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Data Brief

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Epidural or Spinal Anesthesia Use for Singleton Vaginal Deliveries: United States, 2016–2024

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Key findings

Data from the National Vital Statistics System

- In 2024, 75.4% of mothers with singleton vaginal births used epidural or spinal anesthesia, an 8% increase from 2016.
- The use of epidural or spinal anesthesia increased for all maternal age groups from 2016 to 2024.
- From 2016 to 2024, the percentage of mothers using epidural or spinal anesthesia increased 5%–17% across all race and Hispanic-origin groups.
- The use of epidural or spinal anesthesia increased for mothers covered by Medicaid, private insurance, and other sources of payment, while it decreased for mothers who self-paid for their deliveries.
- From 2016 to 2024, the use of epidural or spinal anesthesia increased in 44 states and the District of Columbia, decreased in 2 states, and was essentially unchanged in 4 states.

Introduction

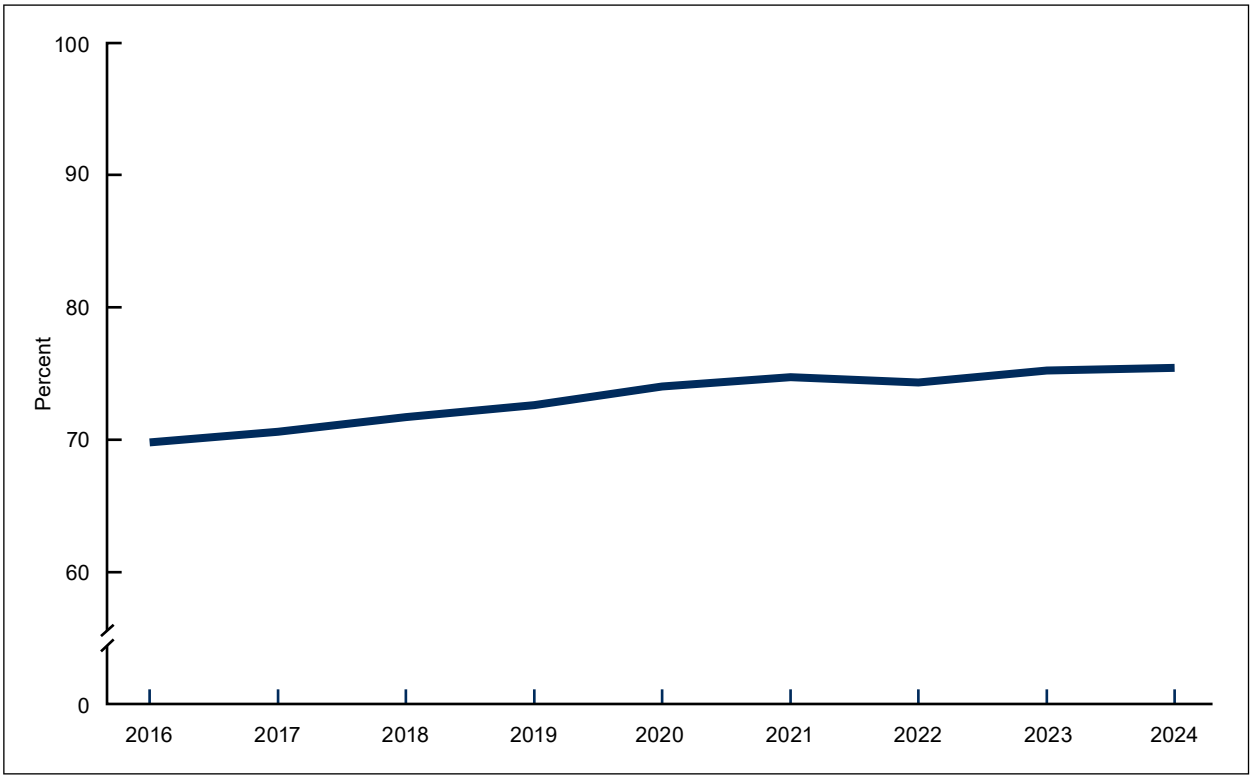
Epidurals and spinal anesthesia are used to treat pain during labor. The American College of Obstetricians and Gynecologists recommends that pain relief be administered to laboring women upon request (1). Studies have found that women who received no pain treatment experienced increased pain and were more likely to have a cesarean delivery compared with those who received an epidural (2). National birth certificate data on epidural or spinal anesthesia use during labor are available beginning in 2016. This report shows trends of

epidural or spinal anesthesia use for singleton vaginal deliveries from 2016 to 2024 and changes by selected maternal characteristics.

