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National Hospital Care Survey Demonstration Projects: Severe Maternal Morbidity in Inpatient and Emergency Departments

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Abstract

Objective—This report demonstrates the ability of the National Hospital Care Survey (NHCS) to examine delivery hospitalizations involving severe maternal morbidity (SMM). These data are unweighted and not nationally representative, so the results are intended to illustrate the unique capability of NHCS to track patients across hospitalizations and emergency department (ED) visits rather than provide nationally representative estimates of these outcomes.

Methods—Administrative claims data and electronic health records data from the 2016 NHCS were used to examine SMM in the inpatient and ED settings. The 21 indicators of SMM classified by the Centers for Disease Control and Prevention were used to identify delivery hospitalizations involving SMM. The collection of patient identifiers (such as patient name, Social Security number, and date of birth) allowed for patients with SMM at delivery to be tracked to predelivery hospitalizations and postpartum ED visits within 2016. The data are unweighted and not nationally representative.

Results—In the 2016 NHCS, 117,336 patients delivered between April 1, 2016, and September 30, 2016 (97.0% of these had a live birth, 1.0% had a stillbirth, and 2.0% were unspecified). Among this study population, 2,335 (2.0%) patients had SMM at delivery. These patients tended to be older, had a longer hospital stay, had a higher proportion of preterm births, and were more likely to have either a predelivery hospitalization or a postpartum ED visit. Nearly one-half of patients (45.5%) with SMM delivered at 37 weeks or earlier, compared with 19.9% of patients without SMM. Most patients with SMM who had a postpartum ED visit went to the ED within 14 days of their delivery discharge. This study highlights the unique analytical capabilities of NHCS.

Keywords: pregnancy • postpartum • hospitalizations • delivery complications

Introduction

Pregnancy outcomes are categorized based on a range of severity: healthy pregnancy, maternal morbidity, severe maternal morbidity (SMM), and maternal mortality (1). SMM describes the serious complications of delivery that result in short- or long-term consequences to a patient's health (2). Serious conditions and procedures such as sepsis, eclampsia, and hysterectomy indicate SMM during a delivery hospitalization, according to the Centers for Disease Control and Prevention (CDC) (2). Primarily due to blood transfusions, the prevalence of SMM rose nearly 200% between 1993 and 2014, highlighting the increasing relevance of this issue (2).

Several studies identify maternal age, comorbidity, and delivery type as concurrent risk factors that increase the odds of a patient experiencing SMM. Advanced maternal age, defined as the mother's age of 35 years or over at delivery, is associated with an increased risk of SMM during pregnancy (3,4). Older patients are more likely to experience complications of obstetric interventions, shock, renal failure, acute cardiac morbidity, and intensive care unit admissions (3). Patients with comorbidities, such as hypertension,



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diabetes, or heart disease before pregnancy are more likely to experience SMM during delivery compared with patients with no comorbidity before pregnancy (4). Additionally, researchers have identified that patients with SMM were more likely to deliver by cesarean section (4).

Previous studies have examined emergency department (ED) use for postpartum complications. A study found that 4.8% of patients who delivered a baby at a study hospital had an ED visit before their 6-week postpartum examination (5). One-half (50.0%) of these patients had an ED visit within 10 days of their delivery discharge (5). Notably, researchers have found that most patients who had a postpartum ED visit were diagnosed with a comorbidity before delivery (6).

In addition, previous studies have found that predelivery hospitalizations, particularly those due to preeclampsia, were associated with SMM (7,8). Diagnosed preeclampsia during predelivery hospitalizations significantly increased the occurrence of acute renal failure and other SMM indicators related to the respiratory and cardiovascular systems during delivery hospitalizations (8).

While National Hospital Care Survey (NHCS) data are unweighted and not nationally representative, NHCS presents unique opportunities to examine delivery hospitalizations involving SMM. The collection of patient identifiers allows for patients with SMM at delivery to be tracked to predelivery hospitalizations and postpartum ED visits within 2016. The objectives of this report include the following: 1) explore the relationship of SMM with maternal, pregnancy, and hospital care factors, 2) quantify the most frequent indicators of SMM, and 3) investigate predelivery hospitalizations and postpartum ED visits.

Methods

Data source

NHCS provides data on healthcare use across hospital settings and collects data on hospital encounters in the inpatient, emergency, and outpatient

departments (OPD) of hospitals. The target universe for NHCS is inpatient discharges and in-person visits made to EDs and OPDs in noninstitutional, nonfederal hospitals in the 50 states and the District of Columbia that have 6 or more staffed inpatient beds. Data are extracted from hospital billing or electronic health records (EHR) systems and then electronically transmitted directly to NCHS or its designated agent. Because the participation rate in 2016 was relatively low (27%), the data are currently unweighted and are not nationally representative.

In this report, hospitalizations refer to encounters in inpatient departments and ED visits refer to encounters in EDs. Data are reported from 141 sample hospitals in the 2016 NHCS, representing an unweighted total of approximately 2.3 million non-newborn hospitalizations and approximately 6.9 million ED visits. Participating hospitals were asked to provide all encounters in inpatient and ED settings occurring in the 2016 calendar year. In the 2016 NHCS, participating hospitals could submit either Uniform Billing (UB)–04 administrative claims data or EHR data. UB–04 administrative claims data and EHR data include information on patient demographics, diagnoses, services received, and discharge status.

Study population

This report examines delivery hospitalizations that occurred between April 1, 2016, and September 30, 2016. The patient population was restricted to females aged 12–55. For UB–04 administrative claims data, delivery hospitalizations were defined as inpatient encounters with at least one of the *International Classification of Diseases, 10th Revision, Clinical Modification* (ICD–10–CM) diagnosis codes detailed in [Table I](#). For EHR data, delivery hospitalizations were identified using *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD–9–CM), ICD–10–CM, or *679 Systematized Nomenclature of Medicine—Clinical Terms* (SNOMED–CT) diagnosis codes that correspond with the ICD–9–CM and ICD–10–CM diagnosis codes in [Table I](#).

The time period of April 1, 2016, to September 30, 2016, was chosen to ensure that each patient had the possibility of a hospitalization in 2016 up to 90 days before their delivery hospitalization, or an ED visit in 2016 up to 90 days after their delivery hospitalization. Hospitalizations were examined up to 90 days before the delivery hospitalization to observe possible complications in the last 3 months of pregnancy. Similarly, ED visits were observed up to 90 days after the delivery hospitalization to capture complications within the 12-week period during which a comprehensive postpartum visit should occur (9).

In the 2016 NHCS, 227,642 patients had a delivery hospitalization. For context, approximately 3.95 million births occurred in the United States in 2016 (10). Between April 1, 2016, and September 30, 2016, 117,336 patients had a delivery hospitalization. Each patient's last delivery hospitalization was tracked to predelivery hospitalizations and postpartum ED visits. A patient could have multiple hospitalizations or ED visits.

Previous studies have examined postpartum hospitalizations among patients with SMM at delivery (11,12). These patients had serious postpartum complications that necessitated readmission to the hospital. In addition, researchers have found that SMM at delivery was significantly associated with postpartum ED visits (13). Beyond this finding, little is known about patients with SMM at delivery who have a postpartum ED visit to address medical conditions that do not necessitate hospital readmission. This study seeks to examine the impact SMM has on the length of time between the delivery hospitalization and the first postpartum ED visit.

