. (For this report we are using the latest version (V4.2) of available software.)

Definitions for all cases in the numerator and denominator and those excluded from the indicator entirely, are listed in **Appendix A. Please review the definitions carefully since the exclusions for some of the indicators are notable and may differ from your general expectation of how the rate is calculated.**

The AHRQ *Provider* rates are calculated by AHRQ using the 2008 National Inpatient Sample (NIS), a file of discharge data from 42 states:

- *The NIS is the largest all-payer inpatient care database in the United States. It contains data from approximately 8 million hospital stays each year.*
- *The 2008 NIS contains all discharge data from 1,056 hospitals located in 42 States, approximating a 20-percent stratified sample of U.S. community hospitals.*
- *The sampling frame for the 2008 NIS is a sample of hospitals that comprise approximately 90 percent of all hospital discharges in the United States.*
- *The NIS is the only national hospital database containing charge information on all patients, regardless of payer, including persons covered by Medicare, Medicaid, private insurance, and the uninsured.*
- *The NIS's large sample size enables analyses of rare conditions, such as congenital anomalies; uncommon treatments, such as organ transplantation; and special patient populations, such as the uninsured.*
- *For most States, the NIS includes hospital identifiers that permit linkages to the American Hospital Association (AHA) Annual Survey Database (Health Forum, LLC © 2008) and county identifiers that permit linkages to the Area Resource File.*

(<http://www.hcup-us.ahrq.gov/nisoverview>)

B. National Quality Forum (NQF) Measure: Incidence of Episiotomy (Measure #0470)

In the spring of 2008, the National Quality Forum initiated the Perinatal Project. The result was the endorsement of 17 perinatal indicators.

About the Perinatal Project

Recognizing the importance of quality healthcare for mothers and newborns, in October 2008 the National Quality Forum endorsed 17 perinatal standards to measure and thereby improve care received by mothers and babies during the third trimester of pregnancy through hospital discharge.

Results

..... presents 17 consensus standards addressing care received during the last trimester of pregnancy through hospital discharge for both mother and newborn. The consensus standards address care provided by both individual clinicians (i.e., physicians and midwives) and facilities, including both hospitals and freestanding birthing centers. These standards reflect aspects of care—both processes and outcomes—that can be substantially influenced by provider performance..... The purpose of these consensus standards is to improve the quality of maternal-child care—through accountability and public reporting—by standardizing quality measurement in all relevant care settings.

(http://www.qualityforum.org/Projects/n-r/Perinatal_Care_2008)

All five of the TJC Perinatal Care Measures set were selected from the NQF 17 endorsed standards.

Measure #0470, Incidence of Episiotomy is one of the 17 endorsed NQF measures that can be calculated using administrative data. NPIC/QAS along with the “owner” of the measure,

Christiana Care Health Services of Delaware have been tracking this rate for a subset of NPIC/QAS hospitals.

The rationale for looking at the Incidence of Episiotomy and rate algorithm is profiled in **Appendix B**.

C. NPIC/QAS Indicators

The Report presents 16 NPIC/QAS indicators, 9 are new to this report:

- Postpartum Hemorrhage Rate
- Rate of Vaginal Deliveries Coded with Shoulder Dystocia
- 7 Linked Mother/Baby Indicators

The 7 indicators where we have linked each mother with her infant(s) allow us to identify a subset of mothers whose infant(s) were admitted to a special care unit or had a coded complication such as birth trauma. All denominators are deliveries with or without the complication/outcome and all numerators are the counts of infants in the category of interest.

The 7 indicators that are not new appear on either table OB 9, OB 10 or N 11 in your V10.2 Quarterly Report.

Definitions for each linked mother/baby calculation can be found in **Appendix C**.

D. The Joint Commission Perinatal Care Measure PC-04: Health Care-Associated Bloodstream Infections in Newborns

Beginning with April, 2010 discharges, The Joint Commission replaced the three previous perinatal core measures with the new **Perinatal Care Set**. The set contains a total of five measures, four of which require sampling and abstraction of one or more variables in order to calculate the rate. The one measure that can be calculated using administrative data is PC-04 Health Care-Associated Bloodstream Infections in Newborns.

It is important to note that the calculation algorithm for PC 04 differs from the AHRQ NQI 03 Neonatal Bloodstream Infections algorithm (Appendix A).

