

State Variation in Opioid Prescription Fills After Childbirth Among Women Ages 18-44 With Commercial Insurance

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Highlights

- The U.S. opioid prescription fill rate after childbirth among women ages 18-44 with commercial insurance was 26.0% based on detailed commercial insurance data from 2016. The prescription fill rate was 16.3% for vaginal births and 45.4% for cesarean births.*
- New York was among states with the lowest opioid prescription fill rates. Idaho, Louisiana, Oklahoma, and West Virginia were among states with the highest opioid prescription fill rates.
- Compared with the national averages, Georgia had a higher prescription fill rate among vaginal births and a lower rate among cesarean births. North Dakota had a higher prescription fill rate among cesarean births and a lower rate among vaginal births compared with the national averages.
- The national mean annual opioid prescription fill count per person was 1.24. The mean after vaginal birth was 1.21 and after cesarean birth was 1.26.

* The opioid prescription fill rate refers to the percentage of women who filled an opioid prescription.

Introduction

It is common for women to experience some degree of discomfort and pain after giving birth. Therefore, analgesics, including opioids, are often prescribed to mothers after birth. Studies have reported that a small percentage of women who received opioid prescriptions after birth developed opioid use disorder.^{ii,iii} Previous research indicates

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ⁱⁱ Peahl AF, Dalton VK, Montgomery JR, Lai YL, Hu HM, Waljee JF. Rates of new persistent opioid use after vaginal or cesarean birth among U.S. women. *JAMA Netw Open*. 2019;2(7):e197863. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6661716/>. Accessed February 27, 2024.

ⁱⁱⁱ Osmundson SS, Wiese AD, Min JY, Hawley RE, Patrick SW, Griffin, MR, Grijalva CG. Delivery type, opioid prescribing, and the risk of persistent opioid use after delivery. *Am J Obstet Gynecol*. 2019;220(4):405-407. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6546169/>. Accessed February 27, 2024.

that about half of commercially insured women in the United States have an opioid prescription filled after giving birth.^{iv,v} Estimates vary greatly by delivery type and geographic location.^{vi} However, not much is known about how opioid prescription fills differ by state.

This Data Innovations Statistical Brief presents data from AHRQ's Synthetic Healthcare Database for Research (SyH-DR), focusing on commercially insured women ages 18-44. It examines outpatient opioid prescription fills both nationally and by state during the first 3 months after childbirth. All differences mentioned in the text are significant at the 0.05 level or better.

Findings

Opioid Prescription Fill Rate

Figures 1-3 display the opioid prescription fill rate within 3 months of childbirth in all 50 states and the District of Columbia, divided into four groups:

- States for which the state rate is significantly higher than the overall U.S. rate.
- States for which the state rate is higher than the overall U.S. rate but the difference is not statistically significant.
- States for which the state rate is lower than the overall U.S. rate but the difference is not statistically significant.
- States for which the state rate is significantly lower than the overall U.S. rate.

The standard errors and 95% confidence intervals (the upper and lower bounds of the estimate) are also presented to show estimate precision. Figure 1 shows the national average opioid prescription fill rate and reveals considerable variation across states.

The average U.S. opioid prescription fill rate after childbirth was 26.0%, with rates ranging from 12.0% in Delaware to 52.1% in Louisiana. Twenty states had higher rates than the national average (Alabama, Alaska, Arizona, Arkansas, Florida, Idaho, Kansas,

^{iv} Ali M, West K, Nye E. ASPE Issue Brief: Postpartum Opioid Prescription Fills, Opioid Use Disorder, and Utilization of Medication-Assisted Treatment Among Women With Medicaid and Private Health Insurance Coverage. Washington, DC: U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation; November 2020.

<https://aspe.hhs.gov/reports/postpartum-opioid-prescription-fills-opioid-use-disorder-utilization-medication-assisted-treatment>. Accessed February 27, 2024.

^v Steuart SR, Lawler EC, Bagwell Adams G, Shone H, Abraham AJ. Comparison of Postpartum opioid prescriptions before vs during the COVID-19 pandemic. *JAMA Netw Open*. 2023;6(4):e236438. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10071338/>, Accessed February 27, 2024.

^{vi} Becker NV, Gibbins KJ, Perrone J, Maughan BC. Geographic variation in postpartum prescription opioid use: opportunities to improve maternal safety. *Drug Alcohol Depend*. 2018;188:288-294. <https://pubmed.ncbi.nlm.nih.gov/29807216/>. Accessed February 27, 2024.

Louisiana, Michigan, Mississippi, Nebraska, Nevada, North Carolina, Oklahoma, Rhode Island, South Carolina, Tennessee, Texas, Washington, and West Virginia).