In addition, previous studies have found that most predelivery ED visits among pregnant patients did not result in hospital admission (14–16). These studies have suggested that predelivery ED visits can be attributed to pregnant patients having an increased sense of urgency and distress concerning symptoms they experience, resulting in an increased use of the healthcare system outside of prenatal visits (14–16). However, predelivery hospitalizations have been

found to increase the risk of SMM during delivery hospitalizations (7,8). Instead of tracking patients to predelivery ED visits that mostly address nonurgent medical conditions, this study examines the frequency of patients with SMM who had serious enough conditions to warrant a hospital admission before their delivery hospitalization.

Among these 117,336 patients, 4,014 patients (3.4%) had 4,847 hospitalizations up to 90 days before their delivery hospitalization. Within 90 days of their delivery hospitalization, 6,800 patients (5.8%) had 8,540 ED visits. See Technical Notes for a visualization of the population of interest.

NHCS collects personally identifiable information (PII), including patient name, date of birth, and Social Security number, to track patients across hospital settings and during an episode of care by linking records within the same hospital. PII was used to track the 117,336 patients who had a delivery hospitalization to their predelivery hospitalizations and postpartum ED visits. More details about NHCS methodology are published elsewhere (17).

Maternal age was provided on the medical record or was calculated using the patient's date of birth and the starting date of the delivery hospitalization. The week of gestation, referred to as gestational age, was identified using the last two digits of the ICD-10-CM diagnosis code Z3A (for example, Z3A.33 is equivalent to 33 weeks gestation of pregnancy). Delivery hospitalizations involving cesarean section were identified using either *International Classification of Diseases, 10th Revision, Procedure Coding System* (ICD-10-PCS) code 10D, Current Procedural Terminology code 59510, or SNOMED-CT code 11466000. If delivery hospitalizations did not have any of these codes, they were categorized as vaginal deliveries. Length of stay was provided on the medical record or calculated using the date of admission and ending date of the delivery hospitalization. However, length of stay could not be calculated for 32,124 (27.4%) delivery hospitalizations due to a lack of date information.

Severe maternal morbidity

SMM describes the serious complications of delivery that result in short or long-term consequences to a patient's health (2). Twenty-one indicators of SMM classified by CDC were used to identify delivery hospitalizations of interest (18).

Indicators of SMM are composed of conditions and procedures. Patients were classified as having SMM if they had one or more indicators during the delivery hospitalization. Indicators of SMM are provided in [Tables II and III](#).

Analysis

No statistical comparisons were conducted because this report is meant to be an illustrative example of the type of analysis that can be performed with NHCS, not to produce official, representative estimates of delivery hospitalizations and ED visits. PII and hospital encounter start time were used to identify each patient's last delivery hospitalization, which allows for the reporting of estimates on the patient level.

Results

Delivery hospitalizations

In the 2016 NHCS, between April 1, 2016, and September 30, 2016, 117,336 patients had a delivery hospitalization. Among these patients, 2,335 (2.0%) experienced one or more SMM indicators during delivery.

Indicators of severe maternal morbidity

Twenty-one procedures and conditions indicate SMM. [Figure 1](#) shows the most common indicators of SMM among patients with SMM. [Table 1](#) displays all indicators of SMM.

- The most common indicators of SMM were blood transfusion (59.9%), disseminated intravascular coagulation (11.0%), acute renal failure (9.3%), hysterectomy (9.0%), and eclampsia (6.6%) ([Figure 1](#), [Table 1](#)).

- Other SMM indicators experienced by patients included sepsis (6.2%), adult respiratory distress syndrome (6.0%), pulmonary edema or acute heart failure (4.8%), shock (4.8%), air and thrombotic embolism (2.1%), and puerperal cerebrovascular disorders (2.0%).

Maternal age

[Figure 2](#) describes the age distribution of patients by SMM status.

- Among patients with SMM, 6.5% were 40 or over compared with 3.8% of patients without SMM ([Figure 2](#)).
- Among patients with SMM, 49.1% were aged 30–39, 39.9% were 20–29, and 4.5% were under age 20. For patients without SMM, 49.2% were aged 30–39, 43.0% were 20–29, and 4.0% were under age 20.

Gestational age

[Figure 3](#) shows the gestational age at delivery by SMM status.

- Nearly one-half (45.5%) of patients with SMM delivered at a gestational age of 37 weeks or fewer compared with 19.9% of patients without SMM ([Figure 3](#)).
- Among patients with SMM, 10.7% delivered at a gestational age of 38 weeks, 21.3% delivered at 39 weeks, and 19.6% delivered at 40 weeks or later. Among patients without SMM, 15.5% delivered at a gestational age of 38 weeks, 33.5% delivered at 39 weeks, and 28.4% delivered at 40 weeks or later.

Delivery type

[Figure 4](#) shows the distribution of delivery type by SMM status.

- Over one-half of patients with SMM (53.7%) delivered by cesarean section, while 28.8% of patients without SMM delivered by cesarean section ([Figure 4](#)).
- Most patients without SMM (71.2%) delivered vaginally compared with 46.3% of patients with SMM.

Figure 1. Specific indicators of severe maternal morbidity at delivery among patients with severe maternal morbidity: National Hospital Care Survey, 2016

