

## Differences in Hospital Stays With Operating Room Procedures by Patient Race and Ethnicity, 2019

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### Introduction

Racial disparities exist in many areas of healthcare, including surgeries.<sup>1</sup> An analysis of nine major surgical procedures among Medicare beneficiaries between 1992 and 2001 showed that White individuals had higher rates for all procedures than did Black individuals.<sup>2</sup> Similarly, a more recent study analyzing 2012–2017 all-payer inpatient data from the Healthcare Cost and Utilization Project (HCUP) found that the rate of nine major surgical procedures, including total hip and knee arthroplasties, appendectomy, and spinal fusion, was substantially higher for White than for Black individuals, and this disparity persisted over time.<sup>3</sup> A variety of factors may explain differences in the occurrence of surgeries by patient race and ethnicity, including patient characteristics such as comorbidities, insurance coverage, socioeconomic status, and willingness to undergo surgery; physician practice styles; and systemic factors such as access to healthcare, hospital volume, and resource capacity.<sup>4</sup>

This HCUP Statistical Brief presents statistics on inpatient stays with operating room (OR) procedures by patient race and ethnicity—Asian/Pacific Islander non-Hispanic (NH), Black NH, Hispanic, and White NH—using weighted estimates from the 2019 National Inpatient Sample (NIS). The population rate of stays with OR procedures is presented by patient race and ethnicity for nonmaternal and maternal stays. The rate for nonmaternal stays is based on the population of men and women of any age. The rate for maternal stays is limited to the population of women aged 15–49 years. The rate of maternal and nonmaternal stays with the five most common OR procedures also is provided. Finally, the rate of nonmaternal stays with OR procedures overall and for the 10 most common OR procedures is presented by patient age group. Because of the large sample size of the NIS data, small differences can be statistically significant. Thus, only differences greater than or equal to 10 percent are discussed in the text.

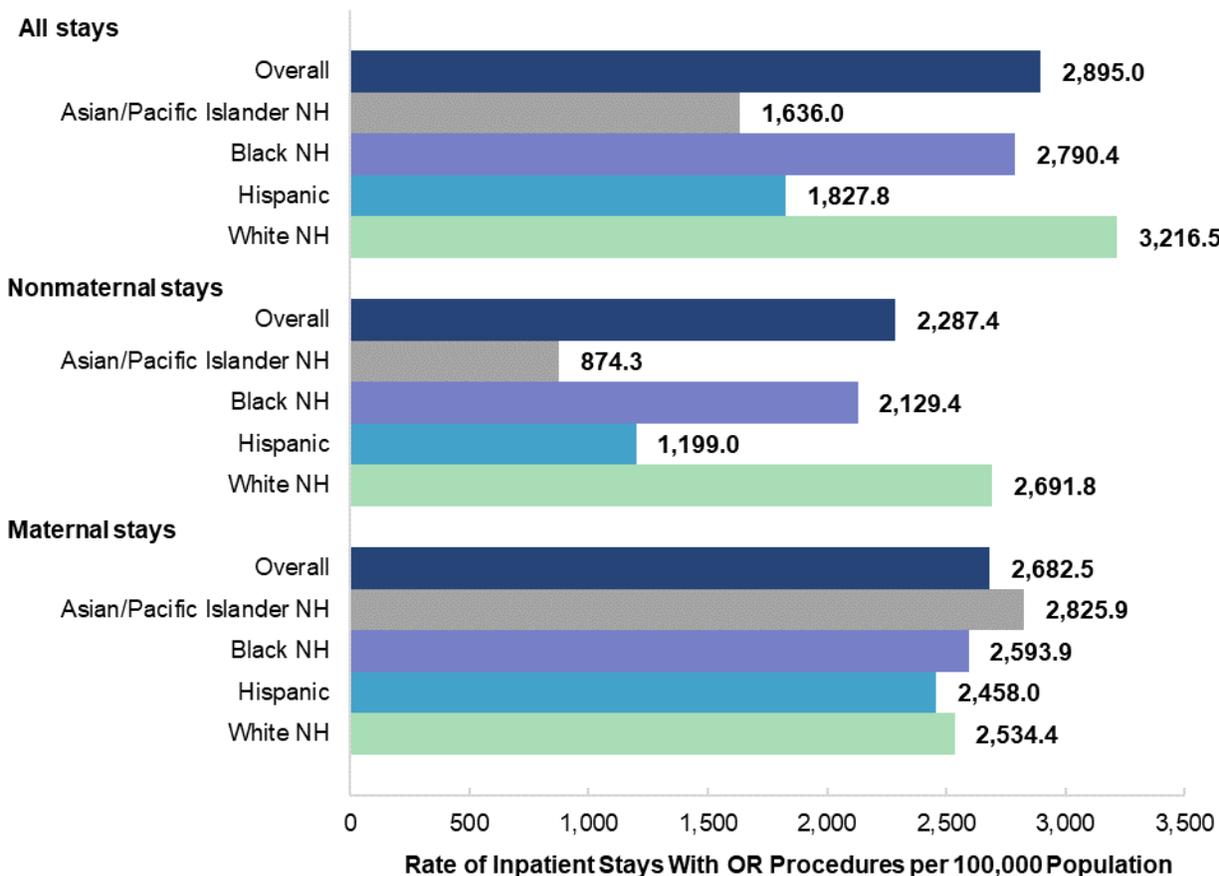
### Highlights

- In 2019, the rate of nonmaternal stays with operating room (OR) procedures was approximately two to three times higher for White non-Hispanic and Black non-Hispanic individuals compared with Hispanic and Asian/Pacific Islander non-Hispanic individuals.
- Among those aged 18–64 years, Black non-Hispanic individuals had the highest rate of nonmaternal stays with OR procedures; among those aged 65+ years, White non-Hispanic individuals had the highest rate.
- Among nonmaternal stays with common OR procedures:
  - Black non-Hispanic adults aged 18–44 years had the highest rate with gastrectomy and hysterectomy
  - Hispanic adults aged 18+ years had the highest rate with cholecystectomy
  - White non-Hispanic adults aged 45–64 years had the highest rate with hip arthroplasty
- Among maternal stays with common OR procedures:
  - Asian/Pacific Islander non-Hispanic women had the highest rate with perineal muscle laceration repair and anorectal repair
  - Black non-Hispanic women had the highest rate with Cesarean section and removal of placenta
  - Hispanic women had the highest rate with fallopian tube ligation and excision

