

Supplemental Online Content

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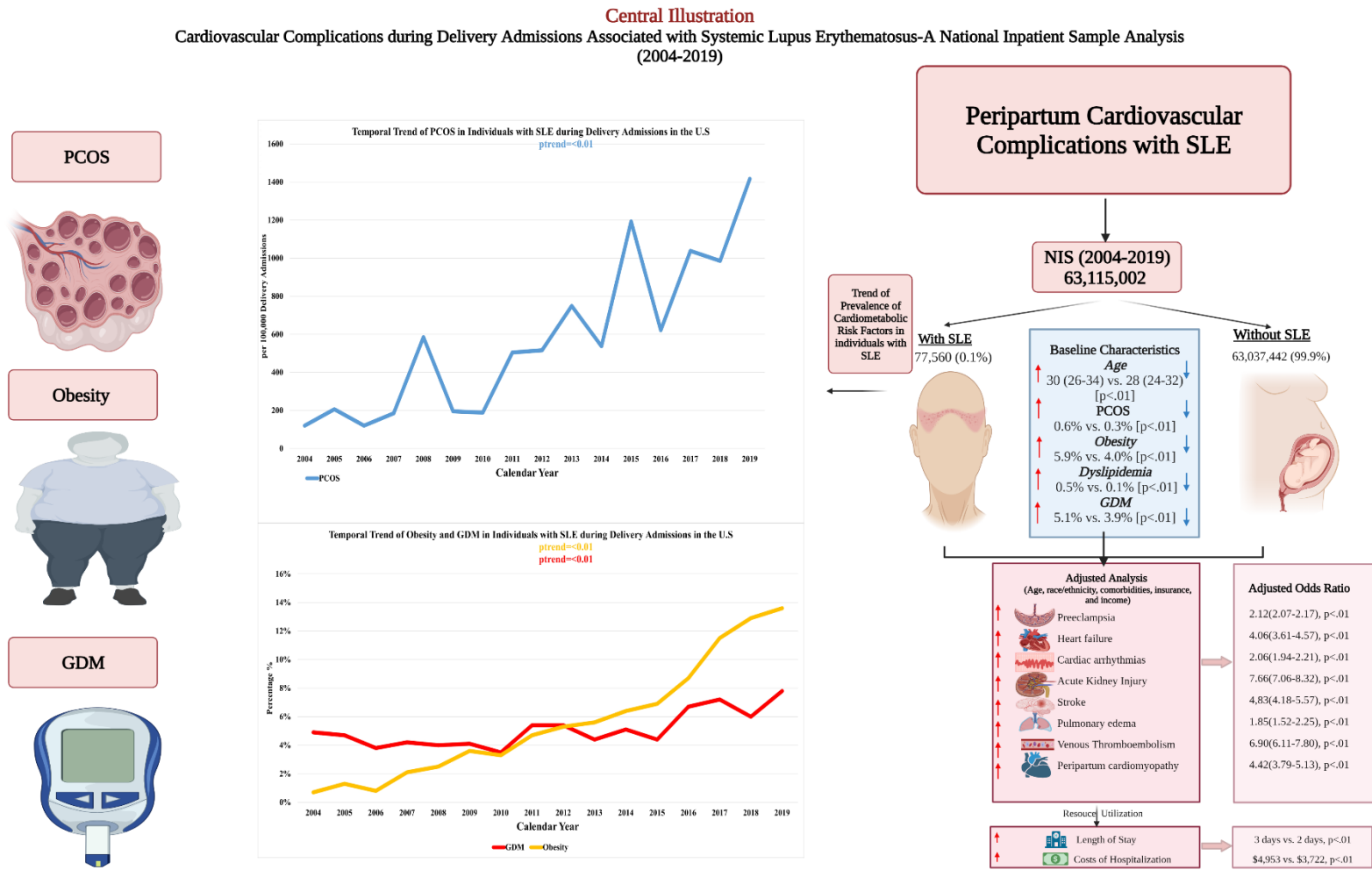
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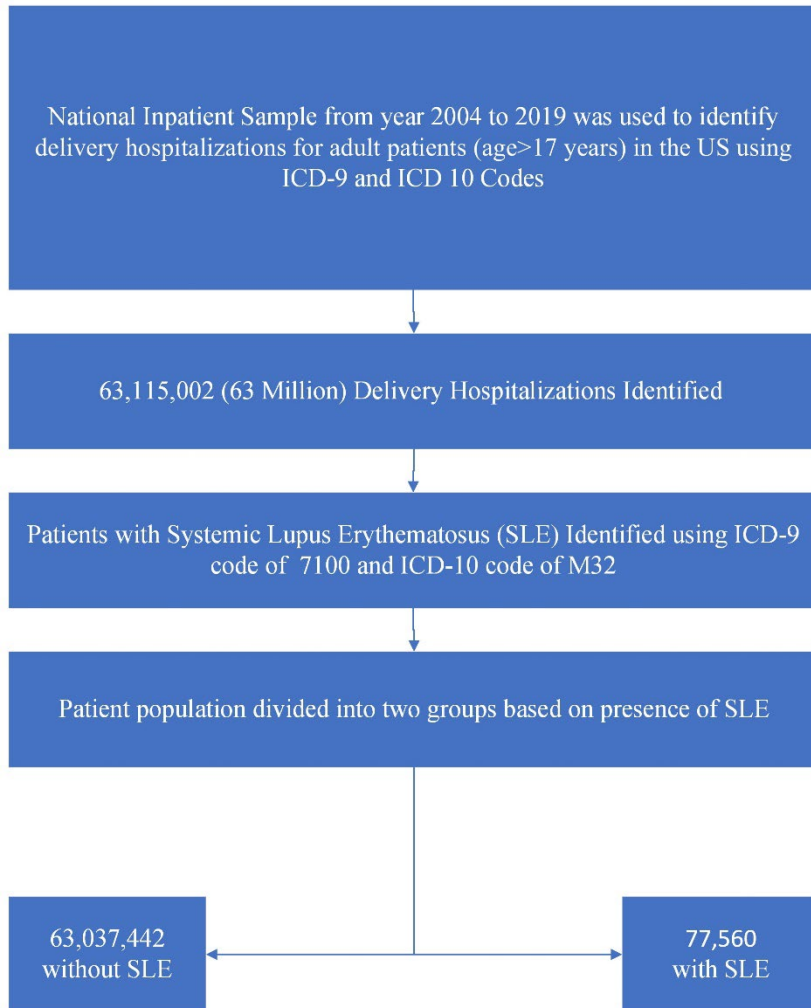
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This supplemental material has been provided by the authors to give readers additional information about their work.

