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Agency for Healthcare Research and Quality

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Patient Residence Characteristics of Opioid-Related Inpatient Stays and Emergency Department Visits Nationally and by State, 2014

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Introduction

Data from the Healthcare Cost and Utilization Project (HCUP) have been used to document dramatic increases in inpatient hospitalizations and emergency department (ED) visits related to opioid use.[1] The Agency for Healthcare Research and Quality (AHRQ) is publishing a series of Statistical Briefs that provide descriptive information on opioid-related hospital use by State and select patient subgroups. A recent report showed that females and patients aged 65 years and older had the greatest increases in the rate of opioid-related inpatient stays between 2005 and 2014.[2]

This HCUP Statistical Brief presents data from HCUP Fast Stats on the rates of opioid-related hospital inpatient stays and ED visits by patient location (urban/rural) and community-level income from 2005 to 2014.[3] The location and income groups with the highest opioid-related inpatient rates are presented for each of 44 States and the District of Columbia that provided inpatient data in 2014. The location and income groups with the highest opioid-related ED visit rates are presented for each of 30 States that provided ED visit data in 2014. States are ranked overall on the rates of opioid-related inpatient stays and ED visits by location and income group in 2014. Identification of opioid-related stays and visits is based on all-listed diagnoses and includes events associated with prescription opioids or illicit opioids such as heroin. Rates are calculated using the population denominator specific to each location or income group.

Highlights

- From 2005 to 2014 in the United States, large central metropolitan areas had the highest rate of opioid-related inpatient stays. However, the rate of opioid hospitalizations increased the most in small metropolitan areas—a 122 percent increase versus a 28 percent increase in large central metropolitan areas.
- The rate of opioid-related emergency department (ED) visits increased less in large metropolitan areas than in medium metropolitan, small metropolitan, and rural areas.
- In 2014, the rates of opioid-related inpatient stays and ED visits were highest in urban areas for some States and in rural areas for other States.
  - Among States with the highest rates in large central metropolitan areas, opioid-related inpatient stays and ED visits averaged 446.5 and 377.1 per 100,000 population, respectively.
  - Among States with the highest rates in rural areas, opioid-related inpatient stays and ED visits averaged 215.4 and 177.3 per 100,000 population, respectively.
- For most States in 2014, the highest rates of opioid-related inpatient stays and ED visits were among patients residing in the communities with the lowest income.

[1] Weiss AJ, Elixhauser A, Barrett ML, Steiner CA, Bailey MK, O'Malley L. Opioid-Related Inpatient Stays and Emergency Department Visits by State, 2009–2014. HCUP Statistical Brief #219. December 2016. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/reports/statbriefs/sb219-Opioid-Hospital-Stays-ED-Visits-by-State.pdf. Accessed February 9, 2017.

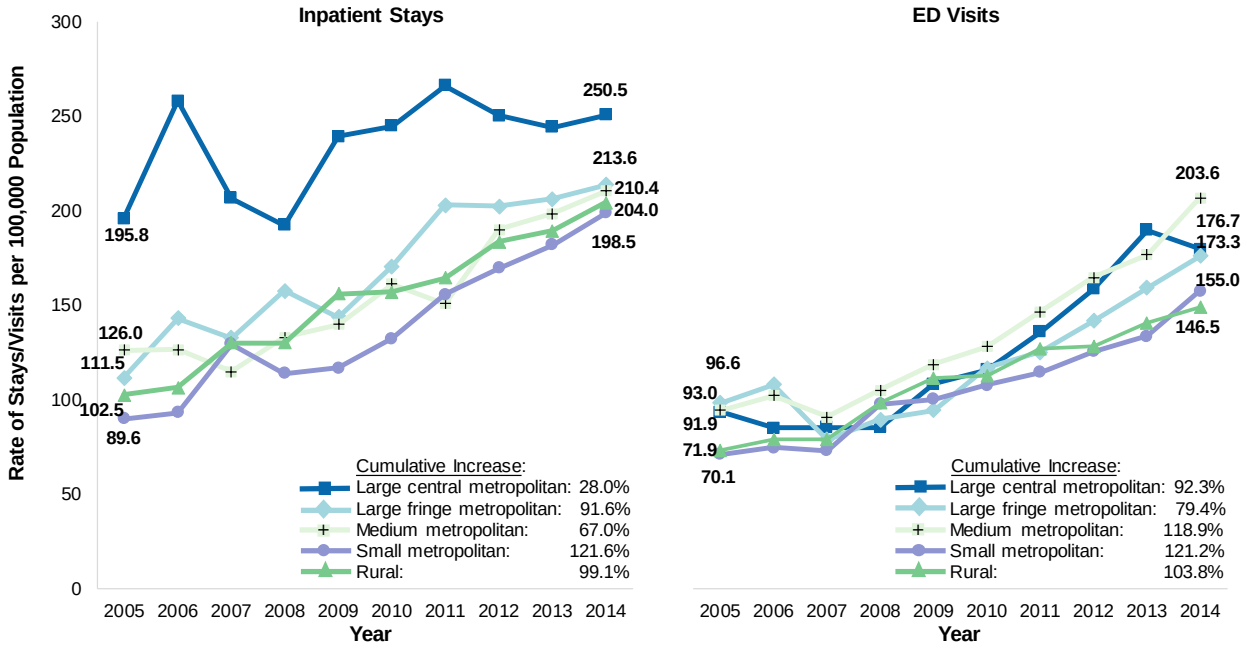
[2] Weiss AJ, Bailey MK, O'Malley L, Barrett ML, Elixhauser A, Steiner CA. Patient Characteristics of Opioid-Related Inpatient Stays and Emergency Department Visits Nationally and by State, 2014. HCUP Statistical Brief #224. June 2017. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/reports/statbriefs/sb224-Patient-Characteristics-Opioid-Hospital-Stays-ED-Visits-by-State.pdf. Accessed June 23, 2017.

[3] Agency for Healthcare Research and Quality. HCUP Fast Stats Web site, Opioid-Related Hospital Use path. www.hcup-us.ahrq.gov/faststats/landing.jsp. Accessed March 6, 2017.

Findings

National rate of opioid-related inpatient stays and ED visits by patient location, 2005–2014
Figure 1 presents 10-year trends in the national rate of opioid-related inpatient stays and ED visits by location of patients' residence, from 2005 to 2014.

Figure 1. National rate of opioid-related inpatient stays and ED visits by patient location, 2005–2014



Abbreviation: ED, emergency department

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), HCUP Fast Stats, Opioid-Related Hospital Use (www.hcup-us.ahrq.gov/faststats/landing.jsp) based on the HCUP National (Nationwide) Inpatient Sample (NIS) and the Nationwide Emergency Department Sample (NEDS)

- **From 2005 to 2014, the rate of opioid-related inpatient stays increased the most in small metropolitan areas and the least in large central metropolitan areas.**

  The rate of opioid-related inpatient stays was consistently highest among those residing in large central metropolitan areas from 2005 to 2014. However, over this time period, the rate increased the least in large central metropolitan areas (28 percent) and increased the most in small metropolitan areas—a 122 percent increase, more than doubling in 10 years.

