CONDUENT

Midas DataVision and CPMS
Measure Definitions

Perinatal Care (PC)

Excerpts from the *Specifications Manual for Joint Commission National Quality Core Measures v2017B2*

Encounters discharged January 1, 2018 – June 30, 2018

Acknowledgment

The *Specifications Manual for Joint Commission National Quality Core Measures* is periodically updated by the Joint Commission. Users of the Specifications Manual must update their software and associated documentation based on the published manual production timelines.

Midas Health Analytics Solutions
CONDUENT
4801 East Broadway Blvd, Suite 200
Tucson, Arizona 85711

(877) 414-2676

www.conduent.com

BR435

Perinatal Care (PC)

Set Measures

Set Measure ID	Measure Short Name
PC-01	Elective Delivery
PC-02	Cesarean Birth
PC-03	Antenatal Steroids
PC-04	Health Care-Associated Bloodstream Infections in Newborns
PC-05	Exclusive Breast Milk Feeding

General Data Elements

Element Name	Collected For
Admission Date	All Records,
Birthdate	All Records,
Discharge Date	All Records, Not collected for HBIPS-2 and HBIPS-3
Health Care Organization Identifier	All Records, Patient Population Data File, Hospital Clinical Data File,
Hispanic Ethnicity	All Records,
ICD-10-CM Other Diagnosis Codes	All Records, Optional for HBIPS-2, HBIPS-3
ICD-10-CM Principal Diagnosis Code	All Records, Optional for HBIPS-2, HBIPS-3
ICD-10-PCS Other Procedure Codes	All Records, Optional for All HBIPS Records
ICD-10-PCS Other Procedure Dates	All Records, Optional for All HBIPS Records
ICD-10-PCS Principal Procedure Code	All Records, Optional for All HBIPS Records
ICD-10-PCS Principal Procedure Date	All Records, Optional for All HBIPS Records
Measure Category Assignment	All Records, Calculation, Transmission, Hospital Clinical Data File, Used in calculation of the Joint Commission's aggregate data and in the transmission of

Element Name	Collected For
	the Hospital Clinical Data file. Informational ONLY for PBM. **Notes:** • Episode of care records that calculate with a *Measure Category Assignment* of "X" (missing data) for one or more measures will be rejected by the Joint Commission's Data Warehouse. Refer to the Missing and Invalid Data section in this manual for more information. • All hospital measures use this data element. The ORYX Vendor's calculated *Measure Category Assignment* will be transmitted to The Joint Commission on a quarterly basis with the associated hospital clinical data. These measure results will be used in the Joint Commission's data quality analysis and continuous measure verification process. ORYX Vendors can refer to the Joint Commission's *ORYX Data Quality Manual* for more information. • *Measure Category Assignment* must be transmitted to The Joint Commission but cannot be transmitted to CMS. Files transmitted to the QIO Clinical Warehouse that contain *Measure Category Assignment* will be rejected.
Payment Source	All Records, Optional for HBIPS-2 and HBIPS-3
Race	All Records,
Sex	All Records,

Algorithm Output Data Elements

Element Name	Collected For
Measure Category Assignment	All Records, Calculation, Transmission, Hospital Clinical Data File
Measurement Value	Calculation, Transmission, Hospital Clinical Data File

Measure Set Specific Data Elements

Element Name	Collected For
Admission to NICU	PC-05,
Antenatal Steroids Initiated	PC-03,
Birth Weight	PC-04,
Bloodstream Infection Confirmed	PC-04,
Bloodstream Infection Present on Admission	PC-04,
Discharge Disposition	PC-04, PC-05,
Exclusive Breast Milk Feeding	PC-05,
Gestational Age	PC-01, PC-02, PC-03,
History of Stillbirth	PC-01,
Labor	PC-01,
Number of Previous Live Births	PC-02,
Prior Uterine Surgery	PC-01,
Reason for Not Initiating Antenatal Steroids	PC-03,
Term Newborn	PC-05,

Related Materials

Document Name
Acknowledgment and Conditions of Use
Appendix A - ICD-10 Code Tables
Appendix C - Medication Tables
Appendix D - Glossary of Terms
Appendix E - Overview of Measure Information Form and Flowchart Formats
Appendix G - Resources
Appendix H - Miscellaneous Tables

Document Name
Data Dictionary
Cover Page for the Joint Commission Manual
Introduction to the Manual
Missing and Invalid Data
Sampling
Table of Contents
Transmission Alpha Data Dictionary
Transmission Data Processing Flow: Clinical
Transmission Data Processing Flow: Population and Sampling
Transmission of Data
Using the The Joint Commission's National Measure Specifications Manual

Perinatal Care (PC) Initial Patient Population

The PC measure set is unique in that there are two distinct Initial Patient Populations within the measure set, mothers and newborns.

Mothers
The population of the PC-Mother measures (PC-01, 02, and 03) are identified using 4 data elements:

- *Admission Date*
- *Birthdate*
- *Discharge Date*
- *ICD-10-CM Principal or Other Diagnosis Code*

Patients admitted to the hospital for inpatient acute care are included in the PC Mother Initial sampling group if they have: ICD-10-PCS Principal or Other Procedure Codes as defined in Appendix A, Table 11.01.1, a Patient Age (Admission Date — Birthdate) >= 8 years and < 65 and a Length of Stay (Discharge Date - Admission Date) ≤ 120 days.

Note: Hospitals are NOT required to sample their data. If sampling offers minimal benefit (i.e., a hospital has 80 cases for the quarter and must select a sample of 76 cases), or if the hospital has access to a data source which makes medical record review unnecessary (e.g., using vital records, delivery logs or clinical information systems as a data source for some of the maternal measures in the perinatal measure set), the hospital may choose to use all cases.

Newborns
The population of the PC-Newborn measure (PC-04 and 05) are identified using 6 data elements:

- *Admission Date*
- *Birthdate*
- *Discharge Date*
- *ICD-10-CM Principal or Other Diagnosis Code*
- *ICD-10-PCS Principal or Other Procedure Code*
- *Birth Weight*

Within the PC-Newborn population, there are two 2 subpopulations, i.e Newborns with Blood Stream Infection or BSI, Newborns with Breast Feeding, each identified by Patient Age at admission and a specific group of diagnosis and procedure codes or lack thereof. The patients in each subpopulation are processed independently through each initial patient population flow. Patients may fall in both subpopulations depending on the presence or absence of the diagnosis codes or procedure codes and other data elements defined by the respective initial patient subpopulations.

Measures	Initial Patient Population definition
PC-04	The count of all patients in PC-Newborns with BSI
PC-05	The count of all patients in PC-Newborns with Breast Feeding

Patients admitted to the hospital for inpatient acute care are included in one of the PC Newborn subpopulations if they have:

Newborns with BSI - Patients with a Newborn Patient Age at admission (*Admission Date — Birthdate*) ≤ 2 days **AND** satisfy conditions #1 through #3.

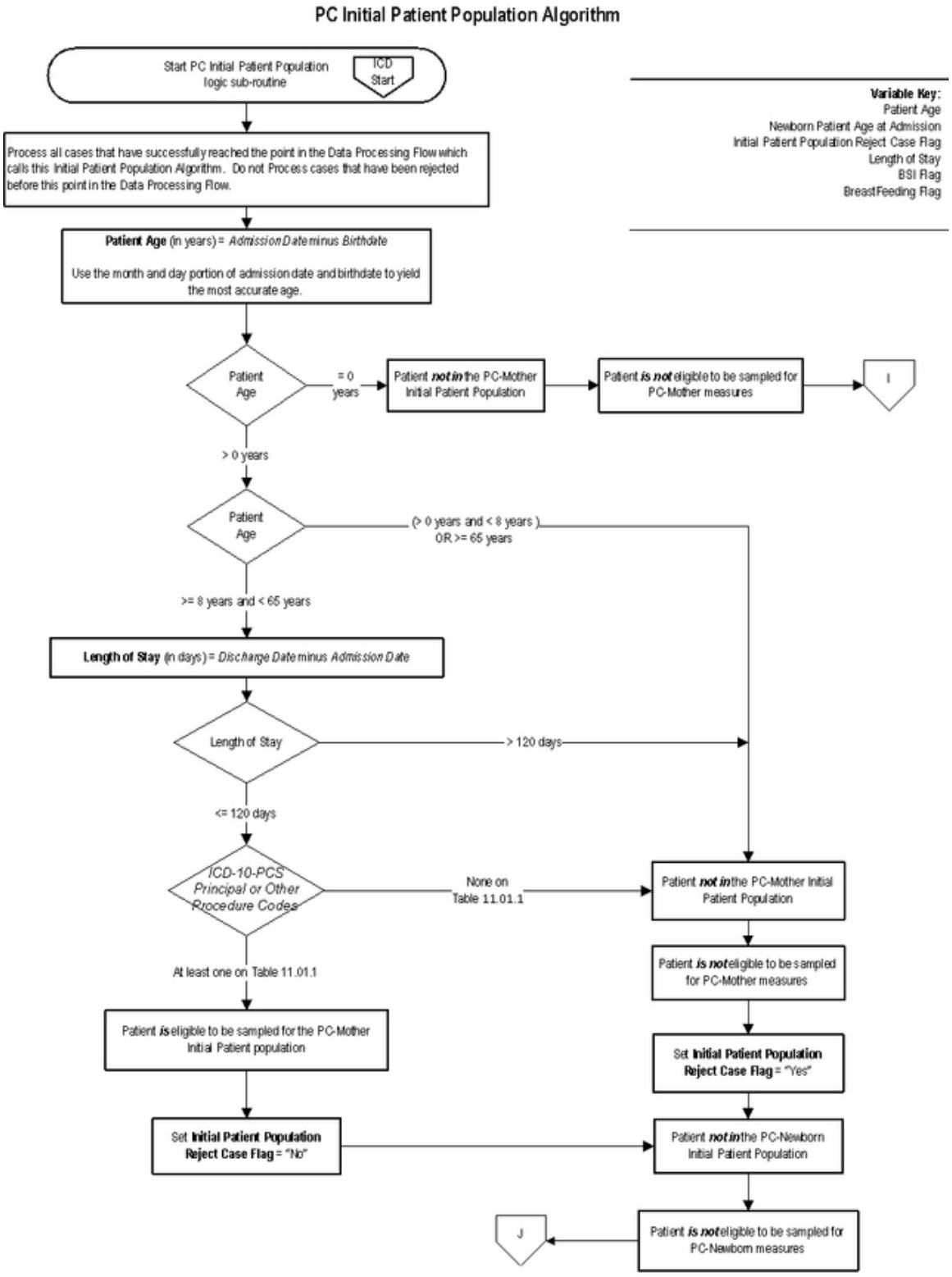
1. **NO** *ICD-10-CM Principal Diagnosis Code* as defined in Appendix A, Table 11.10.2,
2. **ONE** of the following:
    - an *ICD-10-CM Other Diagnosis Code* as defined in Appendix A, Tables 11.12, 11.13, 11.14 Or *Birth Weight* >= 500g and <= 1499g
    - an *ICD-10-CM Other Diagnosis Code* as defined in Appendix A, Tables 11.15, 11.16, Or *Birth Weight* >=1500g with **ANY** OF THE FOLLOWING:
        - an *ICD-10-PCS-Principal* or *Other Procedure Code* as defined in Appendix A, Tables 11.18 or 11.19
        - *Discharge Disposition* of 6 (expired) or a Missing *Discharge Disposition*
        - **NO** *ICD-10-CM Principal Diagnosis Code* as defined in Appendix A, Table 11.10.3
    - *Birth Weight* Missing or Unable To Determine (UTD).
3. **NO** *ICD-10-CM Other Diagnosis Code* as defined in Appendix A, Table 11.20 Or *Birth Weight* < 500g