Nineteen states had rates lower than the national average (California, Connecticut, Delaware, Indiana, Iowa, Kentucky, Maine, Massachusetts, Minnesota, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, Vermont, Virginia, and Wisconsin). The remaining states^{vii} had rates that did not significantly differ from the national average.

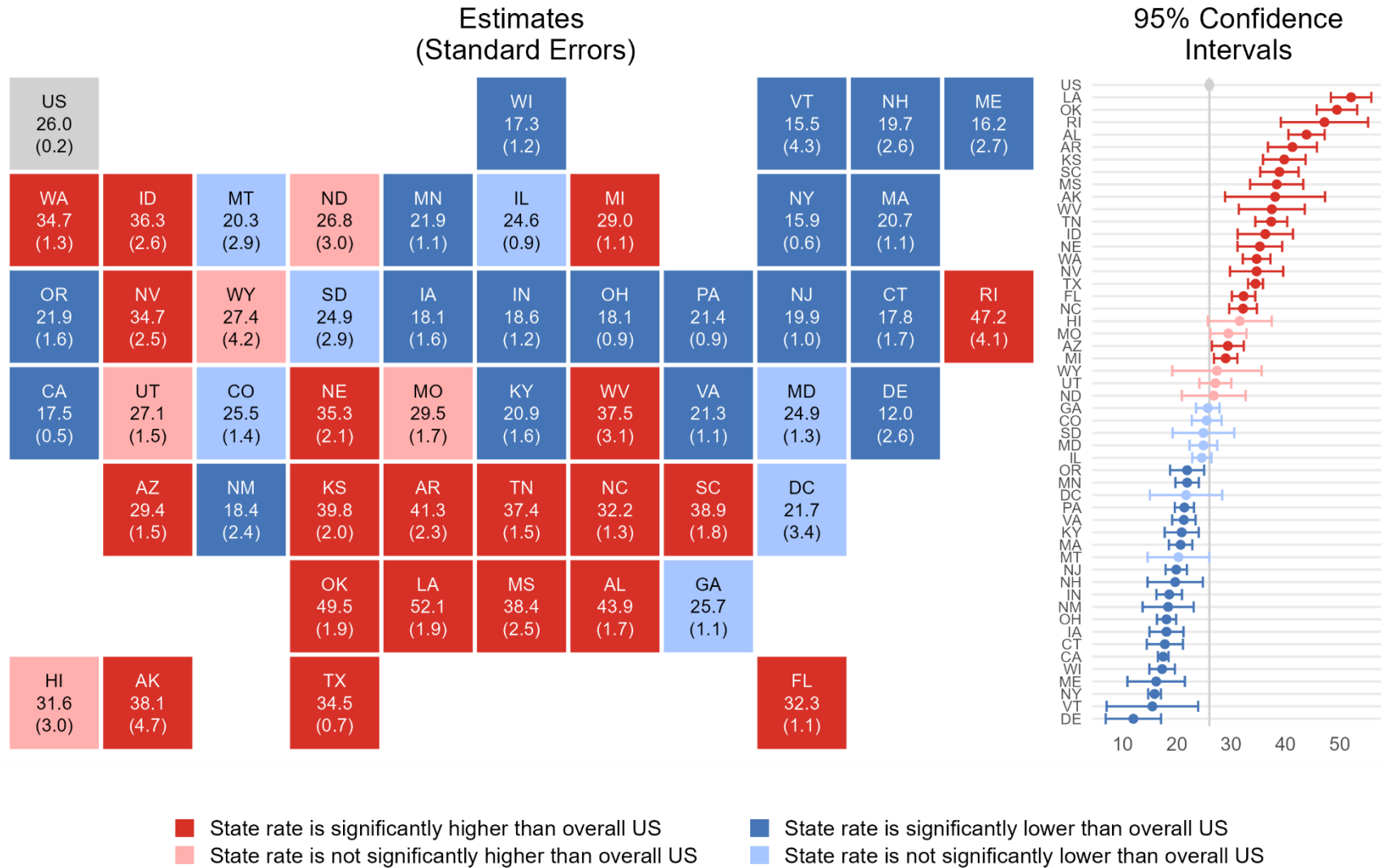
Figure 2 shows that the opioid fill rate in the United States among women who delivered their babies vaginally was 16.3%. The data indicate that the lowest rate was 1.5% in Delaware, and the state with the highest rate was Louisiana at 44.8%. Eighteen states had higher rates than the national average (Alabama, Arkansas, Georgia, Idaho, Kansas, Louisiana, Mississippi, Missouri, Nebraska, Nevada, North Carolina, South Carolina, Oklahoma, Tennessee, Texas, Utah, Washington, and West Virginia).

