

Appendix 1. Conditions Included in Centers for Disease Control and Prevention Severe Maternal Morbidity Composite

Acute Myocardial infarction/aneurysm
Acute renal failure
Adult respiratory distress syndrome
Amniotic fluid embolism
Cardiac arrest/ventricular fibrillation/conversion of cardiac rhythm
Disseminated intravascular coagulation
Eclampsia
Heart failure/arrest during surgery or procedure
Puerperal cerebrovascular disorders
Pulmonary edema / acute heart failure
Severe anesthesia complications
Sepsis
Shock
Sickle cell disease with crisis
Air and thrombotic embolism
Blood products transfusion
Hysterectomy
Temporary tracheostomy/ventilation

Data from Severe maternal morbidity indicators and corresponding ICD codes during delivery hospitalizations.
Available at: <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/smm/severe-morbidity-ICD.htm>.
Retrieved August 15, 2019.

Appendix 2. Number of Patients Readmitted by Demographic Characteristic

	All Patients				Patients with diabetes only			
	Readmitted		No readmission		Readmitted		No readmission	
Diabetes Status	N	%	N	%	N	%	N	%
No Diabetes	221,934	89.4%	14,342,690	92.8%	n/a	n/a	n/a	n/a
T1DM	1,576	0.6%	33,887	0.2%	n/a	n/a	n/a	n/a
T2DM	4,034	1.6%	99,869	0.6%	n/a	n/a	n/a	n/a
GDM	20,163	8.1%	963,838	6.2%	n/a	n/a	n/a	n/a
Unspecified Diabetes	534	0.2%	12,777	0.1%	n/a	n/a	n/a	n/a
Age Category								
15-19 years old	23,902	9.6%	1,255,742	8.1%	910	3.5%	27,160	2.5%
20-24 years old	61,002	24.6%	3,547,462	23.0%	3,803	14.5%	138,279	12.5%
25-29 years old	65,703	26.5%	4,379,972	28.3%	6,439	24.5%	279,704	25.2%
30-34 years old	56,629	22.8%	3,956,838	25.6%	7,644	29.1%	355,103	32.0%
35-39 years old	31,155	12.6%	1,859,507	12.0%	5,372	20.4%	234,521	21.1%
40-54 years old	9,850	4.0%	453,541	2.9%	2,139	8.1%	75,604	6.8%
Payer								
Medicare	3,966	1.6%	92,419	0.6%	725	2.8%	10,709	1.0%
Medicaid	129,984	52.4%	6,594,688	42.7%	13,284	50.5%	450,050	40.5%
Private Insurance	103,104	41.5%	7,970,402	51.6%	11,251	42.8%	600,504	54.1%
Self-pay	3,187	1.3%	245,189	1.6%	332	1.3%	14,618	1.3%
No Charge	143	0.1%	9,681	0.1%	7	0.0%	618	0.1%
Other	7,043	2.8%	498,993	3.2%	650	2.5%	31,210	2.8%
Missing	813	0.3%	41,689	0.3%	59	0.2%	2,662	0.2%
Median Income Quartile by ZIP Code								
Income Quartile 1	81,996	33.0%	4,279,650	27.7%	8,857	33.7%	291,835	26.3%
Income Quartile 2	62,279	25.1%	3,774,375	24.4%	6,466	24.6%	270,077	24.3%
Income Quartile 3	57,810	23.3%	3,819,060	24.7%	6,051	23.0%	281,735	25.4%

Income Quartile 4	43,424	17.5%	3,419,725	22.1%	4,585	17.4%	254,622	22.9%
Missing	2,731	1.1%	160,252	1.0%	349	1.3%	12,102	1.1%
Clinical Factors								
Cesarean delivery	119,194	48.0%	5,066,760	32.8%	15,962	60.7%	520,271	46.9%
Delivery postpartum hemorrhage	11,777	4.7%	442,565	2.9%	1,083	4.1%	35,686	3.2%
Lupus	1,038	0.4%	18,273	0.1%	96	0.4%	1,505	0.1%
Multiples gestation	8,532	3.4%	290,329	1.9%	1,018	3.9%	28,289	2.6%
Asthma	14,883	6.0%	566,341	3.7%	2,066	7.9%	53,576	4.8%
Chronic kidney disease	2,132	0.9%	40,233	0.3%	511	1.9%	5,931	0.5%
HDP	42,831	17.3%	1,209,023	7.8%	6,926	26.3%	152,128	13.7%
Chronic hypertension	9,822	4.0%	255,485	1.7%	2,676	10.2%	58,993	5.3%
Thromboembolism	855	0.3%	8,841	0.1%	105	0.4%	890	0.1%
History of thromboembolism	1,854	0.8%	39,478	0.3%	283	1.1%	4,270	0.4%
Hospital Teaching Status								
Metro non-teaching	86,414	34.8%	5,699,312	36.9%	8,229	31.3%	385,761	34.7%
Metro teaching	136,025	54.8%	8,077,692	52.3%	16,027	60.9%	629,106	56.7%
Non-metro	25,802	10.4%	1,676,058	10.9%	2,051	7.8%	95,505	8.6%
Hospital Bed Size								
Small	24,576	9.9%	1,739,551	11.3%	2,478	9.4%	123,525	11.1%
Medium	62,443	25.2%	4,065,288	26.3%	6,220	23.6%	280,884	25.3%
Large	161,221	65.0%	9,648,222	62.4%	17,609	66.9%	705,963	63.6%
Hospital Safety Net Status								
Low burden	34,621	14.0%	2,750,774	17.8%	3,691	14.0%	210,251	18.9%
Medium burden	131,581	53.0%	8,139,230	52.7%	13,457	51.2%	560,536	50.5%
High burden	82,039	33.1%	4,563,058	29.5%	9,159	34.8%	339,585	30.6%