Documentation for the PC 04 measure can be found in **Appendix D**.

IV. Graphs

We chose to graph three indicators:

- Rate of Inductions Resulting in a Cesarean Delivery
- The Joint Commission PC-04: Health Care-Associated Bloodstream Infections in Newborns
- Coded Maternal Complication Resulting in Neonatal Special Care Admission: Diabetes Mellitus

The PC-04 graph displays the hospital's observed (actual) rate and expected rate along with the observed and expected rates for your hospital's subgroup. If your observed rate is on the 99%

confidence interval, there is no significant difference between that rate and your expected rate; if it is not within the confidence interval, there is a significant difference.

The expected rate is the rate obtained when the regression model is run against your profile of cases. This regression model uses the coefficients supplied by TJC for Q2 2010. The expected rate answers the question, what would we expect your rate to be, given your profile of cases relative to the other cases in TJC comparison group? (To date, TJC is not responsible for, nor has it reviewed the appropriateness of our applications of the models for any other specific purpose other than ORYX[®]. NPIC/QAS has met the criteria for inclusion in the accreditation process and has been included on TJC list of acceptable performance measurement systems since 1997. NPIC/QAS has successfully met the technical requirements and is approved to transmit data for the Perinatal Care Measure Set.)

The other two graphs show your hospital's rate compared to the rates for all the hospitals in your subgroup and the data base average. Each rate also displays a 95% confidence interval that allows you to determine whether your rate is significantly different from the subgroup and data base average rates.

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NPIC ID: SAMPLE	Numerator	Denominator	Hospital	LCI	UCI	Subgroup Average	Database Average	AHRQ Provider Rate ¹
A. MATERNAL INDICATORS								
Total APR MDC 14 (APR DRGs 540-566)			3,228			4,427	4,906	
Total Deliveries			2,845			3,889	4,361	
AHRQ PSI 18: Obstetric Trauma: Vaginal Deliveries with Instruments	33	200	16.5%	11.6%	22.4%	20.2%	17.0%	14.6%
AHRQ PSI 19: Obstetric Trauma: Vaginal Deliveries without Instruments	38	1,826	2.1%	1.5%	2.8%	2.5%	2.4%	2.4%
AHRQ IQI 21: Cesarean Delivery Rate	606	2,505	24.2%	23.5%	25.6%	27.7%	31.7%	29.4%
AHRQ IQI 22: VBAC Rate Uncomplicated	54	354	15.3%	12.0%	18.5%	15.6%	11.0%	9.1%
AHRQ IQI 33: Primary Cesarean Delivery Rate	306	2,151	14.2%	13.6%	15.0%	17.3%	20.2%	18.0%
AHRQ IQI 34: VBAC Rate All	62	422	14.8%	11.8%	17.7%	14.9%	10.8%	9.1%
NQF Incidence of Episiotomy	115	1,964	5.9%	4.9%	7.0%	8.0%	11.8%	
NPIC/QAS 3rd and 4th Degree Laceration Rate, with Forceps or Vacuum Extraction	33	203	16.3%	11.5%	22.1%	18.3%	15.0%	
NPIC/QAS 3rd Degree Laceration Rate, with Forceps or Vacuum Extraction	22	203	10.8%	6.9%	15.9%	14.6%	11.8%	
NPIC/QAS 4th Degree Laceration Rate, with Forceps or Vacuum Extraction	11	203	5.4%	2.7%	9.5%	3.7%	3.2%	
NPIC/QAS 3rd and 4th Degree Laceration Rate, without Forceps or Vacuum Extraction	38	1,823	2.1%	1.5%	2.8%	2.5%	2.4%	
NPIC/QAS 3rd Degree Laceration Rate, without Forceps or Vacuum Extraction	28	1,823	1.5%	1.0%	2.2%	2.1%	2.0%	
NPIC/QAS 4th Degree Laceration Rate, without Forceps or Vacuum Extraction	10	1,823	0.6%	0.3%	1.0%	0.3%	0.3%	
NPIC/QAS Postpartum Readmission Rate	25	2,845	0.9%	0.6%	1.3%	1.2%	1.0%	
NPIC/QAS Postpartum Hemorrhage Rate	131	2,845	4.6%	3.9%	5.4%	3.7%	3.1%	
NPIC/QAS Rate of Disruption or Infection of Obstetrical Wound	12	2,845	0.4%	0.2%	0.7%	0.6%	0.5%	
NPIC/QAS Anesthesia Complication Rate	0	2,845	0.0%	0.0%	0.1%	0.0%	0.0%	
NPIC/QAS Rate of Vaginal Deliveries Coded with Shoulder Dystocia	62	2,026	3.1%	2.4%	3.9%	2.3%	2.2%	
NPIC/QAS Rate of Inductions resulting in Cesarean Delivery	77	486	15.8%	12.7%	19.4%	19.9%	23.5%	