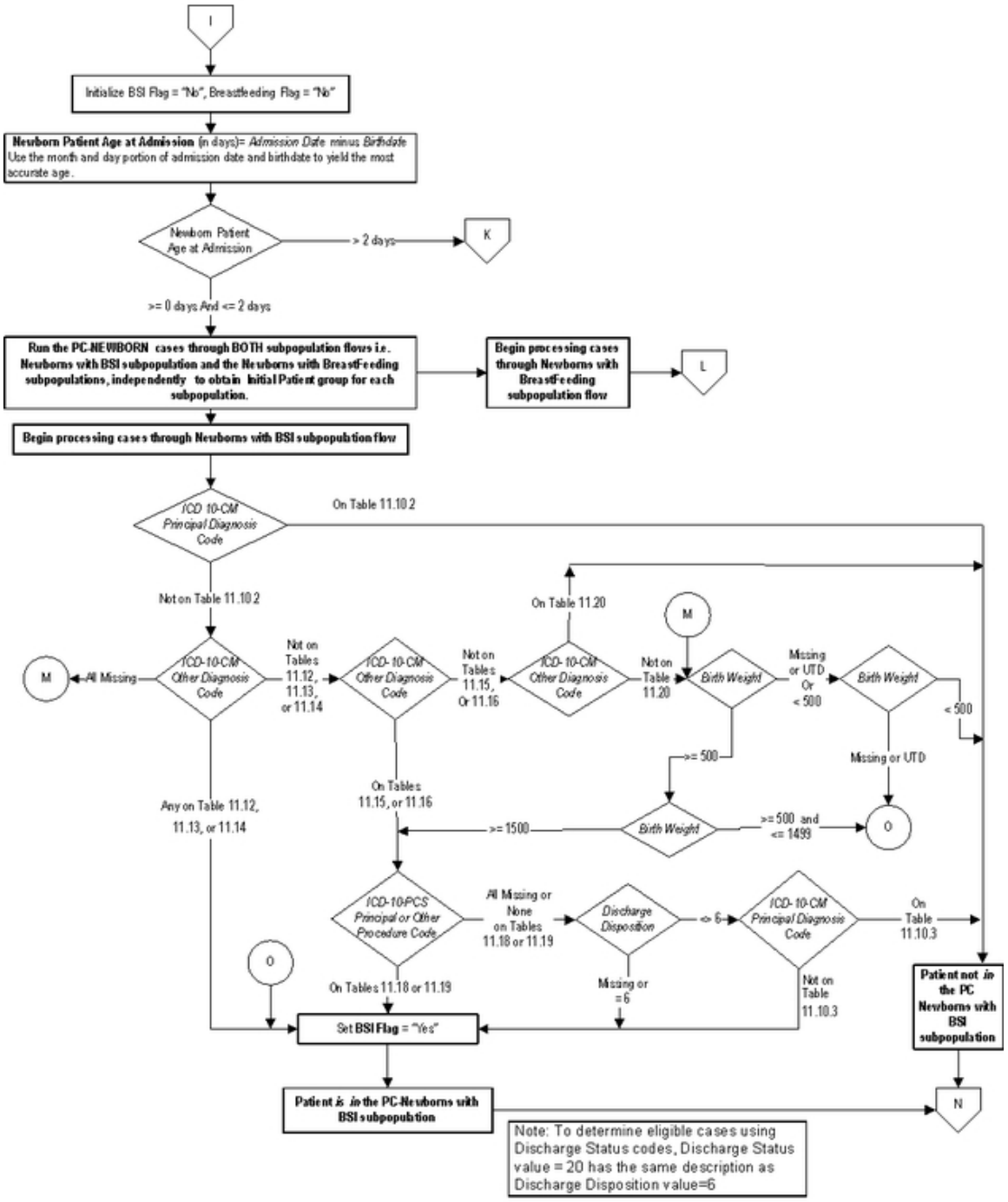
There is NO sampling for this measure.

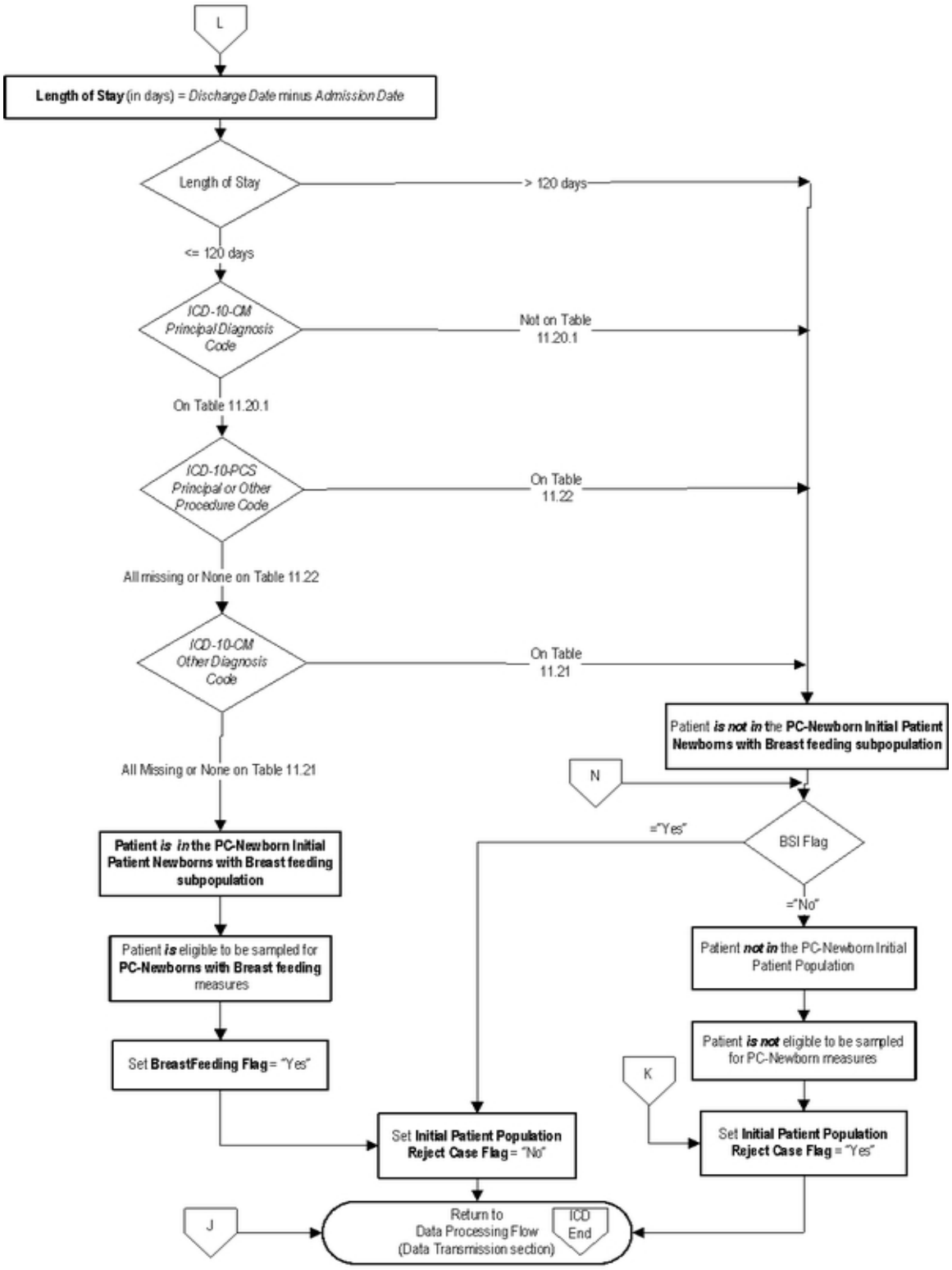
Newborns with Breast Feeding - Patient Age at admission (*Admission Date — Birthdate*) ≤ 2 days, Length of Stay (*Discharge Date - Admission Date*) ≤ 120 days, an *ICD-10-CM Principal Diagnosis Code* as defined in

Appendix A, Table 11.20.1, **NO** *ICD-10-CM Other Diagnosis Codes* as defined in Appendix A, Table 11.21, **NO** *ICD-10-PCS-Principal* or *Other Procedure Code* as defined in Appendix A, Table 11.22 are included in this subpopulation and are eligible to be sampled.

Initial Patient Population Algorithm




I
Initialize BSI Flag = "No", Breastfeeding Flag = "No"
Newborn Patient Age at Admission (in days)= Admission Date minus Birthdate
Use the month and day portion of admission date and birthdate to yield the most accurate age.
Newborn Patient Age at Admission
> 2 days
K
>= 0 days And <= 2 days
Run the PC-NEWBORN cases through BOTH subpopulation flows i.e. Neuborns with BSI subpopulation and the Neuborns with BreastFeeding subpopulations, independently to obtain Initial Patient group for each subpopulation.
Begin processing cases through Newborns with BreastFeeding subpopulation flow
L
Begin processing cases through Neuborns with BSI subpopulation flow
ICD-10-CM Principal Diagnosis Code
On Table 11.10.2
Not on Table 11.10.2
On Table 11.20
M
ICD-10-CM Other Diagnosis Code
All Missing
M
Not on Tables 11.12, 11.13, or 11.14
ICD-10-CM Other Diagnosis Code
Not on Tables 11.15, Or 11.16
ICD-10-CM Other Diagnosis Code
Not on Table 11.20
Birth Weight
Missing or UTD Or < 500
Birth Weight
< 500
Missing or UTD
>= 500
Any on Table 11.12, 11.13, or 11.14
On Tables 11.15, or 11.16
>= 1500
Birth Weight
>= 500 and <= 1499
O
ICD-10-PCS Principal or Other Procedure Code
All Missing or None on Tables 11.18 or 11.19
Discharge Disposition
<> 6
ICD-10-CM Principal Diagnosis Code
On Table 11.10.3
O
On Tables 11.18 or 11.19
Missing or =6
Not on Table 11.10.3
Patient not in the PC Newborns with BSI subpopulation
Set BSI Flag = "Yes"
Patient is in the PC-Neuborns with BSI subpopulation
N
Note: To determine eligible cases using Discharge Status codes, Discharge Status value = 20 has the same description as Discharge Disposition value=6



Sample Size Requirements

Hospitals that choose to sample have the option of sampling quarterly or sampling monthly. A hospital may choose to use a larger sample size than is required. Hospitals whose Initial Patient Population size is less than the minimum number of cases per quarter/month for the sampling group cannot sample that sampling group. Hospitals that have five or fewer discharges for the three combined PC sampling groups (both Medicare and non-Medicare combined) in a quarter are not required to submit PC patient level data to the Joint Commission's Data Warehouse.

A hospital may choose to use vital records to identify the PC-Mother Initial Patient Population as given in the Population section earlier. If a hospital uses this method to identify the initial patient population, then the hospital is encouraged to submit all the records of the initial population rather than using sampling to identify the cases for submission. Submitting all the initial patient population provides a more precise estimate of the performance rate for the measures.

Regardless of the option used, hospital samples must be monitored to ensure that sampling procedures consistently produce statistically valid and useful data. Due to exclusions and contraindications, hospitals selecting sample cases MUST submit AT LEAST the minimum required sample size.

The following sample size tables for each option automatically build in the number of cases needed to obtain the required sample sizes. For information concerning how to perform sampling, refer to the Population and Sampling Specifications section in this manual.

Quarterly Sampling

A modified sampling procedure is required for hospitals performing quarterly sampling for PC. Hospitals selecting sample cases must ensure that each individual sampling group Initial Patient Population and sample size meet the following conditions:

- *Select within the two individual measure sampling groups (mothers and babies).*
- *Select independently from each of the Newborn subpopulation.*

Hospitals selecting sample cases for the **PC-Mothers** must ensure that the Initial Patient Population and sample size for this PC sampling group meets the following conditions:

Quarterly Sample Size
Based on Initial Patient Population for Mothers

Hospital's Measure	
Average Quarterly Initial Patient Sample Group Size "N"	**Minimum Required Sampling Group Sample Size "n"**
>= 1501	301
376 — 1500	20% of the Initial Patient Population size
75 — 375	75
< 75	No sampling; 100% of the Initial Patient Population required

Within the **PC-Newborn** population, there are two subpopulations each identified by Patient Age at admission and a specific group of diagnosis and procedure codes or lack thereof:

- The PC-Newborns with BSI subpopulation *is not eligible* for sampling and will use the entire Newborns with BSI Initial Patient subpopulation for reporting.
- Hospitals sampling for the PC-Newborns with Breast Feeding must ensure the sample size calculations should be based on the **newborns with breast feed subpopulation count ONLY**. Hospitals selecting cases for the PC-Newborns with Breastfeeding must ensure that the patient population size for this subpopulation meets the following conditions:

Quarterly Sample Size Based on Initial Patient Population for PC-Newborns with Breastfeeding

Hospital's Measure	
Average Quarterly Initial Patient Sample Group Size "N"	**Minimum Required Sample Size "n"**
>= 541	109
136 — 540	20% of the Initial Patient Population size
27 — 135	27
< 27	No sampling; 100% of Initial Patient Population required

Monthly Sampling

Hospitals selecting sample cases for the **Mothers** must ensure that the Initial Patient Population and sample size for this sampling group meets the following conditions:

Monthly Sample Size
Based on Initial Patient Population for Mothers

Hospital's Measure	
Average Monthly Initial Patient Sample Group Size "N"	**Minimum Required Sampling Group Sample Size "n"**
>= 501	101
126 — 500	20% of the Initial Patient Population
25 — 125	25
< 25	No sampling; 100% Initial Patient Population required

Within the **PC-Newborn** population, there are two sampling groups each identified by Patient Age at admission and a specific group of diagnosis codes, or lack there of:

- The PC-Newborns with BSI subpopulation *is not eligible* for sampling and will use the entire Newborns with BSI Initial Patient subpopulation for reporting.
- Hospitals sampling for the PC-Newborns with Breast Feeding must ensure the sample size calculations should be based on the **newborns with breast feed subpopulation count ONLY**. Hospitals selecting cases for the PC-Newborns with Breastfeeding must ensure that the patient population size for this subpopulation meets the following conditions:

Monthly Sample Size Based on Initial Patient Population for Newborns with Breast Feeding

Hospital's Measure	
Average Monthly Initial Patient Sample Group Size "N"	**Minimum Required Sampling Group Sample Size "n"**
>= 181	37
46 — 180	20% of the Initial Patient Population
9 — 45	9
< 9	No sampling; 100% Initial Patient Population required

Sample Size Examples

Note: PC-Mothers: All sampling groups in PC-Mother population should be used in the calculation of all PC-Mother measures. All of the PC measures' specific exclusion criteria are used to filter out cases that do not belong in the measure denominator. **PC-Newborns**: Cases falling within each newborns subpopulation should be run through the respective Newborn measures only. Cases falling in the Newborns with BSI subpopulation ONLY will flow through the PC-04 measure and cases falling in the Newborns with Breast Feeding subpopulation ONLY will flow through the PC-05 measure only. Cases may fall in both subpopulations and in such scenarios will be processed through both measures. It should be noted that cases should be processed independently through each of newborn initial subpopulation flows to obtain cases for sampling and abstraction.