Twenty-one states had rates lower than the national average (California, Connecticut, Delaware, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oregon, Pennsylvania, Virginia, Vermont, and Wisconsin).

Figure 3 shows large state variation in the opioid prescription fill rate for cesarean births. The rates range from 31.2% in Kentucky to 86.7% in Rhode Island, a difference of 55.5%. Eighteen states had rates higher than the national average (Alaska, Arizona, Florida, Hawaii, Idaho, Kansas, Louisiana, Massachusetts, Michigan, Minnesota, Nebraska, North Carolina, North Dakota, Oklahoma, Rhode Island, Tennessee, Washington, and West Virginia). Only seven states had lower rates than the national average (California, Georgia, Indiana, Iowa, Kentucky, New York, and Ohio).

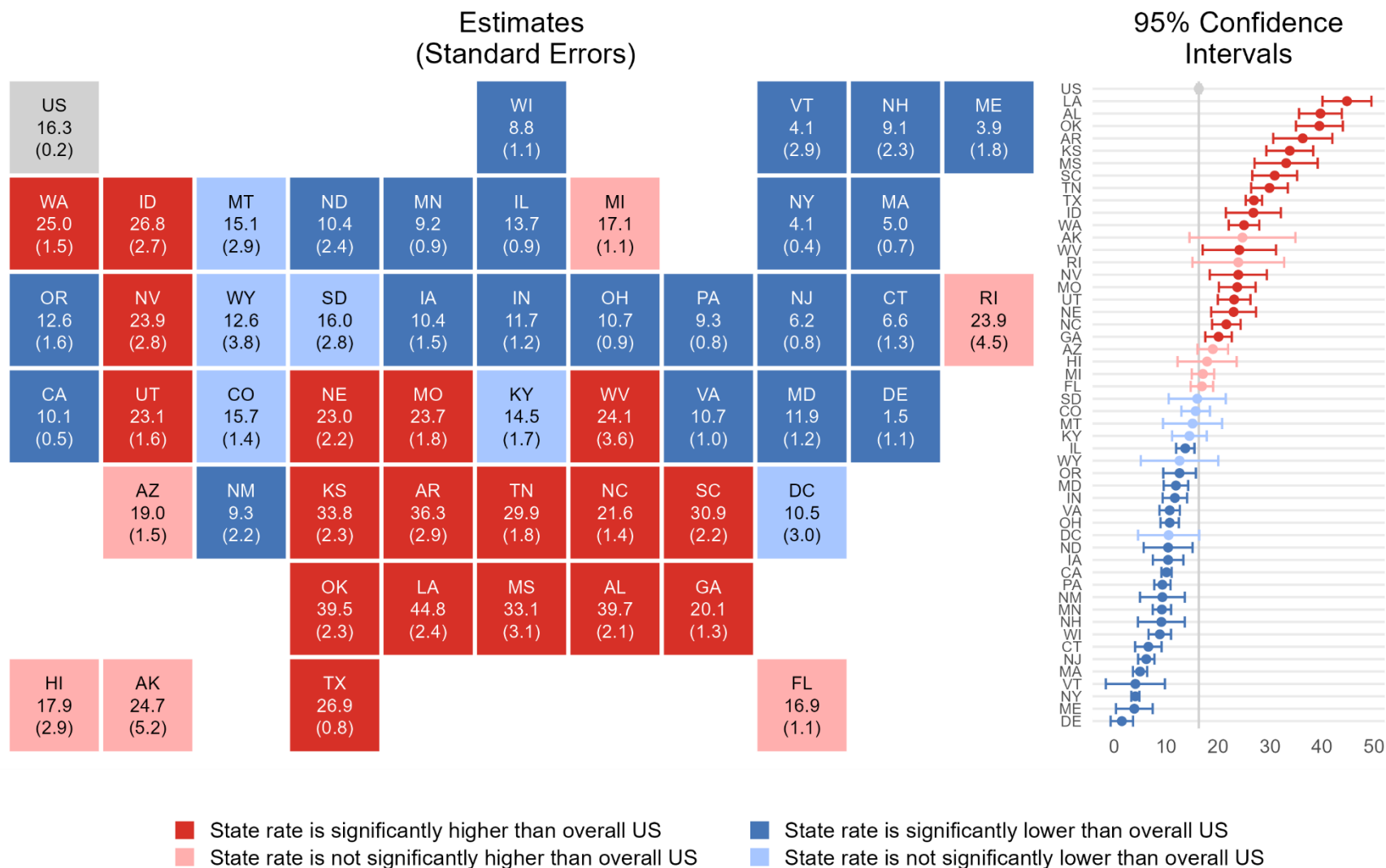
^{vii} For the purposes of this analysis, the District of Columbia is treated as a state.