Hypertensive disease of pregnancy include gestational hypertension and preeclampsia diagnoses.

Appendix 3. Number of Patients With Individual Adverse Outcomes on Readmission

	Adverse outcome	
	Yes (n)	No (n)
Severe maternal morbidity		
Type 1 diabetes	257	33,612
Type 2 diabetes	659	99,717
Gestational diabetes	3,128	960,192
Unspecified	85	12,582
No diabetes	31,613	14,283,536
Wound complications		
Type 1 diabetes	182	35,282
Type 2 diabetes	876	103,026
Gestational diabetes	2,645	981,356
Unspecified	100	13,211
No diabetes	22,636	14,541,988
Diabetic complications		
Type 1 diabetes	379	35,084
Type 2 diabetes	149	103,753
Gestational diabetes	56	983,945
Unspecified	74	13,238
No diabetes	39	14,564,585
Hypertensive diseases of pregnancy		
Type 1 diabetes	171	35,293
Type 2 diabetes	649	103,253
Gestational diabetes	3,737	980,264
Unspecified	13,217	94
No diabetes	33,144	14,531,480
Venous thromboembolism		

Type 1 diabetes	17	35,399
Type 2 diabetes	100	103,666
Gestational diabetes	657	982,564
Unspecified	DS	13,271
No diabetes	6,486	14,549,437

*DS = data suppressed given low cell counts in accordance to the HCUP Data User Agreement. For the severe maternal morbidity analysis, patients with these outcomes during the delivery hospitalization were excluded to avoid misclassification. Similarly, for the thromboembolism analysis patients with an acute event during the delivery hospitalization were excluded; history of venous thromboembolism prior to the delivery hospitalization was accounted for in the model. Diabetic complications including diabetes including diabetic ketoacidosis, hyperglycemic hyperosmolar syndrome, and coma.

Appendix 4. Adjusted Models for 60-Day Postpartum Readmission for Specific Complications With Limited Risk Factors

	Adjusted risk ratio (95% CI)	
Severe maternal morbidity		
Type 1 diabetes	2.20	1.87, 2.59
Type 2 diabetes	1.85	1.67, 2.05
Gestational diabetes	1.23	1.17, 1.29
Unspecified	2.11	1.60, 2.79
No diabetes		Reference
Wound complications		
Type 1 diabetes	1.43	1.23, 1.65
Type 2 diabetes	2.54	2.37, 2.72
Gestational diabetes	1.30	1.24, 1.35
Unspecified	2.63	2.16, 3.20
No diabetes		Reference
Diabetic complications		
No diabetes	0.00	0.00, 0.00
Type 2 diabetes	0.21	0.17, 0.25
Gestational diabetes	0.01	0.01, 0.01
Unspecified	0.73	0.57, 0.95
Type 1 diabetes		Reference
Venous thromboembolism		
Type 1 diabetes	0.68	0.42, 1.08
Type 2 diabetes	1.33	1.08, 1.62
Gestational diabetes	1.24	1.14, 1.34
Unspecified	1.22	0.67, 2.23
No diabetes		Reference

In these adjusted analyses the five study models in the table included only diabetes status, maternal age, mode of delivery and hypertensive diseases of pregnancy. Compared to the primary analysis, this restricted set of risk factors was included to prevent model overfitting. Given the relatively large number of readmissions for hypertensive diseases of pregnancy, the model was not repeated for this outcome. For the severe maternal morbidity analysis, patients with these outcomes during the delivery hospitalization were excluded to avoid misclassification. Similarly, for the thromboembolism analysis patients with an acute event during the delivery hospitalization were excluded; history of venous thromboembolism prior to the delivery hospitalization was accounted for in the model. Diabetic complications including diabetes including diabetic ketoacidosis, hyperglycemic hyperosmolar syndrome, and coma.