Quarterly Sampling

Mother Population

- A hospital's Mother Population size is 2300 cases during the second quarter. Using the quarterly sampling table for the Mother population, the sample size required is 301 cases for the quarter.
- A hospital's Mother Population size is 1500 cases during the second quarter. Using the quarterly sampling table for the Mother population, the sample size required is 20% of this sub-population or 300 cases for the quarter.
- A hospital's Mother Population size is 300 cases during the second quarter. Using the quarterly sampling table for the Mother population, the sample size required 75 cases for the quarter.
- A hospital's Mother Population size is 72 cases during the second quarter. Using the quarterly sampling table for the Mother population, the sample size is less than the minimum required quarterly sample size, so 100% of this sub-population or all 72 cases are sampled.

Newborns with Breast Feeding

- A hospital's Newborns with Breast Feeding Population size is 600 cases during the second quarter. Using the quarterly sampling table for the Newborns with Breast Feeding population, the sample size required is 109 cases.
- A hospital's Newborns with Breast Feeding Population size is 350 cases during the second quarter. Using the quarterly sampling table for the Newborns with Breast Feeding population, the sample size required is 20% of this sub-population or 70 cases for the quarter .
- A hospital's Newborns with Breast Feeding Population size is 99 cases during the second quarter. Using the quarterly sampling table for the Newborns with Breast Feeding population, the sample size required 27 cases for the quarter.
- A hospital's Newborns with Breast Feeding Population size is 25 cases during the second quarter. Using the quarterly sampling table for the Newborns with Breast Feeding population, the sample size is less than the minimum required quarterly sample size, so 100% of this sub-population or all 25 cases are sampled.

Newborns with BSI The Newborns with BSI population *is not eligible* for sampling and will use the entire Newborns with BSI Initial Patient sampling group for reporting.

Monthly Sampling
Mother Population

- A hospital's Mother Population size is 510 cases during March. Using the monthly sampling table for the Mother population, the sample size required is 101 cases for the month.
- A hospital's Mother Population size is 400 cases during March. Using the monthly sampling table for the Mother population, the sample size required is 20% of this sub-population or 80 cases for the month.
- A hospital's Mother Population size is 125 cases during March. Using the monthly sampling table for the Mother population, the sample size required is 25 cases for the month.
- A hospital's Mother Population size is 20 cases during March. Using the quarterly sampling table for the Mothers population, the sample size is less than the minimum required quarterly sample size, so 100% of this sub-population or all 20 cases are sampled.

Newborns with Breast Feeding

- A hospital's Newborns with Breast Feeding Population size is 200 cases for the month of March. Using the monthly sampling table for the Newborns with Breast Feeding population, the sample size required is 37 cases.
- A hospital's Newborns with Breast Feeding Population size is 100 cases for the month of March. Using the monthly sampling table for the Newborns with Breast Feeding population, the sample size required is 20% of this sub-population or 20 cases for the month.
- A hospital's Newborns with Breast Feeding Population size is 30 cases for the month of March. Using the monthly sampling table for the Newborns with Breast Feeding population, the sample size required 9 cases for the month.
- A hospital's Newborns with Breast Feeding Population size is 8 cases during the second quarter. Using the monthly sampling table for the Newborns with Breast Feeding population, the sample size is less than the minimum required monthly sample size, so 100% of this sub-population or all 8 cases are sampled.

Newborns with BSI The Newborns with BSI population *is not eligible* for sampling and will use the entire Newborns with BSI Initial Patient sampling group for reporting.

Measure Information Form

Measure Set: Perinatal Care (PC)

Measure ID: PC-01

Name: Elective Delivery

Description: Patients with elective vaginal deliveries or elective cesarean births at >= 37 and < 39 weeks of gestation completed

Rationale: For almost 3 decades, the American College of Obstetricians and Gynecologists (ACOG) and the American Academy of Pediatrics (AAP) have had in place a standard requiring 39 completed weeks gestation prior to ELECTIVE delivery, either vaginal or operative (ACOG, 1996). A survey conducted in 2007 of almost 20,000 births in HCA hospitals throughout the U.S. carried out in conjunction with the March of Dimes at the request of ACOG revealed that almost 1/3 of all babies delivered in the United States are electively delivered with 5% of all deliveries in the U.S. delivered in a manner violating ACOG/AAP guidelines. Most of these are for convenience, and result in significant short term neonatal morbidity (neonatal intensive care unit admission rates of 13- 21%) (Clark et al., 2009).

According to Glantz (2005), compared to spontaneous labor, elective inductions result in more cesarean births and longer maternal length of stay. The American Academy of Family Physicians (2000) also notes that elective induction doubles the cesarean delivery rate. Repeat elective cesarean births before 39 weeks gestation also result in higher rates of adverse respiratory outcomes, mechanical ventilation, sepsis and hypoglycemia for the newborns (Tita et al., 2009).

Type Of Measure: Process

Improvement Noted As: Decrease in the rate

Numerator Statement: Patients with elective deliveries

> **Included Populations:** *ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes* for one or more of the following:
>
> - Medical induction of labor as defined in Appendix A, Table 11.05 while not in *Labor* prior to the procedure
> - Cesarean birth as defined in Appendix A, Table 11.06 and all of the following:
>   - not in *Labor*
>   - no history of a *Prior Uterine Surgery*
>
> **Excluded Populations:** None

Data Elements:

- *ICD-10-PCS Other Procedure Codes*
- *ICD-10-PCS Principal Procedure Code*
- *Labor*
- *Prior Uterine Surgery*

Denominator Statement: Patients delivering newborns with >= 37 and < 39 weeks of gestation completed

Included Populations:

- *ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes* for delivery as defined in Appendix A, Table 11.01.1

- *ICD-10-CM Principal Diagnosis Code or ICD-10-CM Other Diagnosis Codes* for planned cesarean birth in labor as defined in Appendix A, Table 11.06.1

Excluded Populations:

- *ICD-10-CM Principal Diagnosis Code or ICD-10-CM Other Diagnosis Codes* for conditions possibly justifying elective delivery prior to 39 weeks gestation as defined in Appendix A, Table 11.07
- History of prior stillbirth
- Less than 8 years of age
- Greater than or equal to 65 years of age
- Length of stay > 120 days
- *Gestational Age* < 37 or >= 39 weeks or UTD

Data Elements:

- *Admission Date*
- *Birthdate*
- *Discharge Date*
- *Gestational Age*
- *History of Stillbirth*
- *ICD-10-CM Other Diagnosis Codes*
- *ICD-10-CM Principal Diagnosis Code*

Risk Adjustment: No.

Data Accuracy: Variation may exist in the assignment of ICD-10 codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: In order to identify areas for improvement, hospitals may want to review results based on specific ICD-10 codes or patient populations. Data could be analyzed further to determine specific patterns or trends to help reduce elective deliveries.

Sampling: Yes. For additional information see the Sampling Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

- American Academy of Family Physicians. (2000). Tips from Other Journals: Elective induction doubles cesarean delivery rate, 61, 4.Retrieved December 29, 2008 at: http://www.aafp.org/afp/20000215/tips/39.html.
- American College of Obstetricians and Gynecologists. (November 1996). ACOG Educational Bulletin.
- Clark, S., Miller, D., Belfort, M., Dildy, G., Frye, D., & Meyers, J. (2009). Neonatal and maternal outcomes associated with elective delivery. [Electronic Version]. *Am J Obstet Gynecol*. 200:156.e1-156.e4.
- Glantz, J. (Apr.2005). Elective induction vs. spontaneous labor associations and outcomes. [Electronic Version]. *J Reprod Med*. 50(4):235-40.
- Tita, A., Landon, M., Spong, C., Lai, Y., Leveno, K., Varner, M, et al. (2009). Timing of elective repeat cesarean delivery at term and neonatal outcomes. [Electronic Version]. *NEJM*. 360:2, 111-120.

Original Performance Measure Source / Developer:
Hospital Corporation of America-Women's and Children's Clinical Services

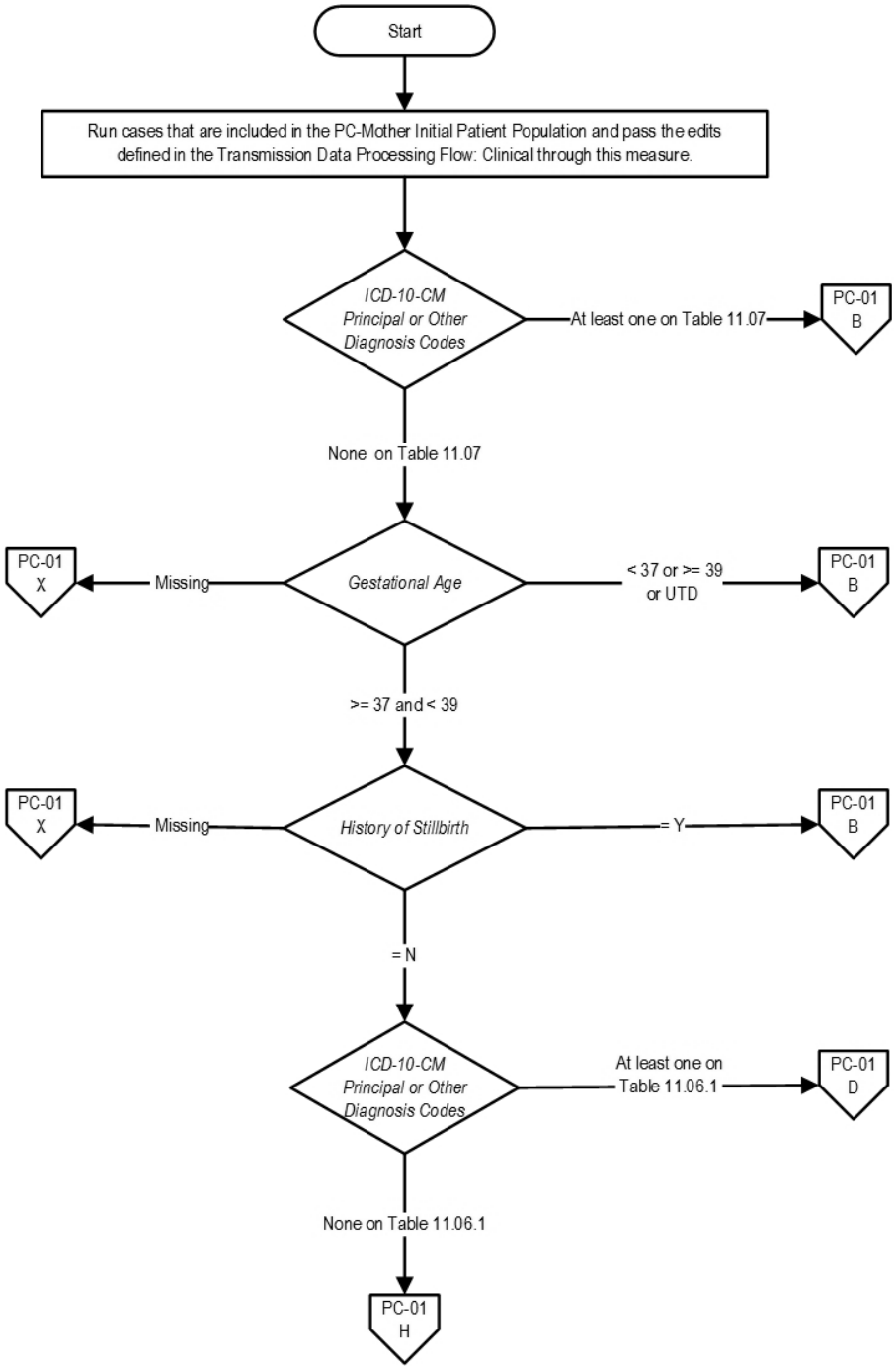
Adopted for CMS Hospital Inpatient Quality Reporting Program FY 2015 and Stage 2 Medicare and Medicaid EHR Incentive Program