Trends

- The percentage of mothers with a singleton vaginal birth who used epidural or spinal anesthesia increased 8% from 2016 (69.8%) to 2024 (75.4%) (Figure 1, Table 1).
- The percentage of mothers who used epidural or spinal anesthesia increased 7% from 2016 to 2021 (74.7%), decreased 1% from 2021 to 2022 (74.3%), and then increased 1% from 2022 to 2024.

Figure 1. Epidural or spinal anesthesia receipt for vaginal deliveries: United States, 2016–2024



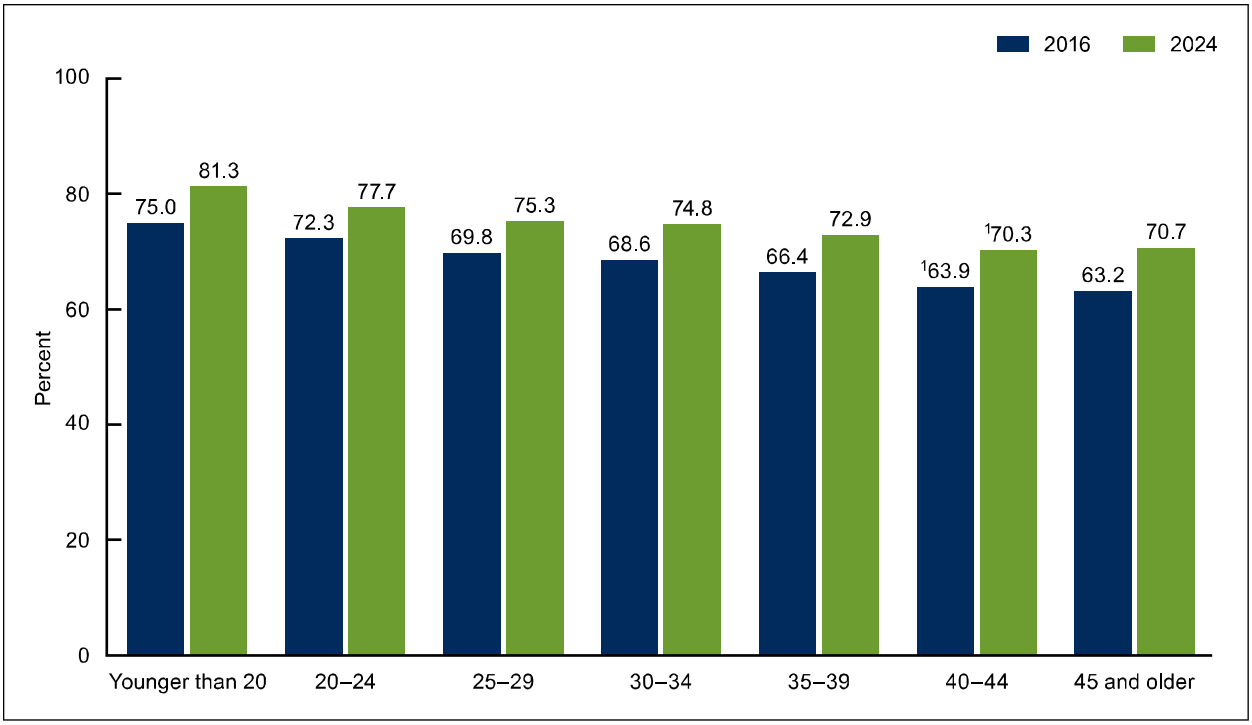
NOTES: Data reflect singleton births only. All annual changes are significantly different from each other ($p < 0.05$).
SOURCE: National Center for Health Statistics, National Vital Statistics System, natality data file.

Age

- The use of epidural or spinal anesthesia increased for all maternal age groups between 2016 and 2024, ranging from a 7% increase for mothers 20–24 (from 72.3% to 77.7%) to 12% for mothers 45 and older (from 63.2% to 70.7%) (Figure 2, Table 2).