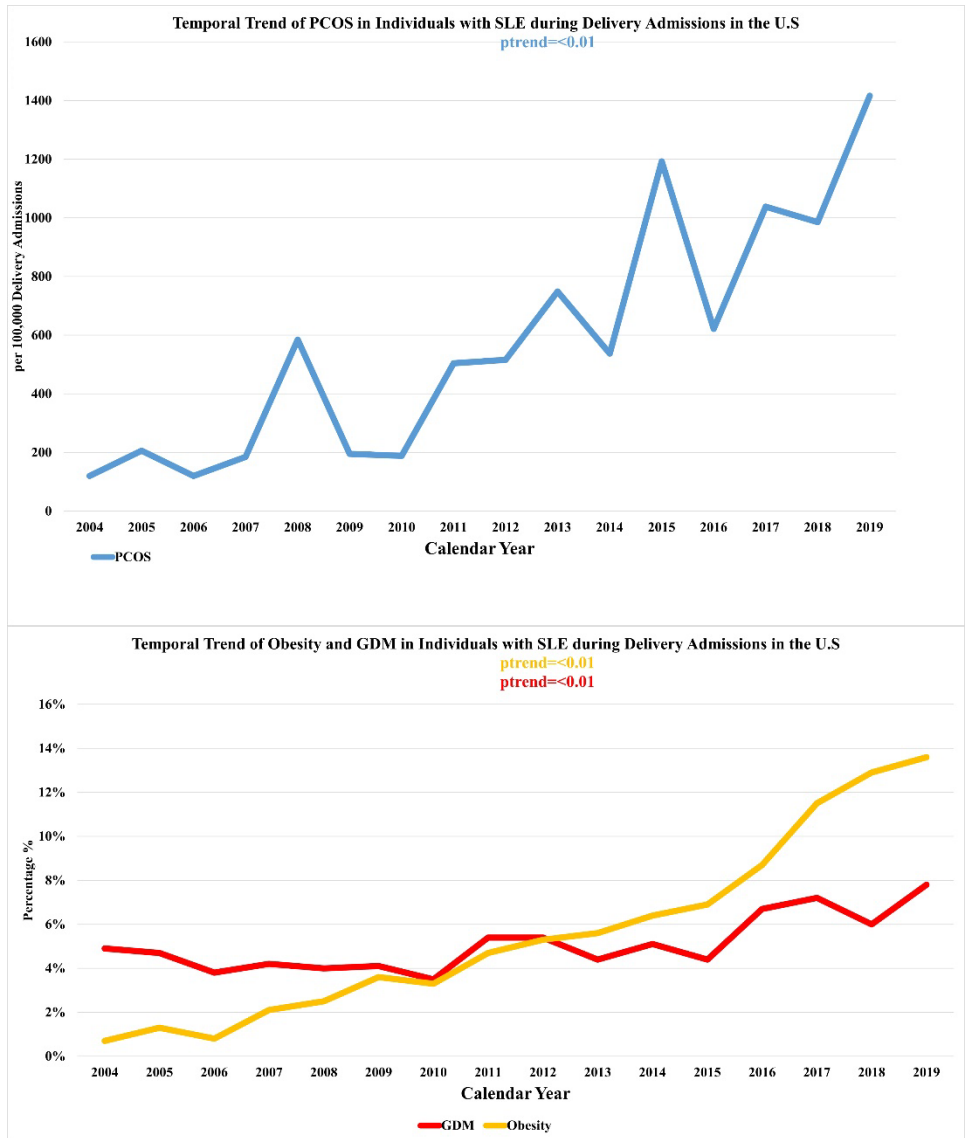
eFigure 1. Central Illustration



eFigure 2. Study Flow Chart



eFigure 3. Prevalence of Polycystic Ovary Syndrome, Gestational Diabetes, and Obesity



Abbreviations: US: United States, PCOS: Polycystic Ovary Syndrome, GDM: Gestational Diabetes Mellitus

eMethods 1. Variables Used in Logistic Regression Analysis to Compute Adjusted Odds of In-Hospital Complications

- 1- Age
- 2- Race
- 3- Chronic Hypertension
- 4- Gestational Diabetes Mellitus
- 5- Dyslipidemia
- 6- Congestive Heart Failure
- 7- Chronic Kidney Disease
- 8- Coronary Artery Disease
- 9- Obesity
- 10- PCOS
- 11- Smoking
- 12- Multiple Gestation
- 13- Cesarean Delivery
- 14- Median Household Income
- 15- Primary Insurance

eMethods 2. Variables Used in Logistic Regression Analysis to Compute Factors Independently Associated With Preeclampsia in Individuals With Systemic Lupus Erythematosus

- 1- Age
- 2- Race
- 3- Chronic Hypertension
- 4- Gestational diabetes mellitus
- 5- Dyslipidemias
- 6- Polycystic Ovary Syndrome
- 7- Obesity
- 8- Primary Insurance
- 9- Median Household Income

eTable 1. Procedure and Diagnosis Codes Used

Variables	ICD-10	ICD-9
Delivery	10D0, 10E0, O60, O61, O62, O63, O64, O65, O66, O67, O68, O69, O70, O71, O72, O73, O74, O75, O76, O77, O80, O82, Z37, Z38	72, 73,75, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 662, 663, 664, 665, 666, 667, 668, 669, V27
Systemic Lupus Erythematosus	M32	7100
Gestational Diabetes Mellitus	648.8	0244x
Polycystic Ovary Syndrome	E282	256.4
Preeclampsia/ Eclampsia	O1400, O140, O1402, O1403, O1404, O1405, O1490, O1492, O1493, O1494, O1495, O149, O141, O1410, O1412, O1413, O1414, O1415, O11, O111, O112, O113, O114, O115, O119, O142, O1420, O1422, O1423, O1424, O1425, O15, O150, O1500, O1502, O1503, O151, O152, O159	64241, 64242, 64243, 64244, 64250, 64251, 64252, 64253, 64254, 64270, 64271, 64272, 64273, 64274, 64260, 64261, 64262, 64263, 64264
Peripartum Cardiomyopathy	O903	6745
Heart Failure	I5021, I5031, I5033, I5041, I5043	42821, 42823, 42831, 42841, 42843
Acute Kidney Injury	N17	584,
Stroke	I60, I61, I62, I63, I650, I688, O873, O2250, O2251, O2252	430, 431, 432, 433, 437, 6715