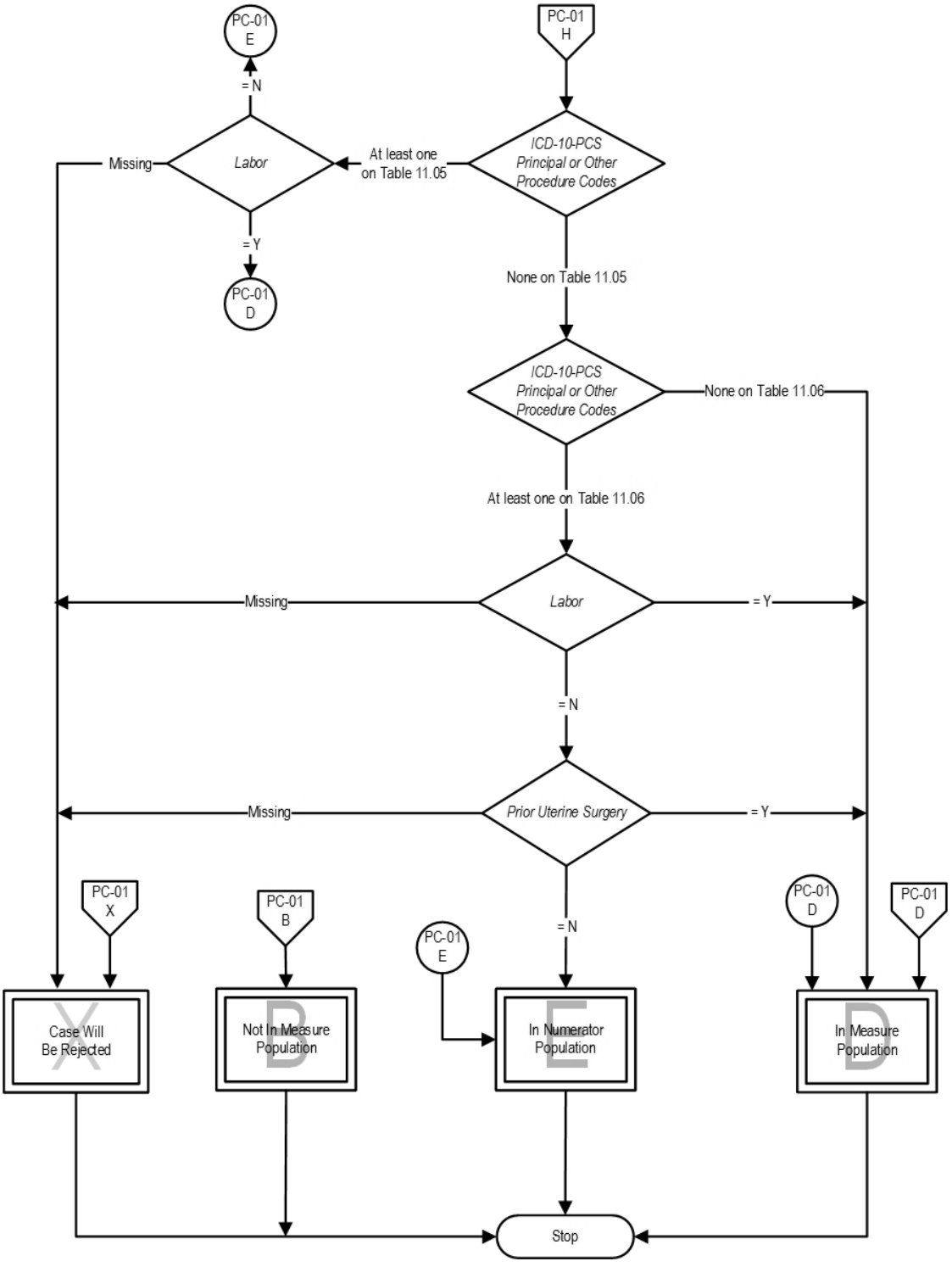
Measure Algorithm:

PC-01: Elective Delivery

Numerator: Patients with elective deliveries

Denominator: Patients delivering newborns with >= 37 and < 39 weeks of gestation completed




PC-01 E
= N
Missing
Labor
= Y
PC-01 D
At least one on Table 11.05
PC-01 H
ICD-10-PCS Principal or Other Procedure Codes
None on Table 11.05
ICD-10-PCS Principal or Other Procedure Codes
None on Table 11.06
At least one on Table 11.06
Missing
Labor
= Y
= N
Missing
Prior Uterine Surgery
= Y
= N
PC-01 X
PC-01 B
PC-01 E
PC-01 D
PC-01 D
X
Case Will Be Rejected
B
Not In Measure Population
E
In Numerator Population
D
In Measure Population
Stop

Measure Information Form

Measure Set: Perinatal Care (PC)

Measure ID: PC-02

Name: Cesarean Birth

Description: Nulliparous women with a term, singleton baby in a vertex position delivered by cesarean birth

Rationale: The removal of any pressure to not perform a cesarean birth has led to a skyrocketing of hospital, state and national cesarean birth (CB) rates. Some hospitals now have CB rates over 50%. Hospitals with CB rates at 15-20% have infant outcomes that are just as good and better maternal outcomes (Gould et al., 2004). There are no data that higher rates improve any outcomes, yet the CB rates continue to rise. This measure seeks to focus attention on the most variable portion of the CB epidemic, the term labor CB in nulliparous women. This population segment accounts for the large majority of the variable portion of the CB rate, and is the area most affected by subjectivity.

As compared to other CB measures, what is different about NTSV CB rate (Low-risk Primary CB in first births) is that there are clear cut quality improvement activities that can be done to address the differences. Main et al. (2006) found that over 60% of the variation among hospitals can be attributed to first birth labor induction rates and first birth early labor admission rates. The results showed if labor was forced when the cervix was not ready the outcomes were poorer. Alfirevic et al. (2004) also showed that labor and delivery guidelines can make a difference in labor outcomes. Many authors have shown that physician factors, rather than patient characteristics or obstetric diagnoses are the major driver for the difference in rates within a hospital (Berkowitz, et al., 1989; Goyert et al., 1989; Luthy et al., 2003). The dramatic variation in NTSV rates seen in all populations studied is striking according to Menacker (2006). Hospitals within a state (Coonrod et al., 2008; California Office of Statewide Hospital Planning and Development [OSHPD], 2007) and physicians within a hospital (Main, 1999) have rates with a 3-5 fold variation.

Type Of Measure: Outcome

Improvement Noted As: Decrease in the rate

Numerator Statement: Patients with cesarean births

> **Included Populations:** *ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes* for cesarean birth as defined in Appendix A, Table 11.06
>
> **Excluded Populations:** None
>
> **Data Elements:**

- *ICD-10-PCS Other Procedure Codes*
- *ICD-10-PCS Principal Procedure Code*

Denominator Statement: Nulliparous patients delivered of a live term singleton newborn in vertex presentation

Included Populations:

- *ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes* for delivery as defined in Appendix A, Table 11.01.1
- Nulliparous patients with *ICD-10-CM Principal Diagnosis Code or ICD-10-CM Other Diagnosis Codes* for outcome of delivery as defined in Appendix A, Table 11.08 and with a delivery of a newborn with 37 weeks or more of gestation completed

Excluded Populations:

- *ICD-10-CM Principal Diagnosis Code or ICD-10-CM Other Diagnosis Codes* for multiple gestations and other presentations as defined in Appendix A, Table 11.09
- Less than 8 years of age
- Greater than or equal to 65 years of age
- Length of Stay >120 days
- *Gestational Age* < 37 weeks or UTD

Data Elements:

- *Admission Date*
- *Birthdate*
- *Discharge Date*
- *Gestational Age*
- *ICD-10-CM Other Diagnosis Codes*
- *ICD-10-CM Principal Diagnosis Code*
- *Number of Previous Live Births*

Risk Adjustment: No.

Data Accuracy: Variation may exist in the assignment of ICD-10 codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: In order to identify areas for improvement, hospitals may want to review results based on specific ICD-10 codes or patient populations. Data could then be analyzed further determine specific patterns or trends to help reduce cesarean births.

Sampling: Yes. For additional information see the Sampling Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

- Agency for Healthcare Research and Quality. (2002). *AHRQ Quality IndicatorsGuide to Inpatient Quality Indicators: Quality of Care in HospitalsVolume, Mortality, and Utilization*. Revision 4 (December 22, 2004). AHRQ Pub. No. 02-RO204.
- Alfirevic, Z., Edwards, G., & Platt, M.J. (2004). The impact of delivery suite guidelines on intrapartum care in "standard primigravida." *Eur J Obstet Gynecol Reprod Biol*.115:28-31.
- American College of Obstetricians and Gynecologists. (2000). *Task Force on Cesarean Delivery Rates. Evaluation of Cesarean Delivery*. (Developed under the direction of the Task Force on Cesarean Delivery Rates, Roger K. Freeman, MD, Chair, Arnold W. Cohen, MD, Richard Depp III, MD, Fredric D. Frigoletto Jr, MD, Gary D.V. Hankins, MD, Ellice Lieberman, MD, DrPH, M. Kathryn Menard, MD, David A. Nagey, MD, Carol W. Saffold, MD, Lisa Sams, RNC, MSN and ACOG Staff: Stanley Zinberg, MD, MS, Debra A. Hawks, MPH, and Elizabeth Steele).
- Bailit, J.L., Garrett, J.M., Miller, W.C., McMahon, M.J., & Cefalo, R.C. (2002). Hospital primary cesarean delivery rates and the risk of poor neonatal outcomes. *Am J Obstet Gynecol*. 187(3):721-7.
- Bailit, J. & Garrett, J. (2003). Comparison of risk-adjustment methodologies. *Am J Obstet Gynecol*.102:45-51.
- Bailit, J.L., Love, T.E., & Dawson, N.V. (2006). Quality of obstetric care and risk-adjusted primary cesarean delivery rates. *Am J Obstet Gynecol*.194:402.
- Bailit, J.L. (2007). Measuring the quality of inpatient obstetrical care. *Ob Gyn Sur*. 62:207-213.
- Berkowitz, G.S., Fiarman, G.S., Mojica, M.A., et al. (1989). Effect of physician characteristics on the cesarean birth rate. *Am J Obstet Gynecol*. 161:146-9.
- California Office of Statewide Hospital Planning and Development. (2006). *Utilization Rates for Selected Medical Procedures in California Hospitals*, Retrieved from the Internet on February 11, 2010 at: http://www.oshpd.ca.gov/HID/Products/PatDischargeData/ResearchReports/HospIPQualInd/Vol-Util_IndicatorsRpt/2007Util.pdf
- Cleary, R., Beard, R.W., Chapple, J., Coles, J., Griffin, M., & Joffe, M. (1996). The standard primipara as a basis for inter-unit comparisons of maternity care. *Br J Obstet Gynecol*. 103:223-9.
- Coonrod, D.V., Drachman, D., Hobson, P., & Manriquez, M. (2008). Nulliparous term singleton vertex cesarean delivery rates: institutional and individual level predictors. *Am J Obstet Gynecol*. 694-696.
- DiGiuseppe, D.L., Aron, D.C., Payne, S.M., Snow, R.J., Dieker, L., & Rosenthal, G.E. (2001). Risk adjusting cesarean delivery rates: a comparison of hospital profiles based on medical record and birth certificate data. *Health Serv Res*.36:959-77.
- Gould, J., Danielson, B., Korst, L., Phibbs, R., Chance, K.,& Main, E.K., et al. (2004). Cesarean delivery rate and neonatal morbidity in a low-risk population. *Am J Obstet Gynecol*, 104:11-19.
- Goyert, G.L., Bottoms, F.S., Treadwell, M.C., et al. (1989). The physician factor in cesarean birth rates. *N Engl J Med*.320:706-9.
- Le Ray, C., Carayol, M., Zeitlin, J., Berat, G., & Goffinet, F. (2006). Level of perinatal care of the maternity unit and rate of cesarean in low-risk nulliparas. *Am J Obstet Gynecol*. 107:1269-77.
- Luthy, D.A., Malmgren, J.A., Zingheim, R.W., & Leininger, C.J. (2003). Physician contribution to a cesarean delivery risk model. *Am J Obstet Gynecol*.188:1579-85.

