

# CHARTBOOK ON RURAL HEALTHCARE

National Healthcare  
Quality and Disparities Report



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# NATIONAL HEALTHCARE QUALITY AND DISPARITIES REPORT CHARTBOOK ON RURAL HEALTHCARE

## U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Agency for Healthcare Research and Quality

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## RURAL HEALTHCARE

This Rural Health Care Chartbook is part of a family of documents and tools that support the National Healthcare Quality and Disparities Report (NHQDR). The NHQDR includes annual reports to Congress mandated in the Healthcare Research and Quality Act of 1999 ([P.L. 106-129](#)). These reports provide a comprehensive overview of the quality of healthcare received by the general U.S. population and disparities in care experienced by different racial, ethnic, and socioeconomic groups. The reports assess the performance of our health system and identify areas of strength and weakness in the healthcare system along four main axes: access to healthcare, quality of healthcare, disparities in healthcare, and Agency for Healthcare Research and Quality (AHRQ) priority areas.

The reports are based on more than 250 measures of quality and disparities covering a broad array of healthcare services and settings. Data are generally available through 2017-2018. The reports are produced with the help of an Interagency Work Group led by AHRQ and submitted on behalf of the Secretary of Health and Human Services (HHS).

This chartbook contains:

- Overview of the NHQDR.
- Key findings of the 2019 NHQDR.
- Overview of residents of rural areas, one of the priority populations of the NHQDR.
- Summary of trends in healthcare quality and disparities for rural populations.
- Tracking of access and quality measures for rural populations:
  - Access to Healthcare.
  - Patient Safety.
  - Person-Centered Care.
  - Care Coordination.
  - Effective Treatment.
  - Healthy Living.
  - Affordability.

### Key Findings of the 2019 NHQDR

Findings on access to healthcare from 2000 through 2016-2018 indicated:

- More than half (11 of 20) of access measures showed improvement.
- One-fourth (5 of 20) stayed the same.
- One-fifth (4 of 20) showed worsening.

Findings on quality of care from 2000 through 2018 indicated that healthcare quality improved overall, but the pace of improvement varied by priority area. Half (87 of 174) of quality measures showed improvement:

- Person-Centered Care: Nearly half (14 of 29).
- Patient Safety: Nearly half (12 of 26).

- Healthy Living: Nearly 60% (41 of 70).
- Effective Treatment: More than 40% (15 of 36).
- Care Coordination: Nearly 40% (3 of 8).
- Care Affordability: 40% (2 of 5).

Some disparities were getting smaller from 2000 through 2016-2018, but disparities persist and some worsened, especially for poor and uninsured populations in all priority areas.

Racial and ethnic disparities vary by group:

- Blacks and American Indians and Alaska Natives received worse care than Whites for about 40% of quality measures.
- Hispanics, Asians, and Native Hawaiians/Pacific Islanders received worse care than Whites for approximately one-third of quality measures.

Disparities vary by residence location:

- For nearly a quarter (24 of 102) of quality measures, residents of large central metropolitan areas received worse care than residents of large fringe metropolitan areas.
- For one-third of quality measures, residents of micropolitan and noncore areas received worse care than residents of large fringe metropolitan areas.
- For a little less than 20% of quality measures, residents of medium and small metropolitan areas received worse care than residents of large fringe metropolitan areas.

The 2019 National Healthcare Quality and Disparities Report is available at <https://www.ahrq.gov/research/findings/nhqrd19/index.html>.

## Chartbook on Rural Healthcare

This chartbook includes:

- Summary of trends in healthcare quality and disparities for rural populations.
- Figures showing select measures of Access to Healthcare and priority areas, including Patient Safety, Person-Centered Care, Care Coordination, Effective Treatment, Healthy Living, and Affordability for rural populations.

[Introduction and Methods](#) contains information about methods used in the chartbook. A Data Query tool (<https://datatools.ahrq.gov/nhqdr>) provides access to all data tables.

## NCHS Urban-Rural Classification Scheme

This chartbook compares residents of urban and rural areas with different population densities to those living in large fringe metropolitan (suburban) areas. Residents of suburban areas tend to have higher quality healthcare and better outcomes. The National Center for Health Statistics (NCHS) [Urban-Rural Classification Scheme](#) is used to guide analyses involving geographic location.



The NCHS scheme includes six levels of urban-rural classification in two categories:

- Four metropolitan county designations:
  - Large Central Metropolitan
  - Large Fringe Metropolitan
  - Medium Metropolitan
  - Small Metropolitan
  
- Two nonmetropolitan county designations:
  - Micropolitan
  - Noncore

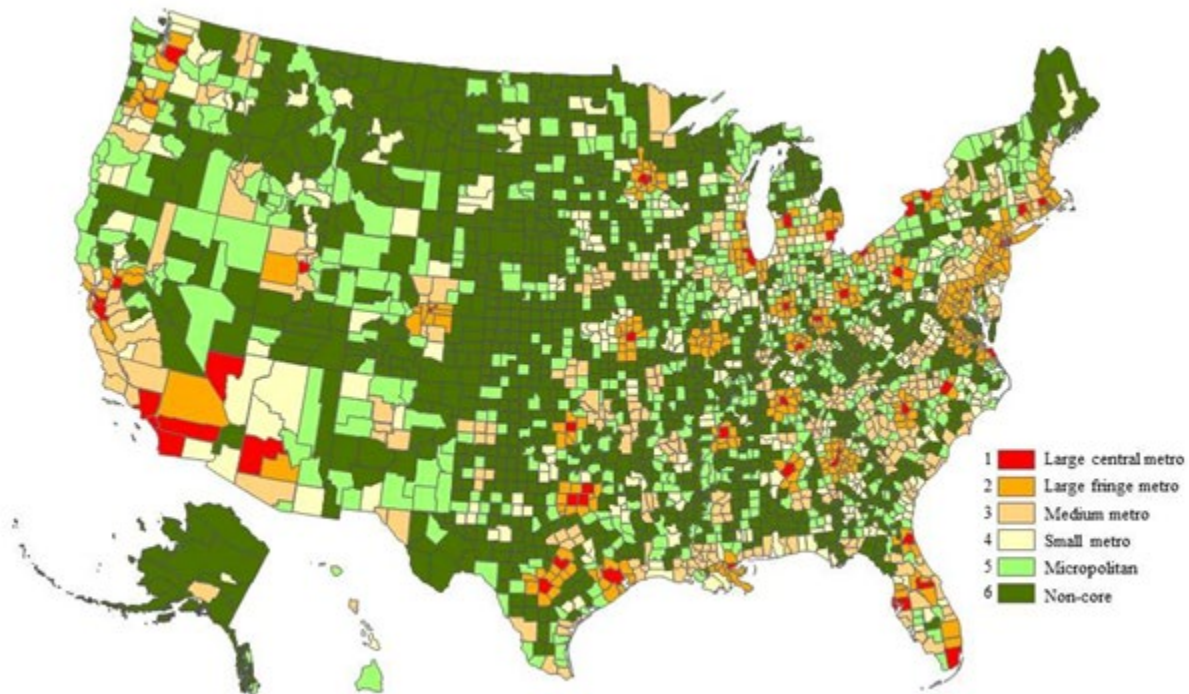
### 2013 NCHS Urban-Rural Classification System

<b>Metropolitan Counties</b>	
Large central metropolitan	Counties in a metropolitan statistical area of 1 million or more population: <ol style="list-style-type: none"> <li>1. That contain the entire population of the largest principal city of the metropolitan statistical area, or</li> <li>2. Whose entire population resides in the largest principal city of the metropolitan statistical area, or</li> <li>3. That contain at least 250,000 of the population of any principal city in the metropolitan statistical area.</li> </ol>
Large fringe metropolitan	Counties in a metropolitan statistical area of 1 million or more population that do not qualify as large central metropolitan counties.
Medium metropolitan	Counties in a metropolitan statistical area of 250,000 to 999,999 population.
Small metropolitan	Counties in a metropolitan statistical area of less than 250,000 population.
<b>Nonmetropolitan Counties</b>	
Micropolitan	Counties in a micropolitan statistical area.
Noncore	Nonmetropolitan counties not in a micropolitan statistical area.

**Source:** Ingram D, Franco S. 2013 NCHS urban-rural classification scheme for counties. National Center for Health Statistics. Vital Health Stat 2(166).2014. [https://www.cdc.gov/nchs/data/series/sr\\_02/sr02\\_166.pdf](https://www.cdc.gov/nchs/data/series/sr_02/sr02_166.pdf).

The 2013 NCHS classification system is derived from data gathered from the Office of Management and Budget metropolitan and nonmetropolitan designations and the U.S. census.

### Map Applying NCHS Urban-Rural Classification Scheme



Centers for Disease Control and Prevention. NCHS Urban-Rural Classification Scheme for Counties. [https://www.cdc.gov/nchs/data\\_access/urban\\_rural.htm#2013\\_Urban-Rural\\_Classification\\_Scheme\\_for\\_Counties](https://www.cdc.gov/nchs/data_access/urban_rural.htm#2013_Urban-Rural_Classification_Scheme_for_Counties). Accessed November 24, 2021.

## Residents of Rural Areas

Census Bureau data show that about 20% of the population lives in rural<sup>i</sup> or nonmetropolitan areas, although about 85% of the total U.S. land area is classified as rural (HRSA, 2021a). Ten million rural residents identify as Black, Hispanic, American Indian/Alaska Native, Asian American/Pacific Islander, or mixed race. One in five rural residents belongs to one or more of these groups.

The increase in diversity can be attributed to the growth of immigrant populations in rural areas. Availability and collection of robust data on health outcomes of these populations remain limited (Henning-Smith, et al., 2019).

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<sup>i</sup> Rural area is defined by the Federal Office of Rural Health Policy.

## Health Challenges in Rural Areas

Rural communities face unique health challenges due to complex cultural, social, economic, and geographic factors, including disparities in age, income, and health status (Rural Health Research Gateway, 2018). Compared with urban counties, rural counties have:

- A larger percentage of adults over the age of 65 (17.5% vs. 13.8%) (U.S. Census Bureau, 2019).
- A higher poverty rate (15.3% vs. 11.9%) and lower per capita income (\$42,993 vs. \$59,693) (ERS, 2021).
- A smaller percentage of adults who get enough physical activity (20% vs. 25%) (Whitfield, et al., 2019).
- A higher prevalence of adults with multiple chronic health conditions (e.g., arthritis, diabetes) (34.8% vs. 26.1%) (Boersma, et al., 2020).

## Death Rates in Rural Areas

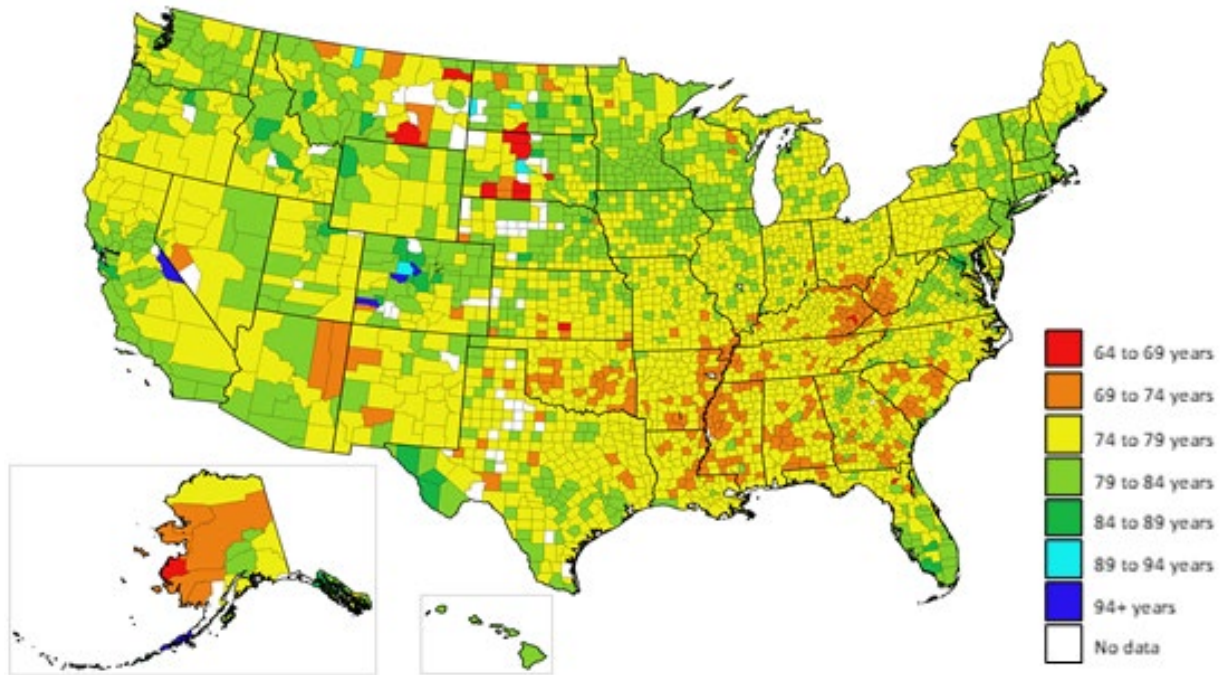
For 20 years, age-adjusted death rates were higher in rural areas than in urban areas, and the rural-urban difference in death rates increased over time. In 1999, the age-adjusted death rate in rural areas was 7% higher than in urban areas; by 2019, the rate in rural areas was 20% higher than in urban areas (Curtin & Spencer, 2021).

Rural residents are at greater risk of death from the following leading causes of death (Garcia, et al., 2019b):

- Heart disease
- Cancer
- Unintentional injury
- Chronic lower respiratory disease
- Stroke

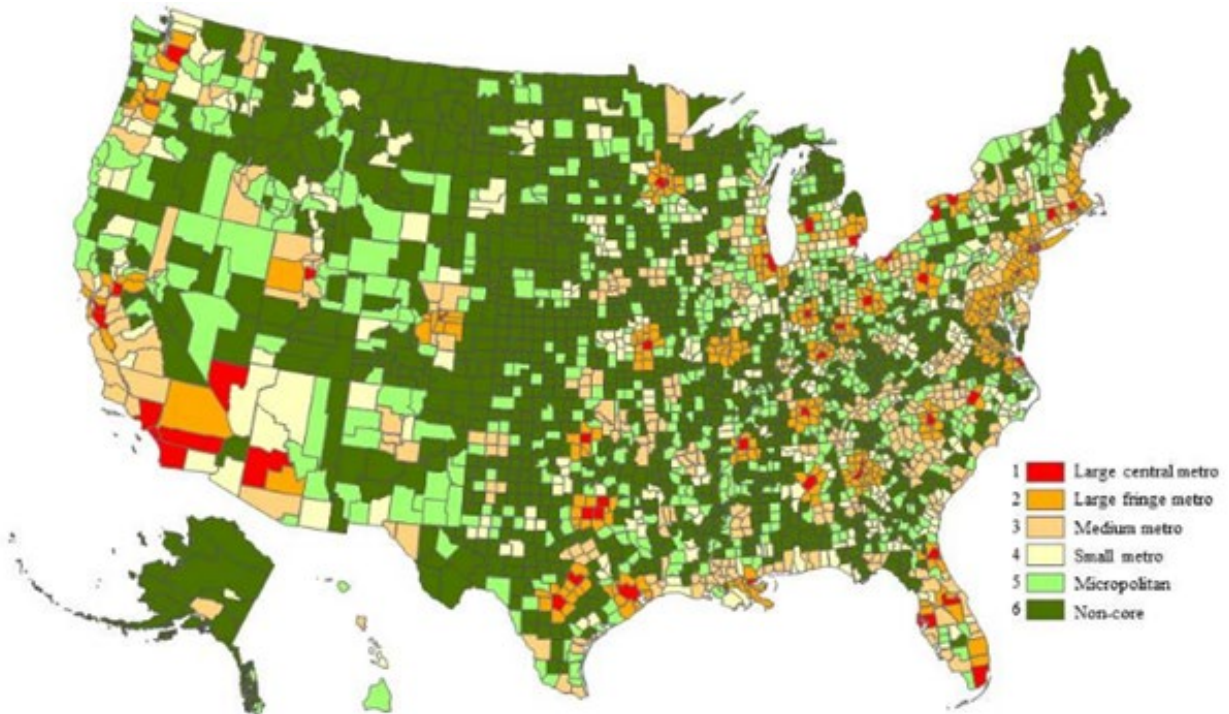
## Life Expectancy in Rural Areas

### Life Expectancy by County



**Source:** University of Wisconsin Population Health Institute, 2021 County Health Rankings, Life Expectancy. <https://www.countyhealthrankings.org/explore-health-rankings/measures-data-sources/county-health-rankings-model/health-outcomes/length-of-life/life-expectancy>. Accessed November 24, 2021.

### Urban-Rural Classification Scheme



**Source:** Centers for Disease Control and Prevention. NCHS Urban-Rural Classification Scheme for Counties. [https://www.cdc.gov/nchs/data\\_access/urban\\_rural.htm#2013\\_Urban-Rural\\_Classification\\_Scheme\\_for\\_Counties](https://www.cdc.gov/nchs/data_access/urban_rural.htm#2013_Urban-Rural_Classification_Scheme_for_Counties). Accessed November 24, 2021.

For 2017-2019, the average life expectancy in the United States was 77.5 years, with a 35.6-year gap between the lowest and highest life expectancy among all counties. The 2021 Wisconsin Population Health Institute County Health Rankings life expectancy estimates are based on 2017-2019 data from National Center for Health Statistics Mortality Files.

## Racial and Ethnic Health Disparities in Rural Areas

Longstanding systemic health and social inequities have put racial and ethnic minorities in rural areas at increased risk of severe illness and inadequate access to health services. Rural counties that are majority Black or American Indian/Alaska Native<sup>ii</sup> have the highest rates of premature death compared with counties that are majority White (Henning-Smith, et al., 2019). Compared with White residents, racial and ethnic minorities in rural areas more often report their health as fair or poor<sup>iii</sup> and more often report being unable to see a physician in the past 12 months due to cost (James, et al., 2017).

## Health Professional Shortages in Rural Areas

Rural areas have greater shortages of healthcare professionals who provide primary care, dental, and mental health services. Rural areas make up the majority of all Health Resources and Services Administration (HRSA)-designated health professional shortage areas (HPSAs). Rural areas make up over 60% of all primary care and dental HPSAs and almost 60% of all mental health HPSAs (HRSA, 2021b).

Due to a lack of specialty care providers in rural areas, rural residents depend on primary care providers<sup>iv</sup> for a wider range of patient care services than urban residents (Larson, et al., 2020). In addition, residents of nonmetropolitan counties report fewer dental visits and teeth cleanings and more tooth extractions than metropolitan county residents (Doescher & Keppel, 2015).

While the prevalence of behavioral health issues is similar in nonmetropolitan and metropolitan counties, nonmetropolitan and noncore counties have a significantly lower behavioral health provider supply. In 2015, 65% of nonmetropolitan counties and 80% of noncore counties lacked a psychiatrist, compared with 27% of metropolitan counties (Andrilla, et al., 2018).

## Challenges With Access to Healthcare in Rural Areas

Access to adequate healthcare is increasingly challenging in rural areas due to closures of healthcare facilities, including hospitals, obstetric units, pharmacies, and nursing homes. From January 1, 2010, to September 2021, 138 rural hospitals closed<sup>v</sup> (North Carolina Rural Health Research Program, 2021). Rural hospital closures result in a substantial increase in distance (20

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<sup>ii</sup> Racial groups are non-Hispanic.

<sup>iii</sup> The two exceptions to reporting health as fair or poor more often than Whites are Asians and Native Hawaiians/Pacific Islanders.

<sup>iv</sup> Primary care providers may include nonphysician providers, such as nurse practitioners and physician assistants.

<sup>v</sup> A “closed hospital” means that it stopped providing short-term, general, acute inpatient care. A hospital closure could be either classified as: (1) a complete closure with no healthcare services available at the former hospital site, or (2) a converted closure that provides services other than inpatient care (e.g., outpatient, emergency, urgent care, skilled nursing, or rehabilitation services).

to 40 miles) to receive healthcare services and a decline in availability of healthcare providers (U.S. Government Accountability Office, 2020).

Research suggests that urban hospitals are twice as profitable as rural hospitals, and most unprofitable hospitals are rural (Williams, et al., 2018). A related and ongoing concern is the financial viability of the remaining facilities. The percentage of rural hospitals predicted to be at high risk of financial distress increased from 7.1% in 2015 to 9.2% in 2019 (Thomas, et al., 2019a). Rural hospitals predicted to be at high risk of financial distress in 2019 served communities with higher percentages of non-White residents (18.8% vs 9.7%) and Black residents in particular (5.2% vs. 1.5%) (Thomas, et al., 2019b).

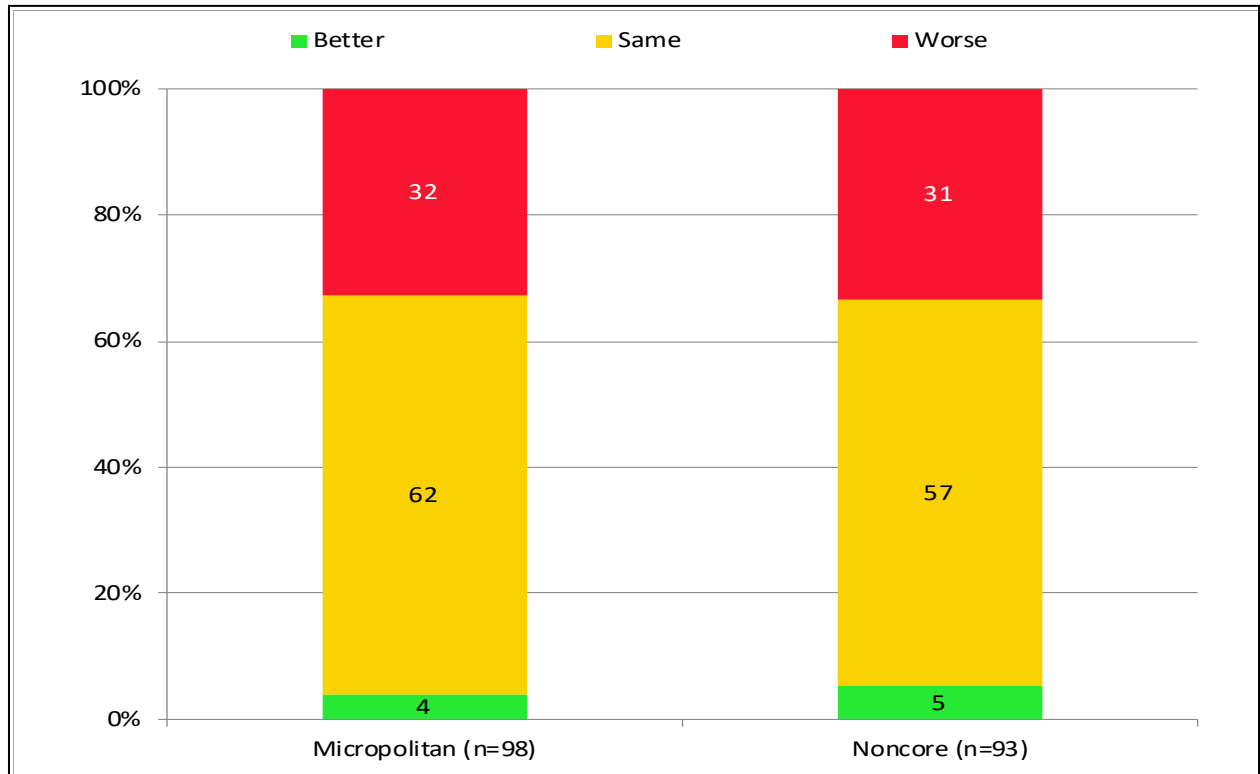
In 2014, 54% of all rural counties did not have hospital obstetric services (Hung, et al., 2017). The South has the lowest density of rural hospitals with obstetric services (7 per 100,000 rural women of reproductive age compared with 15 per 100,000 in the West (the region with the highest density) (Hung, et al., 2017). Loss of hospital-based obstetric care in rural counties that are not adjacent to urban areas is associated with increased risk of birth in hospitals without obstetric units and of preterm birth (Kozhimannil, et al., 2018).

From 2003 to 2018, 1,231 (16%) independently owned rural pharmacies in the United States closed. These closures resulted in 630 rural communities that had at least one retail pharmacy in 2003 without any retail pharmacy in 2018. Pharmacy closures in rural areas can result in serious barriers to healthcare services, as rural pharmacies, particularly independently owned, are essential for both provision of medications and delivery of basic medical services (Salako, et al., 2018).

From 2008 to 2018, 472 nursing homes in 400 nonmetropolitan counties closed. In 2018, 10.1% of the 1,976 nonmetropolitan counties in the United States had no nursing homes (vs. 3.7% of the 1,166 metropolitan counties). Nursing home closures may seriously limit access to post-acute and long-term care services in rural areas due to limited access to home- and community-based alternatives (Sharma, et al., 2021).

## Summary of Trends

Number and percentage of quality measures for which micropolitan and noncore areas experienced better, same, or worse quality of care compared with reference group (large fringe metropolitan), 2016-2018



**Key:** n = number of measures.

**Better** = Population received better quality of care than reference group.

**Same** = Population and reference group received about the same quality of care.

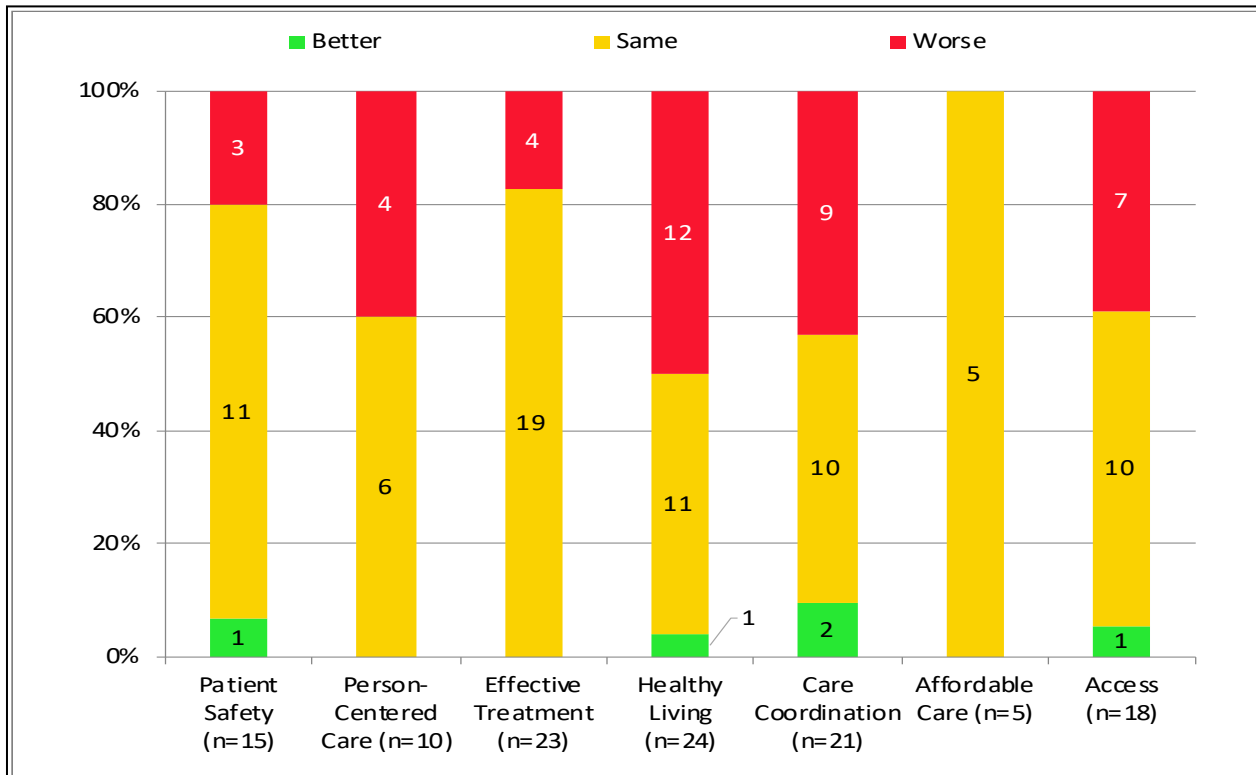
**Worse** = Population received worse quality of care than reference group.

**Note:** For each measure, the most recent data year available was analyzed. These data represent 2016-2018. Quality measures do not include Access to Care measures.

- Residents in micropolitan areas received:
  - Better quality of care for 4% (4 of 98) of the measures compared with those living in large fringe metropolitan areas,
  - Worse quality of care for 33% (32 of 98) of the measures compared with those living in large fringe metropolitan areas, and
  - The same quality of care for 63% (62 of 98) of the measures compared with those living in large fringe metropolitan areas.
- Residents in noncore areas received:
  - Better quality of care for 5% (5 of 93) of the measures compared with those living in large fringe metropolitan areas,

- Worse quality of care for 33% (31 of 93) of the measures compared with those living in large fringe metropolitan areas, and
- The same quality of care for 61% (57 of 93) of the measures compared with those living in large fringe metropolitan areas.

**Number and percentage of quality and access measures for which micropolitan areas experienced better, same, or worse quality of care compared with reference group (large fringe metropolitan), by priority areas and access, 2016-2018**



**Key:** n = number of measures.

**Better** = Population received better quality of care than reference group.

**Same** = Population and reference group received about the same quality of care.

**Worse** = Population received worse quality of care than reference group.

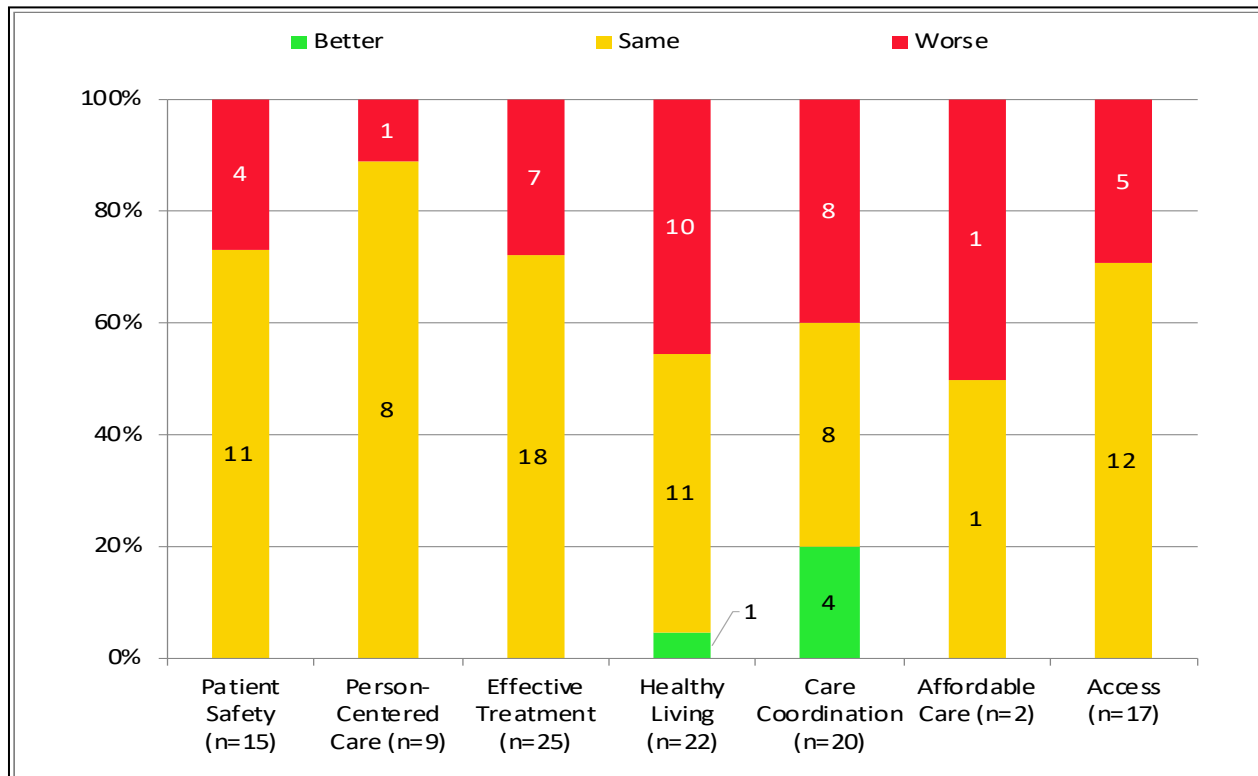
**Note:** For each measure, the most recent data year available was analyzed. These data represent 2016-2018.

- **Overall:** In the most recent year for which data are available, residents of micropolitan areas received worse care than residents of large fringe metropolitan areas on three or more measures in access and every priority area except affordable care.
- **Patient Safety:** Residents of micropolitan areas received better care for 7%, the same care for 73%, and worse care for 20% of the measures compared with residents of large fringe metropolitan areas.
- **Person-Centered Care:** Residents of micropolitan areas received the same care for 60% and worse care for 40% of the measures compared with residents of large fringe metropolitan areas.
- **Effective Treatment:** Residents of micropolitan areas received the same care for 83% and worse care for 17% of the measures compared with residents of large fringe metropolitan areas.



- **Healthy Living:** Residents of micropolitan areas received better care for 4%, the same care for 46%, and worse care for 50% of the measures compared with residents of large fringe metropolitan areas.
- **Care Coordination:** Residents of micropolitan areas received better care for 10%, the same care for 48%, and worse care for 43% of the measures compared with residents of large fringe metropolitan areas.
- **Affordable Care:** Residents of micropolitan areas and residents of large fringe metropolitan areas received the same care for 100% of the measures.
- **Access:** Residents of micropolitan areas received better care for 6%, the same care for 56%, and worse care for 39% of the measures compared with residents of large fringe metropolitan areas.

**Number and percentage of quality and access measures for which noncore areas experienced better, same, or worse quality of care compared with reference group (large fringe metropolitan), by priority areas and access, 2016-2018**



**Key:** n = number of measures.

**Better** = Population received better quality of care than reference group.

**Same** = Population and reference group received about the same quality of care.

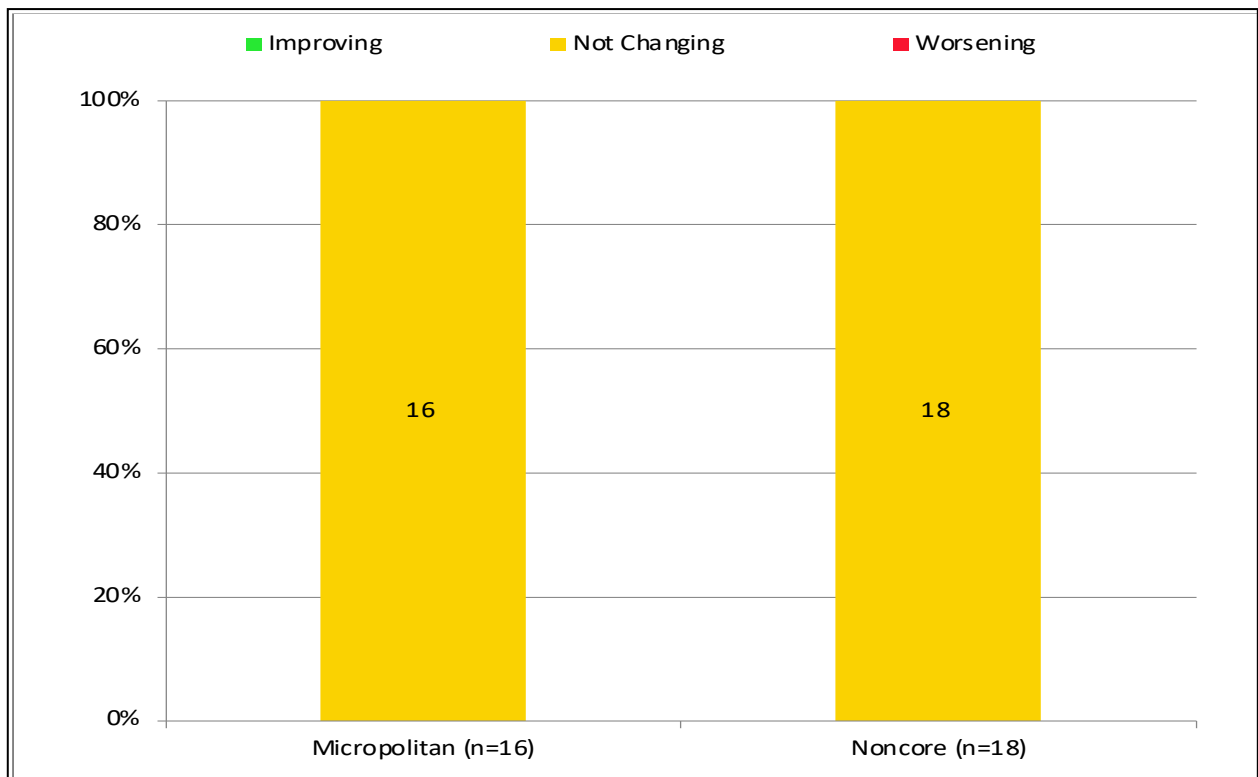
**Worse** = Population received worse quality of care than reference group.

**Note:** For each measure, the most recent data year available was analyzed. These data represent 2016-2018.

- **Overall:** In the most recent year for which data are available, residents of noncore areas received worse care than residents of large fringe metropolitan areas on one or more measures in all priority areas and access.
- **Patient Safety:** Residents of noncore areas received the same care for 73% and worse care for 27% of the measures compared with residents of large fringe metropolitan areas.

- **Person-Centered Care:** Residents of noncore areas received the same care for 89% and worse care for 11% of the measures compared with residents of large fringe metropolitan areas.
- **Effective Treatment:** Residents of noncore areas received the same care for 72% and worse care for 28% of the measures compared with residents of large fringe metropolitan areas.
- **Healthy Living:** Residents of noncore areas received better care for 5%, the same care for 50%, and worse care for 45% of the measures compared with residents of large fringe metropolitan areas.
- **Care Coordination:** Residents of noncore areas received better care for 20%, the same care for 40%, and worse care for 40% of the measures compared with residents of large fringe metropolitan areas.
- **Affordable Care:** Residents of noncore areas received the same care for 50% and worse care for 50% of the measures compared with residents of large fringe metropolitan areas.
- **Access:** Residents of noncore areas received the same care for 71% and worse care for 29% of the measures compared with residents of large fringe metropolitan areas.

**Number and percentage of quality measures for micropolitan and noncore areas with disparity at baseline for which disparities were improving, not changing, or worsening, through 2016-2018**



**Key:** n = number of measures.

**Improving** = Disparity is getting smaller at a rate greater than 1% per year.

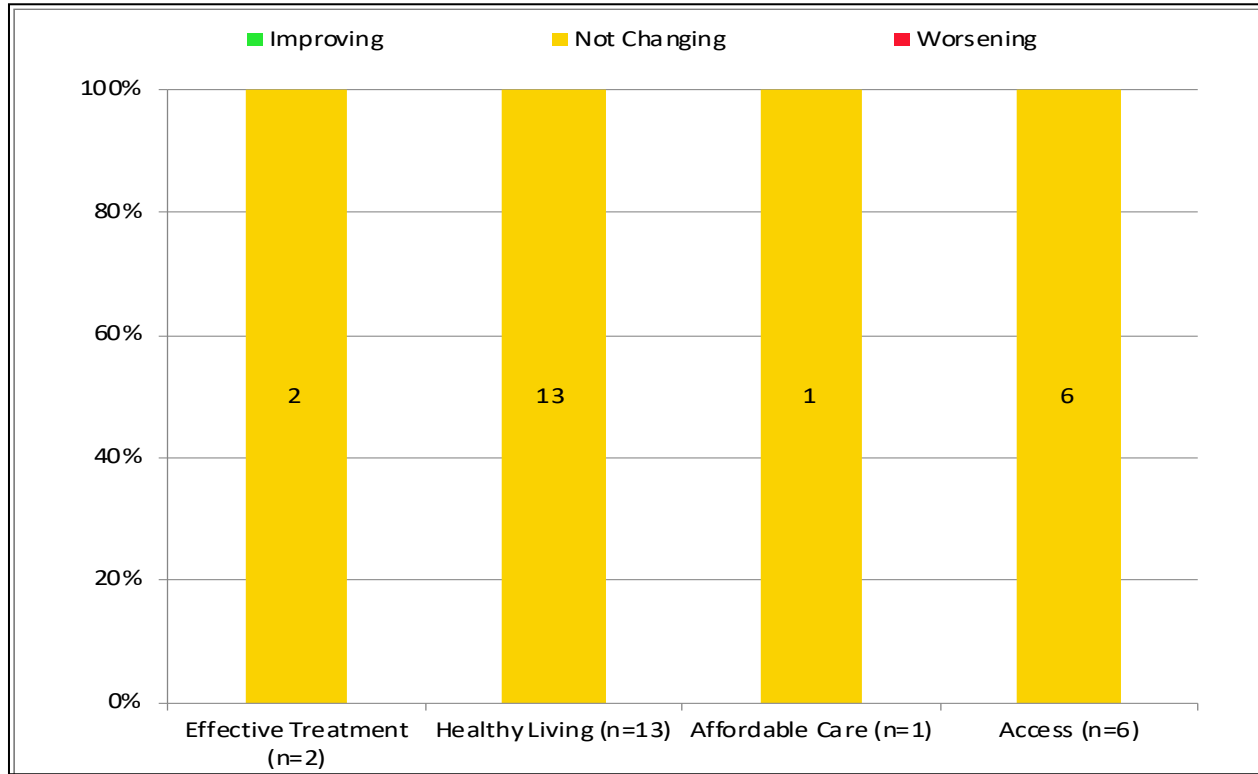
**Not Changing** = Disparity is not changing or is changing at a rate less than 1% per year.

**Worsening** = Disparity is getting larger at a rate greater than 1% per year.

**Note:** For each measure, the earliest and most recent data year available were analyzed through 2016-2018. Quality measures do not include Access to Care measures.

- **Overall:** Across all priority areas where there were quality measures with disparities at baseline, there was no reduction of disparities between people living in micropolitan areas or noncore areas and people living in large fringe metropolitan areas.

**Number and percentage of quality and access measures for micropolitan areas with disparity at baseline for which disparities were improving, not changing, or worsening, by priority areas and access, through 2017-2018**



**Key:** n = number of measures.

**Improving** = Disparity is getting smaller at a rate greater than 1% per year.

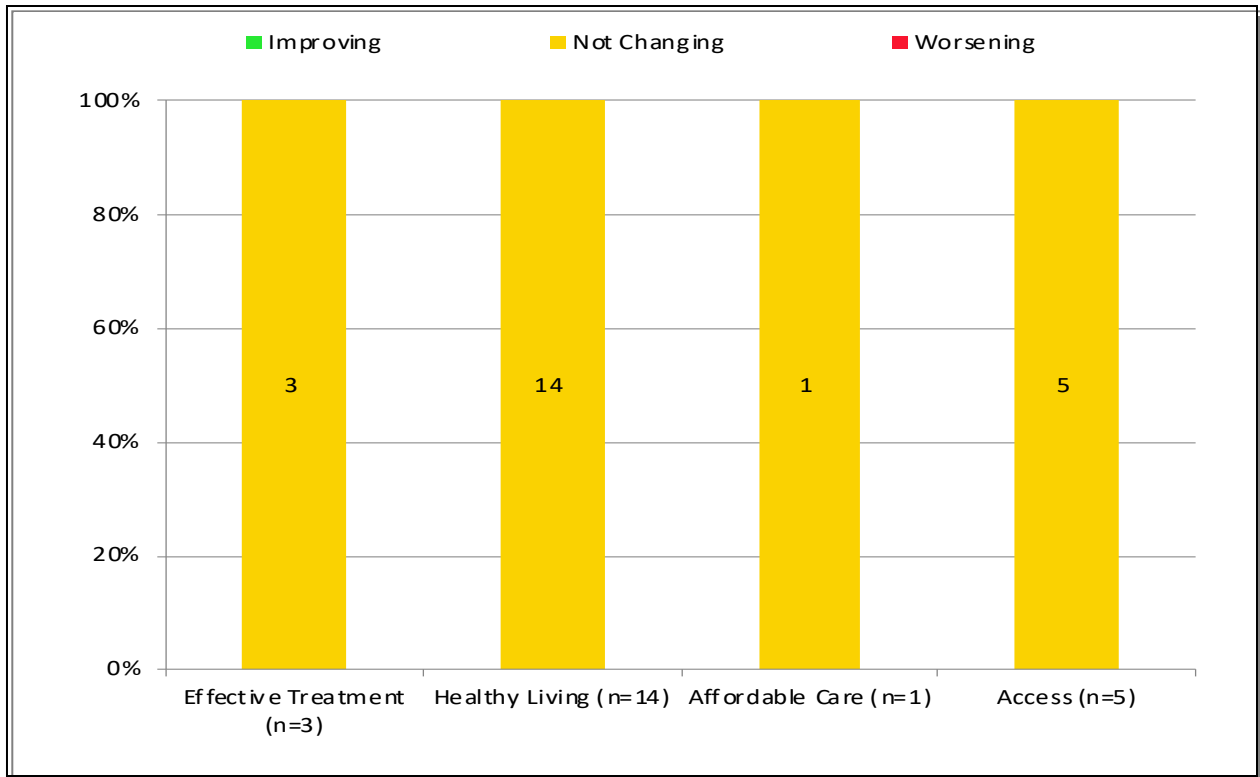
**Not Changing** = Disparity is not changing or is changing at a rate less than 1% per year.

**Worsening** = Disparity is getting larger at a rate greater than 1% per year.

**Note:** For each measure, the earliest and most recent data year available were analyzed through 2017-2018.

- **Overall:** Across all priority areas and access where there were quality measures with disparities at baseline, there was no reduction of disparities between people living in micropolitan areas and people living in large fringe metropolitan areas.

**Number and percentage of quality and access measures for noncore areas with disparity at baseline for which disparities were improving, not changing, or worsening, by priority areas and access, through 2016-2018**



**Key:** n = number of measures.

**Improving** = Disparity is getting smaller at a rate greater than 1% per year.

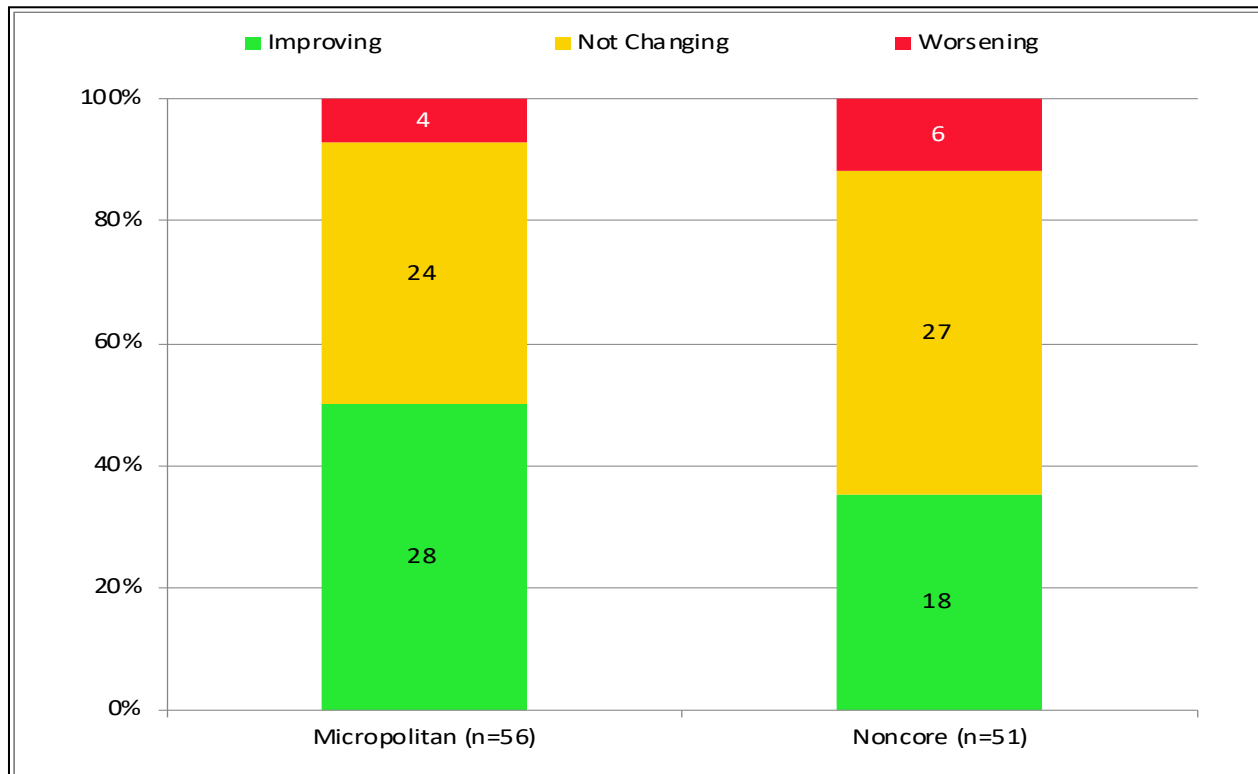
**Not Changing** = Disparity is not changing or is changing at a rate less than 1% per year.

**Worsening** = Disparity is getting larger at a rate greater than 1% per year.

**Note:** For each measure, the earliest and most recent data year available were analyzed through 2016-2018.

- **Overall:** Across all priority areas and access where there were quality measures with disparities at baseline, there was no reduction of disparities between people living in noncore areas and people living in large fringe metropolitan areas.

**Number and percentage of all quality measures for micropolitan and noncore areas that were improving, not changing, or worsening, through 2016-2018**



**Key:** n = number of measures.

**Improving** = Quality is going in a positive direction at an average annual rate greater than 1% per year.

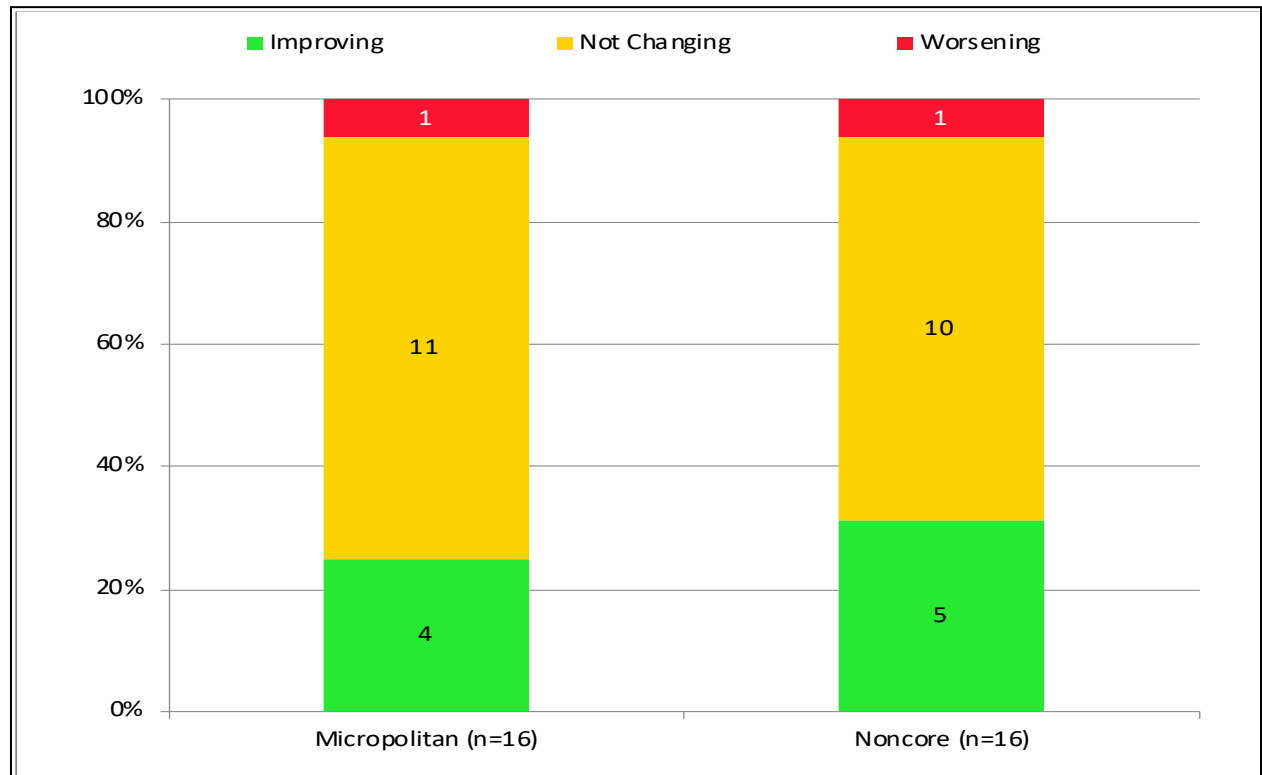
**Not Changing** = Quality is not changing or is changing at an average annual rate less than 1% per year.

**Worsening** = Quality is going in a negative direction at an average annual rate greater than 1% per year.

**Note:** For each measure, the earliest and most recent data year available were analyzed through 2016-2018. Quality measures do not include Access to Care measures.

- The quality of care for residents living in micropolitan areas:
  - Improved for 50% (28 of 56) of the measures,
  - Worsened for 7% (4 of 56) of the measures, and
  - Did not change for 43% (24 of 56) of the measures.
- The quality of care for residents living in noncore areas:
  - Improved for 35% (18 of 51) of the measures,
  - Worsened for 12% (6 of 51) of the measures, and
  - Did not change for 53% (27 of 51) of the measures.

**Number and percentage of all access measures for micropolitan and noncore areas that were improving, not changing, or worsening, through 2016-2018**



**Key:** n = number of measures.

**Improving** = Access is going in a positive direction at an average annual rate greater than 1% per year.

**Not Changing** = Access is not changing or is changing at an average annual rate less than 1% per year.

**Worsening** = Access is going in a negative direction at an average annual rate greater than 1% per year.

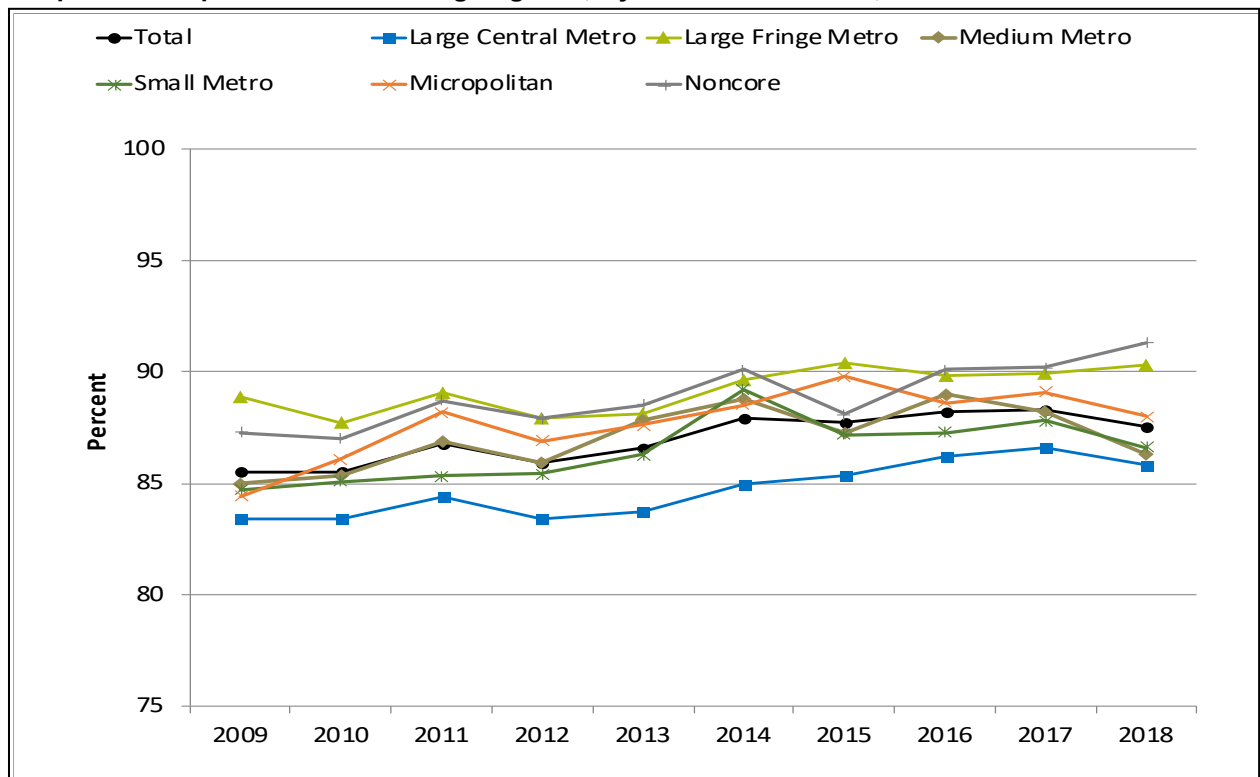
**Note:** For each measure, the earliest and most recent data year available were analyzed through 2016-2018.

- Access to care for residents living in micropolitan areas:
  - Improved for 25% (4 of 16) of the measures,
  - Worsened for 6% (1 of 16) of the measures, and
  - Did not change for 69% (11 of 16) of the measures.
  
- Access to care for residents living in noncore areas:
  - Improved for 31% (5 of 16) of the measures,
  - Worsened for 6% (1 of 16) of the measures, and
  - Did not change for 63% (10 of 16) of the measures.

## Access to Healthcare

### Specific Source of Ongoing Care

People with a specific source of ongoing care, by residence location, 2009-2018



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2009-2018.

**Denominator:** U.S. civilian noninstitutionalized population.

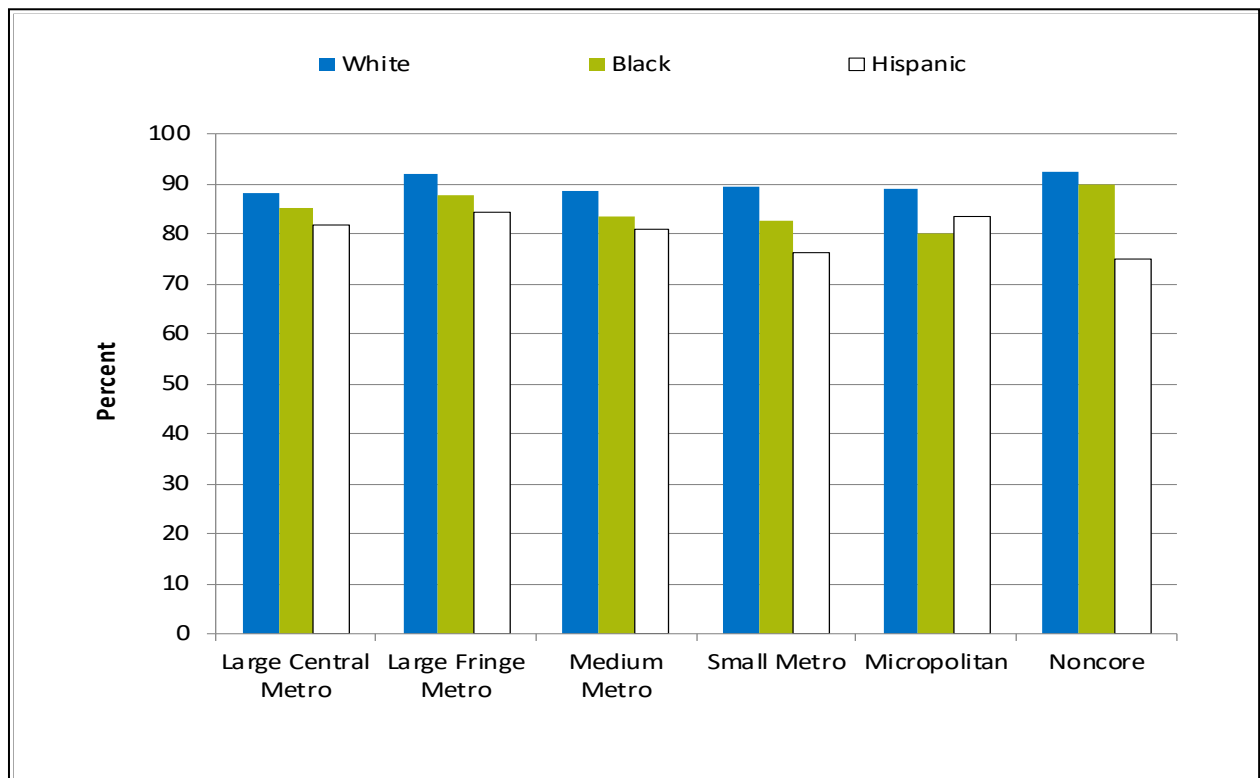
**Note:** A specific source of primary care includes urgent care/walk-in clinic, doctor's office, clinic, health center facility, hospital outpatient clinic, health maintenance or preferred provider organization, military or other Veterans Affairs healthcare facility, or some other place. A hospital emergency room is not included as a specific source of primary care.

- **Importance:** People with a usual source of care have better health outcomes and fewer disparities and costs (ODPHP, 2017). "Having a usual source of health care has been consistently associated with greater use of preventive services, decreased use of emergency services, and with patients' ratings of quality and satisfaction with care" (Finney Rutten, et. al., 2015).
- **Overall Rate:** In 2018, the percentage of people with a specific source of ongoing care was 87.5%.
- **Trends:**
  - From 2009 to 2018, the percentage of people with a specific source of ongoing care improved overall and for people in all residence locations.

- **Groups With Disparities in 2018:**

- The percentage of people with a specific source of ongoing care was lower among residents of large central metropolitan areas (85.8%), medium metropolitan areas (86.3%), and small metropolitan areas (86.6%) compared with residents of large fringe metropolitan areas (90.3%).

**People with a specific source of ongoing care, by residence location, stratified by race/ethnicity, 2018**



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2018.

**Denominator:** U.S. civilian noninstitutionalized population.

**Note:** White and Black are non-Hispanic. Hispanic includes all races. A specific source of primary care includes urgent care/walk-in clinic, doctor’s office, clinic, health center facility, hospital outpatient clinic, health maintenance or preferred provider organization, military or other Veterans Affairs health care facility, or some other place. A hospital emergency room is not included as a specific source of primary care.

- **Importance:** People with a usual source of care have better health outcomes and fewer disparities and costs (ODPHP, 2017). “Having a usual source of health care has been consistently associated with greater use of preventive services, decreased use of emergency services, and with patients’ ratings of quality and satisfaction with care” (Finney Rutten, et. al., 2015).

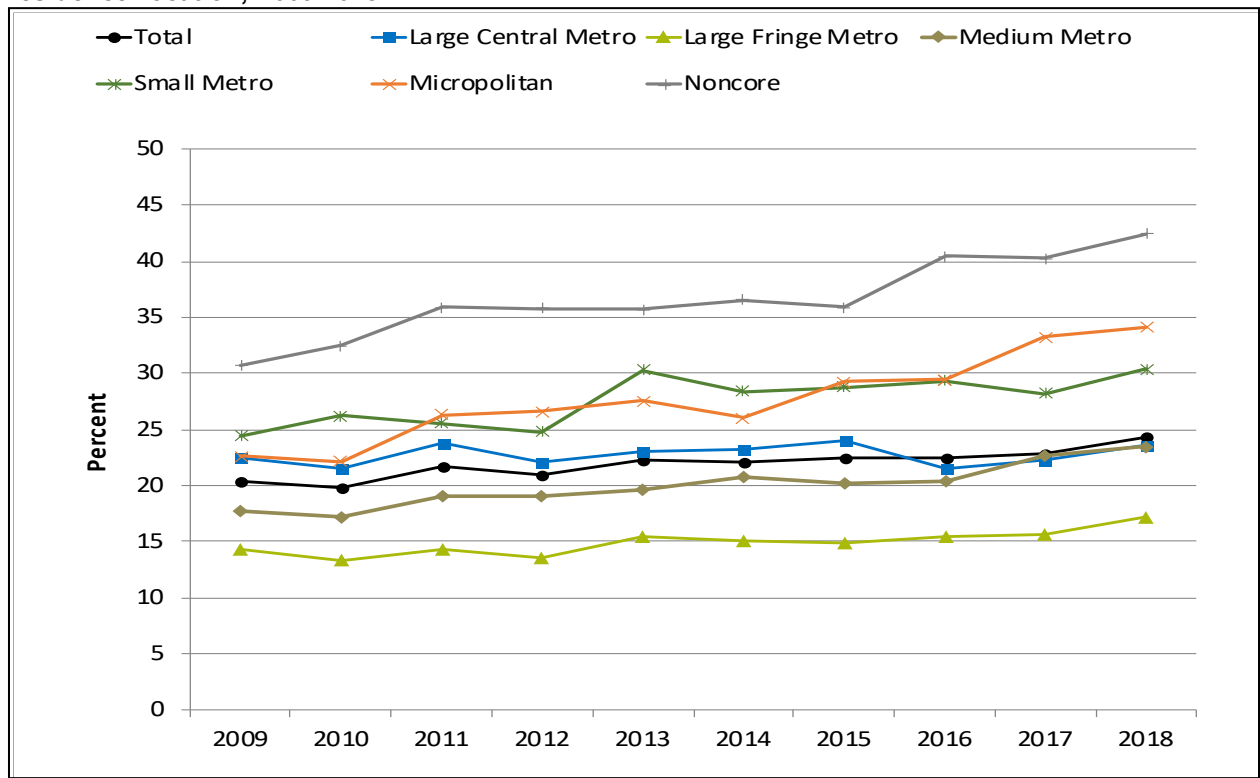


• **Groups With Disparities in 2018:**

- Within large central metropolitan areas, large fringe metropolitan areas, medium metropolitan areas, and small metropolitan areas in 2018, the percentage of Hispanic (81.9, 84.2, 80.7, and 76.0%, respectively) and Black (85.1, 87.5, 83.4, and 82.6%, respectively) individuals with a specific source of ongoing care was lower than for White individuals (88.2, 92.1, 88.7, and 89.3%, respectively).
- For Whites, the percentage of individuals in large central metropolitan areas (88.2%), medium metropolitan areas (88.7%), small metropolitan areas (89.3%), and micropolitan areas (88.8%) with a specific source of ongoing care was lower than in large fringe metropolitan areas (92.1%).