- For both years, the percentage of epidural or spinal anesthesia use generally decreased with increasing maternal age, although the percentages in each year were similar for mothers 40–44 and 45 and older.
- In 2024, epidural or spinal anesthesia use ranged from a low of 70.3% for mothers ages 40–44 and 70.7% for mothers 45 and older to a high of 81.3% for mothers younger than 20.

Figure 2. Epidural or spinal anesthesia receipt for vaginal deliveries, by maternal age: United States, 2016 and 2024



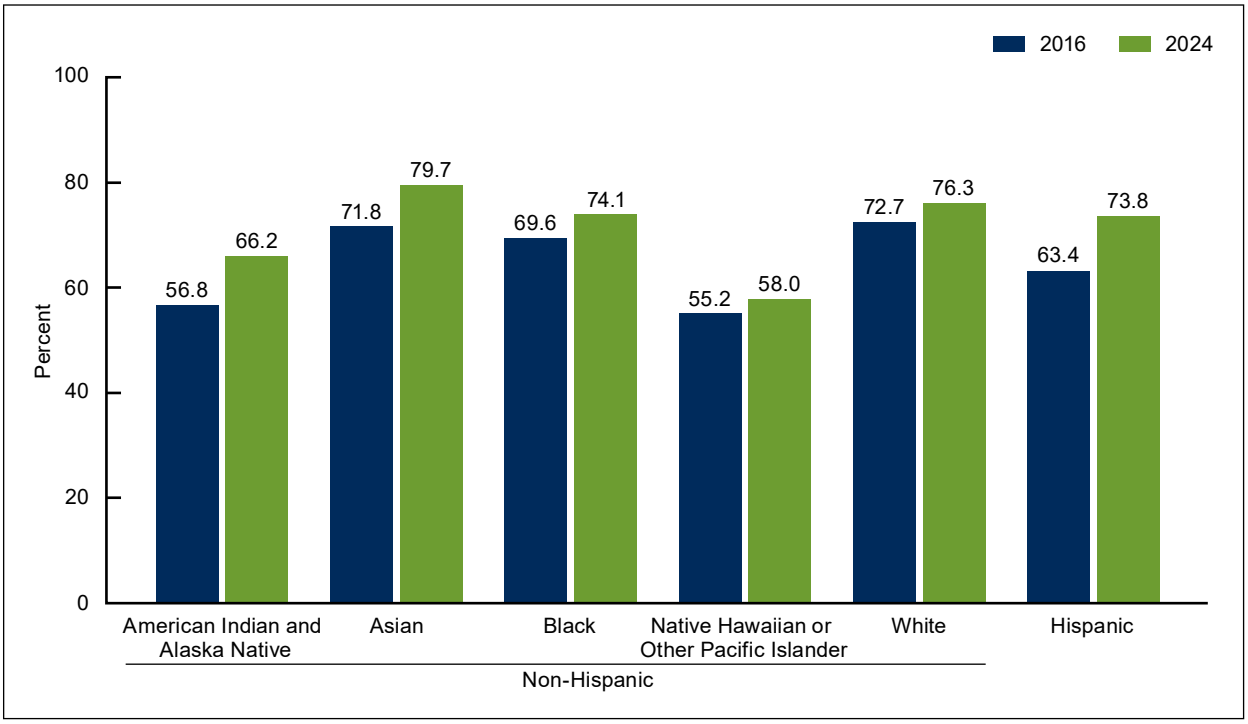
[1]Not significantly different from 45 and older.
NOTES: Data reflect singleton births only. Within-category increases from 2016 to 2024 are significant for all maternal age groups ($p < 0.05$).
SOURCE: National Center for Health Statistics, National Vital Statistics System, natality data file.

Race and Hispanic origin

- The percentage of mothers who used epidural or spinal anesthesia increased for all race and Hispanic-origin groups. Use ranged from a 5% increase for both Native Hawaiian or Other Pacific Islander non-Hispanic (subsequently, Native Hawaiian or Other Pacific Islander) mothers (from 55.2% to 58.0%) and White non-Hispanic (subsequently, White) mothers (72.7% to 76.3%) to a 17% increase among American Indian and Alaska Native non-Hispanic (subsequently, American Indian and Alaska Native) mothers (from 56.8% to 66.2%) (Figure 3, Table 3).