- Main, E.K. (1999). Reducing cesarean birth rates with data-driven quality improvement activities. *Peds*. 103: 374-383.
- Main E.K., Bloomfield, L., & Hunt, G. (2004). Development of a large-scale obstetric quality-improvement program that focused on the nulliparous patient at term. *Am J Obstet Gynecol*.190:1747-58.
- Main, E.K., Moore, D., Farrell, B., Schimmel, L.D., Altman, R.J., Abrahams, C., et al., (2006). Is there a useful cesarean birth measure? Assessment of the nulliparous term singleton vertex cesarean birth rate as a tool for obstetric quality improvement. *Am J Obstet Gynecol*. 194:1644-51.
- Menacker, F. (2005).Trends in cesarean rates for first births and repeat cesarean rates for low-risk women: United States, 1990-2003. *Nat Vital Stat Rep*. 54(4): 1-5.
- Romano, P.S., Yasmeen, S., Schembri, M.E., Keyzer, J.M., & Gilbert, W.M. (2005). Coding of perineal lacerations and other complications of obstetric care in hospital discharge data. *Am J Obstet Gynecol*.106:717-25.
- U.S. Department of Health and Human Services. (2000). *Healthy People 2010: Understanding and Improving Health*. 2nd ed. Washington, DC: U.S. Government Printing Office. Measure 16-9.
- Yasmeen, S., Romano, P.S., Schembri, M.E., Keyzer, J.M., & Gilbert, W.M. (2006). Accuracy of obstetric diagnoses and procedures in hospital discharge data. *Am J Obstet Gynecol*. 194:992-1001.

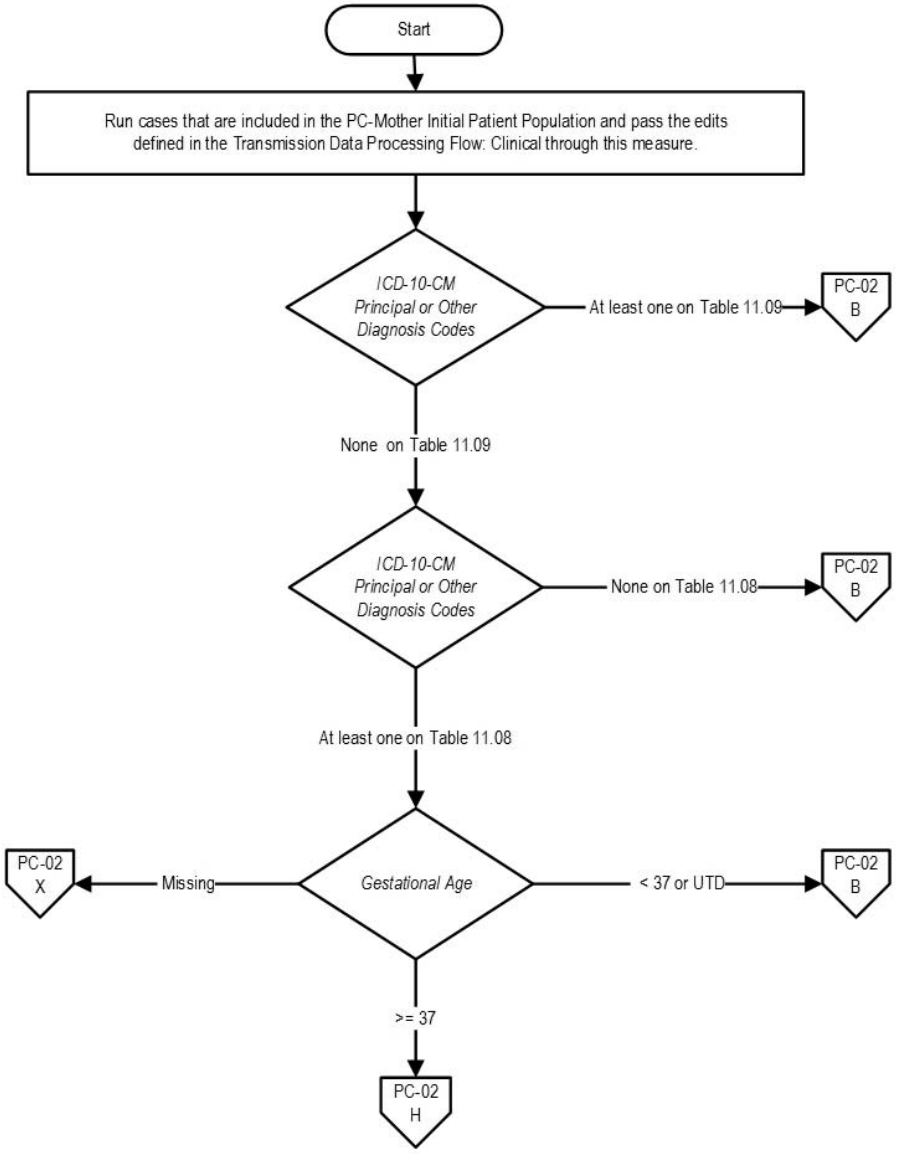
Original Performance Measure Source / Developer:
California Maternal Quality Care Collaborative

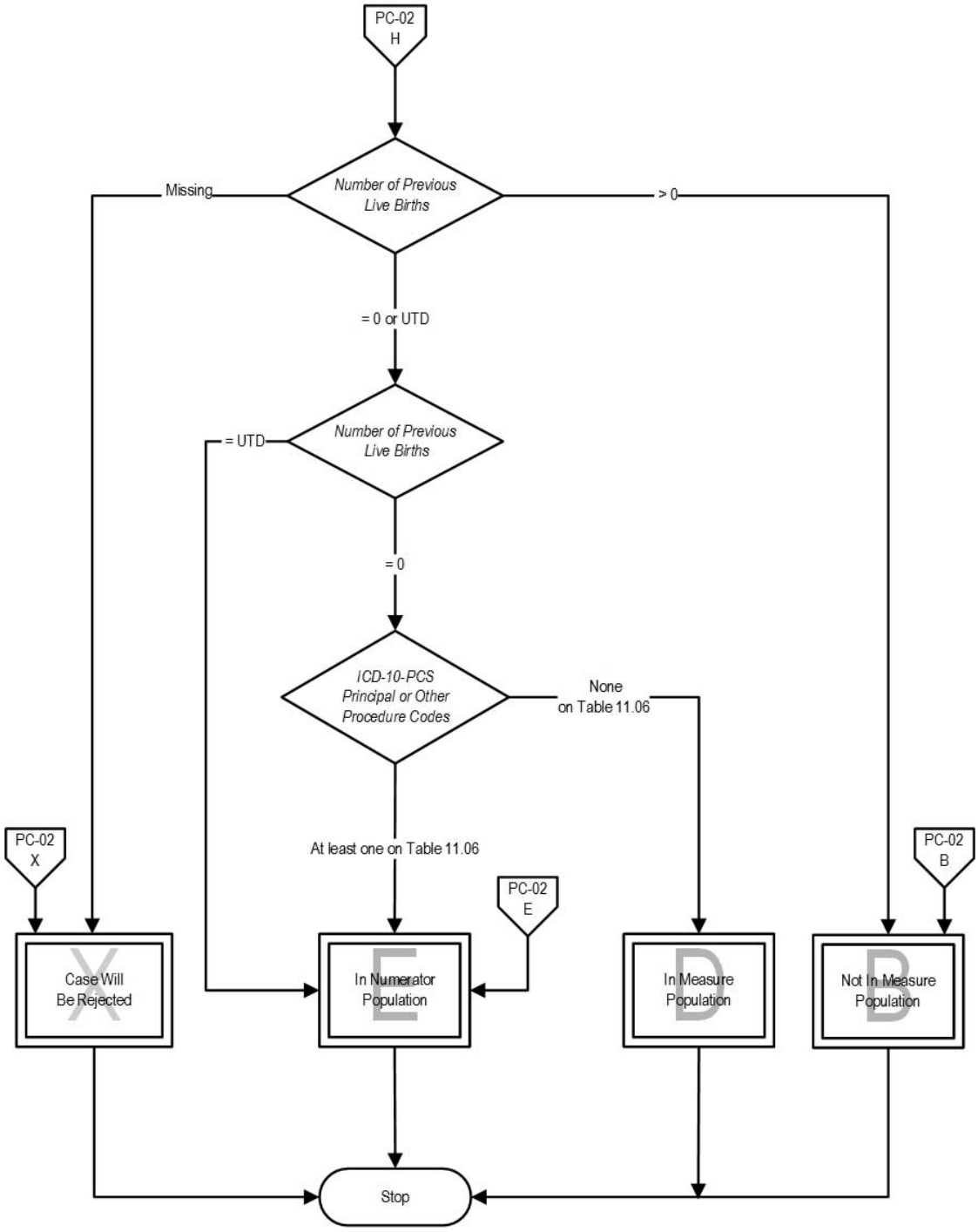
Measure Algorithm:

PC-02: Cesarean Birth

Numerator: Patients with cesarean births

Denominator: Nulliparous patients delivered of a live term singleton newborn in vertex presentation




PC-02
H
Number of Previous Live Births
Missing
> 0
= 0 or UTD
Number of Previous Live Births
= UTD
= 0
ICD-10-PCS Principal or Other Procedure Codes
None on Table 11.06
At least one on Table 11.06
PC-02
X
PC-02
E
PC-02
B
X
Case Will Be Rejected
E
In Numerator Population
D
In Measure Population
B
Not In Measure Population
Stop

Measure Information Form

Measure Set: Perinatal Care (PC)

Measure ID: PC-03

Name: Antenatal Steroids

Description: Patients at risk of preterm delivery at >=24 and <34 weeks gestation receiving antenatal steroids prior to delivering preterm newborns

Rationale: The National Institutes of Health 1994 recommendation is to give a full course of corticosteroids to all pregnant women between 24 weeks and 34 weeks of gestation who are at risk of preterm delivery. Repeated corticosteroid courses should not be used routinely, because clinical trials show decreased brain size, decreased birth weight, and adrenal insufficiency in newborns exposed to repeated doses. Treatment should consist of two doses of 12 mg of betamethasone given intramuscularly 24 hours apart or four doses of 6 mg dexamethasone given intramuscularly every 12 hours.

A single course of corticosteroids should be given at 24 0/7 to 33 6/7 weeks gestation (NIH, 2000). A Cochrane meta-analysis reinforces the beneficial effect of this therapy regardless of membrane status and further concludes for all preterm deliveries the single course of corticosteroids should be routinely administered (Roberts & Dalziel, 2006).

Type Of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with antenatal steroids initiated prior to delivering preterm newborns

> **Included Populations:** Antenatal steroids initiated (refer to Appendix C, Table 11.0, antenatal steroid medications)
>
> **Excluded Populations:** None
>
> **Data Elements:**
>
> - *Antenatal Steroids Initiated*

Denominator Statement: Patients delivering live preterm newborns with >=24 and <34 weeks gestation completed

Included Populations:

- *ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes* for delivery as defined in Appendix A, Table 11.01.1

Excluded Populations:

- Less than 8 years of age
- Greater than or equal to 65 years of age
- Length of Stay >120 days
- Documented *Reason for Not Initiating Antenatal Steroids*
- *ICD-10-CM Principal Diagnosis Code or ICD-10-CM Other Diagnosis Codes* for fetal demise as defined in Appendix A, Table 11.09.1
- *Gestational Age* < 24 or >= 34 weeks or UTD

Data Elements:

- *Admission Date*
- *Birthdate*
- *Discharge Date*
- *Gestational Age*
- *ICD-10-CM Other Diagnosis Codes*
- *ICD-10-CM Principal Diagnosis Code*
- *Reason for Not Initiating Antenatal Steroids*

Risk Adjustment: No.

Data Accuracy: Variation may exist in the assignment of ICD-10 codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: In order to identify areas for improvement in antenatal steroid administration rates, hospitals may wish to review documentation for reasons. Education efforts can be targeted based on the specific reasons identified.

Sampling: Yes. For additional information see the Sampling Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

- American College of Obstetricians and Gynecologists. (ACOG). (2013). Practice Bulletin: Clinical Management Guidelines for Obstetrician-Gynecologists for Premature rupture of membranes.

- Lockwood, C.J., ed. & Lemons, J.A., ed. (2007). Guidelines for Perinatal Care, Sixth Edition, *American Academy of Pediatrics and the American College of Obstetricians and Gynecologists*, ISBN 978-1-58110-270-3; ISBN 978-1-932328-36-3, pp. 178-181.
- NIH Consensus Development Conference Statement: *The Effect of Corticosteroids for Fetal Maturation on Perinatal Outcomes*. February 28-March 2, 1994.
- NIH Consensus Statement: *Antenatal corticosteroids revisited: repeat courses.*2000. 17(2)1-18.
- Roberts, D. & Dalziel, S.R. (2010) *Antenatal corticosteroids for accelerating fetal lung maturation for women at risk of preterm birth (Review)*. The Cochrane Collaboration. Issue 9.