**Hospital, Emergency Room, or Clinic as Source of Ongoing Care**

People who identified a hospital, emergency room, or clinic as a source of ongoing care, by residence location, 2009-2018



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2009-2018.

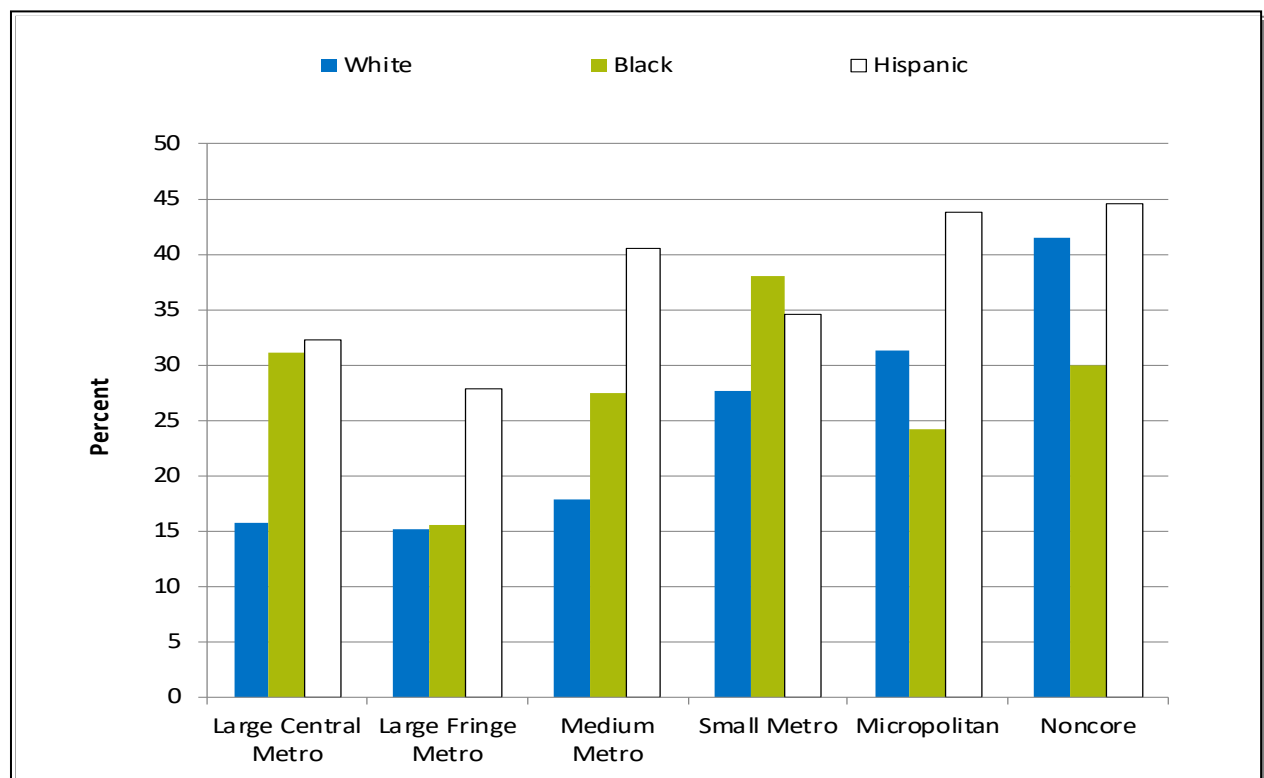
**Denominator:** U.S. civilian noninstitutionalized population.

**Note:** For this measure, lower rates are better.

- **Importance:** Having a usual primary care provider is associated with greater patient trust in the provider, good patient-provider communication, and increased likelihood that patients will receive appropriate care (ODPHP, 2017). Rural areas face chronic shortages of primary care providers (Larson, et al., 2020), which may result in using emergency departments as a source of ongoing care (Larson, et al., 2020).

- **Overall Rate:** In 2018, the percentage of people who identified a hospital, emergency room, or clinic as a source of ongoing care was 24.3%.
- **Trends:**
  - From 2009 to 2018, the percentage of people who identified a hospital, emergency room, or clinic as a source of ongoing care increased overall and across all areas except large central metropolitan areas, where the percentage showed no change.
- **Groups With Disparities in 2018:**
  - The percentage of people who identified a hospital, emergency room, or clinic as a source of ongoing care in large central metropolitan (23.6%), medium metropolitan (23.5%), small metropolitan (30.4%), micropolitan (34.1%), and noncore (42.4%) areas was higher compared with large fringe metropolitan areas (17.2%).

**People who identified a hospital, emergency room, or clinic as a source of ongoing care, by residence location, stratified by race/ethnicity, 2018**



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2018.

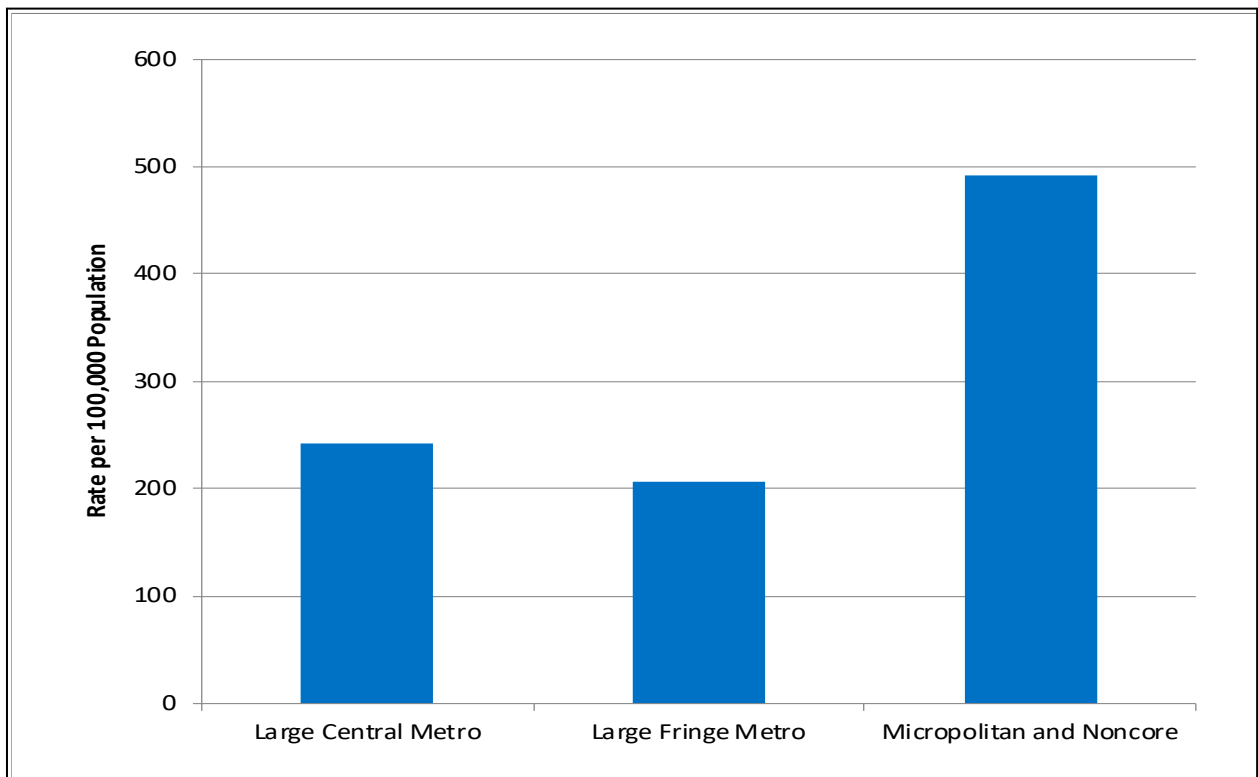
**Denominator:** U.S. civilian noninstitutionalized population.

**Note:** For this measure, lower rates are better. White and Black are non-Hispanic. Hispanic includes all races.

- **Importance:** Having a usual primary care provider is associated with greater patient trust in the provider, good patient-provider communication, and increased likelihood that patients will receive appropriate care (ODPHP, 2017). Rural areas face chronic shortages of primary care providers (Larson, et al., 2020), which may result in using emergency departments as a source of ongoing care.
- **Groups With Disparities in 2018:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas and medium metropolitan areas, the percentage of Hispanic (32.2% and 40.5%, respectively) and Black (31.2% and 27.4%, respectively) individuals who reported using a hospital, emergency room, or clinic as a source of ongoing care was higher than the percentage for White individuals residing in similar areas (15.8% and 17.9%, respectively).
    - ◆ In large fringe metropolitan areas and micropolitan areas, the percentage of Hispanic individuals (27.9% and 43.7%, respectively) who reported using a hospital, emergency room, or clinic as a source of ongoing care was higher than the percentage for White individuals residing in similar areas (15.1% and 31.3%, respectively).
    - ◆ In small metropolitan areas, the percentage of Black individuals (38.0%) who reported using a hospital, emergency room, or clinic as a source of ongoing care was higher than the percentage for White individuals residing in similar areas (27.7%).
  - **Disparities by Group:**
    - ◆ For Hispanics, the percentage of people who reported using a hospital, emergency room, or clinic as a source of ongoing care was higher for individuals residing in medium metropolitan areas (40.5 percent) and micropolitan areas (43.7%) than for those residing in large fringe metropolitan areas (27.9%).
    - ◆ For Blacks, the percentage of people who reported using a hospital, emergency room, or clinic as a source of ongoing care was higher for individuals residing in large central metropolitan areas (31.2%), medium metropolitan areas (27.4%), and small metropolitan areas (38.0%) than for those residing in large fringe metropolitan areas (15.6%).
    - ◆ For Whites, the percentage of people who reported using a hospital, emergency room, or clinic as a source of ongoing care was higher for individuals residing in small metropolitan areas (27.7%), micropolitan areas (31.3%), and noncore areas (41.4%) than for those residing in large fringe metropolitan areas (15.1%).

## Emergency Services

Emergency department visits with a principal diagnosis related to dental conditions per 100,000 population, by residence location, 2017

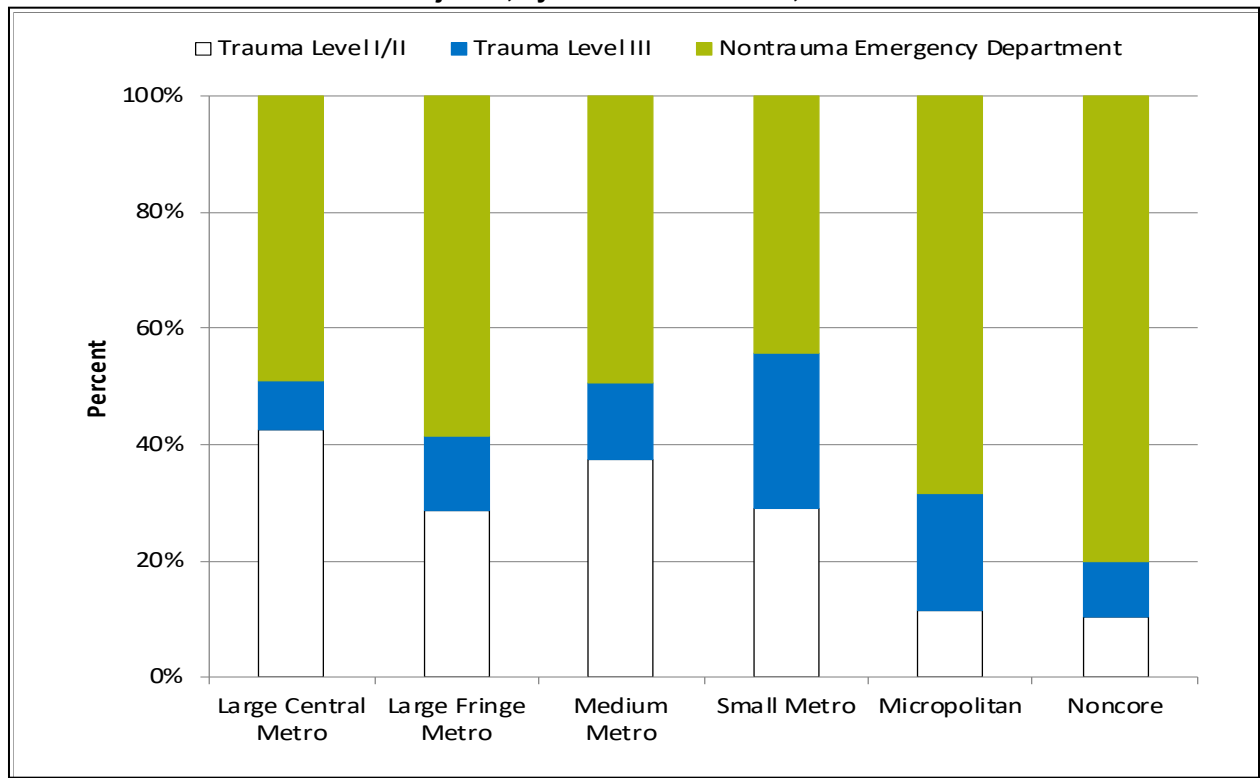


**Source:** Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, National Emergency Department Sample, 2017.

**Denominator:** U.S. resident population.

**Note:** For this measure, lower rates are better. Data not available for medium and small metropolitan areas.

- **Importance:** Patients with limited access to community dental providers may seek dental care in emergency departments. Dental emergencies have higher readmissions than all other medical discharges (Chalmers, 2017).
- **Groups With Disparities in 2017:**
  - The rate of emergency department visits for dental conditions was higher in micropolitan and noncore areas (491.7 per 100,000 population) compared with large fringe metropolitan areas (207.1 per 100,000 population).

**Trauma center utilization for all injuries, by residence location, 2017**

**Source:** Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, National Emergency Department Sample, 2017.

**Denominator:** Emergency department visits related to all injuries.

**Note:** Trauma centers treat both adults and children. Designation of trauma center levels I, II, and III is based on criteria developed by the American College of Surgeons' Committee on Trauma. Level I centers have the resources available to treat the most severely injured patients. Injury records were identified with a principal diagnosis related to injury defined using International Classification of Diseases, 10<sup>th</sup> Revision diagnosis codes.

- **Importance:** Trauma centers provide care for injured patients with trauma-related injuries. Most patients with severe injuries are treated in Level I or II trauma centers, but access to trauma centers may be more difficult for residents of rural areas.
- **Groups With Disparities in 2017:**
  - **Level I/II Trauma Centers:**
    - ◆ Injured residents of large central (42.5%) and medium (37.6%) metropolitan areas who visited an emergency department were more likely to use a Trauma Level I/II center than injured residents of large fringe metropolitan areas (28.8%).
    - ◆ Injured residents of micropolitan (11.6%) and noncore (10.2%) areas who visited an emergency department were less likely to use a Trauma Level I/II center than injured residents of large fringe metropolitan areas (28.8%).

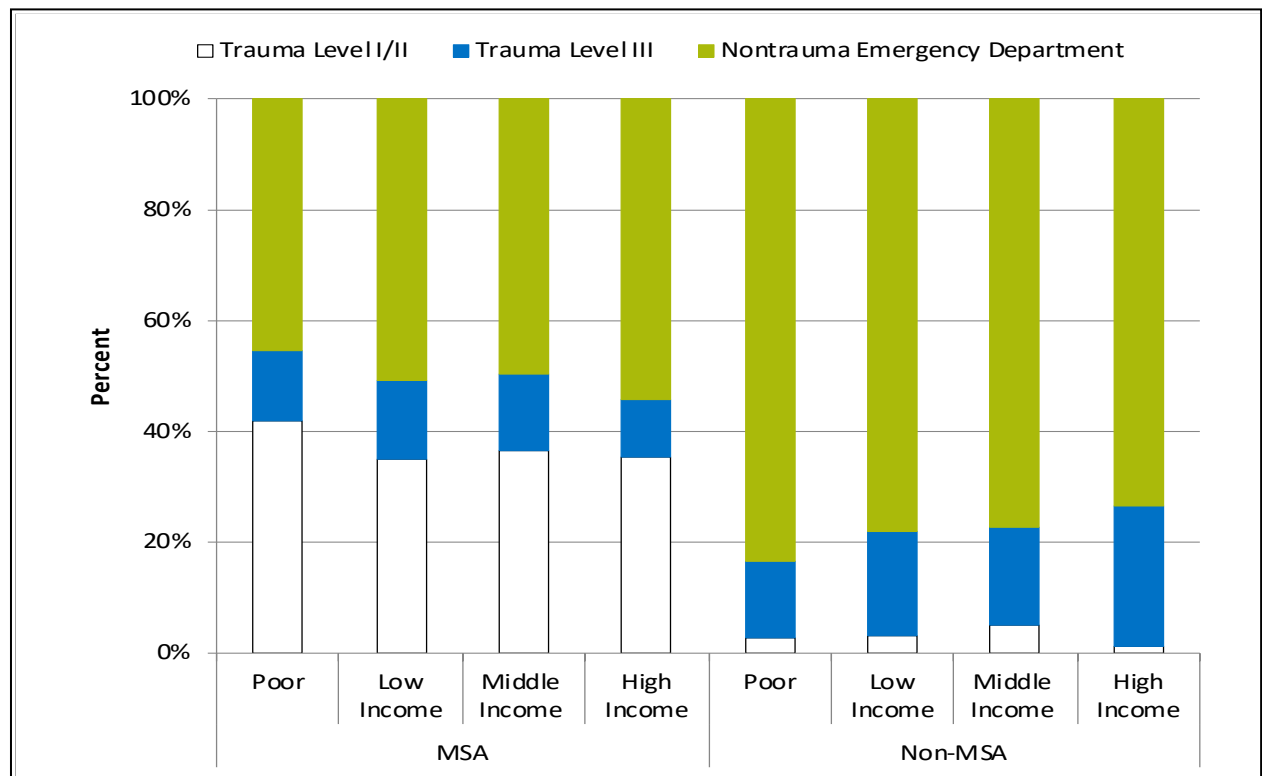
■ **Level III Trauma Centers:**

- ◆ Injured residents of small metropolitan areas (26.8%) who visited an emergency department were more likely to use a Trauma Level III center than injured residents of large fringe metropolitan areas (12.8%).

■ **Nontrauma Emergency Departments:**

- ◆ Injured residents of large central (49.1%), medium (49.6%), and small (44.1%) metropolitan areas who visited an emergency department were less likely to use a nontrauma emergency department than injured residents of large fringe metropolitan areas (58.4%).
- ◆ Injured residents of micropolitan (68.3%) and noncore (80.3%) areas who visited an emergency department were more likely to use a nontrauma emergency department than injured residents of large fringe metropolitan areas (58.4%).

**Trauma center utilization for all injuries, by center location, stratified by income, 2017**



**Key:** MSA = located in a metropolitan statistical area; non-MSA = not located in an MSA.

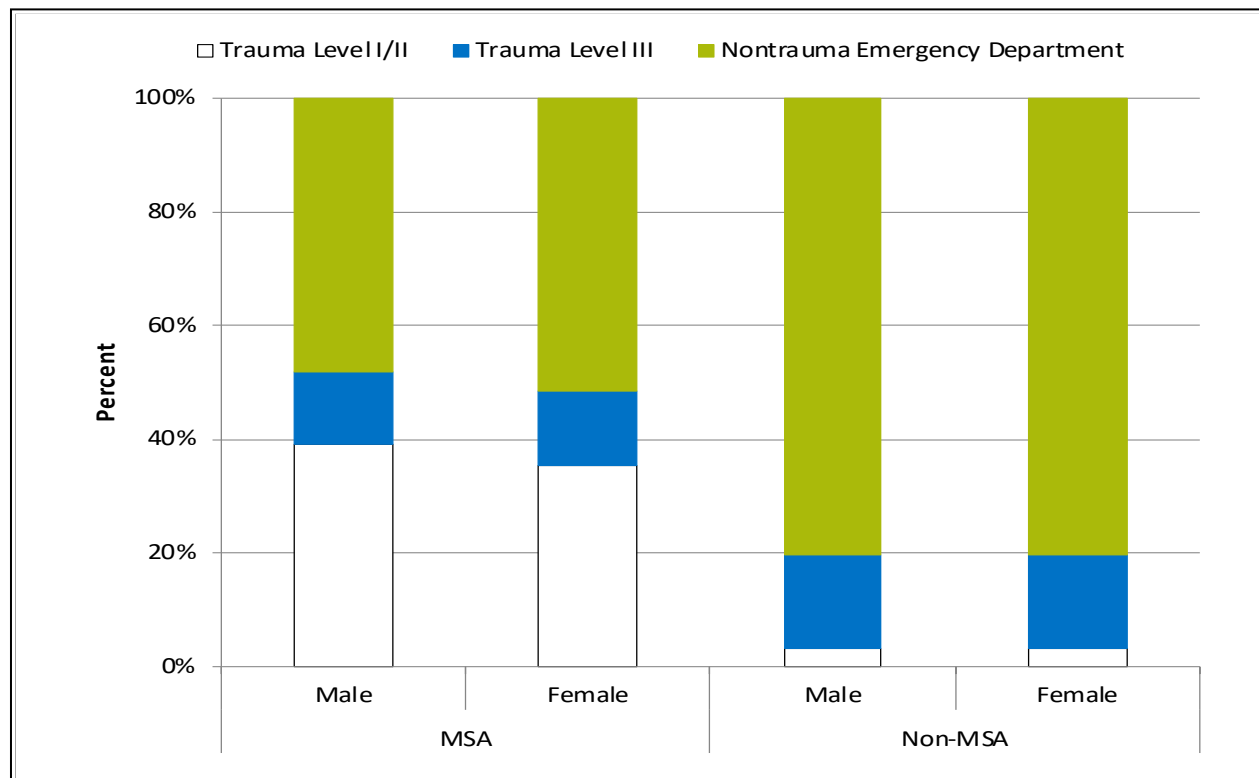
**Source:** Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, National Emergency Department Sample, 2017.

**Denominator:** Emergency department visits related to all injuries.

**Note:** Trauma centers treat both adults and children. Designation of trauma center levels I, II, and III is based on criteria developed by the American College of Surgeons' Committee on Trauma. Level I centers have the resources available to treat the most severely injured patients. Injury records were identified with a principal diagnosis related to injury defined using International Classification of Diseases, 10<sup>th</sup> Revision diagnosis codes. Income categories are based on the median income of the patient's ZIP Code. Poor = first quartile (lowest income), low income = second quartile, middle income = third quartile, and high income = fourth quartile (highest income).

- **Importance:** Trauma centers provide care for injured patients with trauma-related injuries. Most patients with severe injuries are treated in Level I or II trauma centers, but access to trauma centers may be more difficult for residents of rural areas.
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ Injured residents living outside metropolitan statistical areas who were poor (2.7%), low income (3.2%), middle income (4.9%), and high income (1.4%) were less likely to use a Trauma Level I/II center than injured residents of metropolitan statistical areas with similar levels of income (41.7%, 34.8%, 36.7%, and 35.3%, respectively).
    - ◆ Injured residents living outside metropolitan statistical areas who were poor (83.6%), low income (78.0%), middle income (77.3%), and high income (73.5%) were more likely to use a nontrauma emergency department than injured residents of metropolitan statistical areas with similar levels of income (45.4%, 50.9%, 49.7%, and 54.2%, respectively).
  - **Disparities by Group:**
    - ◆ Injured residents living in metropolitan statistical areas who were poor (41.7%) were more likely to use a Trauma Level I/II center than injured residents of metropolitan statistical areas who were high income (35.3%).
    - ◆ Injured residents living in metropolitan statistical areas who were poor (45.4%) were less likely to use a nontrauma emergency department than injured residents of metropolitan statistical areas who were high income (54.2%).

**Trauma center utilization for all injuries, by center location, stratified by gender, 2017**



**Key:** MSA = located in a metropolitan statistical area; non-MSA = not located in an MSA.

**Source:** Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, National Emergency Department Sample, 2017.

**Denominator:** Emergency department visits related to all injuries.

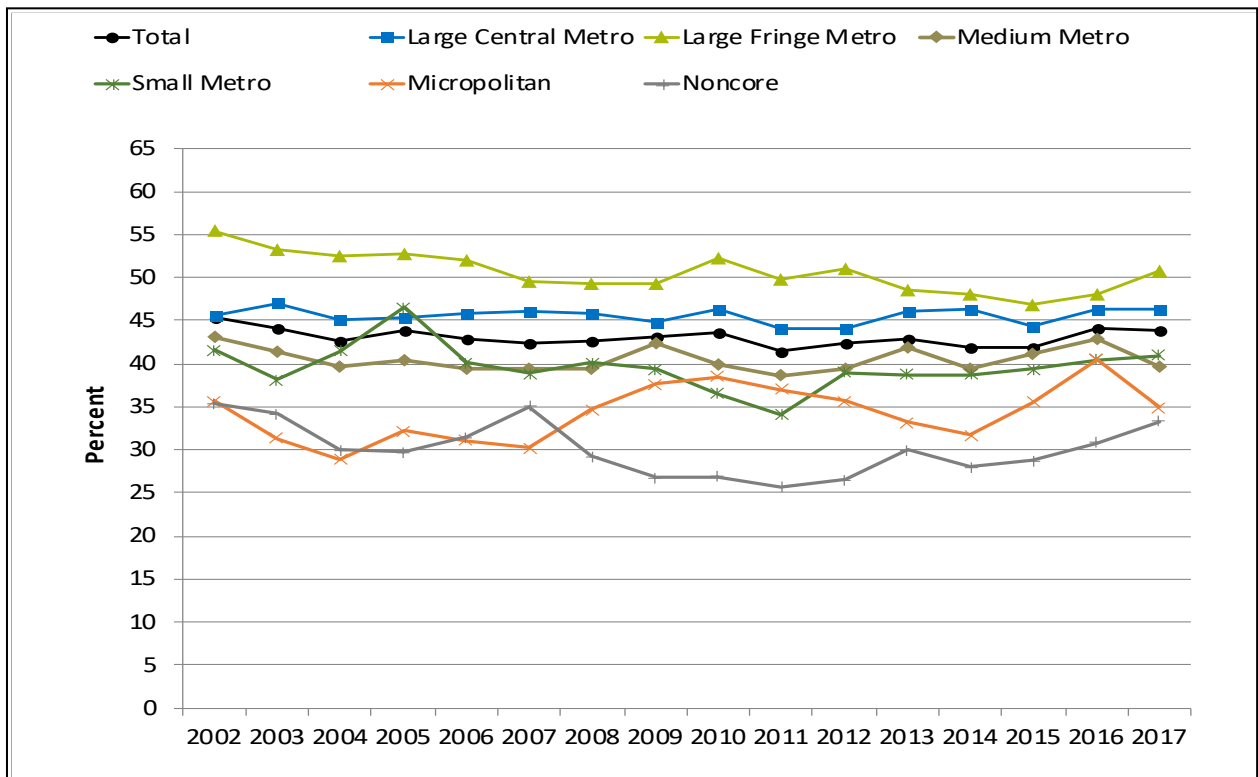
**Note:** Trauma centers treat both adults and children. Designation of trauma center levels I, II, and III is based on criteria developed by the American College of Surgeons' Committee on Trauma. Level I centers have the resources available to treat the most severely injured patients. Injury records were identified with a principal diagnosis related to injury defined using International Classification of Diseases, 10<sup>th</sup> Revision diagnosis codes.

- **Importance:** Trauma centers provide care for injured patients with trauma-related injuries. Most patients with severe injuries are treated in Level I or II trauma centers, but access to trauma centers may be more difficult for residents of rural areas.
- **Groups With Disparities in 2017:**
  - Injured residents living outside metropolitan statistical areas who were male (3.1%) and female (3.1%) were less likely to use a Trauma Level I/II center than injured residents of metropolitan statistical areas with the same gender (39.2% and 35.4%, respectively).
  - Injured residents living outside metropolitan statistical areas who were male (16.7%) were more likely to use a Trauma Level III center than injured residents of metropolitan statistical areas with the same gender (12.7%).
  - Injured residents living outside metropolitan statistical areas who were male (80.2%) and female (80.3%) were more likely to use a nontrauma emergency department than injured residents of metropolitan statistical areas with the same gender (48.1% and 51.5%, respectively).



## Provider Availability After Hours

People with a usual source of care, excluding hospital emergency rooms, who has office hours at night or on weekends, by residence location, 2002-2017

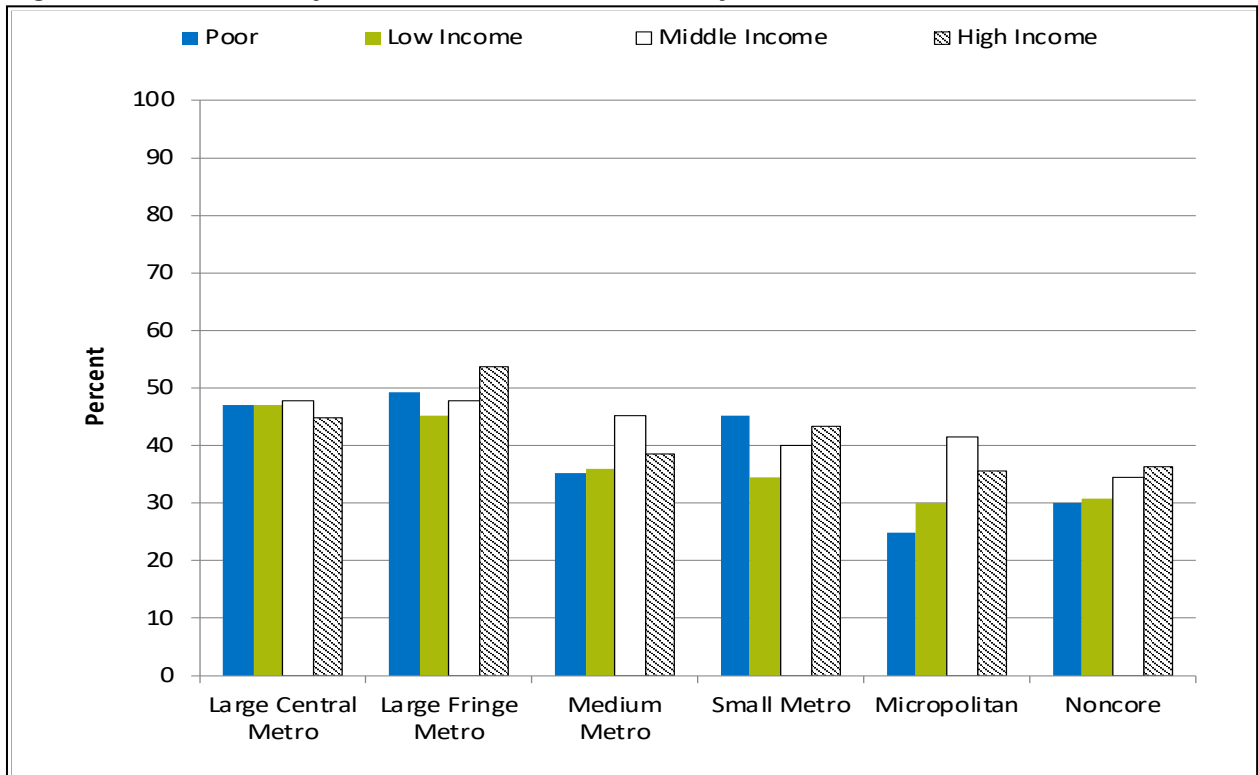


**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2017.

**Denominator:** U.S. civilian noninstitutionalized population who reported having a usual source of care.

- **Importance:** Rural areas often rely on “a patchwork of small rural hospitals, clinics, small primary care practices, nursing homes, and physician practices for many of their health care needs” (HHS, Rural Action Plan, 2020 ). With the chronic shortage of clinicians and challenges with transportation (HHS, Rural Action Plan, 2020), access to care on weekends may be limited and difficult to get.
- **Overall Rate:** In 2017, the percentage of people with a usual source of care with office hours at night or on weekends was 43.9%.
- **Groups With Disparities in 2017:**
  - The percentage of people with a usual source of care with office hours at night or on weekends was lower in medium metropolitan (39.7%), small metropolitan (41.0%), micropolitan (34.9%), and noncore areas (33.3%) compared with large fringe metropolitan areas (50.7%).

**People with a usual source of care, excluding hospital emergency rooms, who has office hours at night or on weekends, by residence location, stratified by income, 2017**



**Source:** Agency for Healthcare Research and Quality, Medicare Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized population who reported having a usual source of care.

**Note:** Poor, low income, middle income, and high income indicate individuals whose household income is <100%, 100-199%, 200-399%, and 400% or more of the Federal poverty level, respectively.

- **Importance:** Rural areas often rely on “a patchwork of small rural hospitals, clinics, small primary care practices, nursing homes, and physician practices for many of their health care needs” (HHS, Rural Action Plan, 2020 ). With the chronic shortage of clinicians and challenges with transportation (HHS, Rural Action Plan, 2020), access to care on weekends may be limited and difficult to get.

- **Groups With Disparities in 2017:**

- **Disparities by Location:**

- ◆ Within large fringe metropolitan areas, the percentage of individuals with low income (45.2%) and middle income (47.9%) reporting a usual source of care with office hours at night or on weekends was lower than for individuals with high incomes (53.6%).

- **Disparities by Group:**

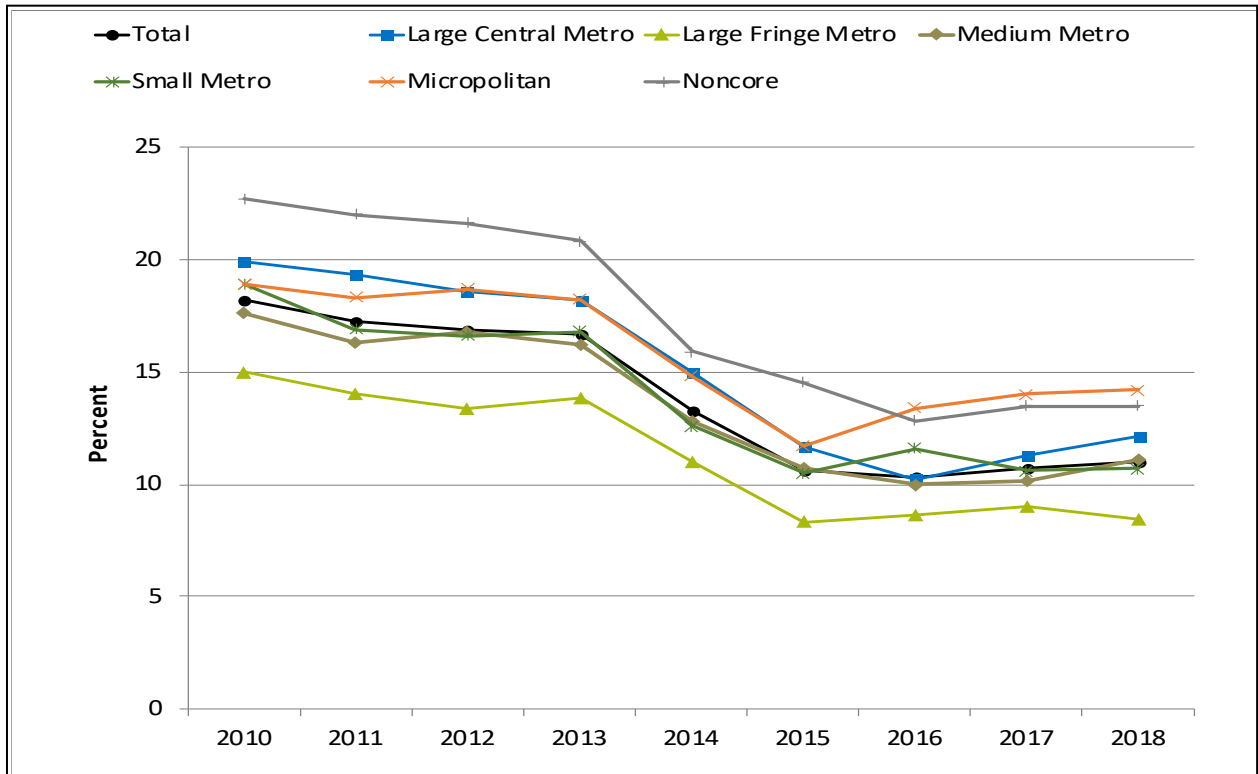
- ◆ Among individuals with high incomes, the percentage of those living in all other areas (44.8, 38.7, 43.3, 35.7, and 36.5% for large central metropolitan, medium metropolitan, small metropolitan, micropolitan, and noncore areas, respectively)

reporting a usual source of care with office hours at night or on weekends was lower than for those living in large fringe metropolitan areas (53.6%)

- ◆ Among individuals with middle incomes, the percentage of those living in noncore areas (34.3%) reporting a usual source of care with office hours at night or on weekends was lower than for those living in large fringe metropolitan areas (47.9%).
- ◆ Among individuals with low incomes, the percentage of those living in medium metropolitan areas (35.9%), small metropolitan areas (34.6%), micropolitan areas (30.2%), and noncore areas (30.8%) reporting a source of care with office hours at night or on weekends was lower than for those living in large fringe metropolitan areas (45.2%).
- ◆ Among poor individuals, the percentage of those living in medium metropolitan areas (35.1%), micropolitan areas (25.0%), and noncore areas (30.0%) reporting a source of care with office hours at night or on weekends was lower than for those living in large fringe metropolitan areas (49.3%).

## Uninsurance

People under age 65 without health insurance, by residence location, 2010-2018



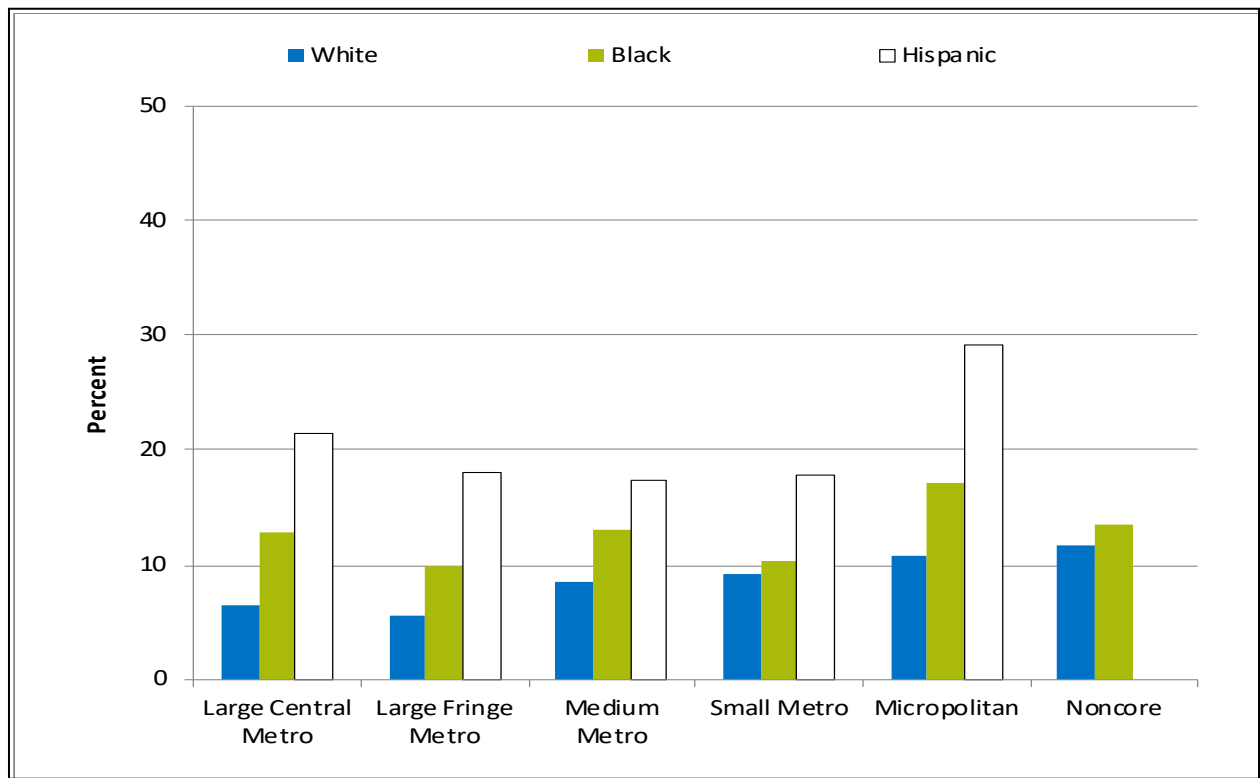
**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2010-2018.

**Denominator:** Number of people under age 65 without health insurance.

**Note:** For this measure, lower rates are better.

- **Importance:** Uninsured rates among nonelderly adults in rural areas decreased between 2010 and 2019 after the passage of the Affordable Care Act. However, uninsured rates in non-Medicaid expansion States are twice as high as uninsured rates in Medicaid expansion States (Turrini, et al., 2021). Without health insurance, people are less likely to have a regular healthcare provider and are more likely to skip routine healthcare (ODPHP, 2021a). People under age 65 without insurance coverage have worse access to care than people who are insured. Studies repeatedly show that uninsured people are less likely than those with insurance to receive preventive care and services for major health conditions and chronic disease (Tolbert, et al., 2020).
- **Overall Rate:** In 2018, the percentage of people under age 65 without health insurance was 11.0%.
- **Trends:**
  - Between 2010 and 2018, the percentage of people under age 65 without health insurance decreased overall and across all residence locations.
- **Groups With Disparities in 2018:**
  - The percentage of people under age 65 without health insurance was higher for people living in large central metropolitan (12.1%), medium metropolitan (11.1%), small metropolitan (10.7%), micropolitan (14.2%), and noncore (13.5%) areas compared with those living in large fringe metropolitan areas (8.4%).

### People under age 65 without health insurance, by residence location, stratified by race/ethnicity, 2018



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2018.

**Denominator:** Number of people under age 65 without health insurance.

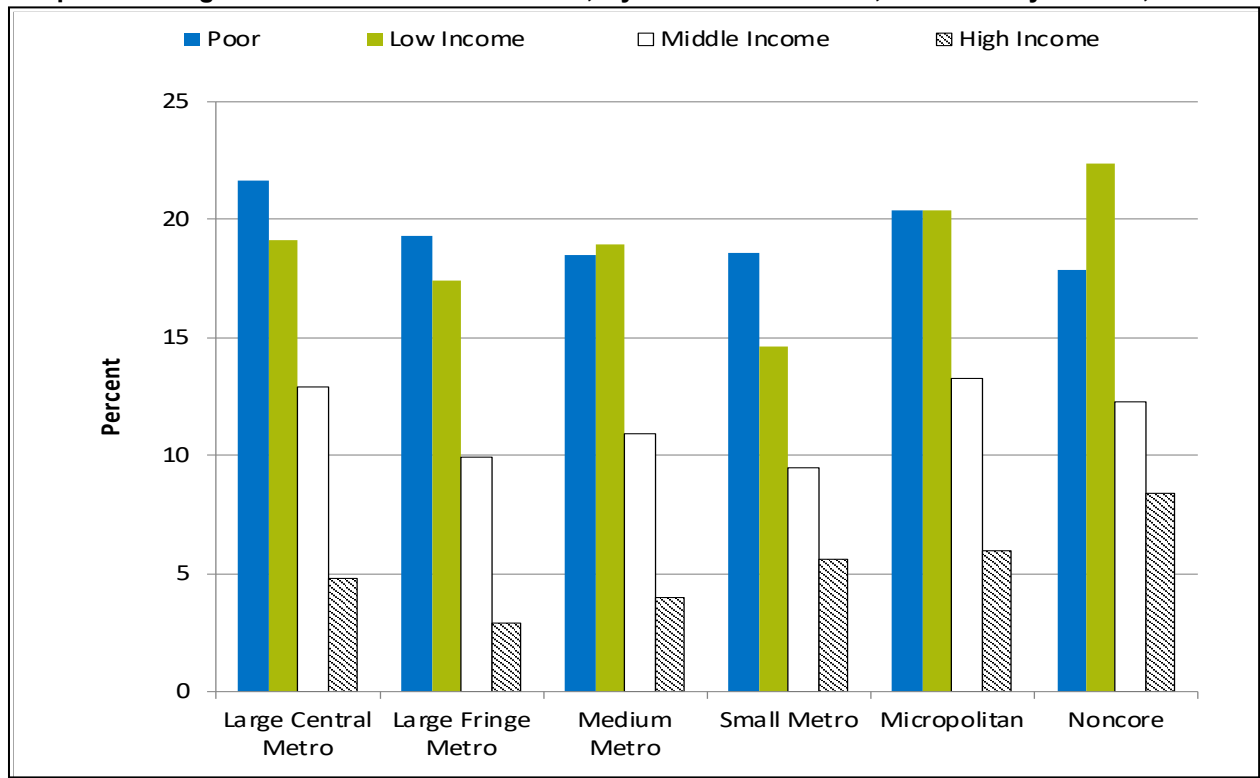
**Note:** For this measure, lower rates are better. White and Black are non-Hispanic. Hispanic includes all races. Data for noncore areas for Hispanics are not included because they did not meet criteria for statistical reliability.

- **Importance:** Uninsured rates among nonelderly adults in rural areas decreased between 2010 and 2019 after the passage of the Affordable Care Act. However, uninsured rates in non-Medicaid expansion States are twice as high as uninsured rates in Medicaid expansion States (Turrini, et al., 2021). Without health insurance, people are less likely to have a regular healthcare provider and are more likely to skip routine healthcare (ODPHP, 2021a). People of color have faced longstanding disparities in health coverage that contribute to disparities in health. People of color are more likely to be uninsured than White people (Artiga, et al., 2021). Reflecting geographic variation in income and availability of public coverage, people who live in the South or West are more likely to be uninsured (Tolbert, et al., 2020).
- **Groups With Disparities in 2018:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, the percentage of Hispanic (21.5%) and Black (12.8%) residents under age 65 without health insurance was higher than the percentage of White residents (6.6%) without health insurance.

- ◆ In large fringe metropolitan areas, the percentage of Hispanic (18.1%) and Black (10%) residents under age 65 without health insurance was higher than the percentage of White residents (5.6%) without health insurance.
- ◆ In medium metropolitan areas, the percentage of Hispanic (17.5%) and Black (13.1%) residents under age 65 without health insurance was higher than the percentage of White residents (8.6%) without health insurance.
- ◆ In small metropolitan areas, the percentage of Hispanic (17.9%) residents under age 65 without health insurance was higher than the percentage of White residents (9.2%) without health insurance.
- ◆ In micropolitan areas, the percentage of Hispanic (29.3%) and Black (17.2%) residents under age 65 without health insurance was higher than the percentage of White residents (10.9%) without health insurance.

■ **Disparities by Group:**

- ◆ For Hispanics, the percentage of individuals under age 65 without health insurance was higher for residents of large central metropolitan areas (21.5%) and micropolitan areas (29.3%) compared with Hispanics residing in large fringe metropolitan areas (18.1%).
- ◆ For Blacks, the percentage of individuals under age 65 without health insurance was higher for residents of micropolitan areas (17.2%) compared with Blacks residing in large fringe metropolitan areas (10.0%).
- ◆ For Whites, the percentage of individuals under age 65 without health insurance was higher for residents of medium metropolitan (8.6%), small metropolitan (9.2%), micropolitan (10.9%), and noncore (11.8%) areas compared with Whites residing in large fringe metropolitan areas (5.6%).

**People under age 65 without health insurance, by residence location, stratified by income, 2018**

**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2018.

**Denominator:** Number of people under age 65 without health insurance.

**Note:** For this measure, lower rates are better. Poor, low income, middle income, and high income indicate individuals whose household income is <100%, 100-199%, 200-399%, and 400% or more of the Federal poverty level, respectively.

- **Importance:** Uninsured rates among nonelderly adults in rural areas decreased between 2010 and 2019 after the passage of the Affordable Care Act. However, uninsured rates in non-Medicaid expansion States are twice as high as uninsured rates in Medicaid expansion States (Turrini, et al., 2021). Without health insurance, people are less likely to have a regular healthcare provider and more likely to skip routine healthcare. This situation puts them at increased risk for serious health problems. Evidence has shown that strategies to reduce financial and other barriers to health insurance access can help increase coverage rates (ODPHP, 2021a).
- **Groups With Disparities in 2018:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, residents under age 65 described as poor (21.7%), low income (19.1%), or middle income (12.9%) were more likely to be without health insurance than residents described as high income (4.8%).
    - ◆ In large fringe metropolitan areas, residents under age 65 described as poor (19.3%), low income (17.4%), or middle income (9.9%) were more likely to be without health insurance than residents described as high income (2.9%).

- ◆ In medium metropolitan areas, residents under age 65 described as poor (18.5%), low income (19.0%), or middle income (10.9%) were more likely to be without health insurance than residents described as high income (4.0%).
- ◆ In small metropolitan areas, residents under age 65 described as poor (18.6%), low income (14.6%), or middle income (9.5%) were more likely to be without health insurance than residents described as high income (5.6%).
- ◆ In micropolitan areas, residents under age 65 described as poor or low income (20.4%) or middle income (13.3%) were more likely to be without health insurance than residents described as high income (6.0%).
- ◆ In noncore areas, residents under age 65 described as poor (17.9%) or low income (22.4%) were more likely to be without health insurance than residents described as high income (8.4%).

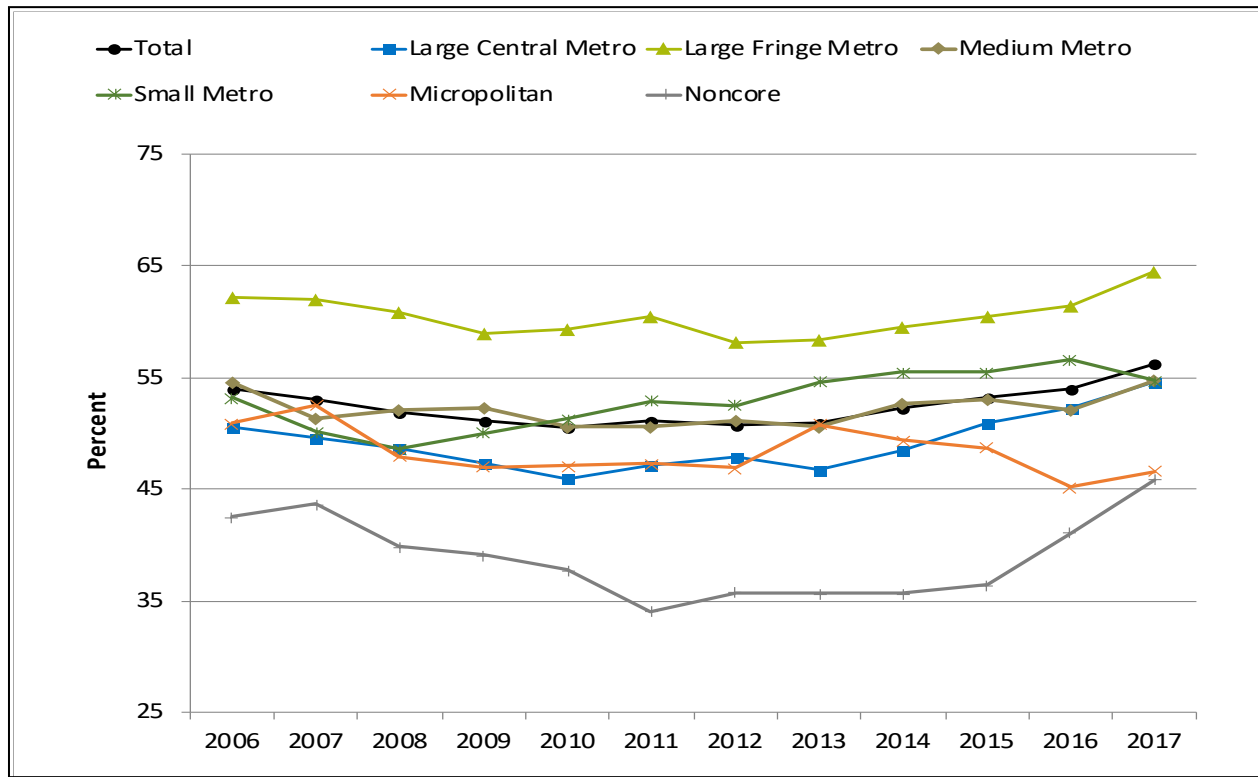
■ **Disparities by Group:**

- ◆ For middle-income individuals under age 65, the percentage of people without health insurance was higher in large central metropolitan areas (12.9%) compared with middle-income residents of large fringe metropolitan areas (9.9%).
- ◆ For high-income individuals under age 65, the percentage of people without health insurance was higher in large central metropolitan areas (4.8%), small metropolitan areas (5.6%), micropolitan areas (6.0%), and noncore areas (8.4%) compared with high-income residents of large fringe metropolitan areas (2.9%).



## Dental Insurance

People under age 65 with any period of dental insurance during the year, by residence location, 2006-2017

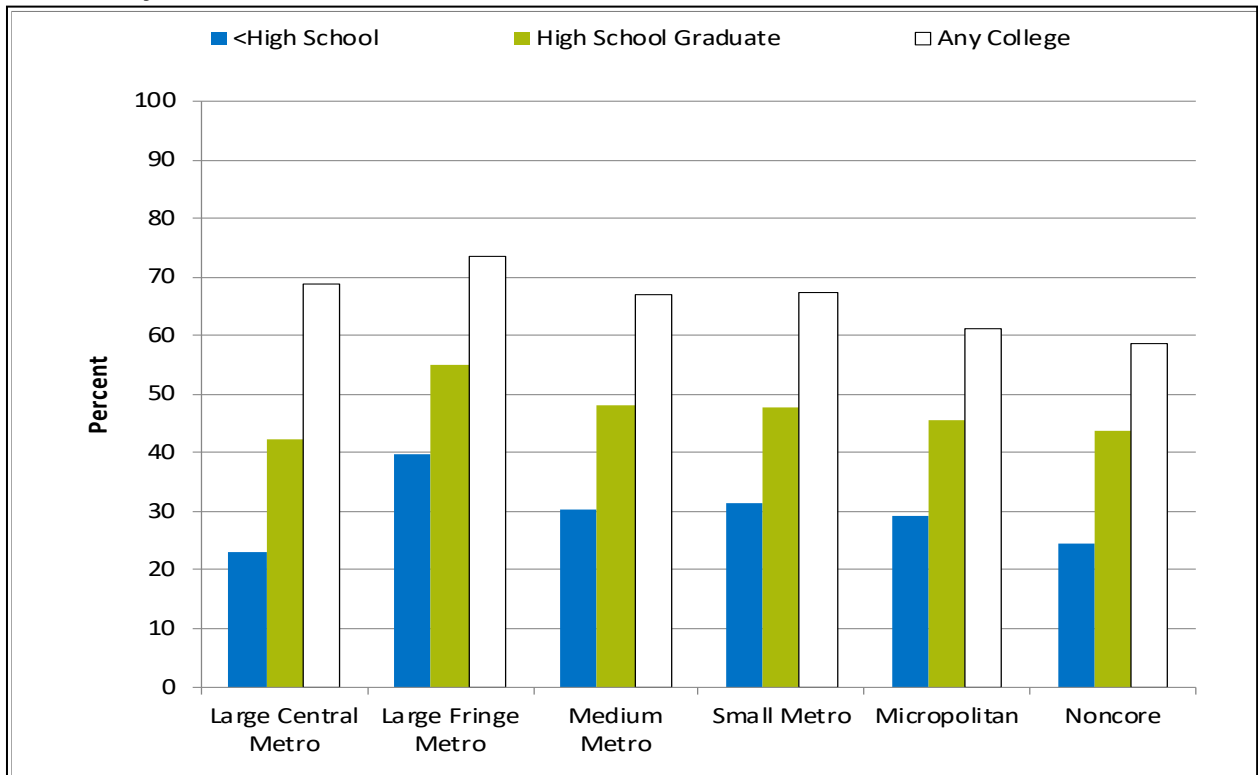


Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2006-2017.

Denominator: U.S. civilian noninstitutionalized population under age 65.

- Importance:** Variation exists in dental services reimbursed by Medicaid and the Children's Health Insurance Program from State to State, which is largely attributed to differences in coverage in Medicaid expansion States versus nonexpansion States. This variation contributes to disparities in dental coverage and access among rural populations compared with their urban counterparts (Hoadley, et al., 2018).
- Overall Rate:** In 2017, the percentage of people under age 65 with any period of dental insurance during the year was 56.2%.
- Trends:**
  - From 2006 to 2017, the percentage of people under age 65 with any period of dental insurance during the year increased for people living in small metropolitan areas.
- Groups With Disparities in 2017:**
  - The percentage of people under age 65 with any period of dental insurance during the year was lower for people living in large central metropolitan (54.6%), medium metropolitan (54.7%), small metropolitan (54.7%), micropolitan (46.6%), and noncore (45.8%) areas compared with residents of large fringe metropolitan areas (64.5%).

**People under age 65 with any period of dental insurance during the year, by residence location, stratified by education, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized population under age 65.

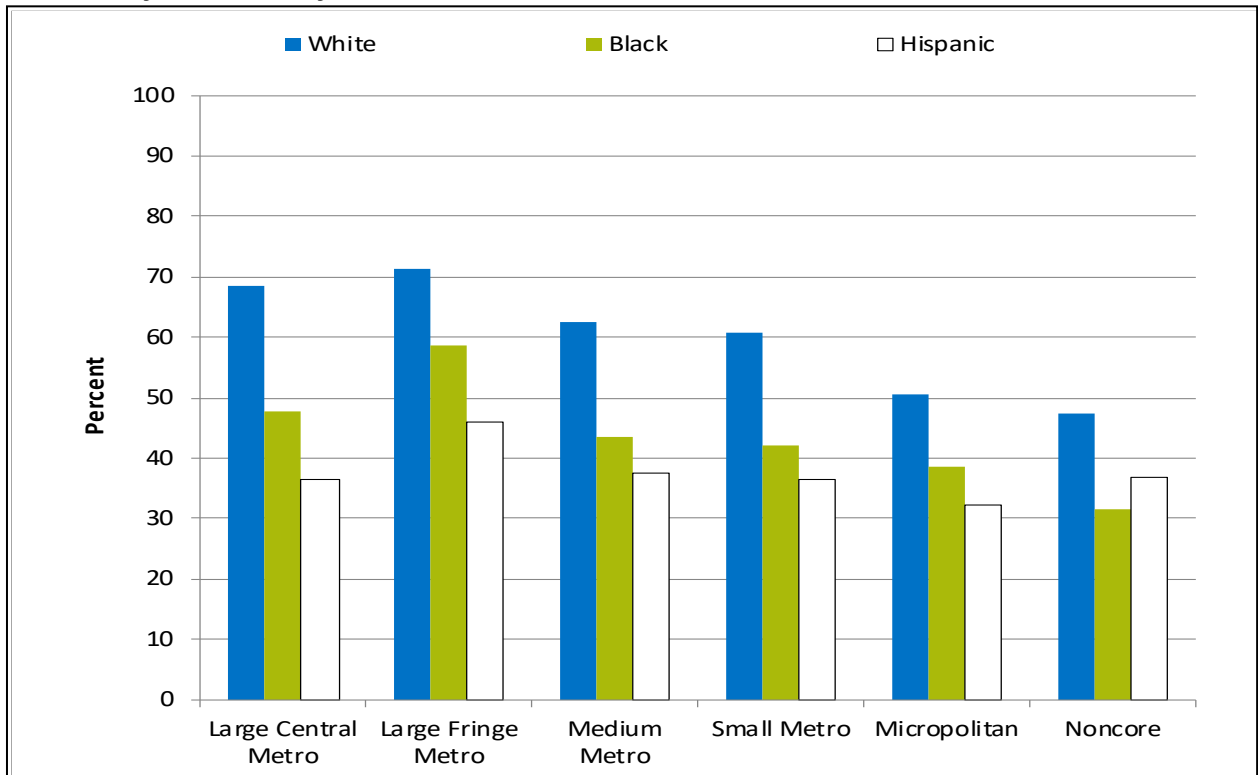
- **Importance:** Dental insurance protects against poor oral health outcomes, and individuals without dental insurance are less likely to receive preventive dental services (Wehby, et al., 2019).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, residents under age 65 with less than a high school diploma (23.1%) and high school graduates (42.4%) were less likely to have any period of dental insurance during the year compared with residents with any college education (68.7%).
    - ◆ In large fringe metropolitan areas, residents under age 65 with less than a high school diploma (39.6%) and high school graduates (54.9%) were less likely to have any period of dental insurance during the year compared with residents with any college education (73.7%).
    - ◆ In medium metropolitan areas, residents under age 65 with less than a high school diploma (30.3%) and high school graduates (48.2%) were less likely to have any period of dental insurance during the year compared with residents with any college education (67.1%).

- ◆ In small metropolitan areas, residents under age 65 with less than a high school diploma (31.6%) and high school graduates (47.8%) were less likely to have any period of dental insurance during the year compared with residents with any college education (67.2%).
- ◆ In micropolitan areas, residents under age 65 with less than a high school diploma (29.4%) and high school graduates (45.7%) were less likely to have any period of dental insurance during the year compared with residents with any college education (61.1%).
- ◆ In noncore areas, residents under age 65 with less than a high school diploma (24.7%) and high school graduates (43.6%) were less likely to have any period of dental insurance during the year compared with residents with any college education (58.8%).

■ **Disparities by Group:**

- ◆ Among people under age 65 with any college education, the percentage of individuals with any period of dental insurance during the year for large central metropolitan areas (68.7%), medium metropolitan areas (67.1%), small metropolitan areas (67.2%), micropolitan areas (61.1%), and noncore areas (58.8%) was lower than for individuals with any college education residing in large fringe metropolitan areas (73.7%).
- ◆ Among high school graduates under age 65, the percentage of individuals with any period of dental insurance during the year for residents of large central metropolitan areas (42.4%), medium metropolitan areas (48.2%), small metropolitan areas (47.8%), micropolitan areas (45.7%), and noncore areas (43.6%) was lower than for high school graduates residing in large fringe metropolitan areas (54.9%).
- ◆ Among people with less than a high school diploma under age 65, the percentage of individuals with any period of dental insurance during the year for those residing in large central metropolitan areas (23.1%), medium metropolitan areas (30.3%), and noncore areas (24.7%) was lower than for people with less than a high school diploma residing in large fringe metropolitan areas (39.6%).

**People under age 65 with any period of dental insurance during the year, by residence location, stratified by race/ethnicity, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized population under age 65.