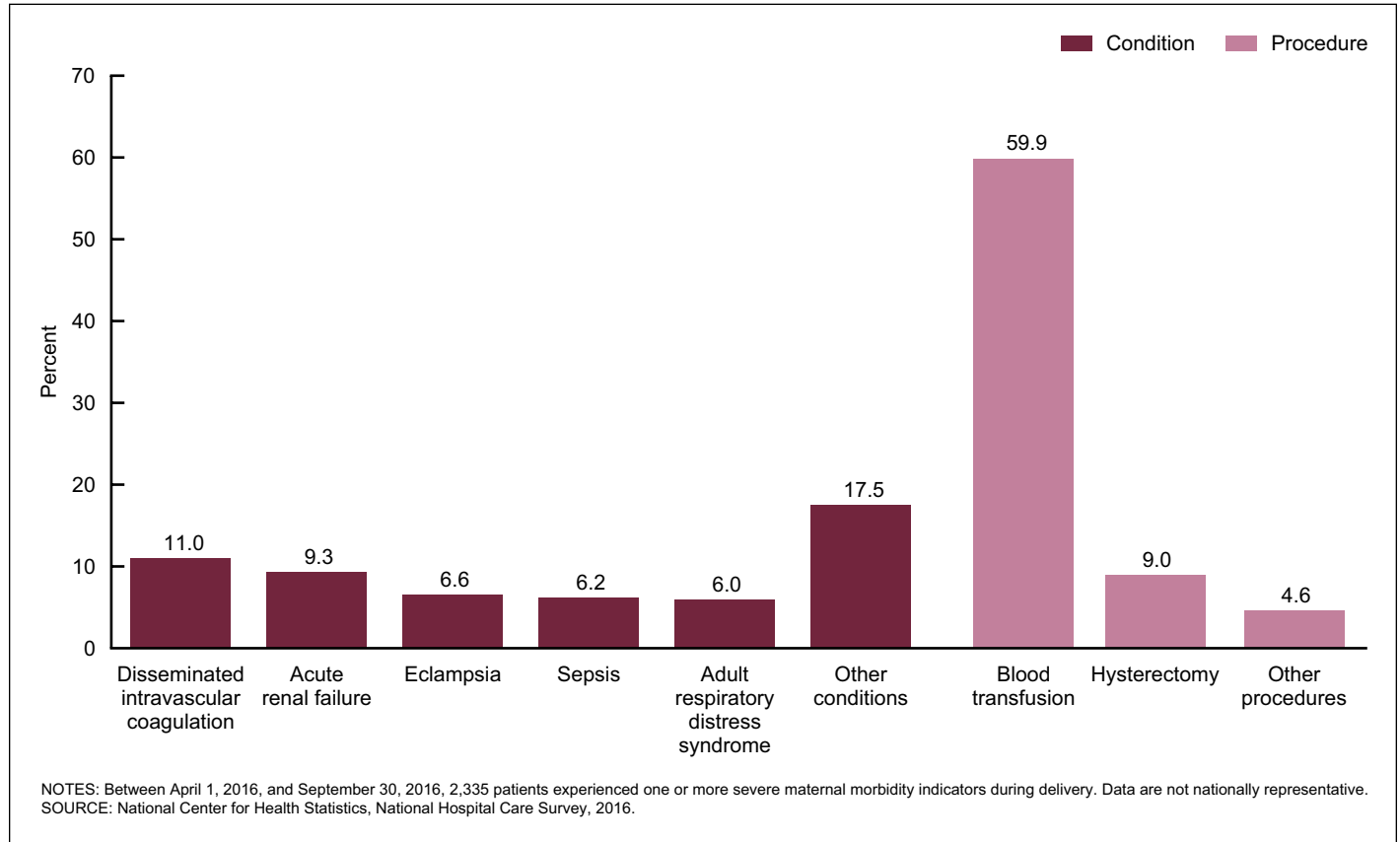


Figure 2. Maternal age, by severe maternal morbidity status: National Hospital Care Survey, 2016

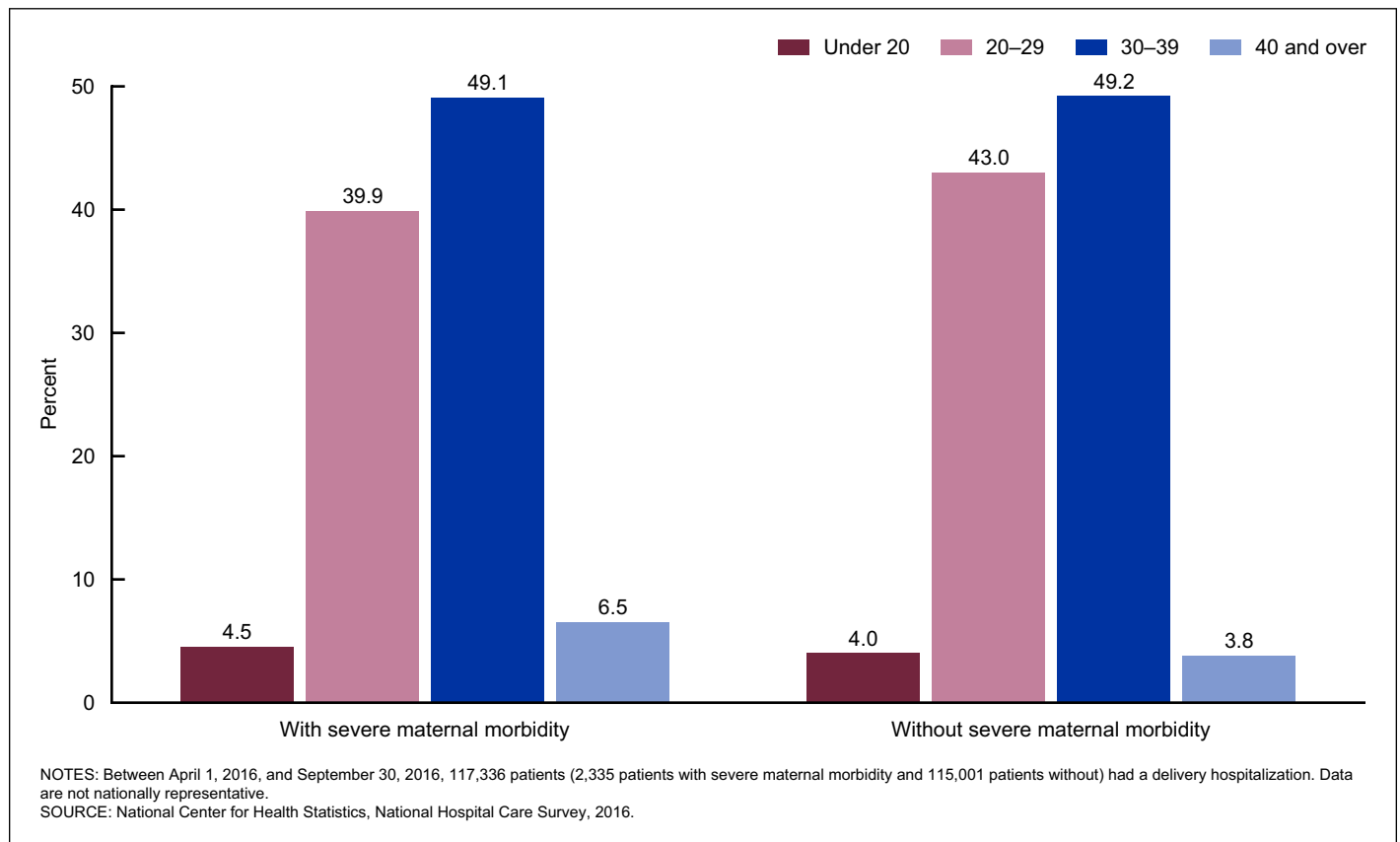


Figure 3. Gestational age at delivery, by severe maternal morbidity status: National Hospital Care Survey, 2016

