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The following report(s) provides findings from an FDA-initiated query using Sentinel. While Sentinel queries may be undertaken to assess potential medical product safety risks, they may also be initiated for various other reasons. Some examples include determining a rate or count of an identified health outcome of interest, examining medical product use, exploring the feasibility of future, more detailed analyses within Sentinel, and seeking to better understand Sentinel capabilities.

Data obtained through Sentinel are intended to complement other types of evidence such as preclinical studies, clinical trials, postmarket studies, and adverse event reports, all of which are used by FDA to inform regulatory decisions regarding medical product safety. The information contained in this report is provided as part of FDA's commitment to place knowledge acquired from Sentinel in the public domain as soon as possible. Any public health actions taken by FDA regarding products involved in Sentinel queries will continue to be communicated through existing channels.

FDA wants to emphasize that the fact that FDA has initiated a query involving a medical product and is reporting findings related to that query does not mean that FDA is suggesting health care practitioners should change their prescribing practices for the medical product or that patients taking the medical product should stop using it. Patients who have questions about the use of an identified medical product should contact their health care practitioners.

The following report contains a description of the request, request specifications, and results from the modular program run(s).

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Overview for Request cder_mpl1p_wp019

Request ID: cder_mpl1p_wp019_nsdv_v01

Report Description: In this report we estimated utilization of prenatal tests of interest among pregnancies resulting in a live-born delivery and compared test-based algorithms for pregnancy start with the validated Medication Exposure in Pregnancy Risk Evaluation Program (MEPREP) algorithm.

Sentinel Routine Querying Module: Cohort Identification and Descriptive Analysis (CIDA) module, version 5.4.2 with ad hoc programming.

Data Source: We distributed this request to 16 Data Partners on August 15, 2018. The study period includes data from January 1, 2006 to January 31, 2018. Please see Appendix A for a list of the dates of available data for each Data Partner.

Study Design: We identified females between the ages of 15 and 45 years of age with evidence of a live-birth. We assessed the prevalence and timing of 12 prenatal tests of interests in the pregnancy period. This is a Type 4 analysis in the Query Request Package (QRP) documentation.

Pregnancy Episode Creation: We identified pregnancies ending in a live-birth using a claims-based algorithm.¹ This algorithm used International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) diagnosis codes indicative of weeks of gestation, and International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and ICD-10-CM diagnosis codes for preterm and postterm deliveries, to calculate the length of the pregnancy episode. Codes had to occur within seven days of a delivery date in the inpatient setting. In absence of preterm or postterm codes, pregnancy duration was set to 273 days. Pregnancies were excluded from the cohort if there was evidence of a prior delivery in the 301 days before the delivery date of interest. Please see Appendix B for a list of ICD-9-CM and ICD-10-CM diagnosis codes used in the gestational age algorithm, and Appendix C for codes to define live-born delivery using Current Procedural Terminology, Fourth Edition (CPT-4) procedure codes, ICD-9-CM codes, ICD-10-CM codes, and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) procedure codes.

Event Identification During Pregnancy: We identified prenatal test-based hierarchical algorithms that prioritized tests of interest according to their rank and captured test-based pregnancy start dates. The ranking of the tests was based on test performance (evaluated in prior work, request ID cder_mpl1p_wp007), determined by the proportion of pregnancies with a prenatal test-based pregnancy start date within two weeks of the MEPREP estimated start date. The prenatal tests of interest were ranked in descending order from best to worst performing, as identified in the prior Sentinel work. Procedure 1 had the highest rank, followed by Test 6, Test 2 and so on. We created the algorithms in a step-wise fashion, meaning that each algorithm included pregnancies captured in the previous algorithm. See Appendix D for Current Procedural Terminology, Fourth Edition (CPT-4) and Healthcare Common Procedure Coding System (HCPCS) procedure codes used to identify prenatal tests of interest.

Cohort Eligibility Criteria: We required members to be enrolled in plans with medical coverage for 391 days before their delivery date, with gaps in coverage of up to 45 days and treated as continuous enrollment. Females in the following age groups were included in the cohort: 15-19, 20-24, 25-29, 30-34, 35-39, and 40-45 years.

Please see Appendix E for the specifications of parameters used in this request.

Limitations: Algorithms used to estimate pregnancy duration and exposures are imperfect; thus, it is possible that there may be misclassification. Therefore, data should be interpreted with this limitation in mind.

Notes: Please contact the Sentinel Operations Center (info@sentinelssystem.org) for questions and to provide comments/suggestions for future enhancements to this document. For more information on Sentinel's routine querying modules, please refer to the documentation (<https://dev.sentinelssystem.org/projects/SENTINEL/repos/sentinel-routine-querying-tool-documentation/browse>).

¹ Andrade, S. E., et al. (2012). "Medication Exposure in Pregnancy Risk Evaluation Program." *Matern Child Health J* 16(7):1349-1354

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**Glossary of Terms for Analyses Using
Cohort Identification and Descriptive Analysis (CIDA) Module***

Amount Supplied - number of units (pills, tablets, vials) dispensed. Net amount per NDC per dispensing.

Blackout Period - number of days at the beginning of a treatment episode that events are to be ignored. If an event occurs during the blackout period, the episode is excluded.

Care Setting - type of medical encounter or facility where the exposure, event, or condition code was recorded. Possible care settings include: Inpatient Hospital Stay (IP), Non-Acute Institutional Stay (IS), Emergency Department (ED), Ambulatory Visit (AV), and Other Ambulatory Visit (OA). For laboratory results, possible care settings include: Emergency Department (E), Home (H), Inpatient (I), Outpatient (O), or Unknown or Missing (U). The Care Setting, along with the Principal Diagnosis Indicator (PDX), forms the Care Setting/PDX parameter.

Ambulatory Visit (AV) - includes visits at outpatient clinics, same-day surgeries, urgent care visits, and other same-day ambulatory hospital encounters, but excludes emergency department encounters.

Emergency Department (ED) - includes ED encounters that become inpatient stays (in which case inpatient stays would be a separate encounter). Excludes urgent care visits.

Inpatient Hospital Stay (IP) - includes all inpatient stays, same-day hospital discharges, hospital transfers, and acute hospital care where the discharge is after the admission date.

Non-Acute Institutional Stay (IS) - includes hospice, skilled nursing facility (SNF), rehab center, nursing home, residential, overnight non-hospital dialysis and other non-hospital stays.

Other Ambulatory Visit (OA) - includes other non overnight AV encounters such as hospice visits, home health visits, skilled nursing facility visits, other non-hospital visits, as well as telemedicine, telephone and email consultations.

Charlson/Elixhauser Combined Comorbidity Score - calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (e.g., in the 183 days prior to index).

Code Days - the minimum number of times the diagnosis must be found during the evaluation period in order to fulfill the algorithm to identify the corresponding patient characteristic.

Cohort Definition (drug/exposure) - indicates how the cohort will be defined: 01: Cohort includes only the first valid treatment episode during the query period; 02: Cohort includes all valid treatment episodes during the query period; 03: Cohort includes all valid treatment episodes during the query period until an event occurs.

Computed Start Marketing Date - represents the first observed dispensing date among all valid users within a GROUP (scenario) within each Data Partner site.

Days Supplied - number of days supplied for all dispensings in qualifying treatment episodes.

Eligible Members - number of members eligible for an incident treatment episode (defined by the drug/exposure and event washout periods) with drug and medical coverage during the query period.

Enrollment Gap - number of days allowed between two consecutive enrollment periods without breaking a "continuously enrolled" sequence.

Episodes - treatment episodes; length of episode is determined by days supplied in one dispensing or consecutive dispensings bridged by the episode gap.

Episode Gap - number of days allowed between two (or more) consecutive exposures (dispensings/procedures) to be considered the same treatment episode.

Event Deduplication - specifies how events are counted by the Modular Program (MP) algorithm: 0: Counts all occurrences of a health outcome of interest (HOI) during an exposure episode; 1: de-duplicates occurrences of the same HOI code and code type on the same day; 2: de-duplicates occurrences of the same HOI group on the same day (e.g., de-duplicates at the group level).

Exposure Episode Length - number of days after exposure initiation that is considered "exposed time."

Exposure Extension Period - number of days post treatment period in which the outcomes/events are counted for a treatment episode. Extensions are added after any episode gaps have been bridged.

Lookback Period - number of days wherein a member is required to have evidence of pre-existing condition (diagnosis/procedure/drug dispensing).

Maximum Episode Duration - truncates exposure episodes after a requester-specified number of exposed days. Applied after any gaps are bridged and extension days added to the length of the exposure episode.

Member-Years - sum of all days of enrollment with medical and drug coverage in the query period preceded by an exposure washout period all divided by 365.25.

Minimum Days Supplied - specifies a minimum number of days in length of the days supplied for the episode to be considered.

Minimum Episode Duration - specifies a minimum number of days in length of the episode for it to be considered. Applied after any gaps are bridged and extension days added to the length of the exposure episode.

Monitoring Period - used to define time periods of interest for both sequential analysis and simple cohort characterization requests.

Principal Diagnosis (PDX) - diagnosis or condition established to be chiefly responsible for admission of the patient to the hospital. 'P' = principal diagnosis, 'S' = secondary diagnosis, 'X' = unspecified diagnosis, '.' = blank. Along with the Care Setting values, forms the Caresetting/PDX parameter.

Query Period - period in which the modular program looks for exposures and outcomes of interest.

Switch Evaluation Step Value - value used to differentiate evaluation step. Each switch pattern can support up to 2 evaluation steps (0 = switch pattern evaluation start; 1 = first evaluation; 2 = second evaluation).

Switch Gap Inclusion Indicator - indicator for whether gaps in treatment episodes that are included in a switch episode will be counted as part of the switch episode duration.

Switch Pattern Cohort Inclusion Date - indicates which date to use for inclusion into the switch pattern cohort of interest as well as optionally as the index date of the treatment episode initiating the switch pattern. Valid options are the product approval date, product marketing date, other requester defined date, or computed start marketing date.

Switch Pattern Cohort Inclusion Strategy - indicates how the switch pattern cohort inclusion date will be used: 01: used only as a switch cohort entry date. First treatment episode dispensing date is used as index for computing time to first switch; 02: used as switch cohort entry date and as initial switch step index date for computing time to first switch.

Treatment Episode Truncation Indicator - indicates whether the exposure episode will be truncated at the occurrence of a requester-specified code.

Washout Period (drug/exposure) - number of days a user is required to have no evidence of prior exposure (drug dispensing/procedure) and continuous drug and medical coverage prior to an incident treatment episode.

Washout Period (event/outcome) - number of days a user is required to have no evidence of a prior event (procedure/diagnosis) and continuous drug and medical coverage prior to an incident treatment episode.

Years at Risk - number of days supplied plus any episode gaps and exposure extension periods all divided by 365.25.

*all terms may not be used in this report

Table 1. Live-Birth Pregnancies with Prenatal Tests of Interest, in the Sentinel Distributed Database (SDD), from January 1, 2006 to January 31, 2018, at Procedure Code-Level

Prenatal Test	Procedure/Test ¹ Description	All Live-Births with Procedure Code for Test (Number)	Live-Births with Procedure Code for Test that Occurred within Two Weeks of Standard Algorithm-Based Pregnancy Start ² (Percent)	Difference in Days between Medication Exposure in Pregnancy Risk Evaluation Program (MEPREP) and Prenatal Test-Based Algorithms (Days)							
				Minimum	Q1	Median	Q3	Interquartile Range	Maximum	Mean	Standard Deviation
Procedure 1	In-Vitro Fertilization (IVF)/Intrauterine Insemination (IUI)	128,921	74.5%	-104	-3	3	9	12	254	-0.2	29.4
Test 6	Nuchal Translucency Measurement	1,559,040	91.2%	-178	-5	0	5	10	205	1.1	15.4
Test 2	Chorionic villus sampling, any method	38,534	83.5%	-174	-6	0	7	13	204	1.6	29
Test 11	PAPP-A serum test	1,358,846	83.1%	-175	-4	2	8	12	194	3.7	16.8
Test 14	Group B streptococcus screening (genital)	2,988,551	86.3%	-342	-7	-1	4	11	48	-13.3	50.7
Test 10	Assay of estriol	1,485,954	79.8%	-209	-7	-1	8	15	167	1.3	16.6
Test 13	Inhibin A	1,434,507	78.2%	-209	-8	-1	7	15	167	0.6	17
Test 8	Fetal aneuploidy genomic sequence analysis, cell-free fetal DNA	197,015	74.9%	-175	-6	2	11	17	191	8.5	26.4
Test 5	Detailed fetal anatomic examination	2,014,131	71.2%	-228	-7	2	10	17	162	5.8	26.6
Test 9	Alpha-fetoprotein, amniotic	83,049	67.8%	-210	-6	2	15	21	168	7.4	30.1
Test 15	Glucose	3,822,322	66.5%	-280	-11	0	9	20	109	-6.7	33.4

Table 1. Live-Birth Pregnancies with Prenatal Tests of Interest, in the Sentinel Distributed Database (SDD), from January 1, 2006 to January 31, 2018, at Procedure Code-Level

Prenatal Test	Procedure/Test ¹ Description	All Live-Births with Procedure Code for Test (Number)	Live-Births with Procedure Code for Test that Occurred within Two Weeks of Standard Algorithm-Based Pregnancy Start ² (Percent)	Difference in Days between Medication Exposure in Pregnancy Risk Evaluation Program (MEPREP) and Prenatal Test-Based Algorithms (Days)							
				Minimum	Q1	Median	Q3	Interquartile Range	Maximum	Mean	Standard Deviation
Test 4	Complete Ultrasounds (Maternal and Fetal Evaluation); Second and Third Trimesters	3,221,511	51.4%	-218	2	12	21	19	171	16.5	36
Remaining pregnancies without procedure/test of interest	-	97,216	-	-	-	-	-	-	-	-	-

¹These procedure/tests are not mutually exclusive, meaning one person could have had multiple tests during their pregnancy.

²Standard algorithm-based pregnancy start refers to MEPREP-estimated pregnancy start. MEPREP method of calculating pregnancy start date involves looking for a gestational age code (see Appendix B) within seven days from the date of delivery. If no gestational age codes show up in that user-defined time frame, then the default number of days is recorded (in this case, 273 days).