**Note:** White and Black are non-Hispanic. Hispanic includes all races.

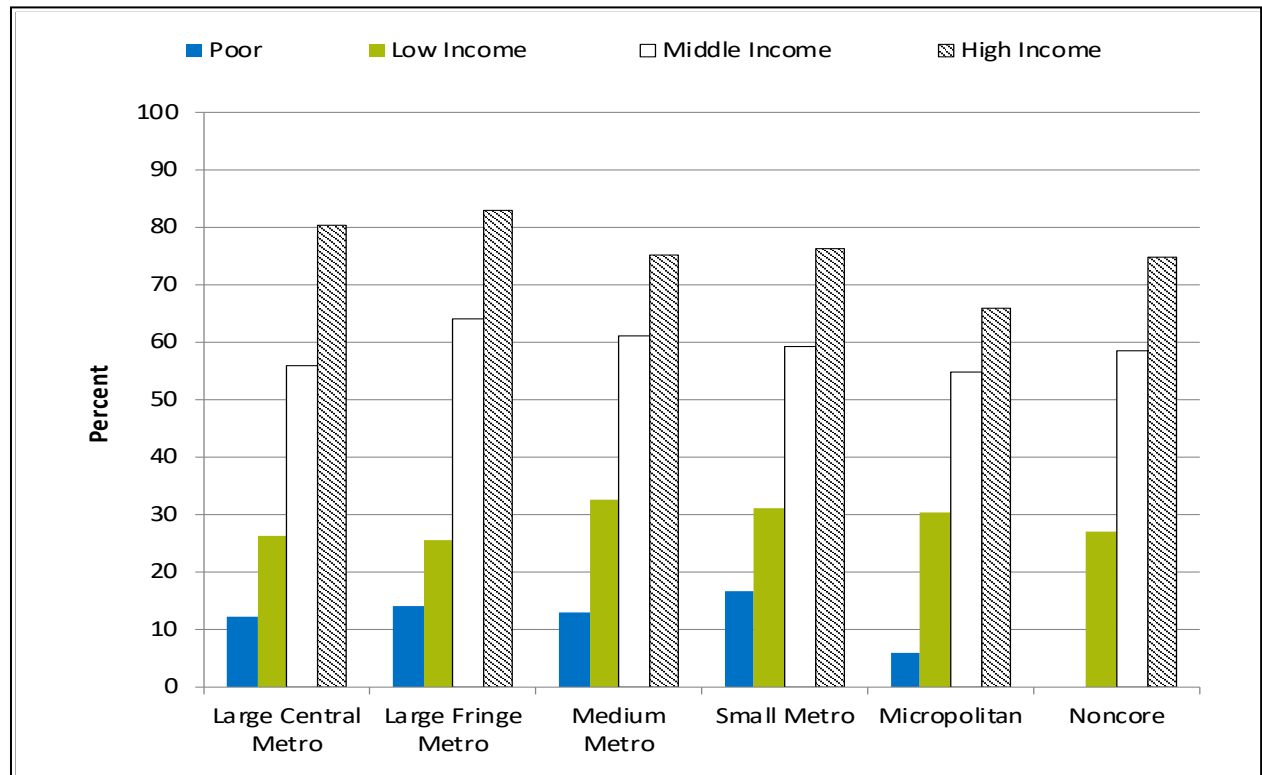
- **Importance:** Dental insurance protects against poor oral health outcomes, and individuals without dental insurance are less likely to receive preventive dental services (Wehby, et al., 2019).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, Hispanic (36.5%) and Black (47.9%) residents under age 65 were less likely to have any period of dental insurance during the year than White residents (68.5%).
    - ◆ In large fringe metropolitan areas, Hispanic (46.0%) and Black (58.6%) residents under age 65 were less likely to have any period of dental insurance during the year than White residents (71.3%).
    - ◆ In medium metropolitan areas, Hispanic (37.7%) and Black (43.4%) residents under age 65 were less likely to have any period of dental insurance during the year than White residents (62.7%).
    - ◆ In small metropolitan areas, Hispanic (36.5%) and Black (42.2%) residents under age 65 were less likely to have any period of dental insurance during the year than White residents (60.7%).

- ◆ In micropolitan areas, Hispanic (32.4%) residents under age 65 were less likely to have any period of dental insurance during the year than White residents (50.5%).
- ◆ In noncore areas, Black (31.7%) residents under age 65 were less likely to have any period of dental insurance during the year than White residents (47.3%).

■ **Disparities by Group:**

- ◆ For Hispanics under age 65, the percentage of people with any period of dental insurance during the year was lower for residents of large central metropolitan areas and small metropolitan areas (36.5%) compared with those residing in large fringe metropolitan areas (46.0%).
- ◆ For Blacks under age 65, the percentage of people with any period of dental insurance during the year was lower for residents of large central metropolitan areas (47.9%), medium metropolitan areas (43.4%), small metropolitan areas (42.2%), micropolitan areas (38.6%), and noncore areas (31.7%) compared with those residing in large fringe metropolitan areas (58.6%).
- ◆ For Whites under age 65, the percentage of people with any period of dental insurance during the year was lower for residents of medium metropolitan areas (62.7%), small metropolitan areas (60.7%), micropolitan areas (50.5%), and noncore areas (47.3%) compared with those residing in large fringe metropolitan areas (71.3%).

**People under age 65 with any period of dental insurance during the year, by residence location, stratified by income, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized population under age 65.

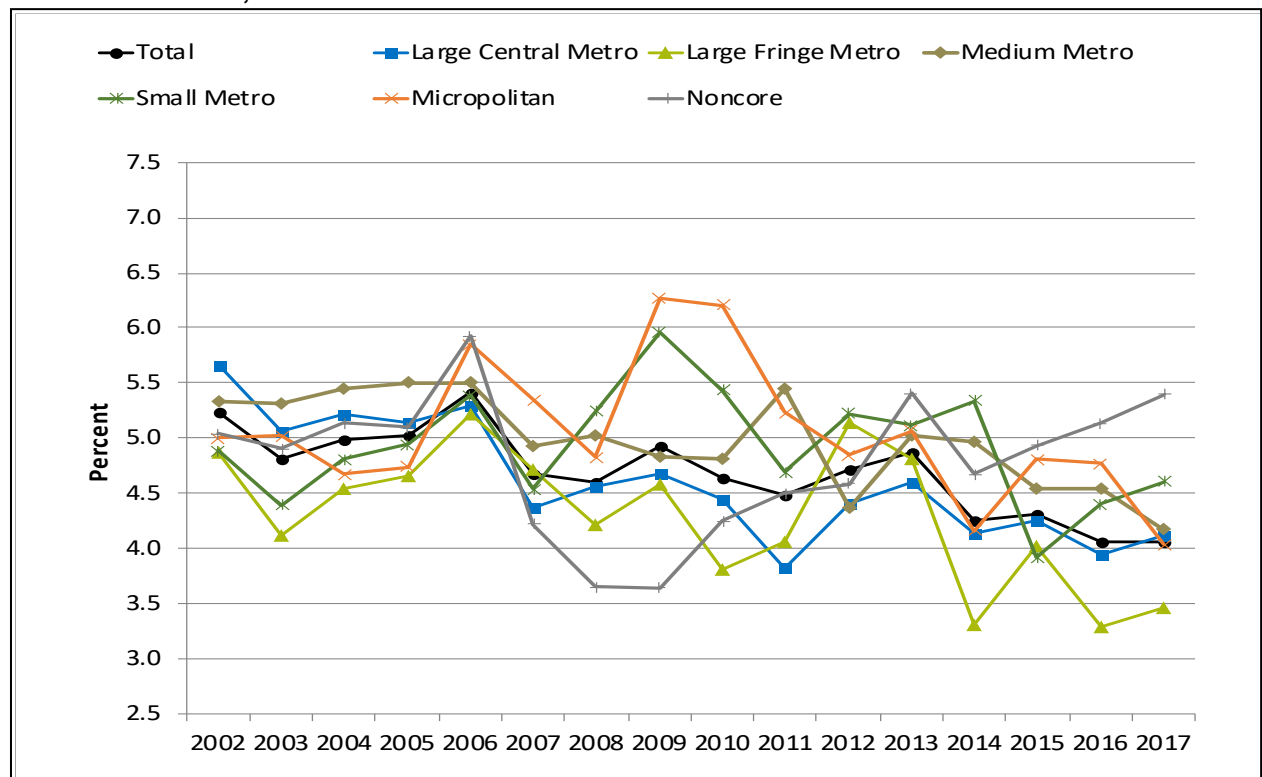
**Note:** Poor, low income, middle income, and high income indicate individuals whose household income is <100%, 100-199%, 200-399%, and 400% or more of the Federal poverty level, respectively. Data for noncore areas for poor people are not included because they did not meet criteria for statistical reliability.

- **Importance:** Dental insurance protects against poor oral health outcomes, and individuals without dental insurance are less likely to receive preventive dental services (Wehby, et al., 2019).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, the percentage of residents under age 65 with any period of dental insurance during the year was lower for individuals described as poor (12.3%), low income (26.4%), or middle income (55.9%) compared with high-income residents (80.5%).
    - ◆ In large fringe metropolitan areas, the percentage of residents under age 65 with any period of dental insurance during the year was lower for individuals described as poor (14.0%), low income (25.7%), or middle income (64.2%) compared with high-income residents (83.0%).

- ◆ In medium metropolitan areas, the percentage of residents under age 65 with any period of dental insurance during the year was lower for individuals described as poor (13.1%), low income (32.7%), or middle income (61.1%) compared with high-income residents (75.1%).
  - ◆ In small metropolitan areas, the percentage of residents under age 65 with any period of dental insurance during the year was lower for individuals described as poor (16.7%), low income (31.3%), or middle income (59.3%) compared with high-income residents (76.3%).
  - ◆ In micropolitan areas, the percentage of residents under age 65 with any period of dental insurance during the year was lower for individuals described as poor (5.9%) or low income (30.5%) compared with high-income residents (66.1%).
  - ◆ In noncore areas, the percentage of residents under age 65 with any period of dental insurance during the year was lower for individuals described as low income (27.1%) or middle income (58.6%) compared with high-income residents (74.9%).
- **Disparities by Group:**
- ◆ Among people described as high income under age 65, residents of medium metropolitan areas (75.1%), micropolitan areas (66.1%), and noncore areas (74.9%) were less likely to have any period of dental insurance during the year than residents in large fringe metropolitan areas (83.0%).
  - ◆ Among people described as middle income under age 65, residents of large central metropolitan areas (55.9%) were less likely to have any period of dental insurance during the year than residents in large fringe metropolitan areas (64.2%).

## Delays in Care

People who were unable to get or delayed in getting needed medical care in the last 12 months, by residence location, 2002-2017



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2017.

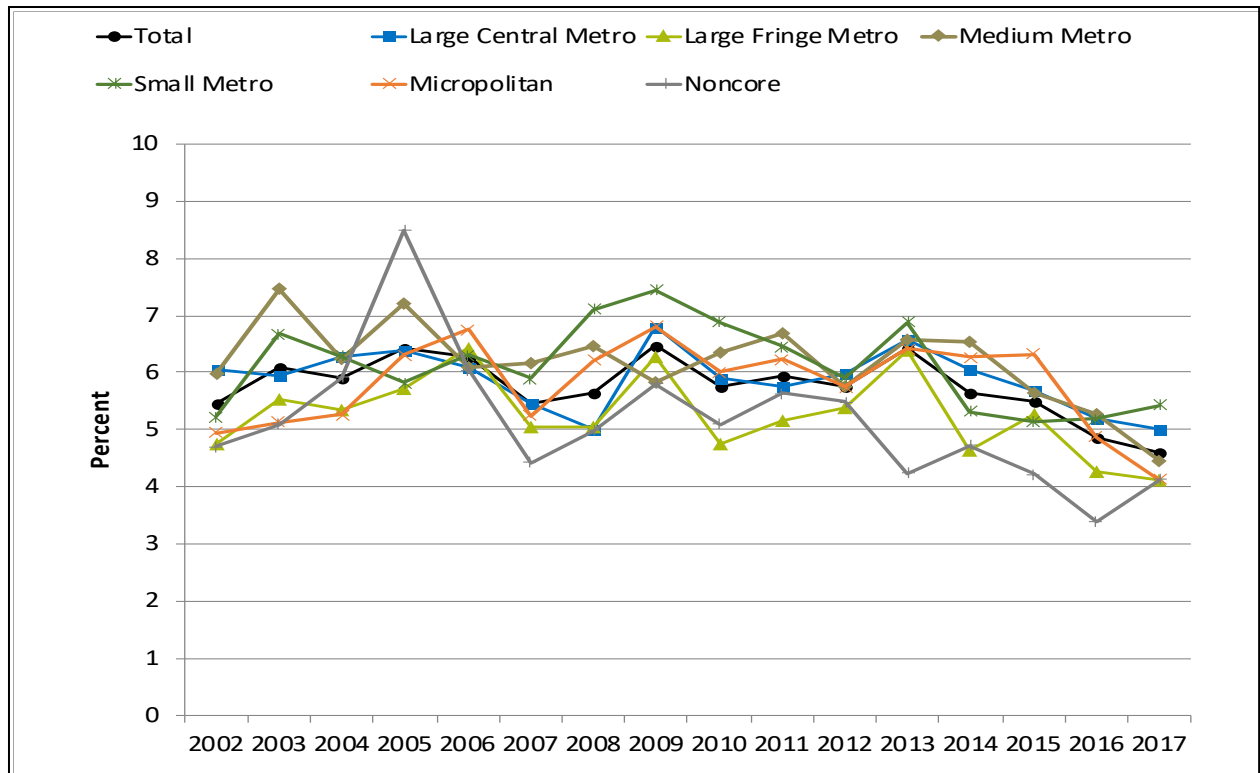
**Denominator:** U.S. civilian noninstitutionalized population.

**Note:** For this measure, lower rates are better.

- **Importance:** Rural residents often need to travel farther distances to receive healthcare services, which often leads to a delay in seeking care. Challenges in taking time off work, especially in farming communities, is another cause of delayed care (Nielsen, et al., 2017).
- **Overall Rate:** In 2017, the percentage of people who were unable to get or delayed in getting needed medical care in the last 12 months was 4.1%.
- **Trends:**
  - From 2002 to 2017, the percentage of people who were unable to get or delayed in getting needed medical care in the last 12 months decreased overall and for people living in large central, large fringe, and medium metropolitan areas.
- **Groups With Disparities in 2017:**
  - The percentage of people who were unable to get or delayed in getting needed medical care in the last 12 months was higher for people living in small metropolitan (4.6%) and noncore (5.4%) areas compared with those living in large fringe metropolitan areas (3.5%).



### People who were unable to get or delayed in getting needed dental care in the last 12 months, by residence location, 2002-2017



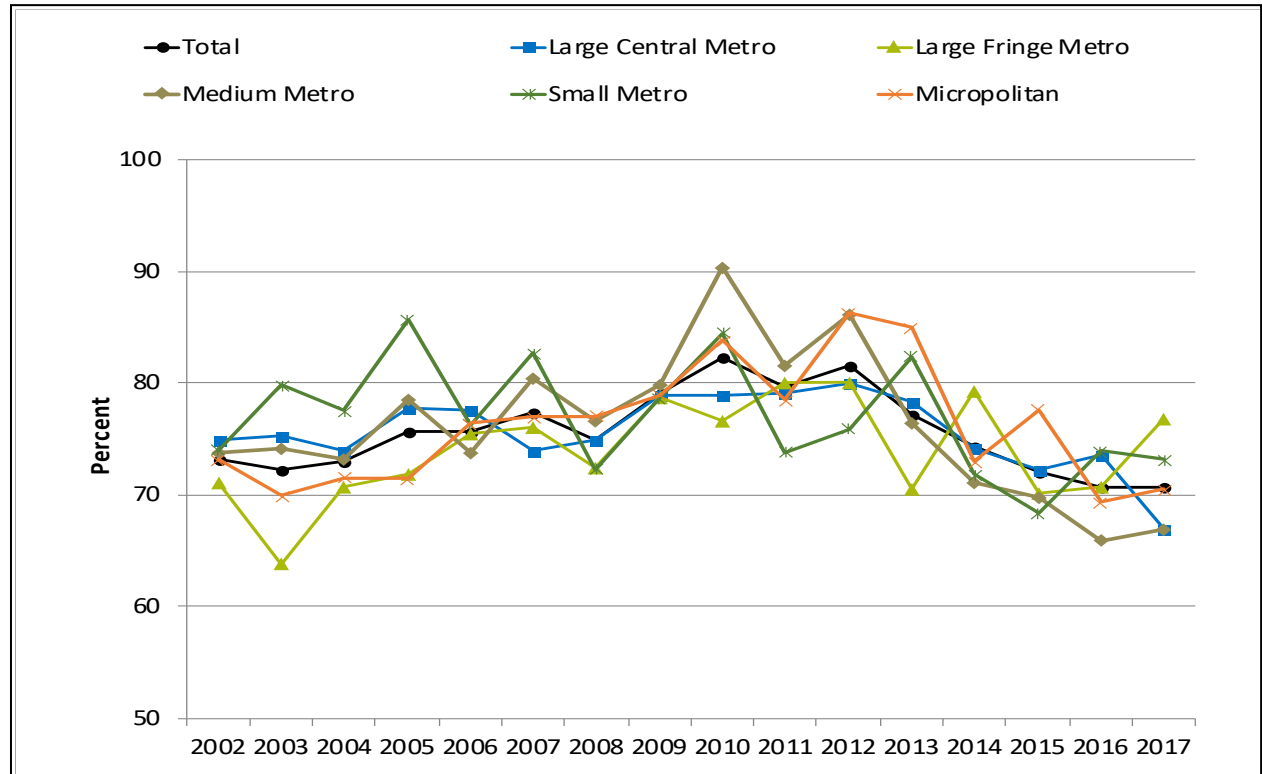
**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2017.

**Denominator:** U.S. civilian noninstitutionalized population.

**Note:** For this measure, lower rates are better.

- **Importance:** Rural residents often need to travel farther distances to receive healthcare services, which often leads to a delay in seeking care. Challenges in taking time off work, especially in farming communities, is another cause of delayed care (Nielsen, et al., 2017).
- **Overall Rate:** In 2017, the percentage of people who were unable to get or delayed in getting needed dental care in the last 12 months was 4.6%.
- **Trends:**
  - From 2002 to 2017, the percentage of people who were unable to get or delayed in getting needed dental care in the last 12 months decreased overall and for people living in medium metropolitan and noncore areas.
- **Groups With Disparities in 2017:**
  - The percentage of people who were unable to get or delayed in getting needed dental care in the last 12 months was higher for people living in large central metropolitan (5.0%) and small metropolitan (5.4%) areas compared with those living in large fringe metropolitan areas (4.1%).

**People unable to get or delayed in getting needed dental care due to financial or insurance reasons, by residence location, 2002-2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2017.

**Denominator:** U.S. civilian noninstitutionalized population who were unable to get or delayed in getting needed dental care.

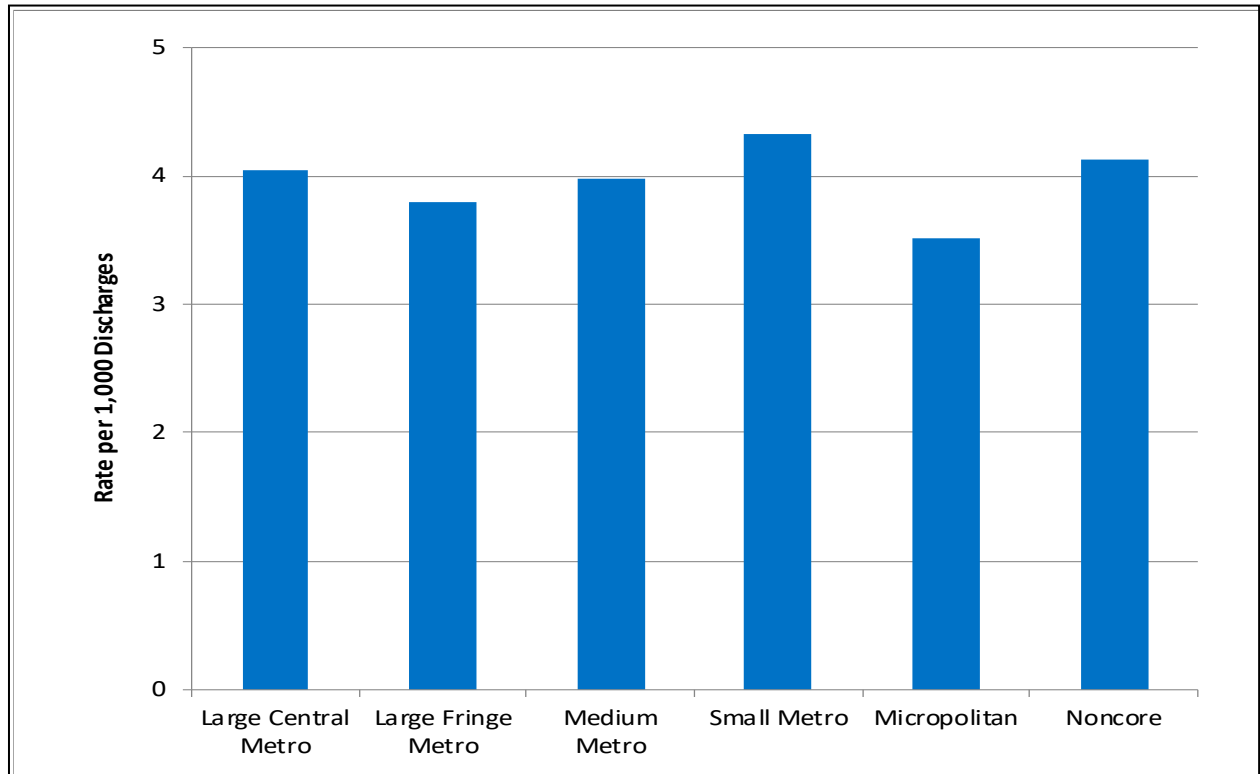
**Note:** For this measure, lower rates are better. Data for noncore areas are not included because they did not meet criteria for statistical reliability.

- **Importance:** Rural residents often need to travel farther distances to receive healthcare services, which often leads to a delay in seeking care. Challenges in taking time off work, especially in farming communities, is another cause of delayed care (Nielsen, et al., 2017).
- **Overall Rate:** In 2017, the percentage of people unable to get or delayed in getting needed dental care who cited financial or insurance reasons was 70.7%.
- **Groups With Disparities in 2017:**
  - The percentage of people unable to get or delayed in getting needed dental care who cited financial or insurance reasons was lower for residents of large central metropolitan (67.0%) and medium metropolitan areas (67.0%) compared with residents of large fringe metropolitan areas (76.9%).

## Patient Safety

### Postoperative Sepsis

Postoperative sepsis per 1,000 adult discharges with an elective operating room procedure, by hospital location, 2017



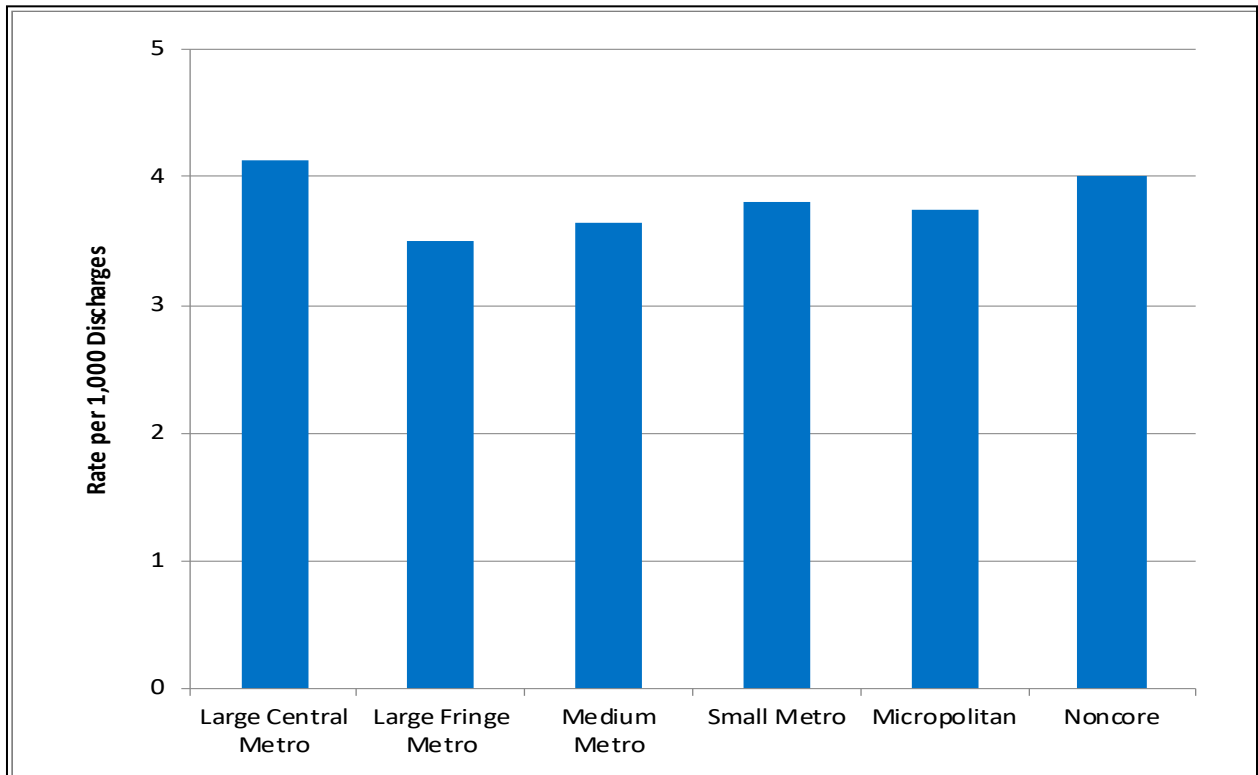
**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** All elective hospital surgical discharges among adults age 18 and over with a length of stay of 4 or more days.

**Note:** For this measure, lower rates are better. The AHRQ Patient Safety Indicators software requires that the sepsis be reported as a secondary diagnosis (rather than the principal diagnosis).

- **Importance:** Infections acquired during hospital care—also known as nosocomial infections—are among the most common complications of hospital care. Patients are particularly vulnerable to healthcare-associated infections after surgery. Hospitals in more rural areas may refer patients to hospitals in urban areas for complex surgeries.
- **Groups With Disparities in 2017:**
  - In small metropolitan area hospitals, adult patients who had undergone elective surgery were more likely to develop postoperative sepsis (4.3 per 1,000 discharges) compared with patients in large fringe metropolitan area hospitals (3.8 per 1,000 discharges).

**Postoperative sepsis per 1,000 adult discharges with an elective operating room procedure, by residence location, 2017**



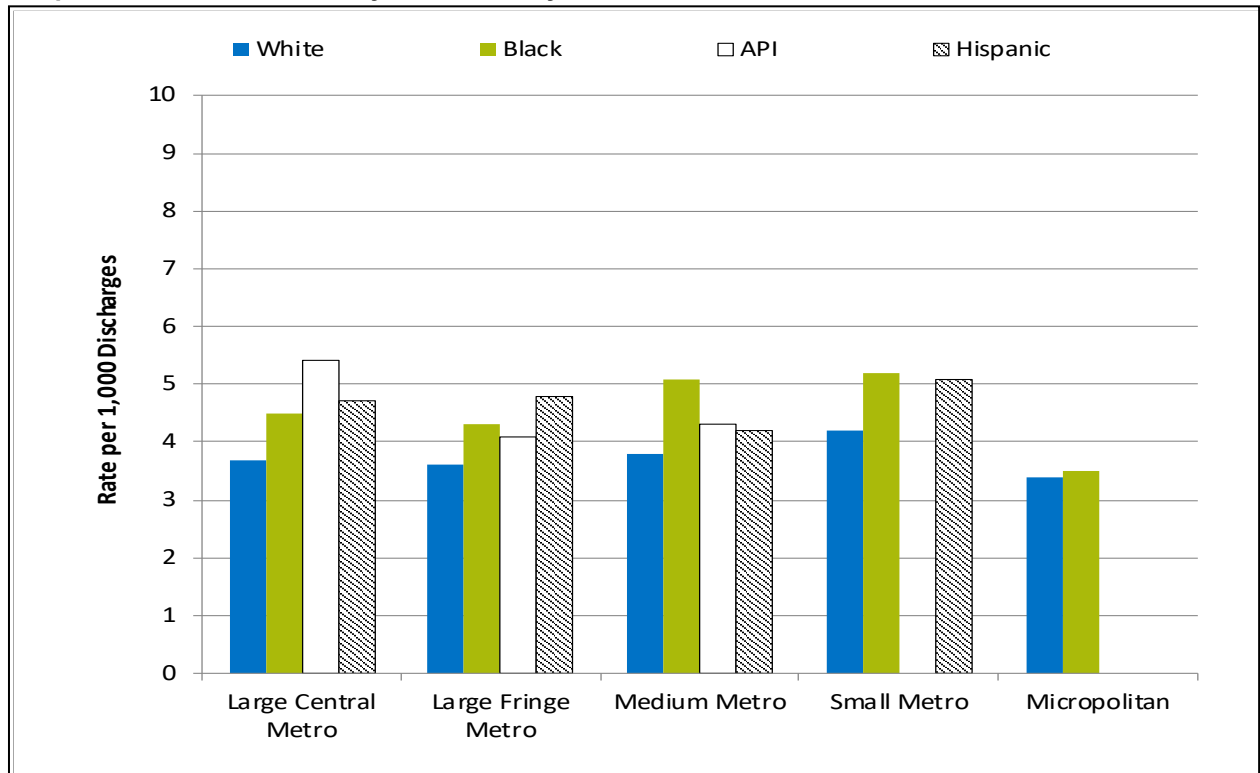
**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** All elective hospital surgical discharges among adults age 18 and over with a length of stay of 4 or more days.

**Note:** For this measure, lower rates are better. The AHRQ Patient Safety Indicators software requires that the sepsis be reported as a secondary diagnosis (rather than the principal diagnosis).

- **Importance:** Infections acquired during hospital care—also known as nosocomial infections—are among the most common complications of hospital care. Patients are particularly vulnerable to healthcare-associated infections after surgery. Hospitals in more rural areas may refer patients to hospitals in urban areas for complex surgeries.
- **Groups With Disparities in 2017:**
  - In large central metropolitan areas, adults with an elective-surgery admission of 4 or more days were more likely to be diagnosed with postoperative sepsis (4.1 per 1,000) compared with adults with an elective-surgery admission of 4 or more days in large fringe metropolitan areas (3.5 per 1,000).
  - In noncore areas, adults with an elective-surgery admission of 4 or more days were more likely to be diagnosed with postoperative sepsis (4.0 per 1,000) compared with adults with an elective-surgery admission of 4 or more days in large fringe metropolitan areas (3.5 per 1,000).

**Postoperative sepsis per 1,000 adult discharges with an elective operating room procedure, by hospital location, stratified by race/ethnicity, 2017**



**Key:** API = Asian or Pacific Islander.

**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** All elective hospital surgical discharges among adults age 18 and over with a length of stay of 4 or more days.

**Note:** For this measure, lower rates are better. White, Black, and API are non-Hispanic. Hispanic includes all races. Data for small metropolitan areas and micropolitan areas for APIs and for Hispanics in micropolitan areas are not included because they did not meet criteria for statistical reliability. Noncore areas were not included because only the data for Whites met criteria for statistical reliability. The AHRQ Patient Safety Indicators software requires that the sepsis be reported as a secondary diagnosis (rather than the principal diagnosis).

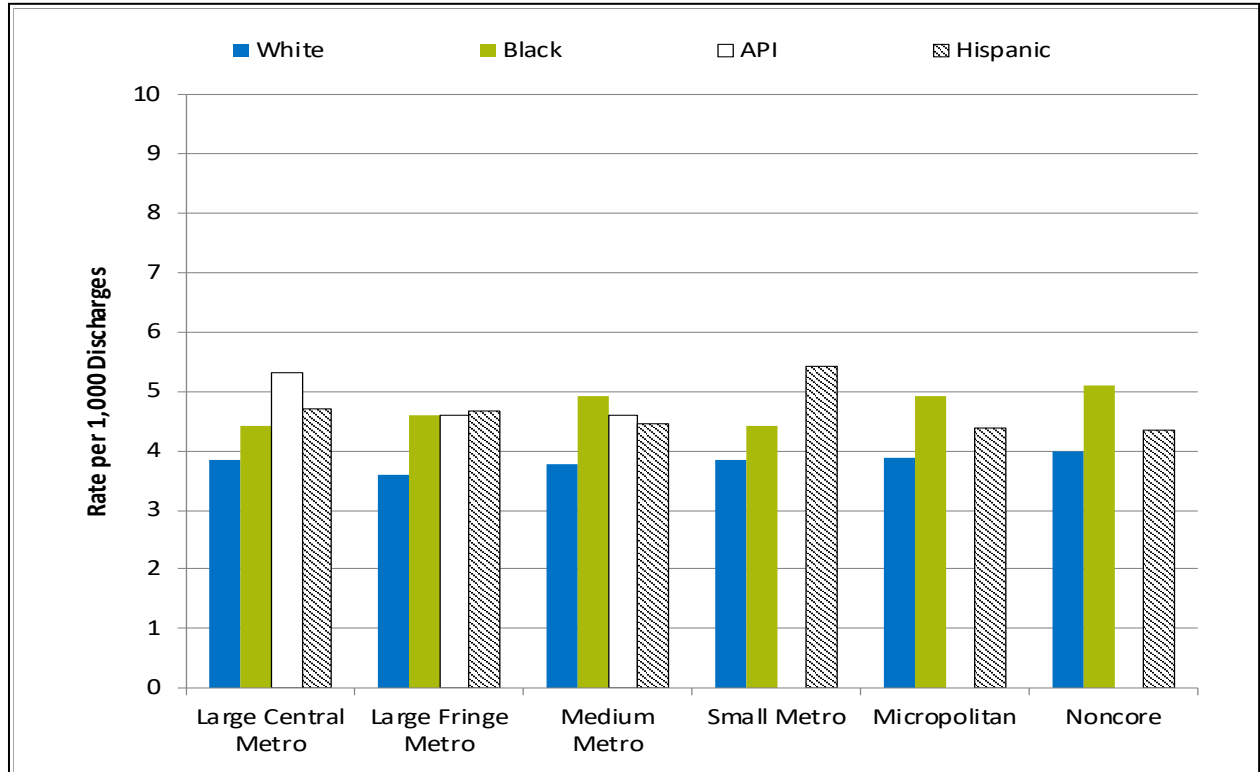
- **Importance:** Infections acquired during hospital care—also known as nosocomial infections—are among the most common complications of hospital care. Patients are particularly vulnerable to healthcare-associated infections after surgery. Hospitals in more rural areas may refer patients to hospitals in urban areas for complex surgeries.
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan hospitals, among adults with an elective-surgery admission of 4 or more days, the rate of postoperative sepsis was higher among Black (4.5 per 1,000), Hispanic (4.7 per 1,000), and Asian or Pacific Islander (5.4 per 1,000) patients compared with White patients (3.7 per 1,000).

- ◆ In large fringe metropolitan hospitals, among adults with an elective-surgery admission of 4 or more days, the rate of postoperative sepsis was higher among Black (4.3 per 1,000) and Hispanic (4.8 per 1,000) patients compared with White patients (3.6 per 1,000).
- ◆ In medium metropolitan hospitals, among adults with an elective-surgery admission of 4 or more days, the rate of postoperative sepsis was higher among Black (5.1 per 1,000) patients compared with White patients (3.8 per 1,000).
- ◆ In small metropolitan hospitals, among adults with an elective-surgery admission of 4 or more days, the rate of postoperative sepsis was higher among Black (5.2 per 1,000) patients compared with White patients (4.2 per 1,000).

■ **Disparities by Group:**

- ◆ For Asian or Pacific Islander adults with an elective-surgery admission of 4 or more days, the rate of postoperative sepsis was higher among patients in large central metropolitan hospitals (5.4 per 1,000) compared with Asians or Pacific Islander patients in large fringe metropolitan hospitals (4.1 per 1,000).
- ◆ For Black adults with an elective-surgery admission of 4 or more days, the rate of postoperative sepsis was higher among patients in small metropolitan hospitals (5.2 per 1,000) and medium metropolitan hospitals (5.1 per 1,000) compared with Black patients in large fringe metropolitan hospitals (4.3 per 1,000).
- ◆ For White adults with an elective-surgery admission of 4 or more days, the rate of postoperative sepsis was higher among patients in small metropolitan hospitals (4.2 per 1,000) compared with White patients in large fringe metropolitan hospitals (3.6 per 1000).

**Postoperative sepsis per 1,000 adult discharges with an elective operating room procedure, by residence location, stratified by race/ethnicity, 2017**



**Key:** API = Asian or Pacific Islander.

**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** All elective hospital surgical discharges among adults age 18 and over with a length of stay of 4 or more days.

**Note:** For this measure, lower rates are better. White, Black, and API are non-Hispanic. Hispanic includes all races. Data for small metropolitan, micropolitan, and noncore areas for APIs are not included because they did not meet criteria for statistical reliability. The AHRQ Patient Safety Indicators software requires that the sepsis be reported as a secondary diagnosis (rather than the principal diagnosis).

- **Importance:** Infections acquired during hospital care—also known as nosocomial infections—are among the most common complications of hospital care. Patients are particularly vulnerable to healthcare-associated infections after surgery. Hospitals in more rural areas may refer patients to hospitals in urban areas for complex surgeries.
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, among adults with an elective-surgery admission of 4 or more days, the rate of postoperative sepsis was higher among Black (4.4 per 1,000), Asian or Pacific Islander (5.3 per 1,000), and Hispanic (4.7 per 1,000) residents compared with White residents (3.9 per 1,000).

- ◆ In large fringe metropolitan areas, among adults with an elective-surgery admission of 4 or more days, the rate of postoperative sepsis was higher among Black (4.6 per 1,000), Asian or Pacific Islander (4.6 per 1,000), and Hispanic (4.7 per 1,000) residents compared with White residents (3.6 per 1,000).
- ◆ In medium metropolitan areas, among adults with an elective-surgery admission of 4 or more days, the rate of postoperative sepsis was higher among Black (4.9 per 1,000) and Hispanic (4.4 per 1,000) residents compared with White residents (3.8 per 1,000).
- ◆ In small metropolitan areas, among adults with an elective-surgery admission of 4 or more days, the rate of postoperative sepsis was higher among Hispanic (5.4 per 1,000) residents compared with White residents (3.8 per 1,000).
- ◆ In micropolitan areas, among adults with an elective-surgery admission of 4 or more days, the rate of postoperative sepsis was higher among Black (4.9 per 1,000) residents compared with White residents (3.9 per 1,000).
- ◆ In noncore areas, among adults with an elective-surgery admission of 4 or more days, the rate of postoperative sepsis was higher among Black (5.1 per 1,000) residents compared with White residents (4.0 per 1,000).

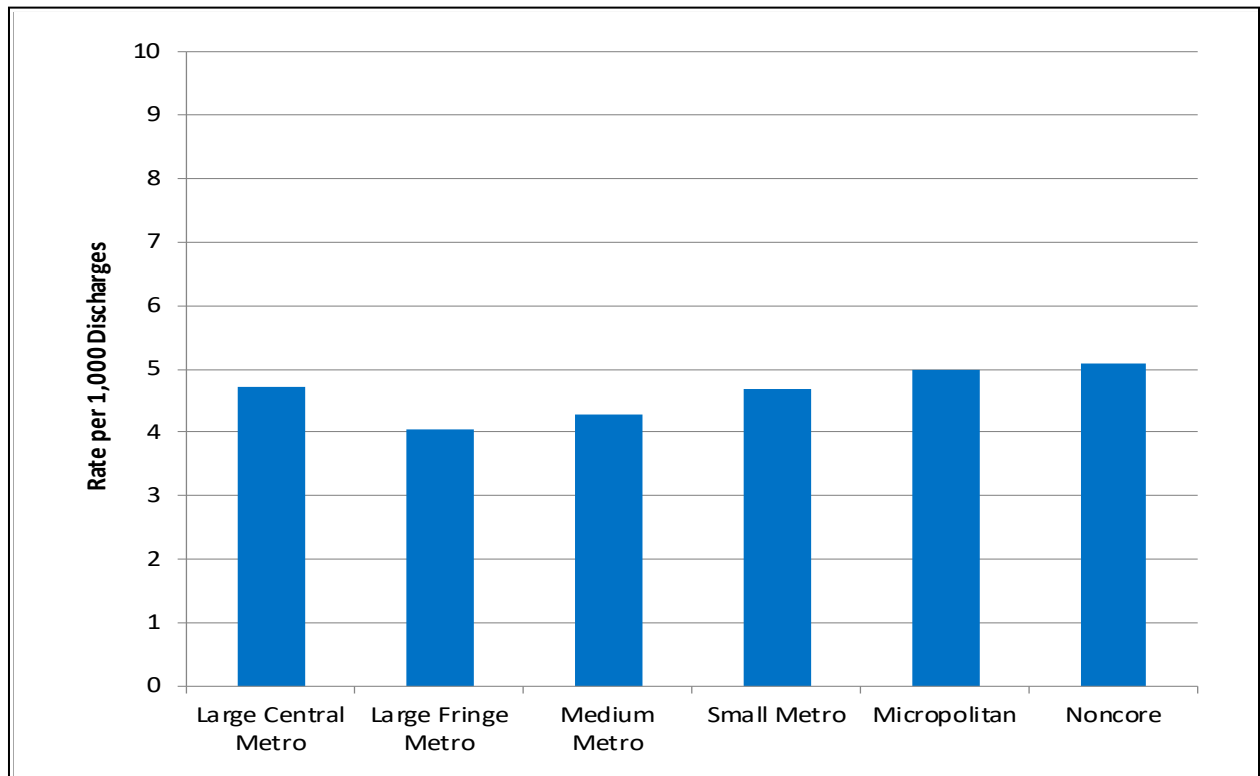
■ **Disparities by Group:**

- ◆ For White adults with an elective-surgery admission of 4 or more days, the rate of postoperative sepsis was higher among residents of noncore areas (4.0 per 1,000) compared with residents of large fringe metropolitan areas (3.6 per 1,000).



## Postoperative Respiratory Failure

Postoperative respiratory failure per 1,000 elective surgical hospital discharges, adults, 2017



**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** All elective hospital surgical discharges, age 18 and over, excluding patients with respiratory disease, circulatory disease, neuromuscular disorders, obstetric conditions, and secondary procedure of tracheostomy before or after surgery or as the only procedure.

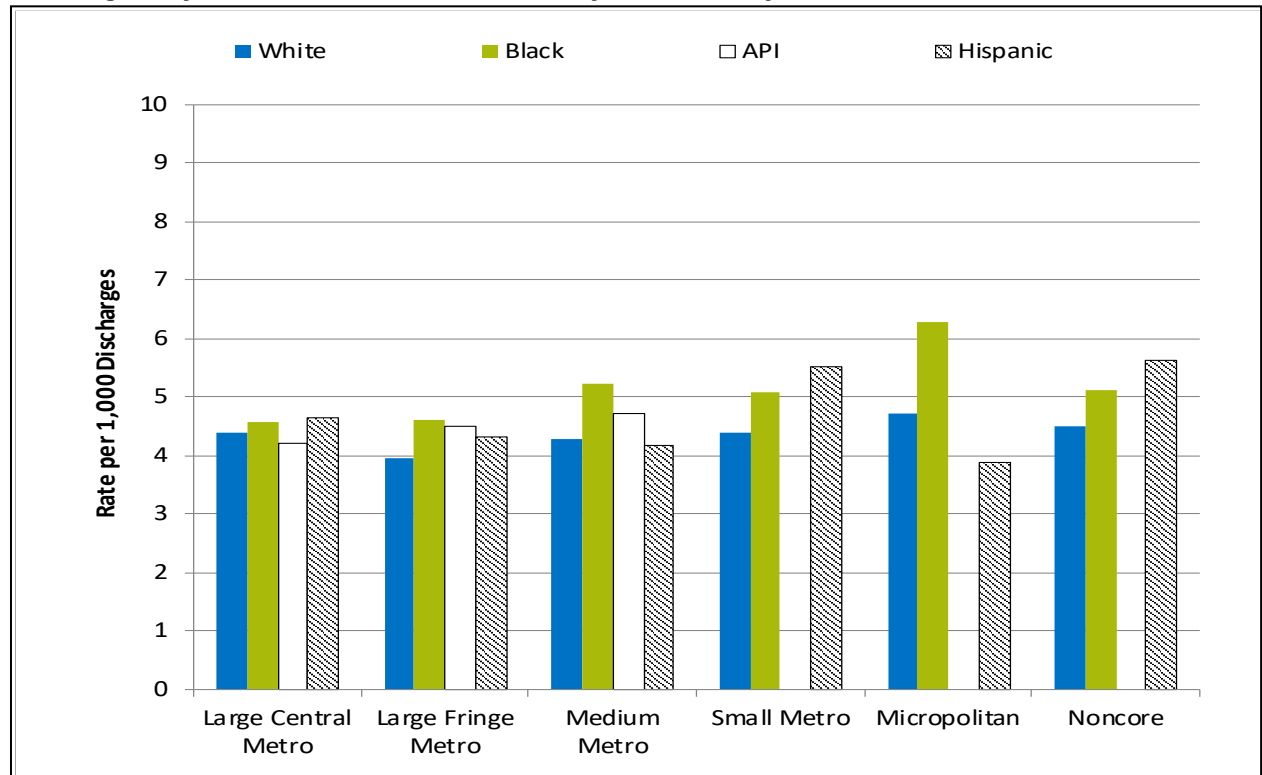
**Note:** For this measure, lower rates are better.

- **Importance:** Tobacco use is more prevalent among rural populations compared with urban populations and as vaping becomes more common, severe respiratory illness is a growing concern (Welsh, 2021; CDC, 2019b).

### ■ Groups With Disparities in 2017:

- ◆ Adults discharged after elective surgery had a higher rate of postoperative respiratory failure in large central metropolitan (4.7 per 1,000), small metropolitan (4.7 per 1,000), micropolitan (5.0 per 1,000), and noncore (5.1 per 1,000) areas compared with those residing in large fringe metropolitan areas (4.1 per 1,000).

**Adults with respiratory failure after elective surgery, per 1,000 elective surgical hospital discharges, by residence location, stratified by race/ethnicity, 2017**



**Key:** API = Asian or Pacific Islander

**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** All elective hospital surgical discharges, age 18 and over, excluding patients with respiratory disease, circulatory disease, neuromuscular disorders, obstetric conditions, and secondary procedure of tracheostomy before or after surgery or as the only procedure.

**Note:** For this measure, lower rates are better. White, Black, and API are non-Hispanic. Hispanic includes all races. Data for small metropolitan, micropolitan, and noncore areas for API are not included because they did not meet criteria for statistical reliability.

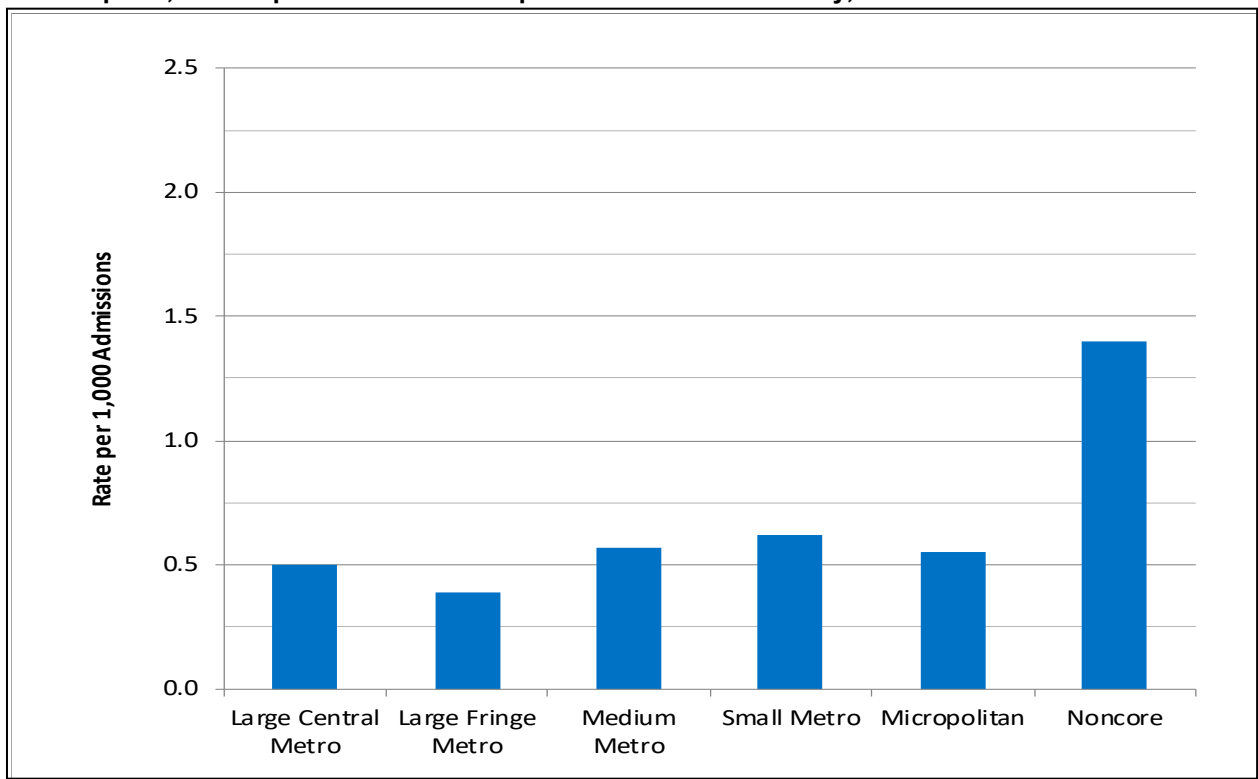
- **Importance:** Tobacco use is more prevalent among rural populations compared with urban populations and as vaping becomes more common, severe respiratory illness is a growing concern (Welsh, 2021; CDC, 2019b).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large fringe metropolitan areas, Black adults (4.6 per 1,000) were more likely to have postoperative respiratory failure after elective surgery than White adults (4.0 per 1,000).
    - ◆ In medium metropolitan areas, Black adults (5.2 per 1,000) were more likely to have postoperative respiratory failure after elective surgery than White adults (4.3 per 1,000).
    - ◆ In small metropolitan areas, Hispanic adults (5.5 per 1,000) were more likely to have postoperative respiratory failure after elective surgery than White adults (4.4 per 1,000).
    - ◆ In micropolitan areas, Black adults (6.3 per 1,000) were more likely to have postoperative respiratory failure after elective surgery than White adults (4.7 per 1,000).

■ **Disparities by Group:**

- ◆ Among all Black adults who had elective surgery, those who resided in micropolitan areas (6.3 per 1,000) were more likely to have postoperative respiratory failure after elective surgery than those residing in large fringe metropolitan areas (4.6 per 1,000).
- ◆ Among all White adults who had elective surgery, those who resided in large central metropolitan (4.4 per 1,000), small metropolitan (4.4 per 1,000), micropolitan (4.7 per 1,000), and noncore (4.5 per 1,000) areas were more likely to have postoperative respiratory failure after elective surgery than those residing in large fringe metropolitan areas (4.0 per 1,000).

**Deaths From Causes With Expected Low Mortality**

Deaths per 1,000 hospital admissions expected to be low mortality, 2017



**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** Hospital admissions among adults age 18 and over or obstetric conditions, in low-mortality diagnosis-related groups (defined as DRGs with less than a 0.5% mortality rate), excluding patients with trauma, immunocompromised state, or cancer.

**Note:** For this measure, lower rates are better.

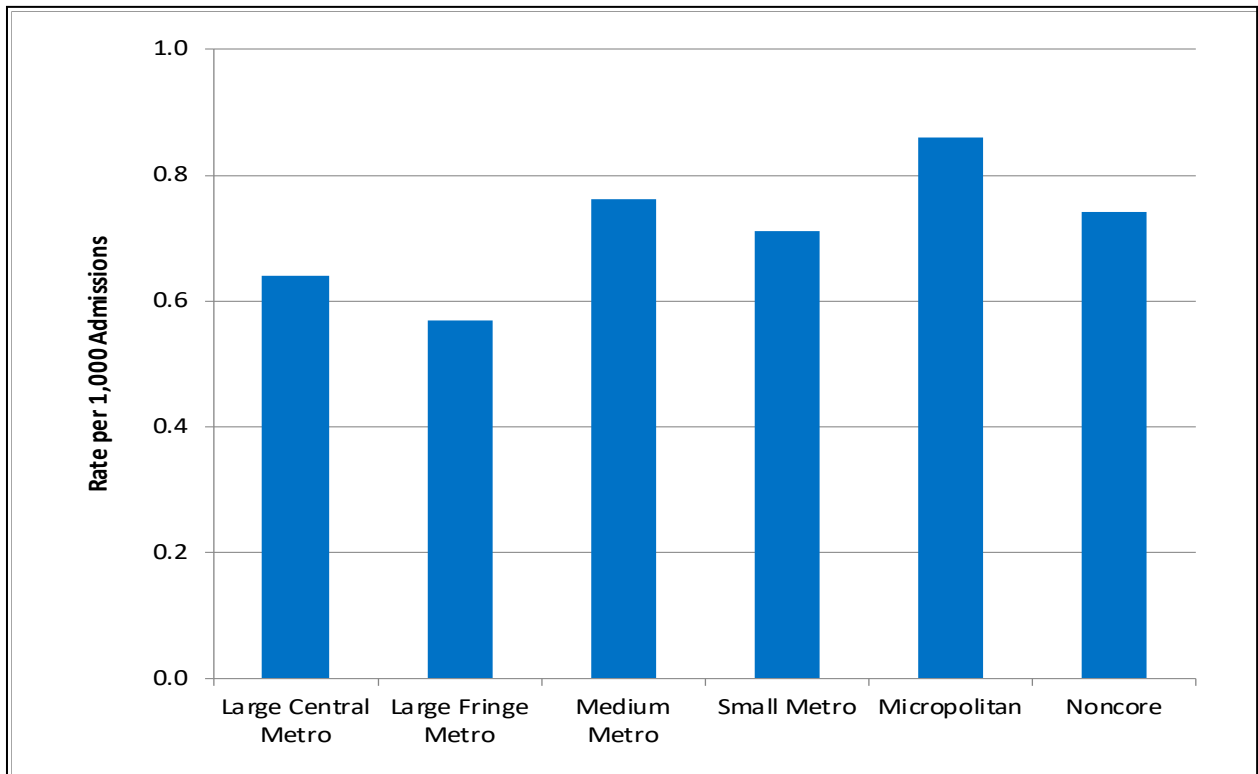
- **Importance:** Between 1999 and 2019, rural communities had the highest age-adjusted mortality rates compared with urban communities and the absolute difference in mortality rates between rural and urban areas increased by 172% by 2019 (Cross, et al., 2021).

- **Groups With Disparities in 2017:**

- Patients whose hospital admissions were expected to be low mortality had higher death rates in large central metropolitan (0.5 per 1,000), medium metropolitan (0.57 per 1,000), small metropolitan (0.62 per 1,000), micropolitan (0.55 per 1,000), and noncore (1.4 per 1,000) areas than residents of large fringe metropolitan areas (0.39 per 1,000).

### Postoperative Wound Dehiscence

People admitted for abdominal surgery who needed reclosure of postoperative wound dehiscence per 1,000 abdominopelvic-surgery admissions, by residence location, 2017



**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, Nationwide Inpatient Sample (NIS), State Inpatient Databases weighted to provide national estimates using the same methodology as the NIS prior to 2012, and AHRQ Quality Indicators, modified version 4.4, 2017.

**Denominator:** Inpatient hospital surgical (abdominopelvic surgery with a length of stay of 2 or more days) discharges age 18 and over, excluding obstetric admissions.

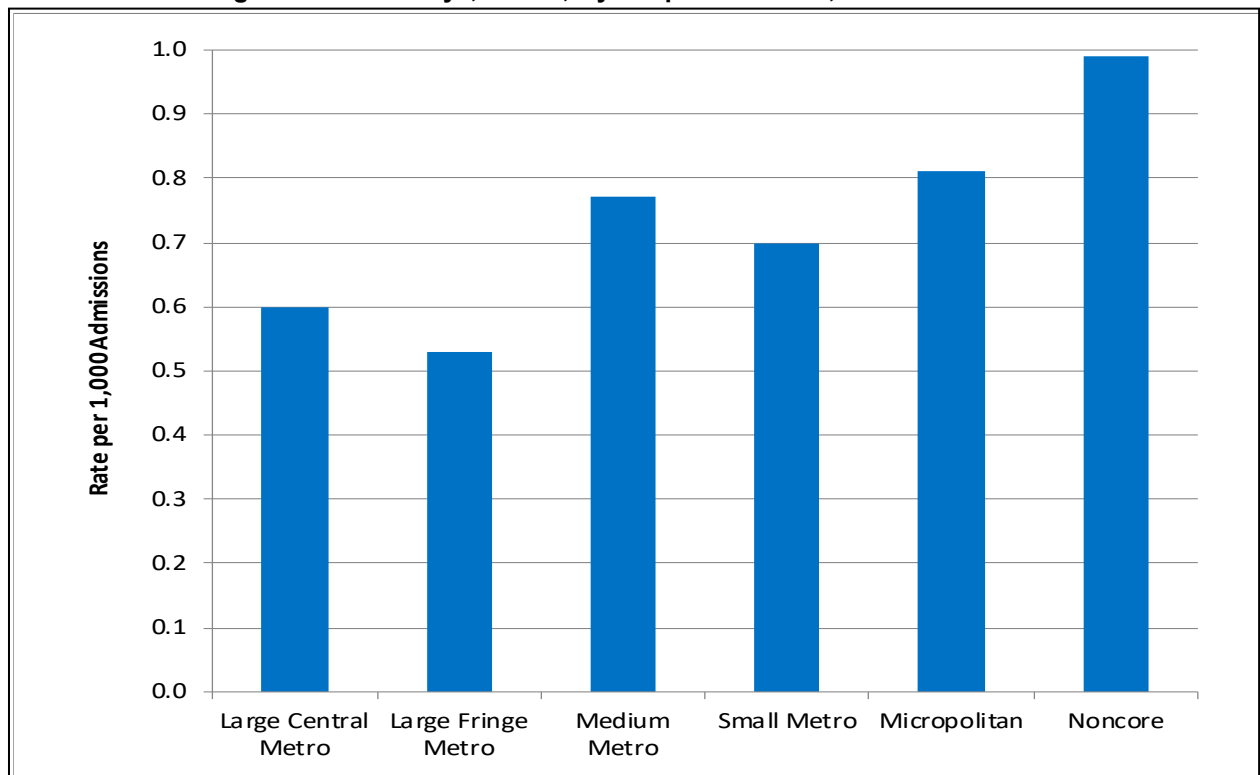
**Note:** For this measure, lower rates are better.

- **Importance:** Postoperative wound dehiscence has been adopted as a surrogate safety outcome measure since it affects morbidity, length of stay, healthcare costs, and readmission rates. Postoperative wound dehiscence cases from the Nationwide Inpatient Sample show 9.6% excess mortality, 9.4 days of excess hospitalization, and \$40,323 in excess hospital charges relative to matched controls (Shanmugan, et al., 2015).

- **Groups With Disparities in 2017:**

- Among adults with abdominopelvic surgery admissions of 2 or more days, the rate of reclosure of postoperative wound dehiscence was higher among residents of medium metropolitan (0.76 per 1,000) or micropolitan (0.86 per 1,000) areas than residents of large fringe metropolitan (0.57 per 1,000) areas.

**Reclosure of postoperative abdominal wound dehiscence per 1,000 abdominopelvic-surgery admissions of length 2 or more days, adults, by hospital location, 2017**



**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, Nationwide Inpatient Sample (NIS), State Inpatient Databases weighted to provide national estimates using the same methodology as the NIS prior to 2012, and AHRQ Quality Indicators, modified version 4.4, 2017.

**Denominator:** Inpatient hospital surgical (abdominopelvic surgery with a length of stay of 2 or more days) discharges age 18 and over, excluding obstetric admissions.

**Note:** For this measure, lower rates are better.

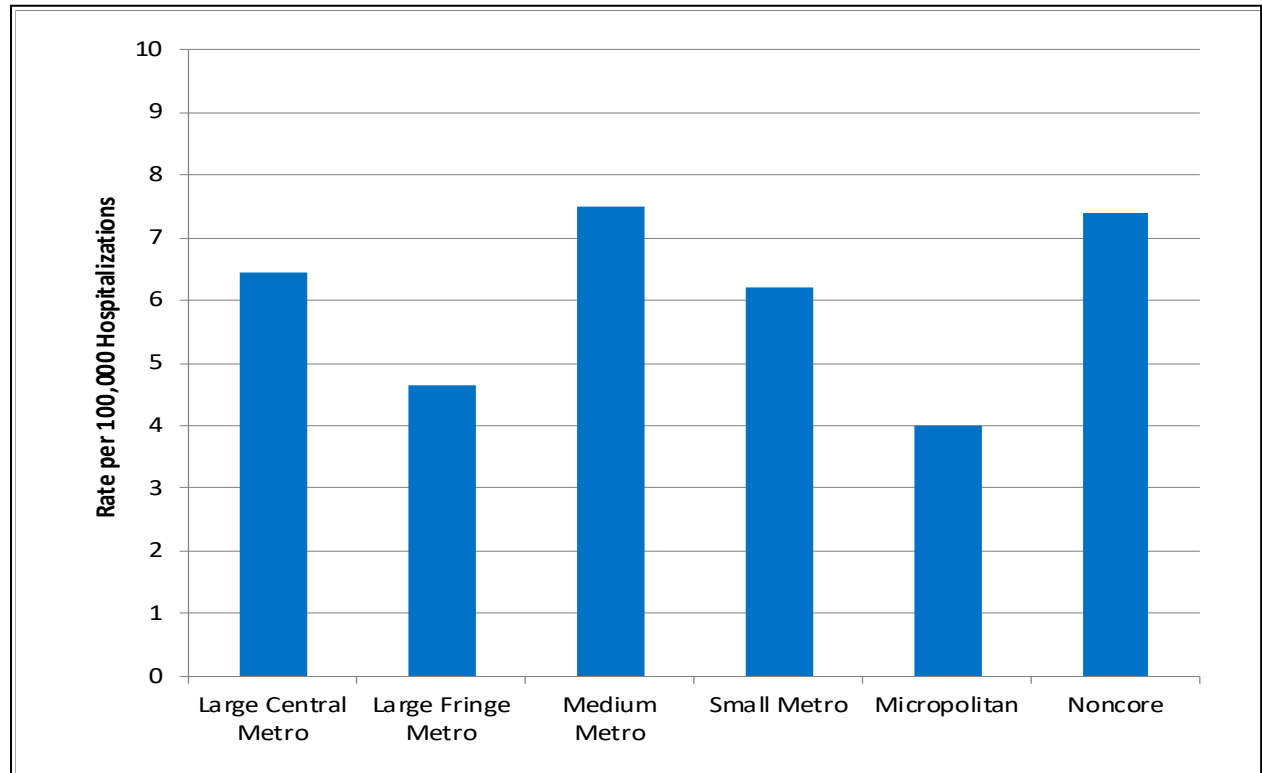
- **Importance:** Postoperative wound dehiscence has been adopted as a surrogate safety outcome measure since it affects morbidity, length of stay, healthcare costs, and readmission rates. Postoperative wound dehiscence cases from the Nationwide Inpatient Sample show 9.6% excess mortality, 9.4 days of excess hospitalization, and \$40,323 in excess hospital charges relative to matched controls (Shanmugan, et al., 2015).

- **Groups With Disparities in 2017:**

- Among adults with abdominopelvic surgery admissions of 2 or more days, the rate of reclosure of postoperative wound dehiscence was higher among residents of medium metropolitan (0.77 per 1,000), micropolitan (0.81 per 1,000), and noncore (0.99 per 1,000) areas compared with residents of large fringe metropolitan areas (0.53 per 1,000).

## Maternal Deaths Related to Childbirth

In-hospital deaths per 100,000 delivery hospitalizations, women ages 12-55, by residence location, 2017



**Source:** Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, State Inpatient Sample, 2017.

**Denominator:** Total number of delivery hospitalizations, women ages 12-55. Delivery includes any delivery diagnosis, procedure, or diagnosis-related group and not abortion - Codes from QTA-2019-03.

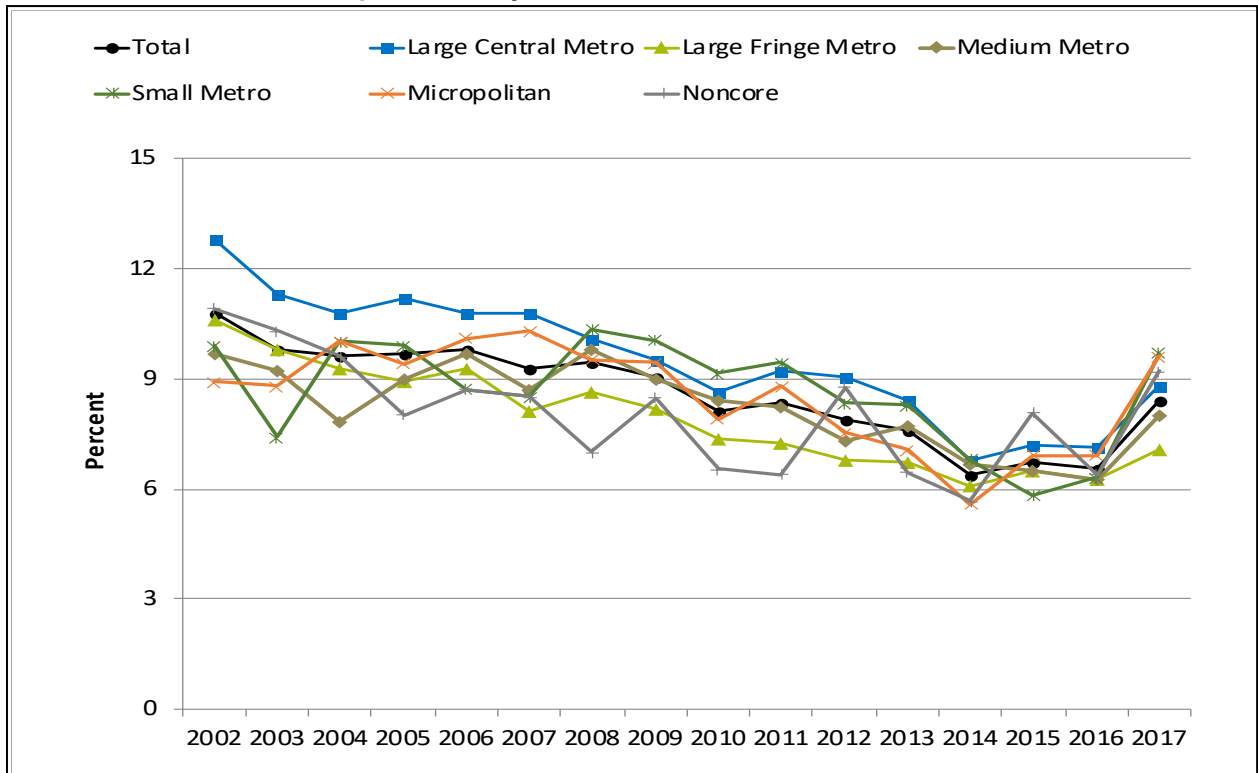
**Note:** For this measure, lower rates are better.