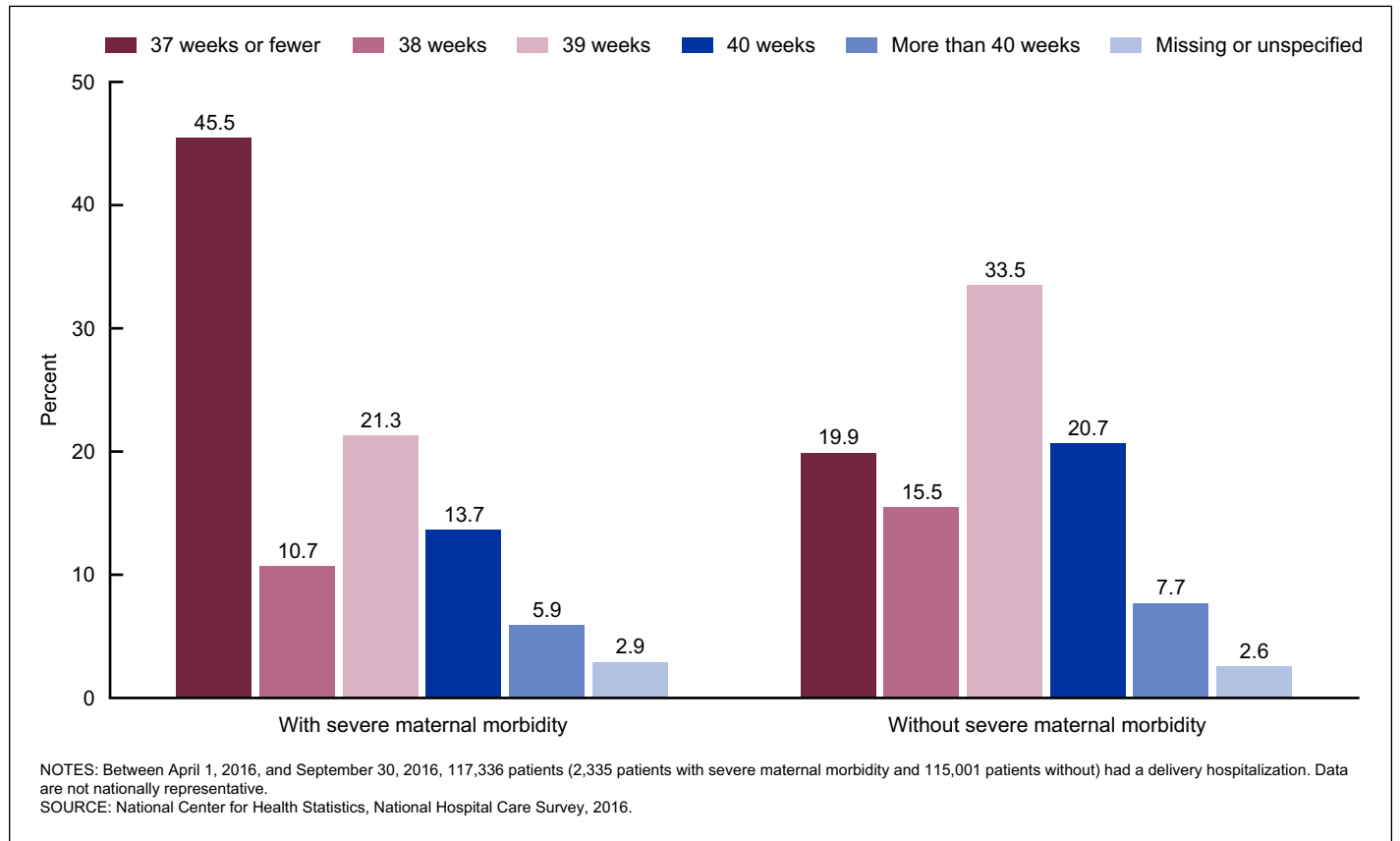
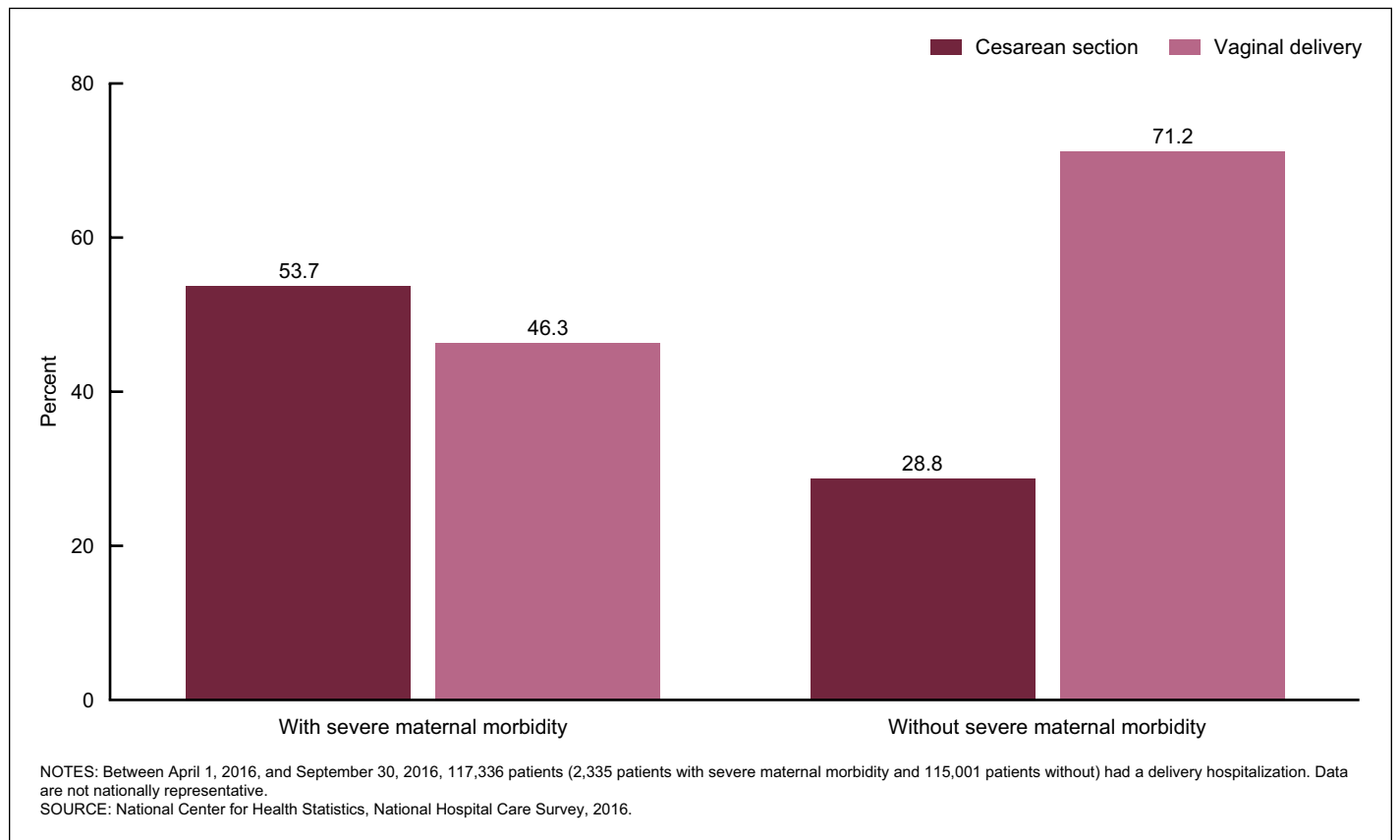


Figure 4. Delivery type, by severe maternal morbidity status: National Hospital Care Survey, 2016



Average length of stay

Figure 5 shows the average length of stay for patients by delivery type and SMM status.

- Patients with SMM had an average length of stay of 3.8 days, while patients without SMM had an average length of stay of 2.0 days (Figure 5).
- Among patients who delivered by caesarean section, patients with SMM had an average length of stay of 4.1 days, compared with 2.5 days for patients without SMM.
- Patients with SMM who delivered vaginally stayed in the hospital for an average of 3.1 days, while patients without SMM who delivered vaginally stayed an average of 1.7 days.

Predelivery hospitalizations

Among the 117,336 patients with a delivery, 4,014 patients (3.4%) had 4,847 hospitalizations up to 90 days before their delivery hospitalization. Figure 6 shows the percentage of patients who had at

least one predelivery hospitalization by SMM status.