Table 2a. Total Live-Birth Pregnancies with Prenatal Tests of Interest Using the Prenatal Test-Based Pregnancy Start Algorithm, in the Sentinel Distributed Database (SDD), from January 1, 2006 to January 31, 2018

Prenatal Test(s) ¹	All Live-Births that Meet the Algorithm(s) (Number) ²	Live-Births with Procedure Code for Test that Occurred within Two Weeks of Standard Algorithm-Based Pregnancy Start (Percent)	All Pregnancy Episodes (Number)	Pregnancies Meeting those Algorithms (Percent) ²	Difference in Days between Medication Exposure in Pregnancy Risk Evaluation Program (MEPREP) and Prenatal Test-Based Algorithms (Days)							
					Minimum	Q1	Median	Q3	Interquartile Range	Maximum	Mean	Standard Deviation
Procedure 1	128,921	74.5%	4,727,266	2.7%	-104	-3	3	9	12	254	-0.2	29.4
Procedure 1 + Test 6	1,613,666	90.1%	4,727,266	34.1%	-178	-5	0	5	10	254	0.9	16.7
Procedure 1 + Test 6 + Test 2	1,635,519	90.1%	4,727,266	34.6%	-178	-5	0	5	10	254	0.9	16.8
Procedure 1 + Test 6 + Test 2 + Test 11	1,792,687	89.0%	4,727,266	37.9%	-178	-5	0	5	10	254	1.2	17.0
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14	3,622,984	87.4%	4,727,266	76.6%	-342	-6	0	5	11	254	-6.3	39.3
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10	3,872,826	86.4%	4,727,266	81.9%	-342	-6	0	5	11	254	-5.5	38.6
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13	3,873,742	86.4%	4,727,266	81.9%	-342	-6	0	5	11	254	-5.5	38.6
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8	3,905,851	86.3%	4,727,266	82.6%	-342	-6	0	5	11	254	-5.4	38.6
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8 + Test 5	4,139,920	84.9%	4,727,266	87.6%	-342	-6	0	5	11	254	-4.4	38.5
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8 + Test 5 + Test 9	4,141,750	84.8%	4,727,266	87.6%	-342	-6	0	5	11	254	-4.4	38.5

Table 2a. Total Live-Birth Pregnancies with Prenatal Tests of Interest Using the Prenatal Test-Based Pregnancy Start Algorithm, in the Sentinel Distributed Database (SDD), from January 1, 2006 to January 31, 2018

Prenatal Test(s) ¹	All Live-Births that Meet the Algorithm(s) (Number) ²	Live-Births with Procedure Code for Test that Occurred within Two Weeks of Standard Algorithm-Based Pregnancy Start (Percent)	All Pregnancy Episodes (Number)	Pregnancies Meeting those Algorithms (Percent) ²	Difference in Days between Medication Exposure in Pregnancy Risk Evaluation Program (MEPREP) and Prenatal Test-Based Algorithms (Days)							
					Minimum	Q1	Median	Q3	Interquartile Range	Maximum	Mean	Standard Deviation
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8 + Test 5 + Test 9 + Test 15	4,476,632	83.3%	4,727,266	94.7%	-342	-6	0	6	12	254	-4.4	38.3
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8 + Test 5 + Test 9 + Test 15 + Test 4	4,630,050	82.5%	4,727,266	97.9%	-342	-6	0	6	12	254	-3.7	38.4
Remaining pregnancies not meeting any algorithm ³	97,216	-	4,727,266	2.1%	-	-	-	-	-	-	-	-

¹Test descriptions are listed in Appendix C.

²These will be cumulative, such that all pregnancies with no test plus all pregnancies with at least one prenatal test will equal all pregnancies.

³Remaining pregnancies that do not have a record of receiving any prenatal procedure/test of interest.

Table 2b. Term Live-Birth Pregnancies with Prenatal Tests of Interest Using the Prenatal Test-Based Pregnancy Start Algorithm, in the Sentinel Distributed Database (SDD), from January 1, 2006 to January 31, 2018

Prenatal Test(s) ¹	Term Live-Births that Meet the Algorithm(s) (Number) ²	Live-Births with Procedure Code for Test that Occurred within Two Weeks of Standard Algorithm-Based Pregnancy Start (Percent)	All Pregnancy Episodes (Number)	Pregnancies Meeting those Algorithms (Percent) ²	Difference in Days between Medication Exposure in Pregnancy Risk Evaluation Program (MEPREP) and Prenatal Test-Based Algorithms (Days)							
					Minimum	Q1	Median	Q3	Interquartile Range	Maximum	Mean	Standard Deviation
Procedure 1	16,679	86.2%	623,045	2.7%	-104	1	4	7	6	220	-2.2	22.5
Procedure 1 + Test 6	229,346	97.4%	623,045	36.8%	-178	-2	1	5	7	220	1.0	10.5
Procedure 1 + Test 6 + Test 2	230,399	97.4%	623,045	37.0%	-178	-2	1	5	7	220	1.0	10.5
Procedure 1 + Test 6 + Test 2 + Test 11	243,701	96.7%	623,045	39.1%	-178	-2	1	5	7	220	1.1	10.8
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14	489,560	95.0%	623,045	78.6%	-342	-3	1	5	8	220	-3.1	31.6
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10	507,800	94.4%	623,045	81.5%	-342	-3	1	5	8	220	-2.9	31.2
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13	507,985	94.4%	623,045	81.5%	-342	-3	1	5	8	220	-2.9	31.2
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8	525,881	93.7%	623,045	84.4%	-342	-3	1	5	8	220	-2.5	31.1
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8 + Test 5	554,506	92.5%	623,045	89.0%	-342	-3	1	5	8	220	-1.7	31.2
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8 + Test 5 + Test 9	554,544	92.5%	623,045	89.0%	-342	-3	1	5	8	220	-1.7	31.2

Table 2b. Term Live-Birth Pregnancies with Prenatal Tests of Interest Using the Prenatal Test-Based Pregnancy Start Algorithm, in the Sentinel Distributed Database (SDD), from January 1, 2006 to January 31, 2018

Prenatal Test(s) ¹	Term Live-Births that Meet the Algorithm(s) (Number) ²	Live-Births with Procedure Code for Test that Occurred within Two Weeks of Standard Algorithm-Based Pregnancy Start (Percent)	All Pregnancy Episodes (Number)	Pregnancies Meeting those Algorithms (Percent) ²	Difference in Days between Medication Exposure in Pregnancy Risk Evaluation Program (MEPREP) and Prenatal Test-Based Algorithms (Days)							
					Minimum	Q1	Median	Q3	Interquartile Range	Maximum	Mean	Standard Deviation
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8 + Test 5 + Test 9 + Test 15	605,919	90.6%	623,045	97.3%	-342	-3	1	5	8	220	-1.9	31.3
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8 + Test 5 + Test 9 + Test 15 + Test 4	615,760	90.0%	623,045	98.8%	-342	-3	1	6	9	220	-1.6	31.4
Remaining pregnancies not meeting any algorithm ³	7,285	-	623,045	1.2%	-	-	-	-	-	-	-	-

¹Test descriptions are listed in Appendix C.

²These will be cumulative, such that all pregnancies with no test plus all pregnancies with at least one prenatal test will equal all pregnancies.

³Remaining pregnancies that do not have a record of receiving any prenatal procedure/test of interest.

Table 2c. Preterm Live-Birth Pregnancies with Prenatal Tests of Interest Using the Prenatal Test-Based Pregnancy Start Algorithm, in the Sentinel Distributed Database (SDD), from January 1, 2006 to January 31, 2018

Prenatal Test(s) ¹	Preterm Live-Births that Meet the Algorithm(s) (Number) ²	Live-Births with Procedure Code for Test that Occurred within Two Weeks of Standard Algorithm-Based Pregnancy Start (Percent)	All Pregnancy Episodes (Number)	Pregnancies Meeting those Algorithms (Percent) ²	Difference in Days between Medication Exposure in Pregnancy Risk Evaluation Program (MEPREP) and Prenatal Test-Based Algorithms (Days)							
					Minimum	Q1	Median	Q3	Interquartile Range	Maximum	Mean	Standard Deviation
Procedure 1	20,577	63.3%	354,529	5.8%	-104	-5	4	15	20	183	6.8	33.9
Procedure 1 + Test 6	130,859	69.2%	354,529	36.9%	-178	-9	0	9	18	183	3.9	26.7
Procedure 1 + Test 6 + Test 2	132,613	69.1%	354,529	37.4%	-178	-9	0	9	18	183	3.9	26.8
Procedure 1 + Test 6 + Test 2 + Test 11	143,833	68.2%	354,529	40.6%	-178	-9	0	9	18	183	4.1	26.9
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14	208,998	62.0%	354,529	59.0%	-342	-15	-5	4	19	183	-10.5	50.5
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10	247,576	61.2%	354,529	69.8%	-342	-14	-4	6	20	183	-7.1	48.6
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13	247,700	61.2%	354,529	69.9%	-342	-14	-4	6	20	183	-7.1	48.6
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8	253,744	61.2%	354,529	71.6%	-342	-13	-4	7	20	183	-6.5	48.3
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8 + Test 5	293,216	59.6%	354,529	82.7%	-342	-13	-3	9	22	183	-3.4	47.5
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8 + Test 5 + Test 9	293,527	59.6%	354,529	82.8%	-342	-13	-3	9	22	183	-3.4	47.5

Table 2c. Preterm Live-Birth Pregnancies with Prenatal Tests of Interest Using the Prenatal Test-Based Pregnancy Start Algorithm, in the Sentinel Distributed Database (SDD), from January 1, 2006 to January 31, 2018

Prenatal Test(s) ¹	Preterm Live-Births that Meet the Algorithm(s) (Number) ²	Live-Births with Procedure Code for Test that Occurred within Two Weeks of Standard Algorithm-Based Pregnancy Start (Percent)	All Pregnancy Episodes (Number)	Pregnancies Meeting those Algorithms (Percent) ²	Difference in Days between Medication Exposure in Pregnancy Risk Evaluation Program (MEPREP) and Prenatal Test-Based Algorithms (Days)							
					Minimum	Q1	Median	Q3	Interquartile Range	Maximum	Mean	Standard Deviation
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8 + Test 5 + Test 9 + Test 15	329,258	59.2%	354,529	92.9%	-342	-13	-2	10	23	183	-3.6	46.5
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8 + Test 5 + Test 9 + Test 15 + Test 4	344,386	58.3%	354,529	97.1%	-342	-12	-2	11	23	183	-2.4	46.7
Remaining pregnancies not meeting any algorithm ³	10,143	-	354,529	2.9%	-	-	-	-	-	-	-	-

¹Test descriptions are listed in Appendix C.

²These will be cumulative, such that all pregnancies with no test plus all pregnancies with at least one prenatal test will equal all pregnancies.

³Remaining pregnancies that do not have a record of receiving any prenatal procedure/test of interest.

Table 2d. Postterm Live-Birth Pregnancies with Prenatal Tests of Interest Using the Prenatal Test-Based Pregnancy Start Algorithm, in the Sentinel Distributed Database (SDD), from January 1, 2006 to January 31, 2018

Prenatal Test(s) ¹	Postterm Live-Births that Meet the Algorithm(s) (Number) ²	Live-Births with Procedure Code for Test that Occurred within Two Weeks of Standard Algorithm-Based Pregnancy Start (Percent)	All Pregnancy Episodes (Number)	Pregnancies Meeting those Algorithms (Percent) ²	Difference in Days between Medication Exposure in Pregnancy Risk Evaluation Program (MEPREP) and Prenatal Test-Based Algorithms (Days)							
					Minimum	Q1	Median	Q3	Interquartile Range	Maximum	Mean	Standard Deviation
Procedure 1	20,600	83.5%	813,961	2.5%	-104	0	4	8	8	232	-3.0	23.3
Procedure 1 + Test 6	295,870	96.4%	813,961	36.3%	-178	-2	2	6	8	232	1.7	10.7
Procedure 1 + Test 6 + Test 2	299,163	96.4%	813,961	36.8%	-178	-2	2	6	8	232	1.7	10.7
Procedure 1 + Test 6 + Test 2 + Test 11	328,538	95.4%	813,961	40.4%	-178	-2	2	6	8	232	2.0	11.0
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14	649,688	93.3%	813,961	79.8%	-342	-2	2	6	8	232	-2.3	32.7
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10	680,537	92.7%	813,961	83.6%	-342	-2	2	6	8	232	-2.0	32.1
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13	680,648	92.7%	813,961	83.6%	-342	-2	2	6	8	232	-2.0	32.1
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8	686,411	92.5%	813,961	84.3%	-342	-2	2	6	8	232	-1.9	32.1
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8 + Test 5	716,596	91.6%	813,961	88.0%	-342	-2	2	6	8	232	-1.4	32.0
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8 + Test 5 + Test 9	716,760	91.6%	813,961	88.1%	-342	-2	2	6	8	232	-1.4	32.0

Table 2d. Postterm Live-Birth Pregnancies with Prenatal Tests of Interest Using the Prenatal Test-Based Pregnancy Start Algorithm, in the Sentinel Distributed Database (SDD), from January 1, 2006 to January 31, 2018

Prenatal Test(s) ¹	Postterm Live-Births that Meet the Algorithm(s) (Number) ²	Live-Births with Procedure Code for Test that Occurred within Two Weeks of Standard Algorithm-Based Pregnancy Start (Percent)	All Pregnancy Episodes (Number)	Pregnancies Meeting those Algorithms (Percent) ²	Difference in Days between Medication Exposure in Pregnancy Risk Evaluation Program (MEPREP) and Prenatal Test-Based Algorithms (Days)							
					Minimum	Q1	Median	Q3	Interquartile Range	Maximum	Mean	Standard Deviation
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8 + Test 5 + Test 9 + Test 15	774,153	89.9%	813,961	95.1%	-342	-2	2	7	9	232	-1.5	32.1
Procedure 1 + Test 6 + Test 2 + Test 11 + Test 14 + Test 10 + Test 13 + Test 8 + Test 5 + Test 9 + Test 15 + Test 4	802,599	88.8%	813,961	98.6%	-342	-2	3	7	9	232	-0.9	32.1
Remaining pregnancies not meeting any algorithm ³	11,362	-	813,961	1.4%	-	-	-	-	-	-	-	-

¹Test descriptions are listed in Appendix C.

²These will be cumulative, such that all pregnancies with no test plus all pregnancies with at least one prenatal test will equal all pregnancies.

³Remaining pregnancies that do not have a record of receiving any prenatal procedure/test of interest.

Appendix A. Start and End Dates for Each Data Partner (DP) as of Request Distribution Date (July 10, 2018)

DP ID	DP Start Date*	DP End Date*
DP01	1/1/2008	11/30/2017
DP02	1/1/2012	3/31/2016
DP03	1/1/2004	1/31/2018
DP04	1/1/2006	10/31/2017
DP05	1/1/2000	6/30/2017
DP06	1/1/2000	1/31/2017
DP07	6/1/2007	10/31/2017
DP08	1/1/2000	10/31/2017
DP09	1/1/2000	7/31/2017
DP10	1/1/2005	9/30/2017
DP11	1/1/2000	12/31/2017
DP12	1/1/2000	8/31/2017
DP13	1/2/2000	5/31/2015
DP14	1/1/2000	3/31/2016
DP15	1/1/2008	6/30/2017
DP16	1/1/2000	12/31/2016

*The start and end dates are based on the minimum and maximum dates within each DP. The month with the maximum date must have at least 80% of the number of records in the previous month.