- **Importance:** “Fewer and fewer [rural] facilities are delivering babies, which may adversely affect access to obstetric (OB) services in rural communities” (HHS Rural Action Plan, 2020). The lack of local OB services and the challenges of travel time can increase difficulties with childbirth and maternal health outcomes.
- **Groups With Disparities in 2017:**
  - Among women ages 12-55 hospitalized for delivery, the rate of in-hospital death was higher for women residing in medium metropolitan areas (7.5 per 100,000) compared with women residing in large fringe metropolitan areas (4.6 per 100,000).

## Person-Centered Care

### Provider-Patient Communication

Adults who had a doctor's office or clinic visit in the last 12 months who reported poor communication with health providers, by residence location, 2002-2017



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2017.

**Denominator:** U.S. civilian noninstitutionalized adults age 18 and over who visited a doctor's office or clinic to get healthcare in the past 12 months, excluding those with missing or invalid responses to all of the questions that make up this composite measure.

**Numerator:** Subset of the denominator who reported that their healthcare providers "Sometimes" or "Never" did any one of the following: listened carefully, explained things clearly, showed respect for what they had to say, or spent enough time with them.

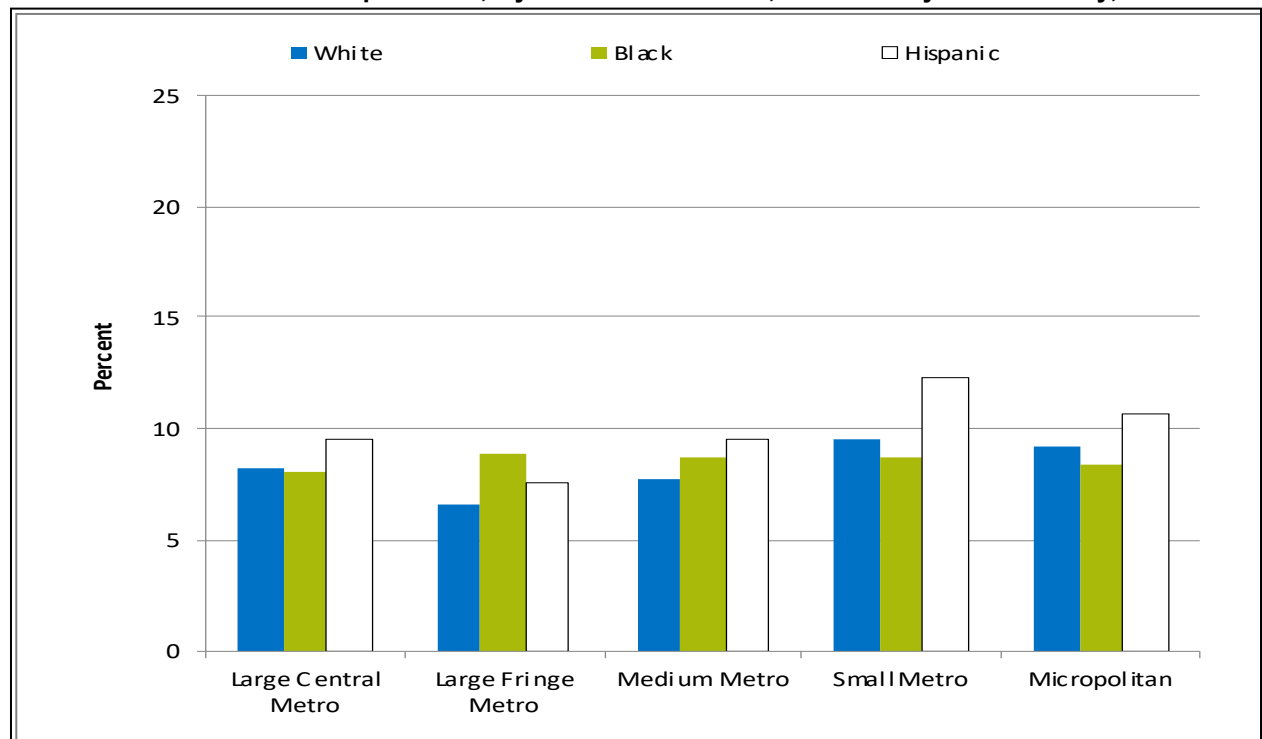
**Note:** For this measure, lower rates are better.

- **Importance:** Effective health communication is critical to health and well-being. Healthcare providers who communicate clearly and use methods such as teach-back and shared decision making can help people make informed health-related decisions. These strategies can help improve outcomes, especially for certain groups, such as people who have limited health literacy skills or speak English as a second language (ODPHP, 2021b).
- **Overall Rate:** In 2017, the percentage of adults who had a doctor's office or clinic visit in the last 12 months who reported poor communication with health providers was 8.4%.
- **Trends:**
  - Between 2002 and 2017, the percentage of adults who had a doctor's office or clinic visit in the last 12 months who reported poor communication with health providers decreased overall and in all residence locations.

• **Groups With Disparities in 2017:**

- The percentage of adults who had a doctor’s office or clinic visit in the last 12 months who reported poor communication with health providers was higher in large central metropolitan (8.8%), small metropolitan (9.7%), and micropolitan (9.6%) areas compared with residents of large fringe metropolitan areas (7.1%).

**Adults who had a doctor’s office or clinic visit in the last 12 months who reported poor communication with health providers, by residence location, stratified by race/ethnicity, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized adults age 18 and over who visited a doctor’s office or clinic to get healthcare in the past 12 months, excluding those with missing or invalid responses to all of the questions that make up this composite measure.

**Numerator:** Subset of the denominator who reported that their healthcare providers “Sometimes” or “Never” did any one of the following: listened carefully, explained things clearly, showed respect for what they had to say, or spent enough time with them.

**Note:** For this measure, lower rates are better. White and Black are non-Hispanic. Hispanic includes all races. Data for noncore areas are not included because they did not meet criteria for statistical reliability across all groups.

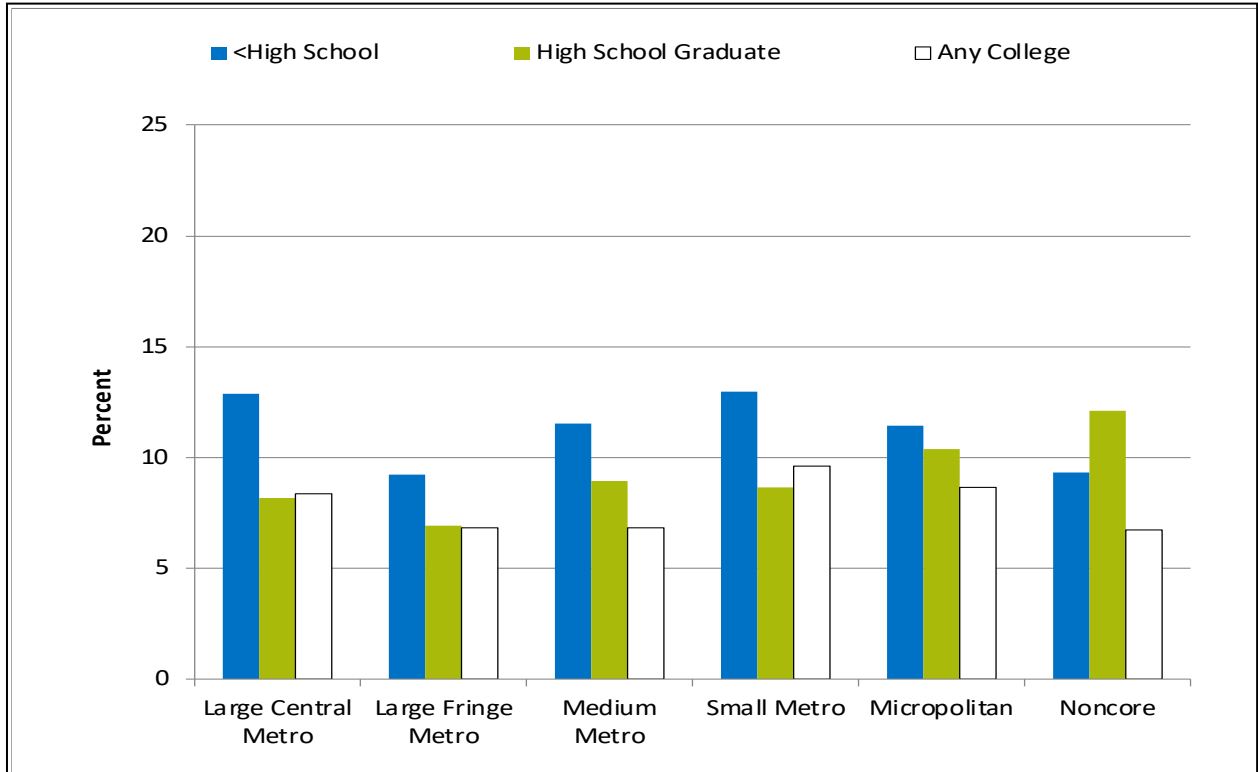
- **Importance:** Optimal healthcare requires good communication between patients and providers, yet barriers to provider-patient communication are common. To provide all patients with the best possible care, providers need to understand patients’ diverse healthcare needs and preferences and communicate clearly with patients about their care.



- **Groups With Disparities in 2017:**

- For White adults who had a doctor’s office or clinic visit in the last 12 months, the percentage of individuals who reported poor communication with health providers was higher among residents of small metropolitan (9.6%) and micropolitan (9.2%) areas compared with those residing in large fringe metropolitan areas (6.6%).

**Adults who had a doctor’s office or clinic visit in the last 12 months who reported poor communication with health providers, by residence location, stratified by education, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized adults age 18 and over who visited a doctor’s office or clinic to get healthcare in the past 12 months, excluding those with missing or invalid responses to all of the questions that make up this composite measure.

**Numerator:** Subset of the denominator who reported that their healthcare providers “Sometimes” or “Never” did any one of the following: listened carefully, explained things clearly, showed respect for what they had to say, or spent enough time with them.

**Note:** For this measure, lower rates are better.

- **Importance:** Optimal healthcare requires good communication between patients and providers, yet barriers to provider-patient communication are common. To provide all patients with the best possible care, providers need to understand patients’ diverse healthcare needs and preferences and communicate clearly with patients about their care.

- **Groups With Disparities in 2017:**

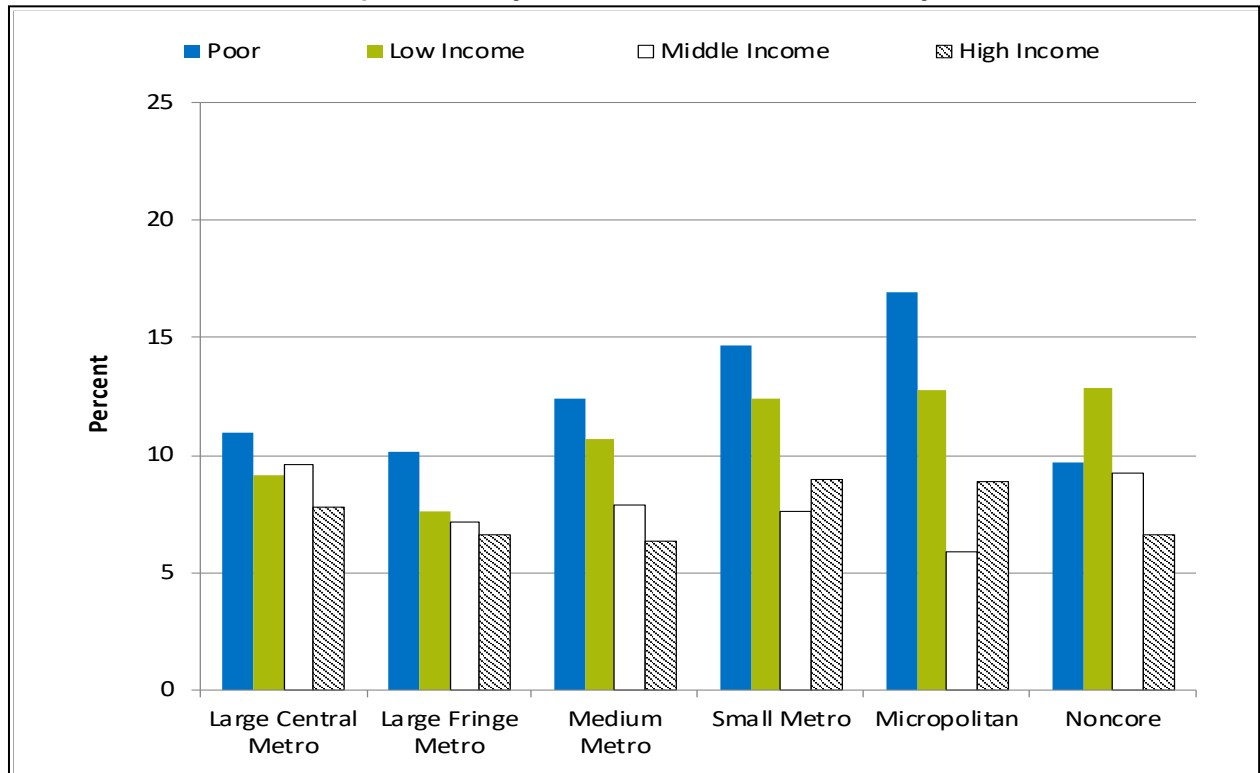
- **Disparities by Location:**

- ◆ In large central metropolitan areas, among adults who had a doctor's office or clinic visit in the last 12 months, the percentage of individuals reporting poor communication with health providers was higher for those who had not graduated from high school (12.9%) compared with adults with any college education (8.3%).
- ◆ In medium metropolitan areas, among adults who had a doctor's office or clinic visit in the last 12 months, the percentage of individuals reporting poor communication with health providers was higher for those who had not graduated from high school (11.6%) compared with adults with any college education (6.8%).

- **Disparities by Group:**

- ◆ For adults with any college education who had a doctor's office or clinic visit in the last 12 months, the percentage of individuals reporting poor communication with health providers was higher for those residing in large central metropolitan (8.3%) and small metropolitan (9.6%) areas compared with those residing in large fringe metropolitan areas (6.8%).
- ◆ For high school graduates who had a doctor's office or clinic visit in the last 12 months, the percentage of individuals reporting poor communication with health providers was higher for those residing in noncore areas (12.1%) compared with those residing in large fringe metropolitan areas (6.9%).
- ◆ For adults who had not graduated from high school who had a doctor's office or clinic visit in the last 12 months, the percentage of individuals reporting poor communication with health providers was higher for those residing in large central metropolitan areas (12.9%) compared with those residing in large fringe metropolitan areas (9.2%).

**Adults who had a doctor's office or clinic visit in the last 12 months who reported poor communication with health providers, by residence location, stratified by income, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized adults age 18 and over who visited a doctor's office or clinic to get healthcare in the past 12 months, excluding those with missing or invalid responses to all of the questions that make up this composite measure.

**Numerator:** Subset of the denominator who reported that their healthcare providers "Sometimes" or "Never" did any one of the following: listened carefully, explained things clearly, showed respect for what they had to say, or spent enough time with them.

**Note:** For this measure, lower rates are better. Poor, low income, middle income, and high income indicate individuals whose household income is <100%, 100-199%, 200-399%, and 400% or more of the Federal poverty level, respectively.

- **Importance:** Optimal healthcare requires good communication between patients and providers, yet barriers to provider-patient communication are common. To provide all patients with the best possible care, providers need to understand patients' diverse healthcare needs and preferences and communicate clearly with patients about their care.
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, the percentage of adults who had a doctor's office or clinic visit in the last 12 months who reported poor communication with health providers was higher for individuals described as poor (10.9%) compared with adults described as high income (7.8%).

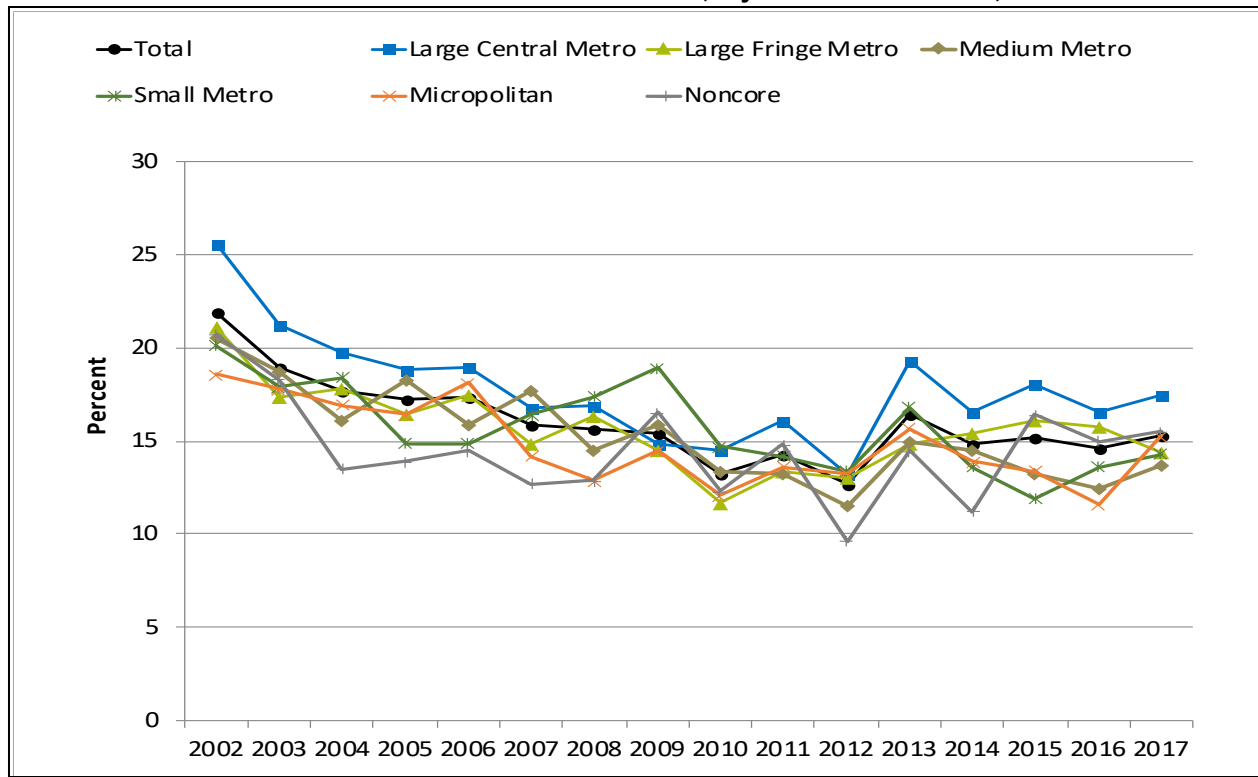
- ◆ In large fringe metropolitan areas, the percentage of adults who had a doctor's office or clinic visit in the last 12 months who reported poor communication with health providers was higher for individuals described as poor (10.1%) compared with adults described as high income (6.6%).
- ◆ In medium metropolitan areas, the percentages of adults who had a doctor's office or clinic visit in the last 12 months who reported poor communication with health providers were higher for individuals described as poor (12.4%) and low income (10.7%) compared with adults described as high income (6.3%).
- ◆ In micropolitan areas, the percentage of adults who had a doctor's office or clinic visit in the last 12 months who reported poor communication with health providers was higher for individuals described as poor (17.0%) compared with those described as high income (8.9%).

■ **Disparities by Group:**

- ◆ Among people with low income, the percentage of adults who had a doctor's office or clinic visit in the last 12 months who reported poor communication with health providers was higher for individuals residing in small metropolitan areas (12.4%) compared with low-income adults residing in large fringe metropolitan areas (7.6%).
- ◆ Among people described as poor, the percentage of adults who had a doctor's office or clinic visit in the last 12 months who reported poor communication with health providers was higher for individuals residing in micropolitan areas (17.0%) compared with individuals residing in large fringe metropolitan areas (10.1%).

## Usual Source of Care Asking for Help With Treatment Decisions

People with a usual source of care whose providers sometimes or never asked them to help make decisions when there was a choice between treatments, by residence location, 2002-2017



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2017.

**Denominator:** Adult civilian noninstitutionalized population with a usual source of care.

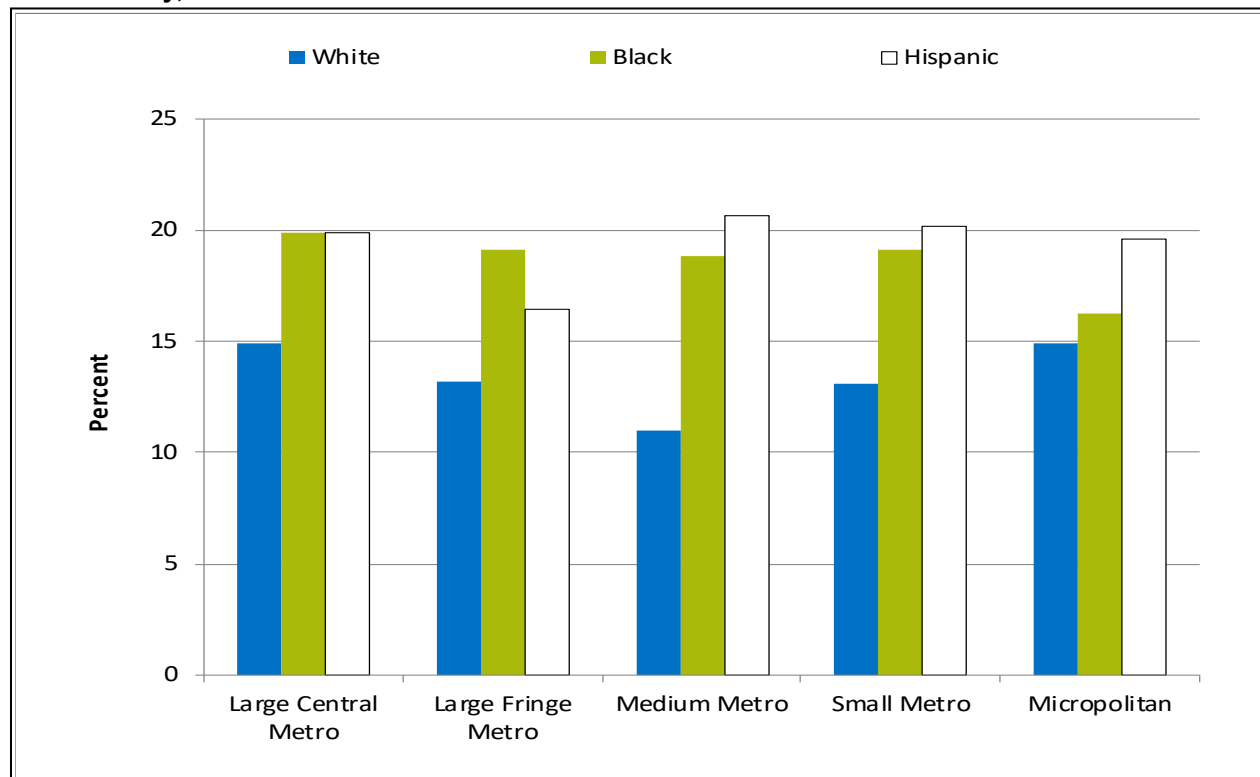
**Note:** For this measure, lower rates are better.

- Importance:** The increasing prevalence of chronic diseases has placed more responsibility on patients since conditions such as diabetes and hypertension require self-management. Patients need to be provided with information that allows them to make educated decisions and feel engaged in their treatment.
- Overall Rate:** In 2017, the percentage of people with a usual source of care whose healthcare providers sometimes or never asked for the person’s help to make treatment decisions was 15.3%.
- Trends:**
  - From 2002 to 2017, the percentage of people with a usual source of care whose healthcare providers sometimes or never asked for the person’s help to make treatment decisions decreased overall and in all residence locations except for noncore, which showed no statistically significant change.

- **Groups With Disparities in 2017:**

- The percentage of people with a usual source of care whose healthcare providers sometimes or never asked for the person’s help to make treatment decisions was higher in large central metropolitan areas (17.5%) compared with large fringe metropolitan areas (14.4%).

**People with a usual source of care whose providers sometimes or never asked them to help make decisions when there was a choice between treatments, by residence location, stratified by race/ethnicity, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** Adult civilian noninstitutionalized population with a usual source of care.

**Note:** For this measure, lower rates are better. White and Black are non-Hispanic. Hispanic includes all races. Data for noncore areas are not included because they did not meet criteria for statistical reliability across all groups.

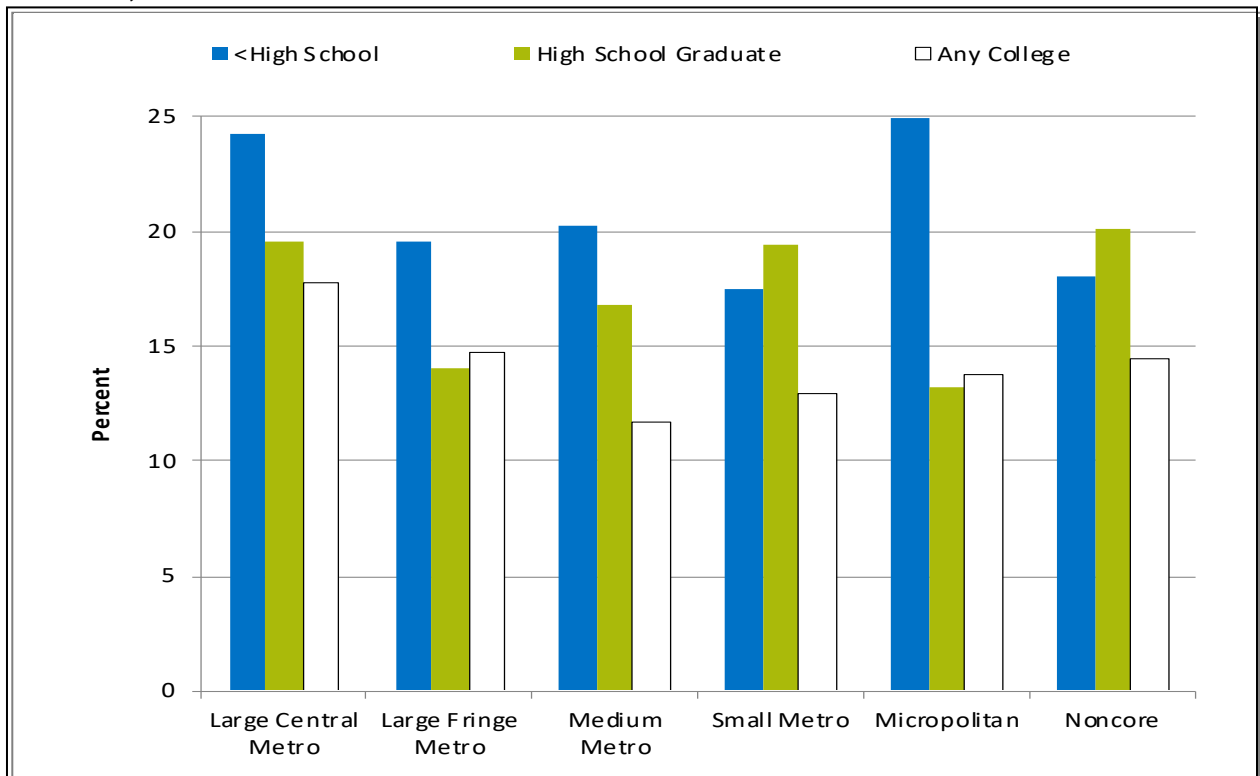
- **Importance:** The increasing prevalence of chronic diseases has placed more responsibility on patients since conditions such as diabetes and hypertension require self-management. Patients need to be provided with information that allows them to make educated decisions and feel engaged in their treatment.

- **Groups With Disparities in 2017:**

- In large central metropolitan areas, among adults with a usual source of care, the percentages who reported that the provider sometimes or never asked for the patient’s help in making decisions about choices among treatments were higher for Hispanics (19.9%) and Blacks (19.9%) compared with Whites (14.9%).

- In large fringe metropolitan areas, among adults with a usual source of care, the percentage who reported that the provider sometimes or never asked for the patient’s help in making decisions about choices among treatments was higher for Blacks (19.1%) compared with Whites (13.2%).
- In medium metropolitan areas, among adults with a usual source of care, the percentages who reported that the provider sometimes or never asked for the patient’s help in making decisions about choices among treatments were higher for Hispanics (20.7%) and Blacks (18.8%) compared with Whites (11.0%).

**People with a usual source of care whose providers sometimes or never asked them to help make decisions when there was a choice between treatments, by residence location, stratified by education, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** Adult civilian noninstitutionalized population with a usual source of care.

**Note:** For this measure, lower rates are better.

- **Importance:** The increasing prevalence of chronic diseases has placed more responsibility on patients since conditions such as diabetes and hypertension require self-management. Patients need to be provided with information that allows them to make educated decisions and feel engaged in their treatment.

- **Groups With Disparities in 2017:**

- **Disparities by Location:**

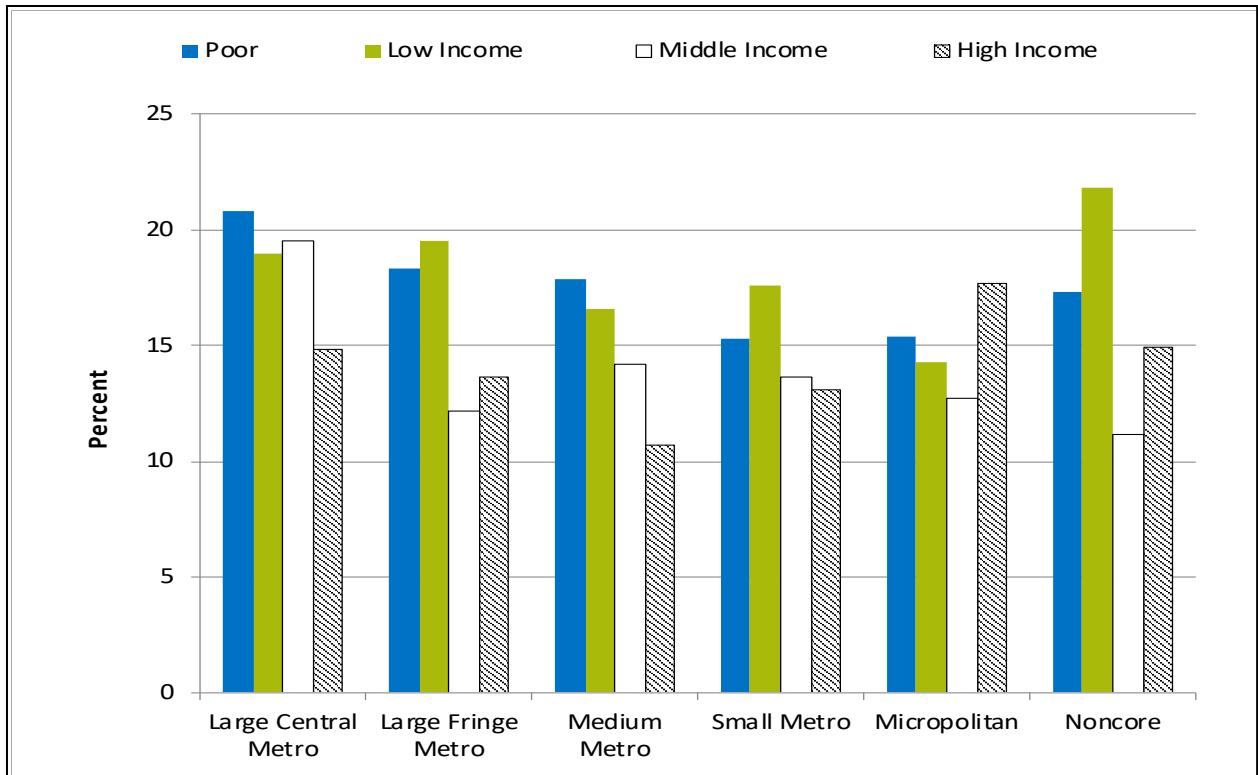
- ◆ In large central metropolitan areas, among adults with a usual source of care, the percentage who reported that the provider sometimes or never asked for the patient's help in making decisions about choices among treatments was higher among people with less than a high school education (24.2%) compared with people with any college education (17.7%).
- ◆ In large fringe metropolitan areas, among adults with a usual source of care, the percentage who reported that the provider sometimes or never asked for the patient's help in making decisions about choices among treatments was higher among people with less than a high school education (19.5%) compared with people with any college education (14.8%).
- ◆ In medium metropolitan areas, among adults with a usual source of care, the percentages who reported that the provider sometimes or never asked for the patient's help in making decisions about choices among treatments were higher for people with less than a high school education (20.2%) and high school graduates (16.8%) compared with people with any college education (11.7%).
- ◆ In small metropolitan areas, among adults with a usual source of care, the percentage who reported that the provider sometimes or never asked for the patient's help in making decisions about choices among treatments was higher for high school graduates (19.4%) compared with people with any college education (12.9%).
- ◆ In micropolitan areas, among adults with a usual source of care, the percentage who reported that the provider sometimes or never asked for the patient's help in making decisions about choices among treatments was higher for people with less than a high school education (24.9%) compared with people with any college education (13.7%).

- **Disparities by Group:**

- ◆ Among high school graduates with a usual source of care, the percentage who reported that the provider sometimes or never asked for the patient's help in making decisions about choices among treatments was higher for people in large central metropolitan areas (19.6%) and small metropolitan areas (19.4%) compared with those in large fringe metropolitan areas (14.0%).



**People with a usual source of care whose providers sometimes or never asked them to help make decisions when there was a choice between treatments, by residence location, stratified by income, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** Adult civilian noninstitutionalized population with a usual source of care.

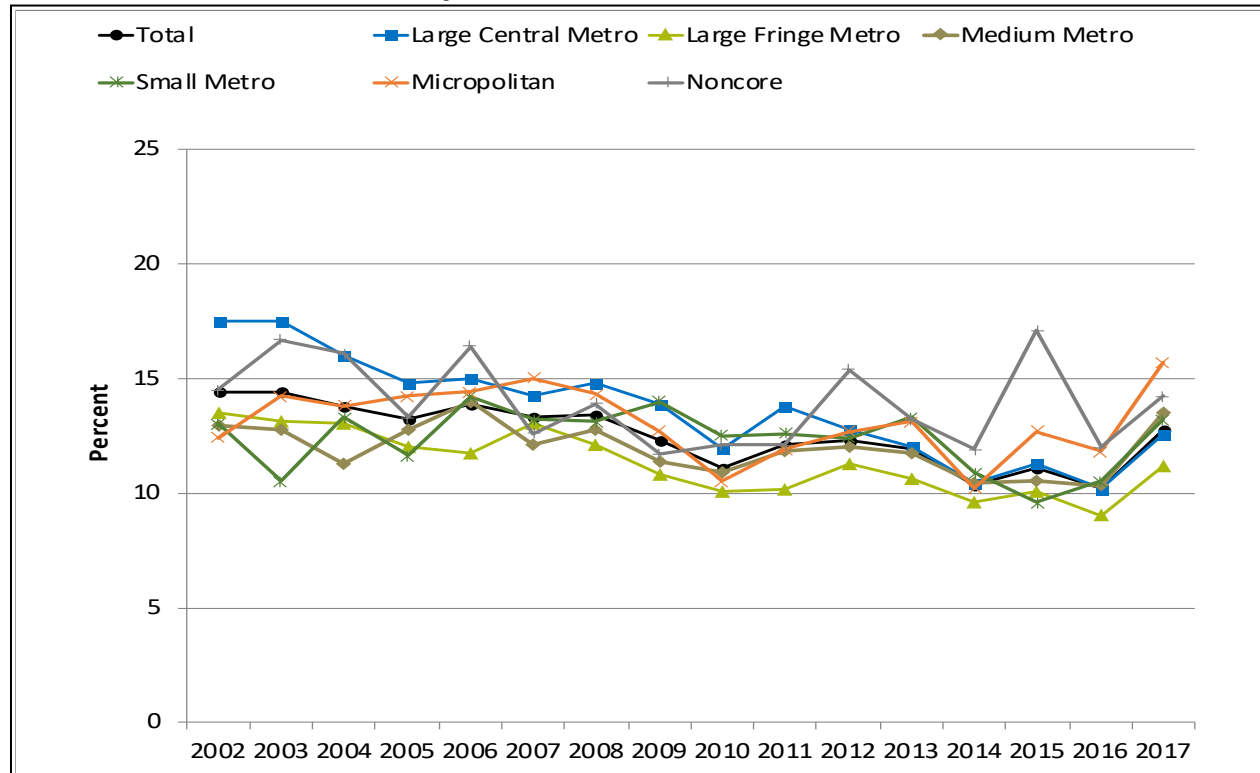
**Note:** For this measure, lower rates are better. Estimates are age adjusted to the 2000 U.S. standard population. Poor, low income, middle income, and high income indicate individuals whose household income is <100%, 100-199%, 200-399%, and 400% or more of the Federal poverty level, respectively.

- **Importance:** The increasing prevalence of chronic diseases has placed more responsibility on patients since conditions such as diabetes and hypertension require self-management. Patients need to be provided with information that allows them to make educated decisions and feel engaged in their treatment.
- **Groups With Disparities in 2017:**
  - In large central metropolitan areas, the percentage of people with a usual source of care who sometimes or never asked the person to help make treatment decisions was higher for middle-income (19.5%), low-income (19.0%), and poor (20.8%) people compared with high-income people (14.8%).
  - In large fringe metropolitan areas, the percentage of people with a usual source of care who sometimes or never asked the person to help make treatment decisions was higher for low-income (19.5%) and poor (18.3%) people compared with high-income people (13.6%).
  - In medium metropolitan areas, the percentage of people with a usual source of care who sometimes or never asked the person to help make treatment decisions was higher for low-income (16.6%) and poor (17.9%) people compared with high-income people (10.7%).

- Among people with middle income, the percentage with a usual source of care who sometimes or never asked the person to help make treatment decisions was higher in large central metropolitan areas (19.5%) compared with large fringe metropolitan areas (12.2%).

## Rating of Healthcare

Rating of healthcare 0-6 on a scale from 0 to 10 (best grade) by adults who had a doctor’s office or clinic visit in the last 12 months, by residence location, 2002-2017



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey , 2002-2017.

**Denominator:** U.S. civilian noninstitutionalized adults age 18 and over who had a doctor’s office or clinic visit in the last 12 months and who provided a valid response to the question, “We want to know your rating of all your health care in the last 12 months from all doctors and other health providers. Use any number from 0 to 10 where 0 is the worst health care possible and 10 is the best health care possible. How would you rate all your health care?”.

**Note:** For this measure, lower rates are better.

- **Importance:** Poor healthcare ratings can lead patients to discontinue care with that provider, with rural residents often facing more limited choices for care in their areas (Irwin, 2019). Patient satisfaction and engagement have been linked to improved clinical outcomes (Hibbard & Greene, 2013), and recent research has found lower levels of patient satisfaction in rural areas (Henning-Smith, et al., 2020).
- **Overall Rate:** In 2017, among adults who had a doctor’s office or clinic visit in the last 12 months and rated their healthcare on a scale from 0 to 10 (best grade), the percentage who rated their care between 0 and 6 was 12.8%.

- **Trends:**

- Between 2002 and 2017, the percentage of adults who had a doctor's office or clinic visit in the last 12 months whose ratings of healthcare were 0-6 on a scale from 0 to 10 (best grade) decreased overall and in large central and large fringe metropolitan areas.

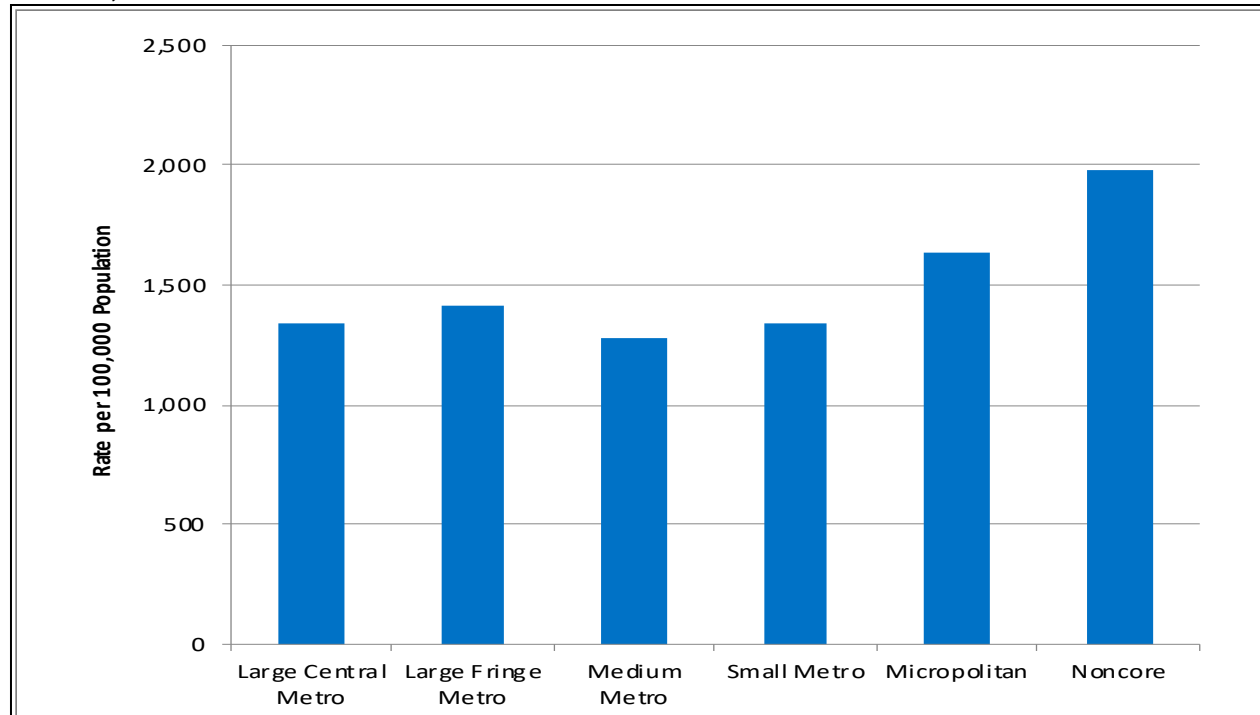
- **Groups With Disparities in 2017:**

- The percentage of adults who had a doctor's office or clinic visit in the last 12 months whose ratings of healthcare were 0-6 on a scale from 0 to 10 (best grade) was higher in micropolitan areas (15.7%) compared with large fringe metropolitan areas (11.2%).

## Care Coordination

### Potentially Avoidable Hospitalizations

Potentially avoidable hospitalizations for all conditions per 100,000 population, by residence location, 2017



**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

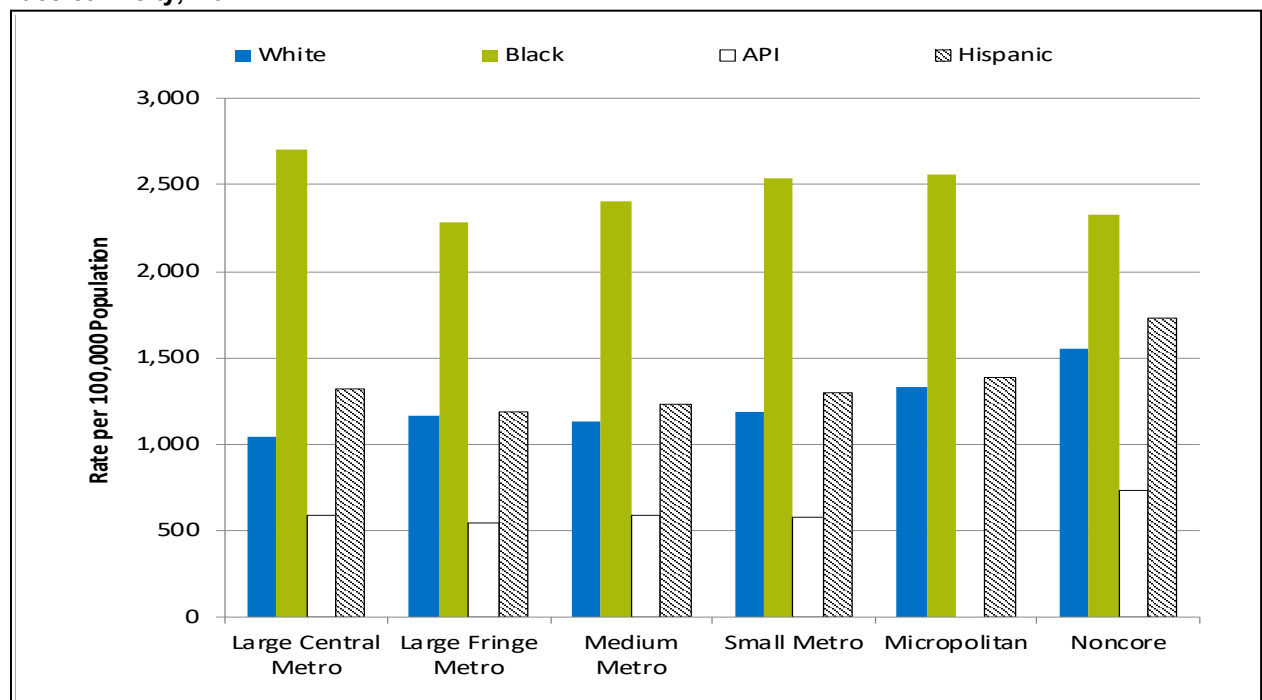
**Denominator:** U.S. resident population age 18 and over.

**Note:** For this measure, lower rates are better. This is a composite measure, which includes in the numerator adults with hospitalizations who qualified for any of the following AHRQ Prevention Quality Indicators (PQIs) measures:

- PQI 1: Diabetes, short-term complications
- PQI 3: Diabetes, long-term complications
- PQI 5: Chronic obstructive pulmonary disease or asthma
- PQI 7: Hypertension
- PQI 8: Heart failure
- PQI 10: Dehydration
- PQI 11: Bacterial pneumonia
- PQI 12: Urinary tract infections
- PQI 14: Uncontrolled diabetes
- PQI 15: Asthma in younger adults

- PQI 16: Lower extremity amputations among patients with diabetes
- **Importance:** Hospitalizations due to ambulatory care-sensitive conditions (ACSCs) such as hypertension and pneumonia should be largely prevented if ambulatory care is provided in a timely and effective manner. Evidence suggests that effective primary care is associated with lower rates of ACSC hospitalization (also referred to as avoidable hospitalization) (Gao, et al., 2014).
- **Groups With Disparities in 2017:**
  - The rate of potentially avoidable hospitalizations among adults was higher in micropolitan areas (1,633.8 per 100,000 population) compared with large fringe metropolitan areas (1,408.6 per 100,000 population).
  - The rate of potentially avoidable hospitalizations among adults was higher in noncore areas (1,983.5 per 100,000 population) compared with large fringe metropolitan areas (1,408.6 per 100,000 population).

**Potentially avoidable hospitalizations per 100,000 population, by residence location, stratified by race/ethnicity, 2017**



**Key:** API = Asian or Pacific Islander.

**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Data bases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** U.S. resident population age 18 and over.

**Note:** For this measure, lower rates are better. White, Black, and API are non-Hispanic. Hispanic includes all races. Data for API in micropolitan areas are not included because they did not meet criteria for statistical reliability. This is a composite measure, which includes in the numerator adults with hospitalizations who qualified for any of the following AHRQ Prevention Quality Indicators (PQIs) measures:

- PQI 1: Diabetes, short-term complications
- PQI 3: Diabetes, long-term complications
- PQI 5: Chronic obstructive pulmonary disease or asthma

- PQI 7: Hypertension
  - PQI 8: Heart failure
  - PQI 10: Dehydration
  - PQI 11: Bacterial pneumonia
  - PQI 12: Urinary tract infections
  - PQI 14: Uncontrolled diabetes
  - PQI 15: Asthma in younger adults
  - PQI 16: Lower extremity amputations among patients with diabetes
- **Importance:** Hospitalizations due to ambulatory care-sensitive conditions (ACSCs) such as hypertension and pneumonia should be largely prevented if ambulatory care is provided in a timely and effective manner. Evidence suggests that effective primary care is associated with lower rates of ACSC hospitalization (also referred to as avoidable hospitalizations) (Gao, et al., 2014).
  - **Groups With Disparities in 2017:**
    - **Disparities by Location:**
      - ◆ The rate of potentially avoidable hospitalizations was higher for Hispanic adults in large central metropolitan areas (1,318.3 per 100,000) compared with White adults in similar areas (1,040.8 per 100,000).
      - ◆ The rate of potentially avoidable hospitalizations was higher for Black adults compared with White adults across all levels of the urban/rural continuum.
      - ◆ In large central metropolitan areas, the rate of potentially avoidable hospitalizations for Black adults was 2,699.3 per 100,000 compared with 1,040.8 per 100,000 for White adults.
      - ◆ In large fringe metropolitan areas, the rate of potentially avoidable hospitalizations for Black adults was 2,287.3 per 100,000 compared with 1,162.7 per 100,000 for White adults.
      - ◆ In medium metropolitan areas, the rate of potentially avoidable hospitalizations for Black adults was 2,400.2 per 100,000 compared with 1,131.9 per 100,000 for White adults.
      - ◆ In small metropolitan areas, the rate of potentially avoidable hospitalizations for Black adults was 2,540.8 per 100,000 compared with 1,187.4 per 100,000 for White adults.
      - ◆ In micropolitan areas, the rate of potentially avoidable hospitalizations for Black adults was 2,557.2 per 100,000 compared with 1,331.1 per 100,000 for White adults.
      - ◆ In noncore areas, the rate of potentially avoidable hospitalizations for Black adults was 2,324.3 per 100,000 compared with 1,549.9 per 100,000 for White adults.
    - The rate of potentially avoidable hospitalizations for Asian and Pacific Islander adults was lower compared with White adults across all levels of the urban/rural continuum where rates were available.
      - ◆ In large central metropolitan areas, the rate of potentially avoidable hospitalizations for API adults was 586.0 per 100,000 compared with 1,040.8 per 100,000 for White adults.
      - ◆ In large fringe metropolitan areas, the rate of potentially avoidable hospitalizations for API adults was 543.2 per 100,000 compared with 1,162.7 per 100,000 for White adults.
      - ◆ In medium metropolitan areas, the rate of potentially avoidable hospitalizations for API adults was 583.6 per 100,000 compared with 1,131.9 per 100,000 for White adults.
      - ◆ In small metropolitan areas, the rate of potentially avoidable hospitalizations for API adults was 580.4 per 100,000 compared with 1,187.4 per 100,000 for White adults.

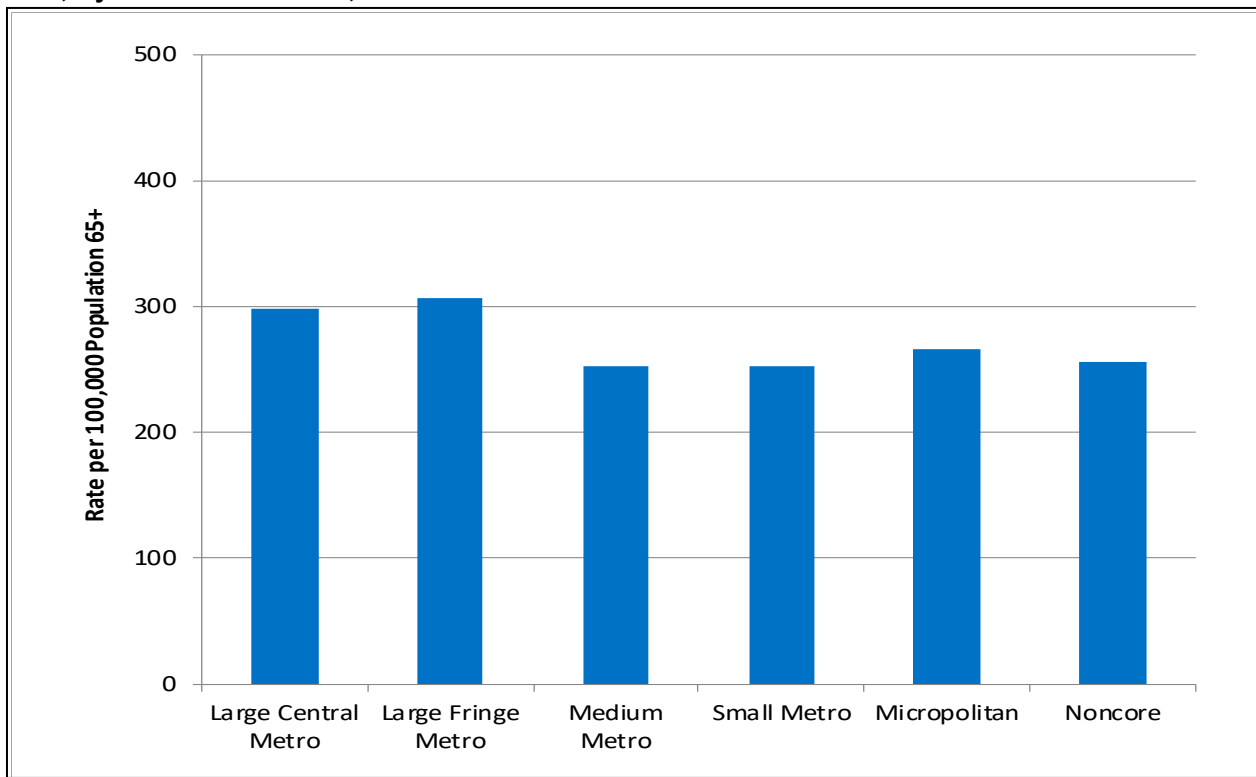
- ◆ In noncore areas, the rate of potentially avoidable hospitalizations for API adults was 729.2 per 100,000 compared with 1,549.9 per 100,000 for White adults.

■ **Disparities by Group:**

- ◆ For White adults, the rate of potentially avoidable hospitalizations was lower in large central metropolitan areas (1,040.8 per 100,000) compared with large fringe metropolitan areas (1,162.7 per 100,000).
- ◆ White adults in micropolitan and noncore areas had higher rates of potentially avoidable hospitalizations (1,331.1 per 100,000 and 1,549.9 per 100,000, respectively) compared with White adults in large fringe metropolitan areas (1,162.7 per 100,000).
- ◆ For Black adults, the rate of potentially avoidable hospitalizations was higher in large central metropolitan areas (2,699.3 per 100,000) compared with large fringe metropolitan areas (2,287.3 per 100,000).
- ◆ For Hispanic adults, the rate of potentially avoidable hospitalizations was higher in noncore areas (1,724.6 per 100,000) compared with large fringe metropolitan areas (1,190.1 per 100,000).

**Influenza Hospitalizations**

**Admissions for immunization-preventable influenza per 100,000 population, adults age 65 and over, by residence location, 2017**



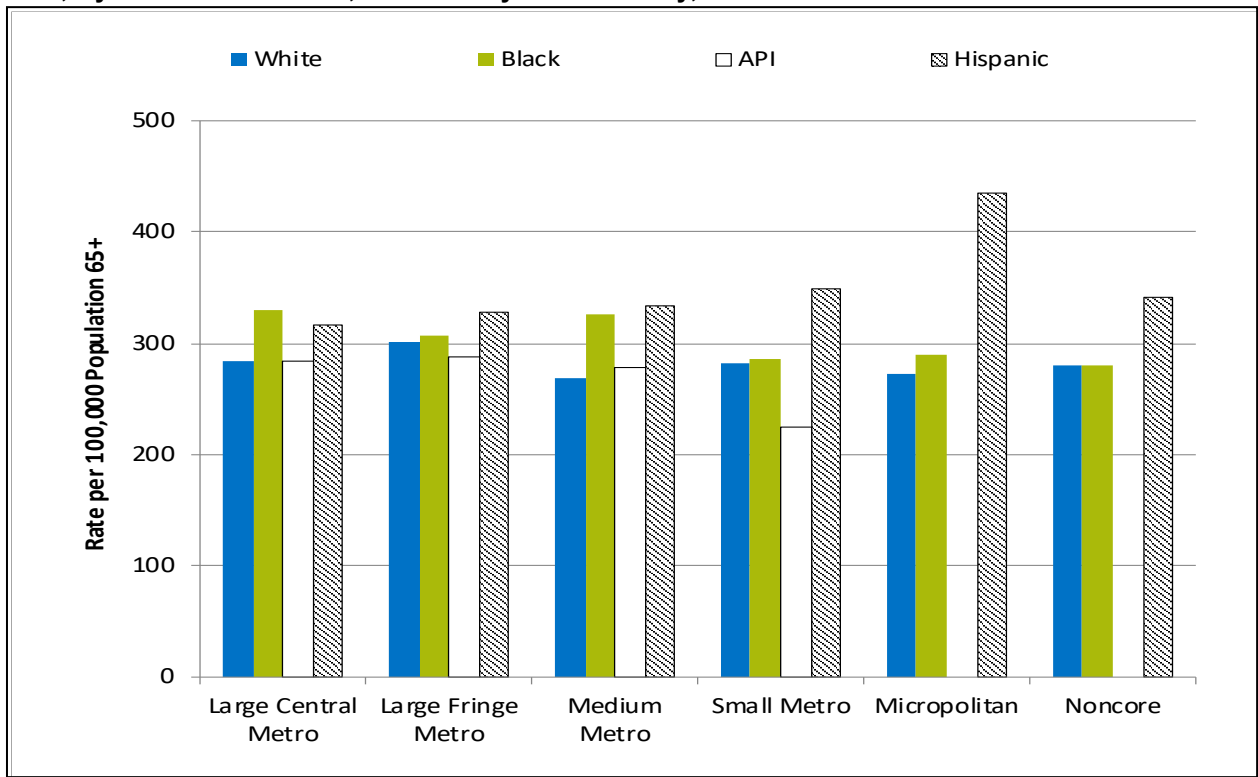
**Source:** Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, 2017.

**Denominator:** U.S. resident population age 65 and over.

**Note:** For this measure, lower rates are better.

- **Importance:** Immunization is a cost-effective strategy for reducing illness, death, and disparities associated with influenza.
- **Groups With Disparities in 2017:**
  - Adults age 65 and over were less likely to be hospitalized for immunization-preventable influenza if they resided in medium metropolitan (253.4 per 100,000), small metropolitan (252.2 per 100,000), micropolitan ((266.7 per 100,000), or noncore (256.8 per 100,000) areas compared with individuals residing in large fringe metropolitan areas (306.1 per 100,000).

**Admissions for immunization-preventable influenza per 100,000 population, adults age 65 and over, by residence location, stratified by race/ethnicity, 2017**



**Key:** API = Asian or Pacific Islander.

**Source:** Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, 2017.

**Denominator:** U.S. resident population age 65 and over.

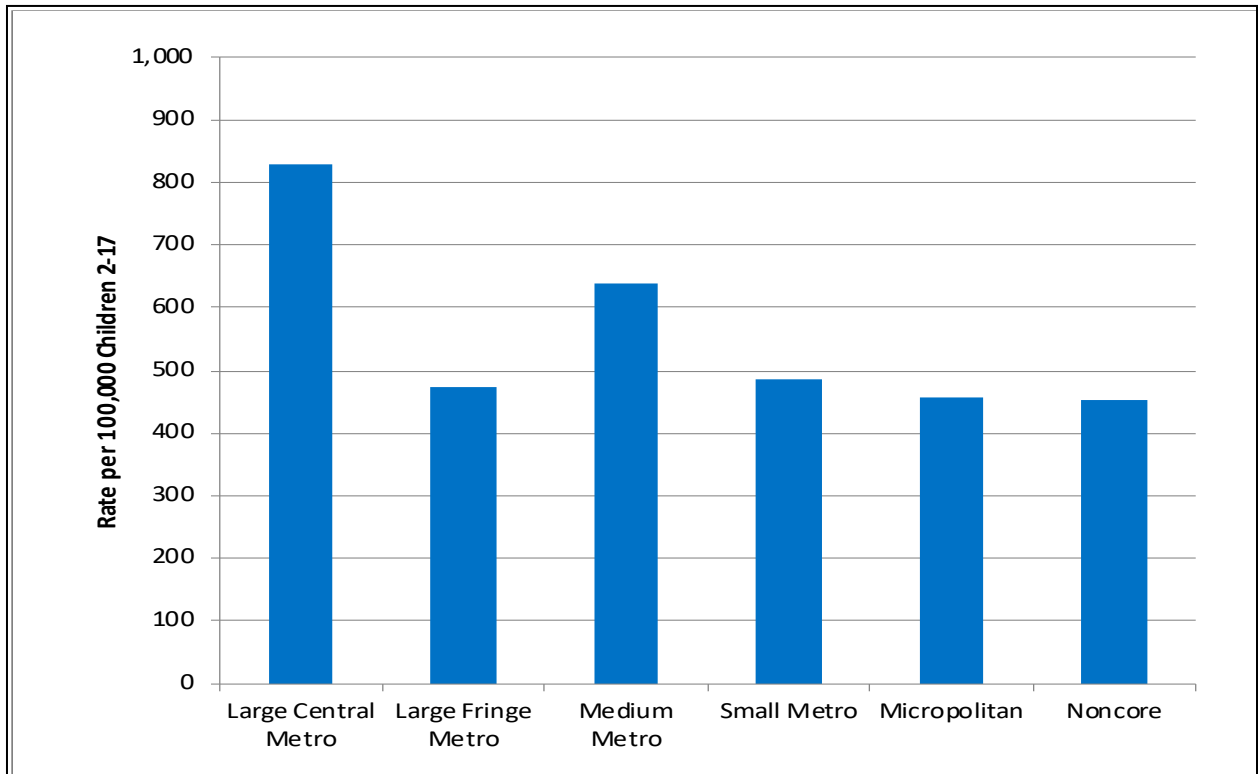
**Note:** For this measure, lower rates are better. White, Black, and API are non-Hispanic. Hispanic includes all races. Data for micropolitan and noncore areas for API are not included because they did not meet criteria for statistical reliability.

- **Importance:** Immunization is a cost-effective strategy for reducing illness, death, and disparities associated with influenza.
- **Groups With Disparities in 2017:**

- In large central metropolitan areas, Black adults age 65 and over had higher rates of hospital admissions for immunization-preventable influenza (330.4 per 100,000) compared with White adults age 65 and over (284.2 per 100,000).
- In micropolitan areas, Hispanic adults age 65 and over had higher rates of hospital admissions for immunization-preventable influenza (434.9 per 100,000) compared with White adults age 65 and over (273.3 per 100,000).

### Emergency Department Encounters for Asthma

Emergency department encounters for asthma per 100,000 children ages 2-17, by residence location, 2017



**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** U.S. resident population ages 2 to 17.

**Note:** For this measure, lower rates are better.

- **Importance:** Asthma has been found to disproportionately affect urban areas, but recent studies have shown rural pediatric asthma prevalence to be very similar to urban. In addition, pediatric asthma rates are more closely correlated with socioeconomic and environmental factors than geographic location or population density. Rural children experience factors unique to location that affect asthma development and outcomes, such as housing quality, cigarette smoke exposure, and farming. Children in rural areas also face barriers to appropriate asthma care that are often more severe in rural areas, including insurance status, lack of primary care providers and pulmonary specialists, lack of knowledge (both patient and provider), and lack of culturally tailored asthma interventions (Estrada & Ownby, 2017).