- Among patients with SMM, 9.8% had a predelivery hospitalization. Among patients without SMM, 3.3% had a predelivery hospitalization (Figure 6).

Postpartum ED visits

Among the 117,336 patients with a delivery, 6,800 patients (5.8%) had 8,540 postpartum ED visits within 90 days of their delivery hospitalization. Figure 6 shows the percentage of patients who had at least one postpartum ED visit by SMM status. Figure 7 shows the length of time between the delivery hospitalization and the first postpartum ED visit.

- Among patients with SMM, 12.2% had a postpartum ED visit. Among patients without SMM, 5.7% had a postpartum ED visit (Figure 6).
- Among patients with SMM who had a postpartum ED visit, 53.8% had the postpartum ED visit within 2 weeks of their delivery hospitalization (Figure 7).

- Among patients without SMM who had a postpartum ED visit, 46.9% had the postpartum ED visit within 2 weeks of their delivery hospitalization.
- Among patients without SMM, 37.0% who had a postpartum ED visit had it between 31 and 90 days after hospitalization, compared with 30.1% of patients with SMM.

Conclusion

This report examines delivery hospitalizations in the 2016 NHCS occurring between April 1, 2016, and September 30, 2016, among patients with and without SMM. Among the study population of 117,336 patients with a hospitalization for delivery, 2.0% had at least one SMM indicator at delivery. Blood transfusions were the most common indicator of SMM. Other frequent indicators of SMM among these patients included disseminated intravascular coagulation, acute renal failure, hysterectomy, and eclampsia. Among patients with SMM, 6.5% were

Figure 5. Average length of stay, by delivery type and severe maternal morbidity status: National Hospital Care Survey, 2016

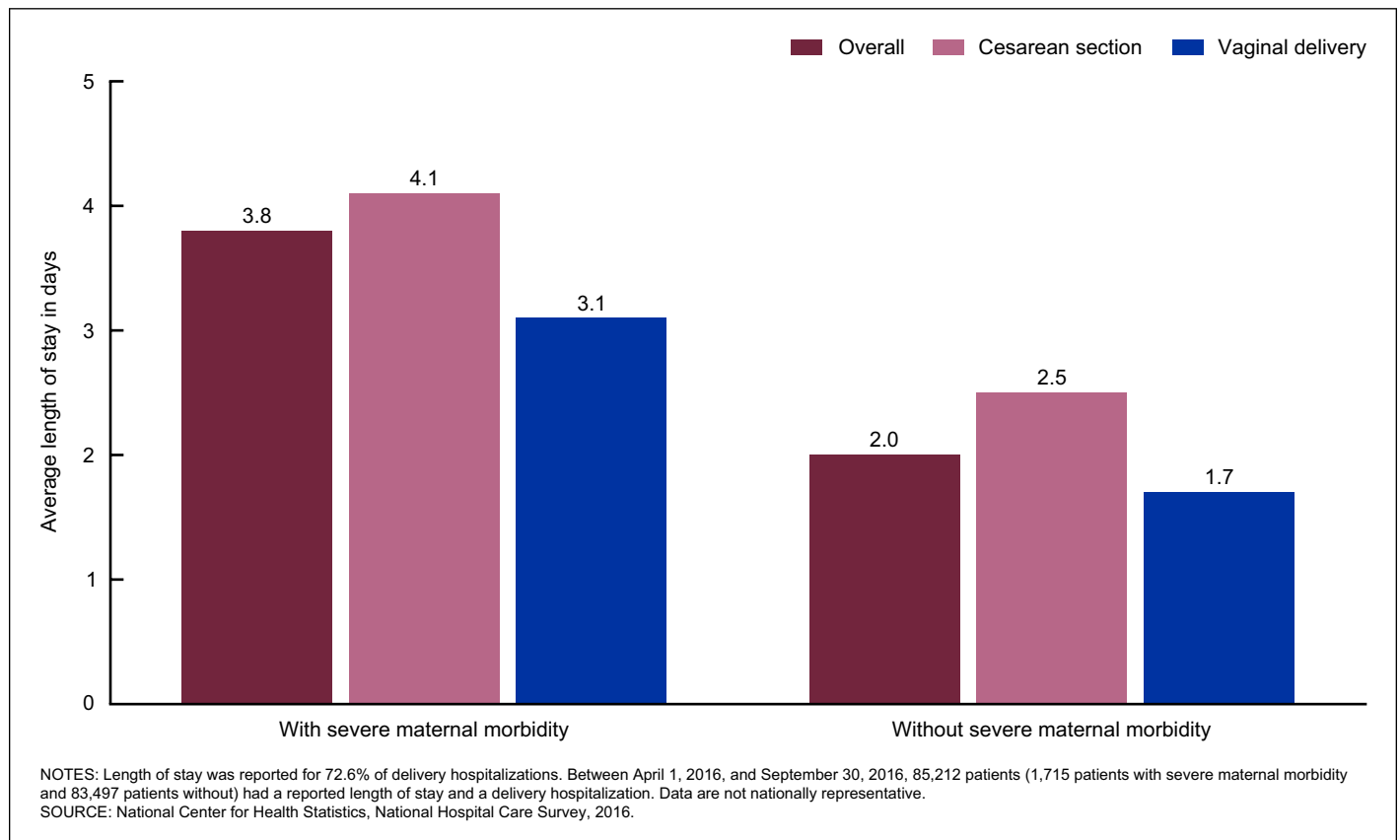


Figure 6. Patients who had a predelivery hospitalization or a postpartum emergency department visit, by severe maternal morbidity status: National Hospital Care Survey, 2016