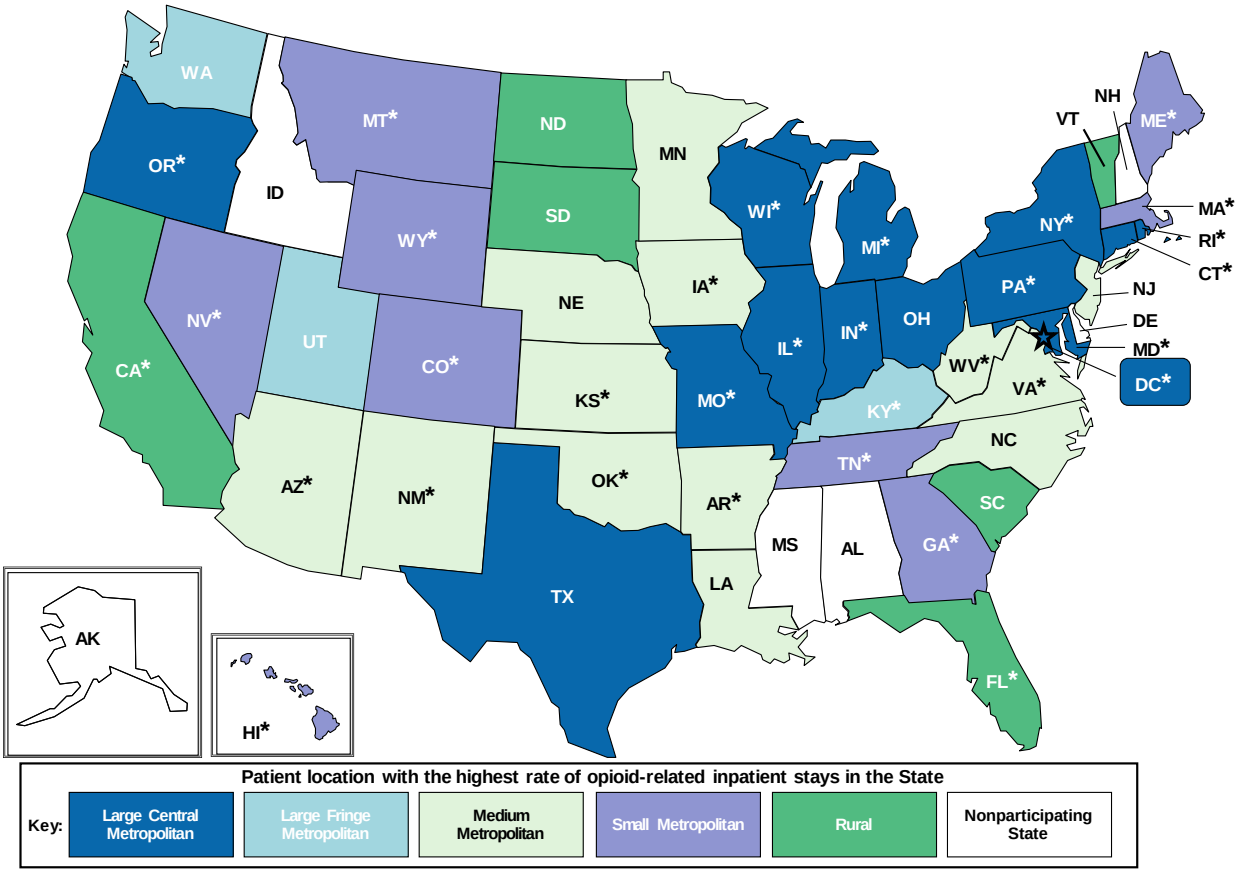
- **The rate of opioid-related ED visits increased the most in small and medium metropolitan areas and the least in large fringe metropolitan areas.**

  The rate of opioid-related ED visits from 2005 to 2014 was generally highest among patients residing in large and medium metropolitan areas and lowest among patients residing in small metropolitan and rural areas. However, similar to the trend in inpatient stays, the ED visit rate increased the most in small and medium metropolitan areas (121 and 119 percent, respectively), followed by rural areas (104 percent). The rate increased the least in large fringe metropolitan areas (suburbs, 79 percent), followed by large central metropolitan areas (92 percent).

  Opioid-related ED visits increased at a faster rate than did opioid-related inpatient stays in large central and medium metropolitan areas but increased at a slower rate in large fringe metropolitan areas. Opioid-related inpatient and ED visit rates increased at a similar pace in small metropolitan and rural areas.

Patient location with the highest rate of opioid-related inpatient stays and ED visits, by State, 2014
Figures 2 and 3 show the patient location within each State with the highest population rate of opioid-related inpatient stays (Figure 2) and ED visits (Figure 3) in 2014. The location with the highest rate overall is reported for each State. States where the difference between the highest and second highest rates was 10 percent or greater are noted with an asterisk. Figure 2 reports the patient location with the highest population rate of opioid-related inpatient stays for each of 44 States and the District of Columbia that provided data in 2014. Details on inpatient rates specific to patient location are shown in Appendix A.

Figure 2. Patient location with the highest rate[a] of opioid-related inpatient stays, by State, 2014



Note: Asterisks denote States where the difference between the highest and second highest rates in the State was at least 10 percent.

[a] Opioid-related inpatient rates are per 100,000 population. State-level inpatient rates by patient location are provided in Appendix A.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), HCUP Fast Stats, Opioid-Related Hospital Use (www.hcup-us.ahrq.gov/faststats/landing.jsp) based on the HCUP State Inpatient Databases (SID)

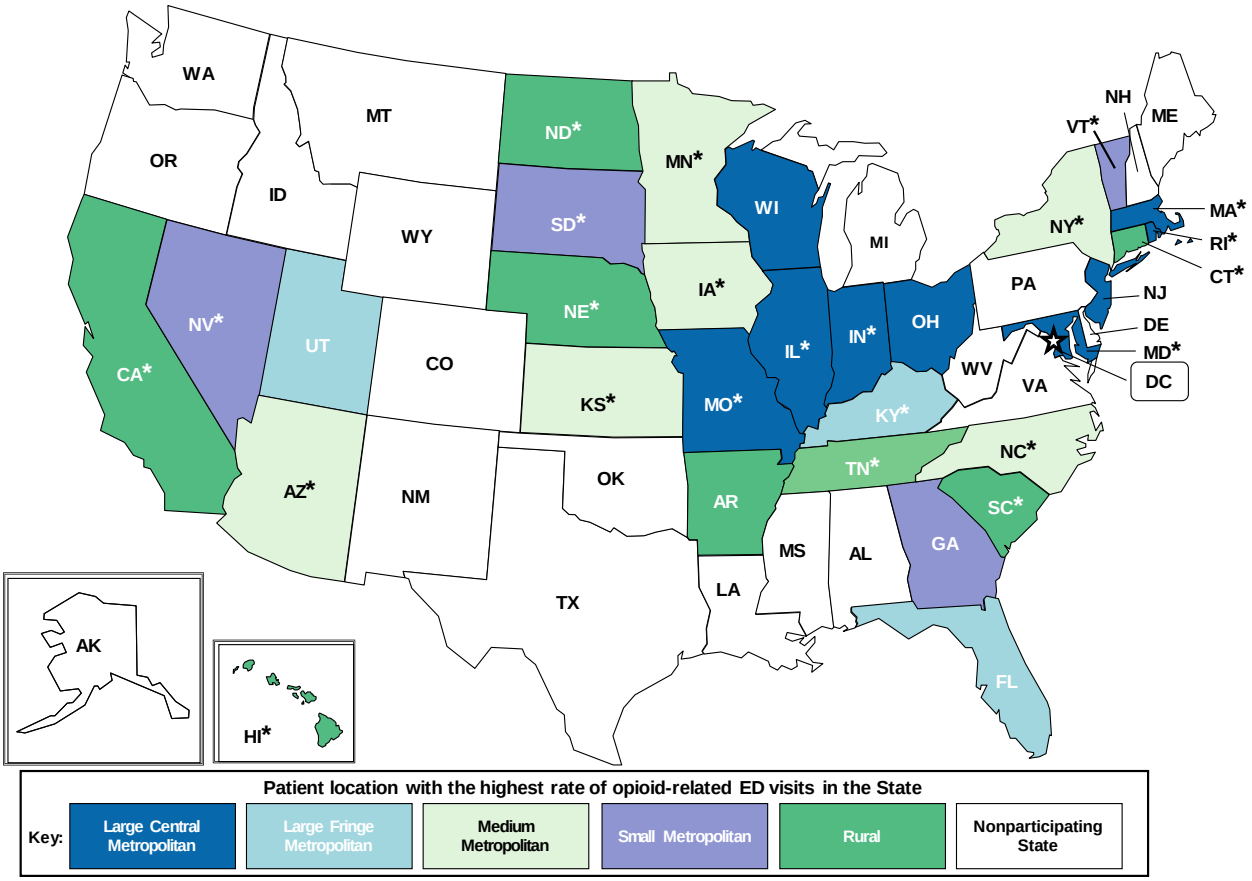
- **Across States, there was substantial variation in the patient location that had the highest opioid-related inpatient rate in 2014.**

  In 2014, the highest rate of opioid-related inpatient stays was in urban areas in some States and in rural areas in other States. The highest rate was seen in—

  - Large central metropolitan areas for 13 States and the District of Columbia (with an average across these States of 446.5 per 100,000 population, data not shown)
  - Large fringe metropolitan areas for three States (average 324.9 per 100,000)
  - Medium metropolitan areas for 13 States (average 239.4 per 100,000)
  - Small metropolitan areas for nine States (average 317.1 per 100,000)
  - Rural areas for six States (average 215.4 per 100,000)

Figure 3 reports the patient location with the highest population rate of opioid-related ED visits for each of 30 States that provided data in 2014. Details on ED visit rates specific to patient location are shown in Appendix B.