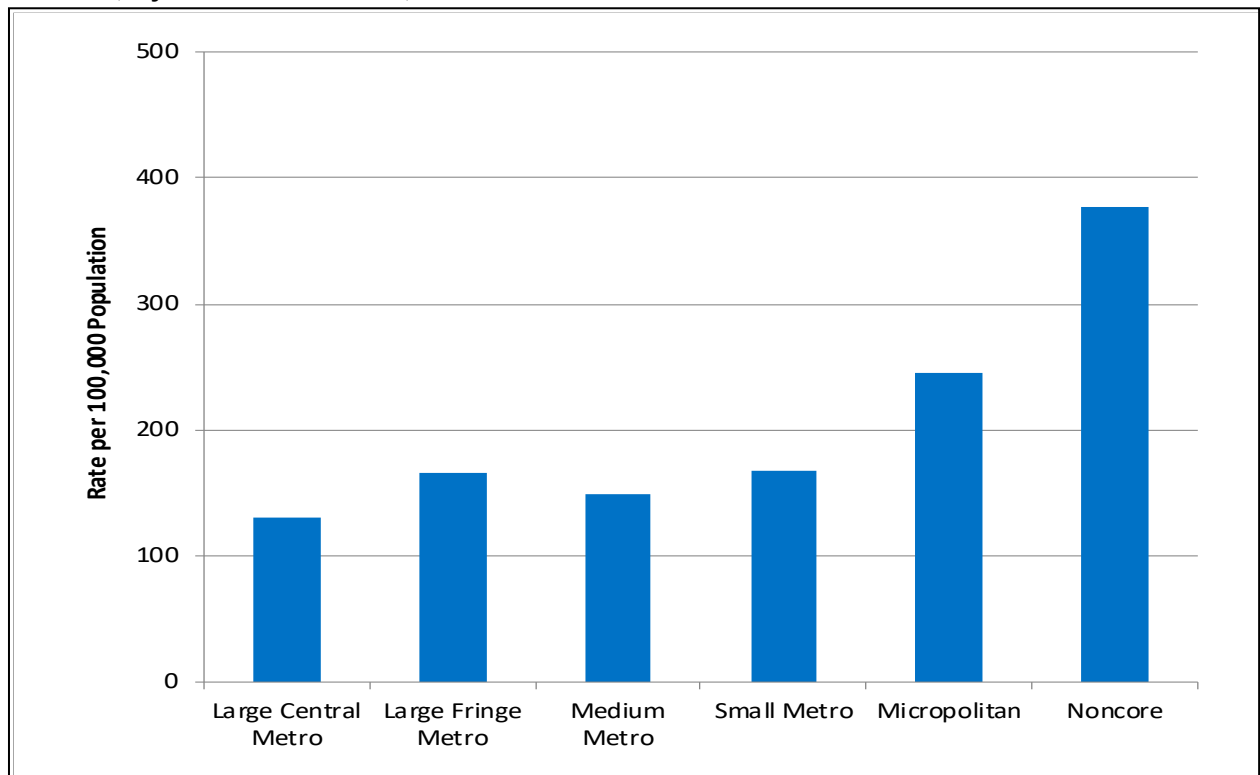


- **Groups With Disparities in 2017:**

- In large central metropolitan areas, children ages 2-17 were more likely to have an emergency department encounter for asthma (829.9 per 100,000) compared with children ages 2-17 residing in large fringe metropolitan areas (475.6 per 100,000).

## Pneumonia Hospitalizations

Hospital admissions for community-acquired pneumonia per 100,000 population, adults age 18 and over, by residence location, 2017



**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** U.S. resident population age 18 and over.

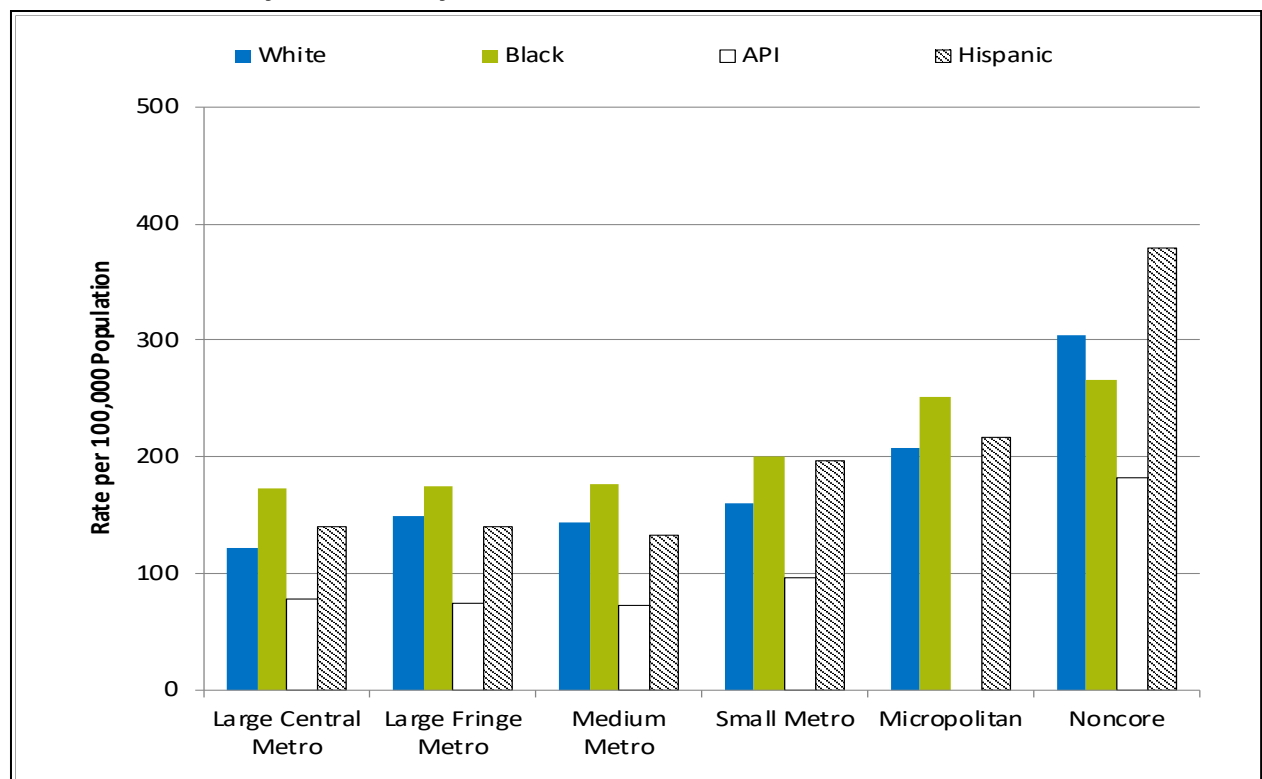
**Note:** For this measure, lower rates are better.

- **Importance:** Evidence suggests that hospitalizations due to ambulatory care-sensitive conditions (ACSCs), such as pneumonia, indicate inadequate access to and effectiveness of primary care (Gao, et al., 2014). Vaccinations can help prevent pneumonia (the Centers for Disease Control and Prevention recommend pneumococcal vaccination for adults over 65). However, a 2018 study found a 63% higher pneumococcal vaccination rate among the fee-for-service Medicare population in urban communities than in rural communities (Vanghelof, et al., 2018).

• **Groups With Disparities in 2017:**

- The rate of adult hospital admissions for community-acquired pneumonia was lower in large central metropolitan areas (130.7 per 100,000) compared with large fringe metropolitan areas (166.6 per 100,000).
- The rate of adult hospital admissions for community-acquired pneumonia was higher in micropolitan areas (245.7 per 100,000) compared with large fringe metropolitan areas (166.6 per 100,000).
- The rate of adult hospital admissions for community-acquired pneumonia was higher in noncore areas (376.5 per 100,000) compared with large fringe metropolitan areas (166.6 per 100,000).

**Hospital admissions for community-acquired pneumonia per 100,000 population, by residence location, stratified by race/ethnicity, 2017**



**Key:** API = Asian or Pacific Islander.

**Source:** Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** U.S. resident population age 18 and over.

**Note:** For this measure, lower rates are better. White, Black, and API are non-Hispanic. Hispanic includes all races. Data for micropolitan areas for API are not included because they did not meet criteria for statistical reliability.

- **Importance:** Evidence suggests that hospitalizations due to ambulatory care-sensitive conditions (ACSCs), such as pneumonia, indicate inadequate access to and effectiveness of primary care (Gao, et al., 2014). Vaccinations can help prevent pneumonia (the Centers for Disease Control and Prevention recommend pneumococcal vaccination for adults over 65). However, a 2018

study found a 63% higher pneumococcal vaccination rate among the fee-for-service Medicare population in urban communities than in rural communities (Vanghelof, et al., 2018).

- **Groups With Disparities in 2017:**

- **Disparities by Location:**

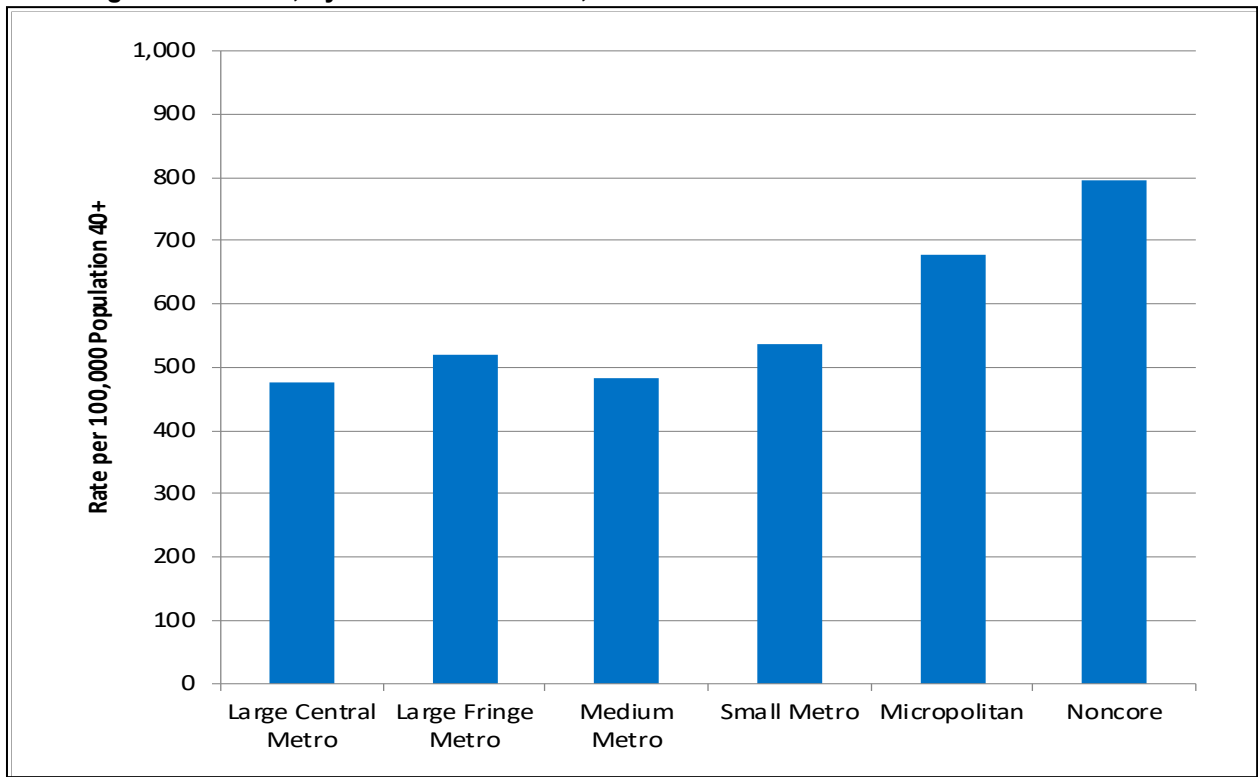
- ◆ In large central metropolitan areas, the rate of adult hospital admissions for community-acquired pneumonia was higher for Black residents (173.5 per 100,000) than for White residents (122.5 per 100,000). In contrast, the rate for Asian or Pacific Islander residents was lower (77.3 per 100,000) than for White residents (122.5 per 100,000).
- ◆ In large fringe metropolitan areas, the rate of adult hospital admissions for community-acquired pneumonia was higher for Black residents (174.6 per 100,000) than for White residents (150.1 per 100,000). In contrast, the rate for Asian or Pacific Islander residents was lower (74.1 per 100,000) than for White residents (150.1 per 100,000).
- ◆ In medium metropolitan areas, the rate of adult hospital admissions for community-acquired pneumonia was higher for Black residents (176.3 per 100,000) than for White residents (144.1 per 100,000). In contrast, the rate for Asian or Pacific Islander residents was lower (72.2 per 100,000) than for White residents (144.1 per 100,000).
- ◆ In small metropolitan areas, the rate of adult hospital admissions for community-acquired pneumonia was lower for Asian or Pacific Islander residents (95.6 per 100,000) than for White residents (161.2 per 100,000).
- ◆ In micropolitan areas, the rate of adult hospital admissions for community-acquired pneumonia was higher for Black residents (251.7 per 100,000) than for White residents (208.1 per 100,000).
- ◆ In noncore areas, the rate of adult hospital admissions for community-acquired pneumonia was lower for Black and Asian or Pacific Islander residents (265.6 and 182.7 per 100,000, respectively) than for White residents (304.4 per 100,000).

- **Disparities by Group:**

- ◆ For Hispanic adults, the rate of hospital admissions for community-acquired pneumonia was higher for residents of micropolitan (216.8 per 100,000) and noncore (378.4 per 100,000) areas than for residents of large fringe metropolitan areas (139.4 per 100,000).
- ◆ For Asian and Pacific Islander adults, the rate of hospital admissions for community-acquired pneumonia was higher for residents of noncore areas (182.7 per 100,000) than for residents of large fringe metropolitan areas (74.1 per 100,000).
- ◆ For Black adults, the rate of hospital admissions for community-acquired pneumonia was higher for residents of micropolitan (251.7 per 100,000) and noncore (265.6 per 100,000) areas than for residents of large fringe metropolitan areas (174.6 per 100,000).
- ◆ For White adults, the rate of hospital admissions for community-acquired pneumonia was higher for residents of micropolitan (208.1 per 100,000) and noncore (304.4 per 100,000) areas than for residents of large fringe metropolitan areas (150.1 per 100,000). In contrast, the rate for White residents of large central metropolitan areas (122.5 per 100,000) was lower than for residents of large fringe metropolitan areas (150.1 per 100,000).

## Hospitalizations for Respiratory Illness

Hospital admissions for chronic obstructive pulmonary disease or asthma per 100,000 population, adults age 40 and over, by residence location, 2017



**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

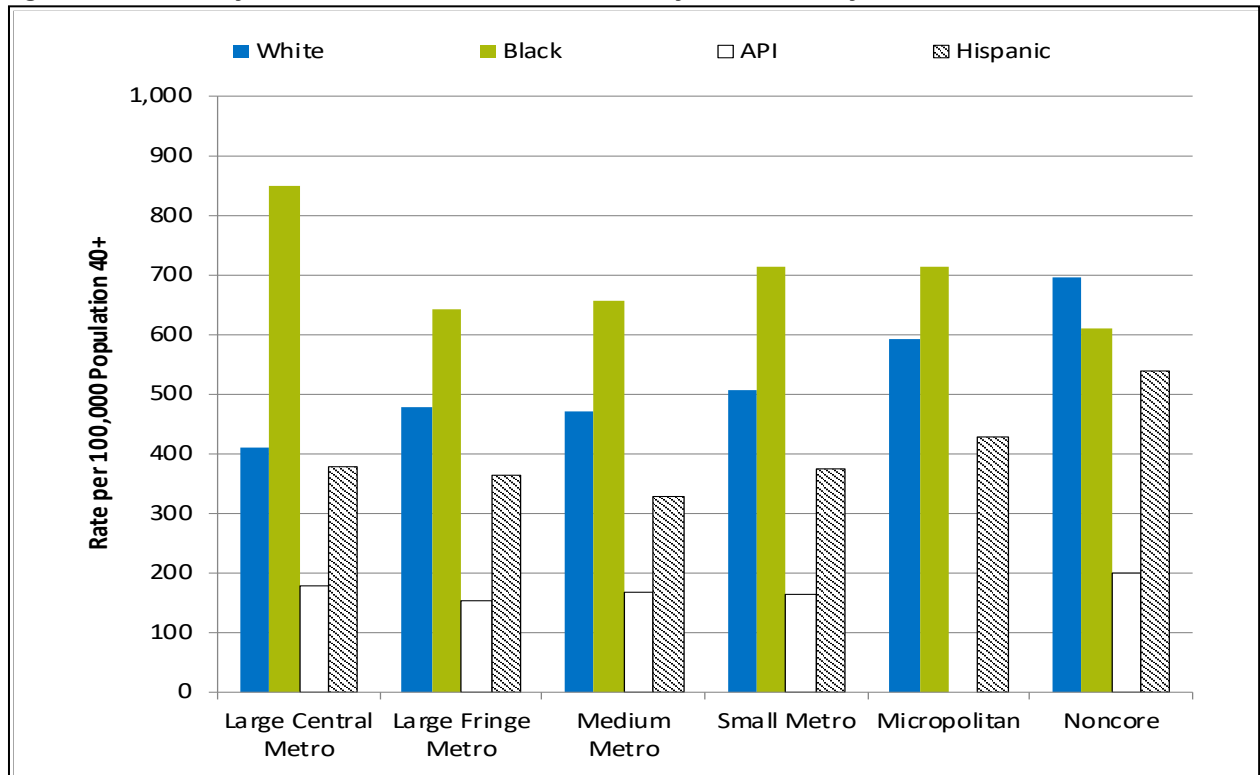
**Denominator:** U.S. resident population age 40 and over.

**Note:** For this measure, lower rates are better.

- Importance:** According to the Centers for Disease Control and Prevention (based on analysis released in 2018), “The percentage of adults in rural areas who have been diagnosed with COPD is nearly double the percentage in large metropolitan areas” (CDC, 2020). Hospital admissions due to chronic obstructive pulmonary disease and asthma could relate not only to the prevalence of the conditions in a given area, but also to the degree of access to essential respiratory services to manage these conditions to avoid potentially preventable hospitalizations (Kim et al., 2016; Casey, et al., 2018).
- Groups With Disparities in 2017:**

  - Among adults age 40 and over, the rate of hospital admission for COPD or asthma was higher for those residing in micropolitan (676.2 per 100,000) and noncore (794 per 100,000) areas compared with those residing in large fringe metropolitan areas (518.4 per 100,000).

### Hospital admissions for chronic obstructive pulmonary disease or asthma per 100,000 population age 40 and over by location of residence, stratified by race/ethnicity, 2017



**Key:** API = Asian or Pacific Islander.

**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, Nationwide Inpatient Sample (NIS), State Inpatient Databases weighted to provide national estimates using the same methodology as the NIS prior to 2012, and AHRQ Quality Indicators, modified version 4.4, 2017.

**Denominator:** U.S. resident population age 40 and over.

**Note:** For this measure, lower rates are better. White, Black, and API are non-Hispanic. Hispanic includes all races. Data for micropolitan areas for API are not included because they did not meet criteria for statistical reliability.

- **Importance:** According to the Centers for Disease Control and Prevention (based on analysis released in 2018), “The percentage of adults in rural areas who have been diagnosed with COPD is nearly double the percentage in large metropolitan areas” (CDC, 2020). Hospital admissions due to chronic obstructive pulmonary disease and asthma could relate not only to the prevalence of the conditions in a given area, but also to the degree of access to essential respiratory services to manage these conditions to avoid potentially preventable hospitalizations (Kim et al., 2016; Casey, et al., 2018).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, the rate of adult hospital admissions for COPD or asthma was higher for Black residents age 40 and over (850 per 100,000) than for White residents (411.9 per 100,000). Asian or Pacific Islander residents had a lower rate of hospitalization for these conditions (178.1 per 100,000) than White residents.

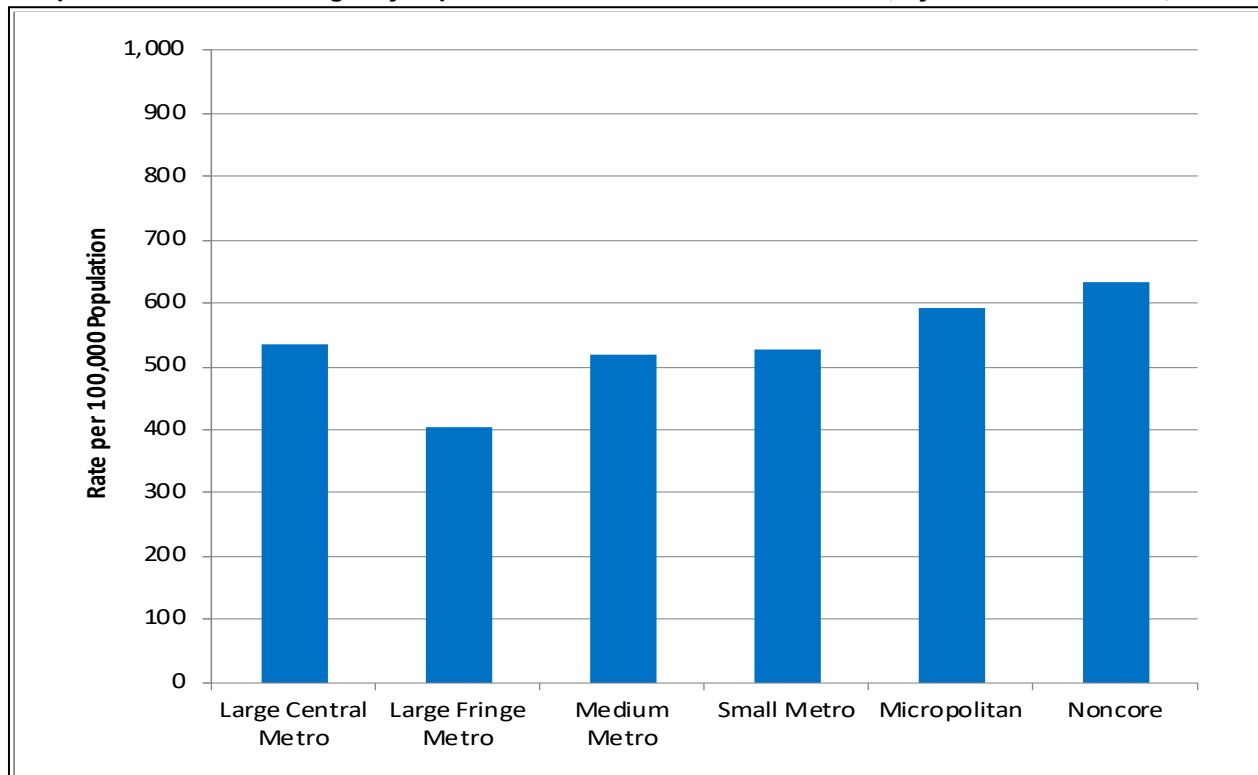
- ◆ In large fringe metropolitan areas, the rate of adult hospital admissions for COPD or asthma was higher for Black residents age 40 and over (641.5 per 100,000) than for White residents (478.3 per 100,000). Hispanic and Asian or Pacific Islander residents had lower rates of hospitalizations for these conditions (362.7 and 154.8 per 100,000 respectively), than White residents.
- ◆ In medium metropolitan areas, the rate of adult hospital admissions for COPD or asthma was higher for Black residents age 40 and over (656.4 per 100,000) than for White residents (471 per 100,000). Hispanic and Asian or Pacific Islander residents had lower rates of hospitalization for these conditions (329.5 and 169.5 per 100,000, respectively) than White residents (471 per 100,000).
- ◆ In small metropolitan areas, the rate of adult hospital admissions for COPD or asthma was higher for Black residents age 40 and over (713.7 per 100,000) than for White residents (506.6 per 100,000). Asian or Pacific Islander residents had a lower rate of hospitalization for these conditions (164.5 per 100,000) than White residents.
- ◆ In micropolitan areas, the rate of adult hospital admissions for COPD or asthma was higher for Black residents age 40 and over (712.4 per 100,000) than for White residents (592.7 per 100,000). Hispanic residents had lower rates of hospitalization for these conditions (427.1 per 100,000) than White residents.
- ◆ In noncore areas, Asian or Pacific Islander residents age 40 and over had a lower rate of hospitalization for COPO or asthma (200.3 per 100,000) than White residents (696.9 per 100,000).

■ **Disparities by Group:**

- ◆ For Hispanic adults age 40 and over, the rate of adult hospital admissions for COPD or asthma was higher for residents of noncore areas (539.4 per 100,000) than for residents of large fringe metropolitan areas (362.7 per 100,000).
- ◆ For Black adults age 40 and over, the rate of adult hospital admissions for COPD or asthma was higher for residents of large central metropolitan areas (850 per 100,000) than for residents of large fringe metropolitan areas (641.5 per 100,000).
- ◆ For White adults age 40 and over, the rate of adult hospital admissions for COPD or asthma was higher for residents of micropolitan (592.7 per 100,000) and noncore (696.9 per 100,000) areas than for residents of large fringe metropolitan areas (478.3 per 100,000). White residents of large central metropolitan areas (411.9 per 100,000) had a lower rate than White residents of large fringe metropolitan areas.

## Hospital Visits for Heart Failure

### Hospitalizations and emergency department encounters for heart failure, by residence location, 2017



**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and Nationwide Emergency Department Sample, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** U.S. resident population age 18 and over.

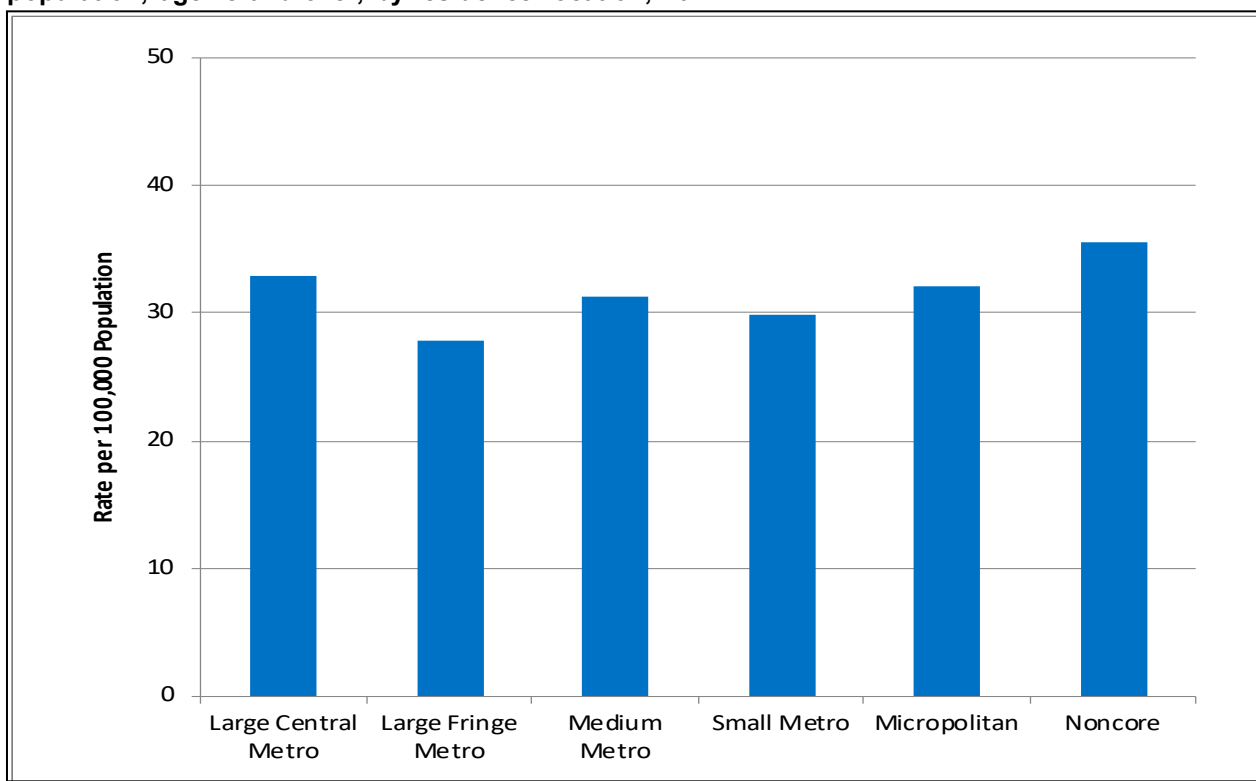
**Note:** For this measure, lower rates are better.

- **Importance:** A higher prevalence of heart disease has been reported in rural areas compared with urban areas, and recent research has found “a significantly greater burden [of heart failure-related mortality rates] in rural counties (Pierce, et al., 2021).” This finding comports with Centers for Disease Control and Prevention findings that rural residents are more likely than urban residents to die prematurely from all of the five leading causes of death: heart disease, cancer, unintentional injury, chronic lower respiratory disease, and stroke (CDC, 2019a). Hospital admissions and mortality due to heart failure could relate not only to the prevalence of the condition in a given area, but also to the degree of access to care in rural areas (Pierce, et al., 2021).
- **Groups With Disparities in 2017:**
  - Residents of large central metropolitan areas were more likely to be hospitalized or use the emergency department for heart failure (533.6 per 100,000) compared with residents of large fringe metropolitan areas (402.5 per 100,000).
  - Residents of medium metropolitan areas were more likely to be hospitalized or use the emergency department for heart failure (520.0 per 100,000) compared with residents of large fringe metropolitan areas (402.5 per 100,000).

- Residents of small metropolitan areas were more likely to be hospitalized or use the emergency department for heart failure (528.2 per 100,000) compared with residents of large fringe metropolitan areas (402.5 per 100,000).
- Residents of micropolitan areas were more likely to be hospitalized or use the emergency department for heart failure (590.9 per 100,000) compared with residents of large fringe metropolitan areas (402.5 per 100,000).
- Residents of noncore areas were more likely to be hospitalized or use the emergency department for heart failure (634.9 per 100,000) compared with residents of large fringe metropolitan areas (402.5 per 100,000).

### Lower Extremity Amputations Among Diabetes Admissions

Hospital admissions for lower extremity amputations among admissions for diabetes per 100,000 population, age 18 and over, by residence location, 2017



**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** U.S. resident population of adults age 18 and over.

**Note:** For this measure, lower rates are better.

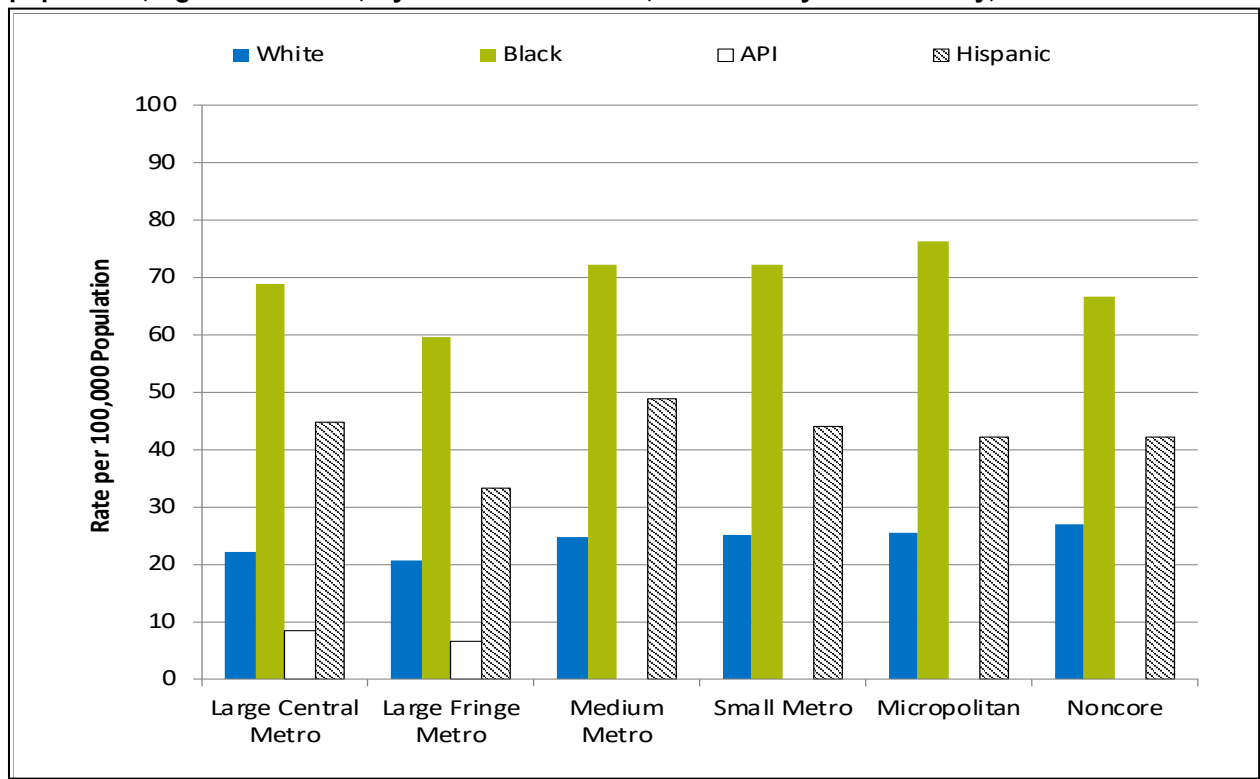
- **Importance:** Certain risk factors that contribute to lower extremity amputations may be more prevalent in rural areas, such as certain health conditions (e.g., diabetes) and unhealthy behaviors (e.g., factors contributing to [motor vehicle crashes](#)) (RHihub, 2020; Temple, 2017).



• **Groups With Disparities in 2017:**

- The rate of hospital admission for lower extremity amputation among people with diabetes was higher in large central metropolitan areas (32.9 per 100,000 population) compared with large fringe metropolitan areas (27.8 per 100,000 population).
- The rate of hospital admission for lower extremity amputation among people with diabetes was higher in micropolitan areas (32.2 per 100,000 population) compared with large fringe metropolitan areas (27.8 per 100,000 population).
- The rate of hospital admission for lower extremity amputation among people with diabetes was higher in noncore areas (35.5 per 100,000 population) compared with large fringe metropolitan areas (27.8 per 100,000 population).

**Hospital admissions for lower extremity amputations among admissions for diabetes per 100,000 population, age 18 and over, by residence location, stratified by race/ethnicity, 2017**



**Key:** API = Asian or Pacific Islander.

**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** U.S. resident population of adults age 18 and over.

**Note:** For this measure, lower rates are better. White, Black, and API are non-Hispanic. Hispanic includes all races. Data for medium, small, micropolitan, and noncore areas for API are not included because they did not meet criteria for statistical reliability.

- **Importance:** Certain risk factors that contribute to lower extremity amputations may be more prevalent in rural areas, such as certain health conditions (e.g., diabetes) and unhealthy behaviors (e.g., factors contributing to [motor vehicle crashes](#)) (RHIfhub, 2020; Temple, 2017).

- **Groups With Disparities in 2017:**

- **Disparities by Location:**

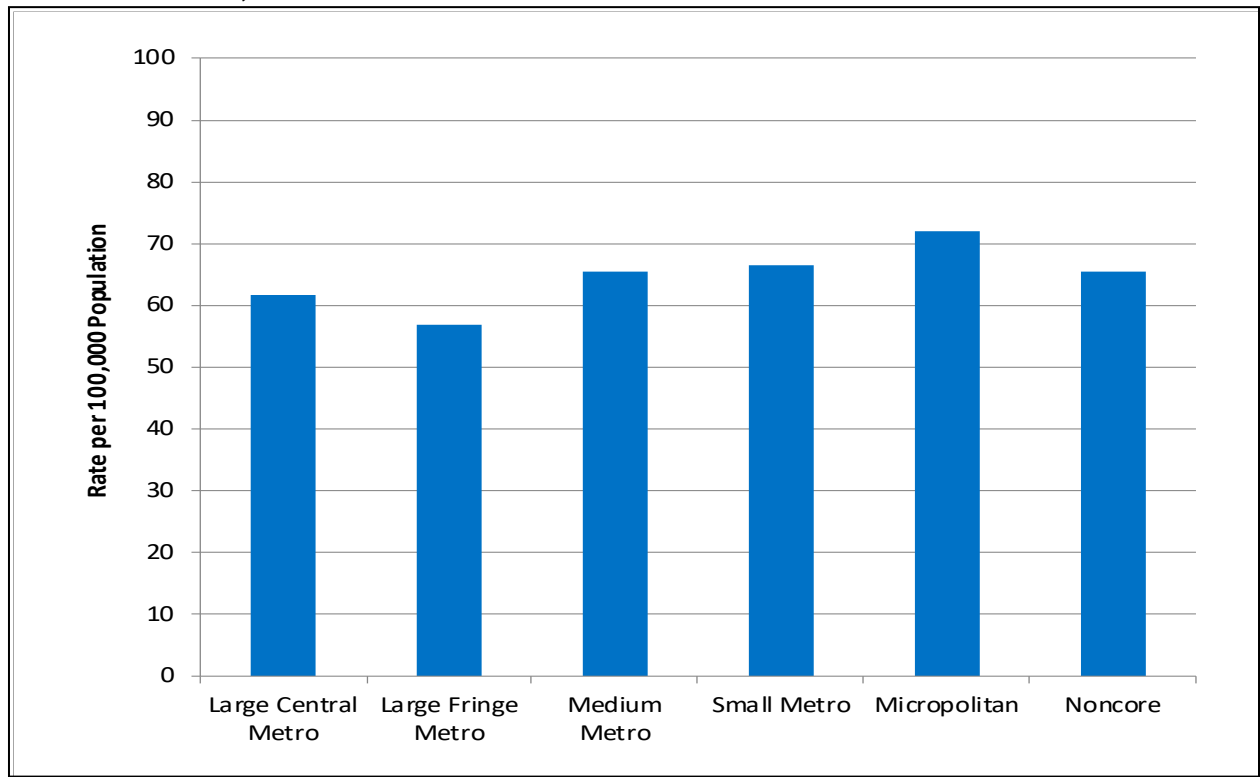
- ◆ In large central metropolitan areas, the rate of hospital admission for lower extremity amputation among people with diabetes was higher among Hispanic (44.7 per 100,000) and Black (69.0 per 100,000) residents than White residents (22.2 per 100,000). In contrast, the rate was lower among Asian and Pacific Islander residents (8.4 per 100,000) compared with White residents.
- ◆ In large fringe metropolitan areas, the rate of hospital admission for lower extremity amputation among people with diabetes was higher among Hispanic (33.4 per 100,000) and Black (59.4 per 100,000) residents than White residents (20.6 per 100,000). The rate was lower for Asian and Pacific Islander residents (6.7 per 100,000).
- ◆ In medium metropolitan areas, the rate of hospital admission for lower extremity amputation among people with diabetes was higher among Hispanic (48.8 per 100,000) and Black (72.2 per 100,000) residents than White residents (24.8 per 100,000).
- ◆ In small metropolitan areas, the rate of hospital admission for lower extremity amputation among people with diabetes was higher among Hispanic (44.1 per 100,000) and Black (72.3 per 100,000) residents than White residents (25.1 per 100,000).
- ◆ In micropolitan areas, the rate of hospital admission for lower extremity amputation among people with diabetes was higher among Hispanic (42.0 per 100,000) and Black (76.3 per 100,000) residents than White residents (25.6 per 100,000).
- ◆ In noncore areas, the rate of hospital admission for lower extremity amputation among people with diabetes was higher among Hispanic (42.0 per 100,000) and Black (66.8 per 100,000) residents than White residents (26.9 per 100,000).

- **Disparities by Group:**

- ◆ For Hispanic adults, the rate of hospital admission for lower extremity amputation among people with diabetes was higher in large central metropolitan (44.7 per 100,000) and medium metropolitan (48.8 per 100,000) areas compared with large fringe metropolitan areas (33.4 per 100,000).
- ◆ For Black adults, the rate of hospital admission for lower extremity amputation among people with diabetes was higher in micropolitan areas (76.3 per 100,000) compared with large fringe metropolitan areas (59.4 per 100,000).
- ◆ For White adults, the rate of hospital admission for lower extremity amputation among people with diabetes was higher in medium, small, micropolitan, and noncore areas (24.8 per 100,000, 25.1 per 100,000, 25.6 per 100,000, 26.9 per 100,000, respectively) compared with large fringe metropolitan areas (20.6 per 100,000).

## Hospitalizations for Diabetes Complications

Hospital admissions for short-term complications of diabetes per 100,000 population, adults, by residence location, 2017



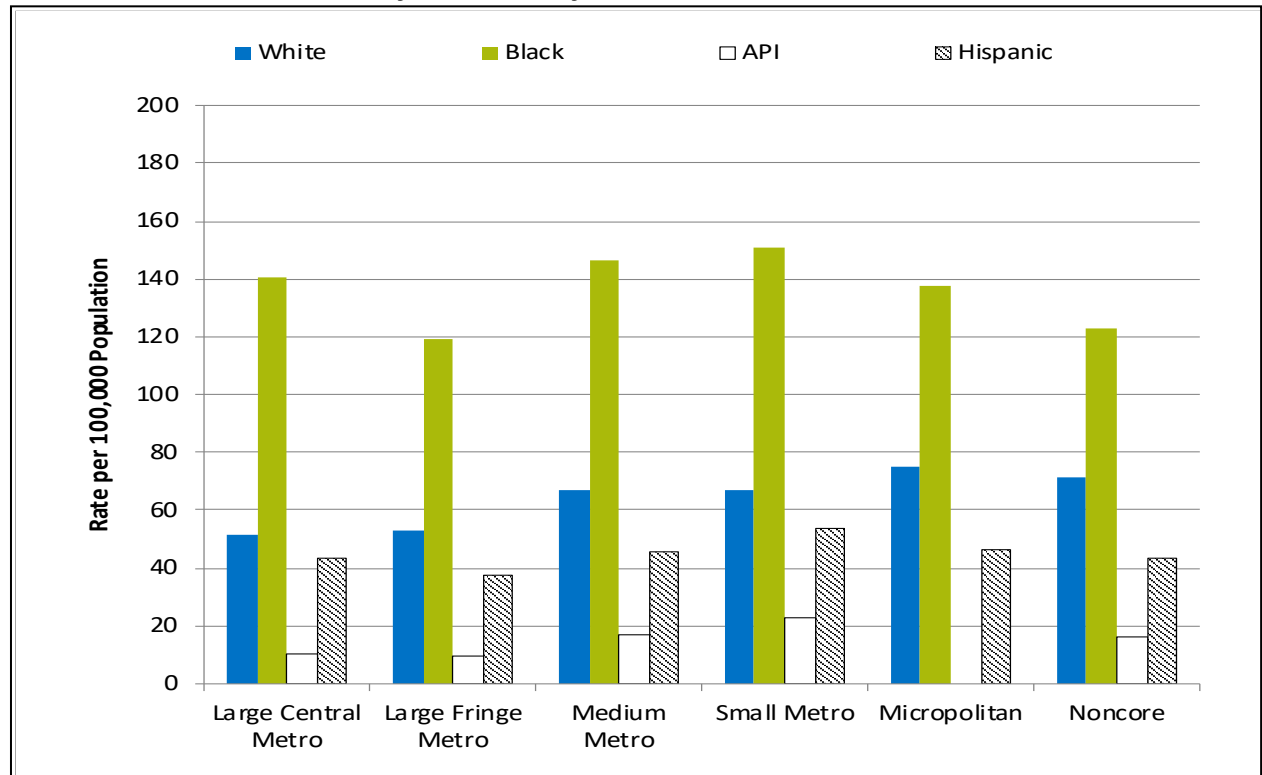
**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** U.S. resident population age 18 and over.

**Note:** For this measure, lower rates are better.

- **Importance:** Diabetes is more prevalent in rural areas, and rural residents often experience unique barriers to care, including fewer healthcare providers, high rates of uninsured people, and fewer transportation options (RHHub, 2020).
- **Groups With Disparities in 2017:**
  - Adults in medium metropolitan (65.5 per 100,000), small metropolitan (66.3 per 100,000), micropolitan (71.9 per 100,000), and noncore (65.3 per 100,000) areas were more likely to have hospital admissions for short-term complications of diabetes compared with adults in large fringe metropolitan areas (56.9 per 100,000).

**Hospital admissions for short-term complications of diabetes per 100,000 population, adults, by residence location, stratified by race/ethnicity, 2017**



**Key:** API = Asian or Pacific Islander.

**Source:** Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, 2017.

**Denominator:** U.S. resident population age 18 and over.

**Note:** For this measure, lower rates are better. White, Black, and API are non-Hispanic. Hispanic includes all races. Data for micropolitan areas for API are not included because they did not meet criteria for statistical reliability. 1

- **Importance:** Diabetes is more prevalent in rural areas, and rural residents often experience unique barriers to care, including fewer healthcare providers, high rates of uninsured people, and fewer transportation options (RHInet, 2020).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, admissions for short-term complications of diabetes were higher among Black residents (140.4 per 100,000) than White residents (51.2 per 100,000). Admission rates for Hispanic (43.3 per 100,000) and Asian and Pacific Islander (10.2 per 100,000) residents were lower than the rate for Whites (51.2 per 100,000).
    - ◆ In large fringe metropolitan areas, admissions for short-term complications of diabetes were higher among Black residents (119.5 per 100,000) than White residents (53.3 per 100,000). Admission rates for Hispanic (37.9 per 100,000) and Asian and Pacific Islander (9.7 per 100,000) residents were lower than the rate for White residents (53.3 per 100,000).

- ◆ In medium metropolitan areas, admissions for short-term complications of diabetes were higher among Black residents (146.5 per 100,000) than White residents (67.0 per 100,000). Admission rates for Hispanic (45.4 per 100,000) and Asian and Pacific Islander (16.7 per 100,000) residents were lower than the rate for White residents (67.0 per 100,000).
- ◆ In small metropolitan areas, admissions for short-term complications of diabetes were higher among Black residents (150.7 per 100,000) than White residents (67.3 per 100,000). The admission rate for Asian and Pacific Islander residents (22.6 per 100,000) was lower than the rate for White residents (67.3 per 100,000).
- ◆ In micropolitan areas, admissions for short-term complications of diabetes were higher among Black residents (137.8 per 100,000) than White residents (75.4 per 100,000). The admission rate for Hispanic residents (46.2 per 100,000) was lower than the rate for White residents (75.4 per 100,000).
- ◆ In noncore areas, admissions for short-term complications of diabetes were higher among Black residents (122.8 per 100,000) than White residents (71.7 per 100,000). Admission rates for Hispanic (43.4 per 100,000) and Asian and Pacific Islander (16.3 per 100,000) residents were lower than the rate for White residents (71.7 per 100,000).

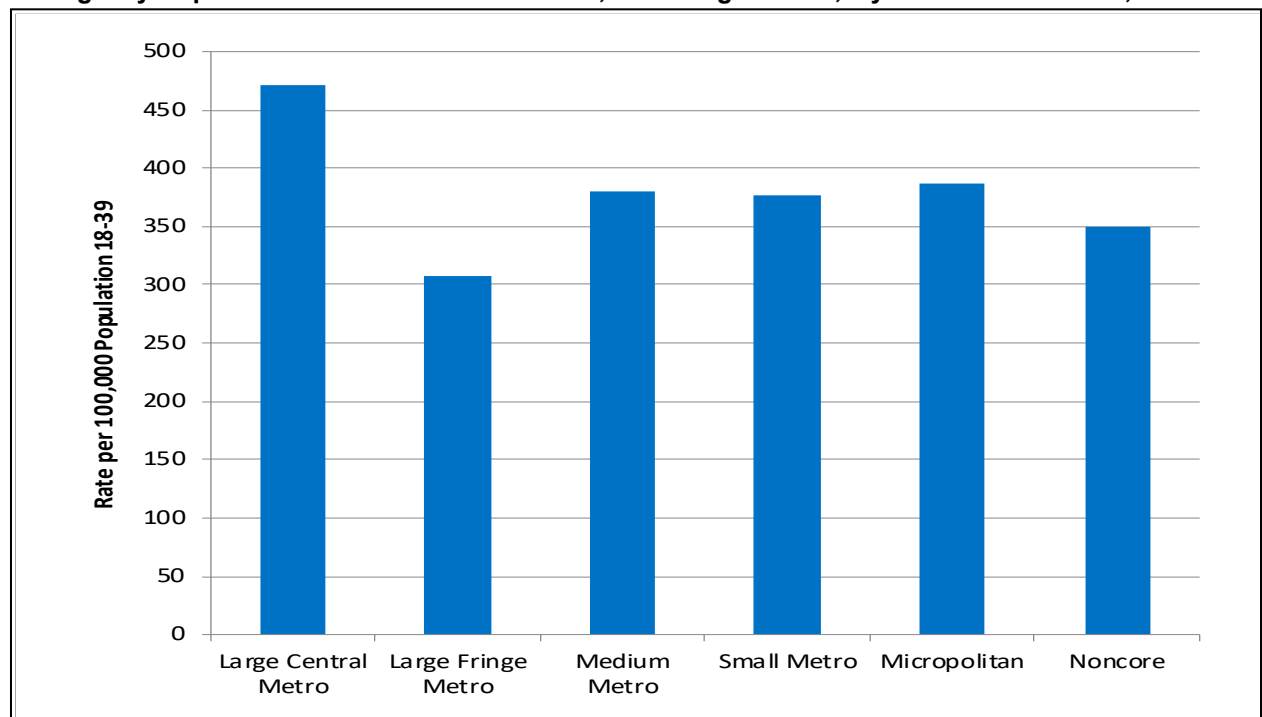
#### ■ Disparities by Group:

- ◆ For Hispanic adults, admissions for short-term complications of diabetes were higher among residents of small metropolitan areas (53.8 per 100,000) than residents of large fringe metropolitan areas (37.9 per 100,000).
- ◆ For Black adults, admissions for short-term complications of diabetes were higher among residents of large central metropolitan (140.4 per 100,000) and medium metropolitan (146.5 per 100,000) areas than residents of large fringe metropolitan areas (119.5 per 100,000).
- ◆ For Asians and Pacific Islanders, admissions for short-term complications of diabetes were higher among residents of small metropolitan areas (22.6 per 100,000) than residents of large fringe metropolitan areas (9.7 per 100,000).
- ◆ For White adults, admissions for short-term complications of diabetes were higher among residents of medium metropolitan (67.0 per 100,000), small metropolitan (67.3 per 100,000), micropolitan (75.4 per 100,000), and noncore (71.7 per 100,000) areas than residents of large fringe metropolitan areas (53.3 per 100,000).
- ◆ The rate of admissions for short-term complications of diabetes among Blacks ranged from a low of 119.5 in large fringe areas, more than double the rate for Whites, which was 53.3 per 100,000, to a high of 150.7 per 100,000 in small metropolitan areas, where the rate for Whites was 67.3 per 100,000.
- ◆ In contrast, the rates for Asians and Pacific Islanders and Hispanics were nearly always lower than for Whites regardless of community size. Within every population density for which there were data, from large central metropolitan locations to noncore areas, in 2017, Asians and Pacific Islanders were less likely to be admitted to the hospital for short-term complications of diabetes than Whites in similar locations. Rates for the former ranged from a low of 9.7 per 100,000 in large fringe metropolitan areas to a high of 22.6 per 100,000 in small metropolitan areas. The rate for Whites in similar locations ranged from a low of 51.2 per 100,000 in large central metropolitan areas to a high of 75.4 per 100,000 in micropolitan areas.

- ◆ Similarly, within five of six location types, Hispanics were less likely to be admitted to the hospital for short-term complications of diabetes than Whites in similar locations. Rates for Hispanics ranged from a low of 37.9 per 100,000 in large fringe metropolitan areas, where the rate for Whites was 53.3 per 100,000, to a high for Hispanics of 53.8 per 100,000 in small metropolitan areas, where the rate for Whites was 67.3 per 100,000.
- ◆ Among all Hispanics, the only size community where rates differed was small metropolitan areas, where the rate was 53.8 per 100,000 compared with the rate in large fringe metropolitan areas of 37.9 per 100,000.
- ◆ Among all Asians and Pacific Islanders, the only size community where rates differed was small metropolitan areas, where the rate was 22.6 per 100,000 compared with the rate for large fringe metropolitan areas of 9.7 per 100,000.
- ◆ Among all Blacks, the rate of hospitalization for short-term complications of diabetes was 140.4 per 100,000 in large central metropolitan areas, compared with their rate in large fringe metropolitan areas of 119.5 per 100,000. The rate was also worse for Blacks residing in medium metropolitan areas, with a rate of 146.5 per 100,000 compared with the large fringe metropolitan rate of 119.5 per 100,000.
- ◆ Among all Whites, the rates for residents of medium (67.0 per 100,000), small (67.3 per 100,000), micropolitan (75.4 per 100,000), and noncore (71.7 per 100,000) areas were all worse than the rate for large fringe metropolitan areas (53.3 per 100,000).

### Emergency Department Encounters for Asthma

Emergency department encounters for asthma, adults ages 18-39, by residence location, 2017



**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample and AHRQ Quality Indicators, version 7.0.1, 2017.

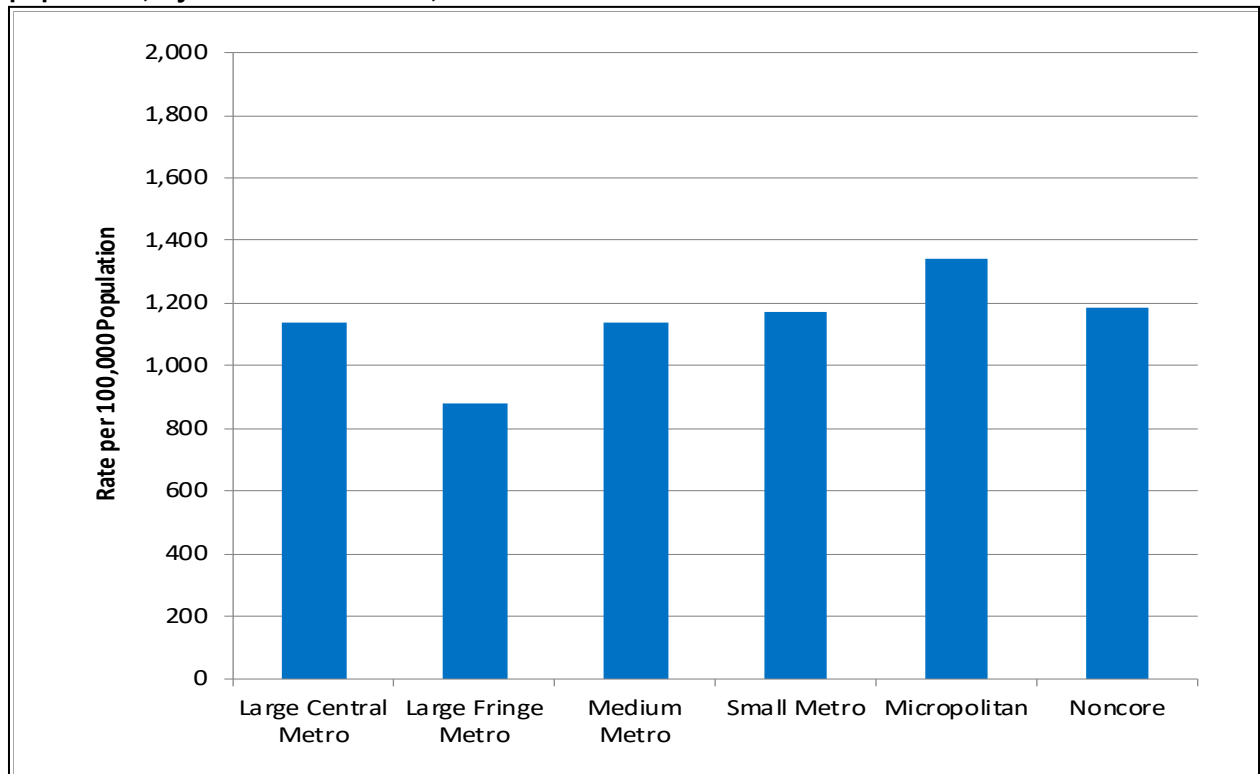
**Denominator:** U.S. resident population ages 18-39.

**Note:** For this measure, lower rates are better.

- **Importance:** Adults in rural areas experience asthma at similar rates to those in urban areas (RHIfhub, 2019a). While those in rural areas may be at lower risk of asthma due to air pollution, various other factors contribute to asthma in rural areas (American Lung Association, 2020).
- **Groups With Disparities in 2017:**
  - Adults in large central metropolitan (471.5 per 100,000), medium metropolitan (380.5 per 100,000), and micropolitan (386.3 per 100,000) areas were more likely to have emergency department encounters for asthma compared with adults in large fringe metropolitan areas (307.2 per 100,000).

### Emergency Visits for Mental Health Diagnoses

Emergency department visits with a principal diagnosis related to mental health only per 100,000 population, by residence location, 2017



**Source:** Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample, 2017.

**Denominator:** U.S. resident population.

**Note:** For this measure, lower rates are better.

- **Importance:** Visits for mental health and substance abuse (MH/SA) place significant strain on EDs, as MH/SA patients require longer ED stays and resource-intensive care, which may further stress rural EDs due to lower staffing levels (Schroeder & Leigh-Peterson, 2017). In nonmetropolitan areas, 18.7% of individuals have a mental health condition (about 6.5 million people) and rural residents are more likely than urban residents to experience a serious mental illness (RHIfhub, 2019b). Further, “the per capita supply of behavioral health

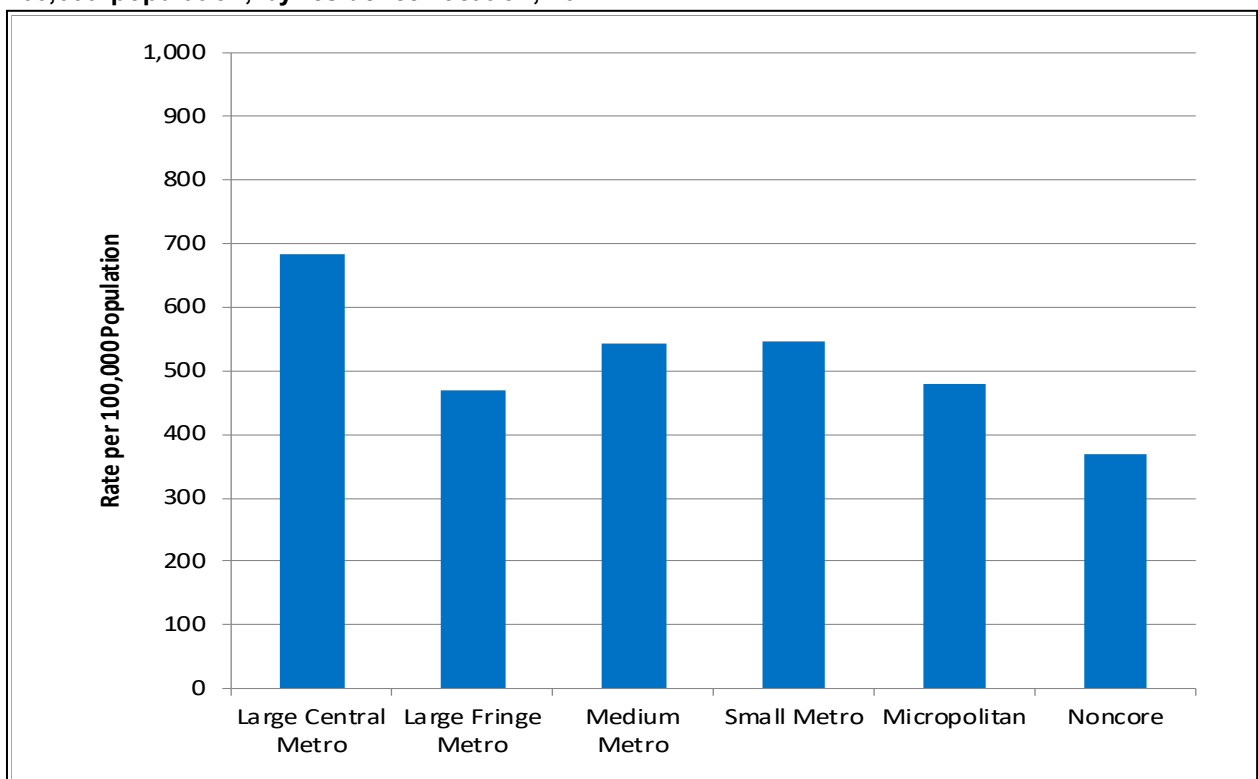
providers in non-metropolitan counties is significantly less than the supply in metropolitan counties” (Larson, et al., 2016).

- **Groups With Disparities in 2017:**

- The rate of ED visits for a principal diagnosis related to mental health only was higher in large central metropolitan (1,136.9 per 100,000), medium metropolitan (1,138 per 100,000), small metropolitan (1,170 per 100,000), micropolitan (1,340.5 per 100,000), and noncore (1,186.6 per 100,000) areas compared with large fringe metropolitan areas (879.1 per 100,000).

### Emergency Visits for Substance Abuse Diagnoses

Emergency department visits with a principal diagnosis related to substance abuse only, per 100,000 population, by residence location, 2017



**Source:** Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample, 2017.

**Denominator:** U.S. resident population.

**Note:** For this measure, lower rates are better.

- **Importance:** Visits for mental health and substance abuse (MH/SA) place significant strain on EDs, as MH/SA patients require longer ED stays and resource-intensive care, which may further stress rural EDs due to lower staffing levels compared with urban EDs (Schroeder & Leigh-Peterson, 2017). According to a 2021 study conducted by the Maine Rural Health Research Center, higher rates of opioid misuse have further strained and contributed to an increase in opioid-related visits (ORVs) for both rural and urban EDs. From 2006 to 2013, rural ORV rates increased by 39% and urban ORV rates increased by 35%. During the same



period, rural EDs were more likely to transfer ORV patients to another hospital and one-fifth of rural ORVs took place in urban EDs (Ziller, et al., 2021).

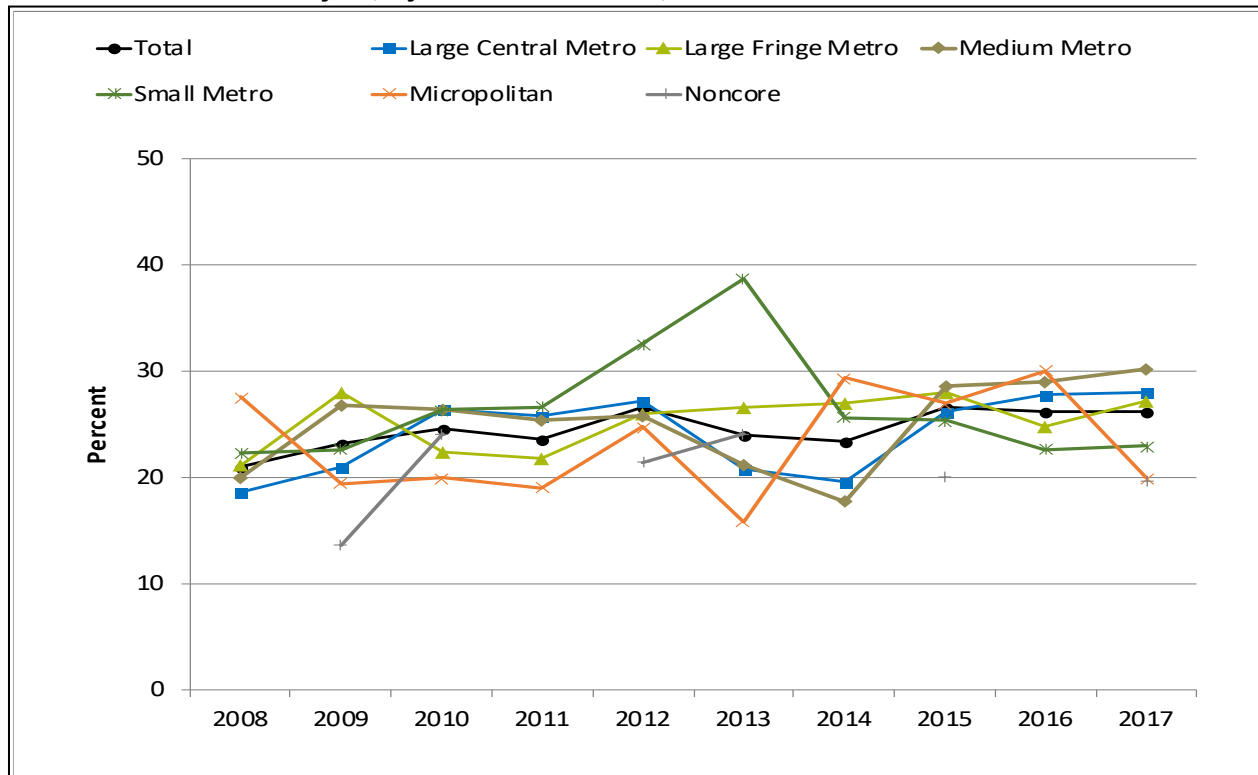
• **Groups With Disparities in 2017:**

- The rate of ED visits for a principal diagnosis related to substance abuse only was higher in large central metropolitan areas (684.9 per 100,000) compared with large fringe metropolitan areas (469.8 per 100,000).
- The rate of ED visits for a principal diagnosis related to substance abuse only was lower in noncore areas (368.9 per 100,000) compared with large fringe metropolitan areas (469.8 per 100,000).

## Effective Treatment

### Receipt of Recommended Services for Diabetes

Adults age 40 and over with diagnosed diabetes who received all four recommended services for diabetes in the calendar year, by residence location, 2008-2017



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2008-2017.

**Denominator:** U.S. civilian noninstitutionalized adults age 40 and over with diabetes and a positive Diabetes Care Survey weight, excluding records with missing values.