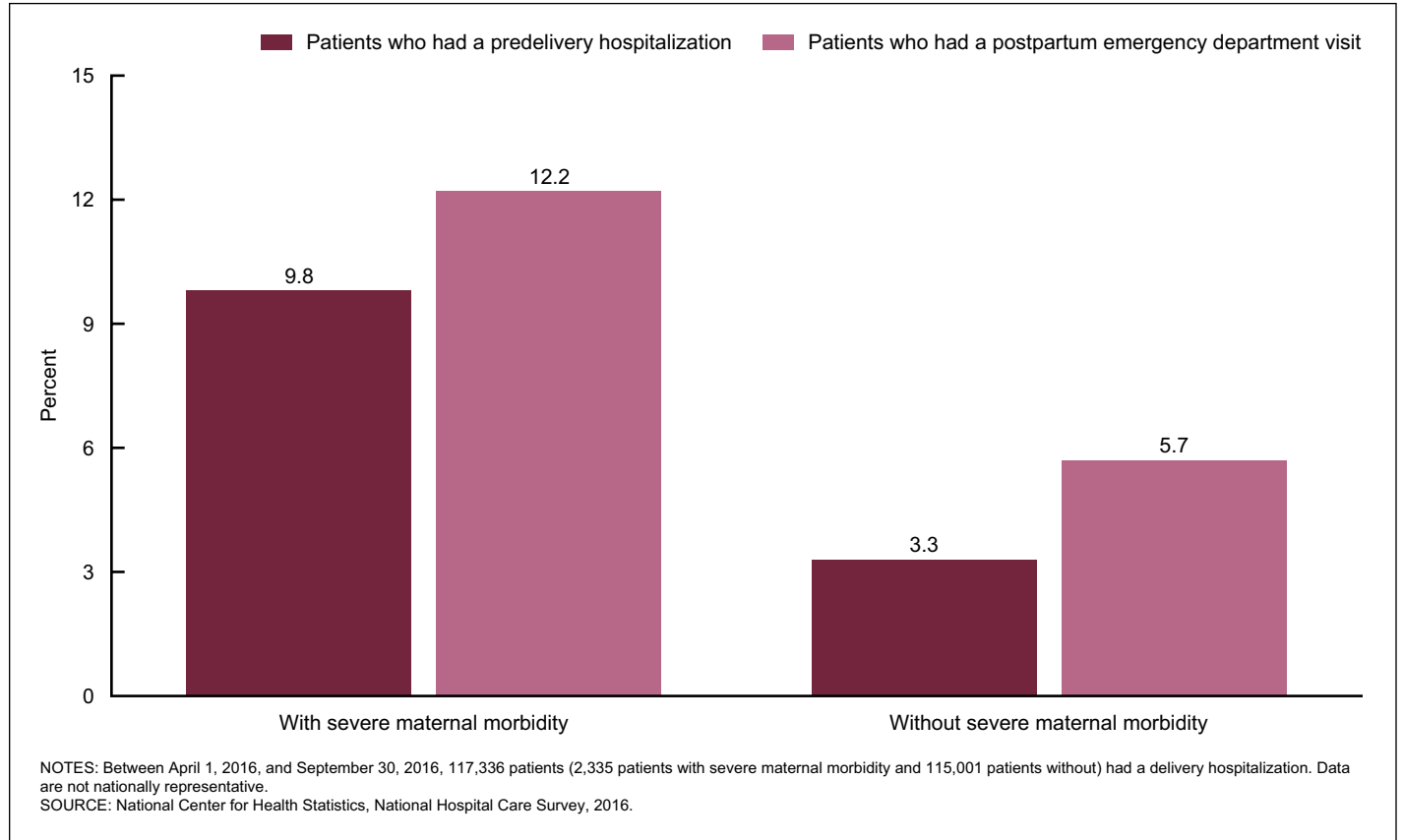
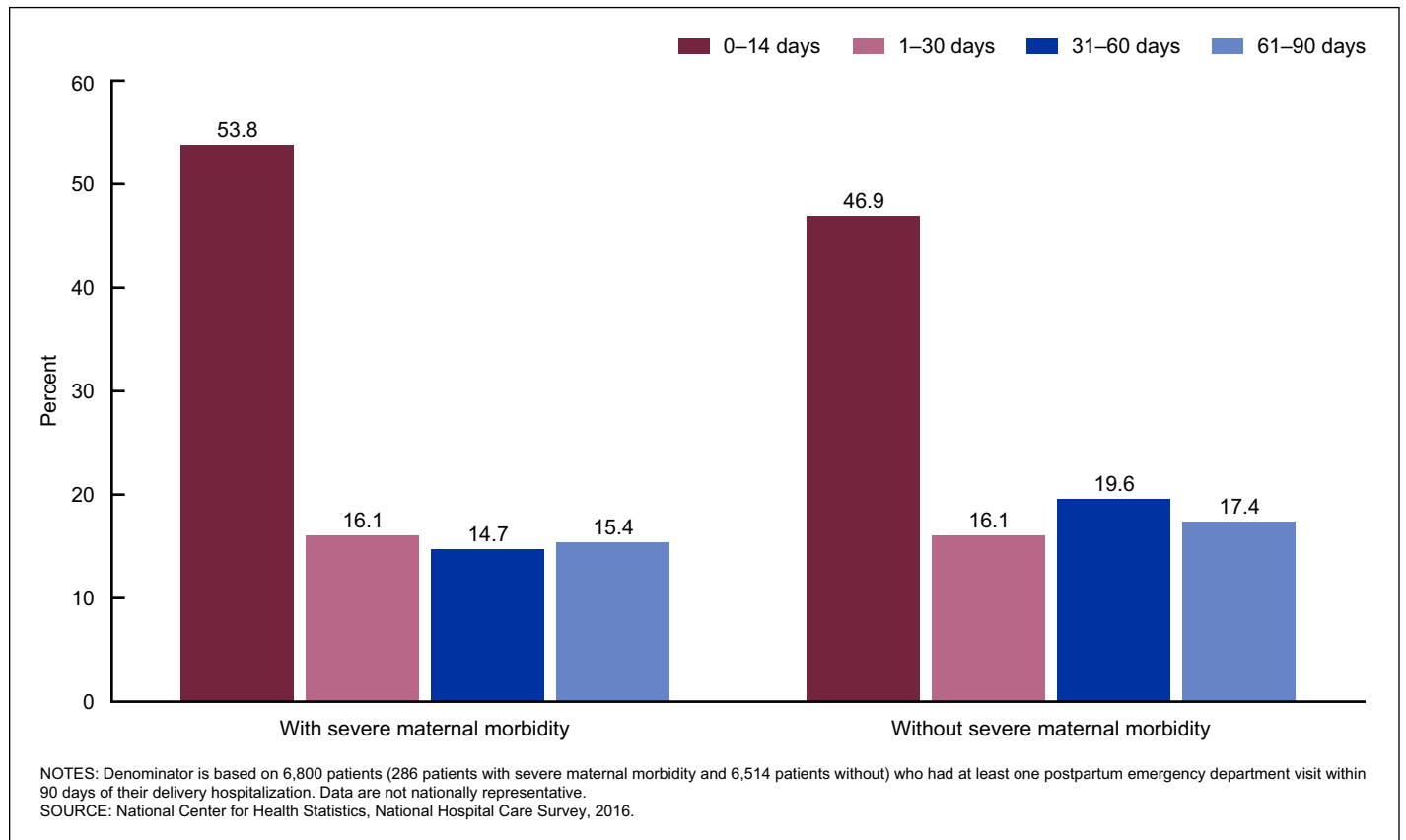


Figure 7. Time between each patient's delivery hospitalization and first emergency department visit for patients with at least one emergency department visit, by severe maternal morbidity status: National Hospital Care Survey, 2016



aged 40 and over, compared with 4.0% without SMM, and 45.5% of patients with SMM delivered at 37 weeks or fewer, compared with 19.9% of patients without SMM. Over one-half of patients with SMM (53.7%) delivered by cesarean section, while 28.8% of patients without SMM delivered by cesarean section. Regardless of delivery type, patients with SMM had longer lengths of stay compared with patients without SMM. Patients with at least one SMM indicator at delivery also had a higher percentage of predelivery hospitalizations and postpartum ED visits. Most patients with SMM who had a postpartum ED visit (53.8%) returned to the ED within 14 days of delivery, compared with 46.9% of patients without SMM who had a postpartum ED visit.

Several limitations should be considered when interpreting this report. Due to low participation among sampled hospitals, the results of this report are not nationally representative. Despite this, the results are consistent with previous research findings that older patients and patients who delivered by cesarean section are more likely to experience SMM (3,4), and that blood transfusions, disseminated intravascular coagulation, acute renal failure, and hysterectomy were the most common indicators of SMM (19).