## Findings

*Nonmaternal and maternal stays with operating room (OR) procedures by patient race and ethnicity, 2019*  
 Figure 1 presents the rate per 100,000 population of inpatient stays with OR procedures by the type of stay—nonmaternal versus maternal—and patient race and ethnicity in 2019.

**Figure 1. Population rate of inpatient stays with operating room (OR) procedures among nonmaternal and maternal stays by patient race and ethnicity, 2019**



Abbreviations: NH, non-Hispanic; OR, operating room

Notes: Other NH race and ethnicity, including mixed race and American Indian/Alaska Native, is not reported. Maternal rates are based on the U.S. population of females aged 15–49 years; rates for all stays and nonmaternal stays are based on the U.S. population of males and females of all ages. All rates are based on the U.S. population specific to each race and ethnicity group.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2019

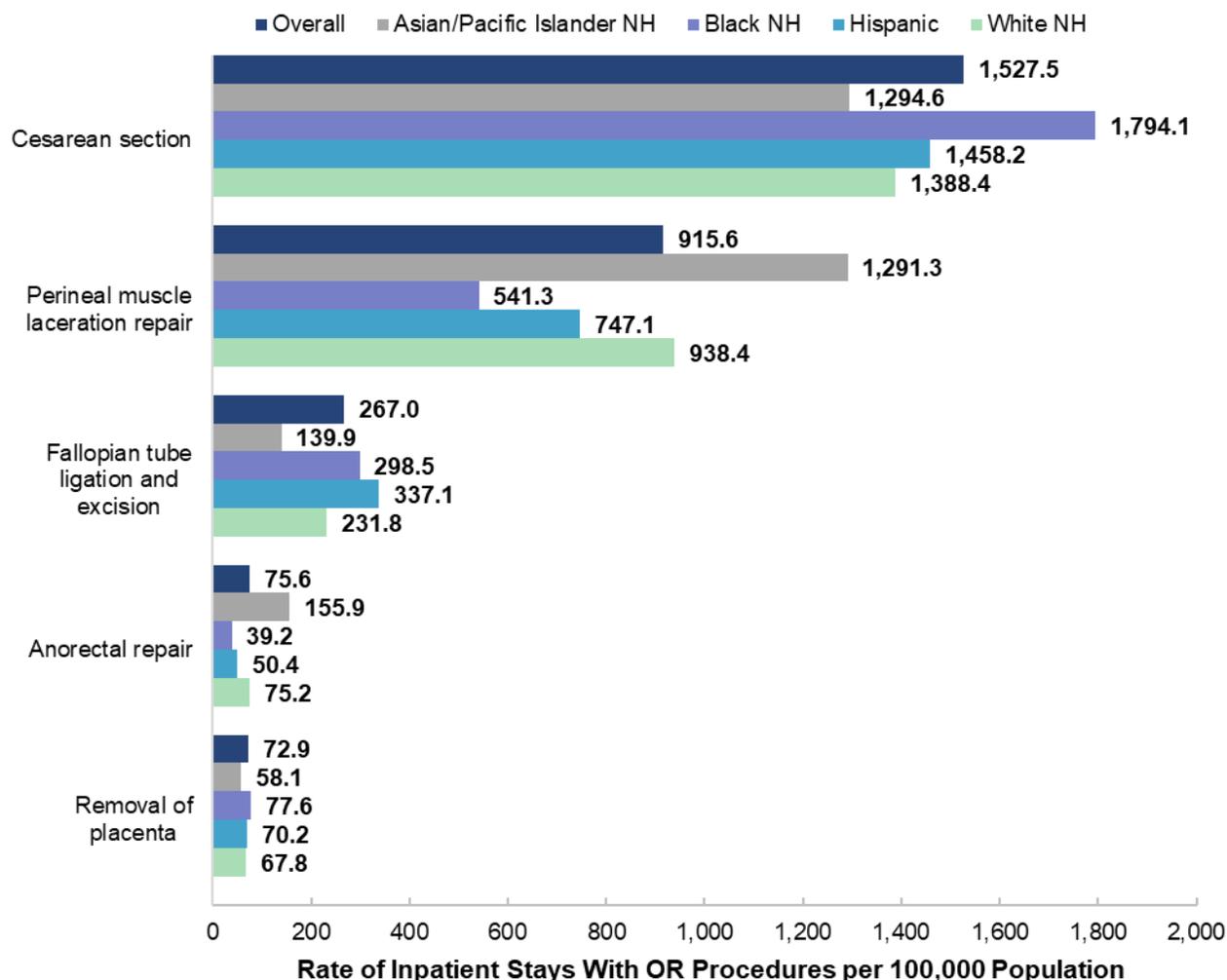
- White non-Hispanic individuals had the highest rate of nonmaternal stays with OR procedures; Asian/Pacific Islander non-Hispanic women had the highest rate of maternal stays with OR procedures.**

Overall, the rate of inpatient stays with OR procedures was highest among White non-Hispanic (NH) individuals (3,216.5 per 100,000 population), followed by Black NH (2,790.4), Hispanic (1,827.8), and Asian/Pacific Islander NH (1,636.0) individuals. This pattern was driven by nonmaternal stays. The rate of nonmaternal stays with OR procedures among White NH and Black NH individuals (2,691.8 and 2,129.4, respectively) was around twice as high as the rate among Hispanic individuals (1,199.0). Likewise, the rate among White NH and Black NH individuals was two to three times higher than the rate among Asian/Pacific Islander NH individuals (874.3).