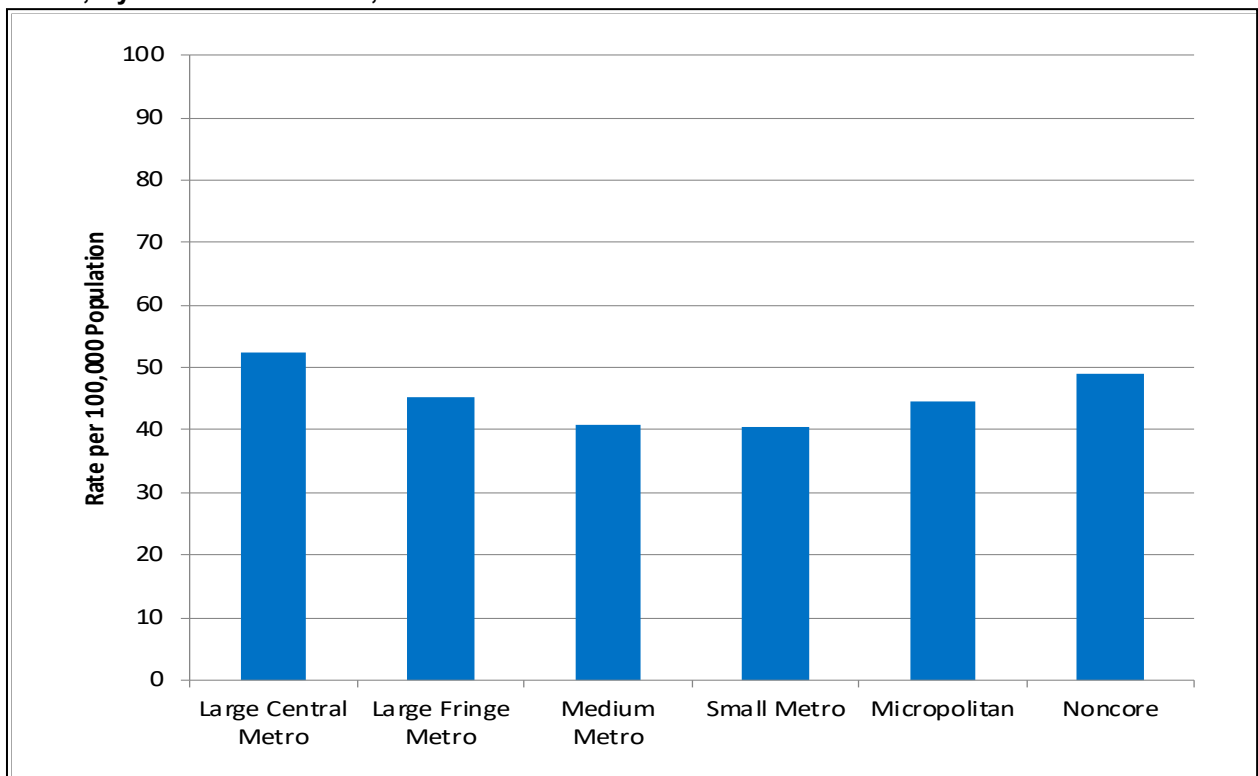
**Numerator:** Subset of the denominator who responded “Yes” to each of the four items related to receipt of diabetes services: (1) received two or more HbA1c measurements, (2) received dilated eye exam, (3) received foot exam, and (4) received flu shot.

**Note:** Data for noncore areas are not included for 2008, 2011, 2014, and 2016 because they did not meet criteria for statistical reliability.

- **Importance:** Diabetes is more prevalent in rural areas, and rural residents often experience unique barriers to care, including fewer healthcare providers, high rates of uninsured people, and fewer transportation options (RHHub, 2020).
- **Overall Rate:** In 2017, the percentage of adults age 40 and over with diagnosed diabetes who received all four recommended services for diabetes in the calendar year was 26.2%.
- **Groups With Disparities in 2017:**
  - There were no statistically significant differences between residential areas in the percentage of adults age 40 and over with diagnosed diabetes who received all four recommended services for diabetes in the calendar year.

### Hospitalizations for Uncontrolled Diabetes

Hospital admissions for uncontrolled diabetes without complications per 100,000 population, adults, by residence location, 2017



**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, Prevention Quality Indicators, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** U.S. resident population age 18 years and over.

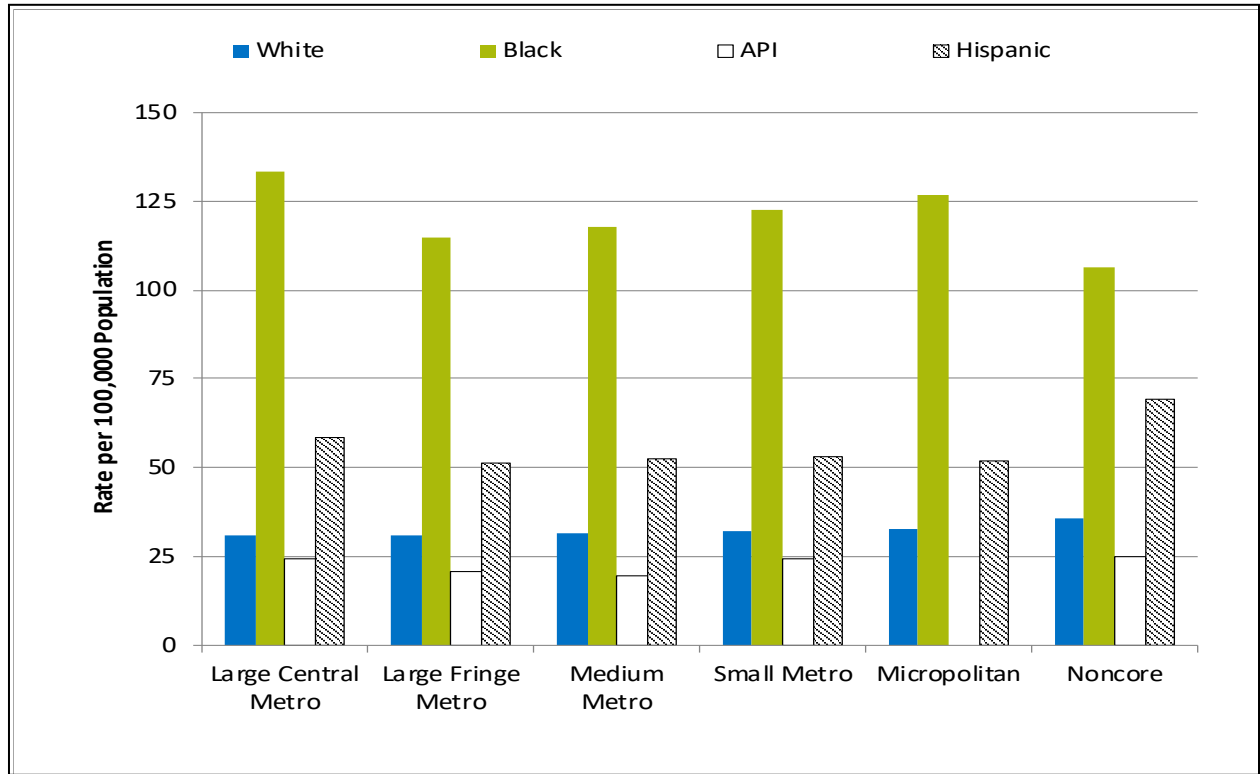
**Note:** For this measure, lower rates are better. Obstetric admissions and transfers from other institutions are excluded.

- **Importance:** Individuals who do not achieve good control of their diabetes may develop symptoms that require correction through hospitalization. Admission rates for uncontrolled diabetes may be reduced by better outpatient treatment and patients’ tighter adherence to diet and medication.

- **Groups With Disparities in 2017:**

- Adults in large central metropolitan areas were more likely to be admitted to the hospital for uncontrolled diabetes (52.5 per 100,000) compared with adults in large fringe metropolitan areas (45.2 per 100,000).

**Hospital admissions for uncontrolled diabetes without complications per 100,000 population, age 18 and over, by residence location, stratified by race/ethnicity, 2017**



**Key:** API = Asian or Pacific Islander.

**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** U.S. resident population age 18 years and over.

**Note:** For this measure, lower rates are better. White, Black, and API are non-Hispanic. Hispanic includes all races. Data for micropolitan areas for API are not included because they did not meet criteria for statistical reliability. Obstetric admissions and transfers from other institutions are excluded.

- **Importance:** Individuals who do not achieve good control of their diabetes may develop symptoms that require correction through hospitalization. Admission rates for uncontrolled diabetes may be reduced by better outpatient treatment and patients’ tighter adherence to diet and medication.

- **Groups With Disparities in 2017:**

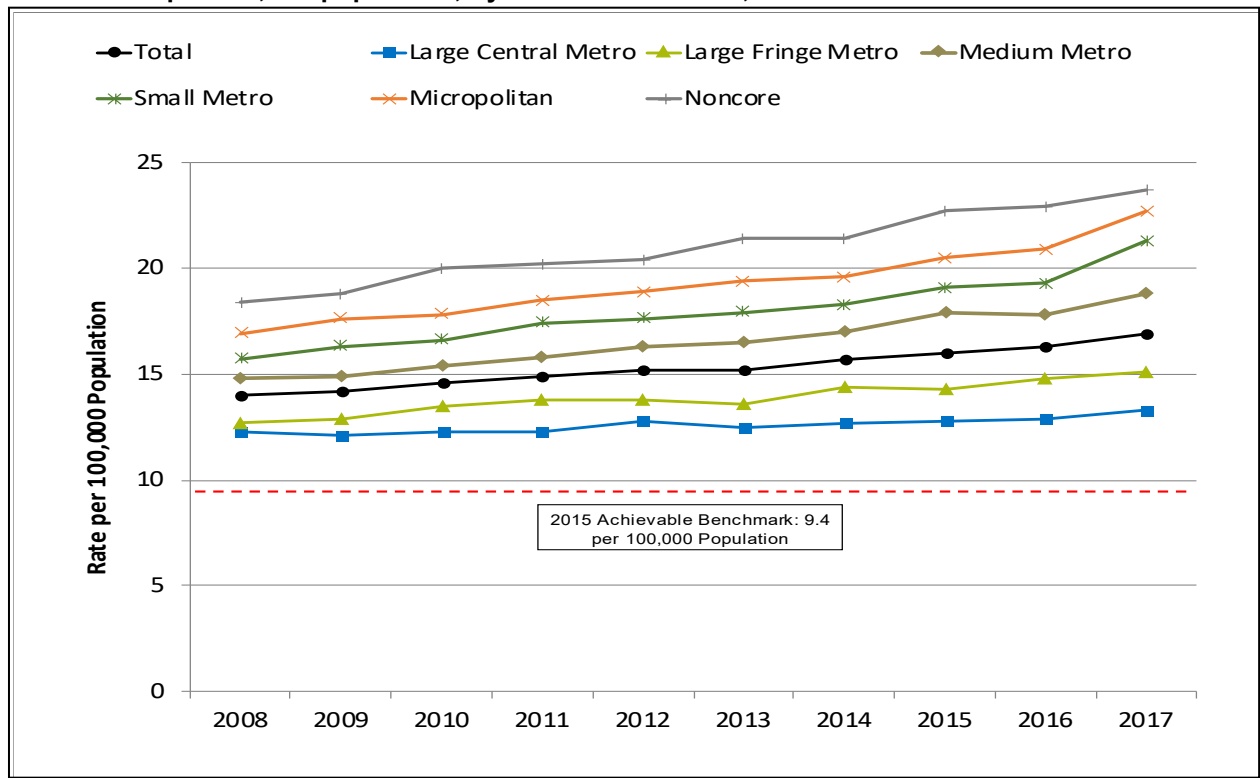
- **Disparities by Location:**

- ◆ In large central metropolitan areas, the rate of hospital admission for uncontrolled diabetes without complications was higher for Black adults (133.4 per 100,000) and Hispanic adults (58.3 per 100,000) compared with White adults (31.1 per 100,000). In contrast, the rate of hospital admission for uncontrolled diabetes without complications was lower for Asian and Pacific Islander adults (24.3 per 100,000) compared with White adults (31.1 per 100,000).
- ◆ In large fringe metropolitan areas, the rate of hospital admission for uncontrolled diabetes without complications was higher for Black adults (115.0 per 100,000) and Hispanic adults (51.5 per 100,000) compared with White adults (31.2 per 100,000). In contrast, the rate of hospital admission for uncontrolled diabetes without complications for Asian and Pacific Islander adults (20.9 per 100,000) was lower compared with White adults (31.2 per 100,000).
- ◆ In medium metropolitan areas, the rate of hospital admission for uncontrolled diabetes without complications was higher for Black adults (117.8 per 100,000) and Hispanic adults (52.7 per 100,000) compared with White adults (31.5 per 100,000). In contrast, the rate of hospital admission for uncontrolled diabetes without complications was lower for Asian and Pacific Islander adults (19.7 per 100,000) compared with White adults (31.5 per 100,000).
- ◆ In small metropolitan areas, the rate of hospital admission for uncontrolled diabetes without complications was higher for Black adults (122.9 per 100,000) and Hispanic adults (52.9 per 100,000) compared with White adults (32.3 per 100,000).
- ◆ In micropolitan areas, the rate of hospital admission for uncontrolled diabetes without complications was higher for Black adults ((127.0 per 100,000) and Hispanic adults (51.8 per 100,000) compared with White adults (33.0 per 100,000).
- ◆ In noncore areas, the rate of hospital admission for uncontrolled diabetes without complications was higher for Black adults (106.6 per 100,000) and Hispanic adults (69.4 per 100,000) compared with White adults (35.9 per 100,000).

- **Disparities by Group:**

- ◆ For Hispanic adults, those residing in noncore areas had higher rates of hospital admission for uncontrolled diabetes without complications (69.4 per 100,000) compared with those in large fringe metropolitan areas (51.5 per 100,000).
- ◆ For White adults, those residing in noncore areas had a higher rate of hospital admission for uncontrolled diabetes without complications (35.9 per 100,000) compared with those in large fringe metropolitan areas (31.2 per 100,000).

## Suicide rate per 100,000 population, by residence location, 2008-2017



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System—Mortality, 2008-2017.

**Denominator:** U.S. resident population age 12 and over.

**Note:** For this measure, lower rates are better.

- **Importance:** Suicide rates in the United States have been increasing since 2000. Rates in less urban areas have been higher than rates in more urban areas, with some evidence of a growing difference. Increased suicide risk is associated with factors that are more prevalent in less urban areas, such as limited access to mental health care, social isolation, and opioid misuse (Kegler, et al., 2017). Suicide may be prevented when its warning signs are detected and treated. Identification of suicidal ideas and plans among individuals being treated for depression is expected to increase with the growing use of standardized screening instruments and electronic medical records.
- **Overall Rate:** In 2017, the suicide rate among people age 12 and over was 16.9 per 100,000 population.
- **Trends:**
  - From 2008 to 2017, suicide rates among people age 12 and over worsened for all residence locations except large central metro, where there was no statistically significant change.
- **Groups With Disparities in 2017:**
  - Suicide among people age 12 and over were higher in medium metropolitan (18.8 per 100,000), small metropolitan (21.3 per 100,000), micropolitan (22.7 per 100,000), and noncore (23.7 per 100,000) areas compared with the suicide rate in large fringe

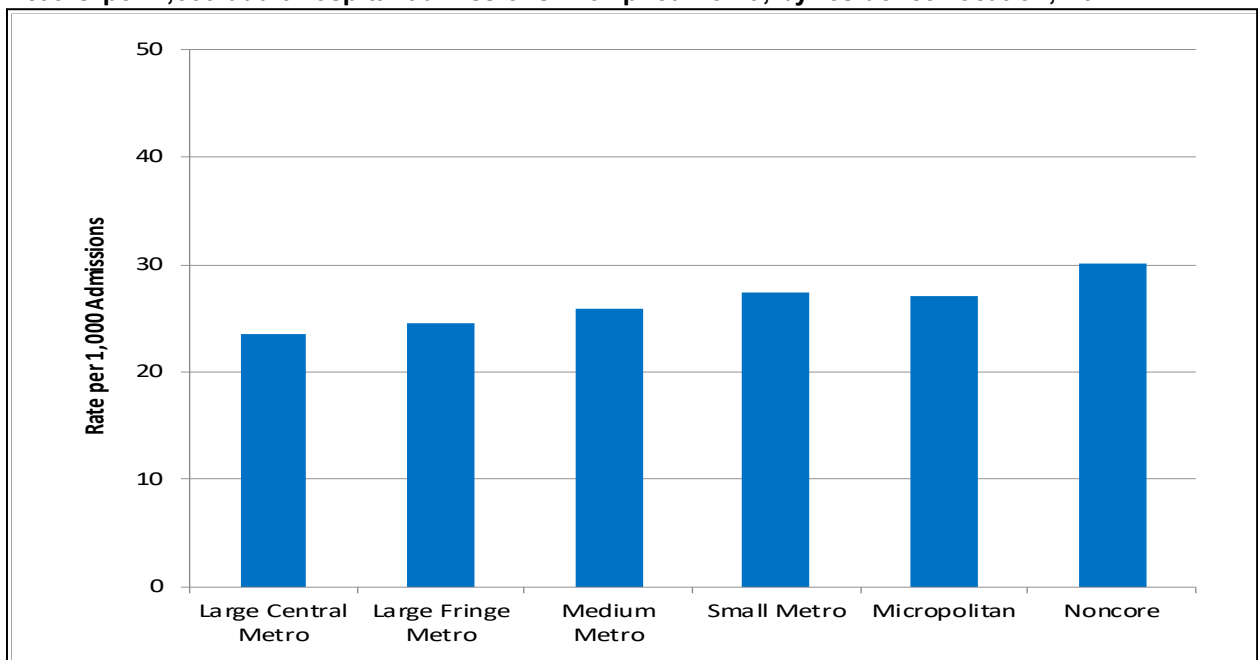
metropolitan areas (15.1 per 100,000). In contrast, the suicide rate among people age 12 and over residing in large central metropolitan areas (13.3 per 100,000) was lower compared with the rate in large fringe metropolitan areas (15.1 per 100,000).

- **Achievable Benchmark:**

- The 2015 top 5 State achievable benchmark was 9.4 suicide deaths per 100,000 population. The top 5 States that contributed to the achievable benchmark were the District of Columbia, Maryland, Massachusetts, New Jersey, and New York.
- Through 2017, no progress was made toward the benchmark, overall or in any residence location.

## Pneumonia Deaths

Deaths per 1,000 adult hospital admissions with pneumonia, by residence location, 2017



**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** All discharges age 18 and over with principal diagnosis code of pneumonia, excluding patients transferring to another short-term hospital, obstetric admissions, and cases with a missing discharge disposition.

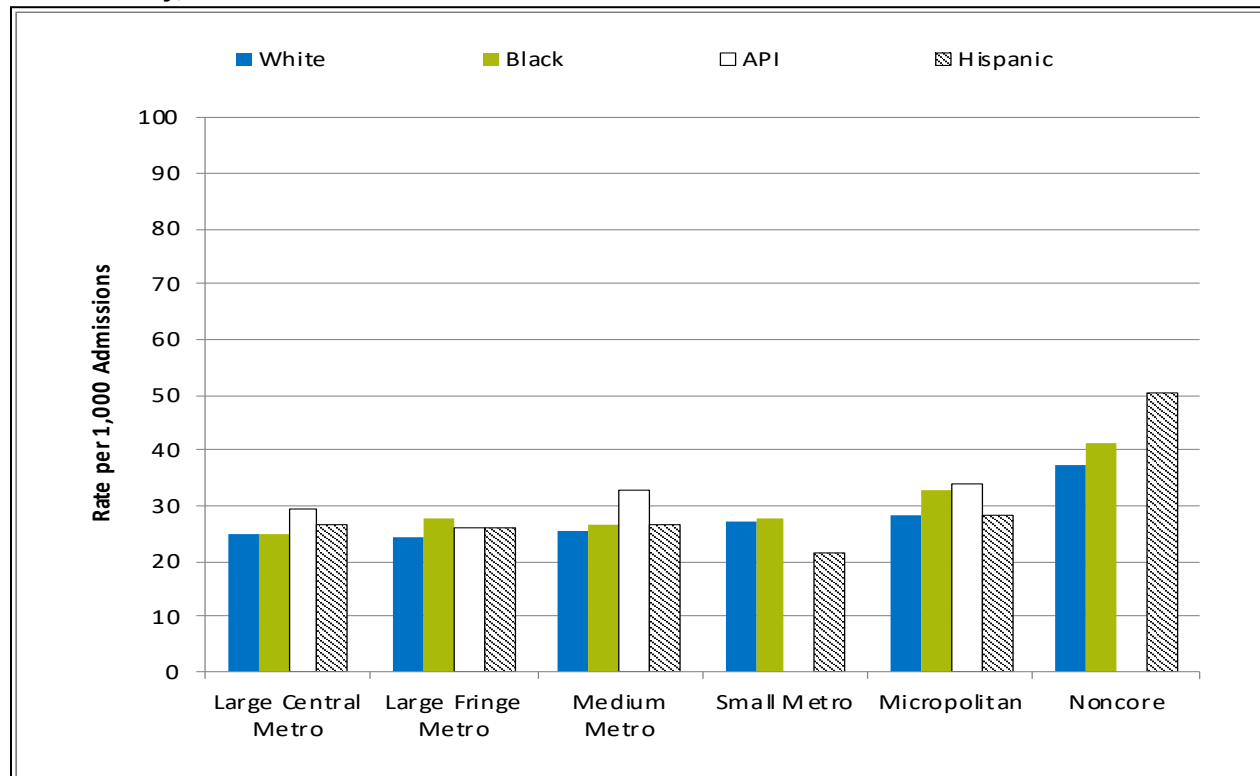
**Note:** For this measure, lower rates are better.

- **Importance:** According to the American Thoracic Society (2019), for U.S. adults, pneumonia is the most common cause of hospital admissions other than women giving birth. About 1 million adults in the United States seek care in a hospital due to pneumonia every year, and 50,000 die from this disease. Pneumonia was one of the top 10 most expensive conditions seen during inpatient hospitalizations. In 2013, pneumonia had an aggregate cost of nearly \$9.5 billion for 960,000 hospital stays (American Thoracic Society, 2019).

- **Groups With Disparities in 2017:**

- The death rate from pneumonia was higher in small metropolitan areas (27.4 per 1,000) compared with large fringe metropolitan areas (24.5 per 1,000).
- The death rate from pneumonia was higher in micropolitan areas (27.1 per 1,000) compared with large fringe metropolitan areas (24.5 per 1,000).
- The death rate from pneumonia was higher in noncore areas (30.1 per 1,000) compared with large fringe metropolitan areas (24.5 per 1,000).

**Deaths per 1,000 adult hospital admissions with pneumonia, by residence location, stratified by race/ethnicity, 2017**



**Key:** API = Asian or Pacific Islander

**Source:** Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** All discharges age 18 and over with principal diagnosis code of pneumonia.

**Note:** For this measure, lower rates are better. White, Black, and API are non-Hispanic. Hispanic includes all races. Data for small metropolitan and noncore areas for API are not included because they did not meet criteria for statistical reliability.

- **Importance:** According to the American Thoracic Society (2019), for U.S. adults, pneumonia is the most common cause of hospital admissions other than women giving birth. About 1 million adults in the United States seek care in a hospital due to pneumonia every year, and 50,000 die from this disease. Pneumonia was one of the top 10 most expensive conditions seen during inpatient hospitalizations. In 2013, pneumonia had an aggregate cost of nearly \$9.5 billion for 960,000 hospital stays (American Thoracic Society, 2019).

- **Groups With Disparities in 2017:**

- **Disparities by Location:**

- ◆ In large central metropolitan areas, the rate of pneumonia deaths was higher among Asian or Pacific Islander adults (29.3 per 1,000 admissions) compared with White adults (24.8 per 1,000).
- ◆ In large fringe metropolitan areas, the rate of pneumonia deaths was higher among Black adults (27.7 per 1,000) compared with White adults (24.3 per 1,000 admissions).
- ◆ In medium metropolitan areas, the rate of pneumonia deaths was higher among Asian or Pacific Islander adults (32.6 per 1,000) compared with White adults (25.2 per 1,000 admissions).
- ◆ In small metropolitan areas, the rate of pneumonia deaths was lower among Hispanic adults (21.2 per 1,000) compared with White adults (27.3 per 1,000 admissions).
- ◆ In noncore areas, the rate of pneumonia deaths was higher among Hispanic adults (50.5 per 1,000) compared with White adults (37.4 per 1,000 admissions).

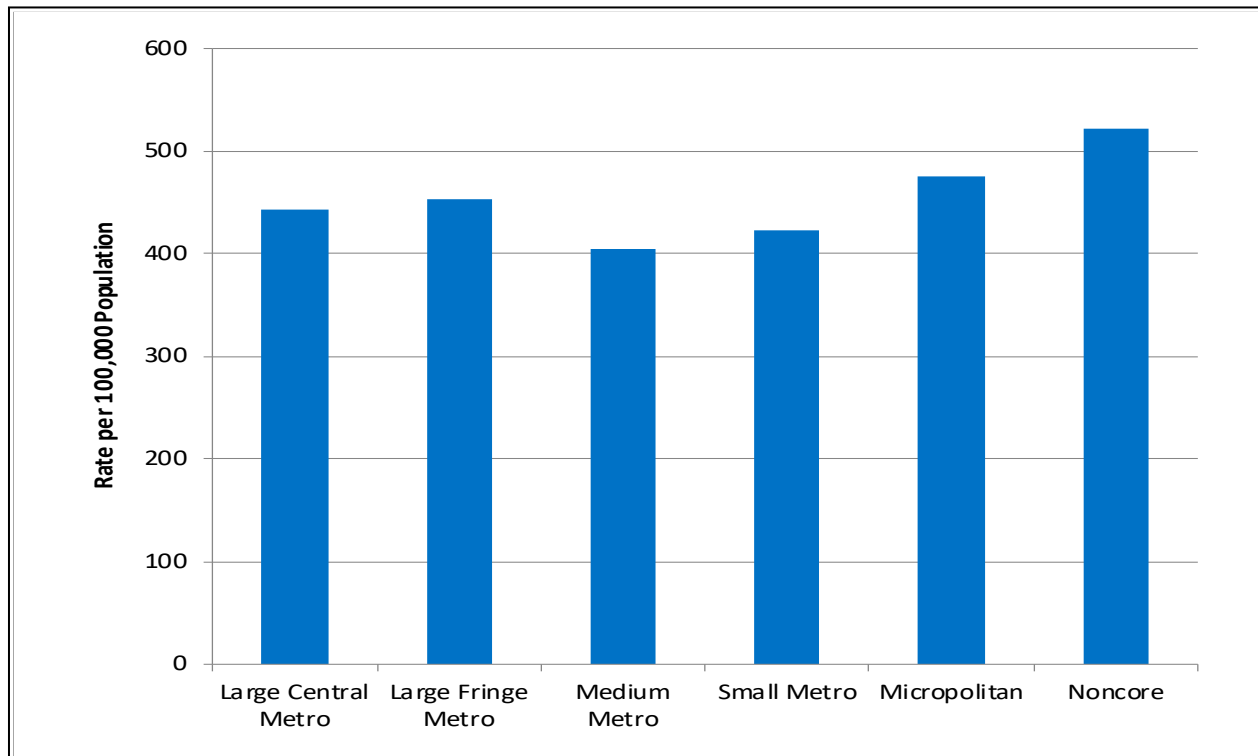
- **Disparities by Group:**

- ◆ For Hispanic adults, the rate of pneumonia deaths was higher in noncore areas (50.5 per 1,000) than in large fringe metropolitan areas (26.1 per 1,000 admissions).
- ◆ For Black adults, the rate of pneumonia deaths was higher in noncore areas (41.2 per 1,000) than in large fringe metropolitan areas (27.7 per 1,000 admissions).
- ◆ For White adults, the rate of pneumonia deaths was higher in small metropolitan, micropolitan, and noncore areas (27.3 per 1,000 admissions, 28.2 per 1,000 admissions, and 37.4 per 1,000 admissions, respectively) than in large fringe metropolitan areas (24.8 per 1,000 admissions).



## Hospitalizations for Heart Failure

Hospital admissions for heart failure per 100,000 population, by residence location, 2017



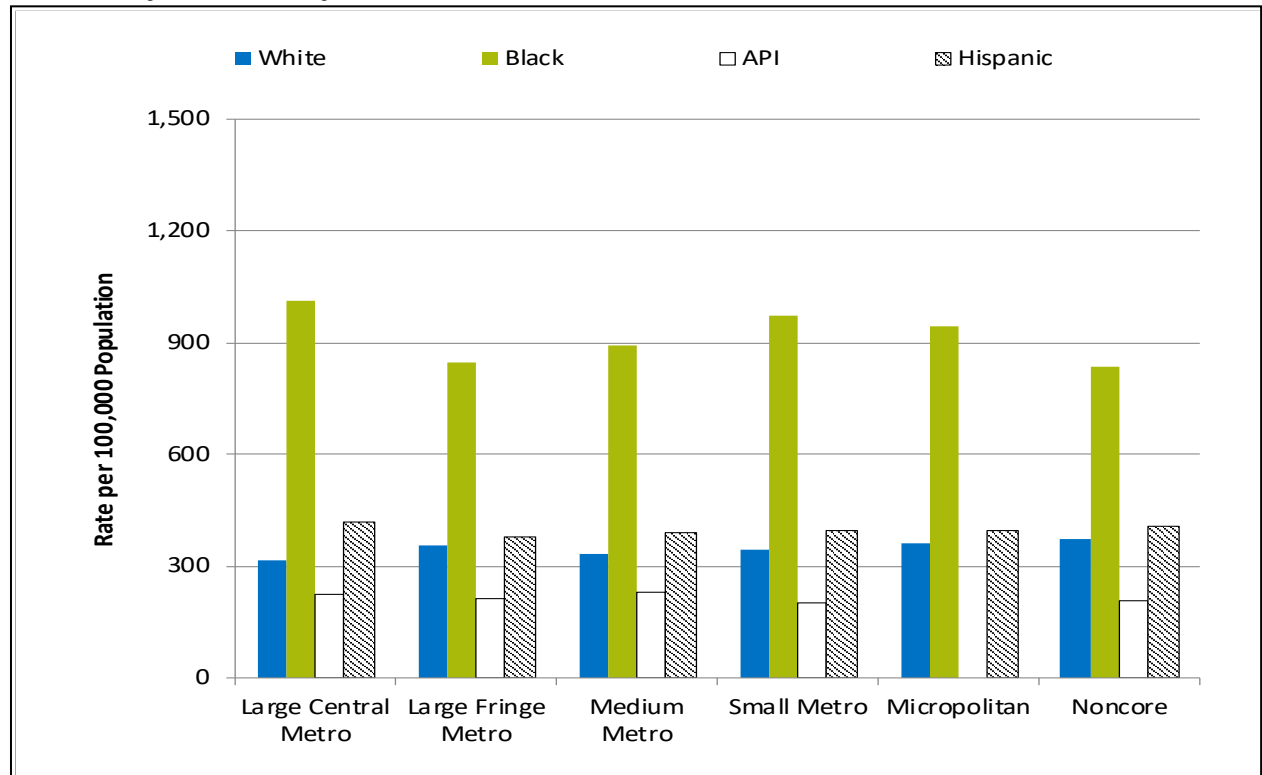
**Source:** Agency for Healthcare Research and Quality AHRQ, Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** U.S. resident population age 18 years and over

**Note:** For this measure, lower rates are better. The AHRQ Prevention Quality Indicators software requires heart failure to be the principal diagnosis and exclusions include the following: admissions with cardiac procedures and transfers from other institutions.

- Importance:** A higher prevalence of heart disease has been reported in rural areas compared with urban areas, and recent research has found “a significantly greater burden [of heart failure-related mortality rates] in rural counties” (Pierce, et al., 2021). This finding comports with Centers for Disease Control and Prevention findings that people in rural areas are more likely than urban residents to die prematurely from all of the five leading causes of death: heart disease, cancer, unintentional injury, chronic lower respiratory disease, and stroke (CDC, 2019a). Hospital admissions and mortality due to heart failure could relate not only to the prevalence of the condition in a given area, but also to the degree of access to care in rural areas (Pierce, et al., 2021).
- Groups With Disparities in 2017:**
  - Adults in noncore areas were more likely to be admitted to the hospital for heart failure (521.2 per 100,000) compared with adults in large fringe metropolitan areas (453.6 per 100,000).

**People admitted to the hospital for heart failure per 100,000 population, by residence location, stratified by race/ethnicity, 2017**



**Key:** API = Asian or Pacific Islander.

**Source:** Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, 2017.

**Denominator:** U.S. resident population age 18 years and over.

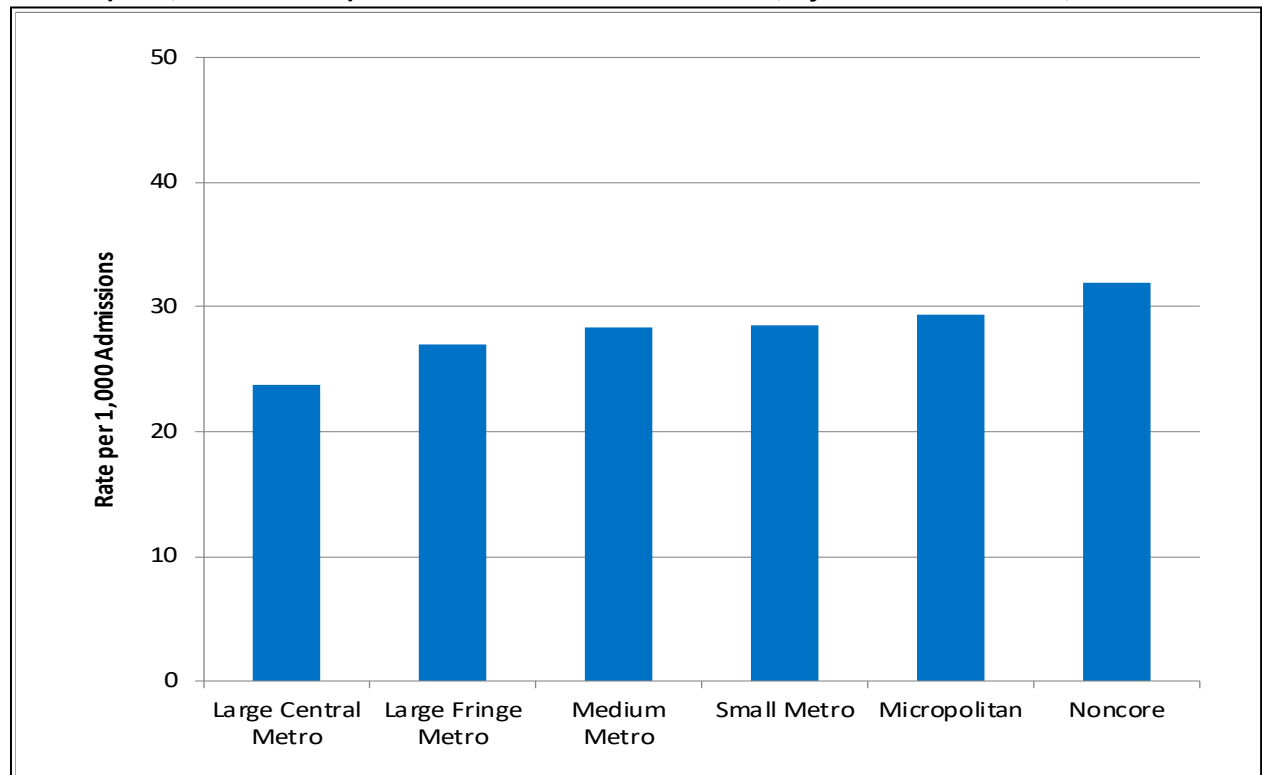
**Note:** For this measure, lower rates are better. White, Black, and API are non-Hispanic. Hispanic includes all races. Data for micropolitan areas for API are not included because they did not meet criteria for statistical reliability.

- **Importance:** A higher prevalence of heart disease has been reported in rural areas compared with urban areas, and recent research has found “a significantly greater burden [of heart failure-related mortality rates] in rural counties” (Pierce, et al., 2021). This finding comports with Centers for Disease Control and Prevention findings that people in rural areas are more likely than urban residents to die prematurely from all of the five leading causes of death: heart disease, cancer, unintentional injury, chronic lower respiratory disease, and stroke (CDC, 2019a). Hospital admissions and mortality due to heart failure could relate not only to the prevalence of the condition in a given area, but also to the degree of access to care in rural areas (Pierce, et al., 2021).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, the rates of admission for heart failure were higher among Black adults (1,012.3 per 100,000) and Hispanic adults (416.0 per 100,000) compared with White adults (318.1 per 100,000). In contrast, the rate of admission for heart failure among Asian or Pacific Islander adults (221.8 per 100,000) was lower than the rate for White adults (318.1 per 100,000).

- ◆ In large fringe metropolitan areas, the rate of admission for heart failure was higher among Black adults (848.8 per 100,000) than among White adults (352.8 per 100,000). In contrast, the rate for Asian or Pacific Islander adults (210.2 per 100,000) was lower than the rate for White adults.
  - ◆ In medium metropolitan areas, the rate of admission for heart failure was higher among Black adults (892.1 per 100,000) than among White adults (331.3 per 100,000).
  - ◆ In small metropolitan areas, the rate of admission for heart failure was higher among Black adults (970.2 per 100,000) than among White adults (343.5 per 100,000). In contrast, the rate for Asian or Pacific Islander adults (203.4 per 100,000) was lower than the rate for White adults.
  - ◆ In micropolitan areas, the rate of admission for heart failure was higher among Black adults (943.2 per 100,000) than among White adults (358.8 per 100,000).
  - ◆ In noncore areas, the rate of admission for heart failure was higher among Black adults (833.9 per 100,000) than among White adults (370.4 per 100,000). In contrast, the rate for Asian or Pacific Islander adults (208.6 per 100,000) was lower than the rate for White adults.
- **Disparities by Group:**
- ◆ For Black adults, those residing in large central metropolitan areas had higher rates of admission for heart failure (1,012.3 per 100,000) than those residing in large fringe metropolitan areas (848.8 per 100,000).

## Heart Failure Deaths

Deaths per 1,000 adult hospital admissions with heart failure, by residence location, 2017



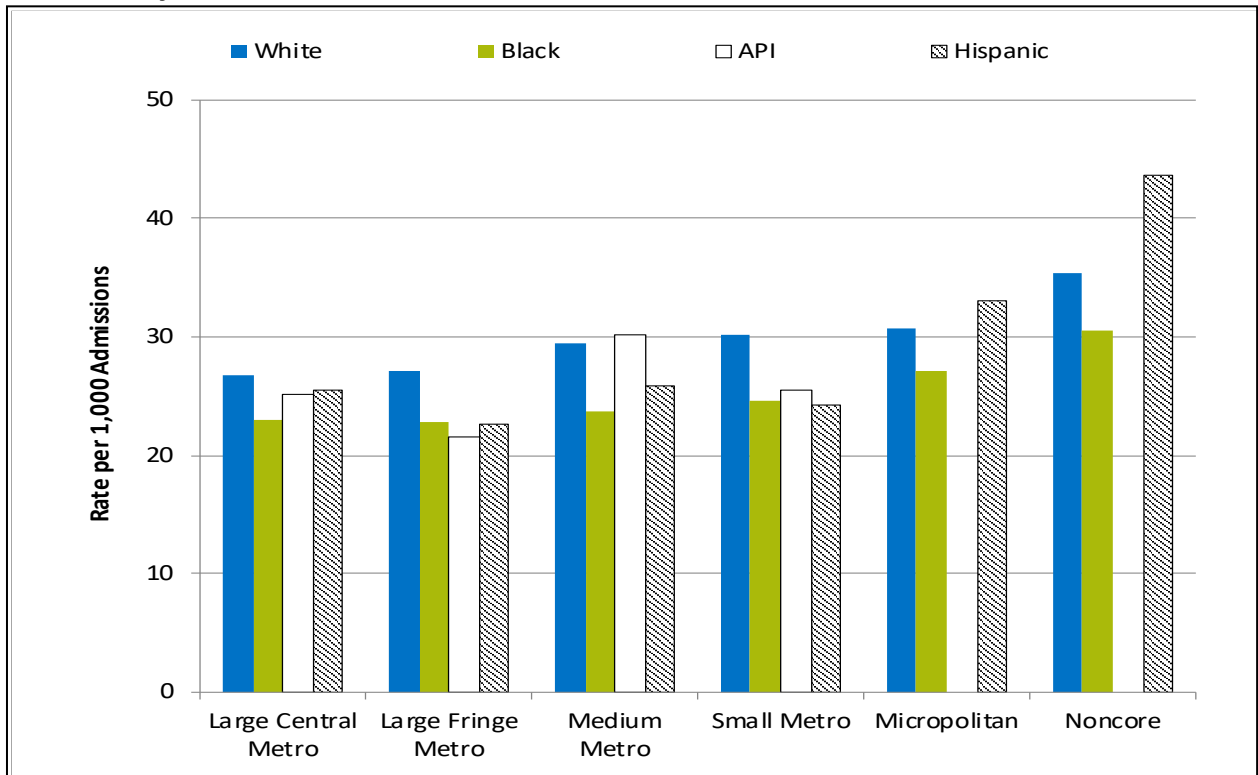
**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** All discharges among adults age 18 and over with principal diagnosis code of heart failure, excluding transfers to another short-term hospital, obstetric admissions, and cases with a missing discharge disposition.

**Note:** For this measure, lower rates are better.

- Importance:** A higher prevalence of heart disease has been reported in rural areas compared with urban areas, and recent research has found “a significantly greater burden [of heart failure-related mortality rates] in rural counties” (Pierce, et al., 2021). This finding comports with Centers for Disease Control and Prevention findings that people in rural areas are more likely than urban residents to die prematurely from all of the five leading causes of death: heart disease, cancer, unintentional injury, chronic lower respiratory disease, and stroke (CDC, 2019a). Hospital admissions and mortality due to heart failure could relate not only to the prevalence of the condition in a given area, but also to the degree of access to care in rural areas (Pierce, et al., 2021).
- Groups With Disparities in 2017:**
  - In large central metropolitan areas, the death rate from heart failure was lower (23.8% per 1,000 admissions) compared with large fringe metropolitan areas (27.0% per 1,000 admissions).
  - In noncore areas, the death rate from heart failure was higher (31.9 per 1,000 admissions) compared with large fringe metropolitan areas (27.0 per 1,000 admissions).

### Deaths per 1,000 adult hospital admissions with heart failure by residence location, stratified by race/ethnicity, 2017



**Key:** API = Asian or Pacific Islander

**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1 2017.

**Denominator:** All discharges among adults age 18 and over with principal diagnosis code of heart failure, excluding transfers to another short-term hospital, obstetric admissions, and cases with a missing discharge disposition.

**Note:** For this measure, lower rates are better. White, Black, and API are non-Hispanic. Hispanic includes all races. Data for micropolitan and noncore areas for API are not included because they did not meet criteria for statistical reliability.

- Importance:** A higher prevalence of heart disease has been reported in rural areas compared with urban areas, and recent research has found “a significantly greater burden [of heart failure-related mortality rates] in rural counties” (Pierce, et al., 2021). This finding comports with Centers for Disease Control and Prevention findings that people in rural areas are more likely than urban residents to die prematurely from all of the five leading causes of death: heart disease, cancer, unintentional injury, chronic lower respiratory disease, and stroke (CDC, 2019a). Hospital admissions and mortality due to heart failure could relate not only to the prevalence of the condition in a given area, but also to the degree of access to care in rural areas (Pierce, et al., 2021).

- **Groups With Disparities in 2017:**

- **Disparities by Location:**

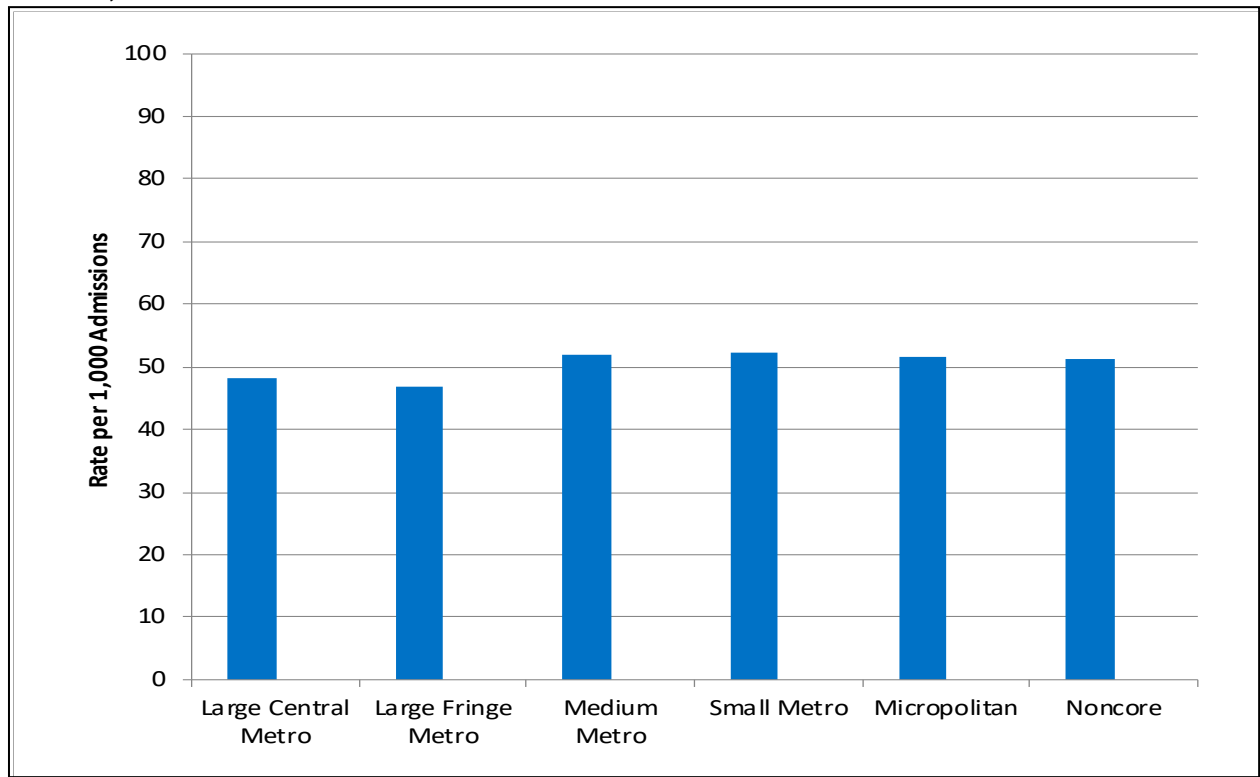
- ◆ In large central metropolitan areas, the rate of death from heart failure was lower for Black patients (23.0 per 1,000 admissions) than for White patients (26.7 per 1,000 admissions).
- ◆ In large fringe metropolitan areas, the rate of death from heart failure was lower for Black (22.8 per 1,000 admissions), Asian or Pacific Islander (21.6 per 1,000 admissions), and Hispanic (22.6 per 1,000 admissions) patients than for White patients (27.1 per 1,000 admissions).
- ◆ In medium metropolitan areas, the rate of death from heart failure was lower for Hispanic (25.8 per 1,000 admissions) and Black (23.7 per 1,000 admissions) patients than for White patients (29.5 per 1,000 admissions).
- ◆ In small metropolitan areas, the death rate from heart failure was lower for Hispanic (24.2 per 1,000 admissions) and Black (24.6 per 1,000 admissions) patients than for White patients (30.1 per 1,000).
- ◆ In micropolitan areas, the death rate from heart failure was lower for Black patients (27.1 per 1,000 admissions) than for White patients (30.7 per 1,000 patients).
- ◆ In noncore areas, the death rate from heart failure was higher for Hispanic patients (43.7 per 1,000 admissions) than for White patients (35.4 per 1,000 admissions), while the death rate for Black patients (30.5 per 1,000 admissions) was lower than for White patients (35.4 per 1,000).

- **Disparities by Group:**

- ◆ For Asians or Pacific Islanders, the death rate from heart failure was higher in medium metropolitan areas (30.2 per 1,000 admissions) than in large fringe metropolitan areas (21.6 per 1,000 admissions).
- ◆ For Hispanics, the death rate from heart failure was higher in large central metropolitan areas (25.5 per 1,000 admissions), micropolitan areas (33.0 per 1,000 admissions), and noncore areas (43.7 per 1,000 admissions) compared with large fringe metropolitan areas (22.6 per 1,000 admissions).
- ◆ For Blacks, the death rate from heart failure was higher in micropolitan areas (27.1 per 1,000 admissions) and noncore areas (30.5 per 1,000 admissions) compared with large fringe metropolitan areas (22.8 per 1,000 admissions).
- ◆ For Whites, the death rate from heart failure was higher in small metropolitan areas (30.1 per 1,000 admissions), micropolitan areas (30.7 per 1,000 admissions), and noncore areas (35.4 per 1,000 admissions) compared with large fringe metropolitan area (27.1 per 1,000 admissions).

## Acute Myocardial Infarction Deaths

Deaths per 1,000 adult hospital admissions for acute myocardial infarction, by residence location, 2017



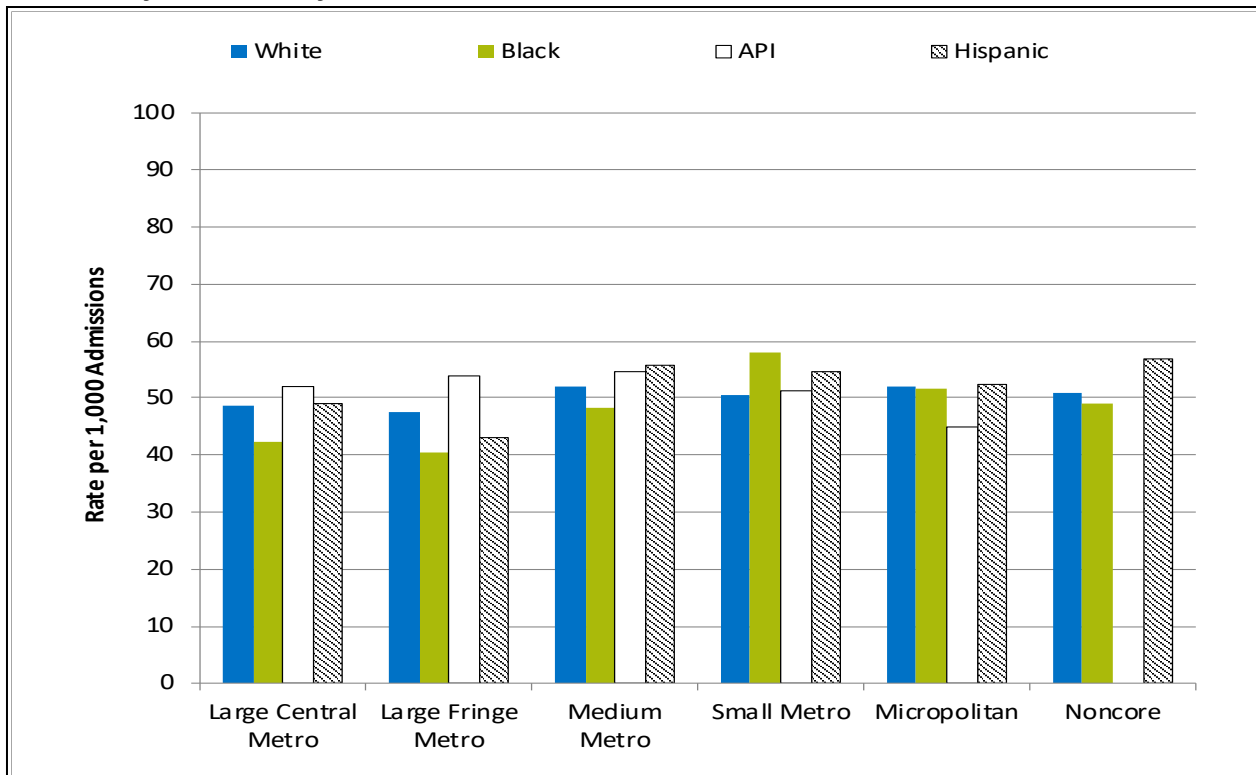
**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1 2017.

**Denominator:** All hospital inpatient discharges among adults age 18 and over with a principal diagnosis of acute myocardial infarction. Excluded from the denominator are obstetric admissions and patients transferring to another short-term hospital or missing a discharge disposition.

**Note:** For this measure, lower rates are better.

- **Importance:** Rural communities experience significant barriers to quality healthcare, including disparities in medical care following acute myocardial infarction (AMI). Due to contemporary treatment guidelines that are being uniformly implemented in rural hospitals, disparities in AMI care have narrowed over time (Alghanem & Clements, 2020).
- **Groups With Disparities in 2017:**
  - The AMI death rate was higher in medium metropolitan areas (52.1 per 1,000 admissions) compared with large fringe metropolitan areas (46.8 per 1,000 admissions).
  - The AMI death rate was higher in small metropolitan areas (52.2 per 1,000 admissions) compared with large fringe metropolitan areas (46.8 per 1,000 admissions).
  - The AMI death rate was higher in micropolitan areas (51.6 per 1,000 admissions) compared with large fringe metropolitan areas (46.8 per 1,000 admissions).

**Deaths per 1,000 adult hospital admissions for acute myocardial infarction, by residence location, stratified by race/ethnicity, 2017**



**Key:** API = Asian or Pacific Islander.

**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, and AHRQ Quality Indicators, version 7.0.1, 2017.

**Denominator:** All hospital inpatient discharges among adults age 18 and over with a principal diagnosis of acute myocardial infarction. Excluded from the denominator are obstetric admissions and patients transferring to another short-term hospital or missing a discharge disposition.

**Note:** For this measure, lower rates are better. White, Black, and API are non-Hispanic. Hispanic includes all races. Data for noncore areas for API are not included because they did not meet criteria for statistical reliability.

- **Importance:** Rural communities experience significant barriers to quality healthcare, including disparities in medical care following acute myocardial infarctions (AMI). Due to contemporary treatment guidelines that are being uniformly implemented in rural hospitals, disparities in AMI care have narrowed over time (Alghanem & Clements, 2020).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, Black patients admitted to the hospital for AMI had a lower death rate (42.5 per 1,000) than White patients (48.8 per 1,000).
    - ◆ In large fringe metropolitan areas, Black patients admitted to the hospital for AMI had a lower death rate (40.6 per 1,000) than White patients (47.4 per 1,000). However, Asian or Pacific Islander patients had a higher death rate (53.8 per 1,000) than White patients (47.4 per 1,000).



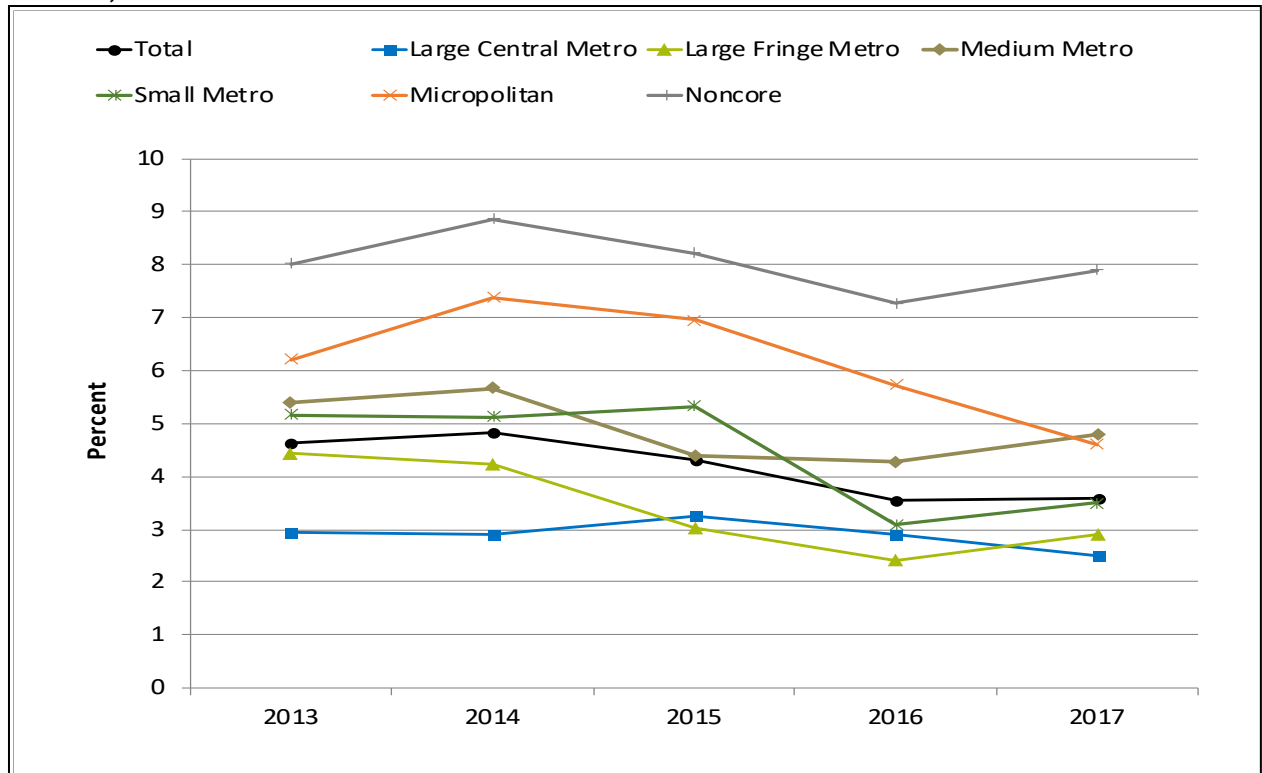
- ◆ In small metropolitan areas, Black patients admitted to the hospital for AMI had a higher death rate (57.9 per 1,000) than White patients (50.6 per 1,000).

■ **Disparities by Group:**

- ◆ For Hispanic patients, those admitted to the hospital for AMI had a higher death rate in large central metropolitan areas (48.9 per 1,000), medium metropolitan areas (55.7 per 1,000), small metropolitan areas (54.8 per 1,000), micropolitan areas (52.5 per 1,000), and noncore areas (56.7 per 1,000) compared with those in large fringe metropolitan areas (43.0 per 1,000).
- ◆ For Black patients, those admitted to the hospital for AMI had a higher death rate in medium metropolitan areas (48.3 per 1,000), small metropolitan areas (57.9 per 1,000), micropolitan areas (51.8 per 1,000), and noncore areas (48.9 per 1,000) compared with those in large fringe metropolitan areas (40.6 per 1,000).
- ◆ For White patients, those admitted to the hospital for AMI had a higher death rate in micropolitan areas (52.2 per 1,000) compared with those in large fringe metropolitan areas (47.4 per 1,000).

**Outpatient Opioid Prescriptions**

Adults who filled four or more outpatient opioid prescriptions in the calendar year, by residence location, 2013-2017



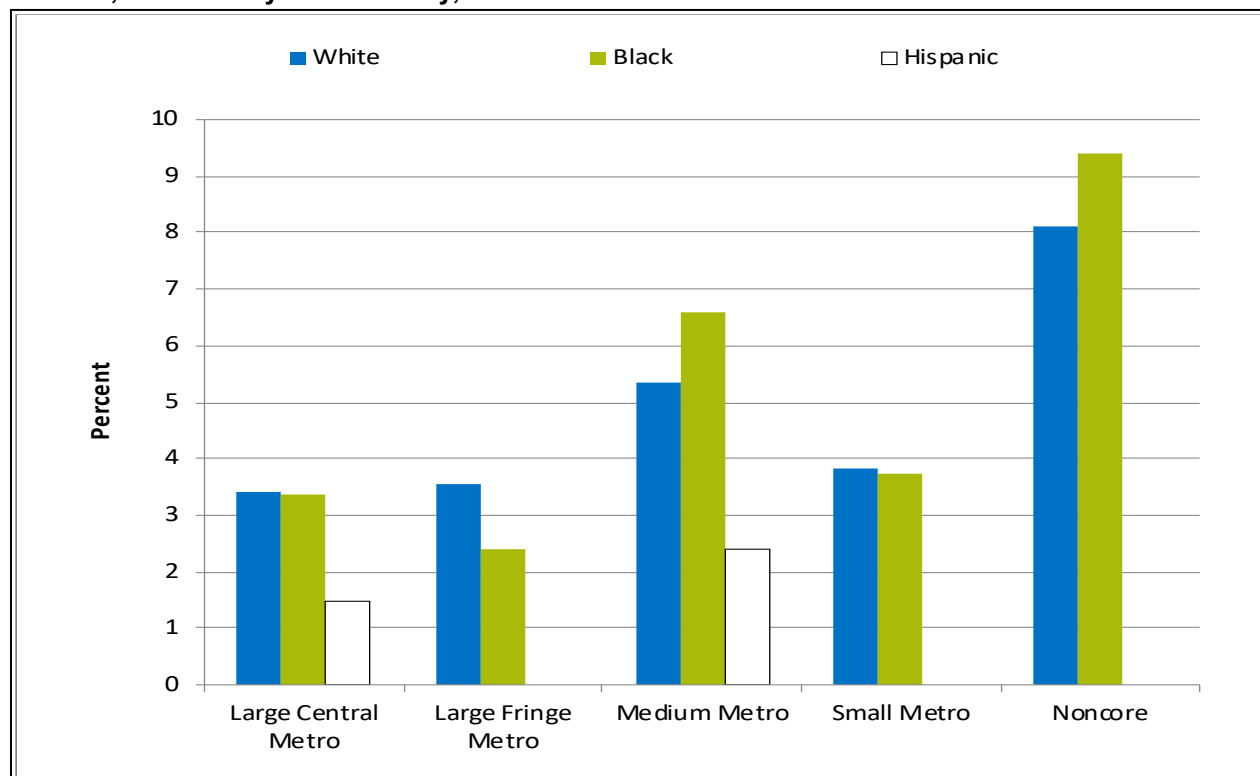
**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2013-2017.

**Denominator:** U.S. civilian noninstitutionalized population age 18 and over.

**Note:** For this measure, lower percentages are better.

- **Importance:** In 2017, a study on electronic health records found that 14 of the 15 counties with the highest opioid prescribing rates were rural counties. Higher prescriptions of opioids increases a population’s risk of addiction and overdose (Garcia, et al., 2019a).
- **Overall Rate:** In 2017, the percentage of adults who filled four or more outpatient opioid prescriptions in the calendar year was 3.6%.
- **Trends:**
  - From 2013 to 2017, the percentage of adults who filled four or more outpatient opioid prescriptions in the calendar year decreased overall and in large fringe metropolitan areas; all other residential locations showed no statistically significant changes.
- **Groups With Disparities in 2017:**
  - The percentages of adults who filled four or more outpatient opioid prescriptions in the calendar year in medium metropolitan (4.8%), micropolitan (4.6%), and noncore (7.9%) areas were higher compared with large fringe metropolitan areas (2.9%).

**Adults who filled four or more outpatient opioid prescriptions in the calendar year, by residence location, stratified by race/ethnicity, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

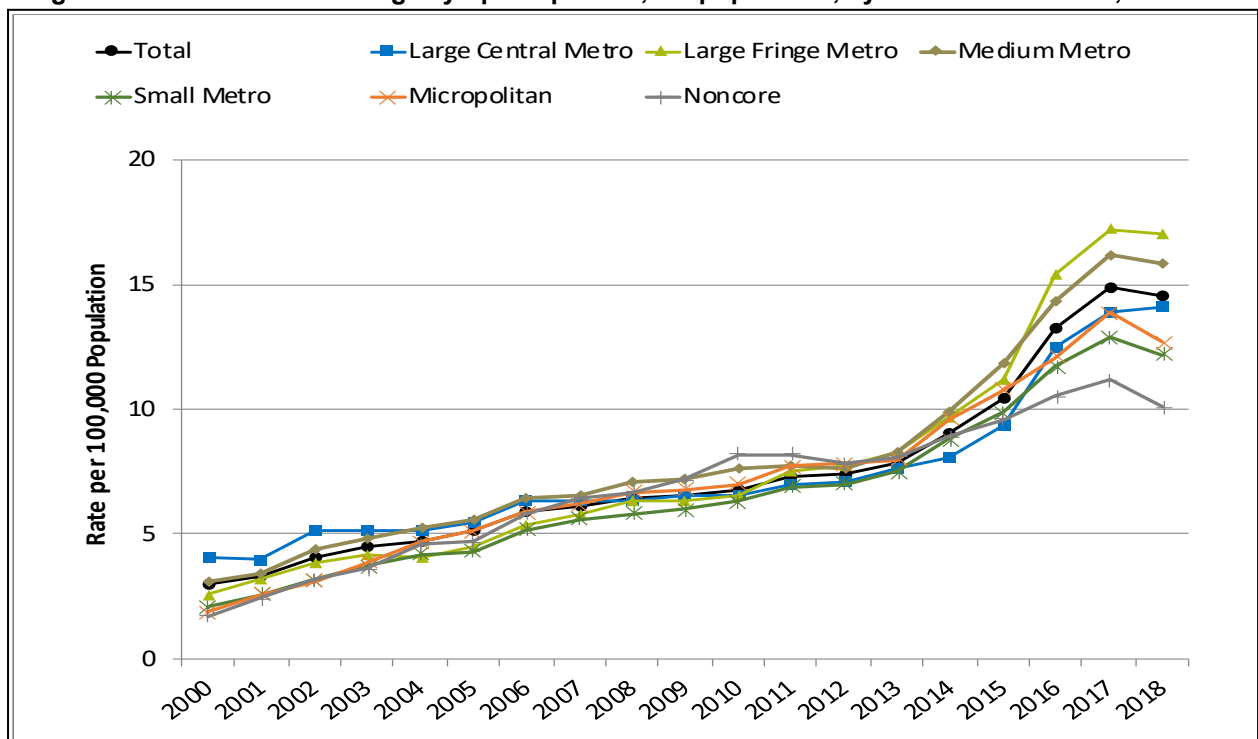
**Denominator:** U.S. civilian noninstitutionalized population age 18 and over.