Appendix B. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes Used to Define the Gestational Age Algorithm

Code	Code Type	Code Category	Duration	Description	Priority Group 1	Priority Group 2	Priority
Gestational Age Look Up							
O48.1	Diagnosis	ICD-10-CM	294	Prolonged pregnancy	0	1	1
P08.22	Diagnosis	ICD-10-CM	294	Prolonged gestation of newborn	0	1	1
Z3A.49	Diagnosis	ICD-10-CM	301	Greater than 42 weeks gestation of pregnancy	1	0	1
O48.0	Diagnosis	ICD-10-CM	287	Post-term pregnancy	0	1	2
P08.21	Diagnosis	ICD-10-CM	287	Post-term newborn	0	1	2
Z3A.42	Diagnosis	ICD-10-CM	298	42 weeks gestation of pregnancy	1	0	2
Z3A.41	Diagnosis	ICD-10-CM	291	41 weeks gestation of pregnancy	1	0	3
Z3A.40	Diagnosis	ICD-10-CM	284	40 weeks gestation of pregnancy	1	0	4
Z3A.39	Diagnosis	ICD-10-CM	277	39 weeks gestation of pregnancy	1	0	5
Z3A.38	Diagnosis	ICD-10-CM	270	38 weeks gestation of pregnancy	1	0	6
Z3A.37	Diagnosis	ICD-10-CM	263	37 weeks gestation of pregnancy	1	0	7
P07.39	Diagnosis	ICD-10-CM	256	Preterm newborn, gestational age 36 completed weeks	1	0	8
Z3A.36	Diagnosis	ICD-10-CM	256	36 weeks gestation of pregnancy	1	0	8
P07.38	Diagnosis	ICD-10-CM	249	Preterm newborn, gestational age 35 completed weeks	1	0	9
Z3A.35	Diagnosis	ICD-10-CM	249	35 weeks gestation of pregnancy	1	0	9
P07.37	Diagnosis	ICD-10-CM	242	Preterm newborn, gestational age 34 completed weeks	1	0	10
Z3A.34	Diagnosis	ICD-10-CM	242	34 weeks gestation of pregnancy	1	0	10
P07.36	Diagnosis	ICD-10-CM	235	Preterm newborn, gestational age 33 completed weeks	1	0	11
Z3A.33	Diagnosis	ICD-10-CM	235	33 weeks gestation of pregnancy	1	0	11
P07.35	Diagnosis	ICD-10-CM	228	Preterm newborn, gestational age 32 completed weeks	1	0	12
Z3A.32	Diagnosis	ICD-10-CM	228	32 weeks gestation of pregnancy	1	0	12
P07.34	Diagnosis	ICD-10-CM	221	Preterm newborn, gestational age 31 completed weeks	1	0	13
Z3A.31	Diagnosis	ICD-10-CM	221	31 weeks gestation of pregnancy	1	0	13
P07.33	Diagnosis	ICD-10-CM	214	Preterm newborn, gestational age 30 completed weeks	1	0	14
Z3A.30	Diagnosis	ICD-10-CM	214	30 weeks gestation of pregnancy	1	0	14
P07.32	Diagnosis	ICD-10-CM	207	Preterm newborn, gestational age 29 completed weeks	1	0	15
Z3A.29	Diagnosis	ICD-10-CM	207	29 weeks gestation of pregnancy	1	0	15
P07.31	Diagnosis	ICD-10-CM	200	Preterm newborn, gestational age 28 completed weeks	1	0	16
Z3A.28	Diagnosis	ICD-10-CM	200	28 weeks gestation of pregnancy	1	0	16

Appendix B. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes Used to Define the Gestational Age Algorithm

Code	Code Type	Code Category	Duration	Description	Priority Group 1	Priority Group 2	Priority
P07.26	Diagnosis	ICD-10-CM	193	Extreme immaturity of newborn, gestational age 27 completed weeks	1	0	17
Z3A.27	Diagnosis	ICD-10-CM	193	27 weeks gestation of pregnancy	1	0	17
P07.25	Diagnosis	ICD-10-CM	186	Extreme immaturity of newborn, gestational age 26 completed weeks	1	0	18
Z3A.26	Diagnosis	ICD-10-CM	186	26 weeks gestation of pregnancy	1	0	18
P07.24	Diagnosis	ICD-10-CM	179	Extreme immaturity of newborn, gestational age 25 completed weeks	1	0	19
Z3A.25	Diagnosis	ICD-10-CM	179	25 weeks gestation of pregnancy	1	0	19
P07.23	Diagnosis	ICD-10-CM	172	Extreme immaturity of newborn, gestational age 24 completed weeks	1	0	20
Z3A.24	Diagnosis	ICD-10-CM	172	24 weeks gestation of pregnancy	1	0	20
P07.22	Diagnosis	ICD-10-CM	165	Extreme immaturity of newborn, gestational age 23 completed weeks	1	0	21
Z3A.23	Diagnosis	ICD-10-CM	165	23 weeks gestation of pregnancy	1	0	21
P07.21	Diagnosis	ICD-10-CM	158	Extreme immaturity of newborn, gestational age less than 23 completed weeks	1	0	22
Z3A.22	Diagnosis	ICD-10-CM	158	22 weeks gestation of pregnancy	1	0	22
Z3A.21	Diagnosis	ICD-10-CM	151	21 weeks gestation of pregnancy	1	0	23
Z3A.20	Diagnosis	ICD-10-CM	144	20 weeks gestation of pregnancy	1	0	24
P07.20	Diagnosis	ICD-10-CM	196	Extreme immaturity of newborn, unspecified weeks of gestation	1	0	25
O60.13X0	Diagnosis	ICD-10-CM	245	Preterm labor second trimester with preterm delivery third trimester	1	0	26
O60.13X1	Diagnosis	ICD-10-CM	245	Preterm labor second trimester with preterm delivery third trimester	1	0	26
O60.13X2	Diagnosis	ICD-10-CM	245	Preterm labor second trimester with preterm delivery third trimester	1	0	26
O60.13X3	Diagnosis	ICD-10-CM	245	Preterm labor second trimester with preterm delivery third trimester	1	0	26
O60.13X4	Diagnosis	ICD-10-CM	245	Preterm labor second trimester with preterm delivery third trimester	1	0	26
O60.13X5	Diagnosis	ICD-10-CM	245	Preterm labor second trimester with preterm delivery third trimester	1	0	26
O60.13X9	Diagnosis	ICD-10-CM	245	Preterm labor second trimester with preterm delivery third trimester	1	0	26
O60.14X0	Diagnosis	ICD-10-CM	245	Preterm labor third trimester with preterm delivery third trimester	1	0	26
O60.14X1	Diagnosis	ICD-10-CM	245	Preterm labor third trimester with preterm delivery third trimester	1	0	26
O60.14X2	Diagnosis	ICD-10-CM	245	Preterm labor third trimester with preterm delivery third trimester	1	0	26
O60.14X3	Diagnosis	ICD-10-CM	245	Preterm labor third trimester with preterm delivery third trimester	1	0	26
O60.14X4	Diagnosis	ICD-10-CM	245	Preterm labor third trimester with preterm delivery third trimester	1	0	26
O60.14X5	Diagnosis	ICD-10-CM	245	Preterm labor third trimester with preterm delivery third trimester	1	0	26
O60.14X9	Diagnosis	ICD-10-CM	245	Preterm labor third trimester with preterm delivery third trimester	1	0	26
P07.30	Diagnosis	ICD-10-CM	245	Preterm newborn, unspecified weeks of gestation	1	0	26

Appendix B. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes Used to Define the Gestational Age Algorithm

Code	Code Type	Code Category	Duration	Description	Priority Group 1	Priority Group 2	Priority
O60.12X0	Diagnosis	ICD-10-CM	168	Preterm labor second trimester with preterm delivery second trimester	1	0	27
O60.12X1	Diagnosis	ICD-10-CM	168	Preterm labor second trimester with preterm delivery second trimester	1	0	27
O60.12X2	Diagnosis	ICD-10-CM	168	Preterm labor second trimester with preterm delivery second trimester	1	0	27
O60.12X3	Diagnosis	ICD-10-CM	168	Preterm labor second trimester with preterm delivery second trimester	1	0	27
O60.12X4	Diagnosis	ICD-10-CM	168	Preterm labor second trimester with preterm delivery second trimester	1	0	27
O60.12X5	Diagnosis	ICD-10-CM	168	Preterm labor second trimester with preterm delivery second trimester	1	0	27
O60.12X9	Diagnosis	ICD-10-CM	168	Preterm labor second trimester with preterm delivery second trimester	1	0	27
645.20	Diagnosis	ICD-9-CM	294	Prolonged pregnancy	0	1	28
645.21	Diagnosis	ICD-9-CM	294	Prolonged pregnancy	0	1	28
645.23	Diagnosis	ICD-9-CM	294	Prolonged pregnancy	0	1	28
765.28	Diagnosis	ICD-9-CM	252	35-36 completed weeks of gestation	1	0	28
766.22	Diagnosis	ICD-9-CM	294	Prolonged gestation of infant	0	1	28
645.10	Diagnosis	ICD-9-CM	287	Post term pregnancy	0	1	29
645.11	Diagnosis	ICD-9-CM	287	Post term pregnancy	0	1	29
645.13	Diagnosis	ICD-9-CM	287	Post term pregnancy	0	1	29
765.27	Diagnosis	ICD-9-CM	238	33-34 completed weeks of gestation	1	0	29
766.21	Diagnosis	ICD-9-CM	287	Post-term infant	0	1	29
765.26	Diagnosis	ICD-9-CM	224	31-32 completed weeks of gestation	1	0	30
765.25	Diagnosis	ICD-9-CM	210	29-30 completed weeks of gestation	1	0	31
765.24	Diagnosis	ICD-9-CM	196	27-28 completed weeks of gestation	1	0	32
765.23	Diagnosis	ICD-9-CM	182	25-26 completed weeks of gestation	1	0	33
765.21	Diagnosis	ICD-9-CM	168	Less than 24 completed weeks of gestation	1	0	34
765.22	Diagnosis	ICD-9-CM	168	24 completed weeks of gestation	1	0	34
765.00	Diagnosis	ICD-9-CM	196	Extreme immaturity, by weight	1	0	35
765.01	Diagnosis	ICD-9-CM	196	Extreme immaturity, by weight	1	0	35
765.02	Diagnosis	ICD-9-CM	196	Extreme immaturity, by weight	1	0	35
765.03	Diagnosis	ICD-9-CM	196	Extreme immaturity, by weight	1	0	35
765.04	Diagnosis	ICD-9-CM	196	Extreme immaturity, by weight	1	0	35
765.05	Diagnosis	ICD-9-CM	196	Extreme immaturity, by weight	1	0	35
765.06	Diagnosis	ICD-9-CM	196	Extreme immaturity, by weight	1	0	35

Appendix B. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes Used to Define the Gestational Age Algorithm

Code	Code Type	Code Category	Duration	Description	Priority Group 1	Priority Group 2	Priority
765.07	Diagnosis	ICD-9-CM	196	Extreme immaturity, by weight	1	0	35
765.08	Diagnosis	ICD-9-CM	196	Extreme immaturity, by weight	1	0	35
765.09	Diagnosis	ICD-9-CM	196	Extreme immaturity, by weight	1	0	35
644.21	Diagnosis	ICD-9-CM	245	Early onset of delivery, delivered, with or without mention of antepartum condition	1	0	36
765.10	Diagnosis	ICD-9-CM	245	Other preterm infants, by weight	1	0	36
765.11	Diagnosis	ICD-9-CM	245	Other preterm infants, by weight	1	0	36
765.12	Diagnosis	ICD-9-CM	245	Other preterm infants, by weight	1	0	36
765.13	Diagnosis	ICD-9-CM	245	Other preterm infants, by weight	1	0	36
7651.4	Diagnosis	ICD-9-CM	245	Other preterm infants, by weight	1	0	36
765.15	Diagnosis	ICD-9-CM	245	Other preterm infants, by weight	1	0	36
765.16	Diagnosis	ICD-9-CM	245	Other preterm infants, by weight	1	0	36
765.17	Diagnosis	ICD-9-CM	245	Other preterm infants, by weight	1	0	36
765.18	Diagnosis	ICD-9-CM	245	Other preterm infants, by weight	1	0	36
765.19	Diagnosis	ICD-9-CM	245	Other preterm infants, by weight	1	0	36
765.20	Diagnosis	ICD-9-CM	245	Unspecified weeks of gestation	1	0	36

If multiple codes for specific weeks of gestation (Z codes), preterm delivery, and/or postterm delivery are available, the ICD-10 algorithm for gestational age prioritizes the following codes:

- (1) **Codes that specify weeks of gestation, including all Z codes ranging from 20 weeks through ≥ 42 weeks of gestation in one week increments, and codes that indicate preterm delivery with weeks of gestation specified in one week increments (other than Z codes).** If multiple codes are observed, codes indicating longer gestational age are prioritized over those indicating shorter gestational age. We assumed the approximate mid-point of the specified gestational age [e.g., assumption of 263 days (37 weeks and 4 days) for 37 weeks gestation].
- (2) **Codes that indicate preterm delivery without specifying weeks of gestation.** If multiple codes are observed, codes with more specificity (e.g., preterm delivery, second trimester of pregnancy or 'extreme immaturity') are prioritized over those with less specificity (e.g., preterm newborn, unspecified weeks of gestation). Further, codes indicating longer gestational age are prioritized over those indicating shorter gestational age.
- (3) **Codes that indicate postterm delivery without specifying weeks of gestation.** If multiple codes are observed, codes indicating longer gestational age are prioritized over those indicating shorter gestational age.

If no codes for preterm or postterm delivery are observed, then the default assumption for gestational age is 273 days. However, this assumption is user specified and can be modified.

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Live-Birth Deliveries

Code	Description	Code Category	Code Type
Live-Birth Delivery			
0W8NXZZ	Division of Female Perineum, External Approach	ICD-10-PCS	Procedure
10900ZC	Drainage of Amniotic Fluid, Therapeutic from Products of Conception, Open	ICD-10-PCS	Procedure
10903ZC	Drainage of Amniotic Fluid, Therapeutic from Products of Conception, Percutaneous Approach	ICD-10-PCS	Procedure
10904ZC	Drainage of Amniotic Fluid, Therapeutic from Products of Conception, Percutaneous Endoscopic Approach	ICD-10-PCS	Procedure
10907ZC	Drainage of Amniotic Fluid, Therapeutic from Products of Conception, Via Natural or Artificial Opening	ICD-10-PCS	Procedure
10908ZC	Drainage of Amniotic Fluid, Therapeutic from Products of Conception, Via Natural or Artificial Opening Endoscopic	ICD-10-PCS	Procedure
10D00Z0	Extraction of Products of Conception, Classical, Open Approach	ICD-10-PCS	Procedure
10D00Z1	Extraction of Products of Conception, Low Cervical, Open Approach	ICD-10-PCS	Procedure
10D00Z2	Extraction of Products of Conception, Extraperitoneal, Open Approach	ICD-10-PCS	Procedure
10D07Z3	Extraction of Products of Conception, Low Forceps, Via Natural or Artificial	ICD-10-PCS	Procedure
10D07Z4	Extraction of Products of Conception, Mid Forceps, Via Natural or Artificial Opening	ICD-10-PCS	Procedure
10D07Z5	Extraction of Products of Conception, High Forceps, Via Natural or Artificial	ICD-10-PCS	Procedure
10D07Z6	Extraction of Products of Conception, Vacuum, Via Natural or Artificial Opening	ICD-10-PCS	Procedure
10D07Z7	Extraction of Products of Conception, Internal Version, Via Natural or Artificial	ICD-10-PCS	Procedure
10D07Z8	Extraction of Products of Conception, Other, Via Natural or Artificial Opening	ICD-10-PCS	Procedure
10E0XZZ	Delivery of Products of Conception, External Approach	ICD-10-PCS	Procedure
10S07ZZ	Reposition Products of Conception, Via Natural or Artificial Opening	ICD-10-PCS	Procedure
O10.02	Pre-existing essential hypertension complicating childbirth	ICD-10-CM	Diagnosis
O10.12	Pre-existing hypertensive heart disease complicating childbirth	ICD-10-CM	Diagnosis
O10.22	Pre-existing hypertensive chronic kidney disease complicating childbirth	ICD-10-CM	Diagnosis
O10.32	Pre-existing hypertensive heart and chronic kidney disease complicating childbirth	ICD-10-CM	Diagnosis
O10.42	Pre-existing secondary hypertension complicating childbirth	ICD-10-CM	Diagnosis
O10.92	Unspecified pre-existing hypertension complicating childbirth	ICD-10-CM	Diagnosis
O11.4	Pre-existing hypertension with pre-eclampsia, complicating childbirth	ICD-10-CM	Diagnosis
O12.04	Gestational edema, complicating childbirth	ICD-10-CM	Diagnosis
O12.14	Gestational proteinuria, complicating childbirth	ICD-10-CM	Diagnosis
O12.24	Gestational edema with proteinuria, complicating childbirth	ICD-10-CM	Diagnosis
O13.4	Gestational [pregnancy-induced] hypertension without significant proteinuria, complicating childbirth	ICD-10-CM	Diagnosis
O14.04	Mild to moderate pre-eclampsia, complicating childbirth	ICD-10-CM	Diagnosis
O14.14	Severe pre-eclampsia complicating childbirth	ICD-10-CM	Diagnosis
O14.24	HELLP syndrome, complicating childbirth	ICD-10-CM	Diagnosis
O14.94	Unspecified pre-eclampsia, complicating childbirth	ICD-10-CM	Diagnosis
O16.4	Unspecified maternal hypertension, complicating childbirth	ICD-10-CM	Diagnosis
O24.02	Pre-existing type 1 diabetes mellitus, in childbirth	ICD-10-CM	Diagnosis
O24.12	Pre-existing type 2 diabetes mellitus, in childbirth	ICD-10-CM	Diagnosis
O24.32	Unspecified pre-existing diabetes mellitus in childbirth	ICD-10-CM	Diagnosis