Asian/Pacific Islander NH women had a higher rate of maternal stays with OR procedures (2,825.9 per 100,000 population) than White NH or Hispanic women (2,534.4 and 2,458.0, respectively).

Figure 2 presents the rate per 100,000 population of maternal stays with the five most common OR procedures by patient race and ethnicity in 2019.

**Figure 2. Population rate of maternal stays with the five most common operating room (OR) procedures by patient race and ethnicity, 2019**



Abbreviations: NH, non-Hispanic; OR, operating room

Notes: Other NH race and ethnicity, including mixed race and American Indian/Alaska Native, is not reported. Maternal rates are based on the U.S. population of females aged 15–49 years. All rates are based on the U.S. population specific to each race and ethnicity group.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2019

- **Black non-Hispanic, Asian/Pacific Islander non-Hispanic, and Hispanic women had the highest rates among maternal stays with the five most common OR procedures.**

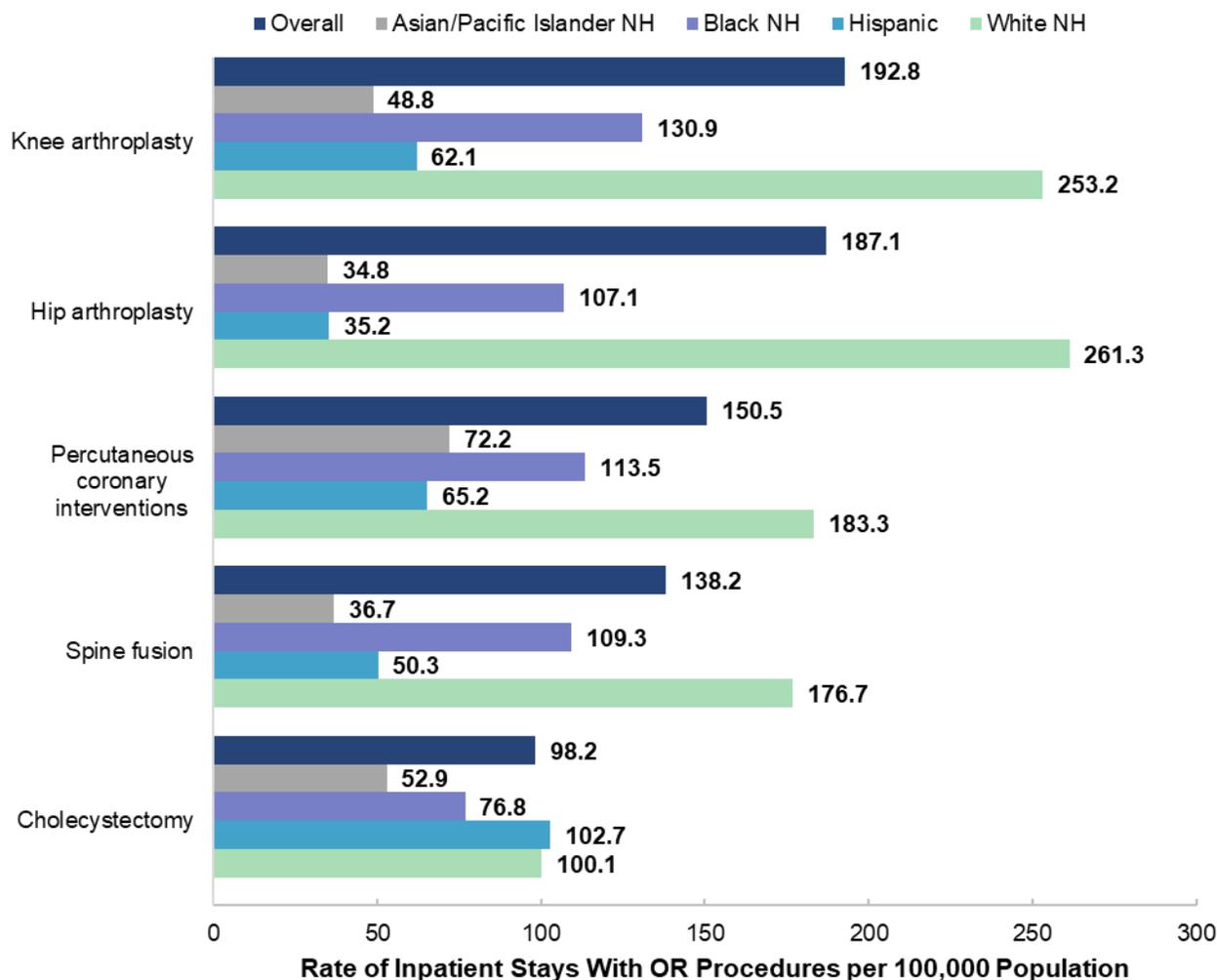
Black non-Hispanic (NH) women had the highest rate of maternal stays with Cesarean section (1,794.1 vs. 1,458.2 per 100,000 population or lower for other race and ethnicity groups) and removal of placenta (77.6 vs. 70.2 or less).

Asian/Pacific Islander NH women had the highest rate of maternal stays with perineal muscle laceration repair (1,291.3 vs. 938.4 per 100,000 population or lower for other race and ethnicity groups) and anorectal repair (155.9 vs. 75.2 or less).

Hispanic women had the highest rate of fallopian tube ligation and excision (337.1 vs. 298.5 per 100,000 population or lower for other race and ethnicity groups).

Figure 3 presents the rate per 100,000 population of nonmaternal stays with the five most common OR procedures by patient race and ethnicity in 2019.