- In 2024, the use of epidural or spinal anesthesia was highest among Asian non-Hispanic (subsequently, Asian) mothers (79.7%) and lowest among Native Hawaiian or Other Pacific Islander mothers (58.0%).

Figure 3. Epidural or spinal anesthesia receipt for vaginal deliveries, by race and Hispanic origin: United States, 2016 and 2024

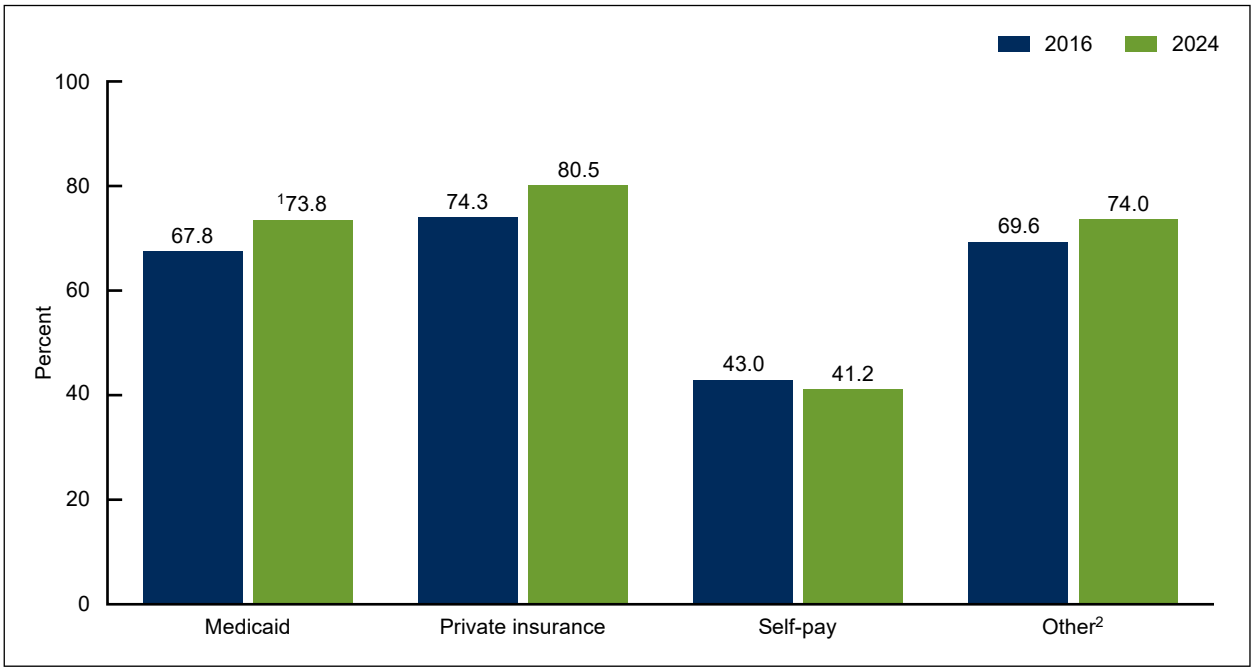


NOTES: Data reflect singleton births only. All race and Hispanic-origin groups are significantly different from each other for each year and across years ($p < 0.05$). Mothers of Hispanic origin may be of any race.
SOURCE: National Center for Health Statistics, National Vital Statistics System, natality data file.

Source of payment

- The use of epidural or spinal anesthesia increased 6%–9% among mothers covered by Medicaid (from 67.8% to 73.8%), private insurance (74.3% to 80.5%), and other sources of payment (69.6% to 74.0%) (Figure 4, Table 4).
- The use of epidural or spinal anesthesia decreased 4% among mothers who self-paid for their deliveries (from 43.0% in 2016 to 41.2% in 2024).
- In 2024, the use of epidural or spinal anesthesia was highest among mothers covered by private insurance and lowest among mothers who self-paid for their deliveries.