Figure 1. Opioid prescription fill rate within 3-months after childbirth among women ages 18-44 with commercial insurance



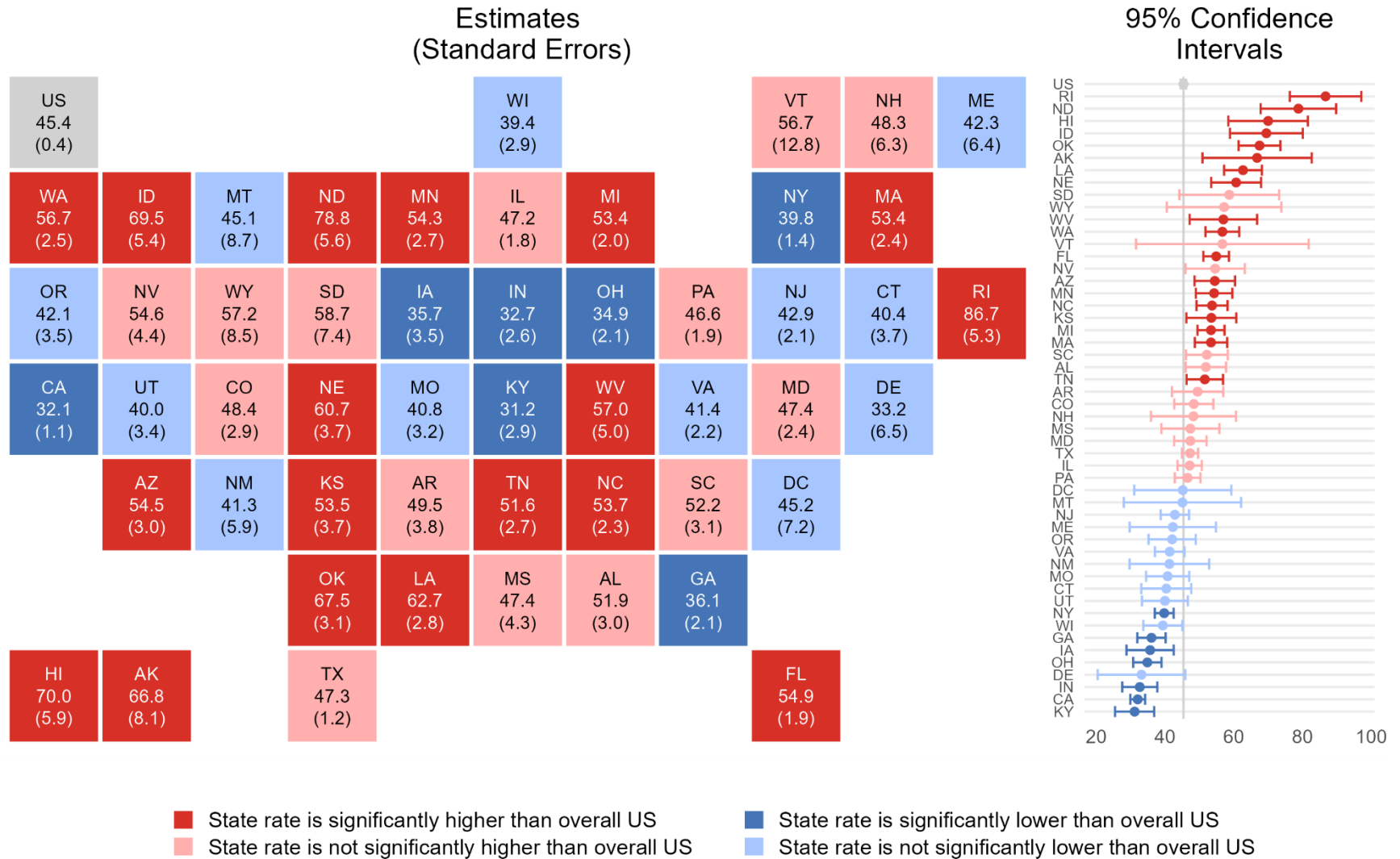
Source: Agency for Healthcare Research and Quality, Synthetic Healthcare Database for Research (SyH-DR), 2016.

Figure 2. Opioid prescription fill rate within 3-months after vaginal delivery among women ages 18-44 with commercial insurance



Source: Agency for Healthcare Research and Quality, Synthetic Healthcare Database for Research (SyH-DR), 2016.