**Figure 3. Population rate of nonmaternal stays with the five most common operating room (OR) procedures by patient race and ethnicity, 2019**



Abbreviations: NH, non-Hispanic; OR, operating room

Notes: Other NH race and ethnicity, including mixed race and American Indian/Alaska Native, is not reported. Nonmaternal rates are based on the U.S. population of males and females of all ages. All rates are based on the U.S. population specific to each race and ethnicity group.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2019

- **White non-Hispanic individuals had the highest rate of nonmaternal stays with four of the five most common OR procedures.**

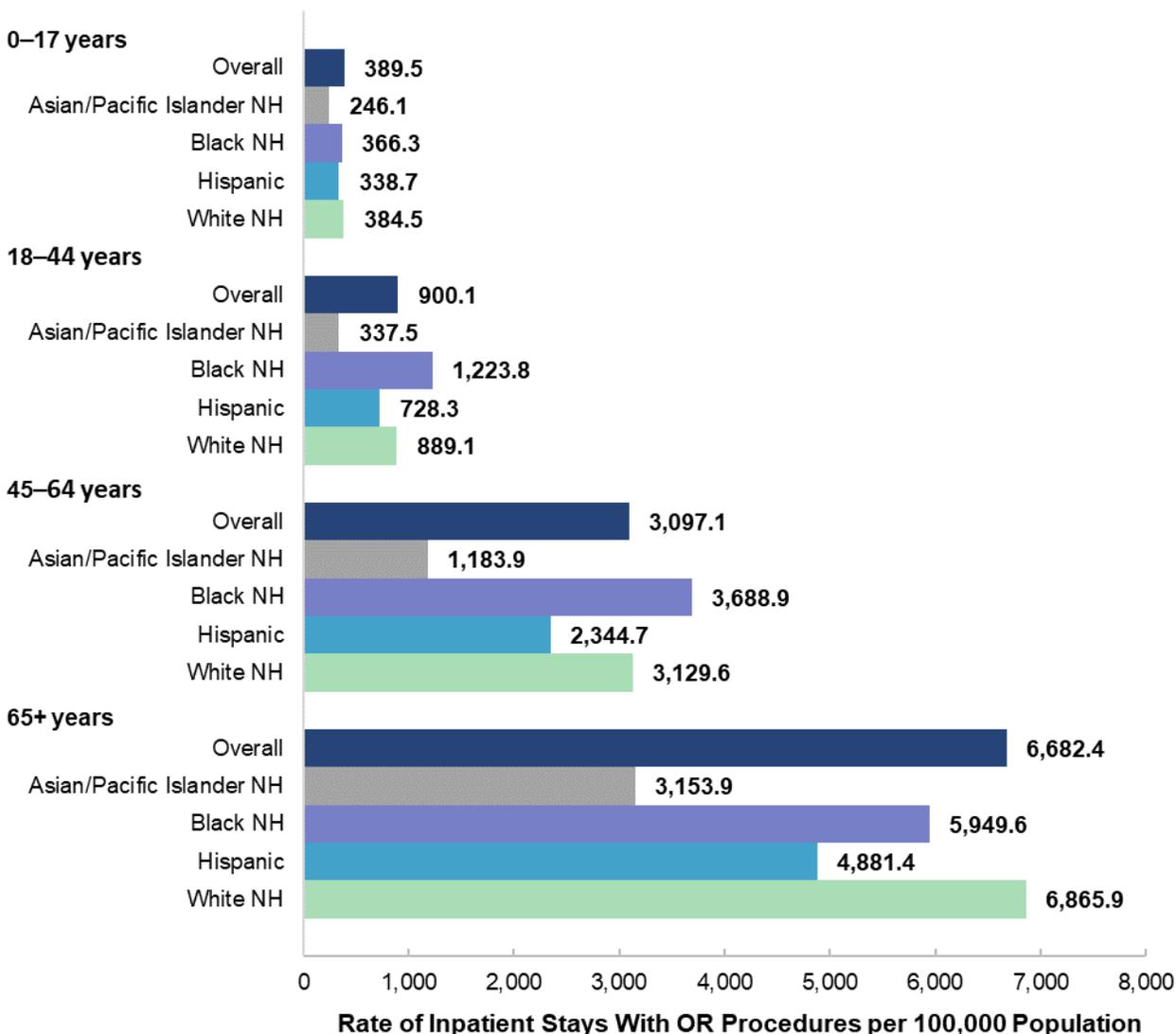
The rate of nonmaternal stays with four of the five most common OR procedures was higher for White non-Hispanic (NH) individuals than for individuals of other races and ethnicities—1.9 to 5.2 times higher for knee arthroplasty, 2.4 to 7.5 times higher for hip arthroplasty, 1.6 to 2.8 times higher for percutaneous coronary interventions, and 1.6 to 4.8 times higher for spine fusion. Black NH individuals had the second highest rate of nonmaternal stays with these four OR procedures.

Hispanic and White NH individuals had the highest rates of nonmaternal stays with cholecystectomy (1.3 to 1.9 times higher than for Black NH and Asian/Pacific Islander NH individuals).

*Nonmaternal stays with OR procedures by patient age and patient race and ethnicity, 2019*

Figure 4 presents the rate per 100,000 population of nonmaternal stays with OR procedures by patient age group and patient race and ethnicity in 2019.