Figure 4. Epidural or spinal anesthesia receipt for vaginal deliveries, by source of payment: United States, 2016 and 2024

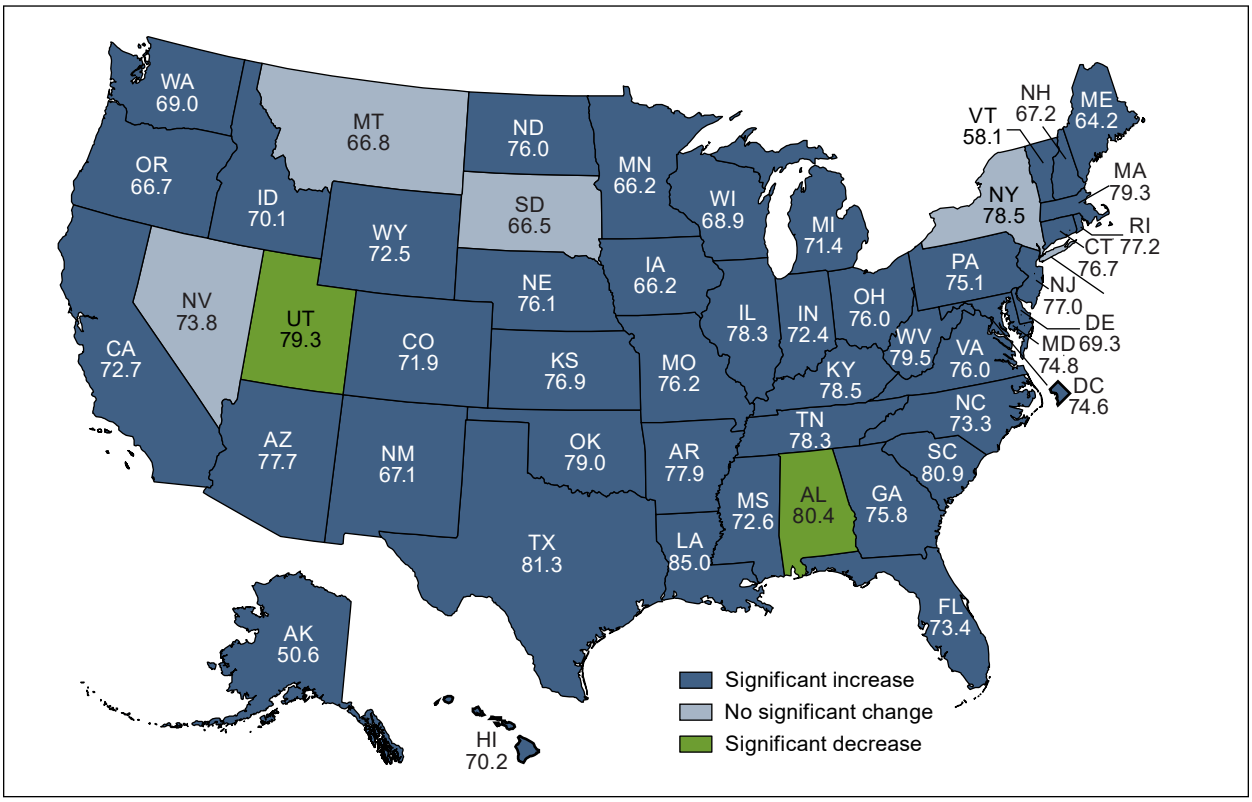


[1]Not significantly different from other sources of payment.
[2]Includes Indian Health Service, TRICARE (formerly known as CHAMPUS), other government programs, and miscellaneous payment sources.
NOTES: Data reflect singleton births only. All sources of payment are significantly different across years ($p < 0.05$). The birth certificate provides information on payment through Medicaid; private insurance; CHAMPUS, TRICARE, and other types of government insurance; and self-pay, which has been shown to reflect the uninsured status of the mother at time of delivery.
SOURCE: National Center for Health Statistics, National Vital Statistics System, natality data file.

State of residence

- From 2016 to 2024, the use of epidural or spinal anesthesia increased in 44 states and the District of Columbia, decreased in 2 states (Alabama and Utah), and did not change significantly in 4 states (Montana, Nevada, New York, and South Dakota) (Figure 5, Table 5).
- In 2024, the use of epidural or spinal anesthesia ranged from 50.6% in Alaska to 85.0% in Louisiana.