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Live-Birth Deliveries

Code	Description	Code Category	Code Type
O24.420	Gestational diabetes mellitus in childbirth, diet controlled	ICD-10-CM	Diagnosis
O24.424	Gestational diabetes mellitus in childbirth, insulin controlled	ICD-10-CM	Diagnosis
O24.425	Gestational diabetes mellitus in childbirth, controlled by oral hypoglycemic drugs	ICD-10-CM	Diagnosis
O24.429	Gestational diabetes mellitus in childbirth, unspecified control	ICD-10-CM	Diagnosis
O24.82	Other pre-existing diabetes mellitus in childbirth	ICD-10-CM	Diagnosis
O24.92	Unspecified diabetes mellitus in childbirth	ICD-10-CM	Diagnosis
O25.2	Malnutrition in childbirth	ICD-10-CM	Diagnosis
O26.62	Liver and biliary tract disorders in childbirth	ICD-10-CM	Diagnosis
O26.72	Subluxation of symphysis (pubis) in childbirth	ICD-10-CM	Diagnosis
O60.12X0	Preterm labor second trimester with preterm delivery second trimester, not applicable or unspecified	ICD-10-CM	Diagnosis
O60.12X1	Preterm labor second trimester with preterm delivery second trimester, fetus 1	ICD-10-CM	Diagnosis
O60.12X2	Preterm labor second trimester with preterm delivery second trimester, fetus 2	ICD-10-CM	Diagnosis
O60.12X3	Preterm labor second trimester with preterm delivery second trimester, fetus 3	ICD-10-CM	Diagnosis
O60.12X4	Preterm labor second trimester with preterm delivery second trimester, fetus 4	ICD-10-CM	Diagnosis
O60.12X5	Preterm labor second trimester with preterm delivery second trimester, fetus 5	ICD-10-CM	Diagnosis
O60.12X9	Preterm labor second trimester with preterm delivery second trimester, other	ICD-10-CM	Diagnosis
O60.13X0	Preterm labor second trimester with preterm delivery third trimester, not applicable or unspecified	ICD-10-CM	Diagnosis
O60.13X1	Preterm labor second trimester with preterm delivery third trimester, fetus 1	ICD-10-CM	Diagnosis
O60.13X2	Preterm labor second trimester with preterm delivery third trimester, fetus 2	ICD-10-CM	Diagnosis
O60.13X3	Preterm labor second trimester with preterm delivery third trimester, fetus 3	ICD-10-CM	Diagnosis
O60.13X4	Preterm labor second trimester with preterm delivery third trimester, fetus 4	ICD-10-CM	Diagnosis
O60.13X5	Preterm labor second trimester with preterm delivery third trimester, fetus 5	ICD-10-CM	Diagnosis
O60.13X9	Preterm labor second trimester with preterm delivery third trimester, other fetus	ICD-10-CM	Diagnosis
O60.14X0	Preterm labor third trimester with preterm delivery third trimester, not applicable or unspecified	ICD-10-CM	Diagnosis
O60.14X1	Preterm labor third trimester with preterm delivery third trimester, fetus 1	ICD-10-CM	Diagnosis
O60.14X2	Preterm labor third trimester with preterm delivery third trimester, fetus 2	ICD-10-CM	Diagnosis
O60.14X3	Preterm labor third trimester with preterm delivery third trimester, fetus 3	ICD-10-CM	Diagnosis
O60.14X4	Preterm labor third trimester with preterm delivery third trimester, fetus 4	ICD-10-CM	Diagnosis
O60.14X5	Preterm labor third trimester with preterm delivery third trimester, fetus 5	ICD-10-CM	Diagnosis
O60.14X9	Preterm labor third trimester with preterm delivery third trimester, other fetus	ICD-10-CM	Diagnosis
O60.22X0	Term delivery with preterm labor, second trimester, not applicable or unspecified	ICD-10-CM	Diagnosis
O60.22X1	Term delivery with preterm labor, second trimester, fetus 1	ICD-10-CM	Diagnosis
O60.22X2	Term delivery with preterm labor, second trimester, fetus 2	ICD-10-CM	Diagnosis
O60.22X3	Term delivery with preterm labor, second trimester, fetus 3	ICD-10-CM	Diagnosis
O60.22X4	Term delivery with preterm labor, second trimester, fetus 4	ICD-10-CM	Diagnosis
O60.22X5	Term delivery with preterm labor, second trimester, fetus 5	ICD-10-CM	Diagnosis
O60.22X9	Term delivery with preterm labor, second trimester, other fetus	ICD-10-CM	Diagnosis
O60.23X0	Term delivery with preterm labor, third trimester, not applicable or unspecified	ICD-10-CM	Diagnosis
O60.23X1	Term delivery with preterm labor, third trimester, fetus 1	ICD-10-CM	Diagnosis

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Code	Description	Code Category	Code Type
O60.23X2	Term delivery with preterm labor, third trimester, fetus 2	ICD-10-CM	Diagnosis
O60.23X3	Term delivery with preterm labor, third trimester, fetus 3	ICD-10-CM	Diagnosis
O60.23X4	Term delivery with preterm labor, third trimester, fetus 4	ICD-10-CM	Diagnosis
O60.23X5	Term delivery with preterm labor, third trimester, fetus 5	ICD-10-CM	Diagnosis
O60.23X9	Term delivery with preterm labor, third trimester, other fetus	ICD-10-CM	Diagnosis
O63.2	Delayed delivery of second twin, triplet, etc	ICD-10-CM	Diagnosis
O67.0	Intrapartum hemorrhage with coagulation defect	ICD-10-CM	Diagnosis
O67.8	Other intrapartum hemorrhage	ICD-10-CM	Diagnosis
O67.9	Intrapartum hemorrhage, unspecified	ICD-10-CM	Diagnosis
O68	Labor and delivery complicated by abnormality of fetal acid-base balance	ICD-10-CM	Diagnosis
O69.0XX0	Labor and delivery complicated by prolapse of cord, not applicable or unspecified	ICD-10-CM	Diagnosis
O69.0XX1	Labor and delivery complicated by prolapse of cord, fetus 1	ICD-10-CM	Diagnosis
O69.0XX2	Labor and delivery complicated by prolapse of cord, fetus 2	ICD-10-CM	Diagnosis
O69.0XX3	Labor and delivery complicated by prolapse of cord, fetus 3	ICD-10-CM	Diagnosis
O69.0XX4	Labor and delivery complicated by prolapse of cord, fetus 4	ICD-10-CM	Diagnosis
O69.0XX5	Labor and delivery complicated by prolapse of cord, fetus 5	ICD-10-CM	Diagnosis
O69.0XX9	Labor and delivery complicated by prolapse of cord, other fetus	ICD-10-CM	Diagnosis
O69.1XX0	Labor and delivery complicated by cord around neck, with compression, not applicable or unspecified	ICD-10-CM	Diagnosis
O69.1XX1	Labor and delivery complicated by cord around neck, with compression, fetus 1	ICD-10-CM	Diagnosis
O69.1XX2	Labor and delivery complicated by cord around neck, with compression, fetus 2	ICD-10-CM	Diagnosis
O69.1XX3	Labor and delivery complicated by cord around neck, with compression, fetus 3	ICD-10-CM	Diagnosis
O69.1XX4	Labor and delivery complicated by cord around neck, with compression, fetus 4	ICD-10-CM	Diagnosis
O69.1XX5	Labor and delivery complicated by cord around neck, with compression, fetus 5	ICD-10-CM	Diagnosis
O69.1XX9	Labor and delivery complicated by cord around neck, with compression, other	ICD-10-CM	Diagnosis
O69.2XX0	Labor and delivery complicated by other cord entanglement, with compression, not applicable or unspecified	ICD-10-CM	Diagnosis
O69.2XX1	Labor and delivery complicated by other cord entanglement, with compression,	ICD-10-CM	Diagnosis
O69.2XX2	Labor and delivery complicated by other cord entanglement, with compression,	ICD-10-CM	Diagnosis
O69.2XX3	Labor and delivery complicated by other cord entanglement, with compression,	ICD-10-CM	Diagnosis
O69.2XX4	Labor and delivery complicated by other cord entanglement, with compression,	ICD-10-CM	Diagnosis
O69.2XX5	Labor and delivery complicated by other cord entanglement, with compression,	ICD-10-CM	Diagnosis
O69.2XX9	Labor and delivery complicated by other cord entanglement, with compression, other fetus	ICD-10-CM	Diagnosis
O69.3XX0	Labor and delivery complicated by short cord, not applicable or unspecified	ICD-10-CM	Diagnosis
O69.3XX1	Labor and delivery complicated by short cord, fetus 1	ICD-10-CM	Diagnosis
O69.3XX2	Labor and delivery complicated by short cord, fetus 2	ICD-10-CM	Diagnosis
O69.3XX3	Labor and delivery complicated by short cord, fetus 3	ICD-10-CM	Diagnosis
O69.3XX4	Labor and delivery complicated by short cord, fetus 4	ICD-10-CM	Diagnosis
O69.3XX5	Labor and delivery complicated by short cord, fetus 5	ICD-10-CM	Diagnosis
O69.3XX9	Labor and delivery complicated by short cord, other fetus	ICD-10-CM	Diagnosis
O69.4XX0	Labor and delivery complicated by vasa previa, not applicable or unspecified	ICD-10-CM	Diagnosis

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Code	Description	Code Category	Code Type
O69.4XX1	Labor and delivery complicated by vasa previa, fetus 1	ICD-10-CM	Diagnosis
O69.4XX2	Labor and delivery complicated by vasa previa, fetus 2	ICD-10-CM	Diagnosis
O69.4XX3	Labor and delivery complicated by vasa previa, fetus 3	ICD-10-CM	Diagnosis
O69.4XX4	Labor and delivery complicated by vasa previa, fetus 4	ICD-10-CM	Diagnosis
O69.4XX5	Labor and delivery complicated by vasa previa, fetus 5	ICD-10-CM	Diagnosis
O69.4XX9	Labor and delivery complicated by vasa previa, other fetus	ICD-10-CM	Diagnosis
O69.5XX0	Labor and delivery complicated by vascular lesion of cord, not applicable or	ICD-10-CM	Diagnosis
O69.5XX1	Labor and delivery complicated by vascular lesion of cord, fetus 1	ICD-10-CM	Diagnosis
O69.5XX2	Labor and delivery complicated by vascular lesion of cord, fetus 2	ICD-10-CM	Diagnosis
O69.5XX3	Labor and delivery complicated by vascular lesion of cord, fetus 3	ICD-10-CM	Diagnosis
O69.5XX4	Labor and delivery complicated by vascular lesion of cord, fetus 4	ICD-10-CM	Diagnosis
O69.5XX5	Labor and delivery complicated by vascular lesion of cord, fetus 5	ICD-10-CM	Diagnosis
O69.5XX9	Labor and delivery complicated by vascular lesion of cord, other fetus	ICD-10-CM	Diagnosis
O69.81X0	Labor and delivery complicated by cord around neck, without compression, not applicable or unspecified	ICD-10-CM	Diagnosis
O69.81X1	Labor and delivery complicated by cord around neck, without compression, fetus 1	ICD-10-CM	Diagnosis
O69.81X2	Labor and delivery complicated by cord around neck, without compression, fetus 2	ICD-10-CM	Diagnosis
O69.81X3	Labor and delivery complicated by cord around neck, without compression, fetus 3	ICD-10-CM	Diagnosis
O69.81X4	Labor and delivery complicated by cord around neck, without compression, fetus 4	ICD-10-CM	Diagnosis
O69.81X5	Labor and delivery complicated by cord around neck, without compression, fetus 5	ICD-10-CM	Diagnosis
O69.81X9	Labor and delivery complicated by cord around neck, without compression, other	ICD-10-CM	Diagnosis
O69.82X0	Labor and delivery complicated by other cord entanglement, without compression, not applicable or unspecified	ICD-10-CM	Diagnosis
O69.82X1	Labor and delivery complicated by other cord entanglement, without compression, fetus 1	ICD-10-CM	Diagnosis
O69.82X2	Labor and delivery complicated by other cord entanglement, without compression, fetus 2	ICD-10-CM	Diagnosis
O69.82X3	Labor and delivery complicated by other cord entanglement, without compression, fetus 3	ICD-10-CM	Diagnosis
O69.82X4	Labor and delivery complicated by other cord entanglement, without compression, fetus 4	ICD-10-CM	Diagnosis
O69.82X5	Labor and delivery complicated by other cord entanglement, without compression, fetus 5	ICD-10-CM	Diagnosis
O69.82X9	Labor and delivery complicated by other cord entanglement, without compression, other fetus	ICD-10-CM	Diagnosis
O69.89X0	Labor and delivery complicated by other cord complications, not applicable or unspecified	ICD-10-CM	Diagnosis
O69.89X1	Labor and delivery complicated by other cord complications, fetus 1	ICD-10-CM	Diagnosis
O69.89X2	Labor and delivery complicated by other cord complications, fetus 2	ICD-10-CM	Diagnosis
O69.89X3	Labor and delivery complicated by other cord complications, fetus 3	ICD-10-CM	Diagnosis
O69.89X4	Labor and delivery complicated by other cord complications, fetus 4	ICD-10-CM	Diagnosis
O69.89X5	Labor and delivery complicated by other cord complications, fetus 5	ICD-10-CM	Diagnosis

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Code	Description	Code Category	Code Type
O69.89X9	Labor and delivery complicated by other cord complications, other fetus	ICD-10-CM	Diagnosis
O69.9XX0	Labor and delivery complicated by cord complication, unspecified, not applicable or unspecified	ICD-10-CM	Diagnosis
O69.9XX1	Labor and delivery complicated by cord complication, unspecified, fetus 1	ICD-10-CM	Diagnosis
O69.9XX2	Labor and delivery complicated by cord complication, unspecified, fetus 2	ICD-10-CM	Diagnosis
O69.9XX3	Labor and delivery complicated by cord complication, unspecified, fetus 3	ICD-10-CM	Diagnosis
O69.9XX4	Labor and delivery complicated by cord complication, unspecified, fetus 4	ICD-10-CM	Diagnosis
O69.9XX5	Labor and delivery complicated by cord complication, unspecified, fetus 5	ICD-10-CM	Diagnosis
O69.9XX9	Labor and delivery complicated by cord complication, unspecified, other fetus	ICD-10-CM	Diagnosis
O70.0	First degree perineal laceration during delivery	ICD-10-CM	Diagnosis
O70.1	Second degree perineal laceration during delivery	ICD-10-CM	Diagnosis
O70.20	Third degree perineal laceration during delivery, unspecified	ICD-10-CM	Diagnosis
O70.21	Third degree perineal laceration during delivery, IIIa	ICD-10-CM	Diagnosis
O70.22	Third degree perineal laceration during delivery, IIIb	ICD-10-CM	Diagnosis
O70.23	Third degree perineal laceration during delivery, IIIc	ICD-10-CM	Diagnosis
O70.3	Fourth degree perineal laceration during delivery	ICD-10-CM	Diagnosis
O70.4	Anal sphincter tear complicating delivery, not associated with third degree	ICD-10-CM	Diagnosis
O70.9	Perineal laceration during delivery, unspecified	ICD-10-CM	Diagnosis
O74.0	Aspiration pneumonitis due to anesthesia during labor and delivery	ICD-10-CM	Diagnosis
O74.1	Other pulmonary complications of anesthesia during labor and delivery	ICD-10-CM	Diagnosis
O74.2	Cardiac complications of anesthesia during labor and delivery	ICD-10-CM	Diagnosis
O74.3	Central nervous system complications of anesthesia during labor and delivery	ICD-10-CM	Diagnosis
O74.4	Toxic reaction to local anesthesia during labor and delivery	ICD-10-CM	Diagnosis
O74.5	Spinal and epidural anesthesia-induced headache during labor and delivery	ICD-10-CM	Diagnosis
O74.6	Other complications of spinal and epidural anesthesia during labor and delivery	ICD-10-CM	Diagnosis
O74.7	Failed or difficult intubation for anesthesia during labor and delivery	ICD-10-CM	Diagnosis
O74.8	Other complications of anesthesia during labor and delivery	ICD-10-CM	Diagnosis
O74.9	Complication of anesthesia during labor and delivery, unspecified	ICD-10-CM	Diagnosis
O75.0	Maternal distress during labor and delivery	ICD-10-CM	Diagnosis
O75.1	Shock during or following labor and delivery	ICD-10-CM	Diagnosis
O75.5	Delayed delivery after artificial rupture of membranes	ICD-10-CM	Diagnosis
O75.81	Maternal exhaustion complicating labor and delivery	ICD-10-CM	Diagnosis
O75.82	Onset (spontaneous) of labor after 37 completed weeks of gestation but before 39 completed weeks gestation, with delivery by (planned) cesarean section	ICD-10-CM	Diagnosis
O75.89	Other specified complications of labor and delivery	ICD-10-CM	Diagnosis
O75.9	Complication of labor and delivery, unspecified	ICD-10-CM	Diagnosis
O76	Abnormality in fetal heart rate and rhythm complicating labor and delivery	ICD-10-CM	Diagnosis
O77.0	Labor and delivery complicated by meconium in amniotic fluid	ICD-10-CM	Diagnosis
O77.8	Labor and delivery complicated by other evidence of fetal stress	ICD-10-CM	Diagnosis
O77.9	Labor and delivery complicated by fetal stress, unspecified	ICD-10-CM	Diagnosis
O80	Encounter for full-term uncomplicated delivery	ICD-10-CM	Diagnosis
O82	Encounter for cesarean delivery without indication	ICD-10-CM	Diagnosis