**Figure 4. Population rate of nonmaternal stays with operating room (OR) procedures by patient age and patient race and ethnicity, 2019**



Abbreviations: NH, non-Hispanic; OR, operating room

Notes: Other NH race and ethnicity, including mixed race and American Indian/Alaska Native, is not reported. Nonmaternal rates are based on the U.S. population of males and females. All rates are based on the U.S. population specific to each race and ethnicity group and age group. For ages 0–17 years, the overall rate (389.5) is higher than the rate for any individual race and ethnicity group shown because the rate among individuals with other or American Indian/Alaska Native race (not shown) was 460.5 per 100,000 population.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2019

■ **Differences in the rates of nonmaternal stays with OR procedures by patient race and ethnicity were larger for adults than for children.**

Among those aged 0–17 years, the rate of nonmaternal stays with OR procedures varied, from nearly identical rates for Black non-Hispanic (NH) and White NH children to a 1.6 times higher rate for White NH than Asian/Pacific Islander NH children. In contrast, Black NH adults aged 18–44 and 45–64 years had rates that were 40 and 20 percent higher, respectively, than White NH adults, and more

than three times higher than Asian/Pacific Islander NH adults in the same age group. Similarly, White NH individuals from all three adult age groups (18–44, 45–64, and 65+ years) had rates that were more than double the rates for Asian/Pacific Islander NH adults in the same age group.

- **Among adults aged 18–64 years, Black non-Hispanic individuals had the highest rate of nonmaternal stays with OR procedures, whereas among adults aged 65+ years, White non-Hispanic individuals had the highest rate.**

Among adults aged 18–44 years, Black non-Hispanic (NH) individuals had a rate of nonmaternal stays with OR procedures that ranged from 1.4 to 3.6 times higher compared with White NH and Asian/Pacific Islander NH individuals, respectively. Similarly, among adults aged 45–64 years, the rate ranged from 1.2 to 3.1 times higher for Black NH versus White NH and Asian/Pacific Islander NH individuals.

In contrast, among adults aged 65+ years, White NH individuals had a rate of nonmaternal stays with OR procedures that ranged from 1.2 to 2.2 times higher compared with Black NH and Asian/Pacific Islander NH individuals.

- **Across adult age groups, the rate of nonmaternal stays with OR procedures was generally half or less among Asian/Pacific Islander non-Hispanic individuals compared with the rates of individuals of other races and ethnicities.**

The rate of nonmaternal stays with OR procedures was generally two to three times higher for Black non-Hispanic (NH), White NH, and Hispanic individuals versus Asian/Pacific Islander NH individuals for all three adult age groups (18–44, 45–64, and 65+ years). The largest difference between Asian/Pacific Islander NH adults and adults of other races and ethnicities was between Black NH and Asian/Pacific Islander NH adults aged 18–44 years (with rates of 1,223.8 vs. 337.5 per 100,000 population, respectively), and the smallest difference was between Hispanic and Asian/Pacific Islander NH adults aged 65+ years (with rates of 4,881.4 vs. 3,153.9 per 100,000 population, respectively).

Tables 1 and 2 present the rate per 100,000 population of nonmaternal stays with the 10 most common OR procedures by patient race and ethnicity in 2019 for four age groups: ages 0–17 years and 18–44 years (Table 1), and ages 45–64 years and 65+ years (Table 2).

**Table 1. Population rate of nonmaternal stays with the 10 most common operating room (OR) procedures by patient age (0–17 and 18–44 years) and patient race and ethnicity, 2019**

Rank	OR procedure	Overall	API NH	Black NH	Hispanic	White NH
<b>Ages 0–17 years</b>						
1	Appendectomy	55.9	29.4	25.1	79.7	48.2
2	Bone fixation (excluding extremities)	24.4	15.1	18.4	18.0	27.9
3	Musculoskeletal procedures, NEC	19.5	10.6	20.5	16.2	19.4
4	Femur fixation	18.0	8.7	18.9	13.3	19.1
5	Spine fusion	17.4	8.7	18.0	10.4	20.0
6	Bone excision	17.0	14.2	15.6	12.2	18.1
7	Upper GI therapeutic procedures, NEC (open and laparoscopic)	16.8	7.3	15.0	13.0	17.8
8	Septal repair and other therapeutic heart procedures	16.7	13.2	15.8	11.8	15.4
9	Fixation of upper extremity bones	13.3	9.1	8.9	12.5	14.6
10	Ligation and embolization of vessels	12.5	9.3	13.7	10.6	10.2
<b>Ages 18–44 years</b>						
1	Cholecystectomy	79.8	28.6	69.2	113.4	68.2
2	Gastrectomy	64.3	9.6	100.3	57.3	60.8
3	Appendectomy	51.0	28.9	38.8	63.7	47.0
4	Fixation of leg and foot bones	44.9	12.8	63.1	35.7	44.7
5	Spine fusion	43.8	9.8	37.5	20.6	56.0
6	Subcutaneous tissue and fascia excision	42.8	13.8	65.0	30.8	42.8
7	Hysterectomy	40.6	19.2	76.0	33.5	34.8
8	Salpingectomy	39.6	20.5	70.1	32.5	34.8
9	Bone excision	36.7	10.0	51.1	24.8	38.3
10	Vertebral discectomy	35.7	8.5	29.5	18.3	45.5

Abbreviations: API, Asian/Pacific Islander; GI, gastrointestinal; NEC, not elsewhere classified; NH, non-Hispanic; OR, operating room

Notes: Other NH race and ethnicity, including mixed race and American Indian/Alaska Native, is not reported. Nonmaternal rates are based on the U.S. population of males and females. All rates are based on the U.S. population specific to each race and ethnicity group and age group.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2019

■ **The rate of nonmaternal stays with the 10 most common OR procedures for those aged 0–17 and 18–44 years varied by patient race and ethnicity.**

Ages 0–17 years

- Black non-Hispanic (NH) children had the highest rate of stays with ligation and embolization of vessels.
- Hispanic children had the highest rate of stays with appendectomy.
- White NH children had the highest rate of stays with bone fixation, spine fusion, bone excision, upper gastrointestinal therapeutic procedures, and fixation of upper extremity bones.