¹ Source: 2008 Nationwide Inpatient Sample (NIS), V4.1b, September 2010

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B. NEONATAL INDICATORS								
NPIC ID: SAMPLE	Numerator	Denominator	Hospital	LCI	UCI	Subgroup Average	Database Average	AHRQ Provider Rate ¹
Total Neonates			3,129			4,187	4,549	
Total Inborns			2,929			3,969	4,458	
AHRQ PSI 17: Birth Trauma: Injury to Neonate	11	2,782	0.4%	0.2%	0.7%	0.3%	0.3%	0.2%
AHRQ NQI 01: Iatrogenic Pneumothorax in the Neonate	0	14	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
AHRQ NQI 02: Neonatal Mortality	22	2,978	0.7%	0.4%	1.0%	0.5%	0.4%	0.3%
AHRQ NQI 03: Neonatal Bloodstream Infection	2	102	1.5%	0.0%	3.5%	3.7%	3.2%	3.5%
The Joint Commission PC 04: Newborn Bloodstream Infection								
Observed	2	1,172	0.2%			0.7%	0.5%	
Expected			1.4%	0.2%	2.6%	1.7%	1.6%	
NPIC/QAS Total Inborn Birth Trauma Rate								
Count by Code:								
767.0 Subdural or cerebral hemorrhage			2			3	2	
767.11 Epicranial subaponeurotic hemorrhage			1			1	1	
767.19 Other injuries to scalp			60			89	82	
767.2 Fracture of clavicle			11			8	9	
767.3 Other injuries to skeleton			4			2	1	
767.4 Injury to spine and spinal cord			0			0	0	
767.5 Facial nerve injury			0			1	1	
767.6 Injury to brachial plexus			13			5	4	
767.7 Other cranial and peripheral nerve injuries			0			0	0	
767.8 Other specified birth trauma			6			6	7	
767.9 Birth trauma unspecified			0			0	1	
Total Codes			97			114	109	
Total Cases			91			111	106	
Total Inborn Birth Trauma Rate ²	91	2,929	3.1%	2.5%	3.8%	3.0%	2.6%	