Figure 3. Patient location with the highest rate[a] of opioid-related ED visits, by State, 2014



Abbreviation: ED, emergency department

Note: Asterisks denote States where the difference between the highest and second highest rates in the State was at least 10 percent.

[a] Opioid-related ED visit rates are per 100,000 population. State-level ED visit rates by patient location are provided in Appendix B.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), HCUP Fast Stats, Opioid-Related Hospital Use (www.hcup-us.ahrq.gov/faststats/landing.jsp) based on the HCUP State Emergency Department Databases (SEDD)

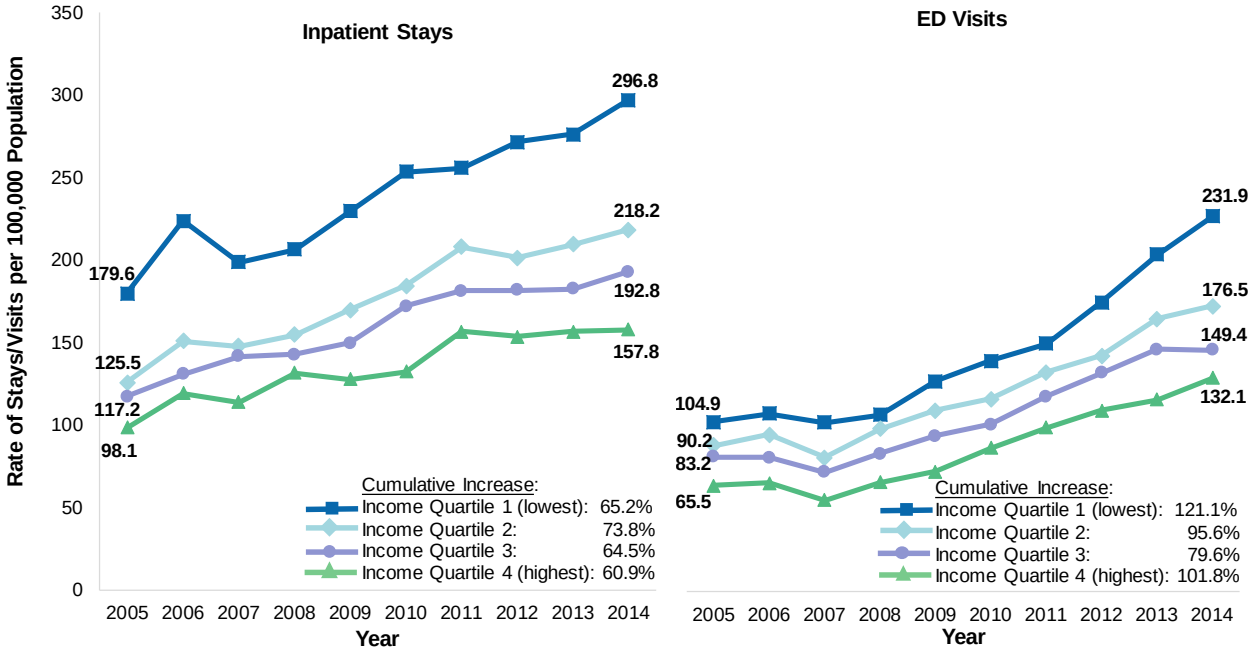
- **Across States, there was substantial variation in the patient location that had the highest opioid-related ED visit rate in 2014.**

  In 2014, the highest rate of opioid-related ED visits was in urban areas in some States and in rural areas in other States. The highest rate was seen in—

  - Large central metropolitan areas for nine States (with an average across these States of 377.1 per 100,000 population, data not shown)
  - Large fringe metropolitan areas for three States (average 286.4 per 100,000)
  - Medium metropolitan areas for six States (average 206.4 per 100,000)
  - Small metropolitan areas for four States (average 188.0 per 100,000)
  - Rural areas for eight States (average 177.3 per 100,000)

National rate of opioid-related inpatient stays and ED visits by community-level income, 2005–2014
Figure 4 presents 10-year trends in the national rate of opioid-related inpatient stays and ED visits by median community-level income group, from 2005 to 2014.

Figure 4. National rate of opioid-related inpatient stays and ED visits by community-level income, 2005–2014



Abbreviation: ED, emergency department

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), HCUP Fast Stats, Opioid-Related Hospital Use (www.hcup-us.ahrq.gov/faststats/landing.jsp) based on the HCUP National (Nationwide) Inpatient Sample (NIS) and the Nationwide Emergency Department Sample (NEDS)

- **There was a consistent relationship between community-level income and the rates of opioid-related inpatient stays and ED visits from 2005 to 2014: the higher the income level, the lower the rate of opioid-related utilization.**

  For each year over the 10-year period examined, the rates of opioid-related inpatient stays and ED visits were highest in the lowest income group and lowest in the highest income group (e.g., in 2014, inpatient stays: 296.8 vs. 157.8 per 100,000 population, respectively; ED visits: 231.9 vs. 132.1 per 100,000, respectively).

- **The increase in the rate of opioid-related inpatient stays was similar across different levels of community income over the 10-year time period from 2005 to 2014.**

  The rate of opioid-related inpatient stays increased between 61 and 74 percent across community-level income.

- **From 2005 to 2014, the rate of opioid-related ED visits increased the most in communities with the lowest income.**

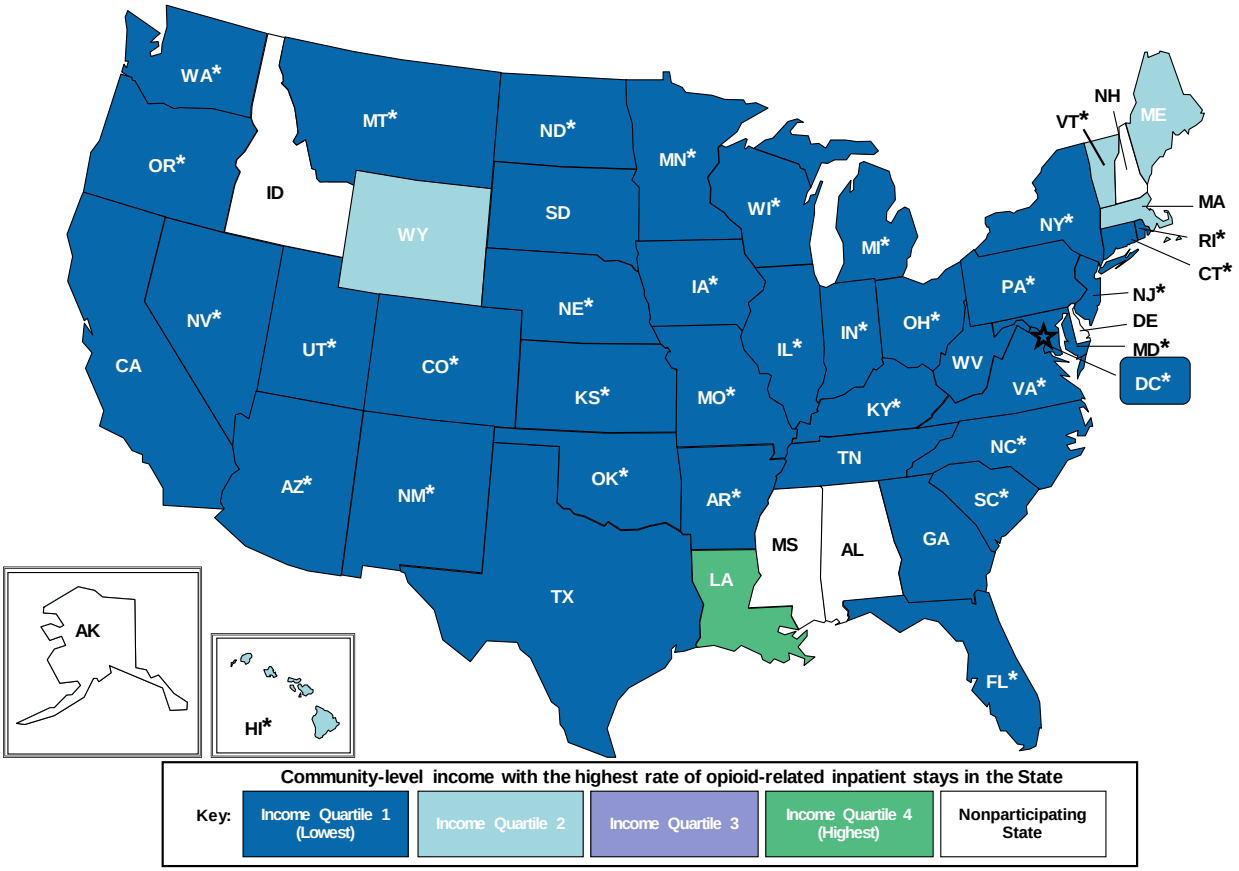
  The rate of opioid-related ED visits increased the most among patients in communities with the lowest income (a 121 percent increase from 2005 to 2014).