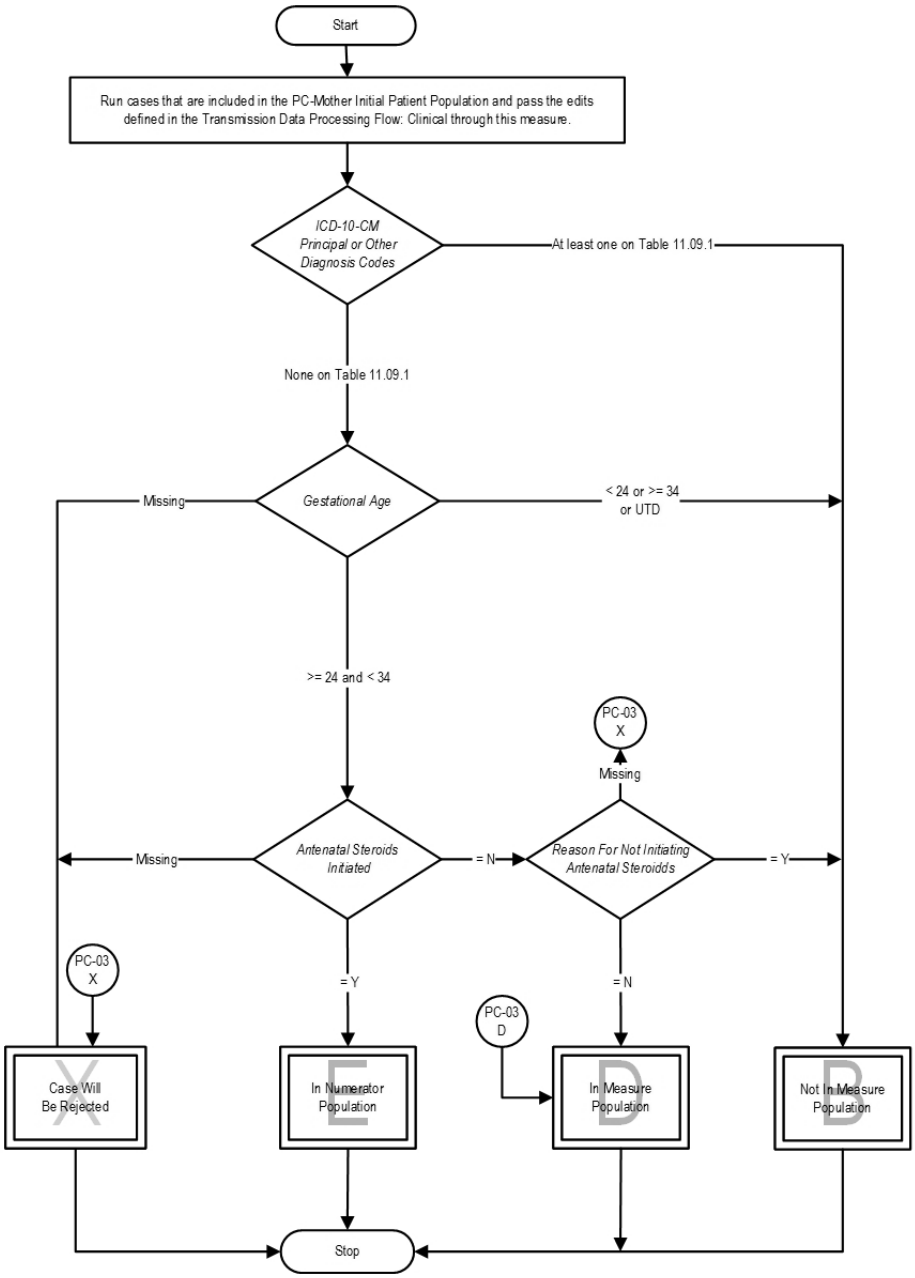
Original Performance Measure Source / Developer:
Providence St Vincent's Hospital/Council of Women and Infant's Specialty Hospitals

Measure Algorithm:

PC-03: Antenatal Steroids

Numerator: Patients with antenatal steroids therapy initiated prior to delivering preterm newborns

Denominator: Patients delivering live preterm newborns with >= 24 and < 34 weeks gestation completed



Measure Information Form

Measure Set: Perinatal Care (PC)

Measure ID: PC-04

Name: Health Care-Associated Bloodstream Infections in Newborns

Description: Staphylococcal and gram negative septicemias or bacteremias in high-risk newborns

Rationale: Health care-associated bacteremia is significant problem for infants admitted into neonatal intensive care units (NICUs) and other hospital units. This is especially true for very low birth weight infants who are at high risk for these infections due to their immature immune systems and need for invasive monitoring and supportive care (Adams-Chapman & Stoll, 2002; Bloom et al., 2003; Clark et al., 2004a; Clark et al., 2004b; Gaynes et al., 1996; Payne et al., 2004; Sohn et al., 2001; Stoll et al., 2002). Reported health care-associated infection rates range from 6% to 33%, but the rate varies widely among different centers (Adams-Chapman & Stoll, 2002; Bloom et al.,2003; Clark et al.,2004b ; Sohn et al.,2001; Stoll et al.,2002). Mortality rates are high and infections result in increased length of stay as well as increased hospital costs and charges (Adams-Chapman & Stoll, 2002; Bloom et al.,2003; Clark et al., 2004b; Horbar et al., 2001; Kilbride et al., 2003a; Sohn et al.,2001; Stoll et al., 2002).

The incidence of health care-associated bacteremia increases with decreasing birth weight. Other risk factors include central venous catheter use, prolonged time using parenteral nutrition, prolonged time on mechanical ventilation, use of H2-blocking agents, and overcrowding or heavy staff loads (Adams-Chapman & Stoll, 2002; Barton et al., 1999; Gaynes et al., 1996; Stoll et al., 2002). The most common causative organisms are coagulase-negative staphylococci, Staphylococcus aureus, enterococci, Enterobacter sp, and Escherichia coli (Adams-Chapman & Stoll, 2002; Clark et al., 2004b; Gaynes et al., 1996; Horbar et al., 2001; Payne et al., 2004; Sohn et al., 2001; Stoll et al., 2002).

Effective preventive measures range from simple hand-washing protocols or closed medication delivery systems to more elaborate multidisciplinary quality improvement plans involving hand-washing, nutrition, skin care, respiratory care, vascular access, and diagnostic practices. All of these interventions have been shown to substantially reduce infection rates, albeit in nonrandomized studies using historical or concurrent control units (Adams-Chapman & Stoll, 2002; Aly et al., 2005; Bloom et al., 2003; Clark et al., 2004a; Clark et al., 2004b; Horbar et al., 2001; Lam et al., 2004; Kilbride et al., 2003a; Kilbride et al., 2003b; Ng et al., 2004; Schelonka et al., 2006). For example, six Vermont Oxford Network NICUs reduced their rates of coagulase-negative staphylococcus infections from 22.0% in 1994 to 16.6% in 1996 after implementing a quality improvement model (versus a much smaller decrease from 15.4% to 14.5% at 66 comparison NICUs) (Horbar et al., 2001). A similar reduction from 24.6% to 16.4% was achieved with a multi-modality, multi-hospital intervention focusing on hand hygiene with an effective agent before and after every patient contact, eliminating hand jewelry and artificial nails, using maximal barrier precautions during central venous catheter insertion, decreasing the number of skin punctures, reducing the duration of intravenous lipid and deep line use, and improving the diagnosis of health care-associated infections. (Kilbride et al., 2003a; Kilbride et al., 2003b).

Given the fragility and susceptibility of the patient population, a baseline level of health care-associated infections will be expected, even with good protocols in place. However, those centers that have prevention protocols, and are able to encourage health care workers to adhere to these protocols, will probably have success in reducing their rates of health care-associated bacteremia in their neonatal population. Indeed, several quasi-experimental studies have demonstrated that NICUs can lower their infection rates (based on positive blood cultures) from as high as 13.5 per 1,000 patient days to as low as 3.0 per 1,000 patient days (Adams-Chapman & Stoll, 2002; Aly et al., 2005; Bloom et al. ,2003; Clark et al., 2004a; Clark et al., 2004b; Horbar et al., 2001; Lam et al., 2004; Kilbride et al., 2003a; Kilbride et al., 2003b; Ng et al., 2004; Schelonka et al., 2006).

Type Of Measure: Outcome

Improvement Noted As: Decrease in the rate

Numerator Statement: Newborns with septicemia or bacteremia

> **Included Populations:**
>
> - *ICD-10-CM Other Diagnosis Codes* for newborn septicemia or bacteremia as defined in Appendix A, Table 11.10 with a *Bloodstream Infection Confirmed*
>
> OR
>
> - *ICD-10-CM Other Diagnosis Codes* for sepsis as defined in Appendix A, Table 11.10.1 with a *Bloodstream Infection Confirmed*
>
> **Excluded Populations:** None
>
> **Data Elements:**
>
> - *Bloodstream Infection Confirmed*
> - *ICD-10-CM Other Diagnosis Codes*

Denominator Statement: Liveborn newborns

> **Included Populations:**
>
> - ICD-10-CM Other Diagnosis Codes for birth weight between 500 and 1499g as defined in Appendix A, Table 11.12, 11.13 or 11.14 OR *Birth Weight* between 500 and 1499g
>
> OR

- ICD-10-CM Other Diagnosis Codes for birth weight ≥ 1500g as defined in Appendix A, Table 11.15 or 11.16 OR *Birth Weight* ≥ 1500g who experienced one or more of the following:
    - Experienced death
    - *ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes* for major surgery as defined in Appendix A, Table 11.18
    - *ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes* for mechanical ventilation as defined in Appendix A, Table 11.19
    - Transferred in from another acute care hospital or health care setting within 2 days of birth

Excluded Populations:

- *ICD-10-CM Principal Diagnosis Code* for septicemias or bacteremias as defined in Appendix A, Table 11.10.2
- *ICD-10-CM Other Diagnosis Codes* for septicemias or bacteremias as defined in Appendix A, Table 11.10.2 or *ICD-10-CM Principal or Other Diagnosis Codes* for newborn septicemia or bacteremia as defined in Appendix A, Table 11.10 with a *Bloodstream Infection Present on Admission*
- *ICD-10-CM Other Diagnosis Codes* for birth weight < 500g as defined in Appendix A, Table 11.20 OR Birth Weight < 500g
- Length of Stay < 2 days

Data Elements:

- *Admission Date*
- *Birth Weight*
- *Birthdate*
- *Bloodstream Infection Present on Admission*
- *Discharge Date*
- *Discharge Disposition*
- *ICD-10-CM Other Diagnosis Codes*
- *ICD-10-CM Principal Diagnosis Code*
- *ICD-10-PCS Other Procedure Dates*
- *ICD-10-PCS Principal Procedure Code*

Risk Adjustment: Yes. This section has been moved to the *ORYX Risk Adjustment Guide*. This guide is available to the public on the Joint Commission's website and, in addition, it is available to performance measurement systems via the Joint Commission's extranet site for measurement systems (PET).

Data Elements:

- *Birth Weight*
- *Discharge Disposition*
- *ICD-10-CM Principal Diagnosis Code*

- *ICD-10-CM Other Diagnosis Codes*

Data Accuracy:

- Variation may exist in the assignment of ICD-10 codes; therefore, coding practices may require evaluation to ensure consistency.
- Since Birth Weight is a risk factor for hospital associated blood stream infections in newborns, ICD-10-CM codes have been provided in Appendix A, Tables 11.12-11.16, 11.20 to assist in identifying newborns with prematurity and fetal growth retardation to denote birth weight (less than 500 grams up to birth weight 2000-2499 grams). Therefore, newborns with birth weights greater than or equal to 2500 grams will need to be captured using the data element Birth Weight.
- It is important to ensure that all weight conversions from pounds and ounces to grams are accurate and concise. Birth Weight should not be rounded off i.e., when converting from pounds and ounces to grams, do not round to the nearest pound before converting the weight to grams.
- Discrepancies can occur between Birth Weights obtained from labor and delivery vs. nursery departments. Organizations should determine which is the most reliable source for this data element value and consistently obtain it from that source.

Measure Analysis Suggestions: In order to identify areas for improvement, hospitals may want to review results based on specific ICD-10 codes or patient populations. Data could then be analyzed further determine specific patterns or trends to help reduce bloodstream infections.

Sampling: No. For additional information see the Sampling Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

- Adams-Chapman, I. & Stoll, B.J. (2002). Prevention of nosocomial infections in the neonatal intensive care unit. *Current Opinion in Pediatrics*.14 (2):157-64.
- Aly, H., Herson, V., Duncan, A., et al. (2005). Is bloodstream infection preventable among premature infants? A tale of two cities. *Pediatrics*. 115(6):1513-8.
- Barton, L., Hodgman, J.E., & Pavlova, Z. (1999). Causes of death in the extremely low birth weight infant. *Pediatrics*. 103(2):446-51.
- Bloom, B.T., Craddock, A., Delmore, P.M., et al. (2003). Reducing acquired infections in the NICU: observing and implementing meaningful differences in process between high and low acquired infection rate centers. *Journal of Perinatology*. 23(6):489-92.
- Clark, R., Powers, R., White, R., Bloom, B., Sanchez, P., & Benjamin, D.K., Jr. (2004a). Prevention and treatment of nosocomial sepsis in the NICU. *Journal of Perinatology*. 4; 24(7):446-53.
- Clark, R., Powers, R., White, R., Bloom, B., Sanchez, P., & Benjamin, D.K., Jr. (2004b). Nosocomial infection in the NICU: a medical complication or unavoidable problem? *Journal of Perinatology*. 24 (6):382-8.
- Gaynes, R.P., Edwards, J.R., Jarvis, W.R., Culver, D.H., Tolson, J.S., & Martone, W.J. (1996). Nosocomial infections among neonates in high-risk nurseries in the United States. National Nosocomial Infections Surveillance System. *Pediatrics*. 98(3 Pt 1):357-61.