Ages 18–44 years

- Black NH adults had the highest rate of stays with gastrectomy, fixation of leg and foot bones, subcutaneous tissue and fascia, hysterectomy, salpingectomy, and bone excision.
- Hispanic adults had the highest rate of stays with cholecystectomy and appendectomy.
- White NH adults had the highest rate of stays with spine fusion and vertebral discectomy.

**Table 2. Population rate of nonmaternal stays with the 10 most common operating room (OR) procedures by patient age (45–64 and 65+ years) and patient race and ethnicity, 2019**

Rank	OR procedure	Overall	API NH	Black NH	Hispanic	White NH
<b>Ages 45–64 years</b>						
1	Knee arthroplasty	277.8	61.4	279.0	145.2	306.7
2	Percutaneous coronary interventions	238.9	121.7	230.4	165.8	245.5
3	Spine fusion	232.9	56.1	234.6	125.9	258.3
4	Hip arthroplasty	232.1	34.4	210.4	71.5	273.4
5	Vertebral discectomy	157.3	36.8	156.0	88.5	174.3
6	Colectomy	134.0	50.2	123.3	89.2	145.8
7	Cholecystectomy	124.8	73.0	117.5	175.7	112.1
8	Subcutaneous tissue and fascia excision	122.7	34.4	181.8	115.7	114.1
9	Bone excision	109.6	30.7	136.8	88.6	109.4
10	GI system lysis of adhesions	102.3	44.3	147.8	83.2	98.1
<b>Ages 65+ years</b>						
1	Hip arthroplasty	751.1	197.5	430.3	266.8	844.8
2	Knee arthroplasty	733.5	270.1	537.9	474.6	776.0
3	Percutaneous coronary interventions	506.1	305.0	424.3	422.9	505.9
4	Femur fixation	423.7	184.9	193.1	279.6	462.1
5	Spine fusion	363.5	137.6	297.3	211.1	386.2
6	Colectomy	262.6	124.9	254.4	193.4	268.8
7	Saphenous vein harvest and other therapeutic vessel removal	246.3	155.1	176.6	175.7	253.3
8	Coronary artery bypass grafts	230.9	151.3	141.6	159.8	239.6
9	Angioplasty and related vessel procedures (endovascular; excluding carotid)	227.4	122.4	404.4	269.1	198.1
10	Cholecystectomy	224.1	180.0	175.2	272.9	215.7

Abbreviations: API, Asian/Pacific Islander; GI, gastrointestinal; NH, non-Hispanic; OR, operating room

Notes: Other NH race and ethnicity, including mixed race and American Indian/Alaska Native, is not reported. Nonmaternal rates are based on the U.S. population of males and females. All rates are based on the U.S. population specific to each race and ethnicity group and age group.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Inpatient Sample (NIS), 2019

■ **The rate of nonmaternal stays with the 10 most common OR procedures for those aged 45–64 and 65+ years varied by patient race and ethnicity.**

Ages 45–64 years

- Black non-Hispanic (NH) adults had the highest rate of stays with subcutaneous tissue and fascia, bone excision, and gastrointestinal system lysis of adhesions.
- Hispanic adults had the highest rate of stays with cholecystectomy.
- White NH adults had the highest rate of stays with hip arthroplasty, vertebral discectomy, and colectomy.

Ages 65+ years

- Black NH adults had the highest rate of stays with angioplasty and related vessel procedures.
- Hispanic adults had the highest rate of stays with cholecystectomy.
- White NH adults had the highest rate of stays with hip arthroplasty, knee arthroplasty, percutaneous coronary interventions, femur fixation, spine fusion, saphenous vein harvest and other therapeutic vessel removal, and coronary artery bypass grafts.

## References

- <sup>1</sup> de Jager E, Levine A, Udyavar NR, Burstin HR, Bhulani N, Hoyt DB, et al. Disparities in surgical access: a systematic literature review, conceptual model, and evidence map. *J Am Coll Surg*. 2019;228(3):276–98.
- <sup>2</sup> Jha AK, Fisher ES, Li Z, Orav EJ, Epstein AM. Racial trends in the use of major procedures among the elderly. *NEJM*. 2005;353:683–91.
- <sup>3</sup> Best MJ, McFarland EG, Thakkar SC, Srikumaran U. Racial disparities in the use of surgical procedures in the US. *JAMA Surg*. 2021;156(3):274–81.
- <sup>4</sup> Haider AH, Scott VK, Rehman KA, Velopulos C, Bentley JM, et al. Racial disparities in surgical care and outcomes in the United States: a comprehensive review of patient, provider, and systemic factors. *J Am Coll Surg*. 2013;216(3):482–92.

## About Statistical Briefs

Healthcare Cost and Utilization Project (HCUP) Statistical Briefs provide basic descriptive statistics on a variety of topics using HCUP administrative healthcare data. Topics include hospital inpatient, ambulatory surgery, and emergency department use and costs, quality of care, access to care, medical conditions, procedures, and patient populations, among other topics. The reports are intended to generate hypotheses that can be further explored in other research; the reports are not designed to answer in-depth research questions using multivariate methods.

## Data Source

The estimates in this Statistical Brief are based upon data from the HCUP 2019 National Inpatient Sample (NIS). Supplemental sources included population denominator data for use with HCUP databases, derived from information available from Claritas, a vendor that produces population estimates and projections based on data from the U.S. Census Bureau.<sup>a</sup>

## Definitions

*Procedures, ICD-10-CM/PCS, Clinical Classifications Software Refined (CCSR) for ICD-10-PCS Procedures, Procedure Classes, and Major Diagnostic Categories (MDCs)*

All-listed procedures include all procedures performed during the hospital stay, whether for definitive treatment or for diagnostic or exploratory purposes. The *first-listed procedure* is the procedure that is listed first on the discharge record. Inpatient data define this as the *principal procedure*—the procedure that is performed for definitive treatment rather than for diagnostic or exploratory purposes (i.e., the procedure that was necessary to take care of a complication).