  For all levels of community income, the rate of opioid-related ED visits increased faster than the rate of opioid-related inpatient stays over the 10-year period.

Community-level income with the highest rate of opioid-related inpatient stays and ED visits, by State, 2014

Figures 5 and 6 show the community-level income quartile with the highest population rate of opioid-related inpatient stays (Figure 5) and ED visits (Figure 6) within each State in 2014. The income quartile with the highest rate overall is reported for each State. States where the difference between the highest and second highest rates was 10 percent or greater are noted with an asterisk. Figure 5 reports the community-level income quartile with the highest population rate of opioid-related inpatient stays for each of 44 States and the District of Columbia that provided data in 2014. Details on the income-specific inpatient rates are shown in Appendix A.

Figure 5. Community-level income with the highest rate[a] of opioid-related inpatient stays, by State, 2014



Note: Asterisks denote States where the difference between the highest and second highest rates in the State was at least 10 percent.

[a] Opioid-related inpatient rates are per 100,000 population. State-level inpatient rates by community-level income are provided in Appendix A.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), HCUP Fast Stats, Opioid-Related Hospital Use (www.hcup-us.ahrq.gov/faststats/landing.jsp) based on the HCUP State Inpatient Databases (SID)

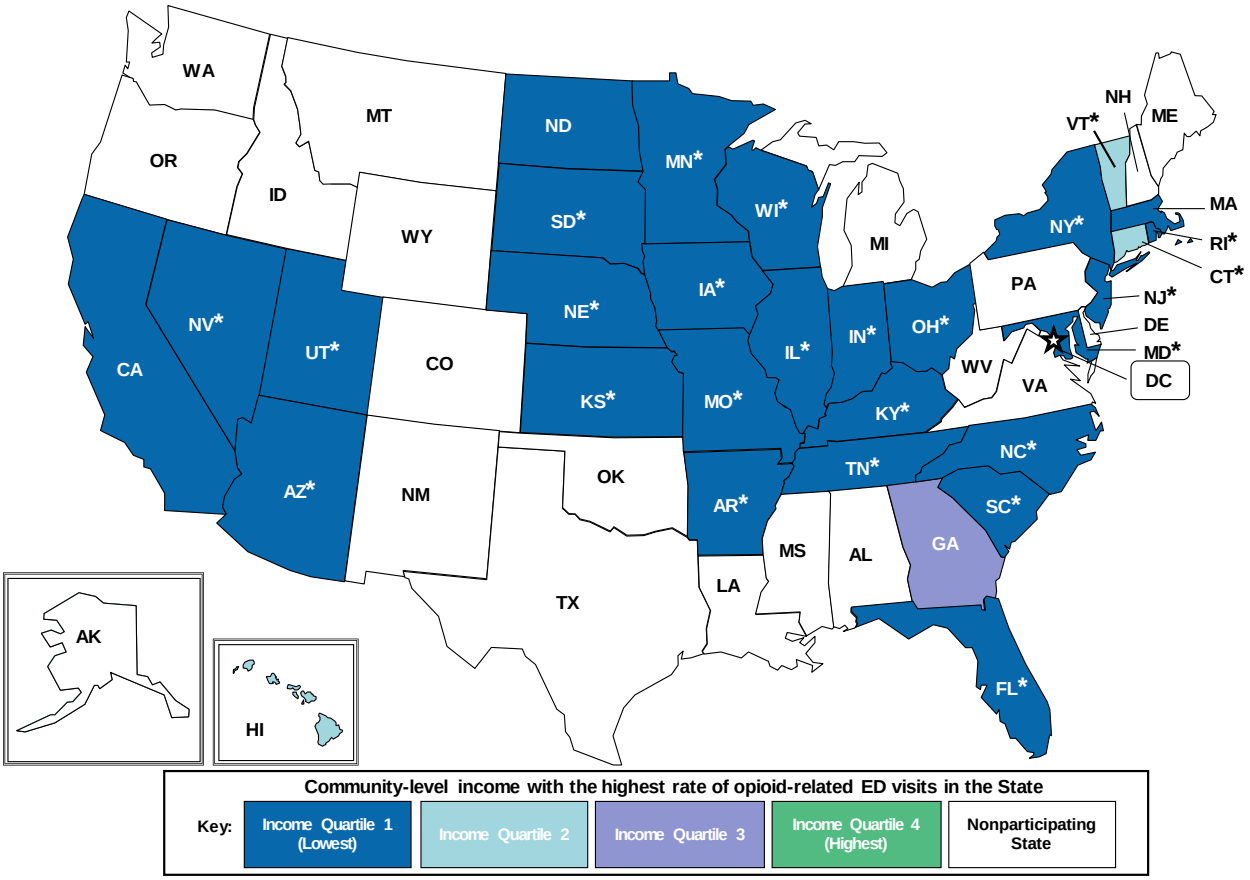
- **For the vast majority of States, the 2014 opioid-related inpatient rate was highest among communities with the lowest income.**

  In 2014, the rate of opioid-related inpatient stays was highest among patients residing in communities that were in the—

  - Lowest income quartile (quartile 1) for most States (38 States and the District of Columbia, with an average across these States of 360.3 per 100,000 population, data not shown)
  - Next lowest income quartile (quartile 2) for five States (average 297.6 per 100,000)
  - Highest income quartile (quartile 4) for one State—Louisiana (181.7 per 100,000)

Figure 6 reports the community-level income quartile with the highest population rate of opioid-related ED visits for each of 30 States that provided data in 2014. Details on the income-specific ED visit rates are shown in Appendix B.

Figure 6. Community-level income with the highest rate[a] of opioid-related ED visits, by State, 2014



Abbreviation: ED, emergency department

Note: Asterisks denote States where the difference between the highest and second highest rates in the State was at least 10 percent.

[a] Opioid-related ED visit rates are per 100,000 population. State-level ED visit rates by community-level income are provided in Appendix B.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), HCUP Fast Stats, Opioid-Related Hospital Use (www.hcup-us.ahrq.gov/faststats/landing.jsp) based on the HCUP State Emergency Department Databases (SEDD)

- **For most States, the 2014 opioid-related ED visit rate was highest among the lowest income communities.**

  In 2014, the rate of opioid-related ED visits was highest among patients residing in communities that were in the—

  - Lowest income quartile (quartile 1) for the majority of States (26 of 30 States, with an average across these States of 276.5 per 100,000 population, data not shown)
  - Next lowest income quartile (quartile 2) for three States (average 376.9 per 100,000)
  - Second highest income quartile (quartile 3) for one State—Georgia (96.8 per 100,000)

State rankings in rate of opioid-related inpatient stays and ED visits by patient location and community-level income, 2014

Tables 1 and 2 present the relative State rankings in the rate of opioid-related inpatient stays (Table 1) and ED visits (Table 2) by patient location and community-level income in 2014. State rankings in each patient subgroup are reported based on four quartiles:

- Lowest rates, corresponding to the bottom 25 percent, noted with a partially filled circle (⊙)
- Highest rates, corresponding to the top 25 percent, noted with a solid circle (●)
- Neither the lowest nor highest rates, corresponding to the middle 50 percent, noted with a dash

Table 1 reports the relative rankings in rates of opioid-related inpatient stays for each of 44 States and the District of Columbia that provided data in 2014.

