

## **About the Data – Selected Maternal Complications**

### **Indicator Description**

The California Dignity in Pregnancy and Childbirth Act (Senate Bill 464) took effect in January 2020. The legislation includes several mandates including reporting by the State Department of Public Health of the following maternal complications (Health & Safety Code 123630.4): obstetric hemorrhage, hypertension, preeclampsia, eclampsia, venous thromboembolism, sepsis, cerebrovascular accident, and amniotic fluid embolism. For data shown on this dashboard, the presence of each complication was assessed during the delivery hospitalization.

### **Data Source**

California Department of Health Care Access and Information, Patient Discharge Data, 2016–2022: Data sets of inpatient data collected from California-licensed hospitals in California. Each data set consists of individual inpatient records, one record for each inpatient discharged from a California-licensed hospital. Licensed hospitals include general acute care, acute psychiatric, chemical dependency recovery, and psychiatric health facilities. Each patient discharge record contains the patient's demographic information, International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) diagnosis and procedure codes, and other information related to the patient's stay in the hospital.

Data for 2016 and onward are based on ICD-10-CM and may not be comparable to other reported estimates based on International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM).

### **Data Analysis**

Each maternal complication rate shown in these dashboards is the number of delivery hospitalizations with a maternal complication diagnosis code per 10,000 delivery hospitalizations, stratified by race/ethnicity and hospital region. Maternal complications shown are obstetric hemorrhage, hypertension, preeclampsia, eclampsia, venous thromboembolism, sepsis, cerebrovascular accident, and amniotic fluid embolism.

Each maternal complication was identified based on the ICD-10-CM diagnosis code for the primary diagnosis and up to 24 other diagnosis codes associated with the delivery hospitalization.

Condition/complication	ICD-10 codes
<b>Obstetric hemorrhage<sup>1</sup></b>	<u>Placenta Previa</u> (O4410, O4412, O4413, O4430, O4432, O4433, O4450, O4452, O4453); <u>Placental Abruption</u> (O45002, O45003, O45009, O45012, O45013, O45019, O45022, O45023, O45029, O45092, O45093, O45099, O458X2, O458X3, O458X9, O4590, O4592, O4593); <u>Antepartum Hemorrhage</u> (O46002, O46003, O46009, O46012, O46013, O46019, O46022, O46023, O46029, O46092, O46093, O46099, O468X2, O468X3, O468X9, O4692, O4693, O4690); <u>Postpartum Hemorrhage</u> (O723, O43212, O43213, O43219, O43222, O43223, O43229, O43232, O43233, O43239, O720, O721, O722)
<b>Hypertension<sup>2</sup></b>	I10, I11, I12, I13, I15, O10, O11, O13, O14, O15, O16
<b>Preeclampsia<sup>2</sup></b>	O11, O14
<b>Eclampsia<sup>2,3</sup></b>	O15
<b>Venous thromboembolism<sup>4</sup></b>	<u>Pulmonary Embolism</u> (I2601, I2602, I2609, I2690, I2692, I2699, O88211, O88212, O88213, O88219, O8822, O8823, O88811, O88812, O88813, O88819, O8882, O8883); <u>Deep Vein Thrombosis</u> (I8010, I8011, I8012, I8013, I80201, I80202, I80203, I80209, I80211, I80212, I80213, I80219, I80221, I80222, I80223, I80229, I80231, I80232, I80233, I80239, I80291, I80292, I80293, I80299, I808, I82210, I82220, I82290, I82401, I82402, I82403, I82409, I82411, I82412, I82413, I82419, I82421, I82422, I82423, I82429, I82431, I82432, I82433, I82439, I82441, I82442, I82443, I82449, I82491, I82492, I82493, I82499, I824Y1, I824Y2, I824Y3, I824Y9, I824Z1, I824Z2, I824Z3, I824Z9, I82601, I82602, I82603, I82609, I82621, I82622, I82623, I82629, I82890, I8290, I8291, I82A11, I82A12, I82A13, I82A19, I82B11, I82B12, I82B13, I82B19, I82C11, I82C12, I82C13, I82C19, O2230, O2231, O2232, O2233, O2250, O2251, O2252, O2253, O2291, O2292, O2293, O871, O873)
<b>Sepsis<sup>3</sup></b>	A327, A40, A41, I76, O85, O8604, R6520, R6521, T8112XA, T8144XA
<b>Cerebrovascular accident<sup>5</sup></b>	I60, I61, I62, I63, I650, I688, O873, O2250, O2251, O2252
<b>Amniotic fluid embolism<sup>3</sup></b>	O88112, O88113, O88119, O8812, O8813

