

## Section II: Detailed Measure Specifications

Provide sufficient detail to describe how a measure would be calculated from the recommended data sources, uploading a separate document (+ Upload attachment) or a link to a URL. Examples of detailed measure specifications can be found in the CHIPRA Initial Core Set Technical Specifications Manual 2011 published by the Centers for Medicare & Medicaid Services. Although submission of formal programming code or algorithms that demonstrate how a measure would be calculated from a query of an appropriate electronic data source are not requested at this time, the availability of these resources may be a factor in determining whether a measure can be recommended for use.

### **A. Description**

This measure describes the extent to which multidisciplinary outpatient care is available to high risk pregnant women. Multidisciplinary care is herein defined to mean that the woman was seen by at least three different types of clinicians during her pregnancy. This measure is intended to be reported at the level of the health plan or geographical entity, such as county, state, region, etc. It is not appropriate for measuring at the level of clinical provider. This measure is a descriptor of the availability of care for the population of women who may need high risk obstetrical services and is not a measure of the quality of care received by any individual in that population.

### **B. Eligible Population**

Women age 10- 65 years who are pregnant and deliver an infant, whether living or dead. Delivery shall be identified using Table 1, with exclusions as noted regardless of how delivery was identified. The table is recreated largely from work done by CDC researchers.

**Table 1: Identify Qualifying Pregnancies Using the Following Codes**

<b>Codes To Identify Qualifying Pregnancies</b>	
Description	Code(s)
<b>Revenue Code</b>	722 Delivery
<b>Outcome of delivery ICD-9</b>	ICD-9-CM = V27
<b>Normal delivery</b>	ICD-9-CM = 650
<b>Diagnosis-related group (DRG) delivery codes</b>	370 (complicated cesarean section), 811,191 (3.03) 371 (uncomplicated cesarean section), 372 (complicated vaginal delivery), 373 (uncomplicated vaginal delivery) 374 (uncomplicated vaginal delivery with sterilization and/or dilatation & curettage) 375 (vaginal delivery with operation room procedure except sterilization and/or dilatation & curettage)
<b>Selected delivery related procedures</b>	ICD-9-CM = 720, 721, 7221, 7229,7231, 7239, 724, 726 (forceps) 7251, 7252, 7253, 7254 (breech extraction) 7271, 7279 (vacuum extraction) 728, 729 (other specified and unspecified delivery) 7322 (internal and combined version and extraction) 7359 (other manually assisted deliveries) 736 (episiotomy)740, 741, 742, 744, 7499 (cesarean section)  ICD-9 Diagnosis code: 656.41 (fetal death, late gestation)
<b>Exclusions</b>	ICD-9 = CM 630 (hydatidiform mole) 631 (other abnormal product of conception) 633 (ectopic pregnancy) 632 (missed abortion) 634 (spontaneous apportion) 635 (legally induced abortion) 636 (illegal abortion) 637 (unspecified type of abortion) 638 (failed attempted abortion) 639 (genital tract and pelvic infection following abortion or ectopic and molar pregnancies) 69.01, 69.51, 74.91, 75.0 (abortion)

**Identify Women in Need of High risk Services:**

**Table 2: Maternal Diagnoses and Comorbidities**

<b>CCS Category</b>	<b>Look Back Period</b>	<b>Descriptor</b>	<b>Remove From Inclusion List*</b>
49	2y	DM without Cx	7902 Abnormal Glucose 79021 Impaired fasting glucose 79022 Impaired glucose tolerance test (oral) 79029 Other abnormal glucose 7915 Glycosuria
50	2y	DM with Cx	
98	2y	Essential HTN	
99	2y	HTN with CX and Secondary HTN	
100	2y	Acute MI	
101	2y	Coronary atherosclerosis and other heart disease	
104	2y	Other and ill-defined heart disease	
103	2y	Pulmonary heart disease	
96	2y	Heart valve disorders	4240 Mitral valve disorders 7852 Undiagnosed cardiac murmurs 7853 Other abnormal heart sounds
97	2y	Peri, endo and myocarditis or cardiomyopathy	
105	2y	Conduction disorders	
106	2y	Cardiac Dysrhythmias	
107	2y	Cardiac arrest and vfib	
108	2y	CHF, non hypertensive	
109	2y	Acute Cerebrovascular disease	
110	2y	Occlusion or stenosis of pre cerebral arteries	
111	2y	Other and ill defined cerebrovascular disease	
112	2y	Transient cerebral ischemia	
156	2y	Nephritis nephrosis, renal sclerosis	
158	2y	Chronic kidney disease	
157	2y	Acute and unspecified renal failure	
161	2y	Other diseases of kidney and ureters	5890 Unilateral small kidney 5891 Bilateral small kidneys 5899 Small kidney, unspecified
128	10 m	Asthma	49381 Exercise induced bronchospasm 49382 Cough variant asthma
132	10 m	Lung disease due to external agents	
133	2y	Other lower respiratory disease	78600 Respiratory abnormality, unspecified 78601 Hyperventilation 78602 Orthopnea 78605 Shortness of breath 78606 Tachypnea 78607 Wheezing 78606 Tachypnea 78607 Wheezing 7862 Cough