**Note:** For this measure, lower rates are better. White and Black are non-Hispanic. Hispanic includes all races. Data for Hispanics in large fringe metro, small metro, and noncore areas are not included because the populations did not meet criteria for statistical reliability. Micropolitan areas are not included because only the data for Whites met criteria for statistical reliability.

- **Importance:** In 2017, a study on electronic health records found that 14 of the 15 counties with the highest opioid prescribing rates were rural counties. Higher prescriptions of opioids increases a population's risk of addiction and overdose (Garcia, et al., 2019a).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, Hispanic adults were less likely to have filled four or more outpatient opioid prescriptions in the calendar year (1.5%) than Whites (3.4%).
    - ◆ In medium metropolitan areas, Hispanic adults were less likely to have filled four or more outpatient opioid prescriptions in the calendar year (2.4%) than Whites (5.4%).
  - **Disparities by Group:**
    - ◆ For Blacks, those who resided in medium metropolitan and noncore areas were more likely to have filled four or more outpatient opioid prescriptions in the calendar year (6.6% and 9.4% respectively) than Blacks in large fringe metropolitan areas (2.4%).
    - ◆ For Whites, those who resided in medium metropolitan and noncore areas were more likely to have filled four or more outpatient opioid prescriptions in the calendar year (5.4% and 8.1%, respectively) than Whites in large fringe metropolitan areas (3.6%).

## Drug Overdose Deaths Involving Opioids

Drug overdose deaths involving any opioid per 100,000 population, by residence location, 2000-2018



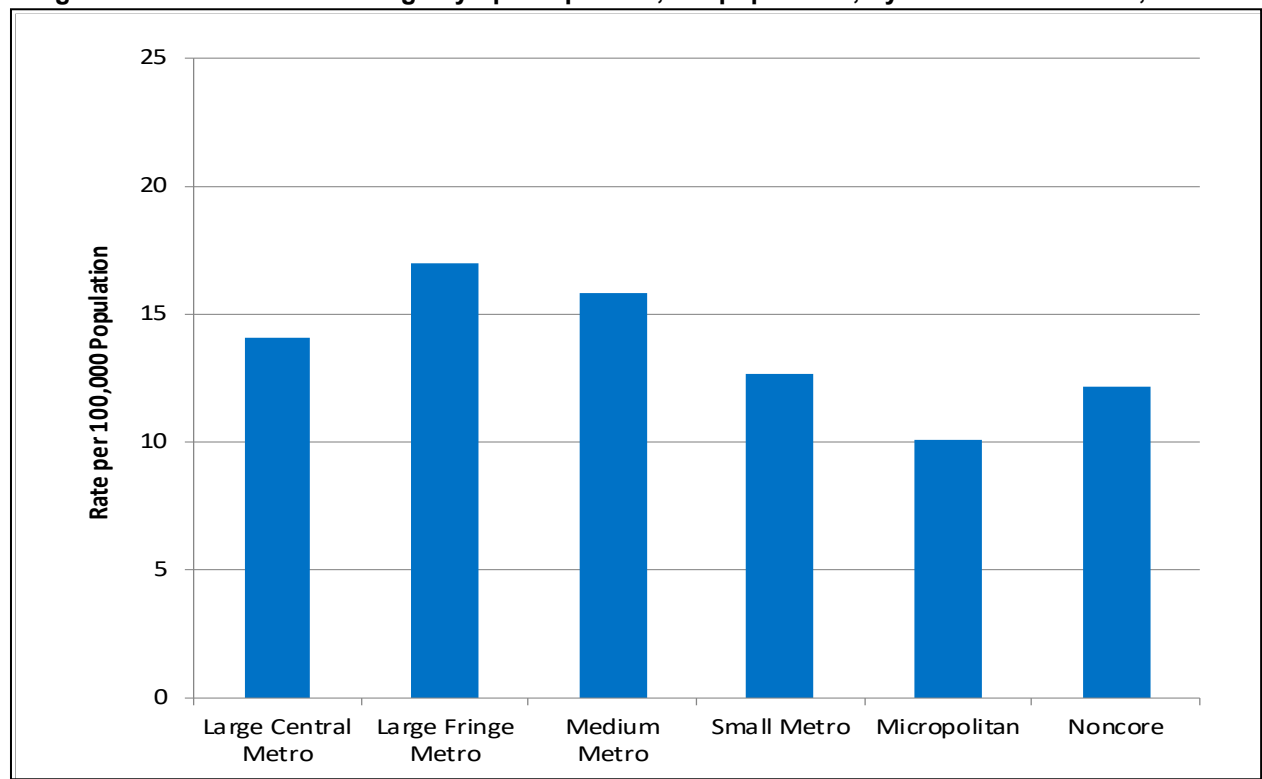
**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System—Mortality, 2000-2018.

**Denominator:** U.S. resident population all ages.

**Note:** For this measure, lower rates are better.

- **Importance:** Rural areas had higher rates of opioid-related deaths compared with urban areas. Age-adjusted drug overdose death rates in rural areas increased by 390% between 2016 and 2019 (Garcia, et al., 2019a).
- **Overall Rate:** In 2018, the rate of drug overdose deaths involving any opioid was 14.6 per 100,000 population.
- **Trends:**
  - From 2000 to 2018, the rate of drug overdose deaths involving any opioid increased overall and for all residential locations.
- **Groups With Disparities in 2018:**
  - The rate of drug overdose deaths involving any opioid in large central metropolitan areas (14.1 per 100,000), small metropolitan areas (12.2 per 100,000), micropolitan areas (12.7 per 100,000), and noncore areas (10.1 per 100,000) was lower compared with large fringe metropolitan areas (17.0 per 100,000).

**Drug overdose deaths involving any opioid per 100,000 population, by residence location, 2018**



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System—Mortality, 2018.

**Denominator:** U.S. resident population all ages.

**Note:** For this measure, lower rates are better.

- **Importance:** Rural areas had higher rates of opioid-related deaths compared with urban areas. Age-adjusted drug overdose death rates in rural areas increased by 390% between 2016 and 2019 (Garcia et al., 2019a).

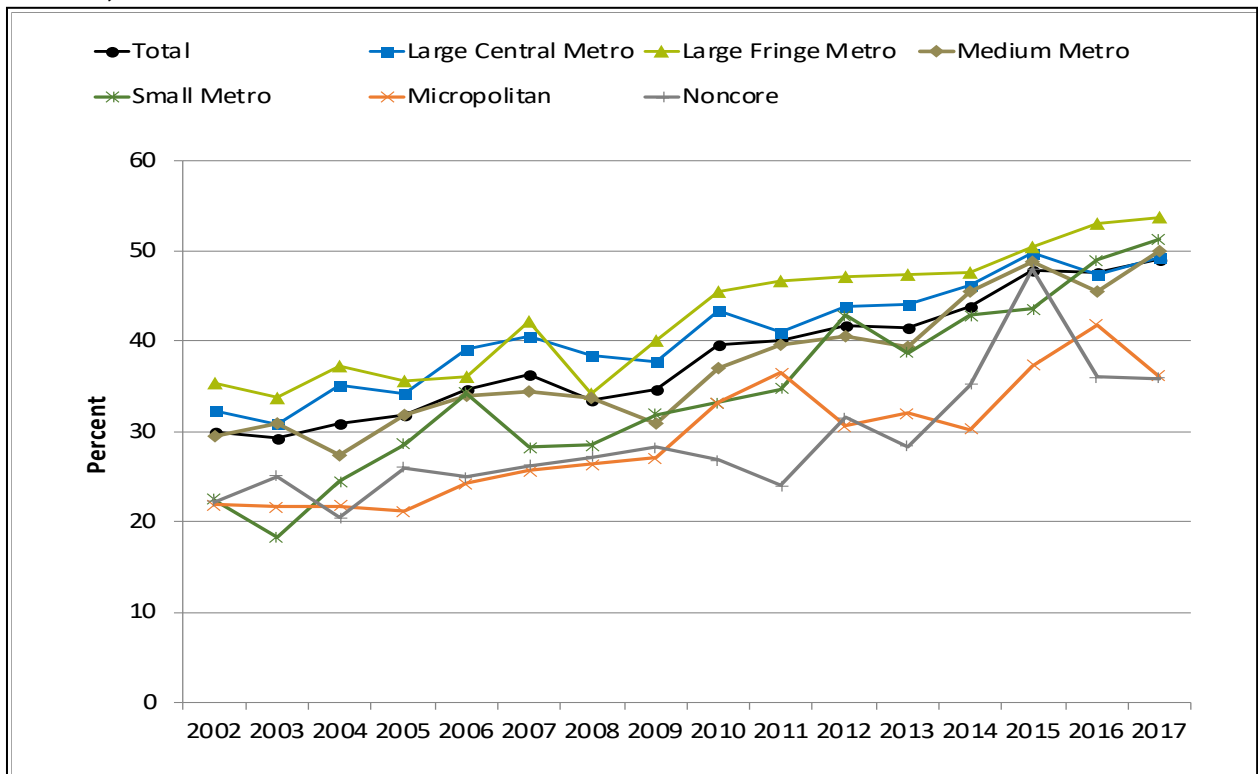
- **Groups With Disparities in 2018:**

- Residents of large central metropolitan areas had a lower drug overdose death rate from any opioid (14.1 per 100,000) compared with residents in large fringe metropolitan areas (17.0 per 100,000).
- Residents of small metropolitan areas had a lower drug overdose death rate from any opioid (12.7 per 100,000) compared with residents in large fringe metropolitan areas (17.0 per 100,000).
- Residents of micropolitan areas had a lower drug overdose death rate from any opioid (10.1 per 100,000) compared with residents in large fringe metropolitan areas (17.0 per 100,000).
- Residents of noncore areas had a lower drug overdose death rate from any opioid (12.2 per 100,000) compared with residents in large fringe metropolitan areas (17.0 per 100,000).

## Healthy Living

### Advice for Children About Physical Activity

Children ages 2-17 for whom a health provider gave advice within the past 2 years about the amount and kind of exercise, sports, or physically active hobbies they should have, by residence location, 2002-2017



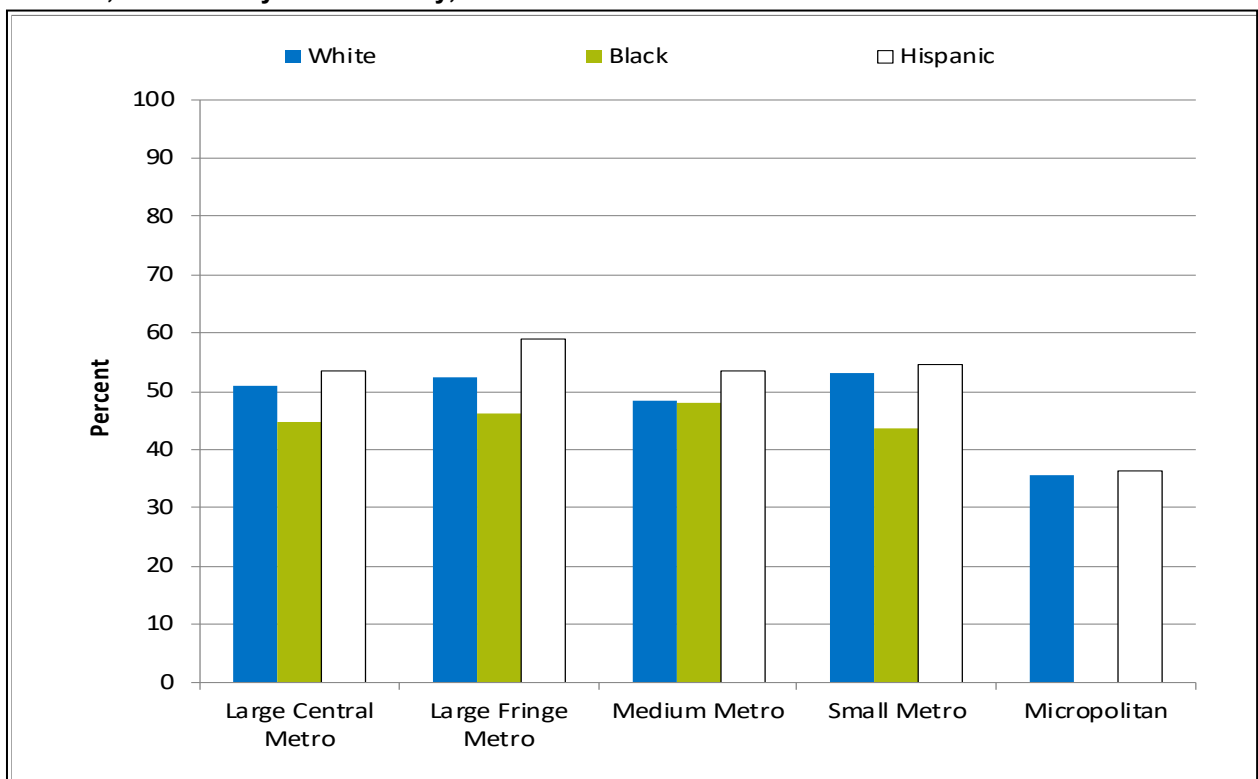
**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2017.

**Denominator:** U.S. civilian noninstitutionalized population ages 2-17.

- **Importance:** Childhood is often a time when people establish healthy lifelong habits. Physicians can play an important role in encouraging healthy behaviors from a young age. For example, they can educate children and parents about the importance of regular exercise.

- **Overall Rate:** In 2017, the percentage of children ages 2-17 for whom a health provider gave advice within the past 2 years about the amount and kind of exercise, sports, or physically active hobbies they should have was 49.1%.
- **Trends:**
  - From 2002 to 2017, the percentage of children ages 2-17 for whom a health provider gave advice within the past 2 years about the amount and kind of exercise, sports, or physically active hobbies they should have increased overall and in all residential locations.
- **Groups With Disparities in 2017:**
  - In micropolitan and noncore areas, the percentage of children ages 2-17 for whom a health provider gave advice within the past 2 years about the amount and kind of exercise, sports, or physically active hobbies they should have (36.1% and 35.9%, respectively) was lower compared with large fringe metropolitan areas (53.7%).

**Children ages 2-17 for whom a health provider gave advice within the past 2 years about the amount and kind of exercise, sports, or physically active hobbies they should have, by residence location, stratified by race/ethnicity, 2017**



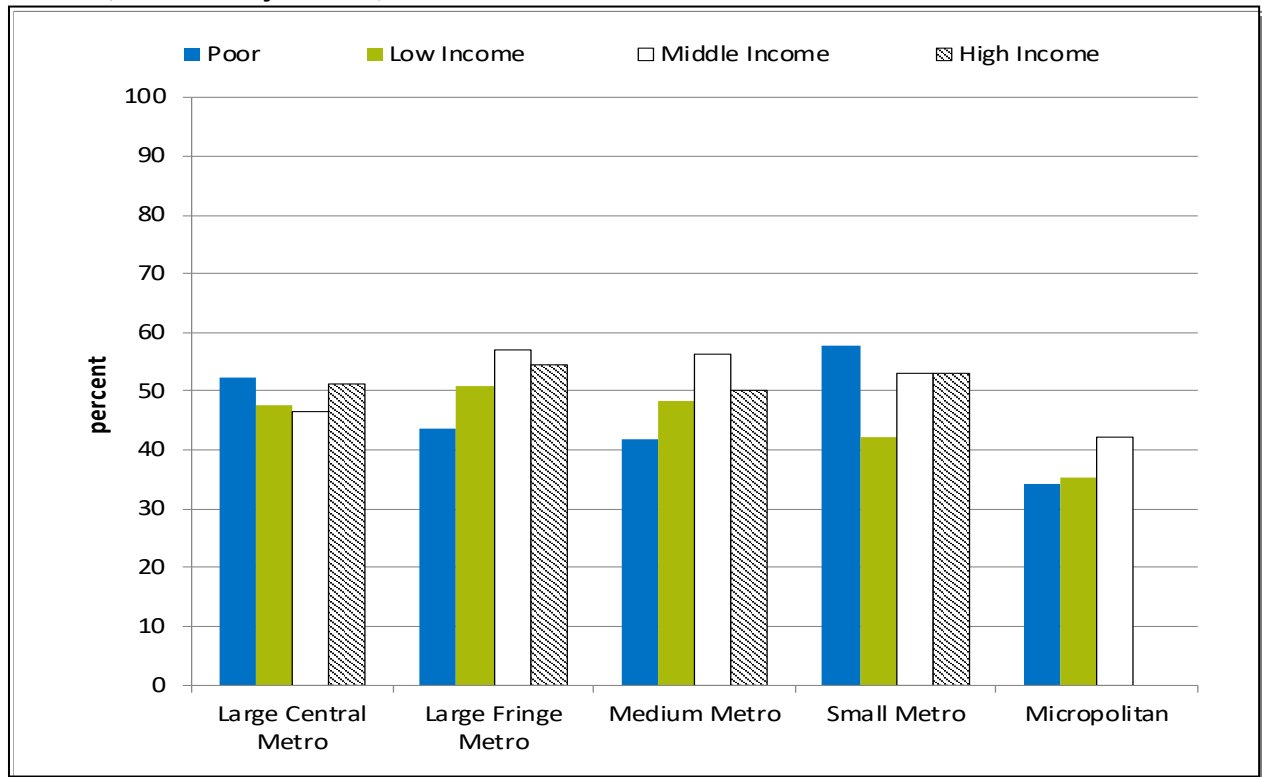
**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized population ages 2-17.

**Note:** White and Black are non-Hispanic. Hispanic includes all races. Data for Black children in micropolitan areas are not included because they did not meet criteria for statistical reliability. Noncore areas are not included because data for groups other than Whites did not meet criteria for statistical reliability.

- **Importance:** Childhood is often a time when people establish healthy lifelong habits. Physicians can play an important role in encouraging healthy behaviors from a young age. For example, they can educate children and parents about the importance of regular exercise.
- **Groups With Disparities in 2017:**
  - Hispanic children in micropolitan areas were less likely to receive advice on the amount and kind of exercise, sports, or physically active hobbies they should have (36.5%) compared with Hispanic children in large fringe metropolitan areas (58.8%).
  - White children in micropolitan areas were less likely to receive advice on the amount and kind of exercise, sports, or physically active hobbies they should have (35.6%) compared with White children in large fringe metropolitan areas (52.4%).

**Children ages 2-17 for whom a health provider gave advice within the past 2 years about the amount and kind of exercise, sports, or physically active hobbies they should have, by residence location, stratified by income, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized population ages 2-17.

**Note:** Poor, low income, middle income, and high income indicate individuals whose household income is <100%, 100-199%, 200-399%, and 400% or more of the Federal poverty level, respectively. Data for children in high-income households in micropolitan areas are not included because they did not meet criteria for statistical reliability. Noncore areas are not included because data for groups other than poor did not meet criteria for statistical reliability.

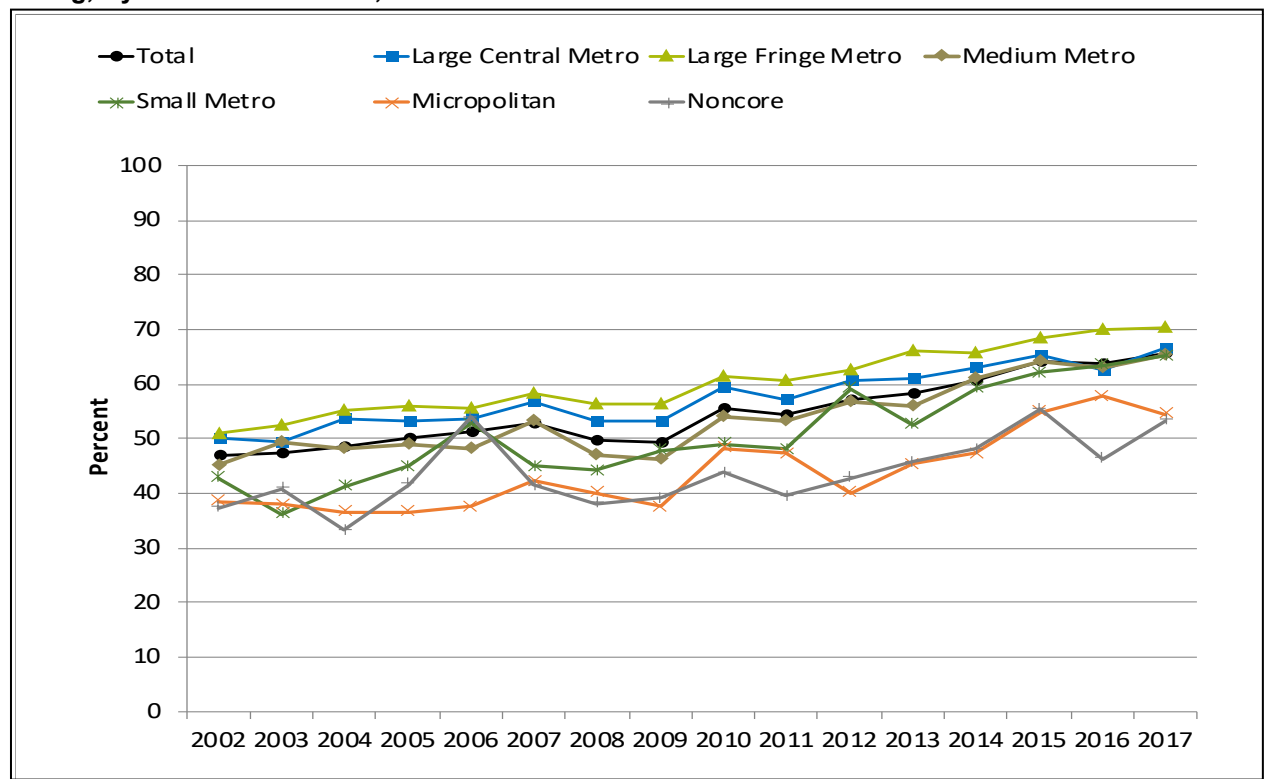
- **Importance:** Childhood is often a time when people establish healthy lifelong habits. Physicians can play an important role in encouraging healthy behaviors from a young age. For example, they can educate children and parents about the importance of regular exercise.

• **Groups With Disparities in 2017:**

- Children in poor households in large fringe metropolitan areas were less likely to have received advice in the last 2 years about the amount and kind of exercise, sports, or physically active hobbies they should have (43.7%) compared with children in high-income households in large fringe metropolitan areas (54.6%).
- Children in middle-income households in large central metropolitan areas were less likely to have received advice in the last 2 years about the amount and kind of exercise, sports, or physically active hobbies they should have (46.5%) compared with children in middle-income households in large fringe metropolitan areas (57.0%).

**Advice for Children About Healthy Eating**

Children ages 2-17 for whom a health provider gave advice within the past 2 years about healthy eating, by residence location, 2002-2017



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2017.

Denominator: U.S. civilian noninstitutionalized population ages 2-17.

- **Importance:** It is essential for physicians to emphasize to patients the importance of consuming foods from all food groups, including whole grains and fiber, lean proteins, complex carbohydrates, fruits, and vegetables, as well as providing education about balancing energy intake and energy expenditure.
- **Overall Rate:** In 2017, the percentage of children ages 2-17 for whom a health provider gave advice within the past 2 years about healthy eating was 65.6%.



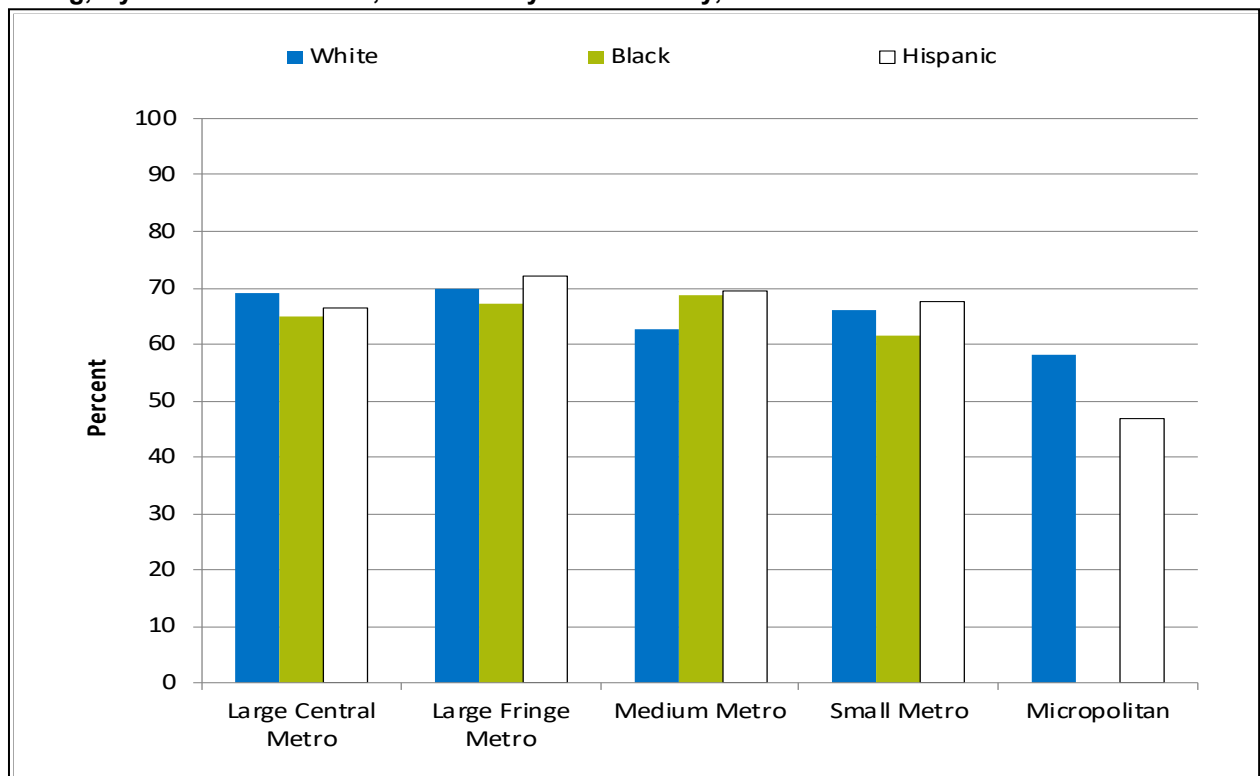
- **Trends:**

- From 2002 to 2017, the percentage of children ages 2-17 for whom a health provider gave advice within the past 2 years about healthy eating increased overall and in all residential locations.

- **Groups With Disparities in 2017:**

- In micropolitan and noncore areas, the percentage of children ages 2-17 for whom a health provider gave advice within the past 2 years about healthy eating (54.5% and 53.3%, respectively) was lower compared with large fringe metropolitan areas (70.3%).

**Children ages 2-17 for whom a health provider gave advice within the past 2 years about healthy eating, by residence location, stratified by race/ethnicity, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized population ages 2-17.

**Note:** White and Black are non-Hispanic. Hispanic includes all races. Data for Black children in micropolitan areas are not included because they did not meet criteria for statistical reliability. Noncore areas are not included because data for groups other than Whites did not meet criteria for statistical reliability.

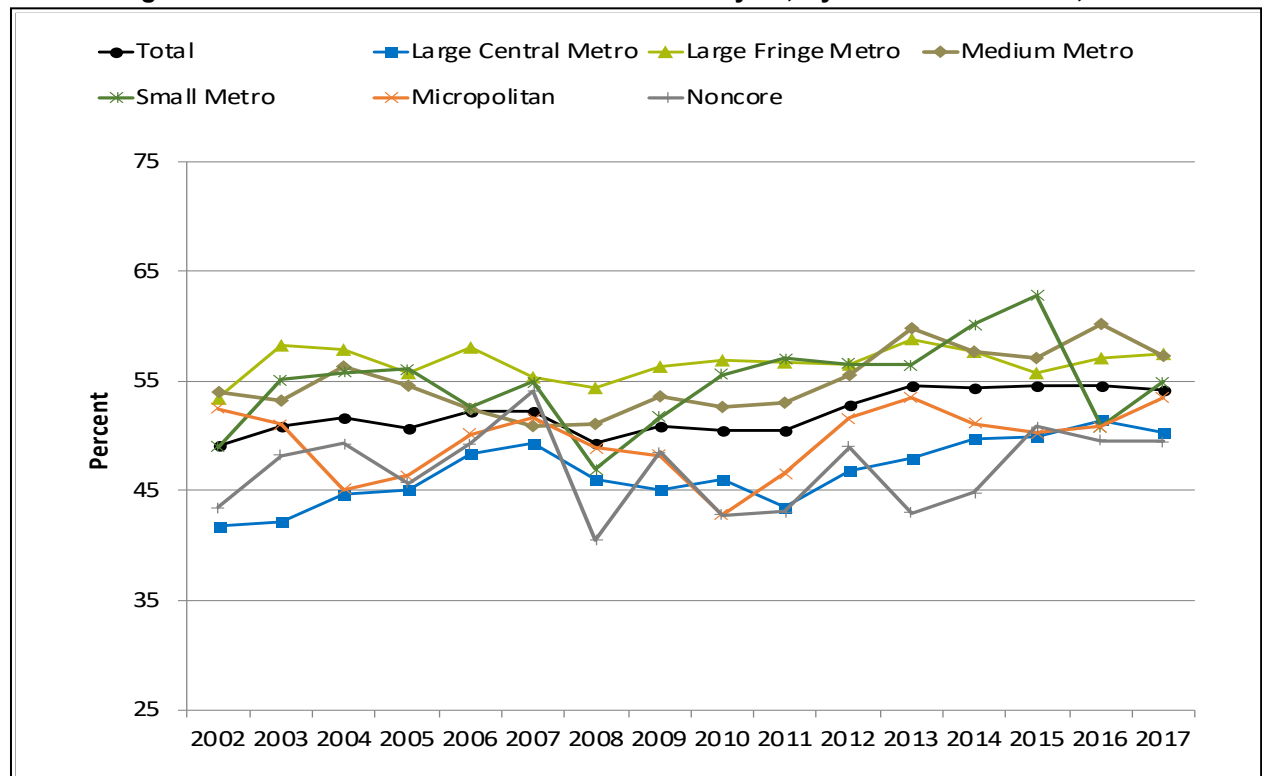
- **Importance:** It is essential for physicians to emphasize to patients the importance of consuming foods from all food groups, including whole grains and fiber, lean proteins, complex carbohydrates, fruits, and vegetables, as well as providing education about balancing energy intake and energy expenditure.

- **Groups With Disparities in 2017:**

- Hispanic children in micropolitan areas were less likely to have received advice on healthy eating in the past 2 years (47.0%) compared with Hispanic children in large fringe metropolitan areas (71.9%).
- White children in micropolitan areas were less likely to have received advice on healthy eating in the past 2 years (58.3%) compared with White children in large fringe metropolitan areas (69.9%).

## Dental Visits for Children

Children ages 2-17 who had a dental visit in the calendar year, by residence location, 2002-2017

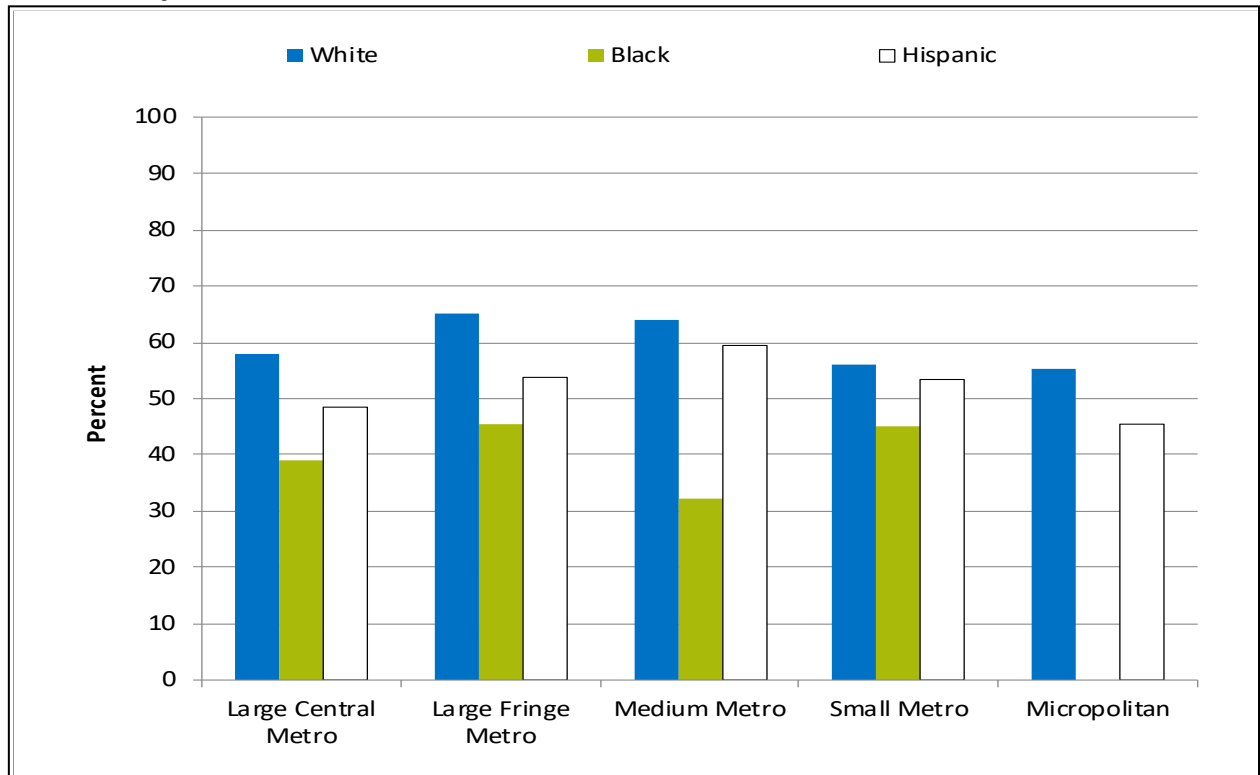


**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2017.

**Denominator:** U.S. civilian noninstitutionalized population ages 2-17 years.

- **Importance:** According to the National Institute of Dental and Craniofacial Research, presence of dental caries is the single most common chronic disease of childhood (NIDCR, 2018). Regular dental visits help to improve overall oral health and prevent dental caries.
- **Overall Rate:** In 2017, 54.2% of children ages 2-17 had a dental visit in the calendar year.
- **Groups With Disparities in 2017:**
  - Children in large central metropolitan areas were less likely to have had a dental visit in the calendar year than those in large fringe metropolitan areas (50.4% vs. 57.4%).

**Children ages 2-17 who had a dental visit in the calendar year, by residence location, stratified by race/ethnicity, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized population ages 2-17 years.

**Note:** White and Black are non-Hispanic. Hispanic includes all races. Data for Blacks in micropolitan areas are not included because they did not meet the criteria for statistical reliability. Data for noncore areas are not included because only Whites met the criteria for statistical reliability.

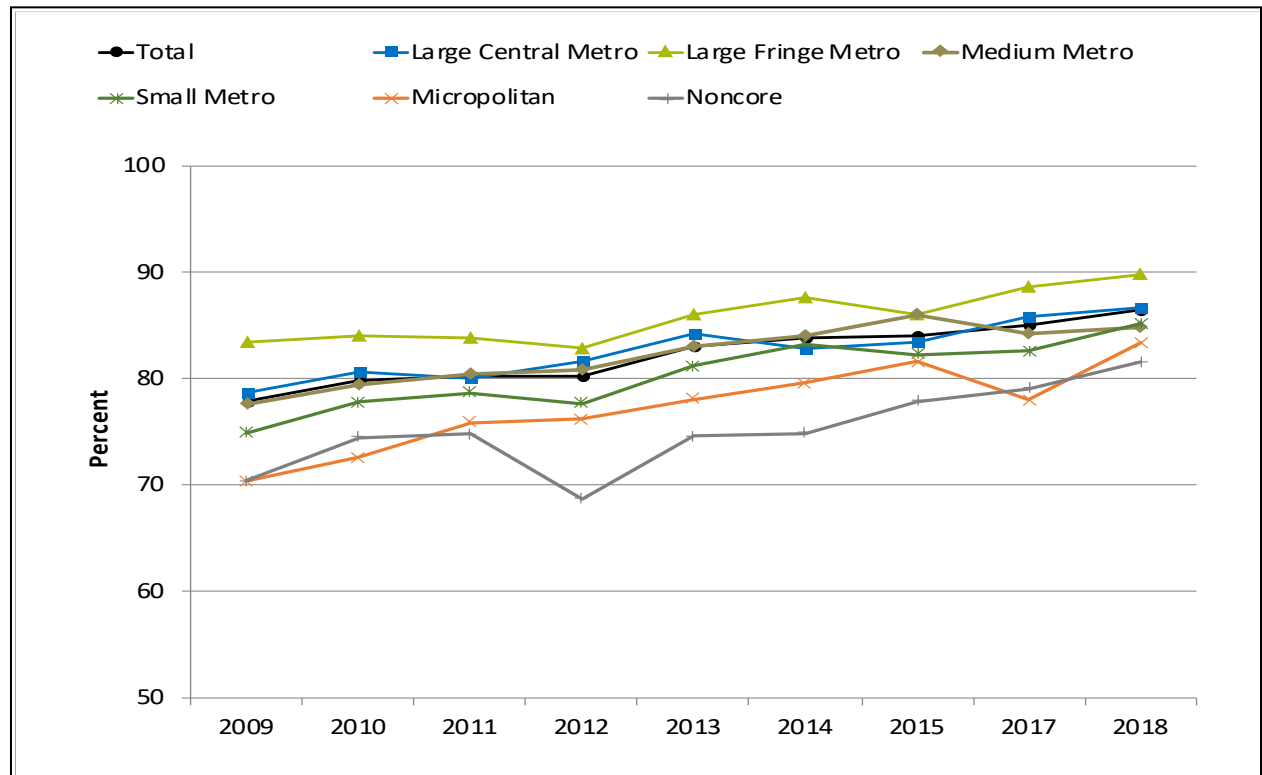
- **Importance:** According to the National Institute of Dental and Craniofacial Research, presence of dental caries is the single most common chronic disease of childhood (NIDCR, 2018). Regular dental visits help to improve overall oral health and prevent dental caries.
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, the percentage of children ages 2-17 who had a dental visit in the calendar year was lower for Hispanics (48.6%) and Blacks (38.9%) compared with Whites (58.0%).
    - ◆ In large fringe metropolitan areas, the percentage of children ages 2-17 who had a dental visit in the calendar year was lower for Hispanics (53.7%) and Blacks (45.6%) compared with Whites (65.1%).
    - ◆ In medium metropolitan areas, the percentage of children ages 2-17 who had a dental visit in the calendar year was lower for Blacks (32.3%) compared with Whites (63.9%).

■ **Disparities by Group:**

- ◆ For Blacks, the percentage of children ages 2-17 who had a dental visit in the calendar year was lower in medium metropolitan areas (32.3%) compared with large fringe metropolitan areas (45.6%).

**Children’s Wellness Checkups**

Children age 17 and under with a wellness checklist in the past 12 months, by residence location, 2009-2018



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2009-2018.

**Denominator:** Children ages 0-17.

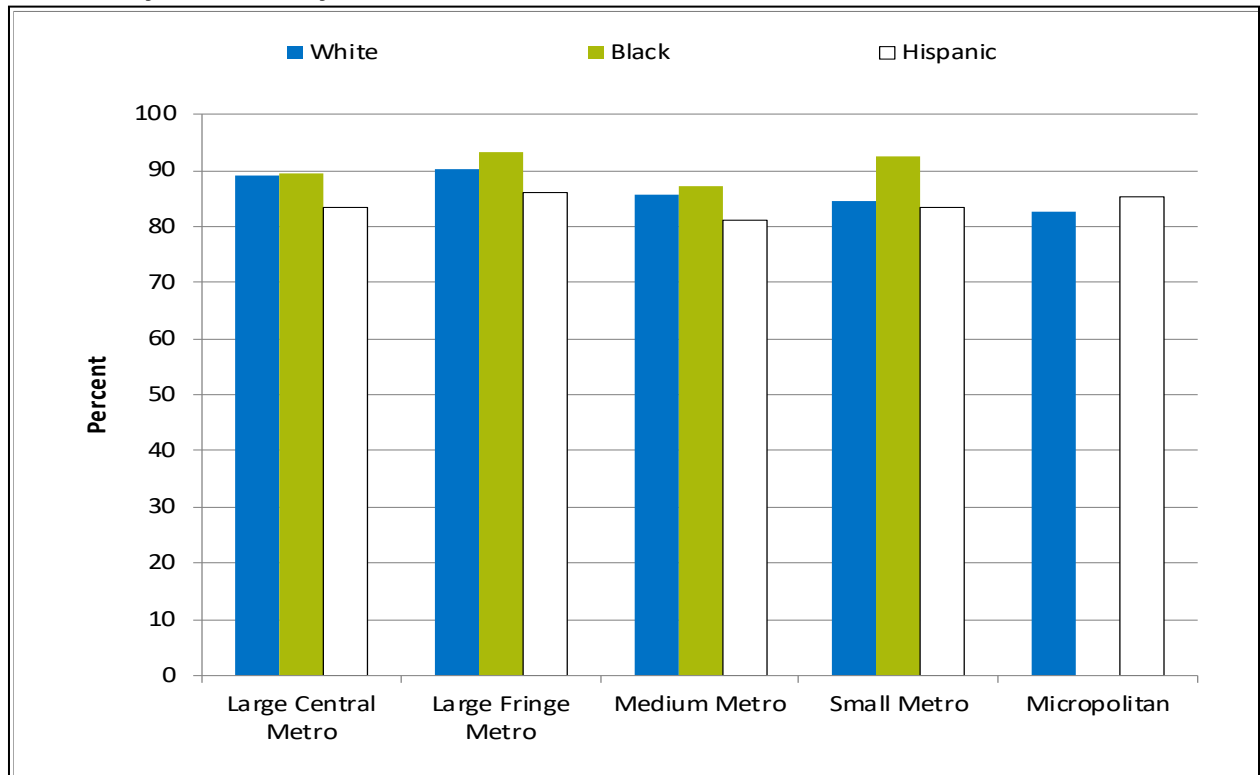
**Note:** No data were available for 2016.

- **Importance:** Well-child visits are an important component of high-quality healthcare for children. These visits may provide children with preventive and developmental health services, help ensure timely immunizations, help reduce the use of acute care services, and offer parents an opportunity to discuss their health-related concerns with providers.
- **Overall Rate:** In 2018, 86.5% of children age 17 and under had a wellness checklist in the past 12 months.
- **Trends:**
  - From 2009 to 2018, the percentage of children who had a wellness checklist increased overall and within each geographic area, including micropolitan and noncore areas.

- **Groups With Disparities in 2018:**

- Among children age 17 and under, the percentage who had a wellness checkup in the past 12 months was lower in large central metropolitan (86.7%), medium metropolitan (84.9%), small metropolitan (85.2%), micropolitan (83.4%), and noncore (81.6%) areas compared with large fringe metropolitan areas (89.8%).

**Children age 17 and under with a wellness checkup in the past 12 months, by residence location, stratified by race/ethnicity, 2018**



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2018.

**Denominator:** Children ages 0-17.

**Note:** White and Black are non-Hispanic. Hispanic includes all races. Data for Blacks in micropolitan areas are not included because they did not meet criteria for statistical reliability. Noncore areas are not included because data for groups other than Whites did not meet criteria for statistical reliability.

- **Importance:** Well-child visits are an important component of high-quality healthcare for children. These visits may provide children with preventive and developmental health services, help ensure timely immunizations, help reduce the use of acute care services, and offer parents an opportunity to discuss their health-related concerns with providers.

- **Groups With Disparities in 2018:**

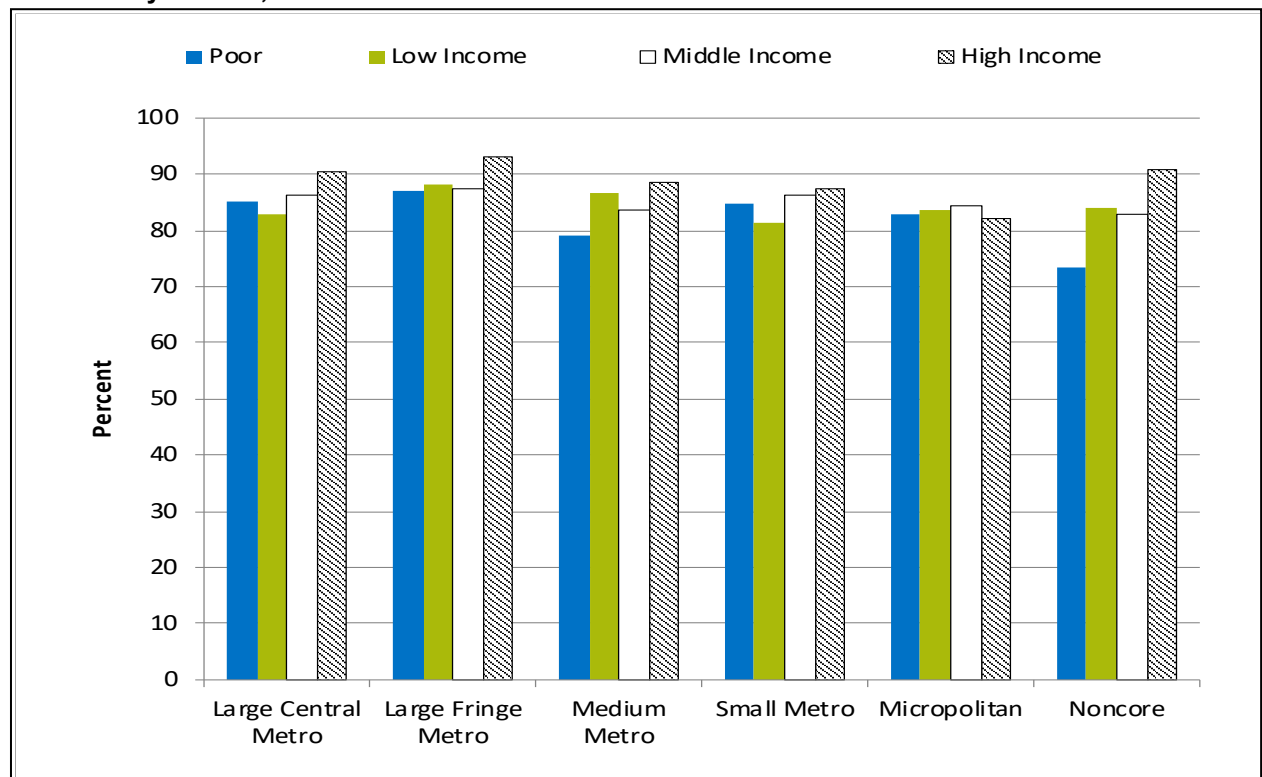
- **Disparities by Location:**

- ◆ Within large central metropolitan areas, the percentage of children age 17 and under who had a wellness checkup in the past 12 months was lower for Hispanics (83.5%) compared with Whites (89.2%).
    - ◆ Within small metropolitan areas, the percentage of children age 17 and under who had a wellness checkup in the past 12 months was higher for Blacks (92.4%) compared with Whites (84.6%).

- **Disparities by Group:**

- ◆ For Whites, the percentage of children age 17 and under who had a wellness checkup in the past 12 months was lower in small metropolitan and micropolitan areas (84.6% and 82.7%, respectively) compared with large fringe metropolitan areas (90.1%).

**Children age 17 and under with a wellness checkup in the past 12 months, by residence location, stratified by income, 2018**



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2018.

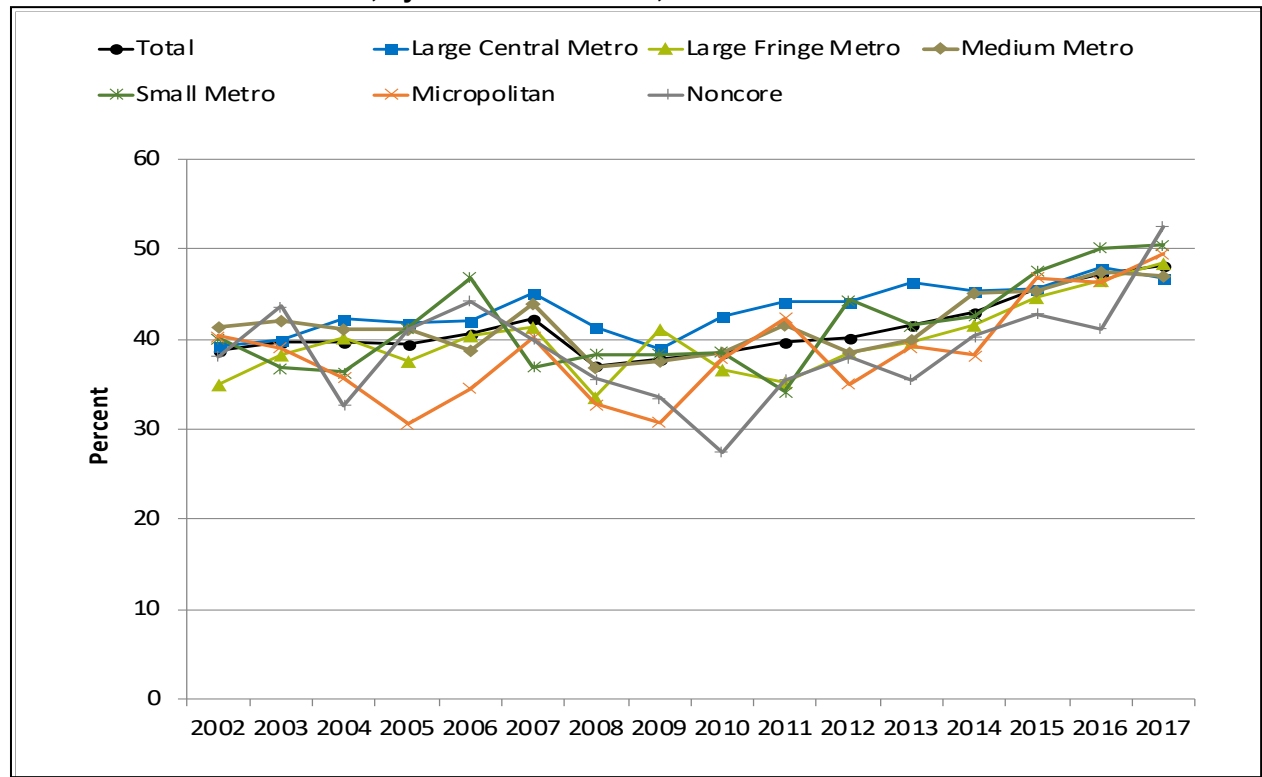
**Denominator:** Children ages 0-17.

**Note:** Poor, low income, middle income, and high income indicate individuals whose household income is <100%, 100-199%, 200-399%, and 400% or more of the Federal poverty level, respectively.

- **Importance:** Well-child visits are an important component of high-quality healthcare for children. These visits may provide children with preventive and developmental health services, help ensure timely immunizations, help reduce the use of acute care services, and offer parents an opportunity to discuss their health-related concerns with providers.
- **Groups With Disparities in 2018:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, the percentage of children age 17 and under in poor (85.0%), low-income (82.8%), and middle-income (86.4%) households who had a wellness checkup in the past 12 months was lower compared with those in high-income households (90.6%).
    - ◆ In large fringe metropolitan areas, the percentage of children age 17 and under in low-income (88.3%) and middle-income (87.5%) households who had a wellness checkup in the past 12 months was lower compared with those in high-income households (93.1%).
    - ◆ In medium metropolitan areas, the percentage of children age 17 and under in poor households (79.1%) who had a wellness checkup in the past 12 months was lower compared with those in high-income households (88.7%).
  - **Disparities by Group:**
    - ◆ Among high-income populations, the percentage of children age 17 who had a wellness checkup in the past 12 months was lower in small metropolitan (87.6%) and micropolitan (82.2%) areas compared with large fringe metropolitan areas (93.1%).

## Advice About the Dangers of Smoking Around Children

Children for whom a health provider gave advice within the past 2 years about how smoking in the house can be bad for a child, by residence location, 2002-2017



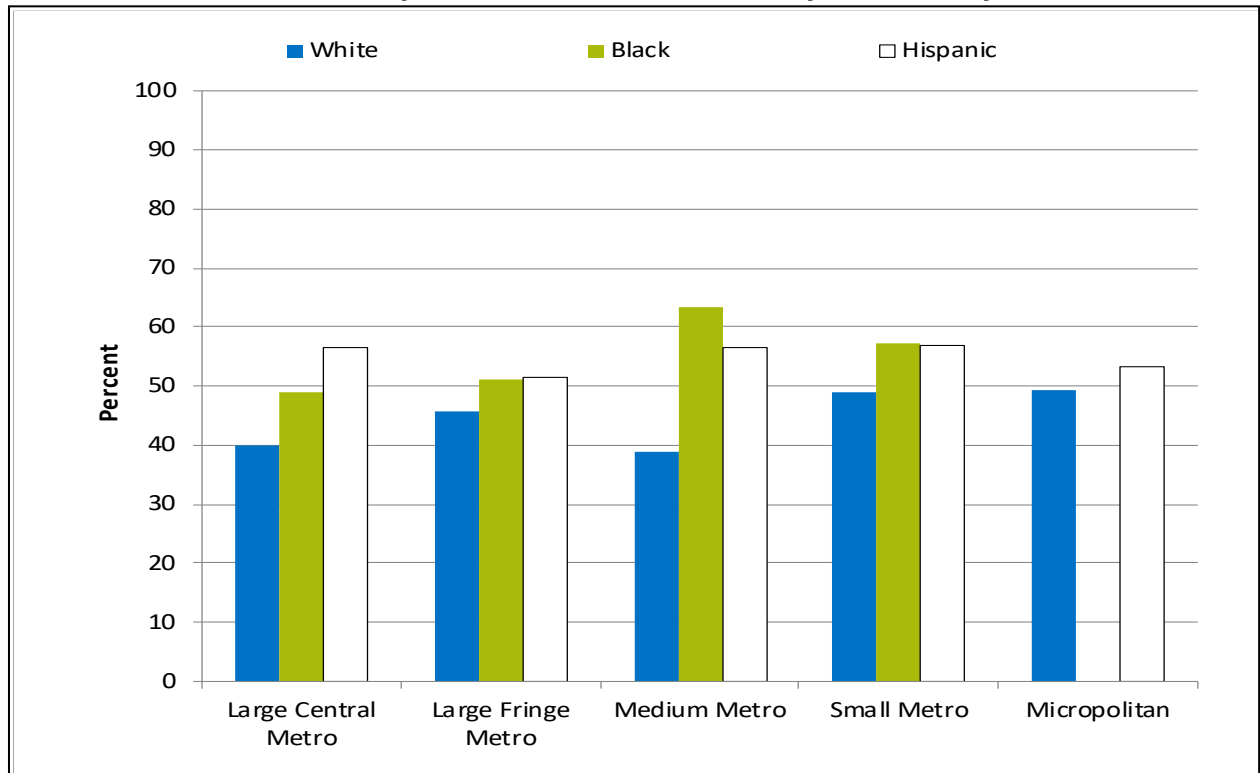
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2017.

Denominator: U.S. civilian noninstitutionalized population under age 18.

- **Importance:** Secondhand smoke can cause serious health problems in children. Studies show that older children whose parents smoke get sick more often. Their lungs grow less than children who do not breathe secondhand smoke, and they get more bronchitis and pneumonia (OSH, 2020).
- **Overall Rate:** In 2017, health providers had given advice within 2 years that smoking in the house could be bad for children for 48.2% of children.
- **Trends:**
  - From 2002 to 2017, the percentage of children for whom a health provider gave advice in the past 2 years about the potential bad effects of smoking in the house increased in small metropolitan and micropolitan areas.
- **Groups With Disparities in 2017:**
  - There were no statistically significant disparities by residence location in the percentage of children for whom a health provider gave advice in the past 2 years about how smoking in the house can be bad for a child.



**Children for whom a health provider gave advice within the past 2 years about how smoking in the house can be bad for a child, by residence location, stratified by race/ethnicity, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

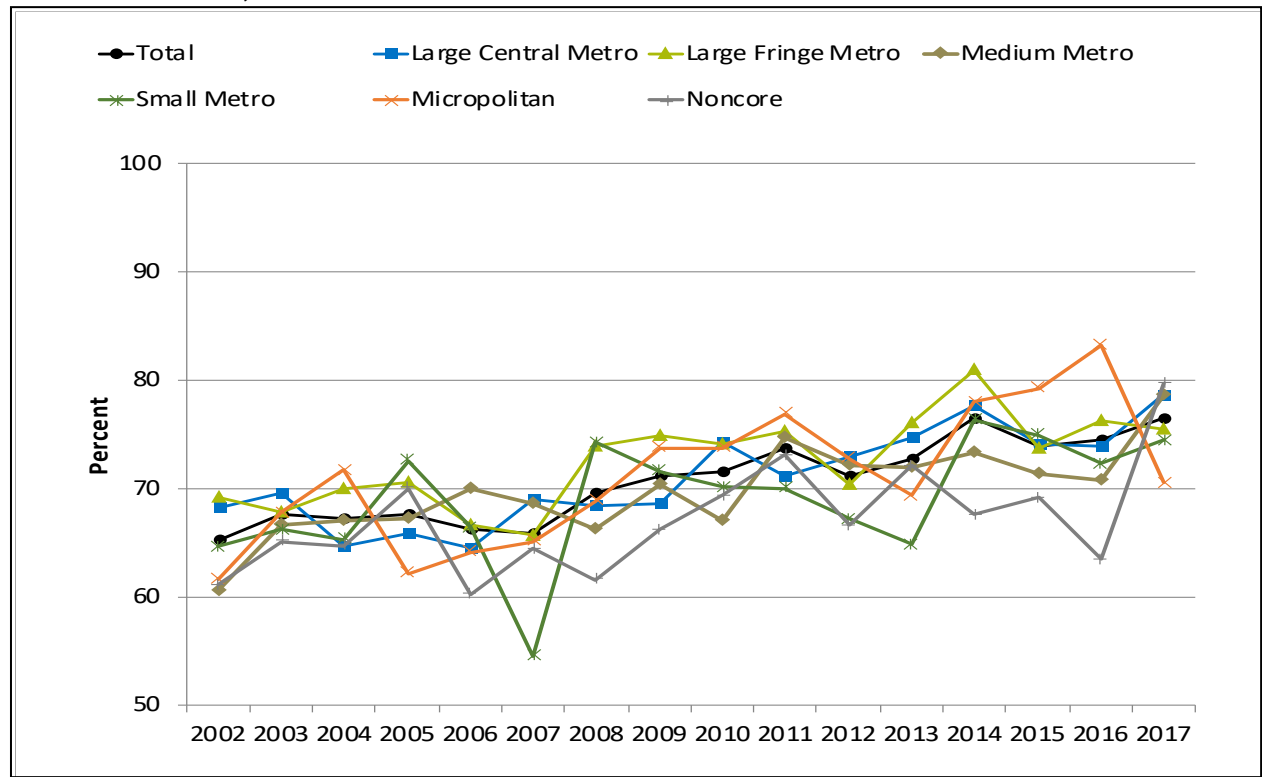
**Denominator:** U.S. civilian noninstitutionalized population under age 18.

**Note:** White and Black are non-Hispanic. Hispanic includes all races. Data for micropolitan areas for Blacks are not included because they did not meet criteria for statistical reliability. Noncore areas are not included because data for groups other than Whites did not meet criteria for statistical reliability.

- **Importance:** Secondhand smoke can cause serious health problems in children. Studies show that older children whose parents smoke get sick more often. Their lungs grow less than children who do not breathe secondhand smoke, and they get more bronchitis and pneumonia (OSH, 2020).
- **Groups With Disparities in 2017:**
  - In large central metropolitan areas, the percentage of children for whom a health provider gave advice in the past 2 years about the potential bad effects of smoking in the house was higher for Hispanics (56.7%) compared with Whites (39.8%).
  - In medium metropolitan areas, the percentage of children for whom a health provider gave advice in the past 2 years about the potential bad effects of smoking in the house was higher for Blacks and Hispanics (63.2% and 56.6%, respectively) compared with Whites (38.7%).

## Advice To Quit Smoking

Adult smokers with a checkup in the last 12 months who received advice to quit smoking, by residence location, 2002-2017



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2017.

**Denominator:** U.S. civilian noninstitutionalized population age 18 and over who are current smokers and who had a routine checkup in the past 12 months.

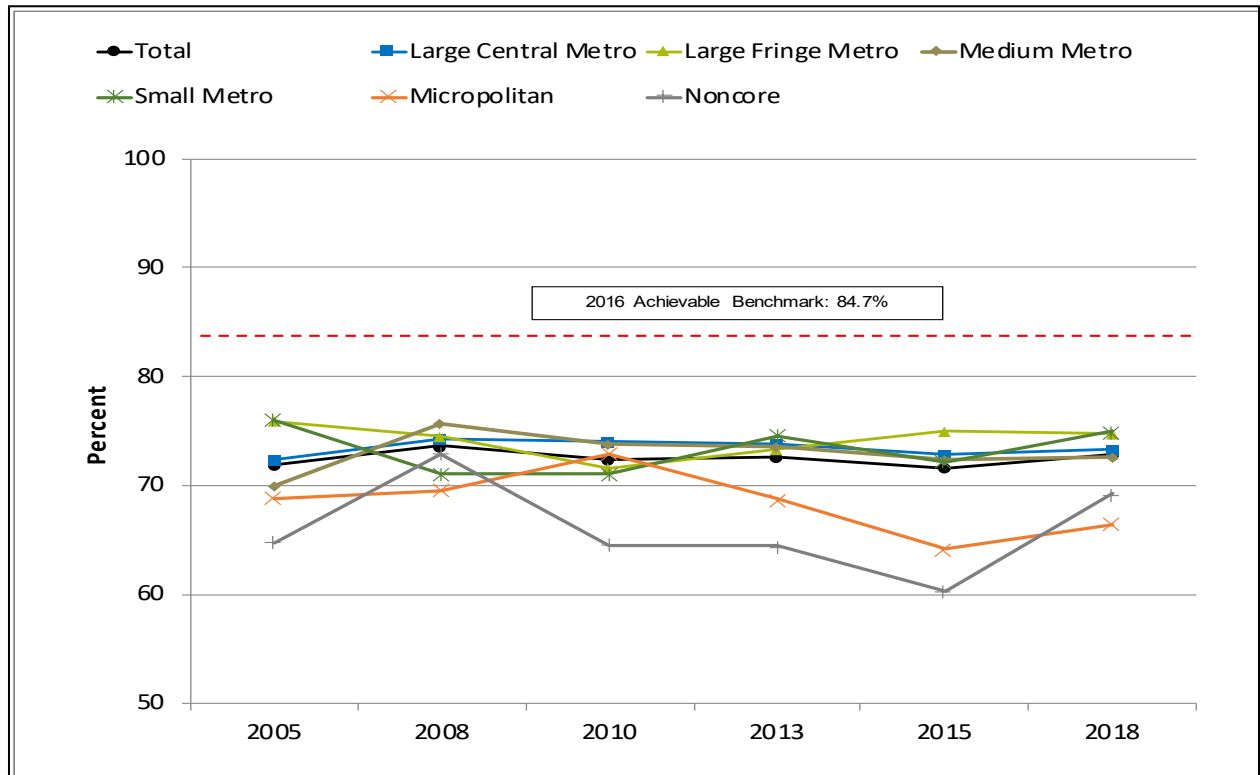
- **Importance:** Tobacco use increases the risk of developing and dying from heart disease, stroke, and chronic lower respiratory disease. Cigarette smoking is the leading cause of preventable disease and death in the United States (Garcia, et al., 2017). Since the first Surgeon General’s report on smoking and health in 1964, there have been more than 20 million premature deaths attributable to smoking and exposure to secondhand smoke (OSH, 2014). In 2012, 25.6% of residents of nonmetropolitan areas age 18 and over were current smokers compared with 15.4% of residents of large metropolitan areas (Blackwell, et al., 2014).
- **Overall Rate:** In 2017, 76.5% of current smokers had received advice to quit smoking in the past 12 months.
- **Trends:**
  - From 2002 to 2017, the percentage of adults who had received advice to quit smoking in the past 12 months increased both overall and within each geographic area, including micropolitan and noncore areas.

- **Groups With Disparities in 2017:**

- There were no statistically significant differences in the likelihood of smokers receiving advice to quit smoking between large fringe metropolitan areas and other geographic locations.

## Mammograms

Women ages 50-74 who received a mammogram in the last 2 years, by residence location, 2005-2018



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2005-2018.