The 95% confidence interval presented in the tooltips indicates there is a 95% chance that the range contains the true prevalence or rate in the population. Rates or percentages with wide confidence intervals should be interpreted with caution. Hospital coding practices for diagnoses may change over time and affect rates. To protect patient confidentiality, rates of maternal complications that occur infrequently are not shown.

Denominators include all delivery hospitalizations to California resident females, aged 12 to 55 years (Maternal and Child Health Bureau. Federally Available Data [FAD] Resource Document. April 1, 2022; Rockville, MD: Health Resources and Services Administration).

See Category and Subcategory Definitions below for additional inclusion/exclusion criteria.

### **Data Suppression**

The numerator, rate and confidence interval are not shown when the numerator is less than 11.

### **Category and Subcategory Definitions**

**Geography:** State or county of patient's residence at time of delivery. Excludes records with unknown county.

**Hospital region:** The region where the patient's hospital is located, excludes unknown geography information. Regions are defined as follows:

- LA-Santa Barbara-Ventura Region: Los Angeles, Santa Barbara and Ventura counties
- Mid-Coastal Region: Monterey, San Benito, San Luis Obispo, San Mateo, Santa Clara and Santa Cruz counties
- North Coast-East Bay Region: Alameda, Contra Costa, Del Norte, Humboldt, Lake, Marin, Mendocino, Napa, San Francisco and Sonoma counties
- Northeastern Region: Alpine, Amador, Butte, Calaveras, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Sierra, Siskiyou, Solano, Sutter, Tehama, Trinity, Yolo and Yuba counties
- Orange Region: Orange County
- San Diego-Imperial Region: Imperial and San Diego counties
- Central San Joaquin Valley-Sierra Nevada Region (Southern Central Valley): Fresno, Kern, Kings, Madera, Mariposa, Merced, Stanislaus, Tulare and Tuolumne counties
- Southern Inland Region: Inyo, Mono, Riverside and San Bernardino counties

**Race/ethnicity:** Hispanic includes all patients of Hispanic origin of any race, including Other and Unknown race. The remaining groups are of non-Hispanic origin: American Indian or Alaska Native (AIAN), Asian/Pacific Islander, Black, White, Other and Unknown. Beginning in 2019, Asian and Native Hawaiian or Other Pacific Islander (Pacific Islander) became separated categories and a Multi-Race category became available. Other and Unknown race are not shown on the dashboards but are available in the downloadable data table.

## References

1. Alliance for Innovation on Maternal Health (AIM) Obstetric Hemorrhage Patient Safety Bundle, [Core Data Collection Plan](#). 2022.
2. Ford ND, Cox S, Ko JY, et al. Hypertensive disorders in pregnancy and mortality at delivery hospitalization – United States, 2017-2019. MMWR Morb Mortal Wkly Rep. 2022;71(17):585-591. Published 2022 Apr 29.
3. Maternal and Child Health Bureau. [Federally Available Data \(FAD\) Resource Document](#). April 1, 2023; Rockville, MD: Health Resources and Services Administration. Retrieved April 3, 2023.
4. Krenitsky N, Friedman AM, Yu K, Gyamfi-Bannerman C, Williams-Kane J, O’Shaughnessy F, et al. Trends in venous thromboembolism and associated risk factors during delivery hospitalizations from 2000 to 2018. Obstet Gynecol 2022;139.
5. Zahid S, Hashem A, Minhas AS, et al. Trends, predictors, and outcomes of cardiovascular complications at delivery associated with gestational diabetes: A National Inpatient Sample analysis (2004-2019). J Am Heart Assoc. 2022;11(21):e026786.

## Suggested Citation

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