Figure 3. Opioid prescription fill rate within 3-months after cesarean delivery among women ages 18-44 with commercial insurance



Source: Agency for Healthcare Research and Quality, Synthetic Healthcare Database for Research (SyH-DR), 2016.

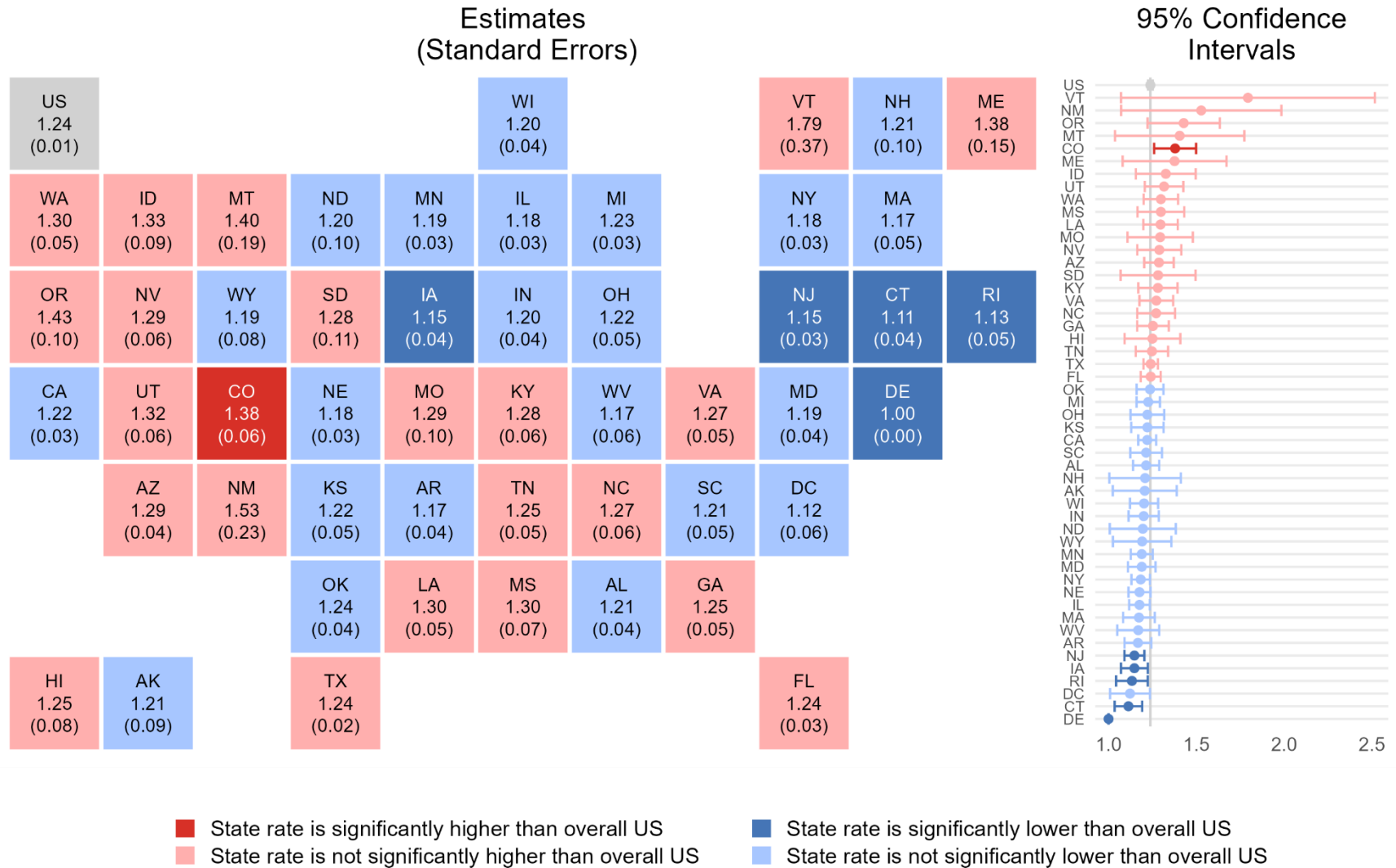
Count of Opioid Prescription Fills

Figures 4-6 display the mean counts of opioid prescription fills nationally and for each of the 50 states and the District of Columbia for all, vaginal, and cesarean births within 3 months after delivery. Figure 4 presents the variation in the mean commercial insurance prescription counts for all births. The national mean was 1.24. Only Colorado (1.38) had a rate higher than the national average. Connecticut, Delaware, Rhode Island, Iowa, and New Jersey had rates lower than the national average.