Pulmonary edema	J810, J811, I501	514
Cardiac Arrhythmias	Z450, Z950, T821, R001, R008, R000, I459, I456, I441, I442, I443, I47, I48, I49	4260, 42613, 4267, 4269, 42610, 42612, 4270, 4271, 4272, 4273, 4274, 4276, 4277, 4278, 4279, 7850, 99601, 99604, V450, V533
Acute Venous Thromboembolism	I82210, I82220, I82290, I824, I8241, I8242, I8243, I8244, I8245, I8246, I8249, I824Y, I824Z, I826, I8261, I8262, I82A1, I82B1, I82C1, I8281, I82890, I8290	4534, 45340, 45341, 45342, 4538, 45381, 45382, 45383, 45384, 45385, 45386, 45387, 45389

ICD: International Classification of Diseases

eTable 2. Effect Sizes of Hospitalization Characteristics Among Individuals With vs Without Systemic Lupus Erythematosus

Variables (continuous)*	Beta coefficient (95% CI)
<i>Resource Utilization</i>	
Length of stay (days)	1.23 (1.21-1.24)
Cost of hospitalization (\$)	2,470 (2,436-2,504)
<i>Patient Demographics</i>	
Age (years)	1.62 (1.58-1.66)
Variables (categorical)**	
OR (95% CI)	
<i>Patient Demographics</i>	
Race/Ethnicity	
White	0.88 (0.86-0.89)
Black	1.92 (1.89-1.95)
Hispanic	0.86 (0.84-0.87)
Asian or Pacific Islander	0.98 (0.95-1.01)
Native American	1.08 (0.99-1.17)
Other	0.78 (0.77-0.81)
Hospital Regions	
Northeast	1.17 (1.15-1.19)
Midwest	0.86 (0.85-0.88)
South	1.04 (1.03-1.06)
West	0.95 (0.93-0.96)
<i>Pre-existing co-morbidities</i>	
PCOS	1.98 (1.81-2.17)
GDM	1.35 (1.31-1.39)
Dyslipidemia	3.31 (3.00-3.65)
Chronic Hypertension	7.93 (7.67-8.19)
Heart Failure	12.62 (11.64-13.69)
Chronic Kidney Disease	81.61 (76.09-87.53)

Coronary Artery Disease	20.68 (17.86-23.94)
Obesity	1.51 (1.46-1.55)
Smoking	1.21 (1.15-1.27)
<i>Obstetric Characteristics</i>	
Multiple Gestation	1.40 (1.34-1.47)
Cesarean delivery	1.55 (1.52-1.57)
Preterm Birth	2.24 (2.20-2.84)
Still Birth	2.48 (2.34-2.62)
<i>Socioeconomic Characteristics</i>	
<i>Median Household Income</i>	
0-25th percentile	0.99 (0.97-1.01)
26-50th percentile	0.91 (0.88-0.91)
51-75th percentile	0.99 (0.97-1.01)
76-100th percentile	1.14 (1.12-1.16)
<i>Primary Insurance</i>	
Medicare	7.63 (7.38-7.88)
Medicaid	0.80 (0.79-0.81)
Private insurance	1.09 (1.08-1.11)
Self-Pay	0.49 (0.46-0.52)
No Charge	0.53 (0.41-0.67)
Other	1.15 (1.11-1.20)