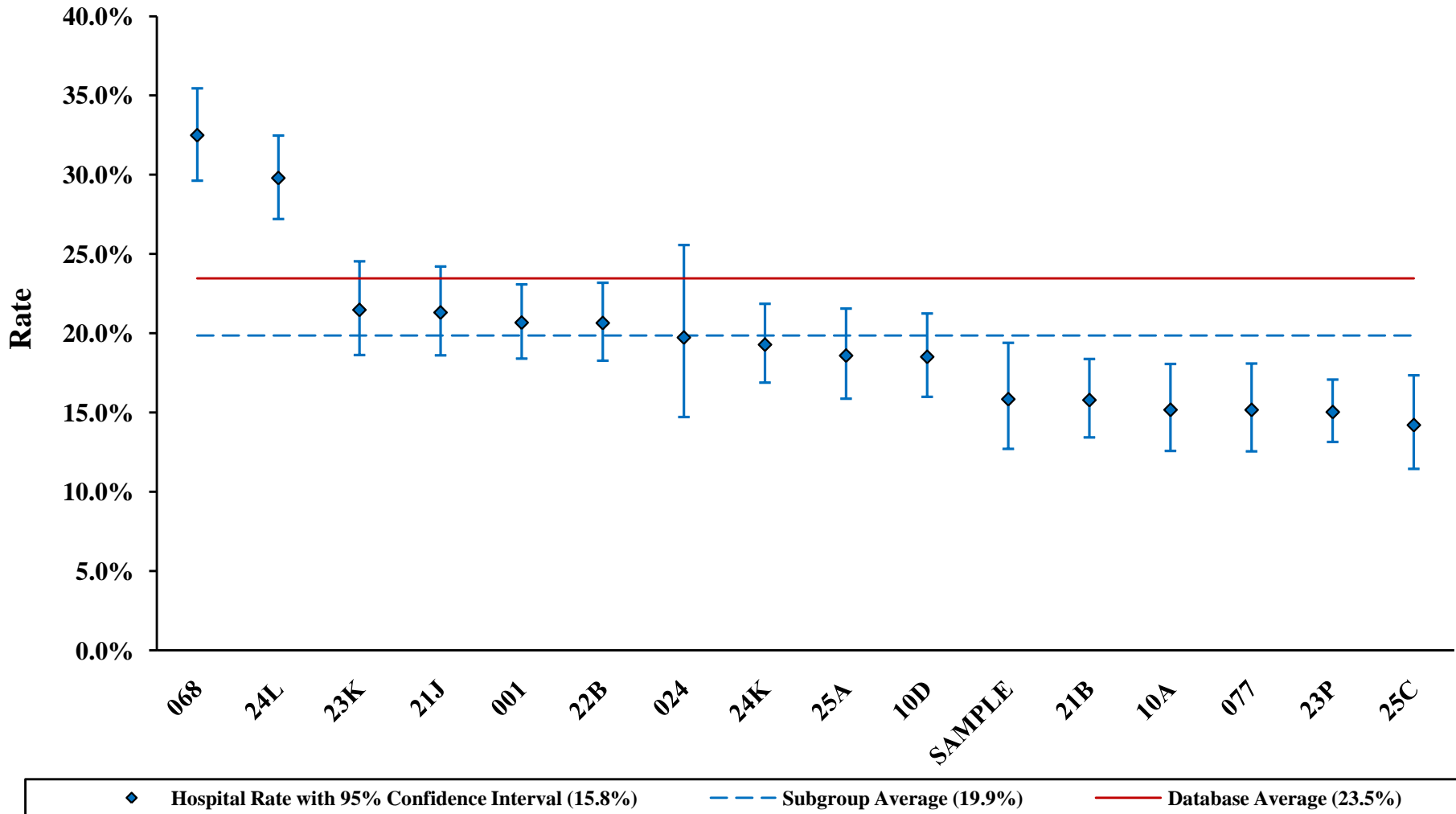
¹ Source: 2008 Nationwide Inpatient Sample (NIS), V4.1b, September 2010