Figure 5 displays the mean filled prescription count for vaginal births. The national mean was 1.21. Only three states were significantly different from the national mean. Delaware, Ohio, and Rhode Island had mean counts lower than the national mean.

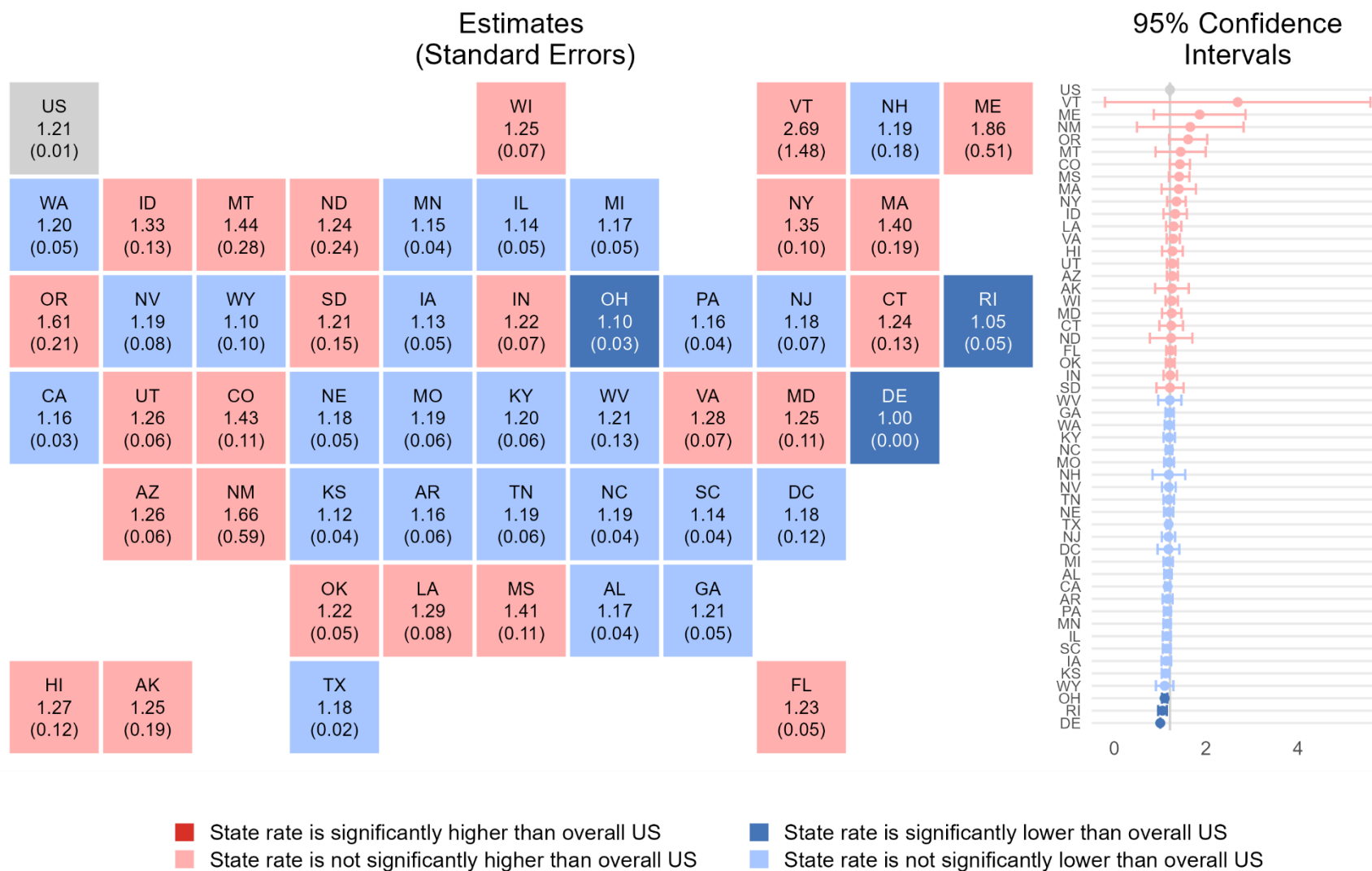
Figure 6 displays the mean filled prescription count for cesarean births. The national mean was 1.26. Seven states (Connecticut, Delaware, District of Columbia, Maryland, Massachusetts, New Jersey, and New York) had mean counts lower than the national mean.