Figure 5. Percentage of epidural or spinal anesthesia receipt for vaginal deliveries in 2024 and change in rate from 2016 to 2024: Each state and District of Columbia



NOTE: Data reflect singleton births only.
SOURCE: National Center for Health Statistics, National Vital Statistics System, natality data file.

Summary

From 2016 to 2024, the percentage of mothers having a singleton vaginal birth who used epidural or spinal anesthesia for pain relief during labor increased 8%, from 69.8% to 75.4%. Increases in the use of epidural or spinal anesthesia occurred across all maternal age groups (ranging from 7% to 12%) and all race and Hispanic-origin groups (ranging from 5% to 17%). The percentage of mothers who used epidural or spinal anesthesia increased among those covered by Medicaid, private insurance, and other sources of payment, but decreased among mothers who self-paid for their deliveries. Epidural or spinal anesthesia use increased in 44 states and the District of Columbia, decreased in 2 states, and was essentially unchanged in 4 states from 2016 to 2024.

Definitions

Epidural or spinal anesthesia: Administration of a regional anesthetic to the mother to control the pain of labor. Pain medication is injected into the lower region of the spine to provide regional pain relief to the lower body. The definition is limited to mothers who undergo labor

regardless of method of delivery. Anesthesia administered solely for surgery, such as cesarean delivery, is excluded.

Principal source of payment for the delivery: The principal form of payment for the delivery at the time of delivery. The U.S. Standard Certificate of Live Birth lists four options in a checkbox format: 1) private insurance, 2) Medicaid, 3) self-pay, and 4) other.

- **Private insurance:** Providers such as Blue Cross Blue Shield and Aetna.
- **Medicaid:** Includes state programs comparable with Medicaid.
- **Self-pay:** No third-party payer identified; generally considered uninsured.
- **Other:** Includes Indian Health Service, TRICARE (formerly known as CHAMPUS), other government programs, and miscellaneous payment sources.

Data source and methods

This report uses data from the National Vital Statistics System's natality data file. The vital statistics natality file is based on information from birth certificates and includes information for all births occurring in the United States (3). This report focuses on singleton births in vaginal deliveries. Cesarean deliveries were excluded because all such deliveries require anesthesia. Data are also restricted to singleton births only because multiple births are at higher risk of preterm birth and low birthweight (4), which may influence the receipt of epidural or spinal anesthesia. The race and Hispanic-origin groups shown in this report follow the 1997 Office of Management and Budget standards and differ from the bridged-race categories in reports before 2016 (5). These groups are the six largest race and Hispanic-origin groups: Hispanic and the non-Hispanic American Indian or Alaska Native, Asian, Black, Native Hawaiian or Other Pacific Islander, and White populations.

References to differences in percentages indicate that the differences are statistically significant at the 0.05 level based on a two-tailed *z* test. Computations exclude records for which information is unknown.

About the authors

Claudia P. Valenzuela and Michelle J.K. Osterman are with the National Center for Health Statistics, Division of Vital Statistics.

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5. Office of Management and Budget. Revisions to the standards for the classification of federal data on race and ethnicity. Fed Regist. 1997 Oct 30;62(210):58782–90.

Figure tables

Table 1. Epidural or spinal anesthesia receipt for vaginal deliveries: United States, 2016–2024

Year	Percent
2016	69.8
2017	70.6
2018	71.7
2019	72.6
2020	74.0
2021	74.7
2022	74.3
2023	75.2
2024	75.4

NOTES: Data reflect singleton births only. All annual changes are significantly different from each other ($p < 0.05$).
SOURCE: National Center for Health Statistics, National Vital Statistics System, natality data file.

Table 2. Epidural or spinal anesthesia receipt for vaginal deliveries, by maternal age: United States, 2016 and 2024

Age	2016	2024
	Percent	
Younger than 20	75.0	81.3
20–24	72.3	77.7
25–29	69.8	75.3
30–34	68.6	74.8
35–39	66.4	72.9
40–44	[1]63.9	[1]70.3
45 and older	63.2	70.7

[1]Not significantly different from 45 and older.
NOTES: Data reflect singleton births only. Within-category increases from 2016 to 2024 are significant for all maternal age groups ($p < 0.05$).
SOURCE: National Center for Health Statistics, National Vital Statistics System, natality data file.