			7864 Abnormal sputum 78652 Painful respiration 7866 Swelling, mass, or lump in chest 7867 Abnormal chest sounds 7868 Hiccough 7931 Nonspecific (abnormal) findings on radiological and other examination of lung field 79311 Solitary pulmonary nodule 79319 Other nonspecific abnormal finding of lung field 7942 Nonspecific abnormal results of pulmonary function study V126 Personal history of diseases of respiratory system V1260 Personal history of unspecified disease of respiratory system V1261 Personal history of pneumonia (recurrent) V1269 Personal history of other diseases of respiratory system
59, 61, 63, 64	2y	59. Deficiency anemias 61. Sickle cell 63. WBC disease 64. Other hematologic conditions	281xx 2820 2821 2822 2823 28246 2825 2883 2885x 286x 2888 2889 289 2891 2892 2893 2894 2895 28950 28951 28953 28959 2896 2897 28983 2899
657	10m	Mood disorders	
660	2y	Alcohol related	
661	2y	Substance related	
116	2y	Aortic and peripheral arterial embolic thrombotic	
118	2y	Phlebitis, embolic, etc	4510 45182 4536 4537
5	2y	HIV	
182	2y	Hemorrhage during pregnancy, abruption, previa	642.00 Threatened abortion unspecified as to episode of care 642.01 Threatened abortion delivered 642.03 Threatened abortion antepartum 640.80 Other specified hemorrhage in early pregnancy unspecified as to episode of care 640.81 Other specified hemorrhage in early pregnancy delivered 640.83 Other specified hemorrhage in early pregnancy antepartum 640.90 Unspecified hemorrhage in early pregnancy unspecified as to episode of care 640.91 Unspecified hemorrhage in early pregnancy delivered 640.93 Unspecified hemorrhage in early pregnancy antepartum
183	10m	Hypertension complicating pregnancy	642.30 Transient hypertension of pregnancy unspecified as to episode of care 642.31 Transient hypertension of pregnancy with delivery 642.32 Transient hypertension of pregnancy with delivery with postpartum complication 642.33 Antepartum transient hypertension 642.34 Postpartum transient hypertension
83	2y	Epilepsy	
<b>ICD9 Code</b>	<b>Look Back Period</b>	<b>Descriptor</b>	
648.4x	10m	Mental disorders complicating pregnancy	
648.3x	10m	Substance dependence during pregnancy	
648.5x	10m	Congenital cardiac	

		disorder, other CV disease, mother
7620	10m	Complete previa affecting the newborn
694x	10m	Epilepsy
345xx		
V23.49	10m	Poor ob history
V23.41	10m	History of preterm labor
<p><b>*These are ICD9 codes that are included in the CCS software for the indicated Group that need to be removed from the inclusion list. That is, they are not specific <u>exclusions</u>, but neither do they establish eligibility.</b></p>		

## C. DATA SOURCES

### Encounter Data with billing, provider, and diagnosis codes

- a. Identify eligible population
  - i. High risk pregnant women.
  - ii. Identify those deliveries associated with high risk conditions as described in Table 1.
  - iii. To identify provider/specialist use administrative data regarding clinical providers that includes specialty of each licensed clinician in the encounter data set. Common identifiers for clinicians or a cross walk between the encounter and the provider data sets.

### Woman's medical record

- b. If needed for maternal race, ethnicity, or data regarding place of residence.

## D. CALCULATION

**Step 1:** Identify all qualifying pregnancies using Table 1.

**Step 2:** Identify High Risk Pregnancies using Table 2. The Denominator is the number of high risk pregnancies using the indicated look back period.

To identify the look back period do the following:

- i. Identify date of delivery using codes from Table 1.
- ii. The 2-year look back period is comprised of the 2 calendar years prior to the reporting year and all dates in the reporting year prior to the date of delivery.
- iii. The 10-month look back period is comprised of the 280 days prior to the date of delivery.