Table 1. Ranking[a] in State rates[b] of opioid-related inpatient stays, by patient location and community-level income, 2014

Key:
● States with the **highest opioid-related inpatient rates** (top 25 percent) in the patient subgroup
— States with opioid-related inpatient rates in the middle 50 percent in the patient subgroup
⊙ States with the **lowest opioid-related inpatient rates** (bottom 25 percent) in the patient subgroup

State	Patient location					Income quartile			
	Large central metro	Large fringe metro	Medium metro	Small metro	Rural	1 (lowest)	2	3	4 (highest)
Arizona	—	—	●	—	—	—	—	—	—
Arkansas	n/a	n/a	⊙	⊙	⊙	⊙	⊙	⊙	—
California	⊙	⊙	—	—	●	—	—	—	—
Colorado	—	—	⊙	●	—	—	—	—	—
Connecticut	●	●	●	n/a	●	●	●	●	●
District of Columbia	—	n/a	n/a	n/a	n/a	●	n/a	●	●
Florida	—	—	—	—	—	—	—	—	—
Georgia	⊙	⊙	⊙	—	⊙	⊙	⊙	⊙	⊙
Hawaii	n/a	n/a	⊙	—	—	⊙	—	—	—
Illinois	●	⊙	—	—	⊙	●	—	—	—
Indiana	—	—	—	—	—	—	—	—	—
Iowa	n/a	n/a	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Kansas	n/a	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Kentucky	—	●	—	⊙	●	—	—	—	—
Louisiana	⊙	—	—	⊙	⊙	⊙	⊙	—	—
Maine	n/a	n/a	—	●	●	—	●	●	●
Maryland	●	—	●	●	●	●	●	●	●
Massachusetts	●	●	●	●	●	●	●	●	●
Michigan	—	—	—	—	—	—	—	—	—
Minnesota	—	—	●	—	—	●	—	—	—
Missouri	—	—	●	—	—	—	—	—	—
Montana	n/a	n/a	n/a	—	—	—	—	—	—
Nebraska	n/a	n/a	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Nevada	⊙	n/a	—	●	—	—	—	⊙	—

State	Patient location					Income quartile			
	Large central metro	Large fringe metro	Medium metro	Small metro	Rural	1 (lowest)	2	3	4 (highest)
New Jersey	—	—	●	●	n/a	●	●	●	●
New Mexico	n/a	n/a	—	—	—	—	—	—	—
New York	●	●	—	—	●	●	—	●	●
North Carolina	⊙	—	—	—	—	—	—	—	⊙
North Dakota	n/a	n/a	n/a	—	—	—	—	—	—
Ohio	—	●	—	●	—	—	●	—	—
Oklahoma	⊙	⊙	—	⊙	—	—	⊙	⊙	⊙
Oregon	●	—	●	—	—	—	●	●	●
Pennsylvania	●	—	—	—	—	●	●	—	—
Rhode Island	●	●	n/a	n/a	n/a	●	●	●	●
South Carolina	n/a	⊙	⊙	—	—	⊙	⊙	⊙	⊙
South Dakota	n/a	n/a	n/a	⊙	⊙	⊙	⊙	⊙	⊙
Tennessee	—	—	—	●	●	—	—	—	⊙
Texas	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Utah	—	—	—	—	—	—	—	—	—
Vermont	n/a	n/a	n/a	—	—	⊙	—	—	—
Virginia	⊙	⊙	—	—	—	—	—	—	—
Washington	—	●	—	●	●	●	●	●	●
West Virginia	n/a	●	●	●	●	—	●	●	●
Wisconsin	—	—	—	—	—	—	—	—	—
Wyoming	n/a	n/a	n/a	⊙	⊙	n/a	⊙	⊙	⊙

Abbreviations: metro, metropolitan; n/a, not available (the sample size was too small to calculate the rate)

[a] The number of States represented in the top and bottom 25 percent of a specific patient subgroup were calculated on the basis of the total number of States with a rate available for that subgroup (i.e., excluding States for which a rate was not available).

[b] Opioid-related inpatient rates are per 100,000 population. The actual inpatient rates for each patient location and income quartile by State are provided in Appendix A.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), HCUP Fast Stats, Opioid-Related Hospital Use (www.hcup-us.ahrq.gov/faststats/landing.jsp) based on the HCUP State Inpatient Databases (SID)

- **Some States consistently ranked lowest or highest in rates of opioid-related inpatient stays in all patient location and income groups in 2014.**

  Six States were consistently ranked as having among the lowest rates of opioid-related inpatient stays across all patient location and income groups: Iowa, Kansas, Nebraska, South Dakota, Texas, and Wyoming. Similarly, Arkansas and Georgia ranked among the States with the lowest rates in all but one location or income group.

  Three States consistently ranked as having among the highest rates of opioid-related inpatient stays across all patient location and income groups: Connecticut, Massachusetts, and Rhode Island. The District of Columbia, Maryland, and West Virginia ranked among the States with the highest rates in all but one location or income group.

- **Some States ranked lowest for opioid-related inpatient stays for some patient location and income groups but highest for other patient location and income groups.**

  Many States ranked highest or lowest for rates of opioid-related inpatient stays for select patient location and income groups, with some States having a mix of both the highest and lowest rates, depending on the group. For instance, California had among the lowest rates of opioid-related inpatient stays for patients living in large central and large fringe metropolitan areas but had among the highest rates for patients living in rural areas.

Table 2 reports the relative rankings in rates of opioid-related ED visits for each of 30 States that provided data in 2014.

Table 2. Ranking[a] in State rates[b] of opioid-related ED visits, by patient location and community-level income, 2014

Key:
● States with the **highest opioid-related ED visit rates** (top 25 percent) in the patient subgroup
— States with opioid-related ED visit rates in the middle 50 percent in the patient subgroup
⊙ States with the **lowest opioid-related ED visit rates** (bottom 25 percent) in the patient subgroup

State	Patient location					Income quartile			
	Large central metro	Large fringe metro	Medium metro	Small metro	Rural	1 (lowest)	2	3	4 (highest)
Arizona	—	—	●	—	—	—	—	—	—
Arkansas	n/a	n/a	⊙	⊙	⊙	⊙	⊙	⊙	⊙
California	⊙	—	—	●	●	—	—	—	—
Connecticut	—	—	—	n/a	●	●	●	●	●
Florida	⊙	⊙	—	—	⊙	—	—	⊙	—
Georgia	⊙	⊙	⊙	—	⊙	⊙	⊙	—	—
Hawaii	n/a	n/a	⊙	—	—	—	—	—	—
Illinois	—	⊙	—	—	—	—	—	—	—
Indiana	—	—	—	—	—	—	—	—	—
Iowa	n/a	n/a	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Kansas	n/a	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Kentucky	—	●	—	⊙	—	—	—	●	●
Maryland	●	—	●	●	●	●	●	●	●
Massachusetts	●	●	●	●	●	●	●	●	●
Minnesota	—	—	●	⊙	—	●	—	—	—
Missouri	—	—	—	—	—	—	—	—	—
Nebraska	n/a	n/a	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Nevada	—	n/a	—	●	—	—	—	—	—
New Jersey	●	—	●	●	n/a	●	●	●	—
New York	—	—	—	—	—	—	—	—	●
North Carolina	⊙	—	—	—	●	—	—	—	—
North Dakota	n/a	n/a	n/a	—	—	⊙	⊙	—	—
Ohio	●	●	●	●	●	●	●	●	●
Rhode Island	●	●	n/a	n/a	n/a	●	●	●	●
South Carolina	n/a	⊙	—	—	—	—	—	⊙	⊙

State	Patient location					Income quartile			
	Large central metro	Large fringe metro	Medium metro	Small metro	Rural	1 (lowest)	2	3	4 (highest)
South Dakota	n/a	n/a	n/a	⊙	⊙	⊙	⊙	⊙	⊙
Tennessee	⊙	—	—	—	—	—	—	—	⊙
Utah	—	●	—	—	—	—	—	—	—
Vermont	n/a	n/a	n/a	●	●	n/a	●	—	—
Wisconsin	—	—	—	—	—	—	—	—	—

Abbreviations: ED, emergency department; metro, metropolitan; n/a, not available (the sample size was too small to calculate the rate)

[a] The number of States represented in the top and bottom 25 percent of a specific patient subgroup were calculated on the basis of the total number of States with a rate available for that subgroup (i.e., excluding States for which a rate was not available).