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Code	Description	Code Category	Code Type
O88.02	Air embolism in childbirth	ICD-10-CM	Diagnosis
O88.12	Amniotic fluid embolism in childbirth	ICD-10-CM	Diagnosis
O88.22	Thromboembolism in childbirth	ICD-10-CM	Diagnosis
O88.32	Pyemic and septic embolism in childbirth	ICD-10-CM	Diagnosis
O88.82	Other embolism in childbirth	ICD-10-CM	Diagnosis
O98.02	Tuberculosis complicating childbirth	ICD-10-CM	Diagnosis
O98.12	Syphilis complicating childbirth	ICD-10-CM	Diagnosis
O98.22	Gonorrhea complicating childbirth	ICD-10-CM	Diagnosis
O98.32	Other infections with a predominantly sexual mode of transmission complicating childbirth	ICD-10-CM	Diagnosis
O98.42	Viral hepatitis complicating childbirth	ICD-10-CM	Diagnosis
O98.52	Other viral diseases complicating childbirth	ICD-10-CM	Diagnosis
O98.62	Protozoal diseases complicating childbirth	ICD-10-CM	Diagnosis
O98.72	Human immunodeficiency virus [HIV] disease complicating childbirth	ICD-10-CM	Diagnosis
O98.82	Other maternal infectious and parasitic diseases complicating childbirth	ICD-10-CM	Diagnosis
O98.92	Unspecified maternal infectious and parasitic disease complicating childbirth	ICD-10-CM	Diagnosis
O99.02	Anemia complicating childbirth	ICD-10-CM	Diagnosis
O99.12	Other diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism complicating childbirth	ICD-10-CM	Diagnosis
O99.214	Obesity complicating childbirth	ICD-10-CM	Diagnosis
O99.284	Endocrine, nutritional and metabolic diseases complicating childbirth	ICD-10-CM	Diagnosis
O99.314	Alcohol use complicating childbirth	ICD-10-CM	Diagnosis
O99.324	Drug use complicating childbirth	ICD-10-CM	Diagnosis
O99.334	Smoking (tobacco) complicating childbirth	ICD-10-CM	Diagnosis
O99.344	Other mental disorders complicating childbirth	ICD-10-CM	Diagnosis
O99.354	Diseases of the nervous system complicating childbirth	ICD-10-CM	Diagnosis
O99.42	Diseases of the circulatory system complicating childbirth	ICD-10-CM	Diagnosis
O99.52	Diseases of the respiratory system complicating childbirth	ICD-10-CM	Diagnosis
O99.62	Diseases of the digestive system complicating childbirth	ICD-10-CM	Diagnosis
O99.72	Diseases of the skin and subcutaneous tissue complicating childbirth	ICD-10-CM	Diagnosis
O99.814	Abnormal glucose complicating childbirth	ICD-10-CM	Diagnosis
O99.824	Streptococcus B carrier state complicating childbirth	ICD-10-CM	Diagnosis
O99.834	Other infection carrier state complicating childbirth	ICD-10-CM	Diagnosis
O99.844	Bariatric surgery status complicating childbirth	ICD-10-CM	Diagnosis
O9A.12	Malignant neoplasm complicating childbirth	ICD-10-CM	Diagnosis
O9A.22	Injury, poisoning and certain other consequences of external causes complicating childbirth	ICD-10-CM	Diagnosis
O9A.32	Physical abuse complicating childbirth	ICD-10-CM	Diagnosis
O9A.42	Sexual abuse complicating childbirth	ICD-10-CM	Diagnosis
O9A.52	Psychological abuse complicating childbirth	ICD-10-CM	Diagnosis
P03.0	Newborn affected by breech delivery and extraction	ICD-10-CM	Diagnosis
P03.2	Newborn affected by forceps delivery	ICD-10-CM	Diagnosis

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Code	Description	Code Category	Code Type
P03.3	Newborn affected by delivery by vacuum extractor [ventouse]	ICD-10-CM	Diagnosis
P03.4	Newborn affected by Cesarean delivery	ICD-10-CM	Diagnosis
P03.5	Newborn affected by precipitate delivery	ICD-10-CM	Diagnosis
P07.00	Extremely low birth weight newborn, unspecified weight	ICD-10-CM	Diagnosis
P07.01	Extremely low birth weight newborn, less than 500 grams	ICD-10-CM	Diagnosis
P07.02	Extremely low birth weight newborn, 500-749 grams	ICD-10-CM	Diagnosis
P07.03	Extremely low birth weight newborn, 750-999 grams	ICD-10-CM	Diagnosis
P07.10	Other low birth weight newborn, unspecified weight	ICD-10-CM	Diagnosis
P07.14	Other low birth weight newborn, 1000-1249 grams	ICD-10-CM	Diagnosis
P07.15	Other low birth weight newborn, 1250-1499 grams	ICD-10-CM	Diagnosis
P07.16	Other low birth weight newborn, 1500-1749 grams	ICD-10-CM	Diagnosis
P07.17	Other low birth weight newborn, 1750-1999 grams	ICD-10-CM	Diagnosis
P07.18	Other low birth weight newborn, 2000-2499 grams	ICD-10-CM	Diagnosis
P07.20	Extreme immaturity of newborn, unspecified weeks of gestation	ICD-10-CM	Diagnosis
P07.21	Extreme immaturity of newborn, gestational age less than 23 completed weeks	ICD-10-CM	Diagnosis
P07.22	Extreme immaturity of newborn, gestational age 23 completed weeks	ICD-10-CM	Diagnosis
P07.23	Extreme immaturity of newborn, gestational age 24 completed weeks	ICD-10-CM	Diagnosis
P07.24	Extreme immaturity of newborn, gestational age 25 completed weeks	ICD-10-CM	Diagnosis
P07.25	Extreme immaturity of newborn, gestational age 26 completed weeks	ICD-10-CM	Diagnosis
P07.26	Extreme immaturity of newborn, gestational age 27 completed weeks	ICD-10-CM	Diagnosis
P07.30	Preterm newborn, unspecified weeks of gestation	ICD-10-CM	Diagnosis
P07.31	Preterm newborn, gestational age 28 completed weeks	ICD-10-CM	Diagnosis
P07.32	Preterm newborn, gestational age 29 completed weeks	ICD-10-CM	Diagnosis
P07.33	Preterm newborn, gestational age 30 completed weeks	ICD-10-CM	Diagnosis
P07.34	Preterm newborn, gestational age 31 completed weeks	ICD-10-CM	Diagnosis
P07.35	Preterm newborn, gestational age 32 completed weeks	ICD-10-CM	Diagnosis
P07.36	Preterm newborn, gestational age 33 completed weeks	ICD-10-CM	Diagnosis
P07.37	Preterm newborn, gestational age 34 completed weeks	ICD-10-CM	Diagnosis
P07.38	Preterm newborn, gestational age 35 completed weeks	ICD-10-CM	Diagnosis
P07.39	Preterm newborn, gestational age 36 completed weeks	ICD-10-CM	Diagnosis
P08.21	Post-term newborn	ICD-10-CM	Diagnosis
P08.22	Prolonged gestation of newborn	ICD-10-CM	Diagnosis
Z37.0	Single live birth	ICD-10-CM	Diagnosis
Z37.2	Twins, both liveborn	ICD-10-CM	Diagnosis
Z37.3	Twins, one liveborn and one stillborn	ICD-10-CM	Diagnosis
Z37.50	Multiple births, unspecified, all liveborn	ICD-10-CM	Diagnosis
Z37.51	Triplets, all liveborn	ICD-10-CM	Diagnosis
Z37.52	Quadruplets, all liveborn	ICD-10-CM	Diagnosis
Z37.53	Quintuplets, all liveborn	ICD-10-CM	Diagnosis
Z37.54	Sextuplets, all liveborn	ICD-10-CM	Diagnosis
Z37.59	Other multiple births, all liveborn	ICD-10-CM	Diagnosis

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Code	Description	Code Category	Code Type
Z37.60	Multiple births, unspecified, some liveborn	ICD-10-CM	Diagnosis
Z37.61	Triplets, some liveborn	ICD-10-CM	Diagnosis
Z37.62	Quadruplets, some liveborn	ICD-10-CM	Diagnosis
Z37.63	Quintuplets, some liveborn	ICD-10-CM	Diagnosis
Z37.64	Sextuplets, some liveborn	ICD-10-CM	Diagnosis
Z37.69	Other multiple births, some liveborn	ICD-10-CM	Diagnosis
Z37.9	Outcome of delivery, unspecified	ICD-10-CM	Diagnosis
Z38.00	Single liveborn infant, delivered vaginally	ICD-10-CM	Diagnosis
Z38.01	Single liveborn infant, delivered by cesarean	ICD-10-CM	Diagnosis
Z38.1	Single liveborn infant, born outside hospital	ICD-10-CM	Diagnosis
Z38.2	Single liveborn infant, unspecified as to place of birth	ICD-10-CM	Diagnosis
Z38.30	Twin liveborn infant, delivered vaginally	ICD-10-CM	Diagnosis
Z38.31	Twin liveborn infant, delivered by cesarean	ICD-10-CM	Diagnosis
Z38.4	Twin liveborn infant, born outside hospital	ICD-10-CM	Diagnosis
Z38.5	Twin liveborn infant, unspecified as to place of birth	ICD-10-CM	Diagnosis
Z38.61	Triplet liveborn infant, delivered vaginally	ICD-10-CM	Diagnosis
Z38.62	Triplet liveborn infant, delivered by cesarean	ICD-10-CM	Diagnosis
Z38.63	Quadruplet liveborn infant, delivered vaginally	ICD-10-CM	Diagnosis
Z38.64	Quadruplet liveborn infant, delivered by cesarean	ICD-10-CM	Diagnosis
Z38.65	Quintuplet liveborn infant, delivered vaginally	ICD-10-CM	Diagnosis
Z38.66	Quintuplet liveborn infant, delivered by cesarean	ICD-10-CM	Diagnosis
Z38.68	Other multiple liveborn infant, delivered vaginally	ICD-10-CM	Diagnosis
Z38.69	Other multiple liveborn infant, delivered by cesarean	ICD-10-CM	Diagnosis
Z38.7	Other multiple liveborn infant, born outside hospital	ICD-10-CM	Diagnosis
Z38.8	Other multiple liveborn infant, unspecified as to place of birth	ICD-10-CM	Diagnosis
59400	Routine obstetric care including antepartum care, vaginal delivery (with or without episiotomy, and/or forceps) and postpartum care	CPT-4	Procedure
59409	Vaginal delivery only (with or without episiotomy and/or forceps);	CPT-4	Procedure
59410	Vaginal delivery only (with or without episiotomy and/or forceps); including postpartum care	CPT-4	Procedure
59510	Routine obstetric care including antepartum care, cesarean delivery, and postpartum care	CPT-4	Procedure
59514	Cesarean delivery only;	CPT-4	Procedure
59515	Cesarean delivery only; including postpartum care	CPT-4	Procedure
59610	Routine obstetric care including antepartum care, vaginal delivery (with or without episiotomy, and/or forceps) and postpartum care, after previous cesarean delivery	CPT-4	Procedure
59612	Vaginal delivery only, after previous cesarean delivery (with or without episiotomy and/or forceps);	CPT-4	Procedure
59614	Vaginal delivery only, after previous cesarean delivery (with or without episiotomy and/or forceps); including postpartum care	CPT-4	Procedure
59618	Routine obstetric care including antepartum care, cesarean delivery, and postpartum care, following attempted vaginal delivery after previous cesarean	CPT-4	Procedure

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Code	Description	Code Category	Code Type
59620	Cesarean delivery only, following attempted vaginal delivery after previous cesarean delivery;	CPT-4	Procedure
59622	Cesarean delivery only, following attempted vaginal delivery after previous cesarean delivery; including postpartum care	CPT-4	Procedure
650	Normal delivery	ICD-9-CM	Diagnosis
763.0	Fetus or newborn affected by breech delivery and extraction	ICD-9-CM	Diagnosis
763.2	Fetus or newborn affected by forceps delivery	ICD-9-CM	Diagnosis
763.3	Fetus or newborn affected by delivery by vacuum extractor	ICD-9-CM	Diagnosis
763.4	Fetus or newborn affected by cesarean delivery	ICD-9-CM	Diagnosis
763.6	Fetus or newborn affected by precipitate delivery	ICD-9-CM	Diagnosis
768.0	Fetal death from asphyxia or anoxia before onset of labor or at unspecified time	ICD-9-CM	Diagnosis
768.1	Fetal death from asphyxia or anoxia during labor	ICD-9-CM	Diagnosis
641.01	Placenta previa without hemorrhage, with delivery	ICD-9-CM	Diagnosis
641.11	Hemorrhage from placenta previa, with delivery	ICD-9-CM	Diagnosis
641.21	Premature separation of placenta, with delivery	ICD-9-CM	Diagnosis
641.31	Antepartum hemorrhage associated with coagulation defects, with delivery	ICD-9-CM	Diagnosis
641.81	Other antepartum hemorrhage, with delivery	ICD-9-CM	Diagnosis
641.91	Unspecified antepartum hemorrhage, with delivery	ICD-9-CM	Diagnosis
642.01	Benign essential hypertension with delivery	ICD-9-CM	Diagnosis
642.02	Benign essential hypertension, with delivery, with current postpartum	ICD-9-CM	Diagnosis
642.11	Hypertension secondary to renal disease, with delivery	ICD-9-CM	Diagnosis
642.12	Hypertension secondary to renal disease, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
642.21	Other pre-existing hypertension, with delivery	ICD-9-CM	Diagnosis
642.22	Other pre-existing hypertension, with delivery, with current postpartum	ICD-9-CM	Diagnosis
642.31	Transient hypertension of pregnancy, with delivery	ICD-9-CM	Diagnosis
642.32	Transient hypertension of pregnancy, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
642.41	Mild or unspecified pre-eclampsia, with delivery	ICD-9-CM	Diagnosis
642.42	Mild or unspecified pre-eclampsia, with delivery, with current postpartum	ICD-9-CM	Diagnosis
642.51	Severe pre-eclampsia, with delivery	ICD-9-CM	Diagnosis
642.52	Severe pre-eclampsia, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
642.61	Eclampsia, with delivery	ICD-9-CM	Diagnosis
642.62	Eclampsia, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
642.71	Pre-eclampsia or eclampsia superimposed on pre-existing hypertension, with	ICD-9-CM	Diagnosis
642.72	Pre-eclampsia or eclampsia superimposed on pre-existing hypertension, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
642.91	Unspecified hypertension, with delivery	ICD-9-CM	Diagnosis
642.92	Unspecified hypertension, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
643.01	Mild hyperemesis gravidarum, delivered	ICD-9-CM	Diagnosis
643.11	Hyperemesis gravidarum with metabolic disturbance, delivered	ICD-9-CM	Diagnosis
643.21	Late vomiting of pregnancy, delivered	ICD-9-CM	Diagnosis