ICD-10-CM/PCS is the International Classification of Diseases, Tenth Revision, Clinical Modification/Procedure Coding System. There are over 75,000 ICD-10-PCS procedure codes.

The CCSR aggregates ICD-10-PCS procedure codes into a manageable number of clinically meaningful categories.<sup>b</sup> The CCSR is intended to be used analytically to examine patterns of healthcare in terms of cost, utilization, and outcomes, as well as to perform rank utilization by procedures. ICD-10-PCS coding definitions for each CCSR category presented in this Statistical Brief can be found in the *CCSR reference file*, available at [www.hcup-us.ahrq.gov/toolssoftware/ccsr/ccs\\_refined.jsp#download](http://www.hcup-us.ahrq.gov/toolssoftware/ccsr/ccs_refined.jsp#download). For this Statistical Brief, v2022.1 of the CCSR was used.

Major operating room (OR) procedures were defined using the Procedure Classes Refined for ICD-10-PCS software, which categorizes each ICD-10-PCS procedure code as major therapeutic, major

<sup>a</sup> Claritas. Claritas Demographic Profile by ZIP Code. <https://claritas360.claritas.com/mybestsegments/>. Accessed August 5, 2022.

<sup>b</sup> Agency for Healthcare Research and Quality. Clinical Classifications Software Refined (CCSR) for ICD-10-PCS Procedures. Healthcare Cost and Utilization Project (HCUP). Agency for Healthcare Research and Quality. Updated February 2022. [www.hcup-us.ahrq.gov/toolssoftware/ccsr/prccsr.jsp](http://www.hcup-us.ahrq.gov/toolssoftware/ccsr/prccsr.jsp). Accessed August 5, 2022.

diagnostic, minor therapeutic, or minor diagnostic.<sup>c</sup> If at least one major therapeutic or major diagnostic procedure was on a hospital record, the hospital stay was classified as involving a major OR procedure.

MDCs assign ICD-10-CM principal diagnosis codes to 1 of 25 general diagnosis categories. Maternal stays were defined as those with MDC 14 (Pregnancy, Childbirth, and the Puerperium) and limited to women aged 15–49 years.<sup>d</sup>

#### *Types of hospitals included in the HCUP National (Nationwide) Inpatient Sample*

The National (Nationwide) Inpatient Sample (NIS) is based on data from community hospitals, which are defined as short-term, non-Federal, general, and other hospitals, excluding hospital units of other institutions (e.g., prisons). The NIS includes obstetrics and gynecology, otolaryngology, orthopedic, cancer, pediatric, public, and academic medical center hospitals. Excluded are long-term care facilities such as rehabilitation, psychiatric, and alcoholism and chemical dependency hospitals. Beginning in 2012, long-term acute care hospitals are also excluded. However, if a patient received long-term care, rehabilitation, or treatment for a psychiatric or chemical dependency condition in a community hospital, the discharge record for that stay will be included in the NIS.

#### *Unit of analysis*

The unit of analysis is the hospital discharge (i.e., the hospital stay), not a person or patient. This means that a person who is admitted to the hospital multiple times in 1 year will be counted each time as a separate discharge from the hospital.

#### *Population rates*

Rates of stays per 100,000 population were calculated using 2019 hospital discharge totals in the numerator and U.S. Census Bureau and Claritas<sup>e</sup> estimates of the 2019 U.S. population by race and ethnicity in the denominator. Population denominators for maternal stays were limited to females aged 15–49 years. Individuals hospitalized multiple times are counted more than once in the numerator.

$$\text{Population rate of stays} = \left( \frac{\text{number of stays by patient race and ethnicity}}{\text{number of U.S. residents by race and ethnicity}} \right) \times 100,000$$

#### *Reporting of race and ethnicity*

Data on Hispanic ethnicity are collected differently among the States and also can differ from the census methodology of collecting information on race (White, Black, Asian/Pacific Islander, American Indian/Alaska Native, Other [including mixed race]) separately from ethnicity (Hispanic, non-Hispanic). State data organizations often collect Hispanic ethnicity as one of several categories that include race. Therefore, for multistate analyses, HCUP creates the combined categorization of race and ethnicity for data from States that report ethnicity separately. When a State data organization collects Hispanic ethnicity separately from race, HCUP uses Hispanic ethnicity to override any other race category to create a Hispanic category for the uniformly coded race/ethnicity data element, while also retaining the original race and ethnicity data. This Statistical Brief reports race and ethnicity for the following categories: Asian/Pacific Islander non-Hispanic (NH), Black NH, Hispanic, and White NH.

## **About HCUP**

The Healthcare Cost and Utilization Project (HCUP, pronounced "H-Cup") is a family of healthcare databases and related software tools and products developed through a Federal-State-Industry partnership and sponsored by the Agency for Healthcare Research and Quality (AHRQ). HCUP databases bring together the data collection efforts of State data organizations, hospital associations, and private data organizations (HCUP Partners) and the Federal government to create a national information resource of encounter-level healthcare data. HCUP includes the largest collection of longitudinal hospital care data in the United States, with all-payer, encounter-level information beginning in 1988. These

<sup>c</sup> Procedure Classes Refined for ICD-10-PCS. Healthcare Cost and Utilization Project (HCUP). U.S. Agency for Healthcare Research and Quality. Rockville, MD. Updated March 2022. [www.hcup-us.ahrq.gov/toolssoftware/procedureicd10/procedure\\_icd10.jsp](http://www.hcup-us.ahrq.gov/toolssoftware/procedureicd10/procedure_icd10.jsp) Accessed August 5, 2022.

<sup>d</sup> The restriction to ages 15–49 years excludes maternal stays for women younger than 15 years or older than 49 years—a group that represents less than 0.1% of all maternal stays. Note that this age range may differ from other HCUP reports of maternal stays.