* Effect sizes for continuous variables of length of stay and cost of hospitalization for SLE in comparison to non-SLE group are reported as coefficients and their 95% confidence intervals. For example, for length of stay, this means that a patient with SLE will have 1.23 more admitted days than a patient without SLE. For cost, it means a patient with SLE will have \$2470 more cost compared to admitted patient without SLE. 95% confidence intervals are in the same units. **Effect sizes for categorical variables are reported as odds ratios and their 95% confidence interval. The comparison group for each variable is non-SLE patients. For example SLE patients in this cohort were 22% less likely to be White compared to non-SLE patients (OR 0.88). Another example, SLE patients were 7.9-fold more likely to have chronic hypertension compared to non-SLE patients.

eTable 3. Factors Associated With Cardiovascular Complications With vs Without Systemic Lupus Erythematosus After Adjustment for Preeclampsia and Eclampsia

Variables	aOR	p-value
Peripartum Cardiomyopathy	1.71 (1.45-2.02)	<0.01
Heart Failure	1.20 (0.99-1.45)	0.07
Acute Kidney Injury	6.76 (6.24-7.33)	<0.01
Stroke	4.06 (3.51-4.69)	<0.01
Pulmonary Edema	1.31 (1.17-1.58)	<0.01
Cardiac Arrhythmias	1.89 (1.78-2.02)	<0.01
Venous Thromboembolism	6.35 (5.62-7.19)	<0.01

aOR: Adjusted Odds Ratio; SLE: Systemic Lupus Erythematosus

Adjusted for age, race/ethnicity, chronic hypertension, dyslipidemia, heart failure, chronic kidney disease, coronary artery disease, GDM, obesity, PCOS, smoking, multiple gestation, Cesarean delivery, median household income, primary insurance with additional adjustment of preeclampsia and eclampsia

eTable 4. Factors Associated With Cardiovascular Complications After Adjustment for Calendar Year

Variables	aOR	p-value
Preeclampsia	1.99 (1.95-2.04)	<0.01
Peripartum Cardiomyopathy	1.64 (1.39-1.93)	<0.01
Heart Failure	1.18 (0.97-1.43)	0.11
Acute Kidney Injury	7.27 (6.69-7.89)	<0.01
Stroke	4.69 (4.06-5.42)	<0.01
Pulmonary Edema	1.54 (1.26-1.88)	<0.01
Cardiac Arrhythmias	1.87 (1.75-1.99)	<0.01
Venous Thromboembolism	6.38 (5.55-7.10)	<0.01

Adjusted for age, race/ethnicity, chronic hypertension, dyslipidemia, heart failure, chronic kidney disease, coronary artery disease, GDM, obesity, PCOS, smoking, multiple gestation, Cesarean delivery, median household income, primary insurance with additional adjustment for calendar year.

eTable 5. Factors Associated With Cardiovascular Complications Among Women Aged 35 Years or Younger

Variables	aOR	p-value
Preeclampsia	2.15 (2.09-2.21)	<0.01
Peripartum Cardiomyopathy	1.61 (1.33-1.95)	<0.01
Heart Failure	1.12 (0.89-1.41)	0.33
Acute Kidney Injury	7.87 (7.16-8.64)	<0.01
Stroke	3.95 (2.28-4.74)	<0.01
Pulmonary Edema	1.36 (1.06-1.75)	0.02
Cardiac Arrhythmias	1.91 (1.78-2.06)	<0.01
Venous Thromboembolism	7.89 (6.85-9.08)	<0.01

aOR: Adjusted Odds Ratio; SLE: Systemic Lupus Erythematosus

Adjusted for age, race/ethnicity, chronic hypertension, dyslipidemia, heart failure, chronic kidney disease, coronary artery disease, GDM, obesity, PCOS, smoking, multiple gestation, Cesarean delivery, median household income and primary insurance

eTable 6. Factors Associated With Cardiovascular Complications Among Women Older Than 35 Years

Variables	aOR	p-value
Preeclampsia	1.80 (1.71-1.91)	<0.01
Peripartum Cardiomyopathy	1.73 (1.27-2.36)	<0.01
Heart Failure	1.58 (1.02-2.46)	0.04
Acute Kidney Injury	4.97 (4.12-5.99)	<0.01
Stroke	6.41 (5.08-8.09)	<0.01
Pulmonary Edema	1.96 (1.41-2.73)	<0.01
Cardiac Arrhythmias	2.03 (1.77-2.33)	<0.01
Venous Thromboembolism	4.18 (3.22-5.42)	<0.01