- Horbar, J.D., Rogowski, J., Plsek, P.E., et al. (2001). Collaborative quality improvement for neonatal intensive care. NIC/Q Project Investigators of the Vermont Oxford Network. *Pediatrics*. 107(1):14-22.
- Kilbride, H.W., Wirtschafter, D.D., Powers, R.J., & Sheehan, M.B. (2003a). Implementation of evidence-based potentially better practices to decrease nosocomial infections. *Pediatrics*. 111(4 Pt 2):e519-33.
- Kilbride, H.W., Powers, R., Wirtschafter, D.D., et al. (2003b). Evaluation and development of potentially better practices to prevent neonatal nosocomial bacteremia. *Pediatrics*. 111(4 Pt 2):e504-18.
- Lam, B.C., Lee, J., & Lau, Y.L. (2004). Hand Hygiene Practices in a Neonatal Intensive Care Unit: A Multimodal Intervention and Impact on Nosocomial Infection. *Pediatrics*.114 (5):e565.
- Ng, P.C., Wong, H.L., Lyon, D.J., et al. (2004). Combined use of alcohol hand rub and gloves reduces the incidence of late onset infection in very low birthweight infants. Archives of Disease in Childhood Fetal & Neonatal Edition. 89(4):F336-40.
- Payne, N.R., Carpenter, J.H., Badger, G.J., Horbar, J.D., & Rogowski, J. (2004). Marginal increase in cost and excess length of stay associated with nosocomial bloodstream infections in surviving very low birth weight infants. *Pediatrics*. 114(2):348-55.
- Schelonka, R.L., Scruggs, S., Nichols, K., Dimmitt, R.A., & Carlo, W.A. (2006). Sustained reductions in neonatal nosocomial infection rates following a comprehensive infection control intervention. *Journal of Perinatology*. 26(3):176-9.
- Sohn, A.H., Garrett, D.O., Sinkowitz-Cochran, R.L., et al. (2001). Prevalence of nosocomial infections in neonatal intensive care unit patients: Results from the first national point-prevalence survey. *Journal of Pediatrics*. 139(6):821-7.
- Stoll, B.J., Hansen, N., Fanaroff, A.A., et al. (2002). Late-onset sepsis in very low birth weight neonates: the experience of the NICHD Neonatal Research Network. *Pediatrics*. 110(2 Pt 1):285-91.

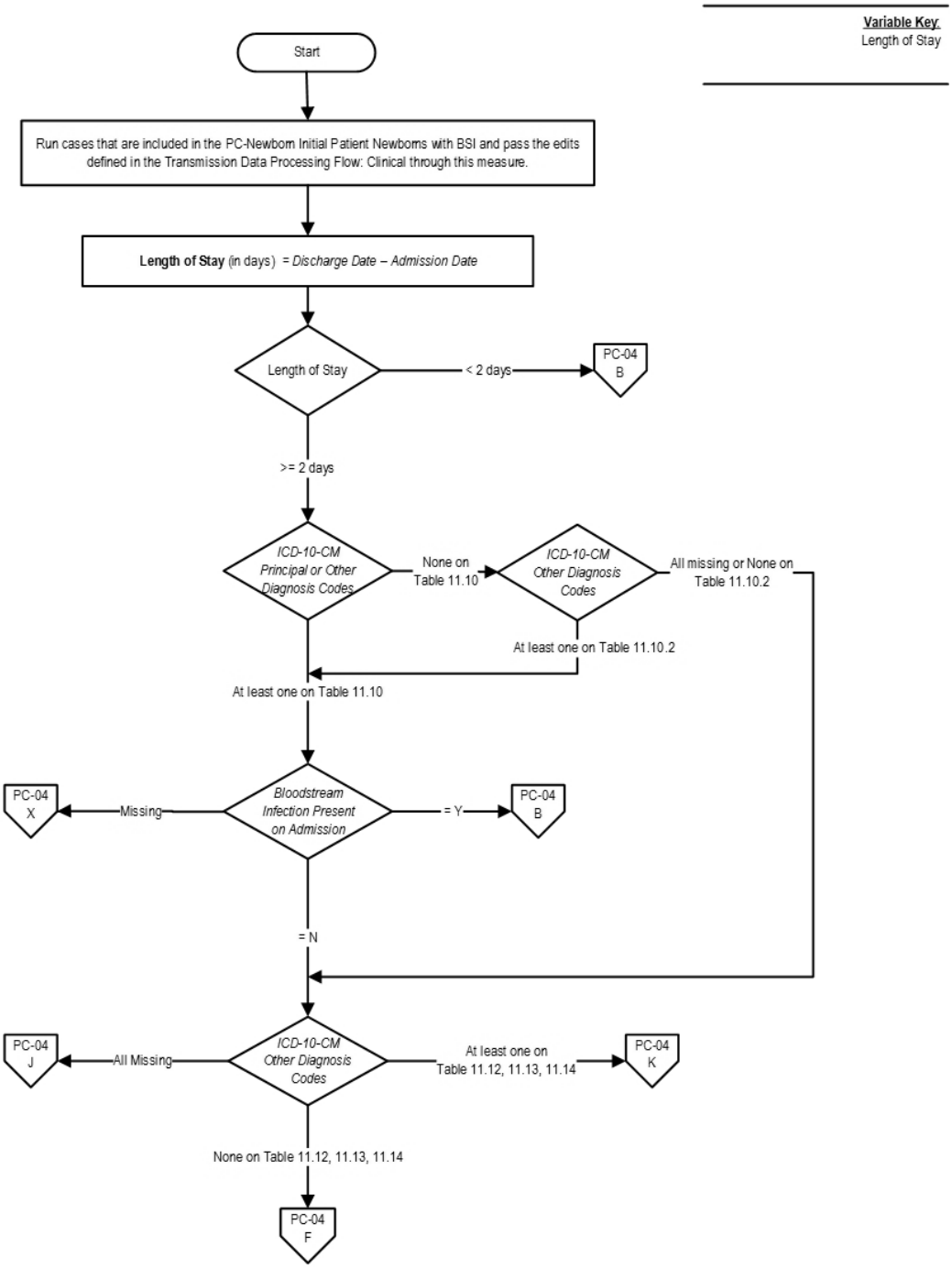
Original Performance Measure Source / Developer:
Agency for Healthcare Research and Quality

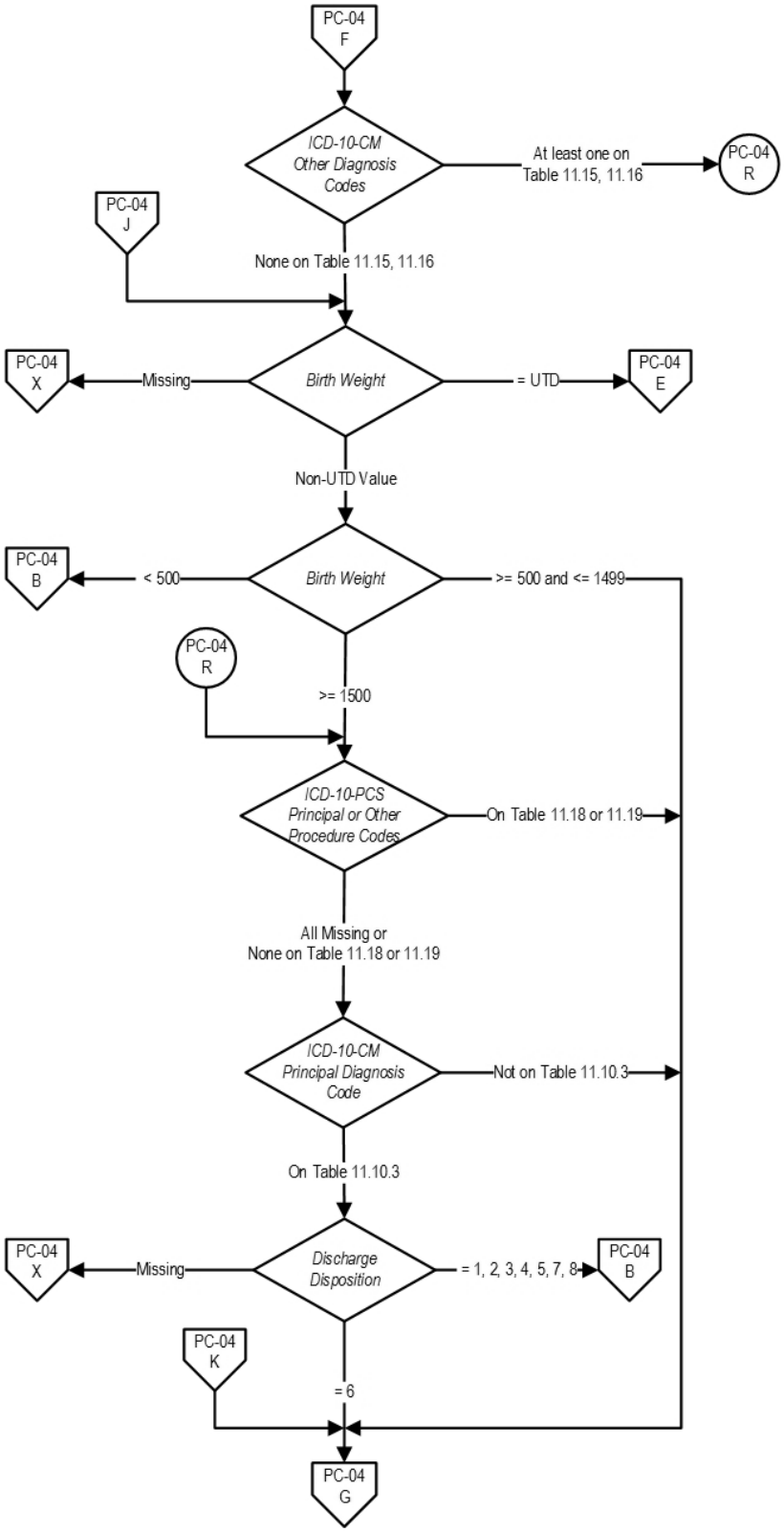
Measure Algorithm:

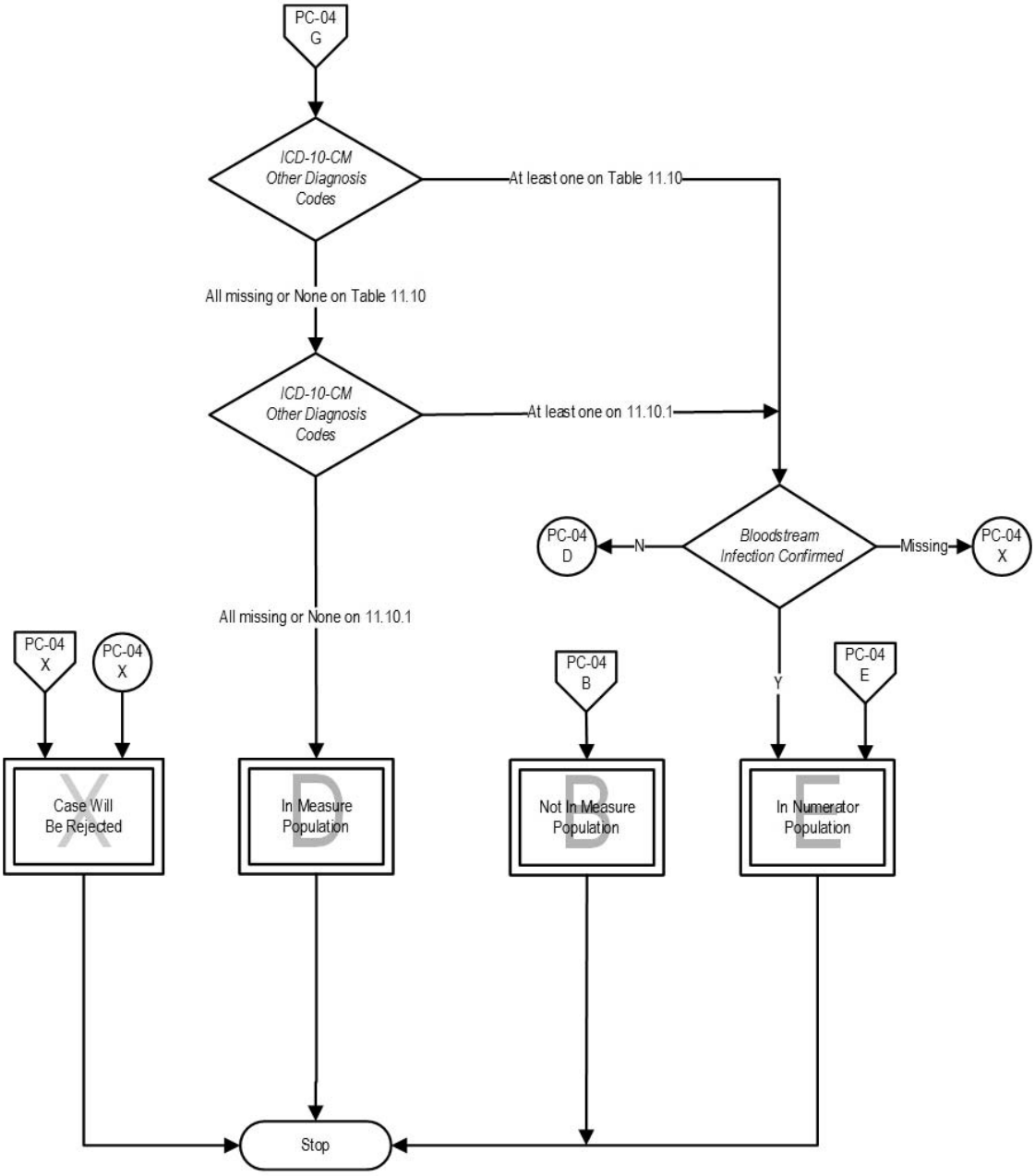
PC-04: Health Care-Associated Bloodstream Infections in Newborns