[b] Opioid-related ED visit rates are per 100,000 population. The actual ED visit rates for each patient location and income quartile by State are provided in Appendix B.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), HCUP Fast Stats, Opioid-Related Hospital Use (www.hcup-us.ahrq.gov/faststats/landing.jsp) based on the HCUP State Emergency Department Databases (SEDD)

- **Some States consistently ranked lowest or highest in rates of opioid-related ED visits in all patient location and income groups in 2014.**

  Five States were consistently ranked as having among the lowest rates of opioid-related ED visits across all patient location and income groups: Arkansas, Iowa, Kansas, Nebraska, and South Dakota.

  Three States consistently ranked as having among the highest rates of opioid-related ED visits across all patient location and income groups: Massachusetts, Ohio, and Rhode Island. Maryland ranked among the States with the highest rates in all but one location or income group.

- **Some States ranked lowest in rates of opioid-related ED visits for some patient location and income groups but highest for other patient location and income groups.**

  Many States ranked highest or lowest for rates of opioid-related ED visits for select patient location and income groups, with some States having a mix of both the highest and lowest rates, depending on the group. For instance, North Carolina had among the lowest rates of opioid-related ED visits for patients living in large central metropolitan areas but had among the highest rates for patients living in rural areas.

Appendix A. State-level rates[a] of opioid-related inpatient stays, by patient location and community-level income, 2014

State	Patient location					Income quartile			
	Large central metro	Large fringe metro	Medium metro	Small metro	Rural	1 (lowest)	2	3	4 (highest)
Arizona	236.0	185.4	341.0	219.8	205.8	295.0	246.7	195.7	144.1
Arkansas	n/a	n/a	149.7	136.0	130.6	148.2	132.8	113.7	111.2
California	153.7	156.2	162.8	282.7	347.8	194.7	180.5	156.8	134.8
Colorado	246.2	178.9	150.4	346.6	149.9	271.6	205.3	172.9	130.3
Connecticut	387.4	337.0	322.8	n/a	265.3	713.8	489.5	380.4	211.6
District of Columbia	317.8	n/a	n/a	n/a	n/a	562.8	n/a	426.6	267.5
Florida	219.0	238.3	231.4	226.7	263.8	263.7	227.0	189.1	154.0
Georgia	91.3	104.3	132.6	154.2	134.9	136.2	124.3	106.4	82.5
Hawaii	n/a	n/a	125.0	209.8	151.6	172.4	195.0	149.0	112.3
Illinois	518.1	161.5	201.3	145.4	141.3	758.8	233.0	208.1	148.9
Indiana	269.1	184.7	167.5	181.8	195.9	267.3	194.4	158.5	112.8
Iowa	n/a	n/a	77.5	66.7	70.4	105.9	76.3	68.6	55.9
Kansas	n/a	91.4	129.4	100.3	90.4	148.5	96.2	107.8	65.4
Kentucky	236.6	375.6	251.7	88.5	321.1	353.7	225.5	205.4	158.1
Louisiana	130.1	170.5	182.0	128.9	127.0	139.0	148.5	176.2	181.7
Maine	n/a	n/a	284.6	329.8	289.7	318.4	325.4	265.2	202.2
Maryland	1,541.2	250.2	400.5	380.1	299.3	1,701.8	672.5	453.2	194.4
Massachusetts	436.7	348.4	398.2	682.0	513.5	582.2	609.3	432.2	263.8
Michigan	318.0	196.0	215.6	235.2	172.9	351.8	213.2	150.0	133.4
Minnesota	319.5	247.6	345.7	140.9	179.4	556.2	254.9	239.1	191.5
Missouri	345.3	261.8	303.1	167.9	233.9	362.2	225.0	224.2	154.4
Montana	n/a	n/a	n/a	263.8	180.0	277.7	167.6	194.4	187.5
Nebraska	n/a	n/a	81.7	52.2	75.6	109.1	87.8	68.3	58.2
Nevada	156.2	n/a	187.0	410.7	211.5	228.8	166.7	135.1	117.9
New Jersey	295.9	259.6	445.8	413.1	n/a	528.1	366.9	348.2	206.8
New Mexico	n/a	n/a	265.3	161.6	185.5	256.9	188.0	158.1	126.6
New York	377.2	292.4	286.2	258.1	303.1	495.5	244.7	260.9	258.0
North Carolina	106.4	245.1	259.8	201.3	251.9	279.1	224.5	143.8	92.4
North Dakota	n/a	n/a	n/a	151.6	165.1	253.1	167.1	158.5	117.3
Ohio	349.8	263.6	289.6	349.2	227.1	431.6	269.8	224.7	150.5
Oklahoma	140.6	111.6	203.9	109.9	146.8	178.0	144.0	136.2	101.7
Oregon	501.1	256.1	320.2	245.2	207.4	359.4	313.7	268.6	203.4
Pennsylvania	431.9	245.3	261.1	213.3	219.6	469.4	300.7	226.2	167.2
Rhode Island	414.7	308.7	n/a	n/a	n/a	631.9	448.2	359.8	210.7
South Carolina	n/a	103.9	132.8	166.7	176.3	163.2	147.1	95.7	63.5
South Dakota	n/a	n/a	n/a	122.3	133.1	134.1	130.2	132.8	75.2
Tennessee	178.5	253.7	257.4	335.9	288.6	288.3	267.3	185.4	102.2
Texas	108.6	76.9	91.6	102.5	98.1	114.9	108.4	86.4	73.1
Utah	237.3	249.1	195.7	162.5	145.9	260.1	221.0	200.3	155.8
Vermont	n/a	n/a	n/a	190.2	206.5	158.4	257.3	198.4	120.1
Virginia	153.5	141.8	243.0	215.0	201.8	303.6	216.6	178.2	105.8

State	Patient location					Income quartile			
	Large central metro	Large fringe metro	Medium metro	Small metro	Rural	1 (lowest)	2	3	4 (highest)
Washington	331.6	350.1	260.5	294.4	269.4	445.7	330.1	312.3	234.0
West Virginia	n/a	265.9	387.2	346.7	337.1	349.2	330.8	286.7	194.0
Wisconsin	370.7	179.0	165.8	188.2	185.4	301.4	229.6	174.3	159.6
Wyoming	n/a	n/a	n/a	120.9	83.2	n/a	100.9	78.7	93.0

Abbreviations: metro, metropolitan; n/a, not available (the sample size was too small to calculate the rate)

[a] Opioid-related inpatient rates are per 100,000 population.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), HCUP Fast Stats, Opioid-Related Hospital Use (www.hcup-us.ahrq.gov/faststats/landing.jsp) based on the HCUP State Inpatient Databases (SID)

Appendix B. State-level rates[a] of opioid-related ED visits, by patient location and community-level income, 2014