Figure 4. Mean count of opioid prescription fills within 3 months after childbirth among women ages 18-44 with commercial insurance



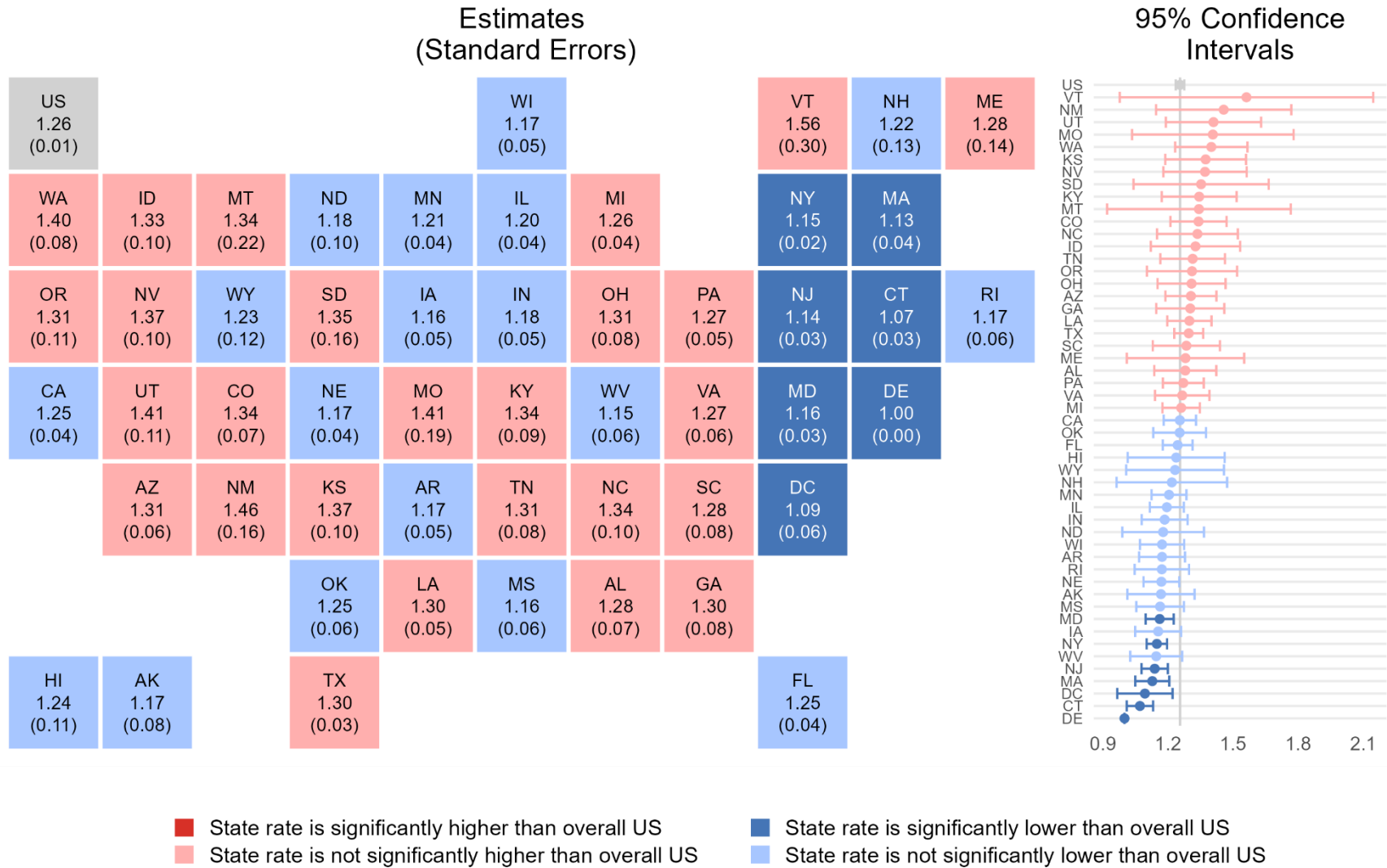
Source: Agency for Healthcare Research and Quality, Synthetic Healthcare Database for Research (SyH-DR), 2016.

Figure 5. Mean count of opioid prescription fills within 3 months after vaginal delivery among women ages 18-44 with commercial insurance



Source: Agency for Healthcare Research and Quality, Synthetic Healthcare Database for Research (SyH-DR), 2016.

Figure 6. Mean count of opioid prescription fills within 3 months after cesarean delivery among women ages 18-44 with commercial insurance



Source: Agency for Healthcare Research and Quality, Synthetic Healthcare Database for Research (SyH-DR), 2016.

Data Source

The data in this statistical brief are derived from the SyH-DR 2016 public use files (PUFs). These files include claims from the commercially insured population, covering those who had commercial health insurance, including Affordable Care Act market exchanges, employer-based, direct-purchase, and federal employee coverage.