Numerator: Newborns with septicemia or bacteremia

Denominator: Live-born newborns




PC-04 F
ICD-10-CM Other Diagnosis Codes
At least one on Table 11.15, 11.16
PC-04 R
PC-04 J
None on Table 11.15, 11.16
PC-04 X
Missing
Birth Weight
= UTD
PC-04 E
Non-UTD Value
PC-04 B
< 500
Birth Weight
>= 500 and <= 1499
PC-04 R
>= 1500
ICD-10-PCS Principal or Other Procedure Codes
On Table 11.18 or 11.19
All Missing or None on Table 11.18 or 11.19
ICD-10-CM Principal Diagnosis Code
Not on Table 11.10.3
On Table 11.10.3
PC-04 X
Missing
Discharge Disposition
= 1, 2, 3, 4, 5, 7, 8
PC-04 B
PC-04 K
= 6
PC-04 G


PC-04
G
ICD-10-CM
Other Diagnosis
Codes
At least one on Table 11.10
All missing or None on Table 11.10
ICD-10-CM
Other Diagnosis
Codes
At least one on 11.10.1
Bloodstream
Infection Confirmed
N
PC-04
D
Missing
PC-04
X
All missing or None on 11.10.1
PC-04
X
PC-04
X
PC-04
B
Y
PC-04
E
X
Case Will
Be Rejected
D
In Measure
Population
B
Not In Measure
Population
E
In Numerator
Population
Stop

Measure Information Form

Measure Set: Perinatal Care (PC)

Measure ID: PC-05

Name: Exclusive Breast Milk Feeding

Description: Exclusive breast milk feeding during the newborn's entire hospitalization

The measure is reported as an overall rate which includes all newborns that were exclusively fed breast milk during the entire hospitalization.

Rationale: Exclusive breast milk feeding for the first 6 months of neonatal life has long been the expressed goal of World Health Organization (WHO), Department of Health and Human Services (DHHS), American Academy of Pediatrics (AAP) and American College of Obstetricians and Gynecologists (ACOG). ACOG has recently reiterated its position (ACOG, 2007). A recent Cochrane review substantiates the benefits (Kramer et al., 2002). Much evidence has now focused on the prenatal and intrapartum period as critical for the success of exclusive (or any) BF (Centers for Disease Control and Prevention [CDC], 2007; Petrova et al., 2007; Shealy et al., 2005; Taveras et al., 2004). Exclusive breast milk feeding rate during birth hospital stay has been calculated by the California Department of Public Health for the last several years using newborn genetic disease testing data. Healthy People 2010 and the CDC have also been active in promoting this goal.

Type Of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Newborns that were fed breast milk only since birth

> **Included Populations:** Not applicable
>
> **Excluded Populations:** None
>
> **Data Elements:**
>
> - *Exclusive Breast Milk Feeding*

Denominator Statement: Single term newborns discharged alive from the hospital

Included Populations: Liveborn newborns with *ICD-10-CM Principal Diagnosis Code* for single liveborn newborn as defined in Appendix A, Table 11.20.1

Excluded Populations:

- Admitted to the Neonatal Intensive Care Unit (NICU) at this hospital during the hospitalization
- *ICD-10-CM Other Diagnosis Codes* for galactosemia as defined in Appendix A, Table 11.21
- *ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes* for parenteral nutrition as defined in Appendix A, Table 11.22
- Experienced death
- Length of Stay >120 days
- Patients transferred to another hospital
- Patients who are not term or with < 37 weeks gestation completed

Data Elements:

- *Admission Date*
- *Admission to NICU*
- *Birthdate*
- *Discharge Date*
- *Discharge Disposition*
- *ICD-10-CM Other Diagnosis Codes*
- *ICD-10-CM Principal Diagnosis Code*
- *ICD-10-PCS Other Procedure Codes*
- *ICD-10-PCS Principal Procedure Code*
- *Term Newborn*

Risk Adjustment: No.

Data Accuracy: Variation may exist in the assignment of ICD-10 codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: In order to identify areas for improvement in breast milk feeding rates, hospitals may wish to review documentation for reasons. Education efforts can be targeted based on the specific reasons identified.

Sampling: Yes. For additional information see the Sampling Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

- American Academy of Pediatrics. (2005). Section on Breastfeeding. Policy Statement: Breastfeeding and the Use of Human Milk. *Pediatrics*.115:496— 506.

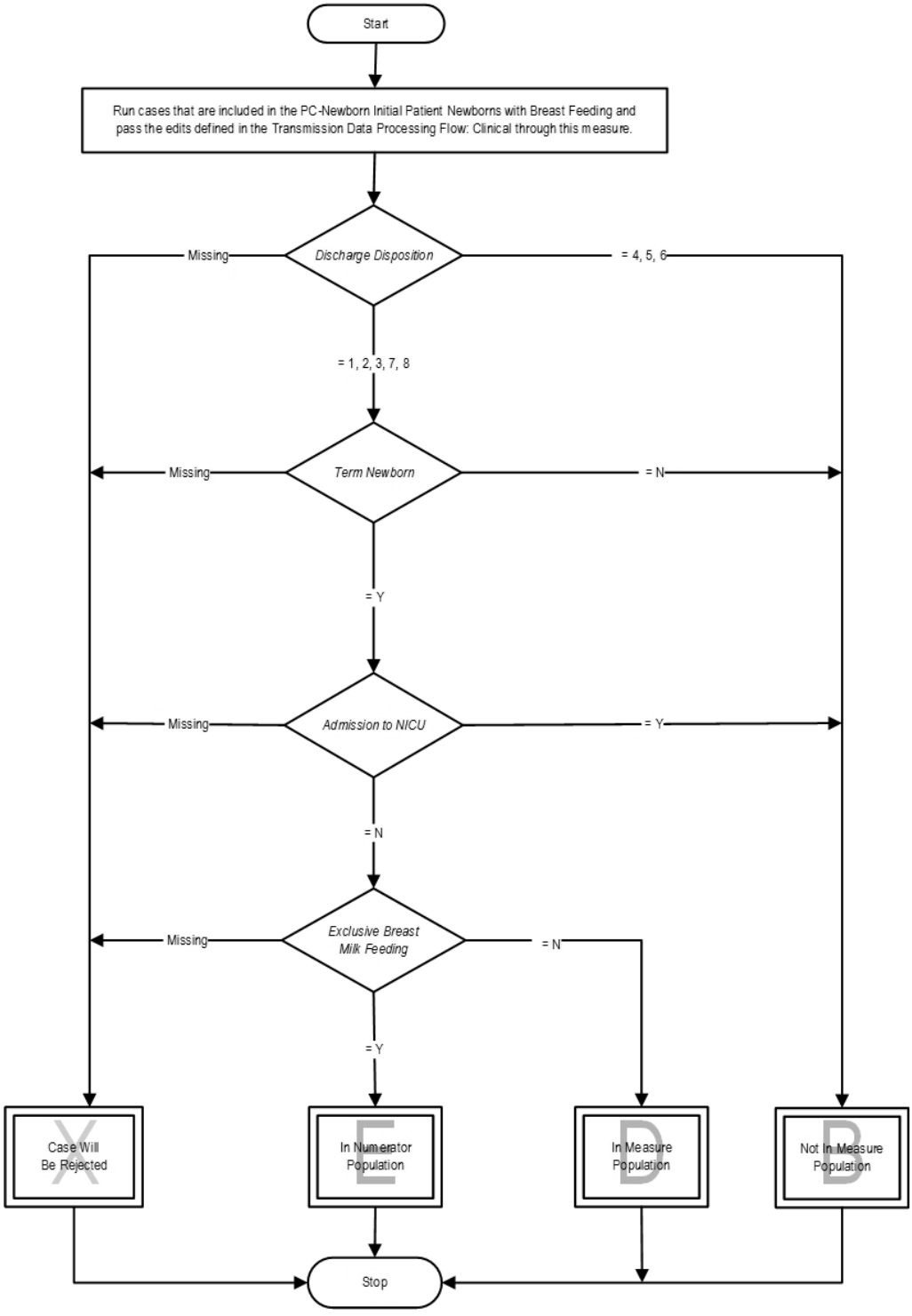
- American College of Obstetricians and Gynecologists. (Feb. 2007). Committee on Obstetric Practice and Committee on Health Care for Underserved Women.Breastfeeding: Maternal and Infant Aspects. ACOG Committee Opinion 361.
- California Department of Public Health. (2006). Genetic Disease Branch. California In-Hospital Breastfeeding as Indicated on the Newborn Screening Test Form, Statewide, County and Hospital of Occurrence: Available at: http://www.cdph.ca.gov/data/statistics/Pages/BreastfeedingStatistics.aspx.
- Centers for Disease Control and Prevention. (Aug 3, 2007). Breastfeeding trends and updated national health objectives for exclusive breastfeeding--United States birth years 2000-2004. *MMWR - Morbidity & Mortality Weekly Report*. 56(30):760-3.
- Centers for Disease Control and Prevention. (2007). Division of Nutrition, Physical Activity and Obesity. Breastfeeding Report Card. Available at: http://www.cdc.gov/breastfeeding/data/report_card2.htm.
- Ip, S., Chung, M., Raman, G., et al. (2007). Breastfeeding and maternal and infant health outcomes in developed countries. Rockville, MD: *US Department of Health and Human Services*. Available at: https://archive.ahrq.gov/downloads/pub/evidence/pdf/brfout/brfout.pdf
- Kramer, M.S. & Kakuma, R. (2002).Optimal duration of exclusive breastfeeding. [107 refs] Cochrane Database of Systematic Reviews. (1):CD003517.
- Petrova, A., Hegyi, T., & Mehta, R. (2007). Maternal race/ethnicity and one-month exclusive breastfeeding in association with the in-hospital feeding modality. *Breastfeeding Medicine*. 2(2):92-8.
- Shealy, K.R., Li, R., Benton-Davis, S., & Grummer-Strawn, L.M. (2005).The CDC guide to breastfeeding interventions. Atlanta, GA: US Department of Health and Human Services, CDC. Available at: http://www.cdc.gov/breastfeeding/pdf/breastfeeding_interventions.pdf.
- Taveras, E.M., Li, R., Grummer-Strawn, L., Richardson, M., Marshall, R., Rego, V.H., Miroshnik, I., & Lieu, T.A. (2004). Opinions and practices of clinicians associated with continuation of exclusive breastfeeding. *Pediatrics*. 113(4):e283-90.
- US Department of Health and Human Services. (2007). Healthy People 2010 Midcourse Review. Washington, DC: US Department of Health and Human Services. Available at: http://www.healthypeople.gov/data/midcourse.
- World Health Organization. (1991). Indicators for assessing breastfeeding practices. Geneva, Switzerland: World Health Organization. Available at: http://www.who.int/child-adolescent-health/new_publications/nutrition/who_cdd_ser_91.14.pdf.

Original Performance Measure Source / Developer:
California Maternal Quality Care Collaborative

Adopted for Stage 2 Medicare and Medicaid EHR Incentive Program

Measure Algorithm:

PC-05: Exclusive Breast Milk Feeding

Numerator: Newborns that were fed breast milk only since birth

Denominator: Single term newborns discharged alive from the hospital