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Code	Description	Code Category	Code Type
643.81	Other vomiting complicating pregnancy, delivered	ICD-9-CM	Diagnosis
643.91	Unspecified vomiting of pregnancy, delivered	ICD-9-CM	Diagnosis
644.21	Early onset of delivery, delivered, with or without mention of antepartum	ICD-9-CM	Diagnosis
645.01	Prolonged pregnancy, with delivery	ICD-9-CM	Diagnosis
645.11	Post term pregnancy, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
645.21	Prolonged pregnancy, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
645.23	Prolonged pregnancy, antepartum condition or complication	ICD-9-CM	Diagnosis
646.01	Papyraceous fetus, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
646.11	Edema or excessive weight gain in pregnancy, with delivery, with or without mention of antepartum complication	ICD-9-CM	Diagnosis
646.12	Edema or excessive weight gain in pregnancy, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
646.21	Unspecified renal disease in pregnancy, with delivery	ICD-9-CM	Diagnosis
646.22	Unspecified renal disease in pregnancy, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
646.31	Pregnancy complication, recurrent pregnancy loss, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
646.41	Peripheral neuritis in pregnancy, with delivery	ICD-9-CM	Diagnosis
646.42	Peripheral neuritis in pregnancy, with delivery, with current postpartum	ICD-9-CM	Diagnosis
646.51	Asymptomatic bacteriuria in pregnancy, with delivery	ICD-9-CM	Diagnosis
646.52	Asymptomatic bacteriuria in pregnancy, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
646.61	Infections of genitourinary tract in pregnancy, with delivery	ICD-9-CM	Diagnosis
646.62	Infections of genitourinary tract in pregnancy, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
646.71	Liver and biliary tract disorders in pregnancy, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
646.81	Other specified complication of pregnancy, with delivery	ICD-9-CM	Diagnosis
646.82	Other specified complications of pregnancy, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
646.91	Unspecified complication of pregnancy, with delivery	ICD-9-CM	Diagnosis
647.01	Maternal syphilis, complicating pregnancy, with delivery	ICD-9-CM	Diagnosis
647.02	Maternal syphilis, complicating pregnancy, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
647.11	Maternal gonorrhea with delivery	ICD-9-CM	Diagnosis
647.12	Maternal gonorrhea, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
647.21	Other maternal venereal diseases with delivery	ICD-9-CM	Diagnosis
647.22	Other maternal venereal diseases with delivery, with current postpartum	ICD-9-CM	Diagnosis
647.31	Maternal tuberculosis with delivery	ICD-9-CM	Diagnosis
647.32	Maternal tuberculosis with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
647.41	Maternal malaria with delivery	ICD-9-CM	Diagnosis
647.42	Maternal malaria with delivery, with current postpartum complication	ICD-9-CM	Diagnosis

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Code	Description	Code Category	Code Type
647.51	Maternal rubella with delivery	ICD-9-CM	Diagnosis
647.52	Maternal rubella with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
647.61	Other maternal viral disease with delivery	ICD-9-CM	Diagnosis
647.62	Other maternal viral disease with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
647.81	Other specified maternal infectious and parasitic disease with delivery	ICD-9-CM	Diagnosis
647.82	Other specified maternal infectious and parasitic disease with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
647.91	Unspecified maternal infection or infestation with delivery	ICD-9-CM	Diagnosis
647.92	Unspecified maternal infection or infestation with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
648.01	Maternal diabetes mellitus with delivery	ICD-9-CM	Diagnosis
648.02	Maternal diabetes mellitus with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
648.11	Maternal thyroid dysfunction with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
648.12	Maternal thyroid dysfunction with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
648.21	Maternal anemia, with delivery	ICD-9-CM	Diagnosis
648.22	Maternal anemia with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
648.31	Maternal drug dependence, with delivery	ICD-9-CM	Diagnosis
648.32	Maternal drug dependence, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
648.41	Maternal mental disorders, with delivery	ICD-9-CM	Diagnosis
648.42	Maternal mental disorders, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
648.51	Maternal congenital cardiovascular disorders, with delivery	ICD-9-CM	Diagnosis
648.52	Maternal congenital cardiovascular disorders, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
648.61	Other maternal cardiovascular diseases, with delivery	ICD-9-CM	Diagnosis
648.62	Other maternal cardiovascular diseases, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
648.71	Bone and joint disorders of maternal back, pelvis, and lower limbs, with delivery	ICD-9-CM	Diagnosis
648.72	Bone and joint disorders of maternal back, pelvis, and lower limbs, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
648.81	Abnormal maternal glucose tolerance, with delivery	ICD-9-CM	Diagnosis
648.82	Abnormal maternal glucose tolerance, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
648.91	Other current maternal conditions classifiable elsewhere, with delivery	ICD-9-CM	Diagnosis
648.92	Other current maternal conditions classifiable elsewhere, with delivery, with current postpartum complication	ICD-9-CM	Diagnosis
649.01	Tobacco use disorder complicating pregnancy, childbirth, or the puerperium, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
649.02	Tobacco use disorder complicating pregnancy, childbirth, or the puerperium, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
649.11	Obesity complicating pregnancy, childbirth, or the puerperium, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis

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Code	Description	Code Category	Code Type
649.12	Obesity complicating pregnancy, childbirth, or the puerperium, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
649.21	Bariatric surgery status complicating pregnancy, childbirth, or the puerperium, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
649.22	Bariatric surgery status complicating pregnancy, childbirth, or the puerperium, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
649.31	Coagulation defects complicating pregnancy, childbirth, or the puerperium, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
649.32	Coagulation defects complicating pregnancy, childbirth, or the puerperium, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
649.41	Epilepsy complicating pregnancy, childbirth, or the puerperium, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
649.42	Epilepsy complicating pregnancy, childbirth, or the puerperium, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
649.51	Spotting complicating pregnancy, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
649.61	Uterine size date discrepancy, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
649.62	Uterine size date discrepancy, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
649.71	Cervical shortening, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
649.81	Onset (spontaneous) of labor after 37 completed weeks of gestation but before 39 completed weeks gestation, with delivery by (planned) cesarean section, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
649.82	Onset (spontaneous) of labor after 37 completed weeks of gestation but before 39 completed weeks gestation, with delivery by (planned) cesarean section, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
651.01	Twin pregnancy, delivered	ICD-9-CM	Diagnosis
651.11	Triplet pregnancy, delivered	ICD-9-CM	Diagnosis
651.21	Quadruplet pregnancy, delivered	ICD-9-CM	Diagnosis
651.31	Twin pregnancy with fetal loss and retention of one fetus, delivered	ICD-9-CM	Diagnosis
651.41	Triplet pregnancy with fetal loss and retention of one or more, delivered	ICD-9-CM	Diagnosis
651.51	Quadruplet pregnancy with fetal loss and retention of one or more, delivered	ICD-9-CM	Diagnosis
651.61	Other multiple pregnancy with fetal loss and retention of one or more fetus(es), delivered	ICD-9-CM	Diagnosis
651.71	Multiple gestation following (elective) fetal reduction, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
651.81	Other specified multiple gestation, delivered	ICD-9-CM	Diagnosis
651.91	Unspecified multiple gestation, delivered	ICD-9-CM	Diagnosis
652.01	Unstable lie of fetus, delivered	ICD-9-CM	Diagnosis
652.11	Breech or other malpresentation successfully converted to cephalic presentation, delivered	ICD-9-CM	Diagnosis
652.21	Breech presentation without mention of version, delivered	ICD-9-CM	Diagnosis

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Code	Description	Code Category	Code Type
652.31	Transverse or oblique fetal presentation, delivered	ICD-9-CM	Diagnosis
652.41	Fetal face or brow presentation, delivered	ICD-9-CM	Diagnosis
652.51	High fetal head at term, delivered	ICD-9-CM	Diagnosis
652.61	Multiple gestation with malpresentation of one fetus or more, delivered	ICD-9-CM	Diagnosis
652.71	Prolapsed arm of fetus, delivered	ICD-9-CM	Diagnosis
652.81	Other specified malposition or malpresentation of fetus, delivered	ICD-9-CM	Diagnosis
652.91	Unspecified malposition or malpresentation of fetus, delivered	ICD-9-CM	Diagnosis
653.01	Major abnormality of bony pelvis, not further specified, delivered	ICD-9-CM	Diagnosis
653.11	Generally contracted pelvis in pregnancy, delivered	ICD-9-CM	Diagnosis
653.21	Inlet contraction of pelvis in pregnancy, delivered	ICD-9-CM	Diagnosis
653.31	Outlet contraction of pelvis in pregnancy, delivered	ICD-9-CM	Diagnosis
653.41	Fetopelvic disproportion, delivered	ICD-9-CM	Diagnosis
653.51	Unusually large fetus causing disproportion, delivered	ICD-9-CM	Diagnosis
653.61	Hydrocephalic fetus causing disproportion, delivered	ICD-9-CM	Diagnosis
653.71	Other fetal abnormality causing disproportion, delivered	ICD-9-CM	Diagnosis
653.81	Fetal disproportion of other origin, delivered	ICD-9-CM	Diagnosis
653.91	Unspecified fetal disproportion, delivered	ICD-9-CM	Diagnosis
654.01	Congenital abnormalities of pregnant uterus, delivered	ICD-9-CM	Diagnosis
654.02	Congenital abnormalities of pregnant uterus, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
654.11	Tumors of body of uterus, delivered	ICD-9-CM	Diagnosis
654.12	Tumors of body of uterus, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
654.21	Previous cesarean delivery, delivered, with or without mention of antepartum	ICD-9-CM	Diagnosis
654.31	Retroverted and incarcerated gravid uterus, delivered	ICD-9-CM	Diagnosis
654.32	Retroverted and incarcerated gravid uterus, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
654.41	Other abnormalities in shape or position of gravid uterus and of neighboring structures, delivered	ICD-9-CM	Diagnosis
654.42	Other abnormalities in shape or position of gravid uterus and of neighboring structures, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
654.51	Cervical incompetence, delivered	ICD-9-CM	Diagnosis
654.52	Cervical incompetence, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
654.61	Other congenital or acquired abnormality of cervix, with delivery	ICD-9-CM	Diagnosis
654.62	Other congenital or acquired abnormality of cervix, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
654.71	Congenital or acquired abnormality of vagina, with delivery	ICD-9-CM	Diagnosis
654.72	Congenital or acquired abnormality of vagina, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
654.81	Congenital or acquired abnormality of vulva, with delivery	ICD-9-CM	Diagnosis
654.82	Congenital or acquired abnormality of vulva, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
654.91	Other and unspecified abnormality of organs and soft tissues of pelvis, with	ICD-9-CM	Diagnosis

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Code	Description	Code Category	Code Type
654.92	Other and unspecified abnormality of organs and soft tissues of pelvis, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
655.01	Central nervous system malformation in fetus, with delivery	ICD-9-CM	Diagnosis
655.11	Chromosomal abnormality in fetus, affecting management of mother, with delivery	ICD-9-CM	Diagnosis
655.21	Hereditary disease in family possibly affecting fetus, affecting management of mother, with delivery	ICD-9-CM	Diagnosis
655.31	Suspected damage to fetus from viral disease in mother, affecting management of mother, with delivery	ICD-9-CM	Diagnosis
655.41	Suspected damage to fetus from other disease in mother, affecting management of mother, with delivery	ICD-9-CM	Diagnosis
655.51	Suspected damage to fetus from drugs, affecting management of mother,	ICD-9-CM	Diagnosis
655.61	Suspected damage to fetus from radiation, affecting management of mother,	ICD-9-CM	Diagnosis
655.71	Decreased fetal movements, affecting management of mother, delivered	ICD-9-CM	Diagnosis
655.81	Other known or suspected fetal abnormality, not elsewhere classified, affecting management of mother, delivery	ICD-9-CM	Diagnosis
655.91	Unspecified fetal abnormality affecting management of mother, delivery	ICD-9-CM	Diagnosis
656.01	Fetal-maternal hemorrhage, with delivery	ICD-9-CM	Diagnosis
656.11	Rhesus isoimmunization affecting management of mother, delivered	ICD-9-CM	Diagnosis
656.21	Isoimmunization from other and unspecified blood-group incompatibility, affecting management of mother, delivered	ICD-9-CM	Diagnosis
656.31	Fetal distress affecting management of mother, delivered	ICD-9-CM	Diagnosis
656.41	Intrauterine death affecting management of mother, delivered	ICD-9-CM	Diagnosis
656.51	Poor fetal growth, affecting management of mother, delivered	ICD-9-CM	Diagnosis
656.61	Excessive fetal growth affecting management of mother, delivered	ICD-9-CM	Diagnosis
656.71	Other placental conditions affecting management of mother, delivered	ICD-9-CM	Diagnosis
656.81	Other specified fetal and placental problems affecting management of mother,	ICD-9-CM	Diagnosis
656.91	Unspecified fetal and placental problem affecting management of mother,	ICD-9-CM	Diagnosis
657.01	Polyhydramnios, with delivery	ICD-9-CM	Diagnosis
658.01	Oligohydramnios, delivered	ICD-9-CM	Diagnosis
658.11	Premature rupture of membranes in pregnancy, delivered	ICD-9-CM	Diagnosis
658.21	Delayed delivery after spontaneous or unspecified rupture of membranes,	ICD-9-CM	Diagnosis
658.31	Delayed delivery after artificial rupture of membranes, delivered	ICD-9-CM	Diagnosis
658.41	Infection of amniotic cavity, delivered	ICD-9-CM	Diagnosis
658.81	Other problem associated with amniotic cavity and membranes, delivered	ICD-9-CM	Diagnosis
658.91	Unspecified problem associated with amniotic cavity and membranes, delivered	ICD-9-CM	Diagnosis
659.01	Failed mechanical induction of labor, delivered	ICD-9-CM	Diagnosis
659.11	Failed medical or unspecified induction of labor, delivered	ICD-9-CM	Diagnosis
659.21	Unspecified maternal pyrexia during labor, delivered	ICD-9-CM	Diagnosis
659.31	Generalized infection during labor, delivered	ICD-9-CM	Diagnosis
659.41	Grand multiparity, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
659.51	Elderly primigravida, delivered	ICD-9-CM	Diagnosis
659.61	Elderly multigravida, delivered, with mention of antepartum condition	ICD-9-CM	Diagnosis