State	Patient location					Income quartile			
	Large central metro	Large fringe metro	Medium metro	Small metro	Rural	1 (lowest)	2	3	4 (highest)
Arizona	189.7	124.3	358.4	203.6	168.6	263.0	221.0	154.6	111.2
Arkansas	n/a	n/a	73.9	50.6	75.3	81.0	65.7	48.1	54.9
California	130.9	133.7	189.4	282.5	341.0	178.5	171.4	152.3	114.0
Connecticut	268.9	234.6	243.0	n/a	347.8	438.3	606.2	252.3	164.0
Florida	97.4	111.7	111.6	101.1	107.6	123.3	104.6	83.3	72.7
Georgia	80.2	96.4	87.8	100.9	99.9	95.0	96.2	96.8	84.9
Hawaii	n/a	n/a	92.0	92.2	188.7	209.6	213.8	107.8	74.6
Illinois	235.3	110.0	153.8	145.4	119.4	345.3	155.6	125.8	97.0
Indiana	204.4	149.6	131.1	124.7	154.8	200.4	153.2	127.1	82.7
Iowa	n/a	n/a	50.1	37.0	43.9	60.0	51.2	38.4	35.5
Kansas	n/a	72.8	100.2	82.6	70.2	110.0	84.7	84.7	45.2
Kentucky	278.3	494.7	202.8	58.7	141.9	234.3	195.0	212.3	203.0
Maryland	993.1	195.1	453.7	281.1	256.9	1177.6	511.0	321.0	159.7
Massachusetts	551.0	444.0	390.8	367.9	335.4	656.4	640.8	493.9	311.6
Minnesota	167.4	116.8	292.1	62.9	115.1	400.6	154.2	113.9	87.6
Missouri	257.0	176.3	157.2	123.0	125.5	242.8	141.0	141.1	96.8
Nebraska	n/a	n/a	48.2	28.2	61.7	75.9	60.6	46.3	34.2
Nevada	169.9	n/a	201.8	337.3	182.8	229.7	187.7	131.2	137.5
New Jersey	298.5	173.0	285.4	280.7	n/a	544.9	251.2	241.3	135.8
New York	176.7	175.7	226.1	179.5	171.5	291.9	161.0	149.4	150.9
North Carolina	101.3	183.1	211.8	175.8	190.4	216.2	176.5	129.1	99.8
North Dakota	n/a	n/a	n/a	82.6	109.3	116.5	92.7	108.5	84.6
Ohio	316.7	290.3	303.1	300.5	219.8	405.5	271.6	234.5	153.8
Rhode Island	305.0	267.9	n/a	n/a	n/a	400.0	348.9	293.4	205.8
South Carolina	n/a	71.1	106.5	86.5	127.3	124.1	107.1	70.5	50.5
South Dakota	n/a	n/a	n/a	68.2	55.3	84.0	69.4	51.6	49.6
Tennessee	140.2	149.6	140.1	107.7	167.7	161.6	146.7	138.2	60.8
Utah	236.8	252.8	131.0	141.1	119.1	233.0	194.5	165.6	120.9
Vermont	n/a	n/a	n/a	245.9	204.0	n/a	310.8	184.9	142.9
Wisconsin	232.6	215.0	118.2	129.9	122.6	232.9	160.9	129.5	120.7

Abbreviations: ED, emergency department; metro, metropolitan; n/a, not available (the sample size was too small to calculate the rate)

[a] Opioid-related ED visit rates are per 100,000 population.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), HCUP Fast Stats, Opioid-Related Hospital Use (www.hcup-us.ahrq.gov/faststats/landing.jsp) based on the HCUP State Emergency Department Databases (SEDD)

Data Source

The estimates in this Statistical Brief are based upon data from the Healthcare Cost and Utilization Project (HCUP) 2005–2014 National (Nationwide) Inpatient Sample (NIS), 2005–2014 Nationwide Emergency Department Sample (NEDS), 2014 State Inpatient Databases (SID), and 2014 State Emergency Department Databases (SEDD). The statistics were generated from HCUP Fast Stats, a free, online tool that provides users with easy access to the latest HCUP-based statistics for health information topics, including opioid-related hospital use.[4]

Inpatient statistics from HCUP Fast Stats were available for the following 44 individual States and the District of Columbia in 2014: Arizona, Arkansas, California, Colorado, Connecticut, District of Columbia, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

Emergency department (ED) statistics from HCUP Fast Stats were available for the following 30 individual States in 2014: Arizona, Arkansas, California, Connecticut, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Minnesota, Missouri, Nebraska, Nevada, New Jersey, New York, North Carolina, North Dakota, Ohio, Rhode Island, South Carolina, South Dakota, Tennessee, Utah, Vermont, and Wisconsin.

Rates are presented in HCUP Fast Stats using population data obtained from Claritas, a vendor that compiles and adds value to data from the U.S. Census Bureau.[5]

Definitions

Diagnoses and ICD-9-CM
The *principal diagnosis* is that condition established after study to be chiefly responsible for the patient's admission to the hospital. *Secondary diagnoses* are concomitant conditions that coexist at the time of admission or develop during the stay. *All-listed diagnoses* include the principal diagnosis plus these additional secondary conditions.

ICD-9-CM is the International Classification of Diseases, Ninth Revision, Clinical Modification, which assigns numeric codes to diagnoses. There are approximately 14,000 ICD-9-CM diagnosis codes.

Case definition
Opioid-related hospital use was identified using the following all-listed ICD-9-CM diagnosis codes:

- 304.00–304.02: Opioid type dependence (unspecified; continuous; episodic)
- 304.70–304.72: Combinations of opioid type drug with any other drug dependence (unspecified; continuous; episodic)
- 305.50–305.52: Opioid abuse (unspecified; continuous; episodic)
- 965.00–965.02; 965.09: Poisoning by opium (alkaloids), unspecified; heroin; methadone; other opiates and related narcotics
- 970.1: Poisoning by opiate antagonists
- E850.0–E850.2: Accidental poisoning by heroin; methadone; other opiates and related narcotics
- E935.0–E935.2: Heroin, methadone, other opiates and related narcotics causing adverse effects in therapeutic use
- E940.1: Opiate antagonists causing adverse effects in therapeutic use

[4] Agency for Healthcare Research and Quality. HCUP Fast Stats Web site, Opioid-Related Hospital Use path. www.hcup-us.ahrq.gov/faststats/landing.jsp. Accessed January 26, 2017.
[5] Claritas. Claritas Demographic Profile. www.claritas.com. Accessed June 23, 2017.

It should be noted that ICD-9-CM diagnosis codes related to opioid dependence or abuse "in remission" were not used to identify opioid-related hospital use because remission does not indicate active use of opioids. Potential changes in the use of ICD-9-CM codes identifying opioid use cannot be isolated in these analyses.

These codes include opioid-related use stemming from illicit opioids such as heroin, illegal use of prescription opioids, and the use of opioids as prescribed. Each type of opioid use is important for understanding and addressing the opioid epidemic in the United States.[6] While there may be interest in examining how much each type of opioid use contributes to the overall opioid problem, many of the opioid-related codes under the ICD-9-CM clinical coding system do not allow heroin-related cases to be explicitly identified (e.g., in the 304.0x series, heroin is not distinguished from other opioids). In addition, the codes do not distinguish between illegal use of prescription drugs and their use as prescribed.

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 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.

Types of hospitals included in the HCUP Nationwide Emergency Department Sample
The Nationwide Emergency Department Sample (NEDS) 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 NEDS includes specialty, pediatric, public, and academic medical hospitals. Excluded are long-term care facilities such as rehabilitation, psychiatric, and alcoholism and chemical dependency hospitals. Hospitals included in the NEDS have hospital-owned emergency departments (EDs) and no more than 90 percent of their ED visits resulting in admission.

Types of hospitals included in HCUP State Inpatient Databases
This analysis used State Inpatient Databases (SID) limited to 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). Community hospitals include obstetrics and gynecology, otolaryngology, orthopedic, cancer, pediatric, public, and academic medical hospitals. Excluded for this analysis are long-term care facilities such as rehabilitation, psychiatric, and alcoholism and chemical dependency hospitals. 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 was included in the analysis.

Types of hospitals included in HCUP State Emergency Department Databases
This analysis used State Emergency Department Databases (SEDD) limited to data from community hospitals with a hospital-owned emergency department. Community hospitals are defined as short-term, non-Federal, general, and other hospitals, excluding hospital units of other institutions (e.g., prisons). Community hospitals include specialty, pediatric, public, and academic medical hospitals. Excluded for this analysis are long-term care facilities such as rehabilitation, psychiatric, and alcoholism and chemical dependency hospitals.

Unit of analysis
The unit of analysis for inpatient data 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. Inpatient stays include those for patients admitted through the emergency department (ED). Patients transferred between inpatient hospitals are counted only once.

[6] Compton WM, Jones CM, Baldwin GT. Relationship between nonmedical prescription-opioid use and heroin use. The New England Journal of Medicine. 2016;374:154–63.

The unit of analysis for ED data is the ED visit, not a person or patient. This means that a person who is seen in the ED multiple times in 1 year will be counted each time as a separate visit in the ED. ED visits exclude those for patients admitted to the same hospital and also exclude patients transferred to another hospital.

Location of patients' residence
Place of residence is based on the urban-rural classification scheme for U.S. counties developed by the National Center for Health Statistics (NCHS):

- Large Central Metropolitan: Central counties of metropolitan areas with 1 million or more residents
- Large Fringe Metropolitan: Fringe counties of metropolitan areas with 1 million or more residents
- Medium Metropolitan: Counties in metropolitan areas of 250,000–999,999 residents
- Small Metropolitan: Counties in metropolitan areas of 50,000–249,999 residents
- Micropolitan: Nonmetropolitan counties areas of 10,000 or more residents
- Noncore: Nonmetropolitan and nonmicropolitan counties

For this Statistical Brief, we collapsed the NCHS categories of Micropolitan and Noncore into a single Rural category.