**Step 3:** Collect the following data elements for all eligible women

- i. Race
- ii. Ethnicity
- iii. Insurance type (Public, Commercial, Uninsured)
- iv. Benefit type (if insured): HMO, PPO, Medicaid Primary Care Case Management (PCCM) Plan, Fee for Service (FFS), Other
- v. Zip code, state and county or equivalent area of mother's residence. Record FIPS if available

**Step 4:** Create stratification variables

- i. Race/Ethnicity: Hispanic, Non-Hispanic Black, Non-Hispanic White, Non-Hispanic Asian/Pacific Islander, other Non-Hispanic
- ii. Public vs Commercial (Private Insurance)
- iii. HMO vs PPO vs FFS vs PCCM vs other
- iv. Urban Influence Code. Identify the Urban Influence Code (UIC) (2013 urban influence codes available at: <http://www.ers.usda.gov/data-products/urban-influence-codes.aspx#.UZUvG2cVoj8> ). Use mother's place of residence to determine UIC. State and county names can be linked or looked up directly

or zip codes can be linked to county indirectly, using the Missouri Census Data Center (<http://mcdc.missouri.edu/>). These data will link to County or County equivalents as used in various states.

- v. Identify the Level of Poverty in the mother's county of residence. The percent of all residents in poverty by county or county equivalent are available from the US Department of Agriculture at <http://www.ers.usda.gov/data-products/county-level-data-sets/download-data.aspx>. Our stratification standards are based on 2011 US population data that we have analyzed with SAS 9.3. Using mother's state and county of residence (or equivalent) or FIPS code, use the variable PCTPOVALL\_2011 to categorize into one of 5 strata:
- Lowest Quartile of Poverty if percent in poverty is  $\leq 12.5\%$
  - Second Quartile of Poverty if percent in poverty is  $> 12.5\%$  and  $\leq 16.5\%$
  - Third Quartile of Poverty if percent in poverty is  $> 16.5\%$  and  $\leq 20.7\%$
  - First Upper Quartile (75th-90th) if percent in poverty is  $> 20.7\%$  and  $\leq 25.7\%$
  - Second Upper Quartile ( $> 90$ th percentile)

If needed, the Missouri Census Data Center linked in Step 7. iv. may be used to link zip codes to county equivalents.

**Step 5:** Calculate numerator look back period. The numerator look back period includes the 280 days before delivery or last pregnancy visit.

**Step 6:** Compute numerator

- Identify the specialty of all providers seen by each woman in the denominator.
- For each woman, assess whether or not (during the numerator look back period), she:
  - had at least 1 visit to an ob/gyn or family physician.
  - had at least 1 visit to a maternal fetal medicine specialist.
  - had at least 1 visit to a cardiologist.
  - had at least 1 visit to an infectious disease specialist.
  - had at least 1 visit to any other type of internal medicine physician.
  - had at least 1 visit to a neurologist.
  - had at least 1 visit to a psychiatrist
  - had at least 1 visit to a psychologist.
  - had at least 1 visit to a social worker or licensed therapist.
  - had at least 1 visit to a health educator.
- Count the number of distinct specialties (each of bi through bx) for which the answer is yes.
- Is the count from c.  $\geq 3$ ? If yes then add that pregnancy to the numerator. Numerator1 = the number of high risk pregnancies that had visits with 3 or more types of providers.

**Step 7:** Calculate the percentage of high risk pregnancies for the following:

- Percentage1 is calculated as the  $100 * \text{Numerator1} / \text{Denominator1}$ ,

**Step 8:** Report the results of Step 7 to 2 decimal places.

**Step 9:** Repeat steps 2, 6, 7, & 8 for each stratification category listed below, using the following data elements. Report all strata with N of at least 250

- i. Race and ethnicity
- ii. Insurance type (Public/Medicaid, Private/Commercial, None, other)
- iii. Benefit type: HMO vs PPO vs FFS vs PCCM vs Other
- iv. Urban Influence Code or UIC.
- v. Level of Poverty in the county of residence.

**Step 10:** Optionally calculate 95% confidence intervals

- a. Calculate the standard error as the square root of each proportion by  $1 - \text{the same proportion} / \text{the number of deliveries}$ .
- b. Multiply the standard error by 1.96.
- c. Subtract that value from the measured proportion. Report the greater of 0 and that number as the lower bound of the 95% confidence interval;
- d. Add the product from b to the measured proportion. Use the lesser of that sum or 1 as the upper bound of the 95% confidence interval.