Additionally, hospital care received before or after 2016 is not examined in this report as data collection was restricted to the 2016 calendar year. Therefore, predelivery hospitalizations occurring before January 1, 2016, and postpartum ED visits occurring after December 31, 2016, could not be included. Consequently, the time period of this analysis was restricted to April 1, 2016, to September 30, 2016, to ensure that each patient had the possibility of a hospitalization up to 90 days before their delivery hospitalization or an ED visit up to 90 days after their delivery hospitalization. Due to this restriction, a patient's last delivery hospitalization occurring before April 1, 2016, or after September 30, 2016, could not be included.

Further, previous research has demonstrated a strong association between SMM and race and ethnicity (19,20). Due to approximately 47.0%

of delivery hospitalizations missing race and ethnicity data, the relationship between SMM and race and ethnicity could not be explored in this report. Most of these delivery hospitalizations are from UB-04 administrative claims data submitted directly from sample hospitals. In addition, length of stay could not be determined for 27.4% of delivery hospitalizations due to a lack of length of stay or date information. These delivery hospitalizations were provided by Vizient, a large, provider-driven healthcare performance improvement organization, which submits UB-04 administrative claims data on behalf of some participating hospitals. The missing data on these elements highlight the issue of the amount of information that is often omitted in UB-04 administrative claims and EHR data.

Moreover, previous studies have highlighted the limitations of using the CDC SMM definition to identify delivery hospitalizations involving SMM. A recent study found that the CDC SMM definition had low agreement with other commonly used measures of SMM, such as the Bateman index and birth certificate checkboxes that identify delivery complications (21). This low agreement between the CDC SMM definition and other measures is primarily driven by the CDC SMM definition's inclusion of blood transfusions as an SMM indicator, as well as differences in the type of data source (21). Additional research has found that blood transfusions are poor indicators of SMM: 1) Some blood loss is expected during delivery and small blood transfusions (less than four units) are routinely completed as part of hospital care, and 2) ICD codes lack specificity concerning the volume of blood transfused, so large blood transfusions (four or more units) reflecting a severe complication cannot be identified (21–23).

Finally, a recent study found that the incidence of SMM in the 2012–2017 National Inpatient Sample decreased significantly due the transition from ICD-9-CM to ICD-10-CM and ICD-10-PCS coding for diagnoses and procedures (24). This decrease in SMM is primarily due to the decreased incidence of blood transfusion codes. In addition, direct translations for diagnosis

and procedure codes are rare between these code systems (25). The transition from ICD-9-CM to ICD-10-CM and ICD-10-PCS could impact the results of this study because both code systems were used to identify delivery hospitalizations and SMM indicators. However, for the 2016 NHCS, only 439 (0.4%) delivery hospitalizations were coded using ICD-9-CM. In addition, the ICD-9-CM codes of these EHR delivery hospitalizations were translated into ICD-10-CM and ICD-10-PCS using a crosswalk, which explains how codes from differing code systems are equivalent or similar.

Despite these limitations, this report demonstrates the type of analyses that are possible with NHCS data by examining patients who experienced SMM during delivery and simultaneously analyzing these patients at predelivery hospitalizations and postpartum ED visits. The collection of patient identifiers allows for patients to be tracked across hospital settings within a calendar year. This allows for a more comprehensive understanding of healthcare use within a study population, which may prove useful for future research.

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Table 1. Percent of patients with severe maternal morbidity who had a specific indicator of severe maternal morbidity, between April 1, 2016, and September 30, 2016

SMM type and indicators	Percent of patients with SMM indicator
Procedure	
Blood transfusion	59.9
Hysterectomy	9.0
Ventilation	3.8
Conversion of cardiac rhythm	0.8
Temporary tracheostomy	–
Condition	
Disseminated intravascular coagulation	11.0
Acute renal failure	9.3
Eclampsia	6.6
Sepsis	6.2
Adult respiratory distress syndrome	6.0
Pulmonary edema or acute heart failure	4.8
Shock	4.8
Air and thrombotic embolism	2.1
Puerperal cerebrovascular disorders	2.0
Sickle cell disease with crisis	1.2
Cardiac arrest or ventricular fibrillation	0.9
Severe anesthesia complications	0.5
Amniotic fluid embolism	0.5
Acute myocardial infarction	0.4
Aneurysm	0.4
Heart failure or arrest during surgery	–

– Quantity zero.

NOTES: Sample size is 2,335. SMM is severe maternal morbidity. A patient with SMM can have more than one indicator of SMM at delivery. For example, a patient can have a blood transfusion and sepsis at their delivery hospitalization. If a patient had more than one indicator of SMM, they were counted in multiple categories. Therefore, the total percentage does not equal 100.

SOURCE: National Center for Health Statistics, National Hospital Care Survey, 2016.