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Code	Description	Code Category	Code Type
659.71	Abnormality in fetal heart rate or rhythm, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
659.81	Other specified indication for care or intervention related to labor and delivery, delivered	ICD-9-CM	Diagnosis
659.91	Unspecified indication for care or intervention related to labor and delivery,	ICD-9-CM	Diagnosis
660.01	Obstruction caused by malposition of fetus at onset of labor, delivered	ICD-9-CM	Diagnosis
660.11	Obstruction by bony pelvis during labor and delivery, delivered	ICD-9-CM	Diagnosis
660.21	Obstruction by abnormal pelvic soft tissues during labor and delivery, delivered	ICD-9-CM	Diagnosis
660.31	Deep transverse arrest and persistent occipitoposterior position during labor and deliver, delivered	ICD-9-CM	Diagnosis
660.41	Shoulder (girdle) dystocia during labor and deliver, delivered	ICD-9-CM	Diagnosis
660.51	Locked twins, delivered	ICD-9-CM	Diagnosis
660.61	Unspecified failed trial of labor, delivered	ICD-9-CM	Diagnosis
660.71	Unspecified failed forceps or vacuum extractor, delivered	ICD-9-CM	Diagnosis
660.81	Other causes of obstructed labor, delivered	ICD-9-CM	Diagnosis
660.91	Unspecified obstructed labor, with delivery	ICD-9-CM	Diagnosis
661.01	Primary uterine inertia, with delivery	ICD-9-CM	Diagnosis
661.11	Secondary uterine inertia, with delivery	ICD-9-CM	Diagnosis
661.21	Other and unspecified uterine inertia, with delivery	ICD-9-CM	Diagnosis
661.31	Precipitate labor, with delivery	ICD-9-CM	Diagnosis
661.41	Hypertonic, incoordinate, or prolonged uterine contractions, with delivery	ICD-9-CM	Diagnosis
661.91	Unspecified abnormality of labor, with delivery	ICD-9-CM	Diagnosis
662.01	Prolonged first stage of labor, delivered	ICD-9-CM	Diagnosis
662.11	Unspecified prolonged labor, delivered	ICD-9-CM	Diagnosis
662.21	Prolonged second stage of labor, delivered	ICD-9-CM	Diagnosis
662.31	Delayed delivery of second twin, triplet, etc., delivered	ICD-9-CM	Diagnosis
663.01	Prolapse of cord, complicating labor and delivery, delivered	ICD-9-CM	Diagnosis
663.11	Cord around neck, with compression, complicating labor and delivery, delivered	ICD-9-CM	Diagnosis
663.21	Other and unspecified cord entanglement, with compression, complicating labor and delivery, delivered	ICD-9-CM	Diagnosis
663.31	Other and unspecified cord entanglement, without mention of compression, complicating labor and delivery, delivered	ICD-9-CM	Diagnosis
663.41	Short cord complicating labor and delivery, delivered	ICD-9-CM	Diagnosis
663.51	Vasa previa complicating labor and delivery, delivered	ICD-9-CM	Diagnosis
663.61	Vascular lesions of cord complicating labor and delivery, delivered	ICD-9-CM	Diagnosis
663.81	Other umbilical cord complications during labor and delivery, delivered	ICD-9-CM	Diagnosis
663.91	Unspecified umbilical cord complication during labor and delivery, delivered	ICD-9-CM	Diagnosis
664.01	First-degree perineal laceration, with delivery	ICD-9-CM	Diagnosis
664.11	Second-degree perineal laceration, with delivery	ICD-9-CM	Diagnosis
664.21	Third-degree perineal laceration, with delivery	ICD-9-CM	Diagnosis
664.31	Fourth-degree perineal laceration, with delivery	ICD-9-CM	Diagnosis
664.41	Unspecified perineal laceration, with delivery	ICD-9-CM	Diagnosis

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Code	Description	Code Category	Code Type
664.51	Vulvar and perineal hematoma, with delivery	ICD-9-CM	Diagnosis
664.61	Anal sphincter tear complicating delivery, not associated with third-degree perineal laceration, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
664.81	Other specified trauma to perineum and vulva, with delivery	ICD-9-CM	Diagnosis
664.91	Unspecified trauma to perineum and vulva, with delivery	ICD-9-CM	Diagnosis
665.01	Rupture of uterus before onset of labor, with delivery	ICD-9-CM	Diagnosis
665.11	Rupture of uterus during labor, with delivery	ICD-9-CM	Diagnosis
665.22	Inversion of uterus, delivered with postpartum complication	ICD-9-CM	Diagnosis
665.31	Laceration of cervix, with delivery	ICD-9-CM	Diagnosis
665.41	High vaginal laceration, with delivery	ICD-9-CM	Diagnosis
665.51	Other injury to pelvic organs, with delivery	ICD-9-CM	Diagnosis
665.61	Damage to pelvic joints and ligaments, with delivery	ICD-9-CM	Diagnosis
665.71	Pelvic hematoma, with delivery	ICD-9-CM	Diagnosis
665.72	Pelvic hematoma, delivered with postpartum complication	ICD-9-CM	Diagnosis
665.81	Other specified obstetrical trauma, with delivery	ICD-9-CM	Diagnosis
665.82	Other specified obstetrical trauma, delivered, with postpartum	ICD-9-CM	Diagnosis
665.91	Unspecified obstetrical trauma, with delivery	ICD-9-CM	Diagnosis
665.92	Unspecified obstetrical trauma, delivered, with postpartum complication	ICD-9-CM	Diagnosis
666.02	Third-stage postpartum hemorrhage, with delivery	ICD-9-CM	Diagnosis
666.12	Other immediate postpartum hemorrhage, with delivery	ICD-9-CM	Diagnosis
666.22	Delayed and secondary postpartum hemorrhage, with delivery	ICD-9-CM	Diagnosis
666.32	Postpartum coagulation defects, with delivery	ICD-9-CM	Diagnosis
667.02	Retained placenta without hemorrhage, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
667.12	Retained portions of placenta or membranes, without hemorrhage, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
668.01	Pulmonary complications of the administration of anesthesia or other sedation in labor and delivery, delivered	ICD-9-CM	Diagnosis
668.02	Pulmonary complications of the administration of anesthesia or other sedation in labor and delivery, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
668.11	Cardiac complications of the administration of anesthesia or other sedation in labor and delivery, delivered	ICD-9-CM	Diagnosis
668.12	Cardiac complications of the administration of anesthesia or other sedation in labor and delivery, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
668.21	Central nervous system complications of the administration of anesthesia or other sedation in labor and delivery, delivered	ICD-9-CM	Diagnosis
668.22	Central nervous system complications of the administration of anesthesia or other sedation in labor and delivery, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
668.81	Other complications of the administration of anesthesia or other sedation in labor and delivery, delivered	ICD-9-CM	Diagnosis
668.82	Other complications of the administration of anesthesia or other sedation in labor and delivery, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis

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Code	Description	Code Category	Code Type
668.91	Unspecified complication of the administration of anesthesia or other sedation in labor and delivery, delivered	ICD-9-CM	Diagnosis
668.92	Unspecified complication of the administration of anesthesia or other sedation in labor and delivery, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
669.01	Maternal distress, with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
669.02	Maternal distress, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
669.11	Shock during or following labor and delivery, with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
669.12	Shock during or following labor and delivery, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
669.21	Maternal hypotension syndrome, with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
669.22	Maternal hypotension syndrome, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
669.32	Acute kidney failure following labor and delivery, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
669.41	Other complications of obstetrical surgery and procedures, with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
669.42	Other complications of obstetrical surgery and procedures, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
669.51	Forceps or vacuum extractor delivery without mention of indication, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
669.61	Breech extraction, without mention of indication, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
669.71	Cesarean delivery, without mention of indication, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
669.81	Other complication of labor and delivery, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
669.82	Other complication of labor and delivery, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
669.91	Unspecified complication of labor and delivery, with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
669.92	Unspecified complication of labor and delivery, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
670.02	Major puerperal infection, unspecified, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
670.12	Puerperal endometritis, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
670.22	Puerperal sepsis, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
670.32	Puerperal septic thrombophlebitis, delivered, with mention of postpartum	ICD-9-CM	Diagnosis
670.82	Other major puerperal infection, delivered, with mention of postpartum	ICD-9-CM	Diagnosis
671.01	Varicose veins of legs, with delivery, with or without mention of antepartum	ICD-9-CM	Diagnosis
671.02	Varicose veins of legs, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Live-Birth Deliveries

Code	Description	Code Category	Code Type
671.11	Varicose veins of vulva and perineum, with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
671.12	Varicose veins of vulva and perineum, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
671.21	Superficial thrombophlebitis with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
671.22	Superficial thrombophlebitis with delivery, with mention of postpartum	ICD-9-CM	Diagnosis
671.31	Deep phlebothrombosis, antepartum, with delivery	ICD-9-CM	Diagnosis
671.42	Deep phlebothrombosis, postpartum, with delivery	ICD-9-CM	Diagnosis
671.51	Other phlebitis and thrombosis with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
671.52	Other phlebitis and thrombosis with delivery, with mention of postpartum	ICD-9-CM	Diagnosis
671.81	Other venous complication, with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
671.82	Other venous complication, with delivery, with mention of postpartum	ICD-9-CM	Diagnosis
671.91	Unspecified venous complication, with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
671.92	Unspecified venous complication, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
672.02	Puerperal pyrexia of unknown origin, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
673.01	Obstetrical air embolism, with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
673.02	Obstetrical air embolism, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
673.11	Amniotic fluid embolism, with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
673.12	Amniotic fluid embolism, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
673.21	Obstetrical blood-clot embolism, with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
673.22	Obstetrical blood-clot embolism, with mention of postpartum complication	ICD-9-CM	Diagnosis
673.31	Obstetrical pyemic and septic embolism, with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
673.32	Obstetrical pyemic and septic embolism, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
673.81	Other obstetrical pulmonary embolism, with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
673.82	Other obstetrical pulmonary embolism, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
674.01	Cerebrovascular disorder, with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
674.02	Cerebrovascular disorder, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
674.12	Disruption of cesarean wound, with delivery, with mention of postpartum	ICD-9-CM	Diagnosis
674.22	Disruption of perineal wound, with delivery, with mention of postpartum	ICD-9-CM	Diagnosis

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Live-Birth Deliveries

Code	Description	Code Category	Code Type
674.32	Other complication of obstetrical surgical wounds, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
674.42	Placental polyp, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
674.51	Peripartum cardiomyopathy, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
674.52	Peripartum cardiomyopathy, delivered, with mention of postpartum condition	ICD-9-CM	Diagnosis
674.82	Other complication of puerperium, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
674.92	Unspecified complications of puerperium, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
675.01	Infection of nipple associated with childbirth, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
675.02	Infection of nipple associated with childbirth, delivered with mention of postpartum complication	ICD-9-CM	Diagnosis
675.11	Abscess of breast associated with childbirth, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
675.12	Abscess of breast associated with childbirth, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
675.21	Nonpurulent mastitis, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
675.22	Nonpurulent mastitis, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
675.81	Other specified infection of the breast and nipple associated with childbirth, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
675.82	Other specified infection of the breast and nipple associated with childbirth, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
675.91	Unspecified infection of the breast and nipple, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
675.92	Unspecified infection of the breast and nipple, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
676.01	Retracted nipple, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
676.02	Retracted nipple, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
676.11	Cracked nipple, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
676.12	Cracked nipple, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
676.21	Engorgement of breasts, delivered, with or without mention of antepartum	ICD-9-CM	Diagnosis
676.22	Engorgement of breasts, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
676.31	Other and unspecified disorder of breast associated with childbirth, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
676.32	Other and unspecified disorder of breast associated with childbirth, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
676.41	Failure of lactation, with delivery, with or without mention of antepartum	ICD-9-CM	Diagnosis
676.42	Failure of lactation, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
676.51	Suppressed lactation, with delivery, with or without mention of antepartum	ICD-9-CM	Diagnosis
676.52	Suppressed lactation, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis

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Code	Description	Code Category	Code Type
676.61	Galactorrhea, with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
676.62	Galactorrhea, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
676.81	Other disorder of lactation, with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
676.82	Other disorder of lactation, with delivery, with mention of postpartum	ICD-9-CM	Diagnosis
676.91	Unspecified disorder of lactation, with delivery, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
72	Forceps, vacuum, and breech delivery	ICD-9-CM	Procedure
72.0	Other procedures inducing or assisting delivery	ICD-9-CM	Procedure
72.1	Low forceps operation	ICD-9-CM	Procedure
72.2	Low forceps operation with episiotomy	ICD-9-CM	Procedure
72.21	Mid forceps operation	ICD-9-CM	Procedure
72.29	High forceps operation	ICD-9-CM	Procedure
72.3	Forceps rotation of fetal head	ICD-9-CM	Procedure
72.31	Breech extraction	ICD-9-CM	Procedure
72.39	Forceps application to aftercoming head	ICD-9-CM	Procedure
72.4	Vacuum extraction	ICD-9-CM	Procedure
72.5	Other specified instrumental delivery	ICD-9-CM	Procedure
72.51	Unspecified instrumental delivery	ICD-9-CM	Procedure
72.52	Artificial rupture of membranes	ICD-9-CM	Procedure
72.53	Other surgical induction of labor	ICD-9-CM	Procedure
72.54	Internal and combined version and extraction	ICD-9-CM	Procedure
72.6	Failed forceps	ICD-9-CM	Procedure
72.7	Medical induction of labor	ICD-9-CM	Procedure
72.71	Manually assisted delivery	ICD-9-CM	Procedure
72.79	Episiotomy	ICD-9-CM	Procedure
72.8	Operations on fetus to facilitate delivery	ICD-9-CM	Procedure
72.9	Other operations assisting delivery	ICD-9-CM	Procedure
73	Classical cesarean section	ICD-9-CM	Procedure
73.0	Low cervical cesarean section	ICD-9-CM	Procedure
73.01	Extraperitoneal cesarean section	ICD-9-CM	Procedure
73.09	Cesarean section of other specified type	ICD-9-CM	Procedure
73.1	Cesarean section of unspecified type	ICD-9-CM	Procedure
73.2	Mid forceps operation with episiotomy	ICD-9-CM	Procedure
73.21	Other mid forceps operation	ICD-9-CM	Procedure
73.22	High forceps operation with episiotomy	ICD-9-CM	Procedure
73.3	Other high forceps operation	ICD-9-CM	Procedure
73.4	Partial breech extraction with forceps to aftercoming head	ICD-9-CM	Procedure
73.5	Other partial breech extraction	ICD-9-CM	Procedure
73.51	Total breech extraction with forceps to aftercoming head	ICD-9-CM	Procedure
73.59	Other total breech extraction	ICD-9-CM	Procedure
73.6	Vacuum extraction with episiotomy	ICD-9-CM	Procedure

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Code	Description	Code Category	Code Type
73.8	Other vacuum extraction	ICD-9-CM	Procedure
73.9	Induction of labor by artificial rupture of membranes	ICD-9-CM	Procedure
73.91	Other artificial rupture of membranes	ICD-9-CM	Procedure
73.92	Internal and combined version without extraction	ICD-9-CM	Procedure
73.93	Internal and combined version with extraction	ICD-9-CM	Procedure
73.94	Manual rotation of fetal head	ICD-9-CM	Procedure
73.99	Other manually assisted delivery	ICD-9-CM	Procedure
74.0	External version to assist delivery	ICD-9-CM	Procedure
74.1	Replacement of prolapsed umbilical cord	ICD-9-CM	Procedure
74.2	Incision of cervix to assist delivery	ICD-9-CM	Procedure
74.4	Pubiotomy to assist delivery	ICD-9-CM	Procedure
74.9	Other operations to assist delivery	ICD-9-CM	Procedure
74.99	Other cesarean section of unspecified type	ICD-9-CM	Procedure
676.92	Unspecified disorder of lactation, with delivery, with mention of postpartum complication	ICD-9-CM	Diagnosis
678.01	Fetal hematologic conditions, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
678.11	Fetal conjoined twins, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
679.01	Maternal complications from in utero procedure, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
679.02	Maternal complications from in utero procedure, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
679.11	Fetal complications from in utero procedure, delivered, with or without mention of antepartum condition	ICD-9-CM	Diagnosis
679.12	Fetal complications from in utero procedure, delivered, with mention of postpartum complication	ICD-9-CM	Diagnosis
V27	Outcome of delivery	ICD-9-CM	Diagnosis
V27.0	Outcome of delivery, single liveborn	ICD-9-CM	Diagnosis
V27.1	Outcome of delivery, single stillborn	ICD-9-CM	Diagnosis
V27.2	Outcome of delivery, twins, both liveborn	ICD-9-CM	Diagnosis
V27.3	Outcome of delivery, twins, one liveborn and one stillborn	ICD-9-CM	Diagnosis
V27.4	Outcome of delivery, twins, both stillborn	ICD-9-CM	Diagnosis
V27.5	Outcome of delivery, other multiple birth, all liveborn	ICD-9-CM	Diagnosis
V27.6	Outcome of delivery, other multiple birth, some liveborn	ICD-9-CM	Diagnosis
V27.7	Outcome of delivery, other multiple birth, all stillborn	ICD-9-CM	Diagnosis
V27.9	Outcome of delivery, unspecified	ICD-9-CM	Diagnosis
V30	Single liveborn	ICD-9-CM	Diagnosis
V30.0	Single liveborn, born in hospital	ICD-9-CM	Diagnosis
V30.00	Single liveborn, born in hospital, delivered without mention of cesarean delivery	ICD-9-CM	Diagnosis
V30.01	Single liveborn, born in hospital, delivered by cesarean delivery	ICD-9-CM	Diagnosis
V30.1	Single liveborn, born before admission to hospital	ICD-9-CM	Diagnosis
V30.2	Single liveborn, born outside hospital and not hospitalized	ICD-9-CM	Diagnosis