Table 3. Epidural or spinal anesthesia receipt for vaginal deliveries, by race and Hispanic origin: United States, 2016 and 2024

Race and Hispanic origin	2016	2024
	Percent	
American Indian and Alaska Native, non-Hispanic	56.8	66.2
Asian, non-Hispanic	71.8	79.7
Black, non-Hispanic	69.6	74.1
Native Hawaiian or Other Pacific Islander, non-Hispanic	55.2	58.0
White, non-Hispanic	72.7	76.3
Hispanic	63.4	73.8

NOTES: Data reflect singleton births only. All race and Hispanic-origin groups are significantly different from each other for each year and across years ($p < 0.05$). Mothers of Hispanic origin may be of any race.
SOURCE: National Center for Health Statistics, National Vital Statistics System, natality data file.

Table 4. Epidural or spinal anesthesia receipt for vaginal deliveries, by source of payment: United States, 2016 and 2024

Source of payment	2016	2024
	Percent	
Medicaid	67.8	[1]73.8
Private insurance	74.3	80.5
Self-pay[2]	43.0	41.2
Other	69.6	74.0

[1]Not significantly different from other sources of payment.
[2]Includes Indian Health Service, TRICARE (formerly known as CHAMPUS), other government programs, and miscellaneous payment sources.
NOTES: Data reflect singleton births only. All sources of payment are significantly different across years ($p < 0.05$). The birth certificate provides information on payment through Medicaid; private insurance; CHAMPUS, TRICARE, and other types of government insurance; and self-pay, which has been shown to reflect the uninsured status of the mother at time of delivery.
SOURCE: National Center for Health Statistics, National Vital Statistics System, natality data file.

Table 5. Percentage of epidural or spinal anesthesia receipt for vaginal deliveries in 2024 and change in rate from 2016 to 2024: Each state and District of Columbia

Area	2016	2024	Percent change, 2016 to 2024
Alabama	83.1	80.4	-3
Alaska	44.3	50.6	14
Arizona	72.7	77.7	7
Arkansas	66.3	77.9	17
California	59.8	72.7	22
Colorado	67.6	71.9	6
Connecticut	64.1	76.7	20
Delaware	66.1	69.3	5
District of Columbia	58.7	74.6	27
Florida	68.2	73.4	8
Georgia	73.9	75.8	3
Hawaii	65.7	70.2	7
Idaho	68.7	70.1	2
Illinois	71.2	78.3	10
Indiana	71.1	72.4	2
Iowa	63.1	66.2	5
Kansas	75.6	76.9	2
Kentucky	77.0	78.5	2
Louisiana	81.2	85.0	5
Maine	50.5	64.2	27
Maryland	70.9	74.8	6
Massachusetts	70.8	79.3	12
Michigan	64.7	71.4	10
Minnesota	62.4	66.2	6
Mississippi	62.1	72.6	17

Missouri	74.6	76.2	2
Montana	67.5	66.8	†
Nebraska	74.1	76.1	3
Nevada	74.3	73.8	†
New Hampshire	56.6	67.2	19
New Jersey	70.8	77.0	9
New Mexico	55.4	67.1	21
New York	78.3	78.5	†
North Carolina	69.8	73.3	5
North Dakota	70.6	76.0	8
Ohio	74.3	76.0	2
Oklahoma	76.6	79.0	3
Oregon	61.7	66.7	8
Pennsylvania	68.2	75.1	10
Rhode Island	74.8	77.2	3
South Carolina	79.5	80.9	2
South Dakota	66.5	66.5	†
Tennessee	76.6	78.3	2
Texas	73.9	81.3	10
Utah	80.4	79.3	-1
Vermont	50.4	58.1	15
Virginia	73.0	76.0	4
Washington	63.7	69.0	8
West Virginia	75.4	79.5	5
Wisconsin	63.7	68.9	8
Wyoming	69.2	72.5	5

† Change not significant ($p < 0.05$).
NOTE: Data reflect singleton births only.
SOURCE: National Center for Health Statistics, National Vital Statistics System, natality data file.

Suggested citation

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