Technical Notes

Figure. Study population for analysis

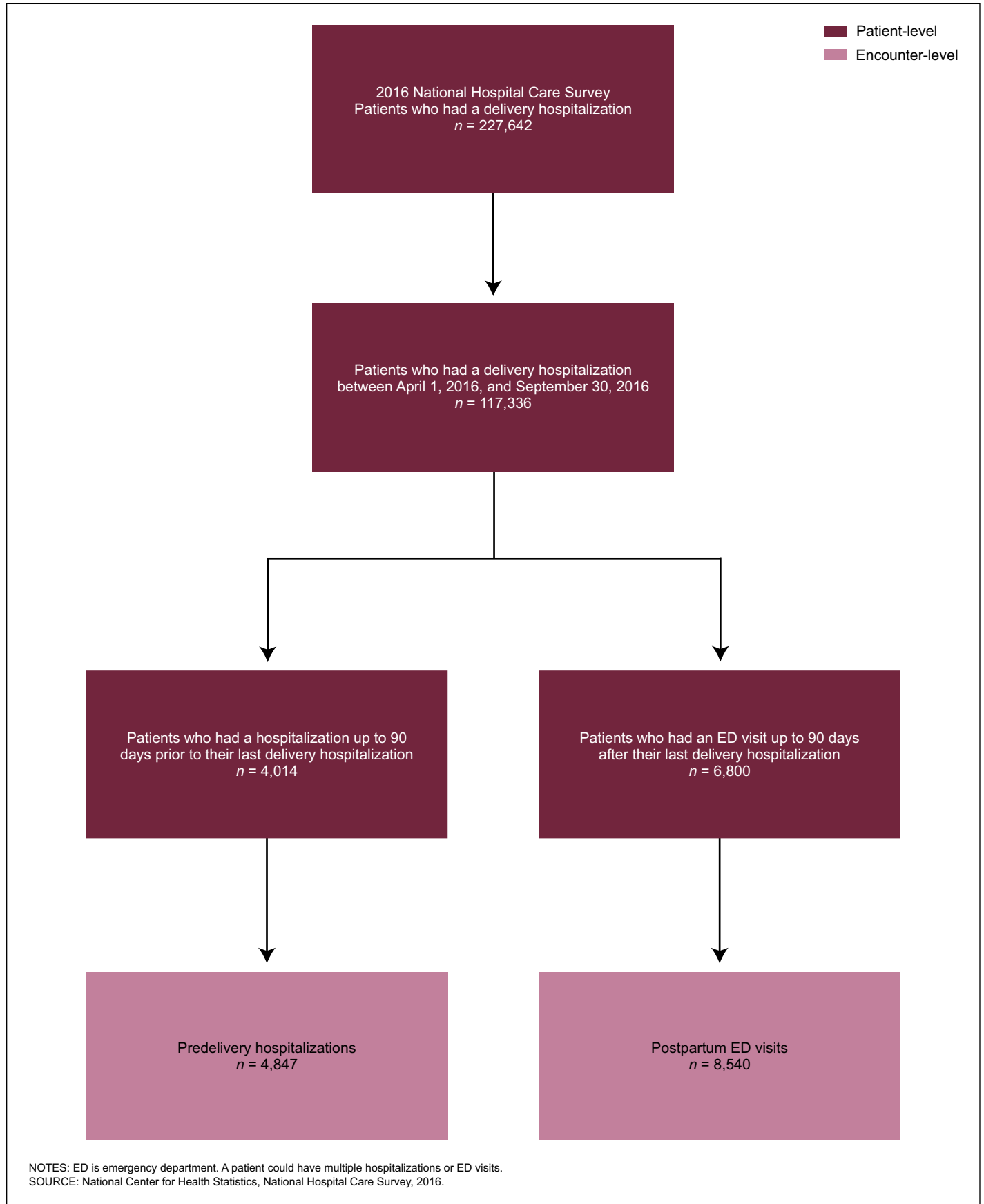


Table I. List of *International Classification of Diseases, Ninth Revision, Clinical Modification* and *International Classification of Diseases, 10th Revision, Clinical Modification* diagnosis codes that indicate a delivery hospitalization

Coding system and <i>International Classification of Diseases</i> short code	Description
ICD-9-CM	
V27	Outcome of delivery
ICD-10-CM	
Z37	Outcome of delivery
O60.1	Preterm labor with preterm delivery
O60.2	Term delivery with preterm labor
O67	Labor and delivery complicated by intrapartum hemorrhage, not elsewhere classified
O68	Labor and delivery complicated by abnormality of fetal acid-base balance
O69	Labor and delivery complicated by umbilical cord complications
O70	Perineal laceration during delivery
O75.5	Delayed delivery after artificial rupture of membranes
O75.81	Maternal exhaustion complicating labor and delivery
O75.89	Other specified complications of labor and delivery
O75.9	Complication of labor and delivery, unspecified
O77	Other fetal stress complicating labor and delivery
O80	Encounter for full-term uncomplicated delivery
O82	Encounter for cesarean delivery without indication

NOTES: ICD-9-CM is *International Classification of Diseases, Ninth Revision, Clinical Modification*. ICD-10-CM is *International Classification of Diseases, 10th Revision, Clinical Modification*.

SOURCE: National Center for Health Statistics, National Hospital Care Survey, 2016.

Table II. List of *International Classification of Diseases, 10th Revision, Clinical Modification* diagnoses codes that indicate severe maternal morbidity

Severe maternal morbidity indicator	<i>International Classification of Diseases, 10th Revision, Clinical Modification</i> short code
Acute myocardial infarction	I21.xx,I22.x
Aneurysm	I71.xx,I79.0
Acute renal failure	N17.x,O90.4
Adult respiratory distress syndrome	J80,J95.1,J95.2,J95.3,J95.82x,J96.0x,J96.2x,R09.2
Amniotic fluid embolism	O88.1x
Cardiac arrest/ventricular fibrillation	I46.x,I49.0x
Disseminated intravascular coagulation	D65,D68.8,D68.9,O72.3
Eclampsia	O15.x
Heart failure/arrest during surgery or procedure.	I97.12x,I97.13x,I97.710,I97.711
Puerperal cerebrovascular disorders	I60–I68,O22.51,O22.52,O22.53,I97.81x,I97.82x,O87.3
Pulmonary edema/acute heart failure.	J81.0,I50.1,I50.20,I50.21,I50.23,I50.30,I50.31,I50.33,I50.40,I50.41,I50.43,I50.9
Severe anesthesia complications	O74.0,O74.1,O74.2,O74.3,O89.0x,O89.1,O89.2
Sepsis	O85,O86.04,T80.211A,T81.4XXA,T81.44xx, or R65.20, or A40.x,A41.x,A32.7
Shock	O75.1,R57.x,R65.21,T78.2XXA,T88.2XXA,T88.6XXA,T81.10XA,T81.11XA,T81.19XA
Sickle cell disease with crisis	D57.0x,D57.21x,D57.41x,D57.81x
Air and thrombotic embolism	I26.x,O88.0x,O88.2x,O88.3x,O88.8x

SOURCE: National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health.

Table III. List of *International Classification of Diseases, 10th Revision, Procedure Coding System* procedure codes that indicate severe maternal morbidity

Severe maternal morbidity indicator	<i>International Classification of Diseases, 10th Revision, Procedure Coding System</i> code
Conversion of cardiac rhythm	5A2204Z, 5A1201Z
Blood transfusion	'30233H1' '30233L1' '30233K1' '30233M1' '30233N1' '30233P1' '30233R1' '30233T1' '30233H0' '30233L0' '30233K0' '30233M0' '30233N0' '30233P0' '30233R0' '30233T0' '30230H1' '30230L1' '30230K1' '30230M1' '30230N1' '30230P1' '30230R1' '30230T1' '30230H0' '30230L0' '30230K0' '30230M0' '30230N0' '30230P0' '30230R0' '30230T0' '30240H1' '30240L1' '30240K1' '30240M1' '30240N1' '30240P1' '30240R1' '30240T1' '30240H0' '30240L0' '30240K0' '30240M0' '30240N0' '30240P0' '30240R0' '30240T0' '30243H1' '30243L1' '30243K1' '30243M1' '30243N1' '30243P1' '30243R1' '30243T1' '30243H0' '30243L0' '30243K0' '30243M0' '30243N0' '30243P0' '30243R0' '30243T0' '30250H1' '30250L1' '30250K1' '30250M1' '30250N1' '30250P1' '30250R1' '30250T1' '30250H0' '30250L0' '30250K0' '30250M0' '30250N0' '30250P0' '30250R0' '30250T0' '30253H1' '30253L1' '30253K1' '30253M1' '30253N1' '30253P1' '30253R1' '30253T1' '30253H0' '30253L0' '30253K0' '30253M0' '30253N0' '30253P0' '30253R0' '30253T0' '30260H1' '30260L1' '30260K1' '30260M1' '30260N1' '30260P1' '30260R1' '30260T1' '30260H0' '30260L0' '30260K0' '30260M0' '30260N0' '30260P0' '30260R0' '30260T0' '30263H1' '30263L1' '30263K1' '30263M1' '30263N1' '30263P1' '30263R1' '30263T1' '30263H0' '30263L0' '30263K0' '30263M0' '30263N0' '30263P0' '30263R0' '30263T0'
Hysterectomy	0UT90ZZ, 0UT94ZZ, 0UT97ZZ, 0UT98ZZ, 0UT9FZZ
Temporary tracheostomy	0B110Z, 0B110F, 0B113, 0B114
Ventilation	5A1935Z, 5A1945Z, 5A1955Z

SOURCE: National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health.

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