Community-level income
Community-level income is based on the median household income of the patient's ZIP Code of residence. Quartiles are defined so that the total U.S. population is evenly distributed. Cut-offs for the quartiles are determined annually using ZIP Code demographic data obtained from Claritas, a vendor that adds value to data from the U.S. Census Bureau.[7] The value ranges for the income quartiles vary by year. The income quartile is missing for patients who are homeless or foreign.

About HCUP

The Healthcare Cost and Utilization Project (HCUP, pronounced "H-Cup") is a family of health care 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 health care 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 databases enable research on a broad range of health policy issues, including cost and quality of health services, medical practice patterns, access to health care 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:

Alaska Department of Health and Social Services
Alaska State Hospital and Nursing Home Association
Arizona Department of Health Services
Arkansas Department of Health
California Office of Statewide Health Planning and Development
Colorado Hospital Association
Connecticut Hospital Association
District of Columbia Hospital Association
Florida Agency for Health Care Administration
Georgia Hospital Association
Hawaii Health Information Corporation
Illinois Department of Public Health
Indiana Hospital Association

[7] Claritas. Claritas Demographic Profile. www.claritas.com. Accessed June 23, 2017.

Iowa Hospital Association
Kansas Hospital Association
Kentucky Cabinet for Health and Family Services
Louisiana Department of Health
Maine Health Data Organization
Maryland Health Services Cost Review Commission
Massachusetts Center for Health Information and Analysis
Michigan Health & Hospital Association
Minnesota Hospital Association
Mississippi State Department of Health
Missouri Hospital Industry Data Institute
Montana Hospital Association
Nebraska Hospital Association
Nevada Department of Health and Human Services
New Hampshire Department of Health & Human Services
New Jersey Department of Health
New Mexico Department of Health
New York State Department of Health
North Carolina Department of Health and Human Services
North Dakota (data provided by the Minnesota Hospital Association)
Ohio Hospital Association
Oklahoma State Department of Health
Oregon Association of Hospitals and Health Systems
Oregon Office of Health Analytics
Pennsylvania Health Care Cost Containment Council
Rhode Island Department of Health
South Carolina Revenue and Fiscal Affairs Office
South Dakota Association of Healthcare Organizations
Tennessee Hospital Association
Texas Department of State Health Services
Utah Department of Health
Vermont Association of Hospitals and Health Systems
Virginia Health Information
Washington State Department of Health
West Virginia Health Care Authority
Wisconsin Department of Health Services
Wyoming Hospital Association

About Statistical Briefs

HCUP Statistical Briefs are descriptive summary reports presenting statistics on hospital inpatient, ambulatory surgery, and emergency department use and costs, quality of care, access to care, medical conditions, procedures, patient populations, and other topics. The reports use HCUP administrative health care data.

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 95 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 2012 NIS was redesigned to optimize national estimates. The redesign incorporates two critical changes:

- Revisions to the sample design—starting with 2012, the NIS is now a *sample of discharge records from all HCUP-participating hospitals*, rather than a sample of hospitals from which all discharges were retained (as is the case for NIS years before 2012).

- Revisions to how hospitals are defined—the NIS now uses the *definition of hospitals and discharges supplied by the statewide data organizations* that contribute to HCUP, rather than the definitions used by the American Hospital Association (AHA) Annual Survey of Hospitals.

The new sampling strategy is expected to result in more precise estimates than those that resulted from the previous NIS design by reducing sampling error: for many estimates, confidence intervals under the new design are about half the length of confidence intervals under the previous design. The change in sample design for 2012 necessitates recomputation of prior years' NIS data to enable analyses of trends that use the same definitions of discharges and hospitals.

About the NEDS

The HCUP Nationwide Emergency Department Database (NEDS) is a unique and powerful database that yields national estimates of emergency department (ED) visits. The NEDS was constructed using records from both the HCUP State Emergency Department Databases (SEDD) and the State Inpatient Databases (SID). The SEDD capture information on ED visits that do not result in an admission (i.e., patients who were treated in the ED and then released from the ED, or patients who were transferred to another hospital); the SID contain information on patients initially seen in the ED and then admitted to the same hospital. The NEDS was created to enable analyses of ED utilization patterns and support public health professionals, administrators, policymakers, and clinicians in their decisionmaking regarding this critical source of care. The NEDS is produced annually beginning in 2006. Over time, the sampling frame for the NEDS has changed; thus, the number of States contributing to the NEDS varies from year to year. The NEDS is intended for national estimates only; no State-level estimates can be produced.

About the SID

The HCUP State Inpatient Databases (SID) are hospital inpatient databases from data organizations participating in HCUP. The SID contain the universe of the inpatient discharge abstracts in the participating HCUP States, translated into a uniform format to facilitate multistate comparisons and analyses. Together, the SID encompass more than 95 percent of all U.S. community hospital discharges. The SID can be used to investigate questions unique to one State, to compare data from two or more States, to conduct market-area variation analyses, and to identify State-specific trends in inpatient care utilization, access, charges, and outcomes.

About the SEDD

The HCUP State Emergency Department Databases (SEDD) include information from hospital-owned emergency departments (EDs) from data organizations participating in HCUP, translated into a uniform format to facilitate multistate comparisons and analyses. The SEDD capture information on ED visits that do not result in an admission to the same hospital (i.e., patients who are treated in the ED and then discharged, transferred to another hospital, left against medical advice, or died). The SEDD contain a core set of clinical and nonclinical information on all patients, including individuals covered by Medicare, Medicaid, or private insurance, as well as those who are uninsured. The SEDD can be used to investigate questions unique to one State, to compare data from two or more States, to conduct market-area variation analyses, and to identify State-specific trends in injury surveillance, emerging infections, and other conditions treated in the ED.

About HCUP Fast Stats

HCUP Fast Stats (www.hcup-us.ahrq.gov/faststats/landing.jsp) is an interactive, online tool that provides easy access to the quarterly HCUP-based statistics for select State and national health information topics. HCUP Fast Stats uses side-by-side comparisons of visual statistical displays, trend figures, or simple tables to convey complex information at a glance. Topics currently available in HCUP Fast Stats include State Trends in Hospital Use by Payer; National Hospital Utilization and Costs; and Opioid-Related Hospital Use, National and State. HCUP Fast Stats presents statistics using data from HCUP's National (Nationwide) Inpatient Sample (NIS), the Nationwide Emergency Department Sample (NEDS), the State Inpatient Databases (SID), and the State Emergency Department Databases (SEDD).

For More Information

For other information on mental health and substance abuse, including opioids, refer to the HCUP Statistical Briefs located at www.hcup-us.ahrq.gov/reports/statbriefs/sb_mhsa.jsp.

For additional HCUP statistics, visit:

- HCUP Fast Stats at www.hcup-us.ahrq.gov/faststats/landing.jsp for easy access to the latest HCUP-based statistics for health information topics
- HCUPnet, HCUP's interactive query system, at www.hcupnet.ahrq.gov/

For more information about HCUP, visit www.hcup-us.ahrq.gov/.

For a detailed description of HCUP and more information on the design of the National (Nationwide) Inpatient Sample (NIS), Nationwide Emergency Department Sample (NEDS), State Inpatient Databases (SID), or State Emergency Department Databases (SEDD), 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 December 2016. www.hcup-us.ahrq.gov/nisoverview.jsp. Accessed January 31, 2017.

Agency for Healthcare Research and Quality. Overview of the Nationwide Emergency Department Sample (NEDS). Healthcare Cost and Utilization Project (HCUP). Rockville, MD: Agency for Healthcare Research and Quality. Updated December 2016. www.hcup-us.ahrq.gov/nedsoverview.jsp. Accessed January 31, 2017.

Agency for Healthcare Research and Quality. Overview of the State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). Rockville, MD: Agency for Healthcare Research and Quality. Updated June 2016. www.hcup-us.ahrq.gov/sidoverview.jsp. Accessed January 31, 2017.

Agency for Healthcare Research and Quality. Overview of the State Emergency Department Databases (SEDD). Healthcare Cost and Utilization Project (HCUP). Rockville, MD: Agency for Healthcare Research and Quality. Updated June 2016. www.hcup-us.ahrq.gov/seddoverview.jsp. Accessed January 31, 2017.

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