<sup>e</sup> Claritas. Claritas Demographic Profile by ZIP Code. <https://claritas360.claritas.com/mybestsegments/>. Accessed August 5, 2022.

databases enable research on a broad range of health policy issues, including cost and quality of health services, medical practice patterns, access to healthcare programs, and outcomes of treatments at the national, State, and local market levels.

HCUP would not be possible without the contributions of the following data collection Partners from across the United States:

<b>Alaska</b> Department of Health	<b>New Hampshire</b> Department of Health & Human Services
<b>Alaska</b> Hospital and Healthcare Association	<b>New Jersey</b> Department of Health
<b>Arizona</b> Department of Health Services	<b>New Mexico</b> Department of Health
<b>Arkansas</b> Department of Health	<b>New York</b> State Department of Health
<b>California</b> Department of Health Care Access and Information	<b>North Carolina</b> Department of Health and Human Services
<b>Colorado</b> Hospital Association	<b>North Dakota</b> (data provided by the Minnesota Hospital Association)
<b>Connecticut</b> Hospital Association	<b>Ohio</b> Hospital Association
<b>Delaware</b> Division of Public Health	<b>Oklahoma</b> State Department of Health
<b>District of Columbia</b> Hospital Association	<b>Oregon</b> Association of Hospitals and Health Systems
<b>Florida</b> Agency for Health Care Administration	<b>Oregon</b> Office of Health Analytics
<b>Georgia</b> Hospital Association	<b>Pennsylvania</b> Health Care Cost Containment Council
<b>Hawaii</b> Lailima Data Alliance	<b>Rhode Island</b> Department of Health
<b>Hawaii</b> University of Hawai'i at Hilo	<b>South Carolina</b> Revenue and Fiscal Affairs Office
<b>Illinois</b> Department of Public Health	<b>South Dakota</b> Association of Healthcare Organizations
<b>Indiana</b> Hospital Association	<b>Tennessee</b> Hospital Association
<b>Iowa</b> Hospital Association	<b>Texas</b> Department of State Health Services
<b>Kansas</b> Hospital Association	<b>Utah</b> Department of Health
<b>Kentucky</b> Cabinet for Health and Family Services	<b>Vermont</b> Association of Hospitals and Health Systems
<b>Louisiana</b> Department of Health	<b>Virginia</b> Health Information
<b>Maine</b> Health Data Organization	<b>Washington</b> State Department of Health
<b>Maryland</b> Health Services Cost Review Commission	<b>West Virginia</b> Department of Health and Human Resources, West Virginia Health Care Authority
<b>Massachusetts</b> Center for Health Information and Analysis	<b>Wisconsin</b> Department of Health Services
<b>Michigan</b> Health & Hospital Association	<b>Wyoming</b> Hospital Association
<b>Minnesota</b> Hospital Association	
<b>Mississippi</b> State Department of Health	
<b>Missouri</b> Hospital Industry Data Institute	
<b>Montana</b> Hospital Association	
<b>Nebraska</b> Hospital Association	
<b>Nevada</b> Department of Health and Human Services	

## About the NIS

The HCUP National (Nationwide) Inpatient Sample (NIS) is a nationwide database of hospital inpatient stays. The NIS is nationally representative of all community hospitals (i.e., short-term, non-Federal, nonrehabilitation hospitals). The NIS includes all payers. It is drawn from a sampling frame that contains hospitals comprising more than 96 percent of all discharges in the United States. The vast size of the NIS allows the study of topics at the national and regional levels for specific subgroups of patients. In addition, NIS data are standardized across years to facilitate ease of use. Over time, the sampling frame for the NIS has changed; thus, the number of States contributing to the NIS varies from year to year. The NIS is intended for national estimates only; no State-level estimates can be produced. The unweighted sample size for the 2019 NIS is 7,083,805 (weighted, this represents 35,419,023 inpatient stays).

## For More Information

For other information on operating room procedures and differences in hospitalizations by patient race and ethnicity, refer to the HCUP Statistical Briefs located at

[www.hcup-us.ahrq.gov/reports/statbriefs/sb\\_procedures](http://www.hcup-us.ahrq.gov/reports/statbriefs/sb_procedures) and [www.hcup-us.ahrq.gov/reports/statbriefs/sb\\_race](http://www.hcup-us.ahrq.gov/reports/statbriefs/sb_race).

For additional HCUP statistics, visit:

- HCUP Fast Stats at [www.hcup-us.ahrq.gov/faststats/landing.jsp](http://www.hcup-us.ahrq.gov/faststats/landing.jsp) for easy access to the latest HCUP-based statistics for healthcare information topics
- HCUPnet, HCUP's interactive query system, at [www.hcupnet.ahrq.gov/](http://www.hcupnet.ahrq.gov/)
- HCUP Summary Trend Tables at [www.hcup-us.ahrq.gov/reports/trendtables/summarytrendtables.jsp](http://www.hcup-us.ahrq.gov/reports/trendtables/summarytrendtables.jsp) for monthly information on hospital utilization

For more information about HCUP, visit [www.hcup-us.ahrq.gov/](http://www.hcup-us.ahrq.gov/).

For a detailed description of HCUP and more information on the design of the National Inpatient Sample (NIS), please refer to the following database documentation:

Agency for Healthcare Research and Quality. Overview of the National (Nationwide) Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP). Rockville, MD: Agency for Healthcare Research and Quality. Updated September 2021. [www.hcup-us.ahrq.gov/nisoverview.jsp](http://www.hcup-us.ahrq.gov/nisoverview.jsp). Accessed March 9, 2022.

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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 HCUP data and tools, and to share suggestions on how HCUP products might be enhanced to further meet your needs. Please email us at [hcup@ahrq.gov](mailto:hcup@ahrq.gov) or send a letter to the address below:

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