SyH-DR PUFs include a small set of diagnosis codes that reveal certain events (e.g., births) that are not publicly available because of privacy and confidentiality concerns. We supplemented our analysis with more detailed diagnosis information provided by the original data source under special agreement with AHRQ. This analysis was limited to deliveries that occurred in a hospital setting and outpatient prescription medication use.

Definitions

Opioid Prescription Fills

We examined the average percentage of prescription fills between delivery and up to 3 months after hospital discharge (“any use”). We also examined the average count of prescriptions filled among users. We included any prescription fills of opioids commonly used to treat pain. These opioids are identified by generic drug names for narcotic analgesics and narcotic analgesic combinations in the Multum Lexicon database from Cerner Multum, Inc. Opioids excluded from our analysis include respiratory agents, antitussives, and drugs commonly used in medication-assisted treatment.

In SyH-DR, generic drug names were partially synthesized. Generic drug names in each claim from the source file were replaced with synthetic generic drug names in SyH-DR, where the synthetic generic drug names belonged to the same therapeutic class as the original drug name. In other words, the drug names in SyH-DR preserve the therapeutic classes observed in a claim in the source files. Information on days’ supply and dosage strength are not available.

Case Definition

This study used the International Classification of Diseases, 10th Revision, Clinical Modification/Procedure Coding System (ICD-10-CM/PCS) codes to identify vaginal and cesarean deliveries. These codes are shown in Table 1. All listed diagnosis and procedure codes were used in identifying births. Births were excluded if they had any code indicating an abortive outcome.

The diagnosis codes in SyH-DR are partially synthesized, where the first three characters were retained from the original values. Similarly, procedure codes were partially synthesized, with synthetic codes replacing those in the source files if they belonged to the same procedure category.

Procedure categorization was performed using the AHRQ Clinical Classifications Software (CCS) for ICD-10-PCS. All delivery procedures used in this study exactly match the codes included in the cesarean section CCS category.

Table 1. Codes defining deliveries

ICD-10-CM/PCS Code	Code Description
<i>Vaginal Deliveries</i>	
Z37	Outcome of delivery
O80	Encounter for full-term uncomplicated delivery
<i>Cesarean Deliveries</i>	
O82	Encounter for cesarean delivery without indication
10D00Z0, 10D00Z1, 10D00Z2	Extraction of products of conception,* open approach
<i>Abortive Outcomes</i>	
O00	Ectopic pregnancy
O01	Hydatidiform mole
O02	Other abnormal products of conception
O03	Spontaneous abortion
O04	Complications following (induced) termination of pregnancy
O07	Failed attempted termination of pregnancy
O08	Complications following ectopic and molar pregnancy

* For coding purposes, a cesarean delivery is referred to as “extraction of products of conception.”

Insurance Coverage

To be included in the analysis, women who met the case definition had to have commercial insurance coverage from the time they were admitted to the hospital to 3 months after their hospital discharge.

About SyH-DR

SyH-DR is an all-payer, nationally representative claims database. The database consists of a sample of inpatient, outpatient, and prescription drug claims, including utilization, payment, and enrollment data, for people insured by Medicare, Medicaid, or commercial health insurance in 2016. AHRQ created SyH-DR, in part, as a resource to facilitate improvements to price and quality transparency in healthcare.

SyH-DR is a synthetic database that preserves the structure and statistical properties of the original claims data while protecting privacy and confidentiality of people and institutions. Synthetic data are created by statistically modeling or changing original data so that new values or data elements are generated while maintaining the original data's statistical properties. Additional steps, such as masking, are taken to reduce the risk of identifying people and institutions so that the data may be made publicly available to a broad community of researchers.

SyH-DR is a robust and nationally representative dataset that can be used to conduct research at various levels of granularity, including sex, age group, and insurance source at the national or state level. For more information about SyH-DR, visit the SyH-DR web page at <https://www.ahrq.gov/data/innovations/syh-dr.html>.

About AHRQ Data Innovations

AHRQ is engaged in several data development activities that have become known as "AHRQ Data Innovations." These activities include identifying data needs and data gaps. In addition, AHRQ is creating new research databases that complement existing databases to address emerging questions in U.S. healthcare delivery. These include the Physician and Physician Practice Research Database (3P-RD), Social Determinants of Health (SDOH) database, and Synthetic Healthcare Database for Research (SyH-DR).

Suggested Citation

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AHRQ welcomes questions and comments from readers of this publication who are interested in obtaining more information about access, cost, use, financing, and quality of healthcare in the United States. We also invite you to tell us how you are using this statistical brief and other Data Innovations products and to share suggestions on how Data Innovations products might be enhanced to further meet your needs. Please email us at DataInnovations@ahrq.hhs.gov or send a letter to the address below:

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