Adjusted for age, race/ethnicity, chronic hypertension, dyslipidemia, heart failure, chronic kidney disease, coronary artery disease, GDM, obesity, PCOS, smoking, multiple gestation, Cesarean delivery, median household income and primary insurance.

eTable 7. Factors Associated With Cardiovascular Complications After Exclusion of Individuals With Preeclampsia or Eclampsia

Variables	aOR	p-value
Peripartum Cardiomyopathy	1.33 (1.08-1.63)	0.01
Heart Failure	1.29 (1.03-1.62)	0.02
Acute Kidney Injury	7.98 (7.12-8.95)	<0.01
Stroke	4.11 (3.39-4.99)	<0.01
Pulmonary Edema	2.22 (1.69-2.91)	<0.01
Cardiac Arrhythmias	1.95 (1.81-2.09)	<0.01
Venous Thromboembolism	6.03 (5.23-6.95)	<0.01

Adjusted for age, race/ethnicity, chronic hypertension, dyslipidemia, heart failure, chronic kidney disease, coronary artery disease, GDM, obesity, PCOS, smoking, multiple gestation, Cesarean delivery, median household income and primary insurance.

eTable 8. Factors Associated With Cardiovascular Complications After Exclusion of Individuals With Polycystic Ovary Syndrome

Variables	aOR	p-value
Preeclampsia	2.08 (2.03-2.13)	<0.01
Peripartum Cardiomyopathy	2.08 (2.03-2.13)	<0.01
Heart Failure	1.17 (0.96-1.43)	0.11
Acute Kidney Injury	7.47 (6.88-8.11)	<0.01
Stroke	4.67 (4.04-5.40)	<0.01
Pulmonary Edema	1.56 (1.28-1.91)	<0.01
Cardiac Arrhythmias	1.97 (1.85-2.10)	<0.01
Venous Thromboembolism	6.58 (5.81-7.45)	<0.01

Adjusted for age, race/ethnicity, chronic hypertension, dyslipidemia, heart failure, chronic kidney disease, coronary artery disease, GDM, obesity, smoking, multiple gestation, Cesarean delivery, median household income and primary insurance.

eTable 9. Factors Associated With Cardiovascular Complications After Exclusion of Individuals With Gestational Diabetes

Variables	aOR	p-value
Preeclampsia	2.15 (2.10-2.21)	<0.01
Peripartum Cardiomyopathy	1.52 (1.29-1.81)	<0.01
Heart Failure	1.15 (0.94-1.40)	0.17
Acute Kidney Injury	7.38 (6.77-8.04)	<0.01
Stroke	4.46 (3.84-5.19)	<0.01
Pulmonary Edema	1.47 (1.19-1.81)	<0.01
Cardiac Arrhythmias	1.97 (1.84-2.11)	<0.01
Venous Thromboembolism	6.83 (6.03-7.75)	<0.01

Adjusted for age, race/ethnicity, chronic hypertension, dyslipidemia, heart failure, chronic kidney disease, coronary artery disease, obesity, PCOS, smoking, multiple gestation, Cesarean delivery, median household income and primary insurance.

eTable 10. Factors Associated With Cardiovascular Complications After Exclusion of Individuals With Chronic Kidney Disease, Coronary Artery Disease, or Chronic Heart Failure

Variables	aOR	p-value
Preeclampsia	2.08 (2.03-2.13)	<0.01
Peripartum Cardiomyopathy	1.82 (1.54-2.14)	<0.01
Heart Failure	1.17 (0.96-1.43)	0.12
Acute Kidney Injury	7.60 (7.00-8.25)	<0.01
Stroke	4.75 (4.12-5.49)	<0.01
Pulmonary Edema	1.66 (1.37-2.02)	<0.01
Cardiac Arrhythmias	1.98 (1.85-2.11)	<0.01
Venous Thromboembolism	6.72 (5.95-7.81)	<0.01

Adjusted for age, race/ethnicity, chronic hypertension, dyslipidemia, GDM, obesity, PCOS, smoking, multiple gestation, Cesarean delivery, median household income and primary insurance.