² Total inborn cases with a birth trauma code divided by total inborns

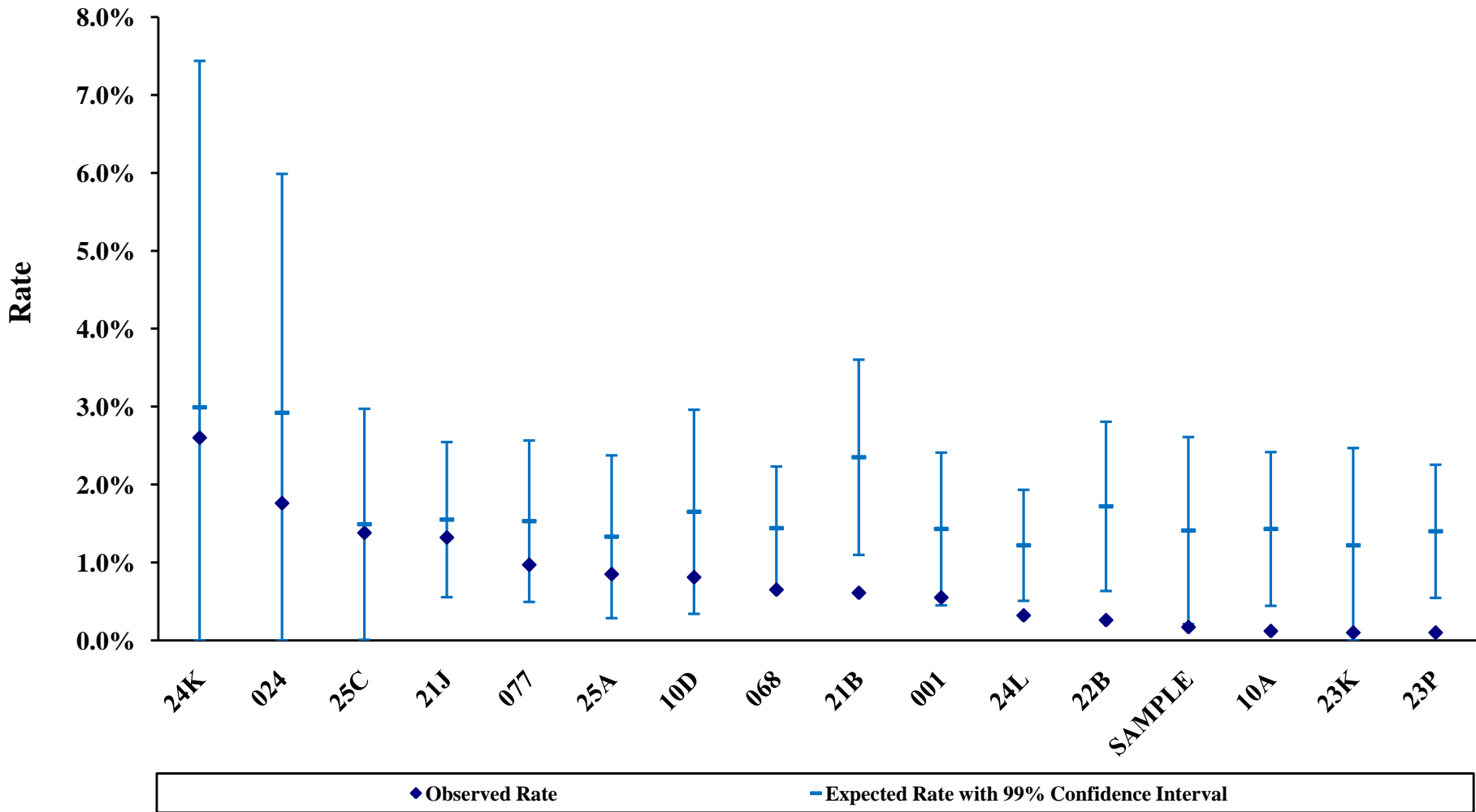
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NPIC ID: SAMPLE	Numerator	Denominator	Hospital	LCI	UCI	Subgroup Average	Database Average
C. LINKED MOTHER/BABY INDICATORS							
Total Deliveries			2,845			3,959	4,333
Total Deliveries linked to an infant(s)			2,788			3,768	3,979
Deliveries linked to an infant(s) as a percent of total deliveries			98.0%			95.0%	90.0%
Vaginal Deliveries with coded Shoulder Dystocia linked to an inborn \geq 2500 grams with resulting birth trauma	17	62	27.4%	16.9%	40.2%	14.7%	13.7%
Count by Code:							
767.19 - Other injuries to scalp			5			3	2
767.2 - Fracture of clavicle			6			3	2
767.6 - Injury to brachial plexus			8			3	2
All other birth trauma codes			2			1	1
Coded Maternal Complications resulting in Neonatal Special Care Admission							
A. Hypertension	5	47	10.6%	3.5%	23.1%	23.9%	19.6%
B. Diabetes Mellitus	10	34	29.4%	15.1%	47.5%	43.9%	37.5%
C. Obesity	18	141	12.8%	7.7%	19.4%	24.1%	20.5%
D. Thyroid dysfunction	6	91	6.6%	2.5%	13.8%	19.3%	15.4%
E. Primary Cesarean Deliveries \geq 37 weeks resulting in Neonatal Special Care Admission	18	374	4.8%	2.9%	7.5%	16.4%	13.2%
F. Repeat Cesarean Deliveries \geq 37 weeks resulting in Neonatal Special Care Admission	8	315	2.5%	1.1%	4.9%	8.1%	8.7%

Graph 1: Rate of Inductions Resulting in Cesarean Delivery
NPIC ID: SAMPLE



**Graph 2: The Joint Commission PC04 - Newborn Bloodstream Infection
Comparison Chart by Subgroup
NPIC ID: SAMPLE**



**Graph 3: Coded Maternal Complications Resulting in Neonatal Special Care Admission
Diabetes Mellitus (250.x and 648.0)
NPIC ID: SAMPLE**