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Code	Description	Code Category	Code Type
V31	Twin birth, mate liveborn	ICD-9-CM	Diagnosis
V31.0	Twin, mate liveborn, born in hospital	ICD-9-CM	Diagnosis
V31.00	Twin, mate liveborn, born in hospital, delivered without mention of cesarean	ICD-9-CM	Diagnosis
V31.01	Twin, mate liveborn, born in hospital, delivered by cesarean delivery	ICD-9-CM	Diagnosis
V31.1	Twin birth, mate liveborn, born before admission to hospital	ICD-9-CM	Diagnosis
V31.2	Twin birth, mate liveborn, born outside hospital and not hospitalized	ICD-9-CM	Diagnosis
V32	Twin birth, mate stillborn	ICD-9-CM	Diagnosis
V32.0	Twin, mate stillborn, born in hospital	ICD-9-CM	Diagnosis
V32.00	Twin, mate stillborn, born in hospital, delivered without mention of cesarean	ICD-9-CM	Diagnosis
V32.01	Twin, mate stillborn, born in hospital, delivered by cesarean delivery	ICD-9-CM	Diagnosis
V32.1	Twin birth, mate stillborn, born before admission to hospital	ICD-9-CM	Diagnosis
V32.2	Twin birth, mate stillborn, born outside hospital and not hospitalized	ICD-9-CM	Diagnosis
V33	Twin birth, unspecified whether mate liveborn or stillborn	ICD-9-CM	Diagnosis
V33.0	Twin, unspecified, born in hospital	ICD-9-CM	Diagnosis
V33.00	Twin, unspecified whether mate stillborn or liveborn, born in hospital, delivered without mention of cesarean delivery	ICD-9-CM	Diagnosis
V33.01	Twin, unspecified whether mate stillborn or liveborn, born in hospital, delivered by cesarean delivery	ICD-9-CM	Diagnosis
V33.1	Twin birth, unspecified whether mate liveborn or stillborn, born before admission to hospital	ICD-9-CM	Diagnosis
V33.2	Twin birth, unspecified whether mate liveborn or stillborn, born outside hospital and not hospitalized	ICD-9-CM	Diagnosis
V34	Other multiple birth (three or more), mates all liveborn	ICD-9-CM	Diagnosis
V34.0	Other multiple, mates all liveborn, born in hospital	ICD-9-CM	Diagnosis
V34.00	Other multiple, mates all liveborn, born in hospital, delivered without mention of cesarean delivery	ICD-9-CM	Diagnosis
V34.01	Other multiple, mates all liveborn, born in hospital, delivered by cesarean delivery	ICD-9-CM	Diagnosis
V34.1	Other multiple birth (three or more), mates all liveborn, born before admission to hospital	ICD-9-CM	Diagnosis
V34.2	Other multiple birth (three or more), mates all liveborn, born outside hospital and not hospitalized	ICD-9-CM	Diagnosis
V35	Other multiple birth (three or more), mates all stillborn	ICD-9-CM	Diagnosis
V35.0	Other multiple, mates all stillborn, born in hospital	ICD-9-CM	Diagnosis
V35.00	Other multiple, mates all stillborn, born in hospital, delivered without mention of cesarean delivery	ICD-9-CM	Diagnosis
V35.01	Other multiple, mates all stillborn, born in hospital, delivered by cesarean delivery	ICD-9-CM	Diagnosis
V35.1	Other multiple birth (three or more), mates all stillborn, born before admission to hospital	ICD-9-CM	Diagnosis
V35.2	Other multiple birth (three or more), mates all stillborn, born outside of hospital and not hospitalized	ICD-9-CM	Diagnosis
V36	Other multiple birth (three or more), mates liveborn and stillborn	ICD-9-CM	Diagnosis
V36.0	Other multiple, mates liveborn and stillborn, born in hospital	ICD-9-CM	Diagnosis

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Live-Birth Deliveries

Code	Description	Code Category	Code Type
V36.00	Other multiple, mates liveborn and stillborn, born in hospital, delivered without mention of cesarean delivery	ICD-9-CM	Diagnosis
V36.01	Other multiple, mates liveborn and stillborn, born in hospital, delivered by cesarean delivery	ICD-9-CM	Diagnosis
V36.1	Other multiple birth (three or more), mates liveborn and stillborn, born before admission to hospital	ICD-9-CM	Diagnosis
V36.2	Other multiple birth (three or more), mates liveborn and stillborn, born outside hospital and not hospitalized	ICD-9-CM	Diagnosis
V37	Other multiple birth (three or more), unspecified whether mates liveborn or stillborn	ICD-9-CM	Diagnosis
V37.0	Other multiple, unspecified whether mates stillborn or liveborn, born in hospital	ICD-9-CM	Diagnosis
V37.00	Other multiple, unspecified whether mates stillborn or liveborn, born in hospital, delivered without mention of cesarean delivery	ICD-9-CM	Diagnosis
V37.01	Other multiple, unspecified whether mates stillborn or liveborn, born in hospital, delivered by cesarean delivery	ICD-9-CM	Diagnosis
V37.1	Other multiple birth (three or more), unspecified whether mates liveborn or stillborn, born before admission to hospital	ICD-9-CM	Diagnosis
V37.2	Other multiple birth (three or more), unspecified whether mates liveborn or stillborn, born outside of hospital	ICD-9-CM	Diagnosis
V39	Liveborn, unspecified whether single, twin, or multiple	ICD-9-CM	Diagnosis
V39.0	Other liveborn, unspecified whether single, twin, or multiple, born in hospital	ICD-9-CM	Diagnosis
V39.00	Liveborn infant, unspecified whether single, twin, or multiple, born in hospital, delivered without mention of cesarean delivery	ICD-9-CM	Diagnosis
V39.01	Liveborn infant, unspecified whether single, twin, or multiple, born in hospital, delivered by cesarean	ICD-9-CM	Diagnosis
V39.1	Liveborn, unspecified whether single, twin or multiple, born before admission to	ICD-9-CM	Diagnosis
V39.2	Liveborn, unspecified whether single, twin or multiple, born outside hospital and not hospitalized	ICD-9-CM	Diagnosis

Appendix D. List of Current Procedural Terminology, Fourth Edition (CPT-4) and Healthcare Common Procedure Coding System (HCPCS) Procedure Codes Used to Define the Exposures of Interest in this Request, by Test Group

Code	Description	Code Type	Code Category	Gestational Days (Test-based Pregnancy Start)
Procedure 1				
58321	ARTIFICIAL INSEMINATION; INTRA-CERVICAL	CPT-4	Procedure	14
58322	ARTIFICIAL INSEMINATION	CPT-4	Procedure	14
58974	TRANSFER OF EMBRYO	CPT-4	Procedure	14
58976	Gamete, zygote, or embryo intrafallopian transfer	CPT-4	Procedure	14
S4011	IN VITRO FERTILIZATION;	HCPCS	Procedure	14
S4013	COMPLETE CYCLE GIFT CASE RATE	HCPCS	Procedure	14
S4014	COMPLETE CYCLE ZIFT CASE RATE	HCPCS	Procedure	14
S4015	COMPLETE IVF CYCLE CASE RATE NOS	HCPCS	Procedure	14
S4016	FROZEN IVF CYCLE CASE RATE	HCPCS	Procedure	14
S4035	STIMULATED INTRAUTERINE INSEMINATION (IUI), CASE RATE	HCPCS	Procedure	14
S4037	Cryopreserved embryo transfer, case rate	HCPCS	Procedure	14
Test 2				
59015	Chorionic villus sampling, any method	CPT-4	Procedure	84
Test 4				
76805	Complete Ultrasounds (Maternal and Fetal Evaluation); Second and Third Trimesters (Single or First Gestation)	CPT-4	Procedure	128
76810	Complete Ultrasounds (Maternal and Fetal Evaluation); Second and Third Trimesters (Each Additional Gestation)	CPT-4	Procedure	128
Test 5				
76811	Detailed fetal anatomic examination (single or first gestation)	CPT-4	Procedure	138
76812	Detailed fetal anatomic examination (Each additional Gestation)	CPT-4	Procedure	138
Test 6				
76813	Nuchal Translucency Measurement (Single or First Gestation)	CPT-4	Procedure	88
76814	Nuchal Translucency Measurement (Each Additional Gestation)	CPT-4	Procedure	88
Test 8				
81420	Fetal aneuploidy genomic sequence analysis, cell-free fetal DNA	CPT-4	Procedure	85
Test 9				
82106	Alpha-fetoprotein, amniotic	CPT-4	Procedure	120
Test 10				
82677	Assay of estriol	CPT-4	Procedure	119
Test 11				
84163	PAPP-A serum test	CPT-4	Procedure	85
Test 13				
86336	Inhibin A	CPT-4	Procedure	119
Test 14				
87081	Group B streptococcus screening (genital)	CPT-4	Procedure	252

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Code	Description	Code Type	Code Category	Gestational Days (Test-based Pregnancy Start)
Test 15				
82950	Glucose; post glucose dose (includes glucose)	CPT-4	Procedure	190
82951	Glucose; tolerance test (GTT), 3 specimens (includes glucose)	CPT-4	Procedure	190

Appendix E. Specifications Defining Parameters for this Request

In this report we estimated utilization of prenatal tests of interest among pregnancies resulting in a liveborn delivery and compared test-based algorithms for pregnancy start with the validated Medication Exposure in Pregnancy Risk Evaluation Program (MEPREP) algorithm.

Query Period: January 1, 2006 - January 1, 2018

Coverage Requirement: Medical

Enrollment Requirement Prior to Delivery Date: 391 days (301 + 90)

Enrollment Gap: 45 days

Stratifications: 90 days prior to pregnancy, by trimester, by year and cumulatively

Sex: Female

Age Groups (calculated at delivery date): 15-19, 20-24, 25-29, 30-34, 35-39, and 40-45 years

Plus (RADaR) Components: 1) Test hierarchies (for ex: Test 6 or 2); 2) Calculation of the median, min, max, mean for pregnancy episodes.

Scenario	Delivery Definition	Pregnancy Episode Creation				Exposure			
		Delivery Washout Period (Days)	Pregnancy Duration Definition (Preterm/Postterm Codes)	Pregnancy Duration in Absence of Priority Codes (Days)	Priority Codes Evaluation Window (Days)	Exposure	Incident with Respect to:	Washout (Days)	Cohort Definition
1	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Procedure 1	N/A	0	Cohort includes last exposure during each pregnancy episode
2	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Test 6	N/A	0	Cohort includes first exposure during each pregnancy episode
3	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Test 2	N/A	0	Cohort includes first exposure during each pregnancy episode
4	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Test 11	N/A	0	Cohort includes first exposure during each pregnancy episode
5	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Test 14	N/A	0	Cohort includes first exposure during each pregnancy episode
6	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Test 10	N/A	0	Cohort includes first exposure during each pregnancy episode
7	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Test 13	N/A	0	Cohort includes first exposure during each pregnancy episode
8	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Test 8	N/A	0	Cohort includes first exposure during each pregnancy episode
9	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Test 5	N/A	0	Cohort includes first exposure during each pregnancy episode

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Scenario	Pregnancy Episode Creation					Exposure			
	Delivery Definition	Delivery Washout Period (Days)	Pregnancy Duration Definition (Preterm/Postterm Codes)	Pregnancy Duration in Absence of Priority Codes (Days)	Priority Codes Evaluation Window (Days)	Exposure	Incident with Respect to:	Washout (Days)	Cohort Definition
10	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Test 9	N/A	0	Cohort includes first exposure during each pregnancy episode
11	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Test 15	N/A	0	Cohort includes first exposure during each pregnancy episode
12	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Test 4	N/A	0	Cohort includes first exposure during each pregnancy episode
13	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Procedure 1 or Test 6	N/A	0	Refer to the relevant cohort definitions in Scenarios 1-12.
13	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Procedure 1, Test 6 or 2	N/A	0	Refer to the relevant cohort definitions in Scenarios 1-12.
14	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Procedure 1, Test 6, 2, or 11	N/A	0	Refer to the relevant cohort definitions in Scenarios 1-12.
15	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Procedure 1, Test 6, 2, 11, or 14	N/A	0	Refer to the relevant cohort definitions in Scenarios 1-12.
16	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Procedure 1, Test 6, 2, 11, 14, or 10	N/A	0	Refer to the relevant cohort definitions in Scenarios 1-12.
17	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Procedure 1, Test 6, 2, 11, 14, 10, or 13	N/A	0	Refer to the relevant cohort definitions in Scenarios 1-12.

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Query Period: January 1, 2006 - January 1, 2018
Coverage Requirement: Medical
Enrollment Requirement Prior to Delivery Date: 391 days (301 + 90)
Enrollment Gap: 45 days
Stratifications: 90 days prior to pregnancy, by trimester, by year and cumulatively
Sex: Female
Age Groups (calculated at delivery date): 15-19, 20-24, 25-29, 30-34, 35-39, and 40-45 years
Plus (RADaR) Components: 1) Test hierarchies (for ex: Test 6 or 2); 2) Calculation of the median, min, max, mean for pregnancy episodes.

Scenario	Pregnancy Episode Creation					Exposure			
	Delivery Definition	Delivery Washout Period (Days)	Pregnancy Duration Definition (Preterm/Postterm Codes)	Pregnancy Duration in Absence of Priority Codes (Days)	Priority Codes Evaluation Window (Days)	Exposure	Incident with Respect to:	Washout (Days)	Cohort Definition
18	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Procedure 1, Test 6, 2, 11, 14, 10, 13, or 8	N/A	0	Refer to the relevant cohort definitions in Scenarios 1-12.
19	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Procedure 1, Test 6, 2, 11, 14, 10, 13, 8, or 5	N/A	0	Refer to the relevant cohort definitions in Scenarios 1-12.
20	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Procedure 1, Test 6, 2, 11, 14, 10, 13, 8, 5, or 9	N/A	0	Refer to the relevant cohort definitions in Scenarios 1-12.
21	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Procedure 1, Test 6, 2, 11, 14, 10, 13, 8, 5, 9, or 15	N/A	0	Refer to the relevant cohort definitions in Scenarios 1-12.
22	Use Algorithm Codes*	183	Use Algorithm Codes*	273	7	Procedure 1, Test 6, 2, 11, 14, 10, 13, 8, 5, 9, 15 or 4	N/A	0	Refer to the relevant cohort definitions in Scenarios 1-12.

*Use codes from a previously-validated algorithm from Sentinel's Medication Exposure in Pregnancy Risk Evaluation Program (default). This algorithm uses priority delivery codes present around the delivery date to determine a pregnancy duration. Requesters must set a default pregnancy duration value should no priority codes be observed around the delivery date (e.g., 273 [39 weeks]).