**Denominator:** Number of women ages 50-74.

**Note:** Estimates are age adjusted to the 2000 U.S. standard population using two age groups: 50-64 and 65-74.

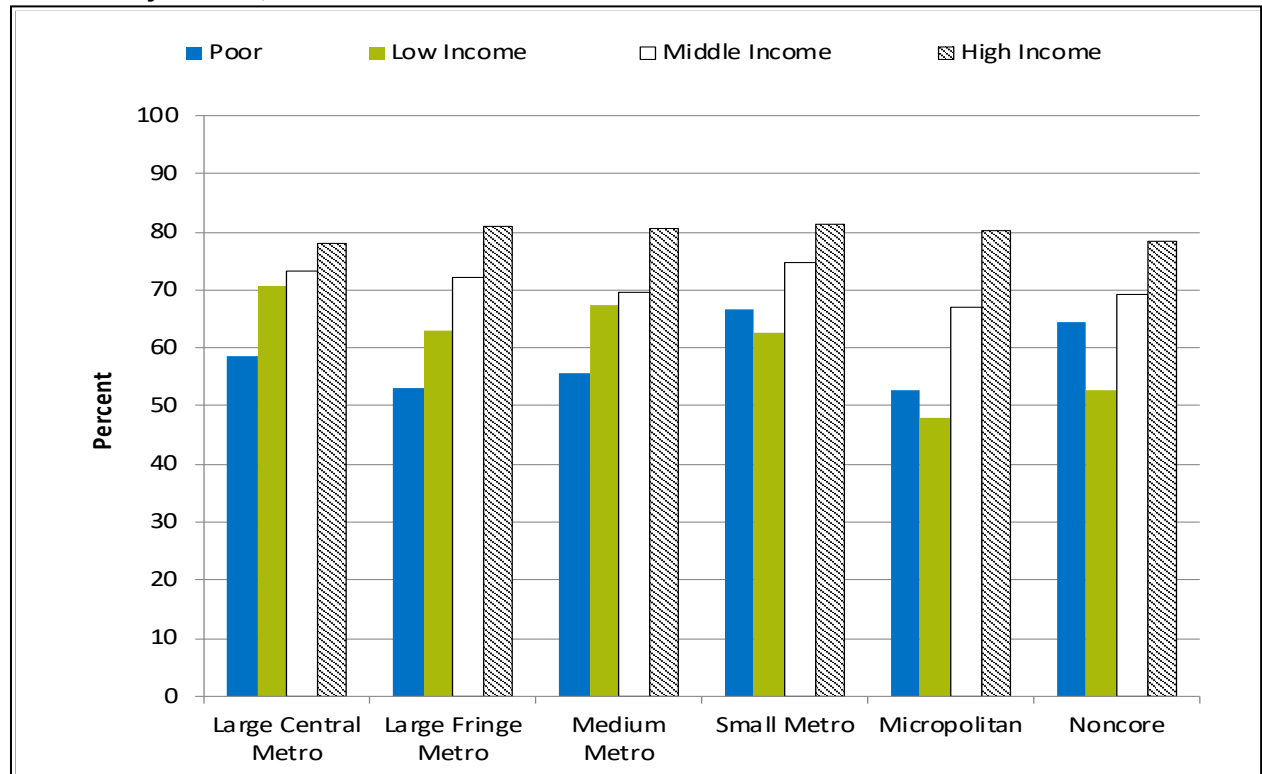
- **Importance:** Early detection of cancer allows more treatment options and often improves outcomes. Mammography, the most effective method for detecting breast cancer in its early stages, can identify malignancies before they can be felt and before symptoms develop.
- **Overall Rate:** In 2018, 72.8% of women ages 50-74 had received a mammogram in the last 2 years.
- **Groups With Disparities in 2018:**

- In noncore areas, the percentage of women ages 50-74 who received a mammogram in the last 2 years was lower than for women in large fringe metropolitan areas (66.5% vs. 74.7%).

• **Achievable Benchmark:**

- The 2016 top 5 State achievable benchmark was 84.7%. The top 5 States that contributed to the achievable benchmark were Connecticut, District of Columbia, Hawaii, Massachusetts, and Rhode Island.
- Through 2017, there was no progress made toward the benchmark in any of the residence locations.

**Women ages 50-74 who received a mammogram in the last 2 years, by residence location, stratified by income, 2017**



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2017.

**Denominator:** Number of women ages 50-74.

**Note:** Poor, low income, middle income, and high income indicate individuals whose household income is <100%, 100-199%, 200-399%, and 400% or more of the Federal poverty level, respectively. Estimates are age adjusted to the 2000 U.S. standard population using two age groups: 50-64 and 65-74..

- **Importance:** Early detection of cancer allows more treatment options and often improves outcomes. Mammography, the most effective method for detecting breast cancer in its early stages, can identify malignancies before they can be felt and before symptoms develop.

- **Groups With Disparities in 2017:**

- **Disparities by Location:**

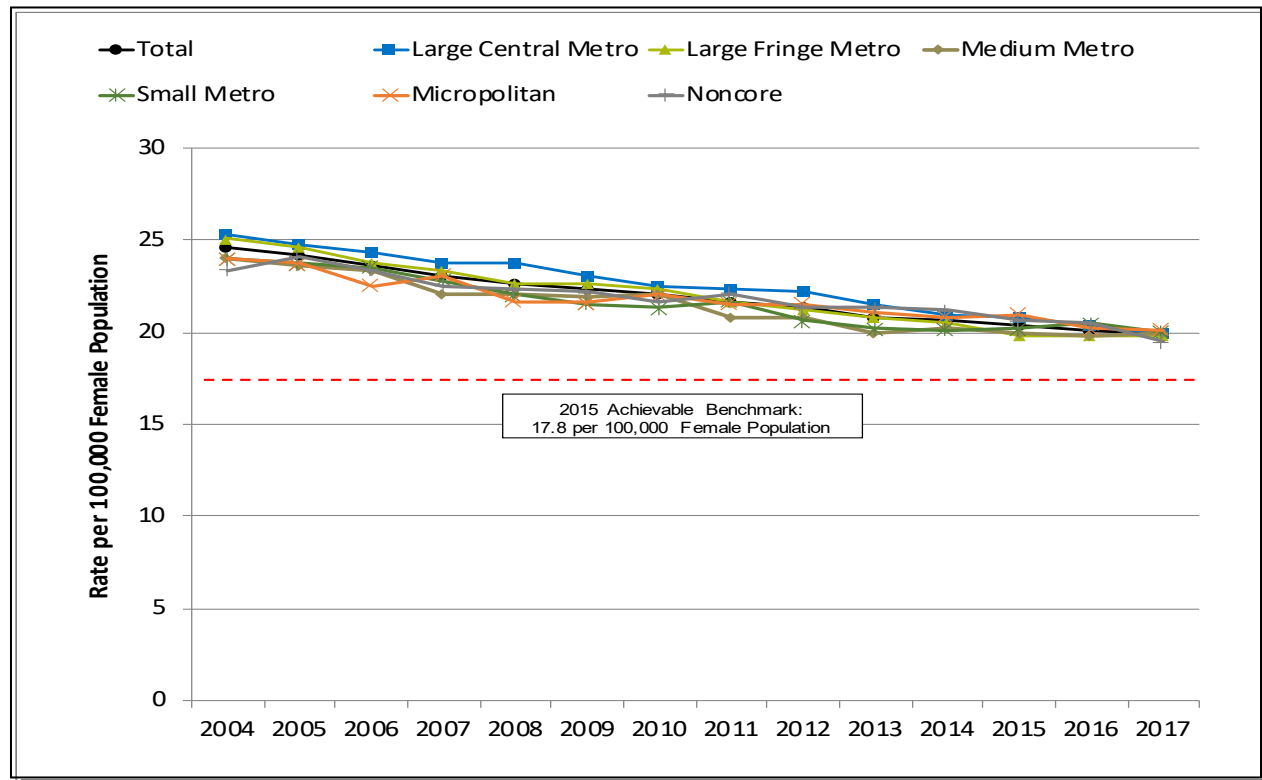
- ◆ In large central metropolitan areas, the percentage of women ages 50-74 who received a mammogram in the last 2 years was lower for poor women (58.4%) compared with high-income women (78.1%).
- ◆ In large fringe metropolitan areas, the percentages of women ages 50-74 who received a mammogram in the last 2 years were lower for poor, low-income, and middle-income women (53.1%, 62.8%, and 72.0%, respectively) compared with high-income women (81.1%).
- ◆ In medium metropolitan areas, the percentages of women ages 50-74 who received a mammogram in the last 2 years was lower for poor, low-income, and middle-income women (55.8%, 67.5%, and 69.6%, respectively) compared with high-income women (80.6%).
- ◆ In small metropolitan areas, the percentage of women ages 50-74 who received a mammogram in the last 2 years was lower for low-income women (62.5%) compared with high-income women (81.2%).
- ◆ In micropolitan areas, the percentage of women ages 50-74 who received a mammogram in the last 2 years was lower for poor, low-income, and middle-income women (52.9%, 48.0%, and 67.0%, respectively) compared with high-income women (80.2%).
- ◆ In noncore areas, the percentage of women ages 50-74 who received a mammogram in the last 2 years was lower for low-income women (52.8%) compared with high-income women (78.3%).

- **Disparities by Group:**

- ◆ For low-income women, the percentage ages 50-74 who received a mammogram in the last 2 years was lower in micropolitan areas (48.0%) compared with large fringe metropolitan areas (62.8%).

## Breast Cancer Deaths

Breast cancer deaths per 100,000 female population, by residence location, 2004-2017



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System (NVSS)—Mortality, 2004-2017.

**Denominator:** U.S. female resident population.

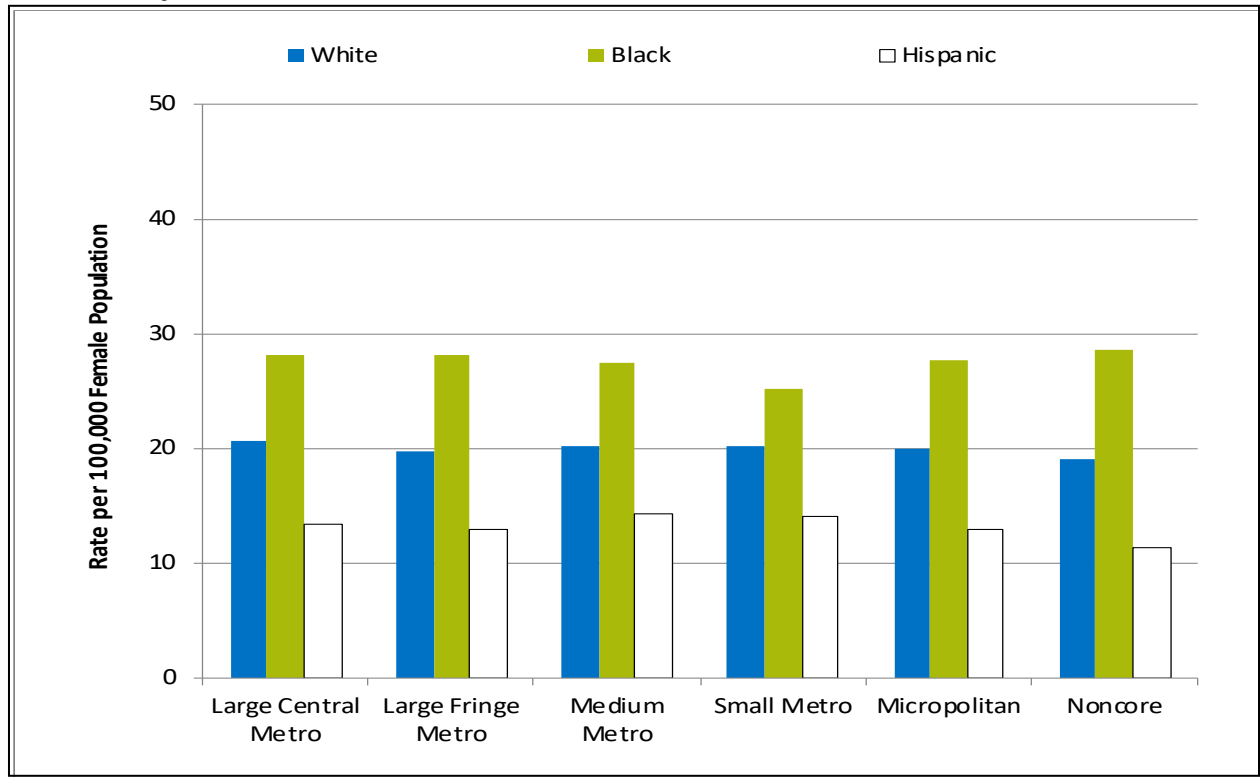
**Note:** For this measure, lower rates are better.

- **Importance:** Excluding skin cancers, breast cancer is the most common cancer diagnosed among U.S. women, accounting for nearly one in three cancers. It is also the second leading cause of cancer death among women after lung cancer (American Cancer Society, 2021).
- **Overall Rate:** In 2017, there were 19.9 breast cancer deaths per 100,000 females in the U.S. population.
- **Trends:**
  - From 2004 to 2017, the rate of breast cancer deaths per 100,000 females decreased overall and in all residence locations.
- **Group With Disparities in 2017:**
  - There were no statistically significant disparities in the rate of breast cancer deaths between large fringe metropolitan areas and other geographic areas.

- **Achievable Benchmark:**

- The 2015 top 5 State achievable benchmark was 17.8 breast cancer deaths per 100,000 female population. The top 5 States that contributed to the achievable benchmark were Alaska, Connecticut, Iowa, Massachusetts, and Rhode Island.
- Based on current trends, breast cancer deaths among female residents of large central and large fringe metropolitan areas and breast cancer deaths among female U.S. residents overall are estimated to meet the benchmark within 5 years. In addition, it is estimated that the benchmark will be met in 6 years for noncore areas, 7 years for medium and small metropolitan areas, and 9 years for micropolitan areas.

**Breast cancer deaths per 100,000 female population, by residence location, stratified by race/ethnicity, 2017**



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System—Mortality, 2017.

**Denominator:** U.S. female resident population.

**Note:** For this measure, lower rates are better. White and Black are non-Hispanic. Hispanic includes all races.

- **Importance:** Excluding skin cancers, breast cancer is the most common cancer diagnosed among U.S. women, accounting for nearly one in three cancers. It is also the second leading cause of cancer death among women after lung cancer.

- **Groups With Disparities in 2017:**

- **Disparities by Location:**

- ◆ Black women were more likely to die of breast cancer at all levels on the urban/rural continuum in 2017:
- ◆ In large central metropolitan areas, the rate of death by breast cancer for Black women was 28.1 per 100,000 compared with 20.7 per 100,000 for White women.
- ◆ In large fringe metropolitan areas, the rate of death by breast cancer for Black women was 28.2 per 100,000 compared with 19.7 per 100,000 for White women.
- ◆ In medium metropolitan areas, the rate of death by breast cancer for Black women was 27.4 per 100,000 compared with 20.1 per 100,000 for White women.
- ◆ In small metropolitan areas, the rate of death by breast cancer for Black women was 25.2 per 100,000 compared with 20.1 per 100,000 for White women.
- ◆ In micropolitan areas, the rate of death by breast cancer for Black women was 27.6 per 100,000 compared with 20.0 per 100,000 for White women.
- ◆ In noncore areas, the rate of death by breast cancer for Black women was 28.6 per 100,000 compared with 19.0 per 100,000 for White women in a similar area.

- Hispanic women were less likely to die of breast cancer at all levels on the urban/rural continuum in 2017:

- ◆ In large central metropolitan areas, the rate of death by breast cancer for Hispanic women was 13.3 per 100,000 compared with 20.7 per 100,000 for White women.
- ◆ In large fringe metropolitan areas, the rate of death by breast cancer for Hispanic women was 12.9 per 100,000 compared with 19.7 per 100,000 for White women.
- ◆ In medium metropolitan areas, the rate of death by breast cancer for Hispanic women was 14.2 per 100,000 compared with 20.1 per 100,000 for White women.
- ◆ In small metropolitan areas, the rate of death by breast cancer for Hispanic women was 14.0 per 100,000 compared with 20.1 per 100,000 for White women.
- ◆ In micropolitan areas, the rate of death by breast cancer for Hispanic women was 13.0 per 100,000 compared with 20.0 per 100,000 for White women.
- ◆ In noncore areas, the rate of death by breast cancer for Hispanic women was 11.3 per 100,000 compared with 19.0 per 100,000 for White women.

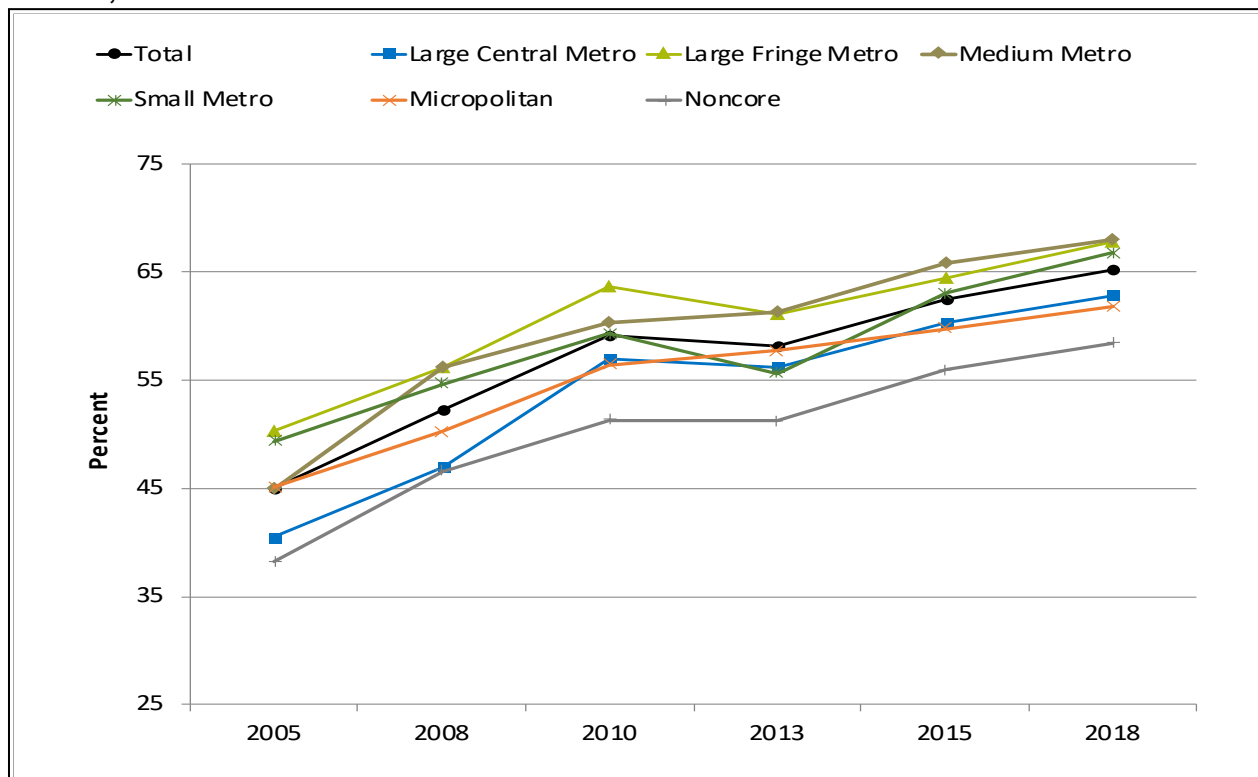
- **Disparities by Group:**

- ◆ Black women in small metropolitan areas were less likely to die by breast cancer (25.2 per 100,000) than Black women in large fringe metropolitan areas (28.2 per 100,000).



## Colorectal Cancer Screening

Adults ages 50-75 years who reported any type of colorectal cancer screening, by residence location, 2005-2018



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2005-2018.

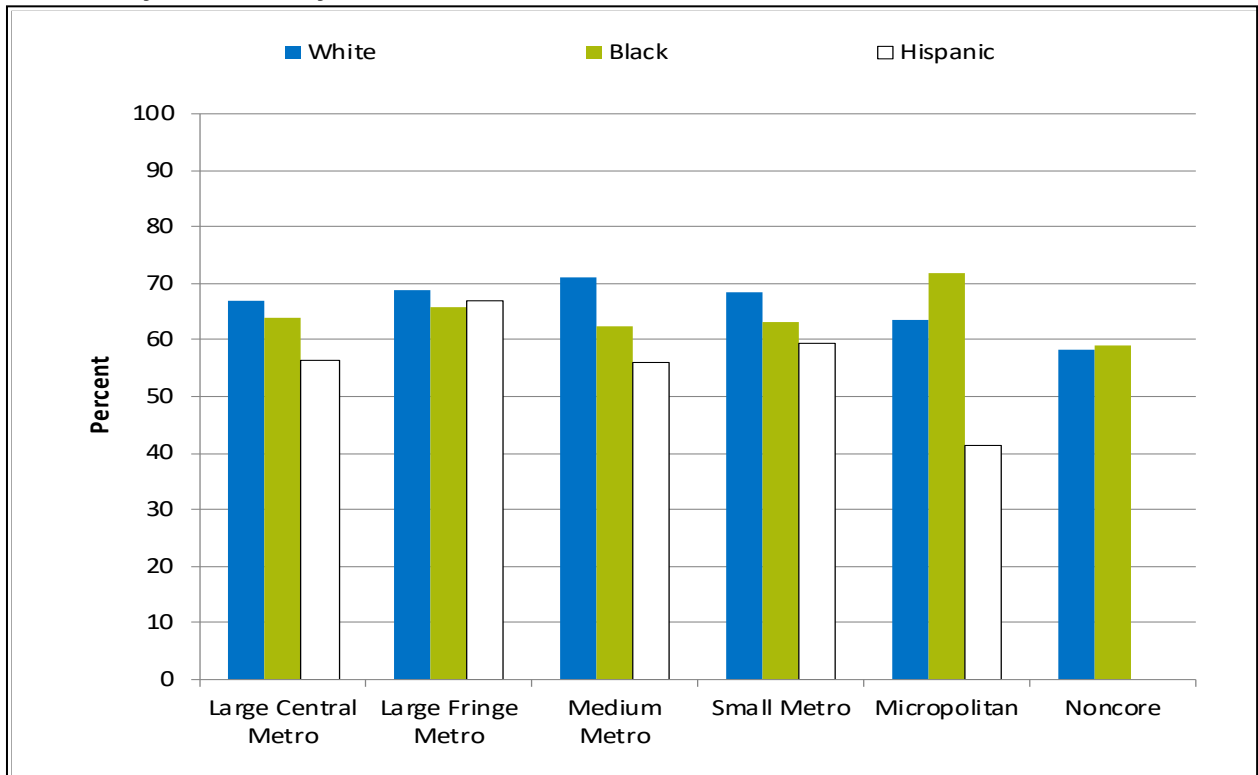
**Denominator:** U.S. civilian noninstitutionalized population ages 50-75 years.

**Numerator:** Number of adults ages 50-75 years who have had a blood stool test in the past year, sigmoidoscopy in the past 5 years and blood stool test in the past 3 years, or a colonoscopy in the past 10 years.

**Note:** Estimates are age adjusted to the 2000 U.S. standard population.

- **Importance:** Colorectal cancer is the third most common cancer in adults (CDC, 2021b). Prevention of colorectal cancer includes modifying risk factors such as weight, physical activity, smoking, and alcohol use, as well as screening for early disease.
- **Overall Rate:** In 2018, 65.2% of adults ages 50-75 reported having received colorectal cancer screening.
- **Trends:**
  - Between 2005 and 2018, the percentage of adults ages 50-75 who reported having received any type of colorectal cancer screening increased overall and within each residence location.
- **Groups With Disparities in 2018:**
  - Adults ages 50-75 in large central metropolitan, micropolitan, and noncore areas were less likely to report having received colorectal cancer screening (62.8%, 61.8%, and 58.4%, respectively) than adults in large fringe metropolitan areas (67.8%).

**Adults 50-75 years who reported any type of colorectal cancer screening, by residence location, stratified by race/ethnicity, 2018**



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2018.

**Denominator:** U.S. civilian noninstitutionalized population ages 50-75 years.

**Numerator:** Number of adults ages 50-75 years who have had a blood stool test in the past year, sigmoidoscopy in the past 5 years and blood stool test in the past 3 years, or a colonoscopy in the past 10 years.

**Note:** White and Black are non-Hispanic. Hispanic includes all races. Data for noncore areas for Hispanics are not included because they did not meet criteria for statistical reliability. Estimates are age adjusted to the 2000 U.S. standard population.

- **Importance:** Colorectal cancer is the third most common cancer in adults (CDC, 2021b). Prevention of colorectal cancer includes modifying risk factors such as weight, physical activity, smoking, and alcohol use, as well as screening for early disease.

- **Groups With Disparities in 2018:**

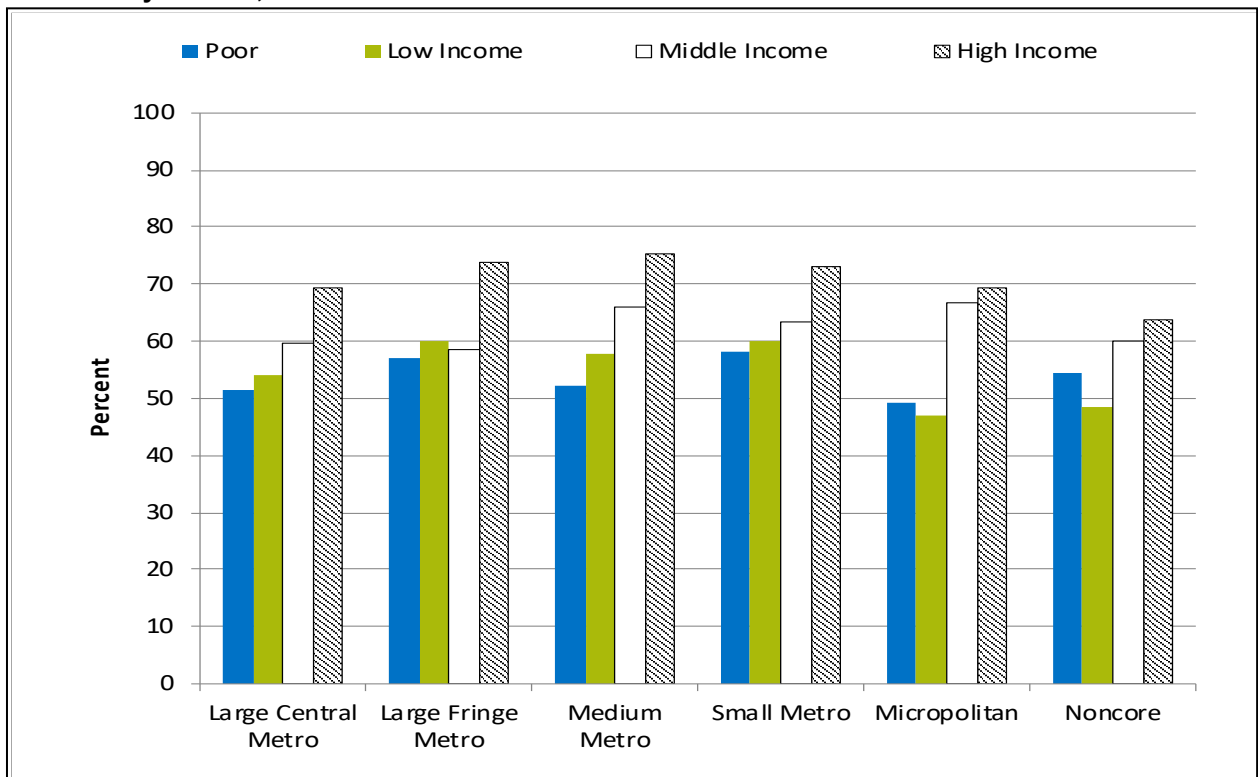
- **Disparities by Location:**

- ◆ The percentage of Hispanic adults ages 50-75 years in micropolitan areas who had reported any type of colorectal cancer screening was lower compared with Hispanic adults in large fringe metropolitan areas (41.3% vs. 67.1%).
    - ◆ The percentage of White adults ages 50-75 years in micropolitan and noncore areas who had reported any type of colorectal cancer screening was lower compared with White adults in large fringe metropolitan areas (63.5% and 58.4%, respectively, vs. 69.0%).

■ **Disparities by Group:**

- ◆ The percentage of Hispanic adults ages 50-75 years in large central metropolitan areas who had reported any type of colorectal cancer screening (56.5%) was lower compared with White adults ages 50-75 years in large central metropolitan areas (66.9%).
- ◆ The percentage of adults ages 50-75 years in medium metropolitan areas who had reported any type of colorectal cancer screening was lower for Blacks (62.5%) and Hispanics (56.2%) compared with Whites in medium metropolitan areas (71.1%).
- ◆ The percentage of adults ages 50-75 years in micropolitan areas who had reported any type of colorectal cancer screening was lower for Hispanics (41.3%) compared with Whites in micropolitan areas (63.5%).

**Adults 50-75 years who reported any type of colorectal cancer screening, by residence location, stratified by income, 2018**



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2018.

**Denominator:** U.S. civilian noninstitutionalized population ages 50-75 years.

**Numerator:** Number of adults ages 50-75 years who have had a blood stool test in the past year, sigmoidoscopy in the past 5 years and blood stool test in the past 3 years, or a colonoscopy in the past 10 years.

**Note:** Poor, low income, middle income, and high income indicate individuals whose household income is <100%, 100-199%, 200-399%, and 400% or more of the Federal poverty level, respectively. Estimates are age adjusted to the 2000 U.S. standard population.

- **Importance:** Colorectal cancer is the third most common cancer in adults (CDC, 2021b). Prevention of colorectal cancer includes modifying risk factors such as weight, physical activity, smoking, and alcohol use, as well as screening for early disease.

- **Groups With Disparities in 2018:**

- **Disparities by Location:**

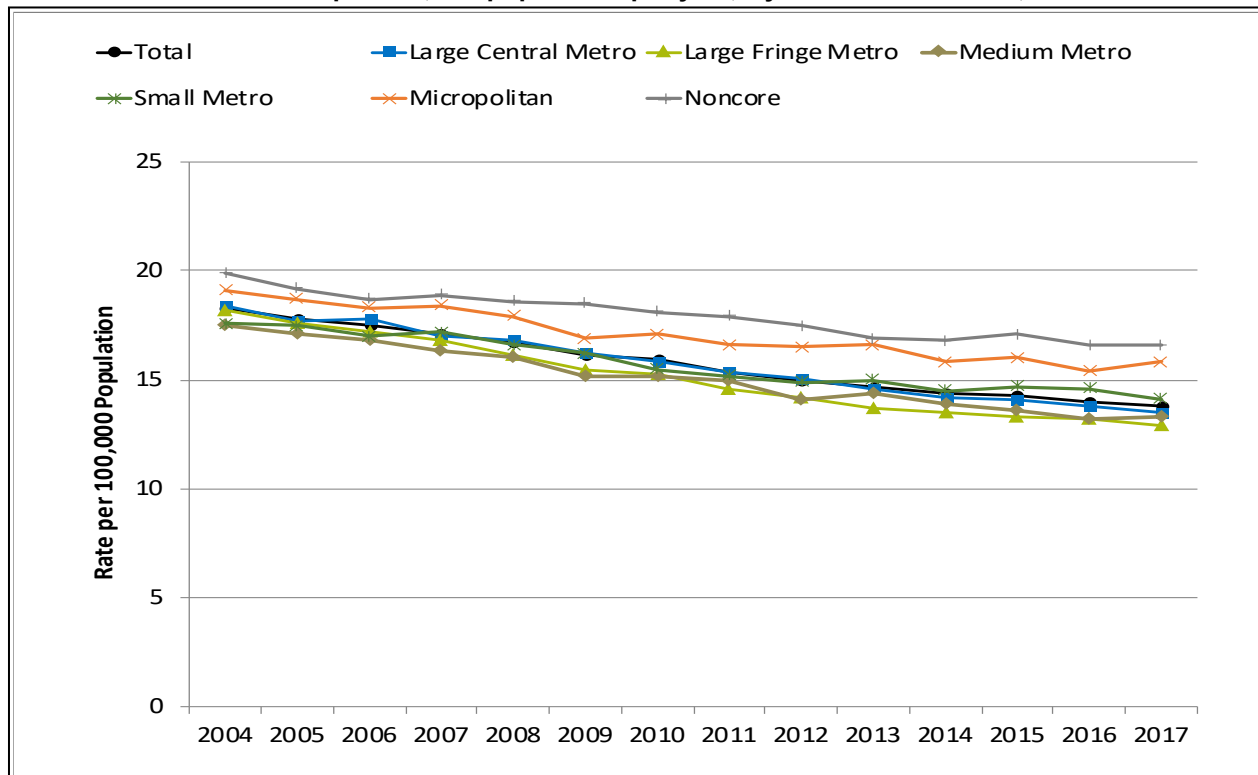
- ◆ In large central metropolitan areas, the percentage of adults ages 50-75 years who reported any type of colorectal cancer screening was lower for poor (51.5%), low-income (54.1%), and middle-income (59.8%) adults compared with high-income adults (69.4%).
- ◆ In large fringe metropolitan areas, the percentage of adults ages 50-75 years who reported any type of colorectal cancer screening was lower for poor (57.1%), low-income (59.9%), and middle-income (58.4%) adults compared with high-income adults (73.9%).
- ◆ In medium metropolitan areas, the percentage of adults ages 50-75 years who reported any type of colorectal cancer screening was lower for poor (52.1%), low-income (58.0%), and middle-income (65.9%) adults compared with high-income adults (75.2%).
- ◆ In small metropolitan areas, the percentage of adults ages 50-75 years who reported any type of colorectal cancer screening was lower for poor (58.3%), low-income (60.1%), and middle-income (63.5%) adults compared with high-income adults (73.2%).
- ◆ In micropolitan areas, the percentage of adults ages 50-75 years who reported any type of colorectal cancer screening was lower for poor (49.4%) and low-income (46.9%) adults compared with high-income adults (69.5%).
- ◆ In noncore areas, the percentage of adults ages 50-75 years who reported any type of colorectal cancer screening was lower for low-income adults (48.4%) compared with high-income adults (63.9%).

- **Disparities by Group:**

- ◆ For low-income adults ages 50-75, the percentage who reported any type of colorectal cancer screening was lower in micropolitan (46.9%) and noncore (48.4%) areas compared with large fringe metropolitan areas (59.9%).
- ◆ For middle-income adults ages 50-75, the percentage who reported any type of colorectal cancer screening was higher in medium metropolitan (65.9%) and micropolitan (66.6%) areas compared with large fringe metropolitan areas (58.4%).
- ◆ For high-income adults ages 50-75, the percentage who reported any type of colorectal cancer screening was lower in large central metropolitan (69.4%) and noncore (63.9%) areas compared with large fringe metropolitan areas (73.9%).

## Colorectal Cancer Deaths

Colorectal cancer deaths per 100,000 population per year, by residence location, 2004-2017



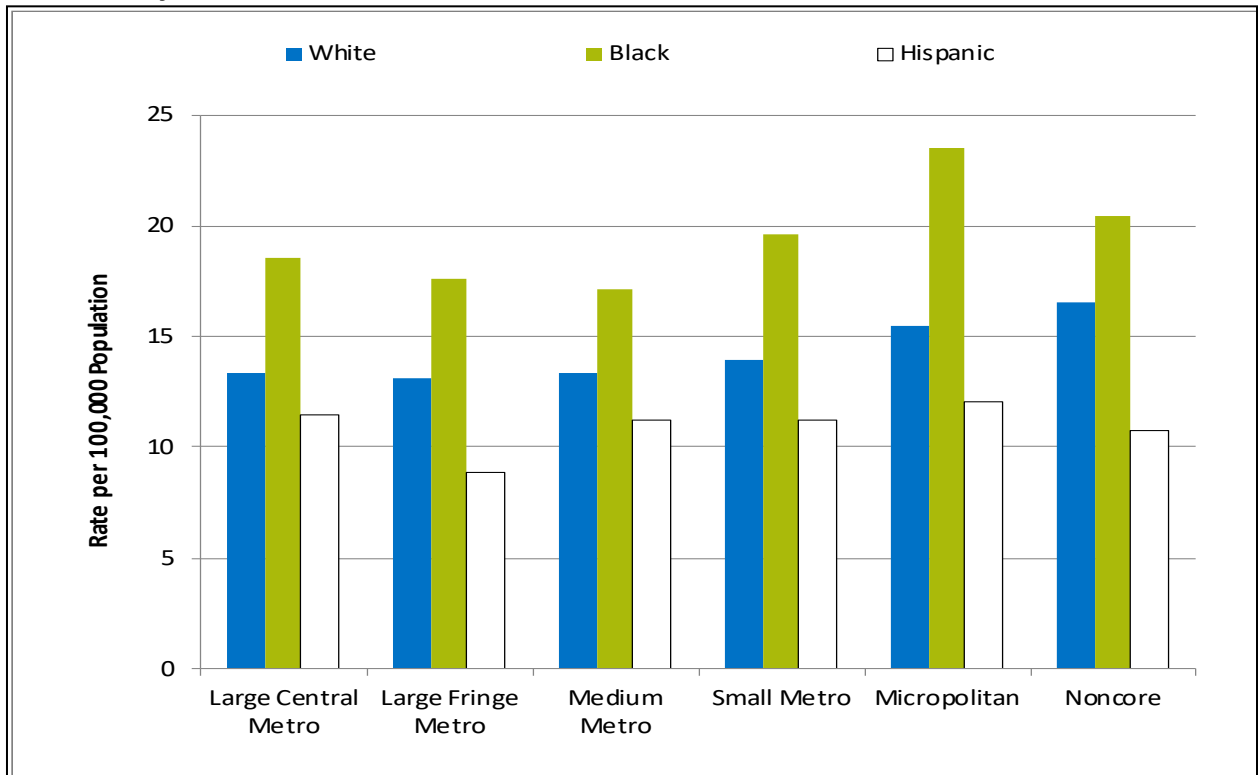
**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System-Mortality, 2004-2017.

**Denominator:** U.S. resident population.

**Note:** For this measure, lower rates are better. Estimates are age adjusted to the 2000 U.S. standard population.

- **Importance:** Colorectal cancer is the second leading cause of cancer-related deaths in the United States (NCI, 2021).
- **Overall Rate:** In 2017, there were 13.8 deaths due to colorectal cancer per 100,000 population.
- **Trends:**
  - From 2004 to 2017, the rate of colorectal cancer deaths per 100,000 population decreased overall and within each residence location.
- **Groups With Disparities in 2017:**
  - For micropolitan and noncore areas, the rate of colorectal cancer deaths was higher (15.8 per 100,000 and 16.6 per 100,000, respectively) than in large fringe metropolitan areas (12.9 per 100,000).

**Colorectal cancer deaths per 100,000 population, by residence location, stratified by race/ethnicity, 2017**



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System-Mortality, 2017.

**Denominator:** U.S. resident population.

**Note:** For this measure, lower rates are better. White and Black are non-Hispanic. Hispanic includes all races.

- **Importance:** Colorectal cancer is the second leading cause of cancer-related deaths in the United States (NCI, 2021).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, the rate of colorectal cancer deaths was lower for Hispanic residents (11.5 per 100,000) than for White residents (13.3 per 100,000), while the rate for Blacks was higher (18.6 per 100,000).
    - ◆ In large fringe metropolitan areas, the rate of colorectal cancer deaths was lower for Hispanic residents (8.9 per 100,000) than for White residents (13.1 per 100,000), while the rate for Blacks was higher (17.6 per 100,000).
    - ◆ In medium metropolitan areas, the rate of colorectal cancer deaths was lower for Hispanic residents (11.2 per 100,000) than for White residents (13.3 per 100,000), while the rate for Blacks was higher (17.1 per 100,000).
    - ◆ In small metropolitan areas, the rate of colorectal cancer deaths was lower for Hispanic residents (11.2 per 100,000) than for White residents (13.9 per 100,000), while the rate for Black residents was higher (19.6 per 100,000).

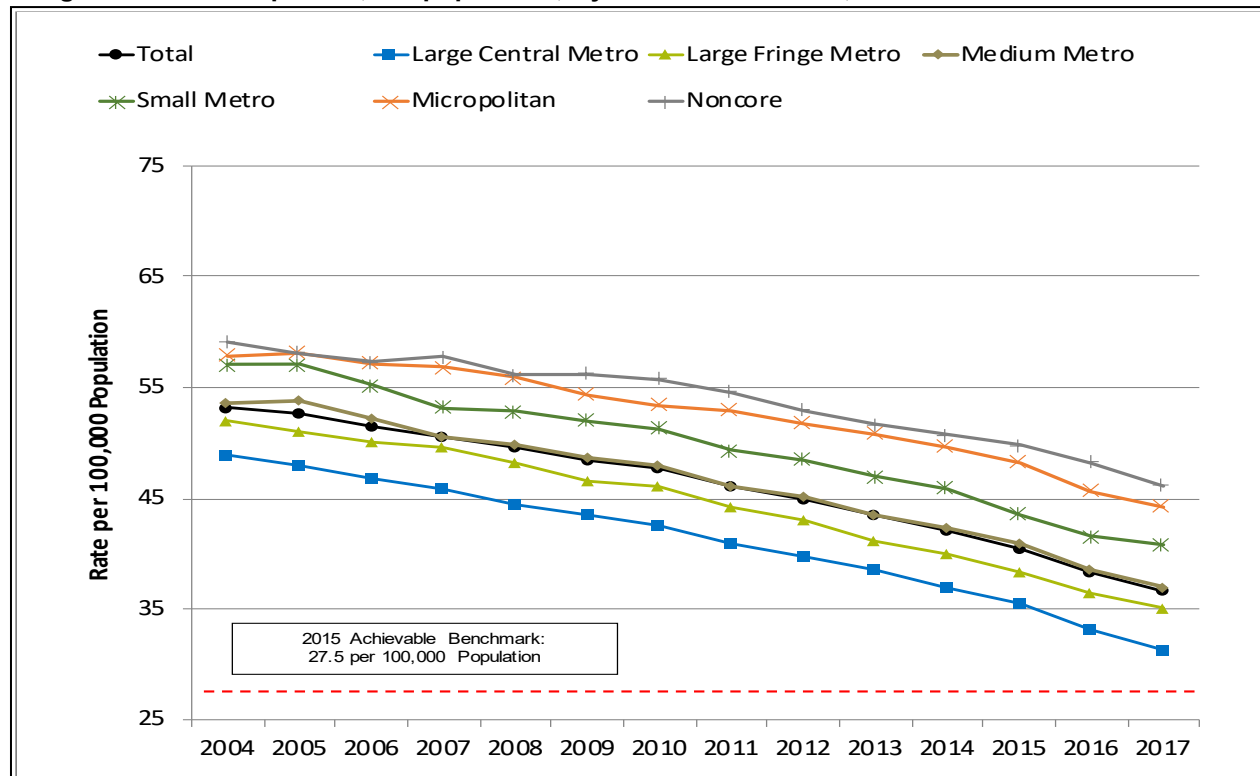
- ◆ In micropolitan areas, the rate of colorectal cancer deaths was lower for Hispanic residents (12.1 per 100,000) than for White residents (15.5 per 100,000), while the rate for Black residents was higher (23.5 per 100,000).
- ◆ In noncore areas, the rate of colorectal cancer deaths was lower for Hispanic residents (10.8 per 100,000) than for White residents (16.5 per 100,000), while the rate for Blacks was higher (20.4 per 100,000).

■ **Disparities by Group:**

- ◆ Among all Hispanics, death rates from colorectal cancer were higher among residents of large central metropolitan (11.5 per 100,000), medium (11.2 per 100,000), small metropolitan (11.2 per 100,000), and micropolitan (12.1 per 100,000) areas than for residents of large fringe metropolitan areas (8.9 per 100,000).
- ◆ Among all Blacks, death rates from colorectal cancer were higher among residents of micropolitan (23.5 per 100,000) and noncore (20.4 per 100,000) areas than for residents of large fringe metropolitan areas (17.6 per 100,000).
- ◆ Among all Whites, death rates from colorectal cancer were higher among residents of micropolitan (15.5 per 100,000) and noncore (16.5 per 100,000) areas than for residents of large fringe metropolitan areas (13.1 per 100,000.)

**Lung Cancer Deaths**

Lung cancer deaths per 100,000 population, by residence location, 2004-2017



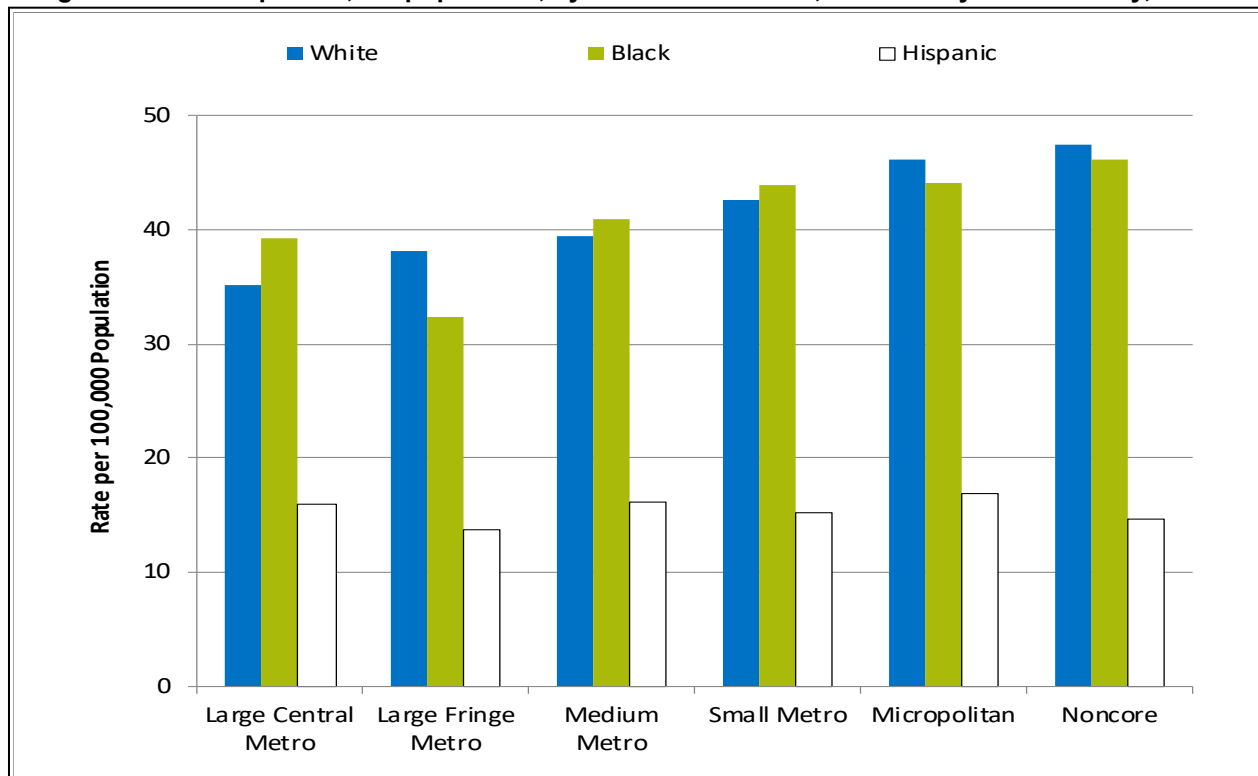
**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System-Mortality, 2004-2017.

**Denominator:** U.S. resident population.

**Note:** For this measure, lower rates are better. Estimates are age adjusted to the 2000 U.S. standard population.

- **Importance:** Lung cancer is the second most common cancer among both men and women in the United States. Most lung cancers can be prevented, because they are related to smoking (or secondhand smoke), or less often to exposure to radon or other environmental factors. Most lung cancers are diagnosed at an advanced stage. For these patients, cure is unlikely, and few survive beyond 1 to 2 years (Tanoue, 2015). According to the Centers for Disease Control and Prevention, more people in the United States die from lung cancer than any other type of cancer. This finding is true for both men and women. In 2014, 215,951 people in the United States were diagnosed with lung cancer, including 113,326 men and 102,625 women (U.S. Cancer Statistics Working Group, 2017).
- **Overall Rate:** In 2017, there were 36.6 deaths due to lung cancer per 100,000 population.
- **Trends:**
  - From 2004 to 2017, the rate of lung cancer deaths per 100,000 population decreased overall and within each residence location.
- **Groups With Disparities in 2017:**
  - In large central metropolitan areas, the rate of lung cancer deaths was lower (31.3 per 100,000 population) than in large fringe metropolitan areas (35.1 per 100,000 population).
  - The rate of lung cancer deaths was higher in small metropolitan, micropolitan, and noncore areas than in large fringe metropolitan areas (40.8, 44.2, and 46.1 per 100,000 population, respectively, vs. 35.1 per 100,000 population).
- **Achievable Benchmark:**
  - The 2015 top 5 State achievable benchmark was 27.5 lung cancer deaths per 100,000 population. The top 5 States that contributed to the achievable benchmark were California, Colorado, New Mexico, Utah, and Wyoming.
  - Based on trends through 2017, it is estimated that lung cancer deaths among residents of large central, large fringe, medium, and small metropolitan areas will meet the benchmark within 3, 6, 7, and 10 years, respectively. In addition, it is estimated that lung cancer deaths among residents of micropolitan and noncore areas will not meet the benchmark for 16 and 20 years, respectively.



**Lung cancer deaths per 100,000 population, by residence location, stratified by race/ethnicity, 2017**

**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System—Mortality, 2017.

**Denominator:** U.S. resident population.

**Note:** For this measure, lower rates are better. White and Black are non-Hispanic. Hispanic includes all races. Estimates are age adjusted to the 2000 U.S. standard population.

- Importance:** Lung cancer is the second most common cancer among both men and women in the United States. Most lung cancers can be prevented, because they are related to smoking (or secondhand smoke), or less often to exposure to radon or other environmental factors. Most lung cancers are diagnosed at an advanced stage. For these patients, cure is unlikely, and few survive beyond 1 to 2 years (Tanoue, 2015). According to the Centers for Disease Control and Prevention, more people in the United States die from lung cancer than any other type of cancer. This finding is true for both men and women. In 2014, 215,951 people in the United States were diagnosed with lung cancer, including 113,326 men and 102,625 women (U.S. Cancer Statistics Working Group, 2017).
- Groups With Disparities in 2017:**

- Disparities by Location:**

- In large central metropolitan areas, Blacks were more likely to die of lung cancer and Hispanics were less likely to die of lung cancer compared with Whites (39.3 and 15.9 per 100,000 population, respectively, vs. 35.1 per 100,000 population).
  - In large fringe metropolitan areas, Blacks and Hispanics were less likely to die of lung cancer compared with Whites (32.3 and 13.8 per 100,000 population, respectively, vs. 38.2 per 100,000 population).

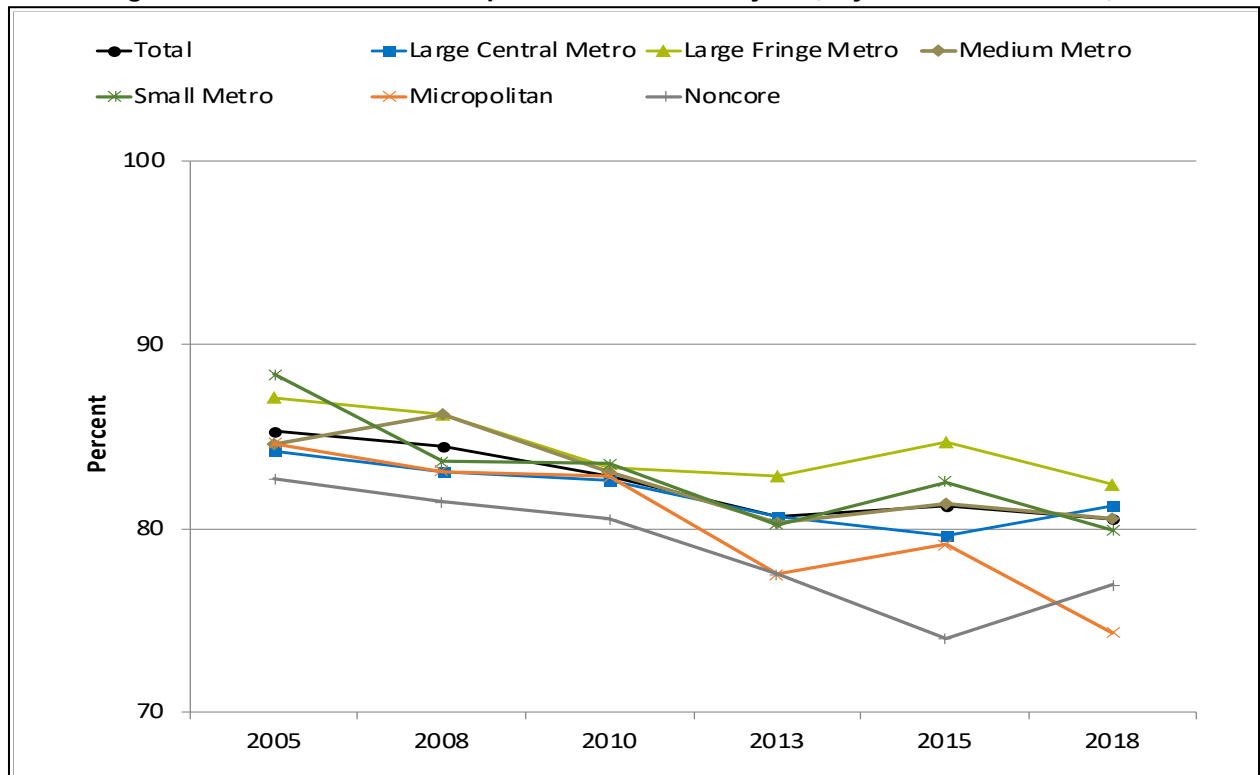
- ◆ In medium metropolitan areas, Hispanics were less likely to die of lung cancer compared with Whites (16.2 vs. 39.5 per 100,000 population).
- ◆ In small metropolitan areas, Hispanics were less likely to die of lung cancer compared with Whites (15.3 vs. 42.6 per 100,000 population).
- ◆ In micropolitan areas, Hispanics were less likely to die of lung cancer compared with Whites (16.8 vs. 46.1 per 100,000 population).
- ◆ In noncore areas, Hispanics were less likely to die of lung cancer compared with Whites (14.6 vs. 47.5 per 100,000 population).

■ **Disparities by Group:**

- ◆ Whites in small metropolitan areas, micropolitan areas, and noncore areas were more likely to die of lung cancer compared with Whites in large fringe metropolitan areas (42.6, 46.1, and 47.5 per 100,000 population, respectively, vs. 38.2 per 100,000).
- ◆ Hispanics in large central metropolitan, medium metropolitan, and micropolitan areas were more likely to die of lung cancer compared with Hispanics in large fringe metropolitan areas (15.9, 16.2, and 16.8 per 100,000 population, respectively, vs. 13.8 per 100,000).
- ◆ Blacks in large central metropolitan, medium metropolitan, small metropolitan, micropolitan, and noncore areas were more likely to die of lung cancer compared with Blacks in large fringe metropolitan areas (39.3, 40.9, 43.9, 44.1, and 46.1 per 100,000 population, respectively, vs. 32.3 per 100,000).

## Pap Smears

Women ages 21-65 who received a Pap smear in the last 3 years, by residence location, 2005-2018



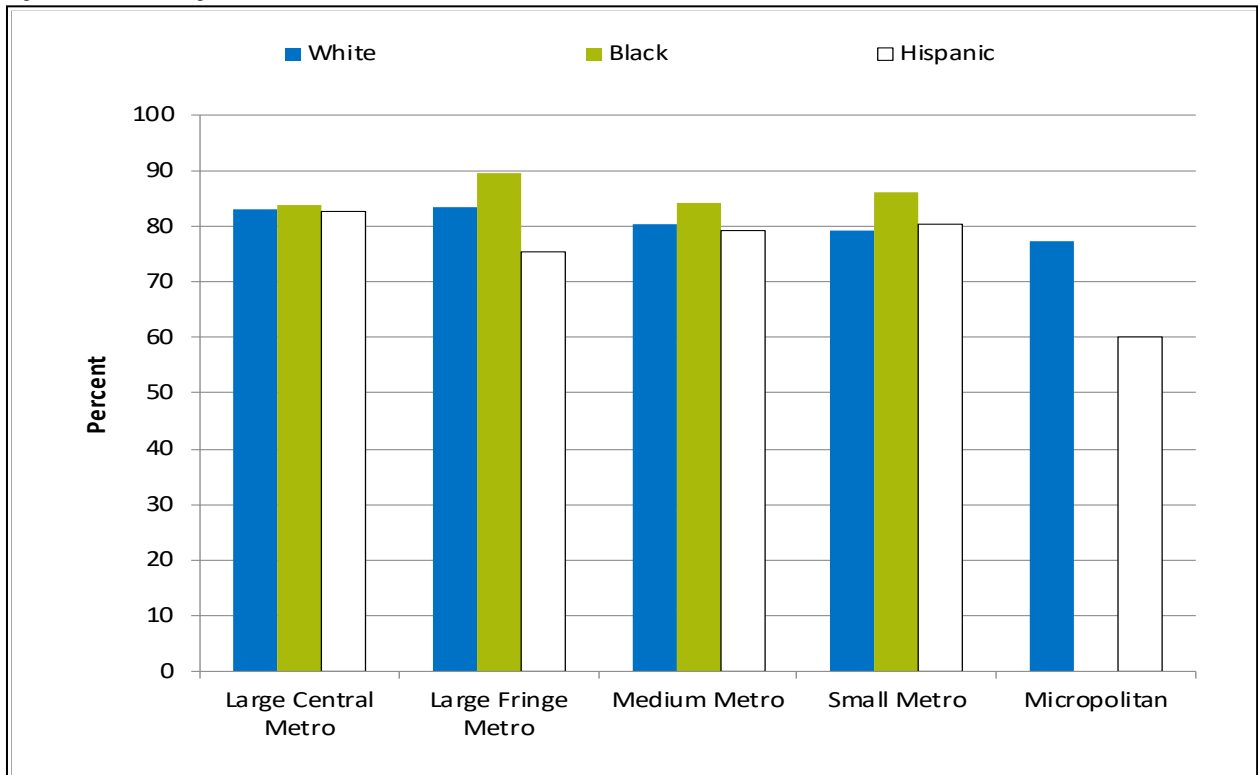
**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2005-2018.

**Denominator:** U.S. female civilian noninstitutionalized population ages 21-65.

**Note:** Estimates are age adjusted to the 2000 U.S. standard population.

- **Importance:** Pap testing has led to a significant reduction in cervical cancer mortality. About half of newly diagnosed cases of invasive cervical cancer are in women who have never had a Pap test (Vesco, et al., 2011).
- **Overall Rate:** In 2018, 80.5% of women ages 21-65 had received a Pap smear in the past 3 years.
- **Trends:**
  - The percentage of women ages 21-65 who received a Pap smear in the past 3 years decreased between 2005 and 2018.
  - Across each type of residence location, the percentage of women ages 21-65 who received a Pap smear also decreased between 2005 and 2018.
- **Groups With Disparities in 2018:**
  - Women in micropolitan and noncore areas were less likely to receive a Pap smear than women in large fringe metropolitan areas (74.3% and 76.9%, respectively, vs. 82.4%).

**Women ages 21-65 who received a Pap smear in the last 3 years, by residence location, stratified by race/ethnicity, 2018**



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2018.

**Denominator:** U.S. female civilian noninstitutionalized population ages 21-65.

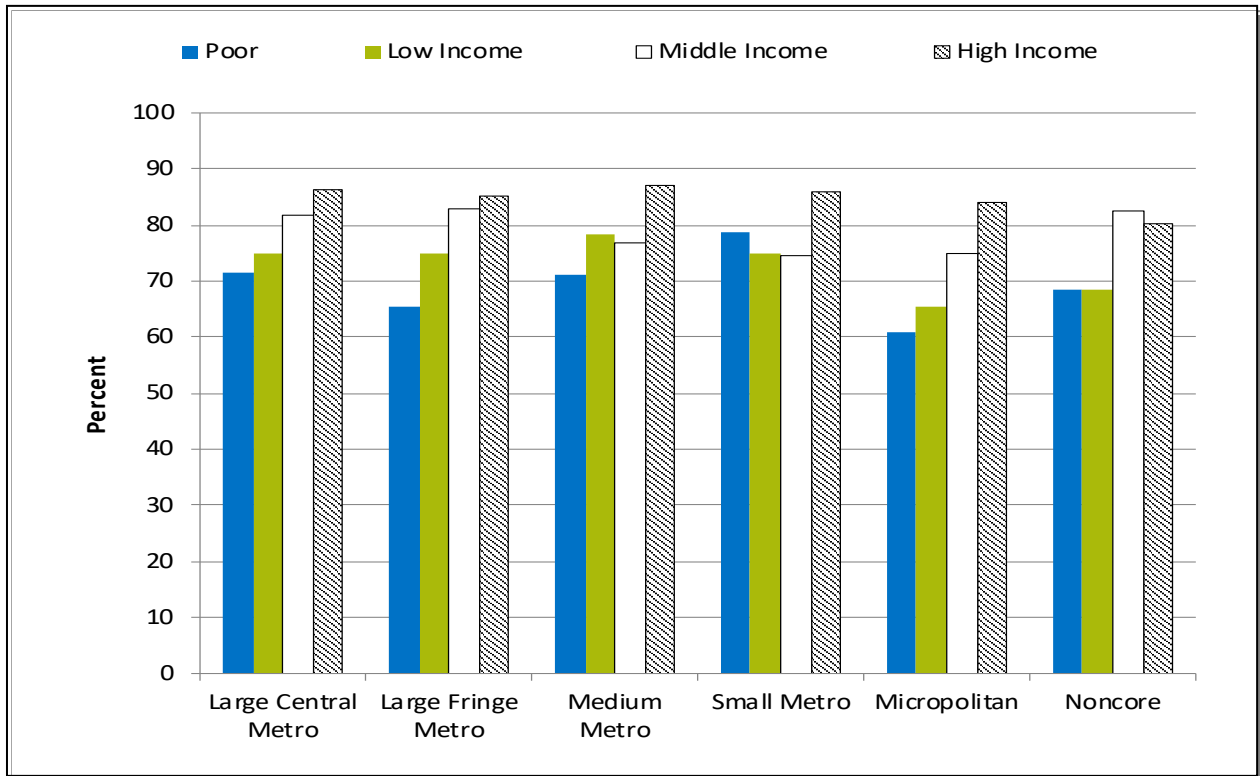
**Note:** White and Black are non-Hispanic. Hispanic includes all races. Data for micropolitan areas for Blacks are not included because they did not meet criteria for statistical reliability. Noncore areas are not included because data for groups other than Whites did not meet criteria for statistical reliability. Estimates are age adjusted to the 2000 U.S. standard population.

- **Importance:** Pap testing has led to a significant reduction in cervical cancer mortality. About half of newly diagnosed cases of invasive cervical cancer are in women who have never had a Pap test (Vesco, et al., 2011).
- **Groups With Disparities in 2018:**
  - **Disparities by Location:**
    - ◆ In large fringe metropolitan areas, the percentage of Black women who had received a Pap smear in the last 3 years was higher compared with White women in large fringe metropolitan areas (89.7% vs. 83.3%).
    - ◆ In micropolitan areas, the percentage of Hispanic women who had received a Pap smear in the last 3 years was lower compared with White women in micropolitan areas (60.0% vs. 77.2%).

■ **Disparities by Group:**

- ◆ For Hispanic women, the percentage in micropolitan areas who had received a Pap smear in the last 3 years was lower compared with those in large fringe metropolitan areas (60.0% vs. 75.3%).
- ◆ For White women, the percentage in micropolitan areas who had received a Pap smear in the last 3 years was lower compared with those in large fringe metropolitan areas (77.2% vs. 83.3%).

**Women ages 21-65 who received a Pap smear in the last 3 years, by residence location, stratified by income, 2018**



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2018.

**Denominator:** U.S. female civilian noninstitutionalized population ages 21-65.

**Note:** Poor, low income, middle income, and high income indicate individuals whose household income is <100%, 100-199%, 200-399%, and 400% or more of the Federal poverty level, respectively.

- **Importance:** Pap testing has led to a significant reduction in cervical cancer mortality. About half of newly diagnosed cases of invasive cervical cancer are in women who have never had a Pap test (Vesco, et al., 2011).

- **Groups With Disparities in 2018:**

- **Disparities by Location:**

- ◆ In large central metropolitan areas, poor and low-income women ages 21-65 were less likely to receive a Pap smear in the last 3 years (71.6% and 74.8%, respectively) compared with high-income women (86.3%).
- ◆ In large fringe metropolitan areas, poor and low-income women ages 21-65 were less likely to receive a Pap smear in the last 3 years (65.6% and 75.1%, respectively) compared with high-income women (85.0%).
- ◆ In medium metropolitan areas, poor, low-income, and middle-income women ages 21-65 were less likely to receive a Pap smear in the last 3 years (71.3%, 78.4%, and 76.8%, respectively) compared with high-income women (87.2%).
- ◆ In small metropolitan areas, low-income and middle-income women ages 21-65 were less likely to receive a Pap smear in the last 3 years (75.0% and 74.7%, respectively) compared with high-income women (85.8%).
- ◆ In micropolitan areas, poor and low-income women ages 21-65 were less likely to receive a Pap smear in the last 3 years (60.9% and 65.6%, respectively) compared with high-income women (84.1%).

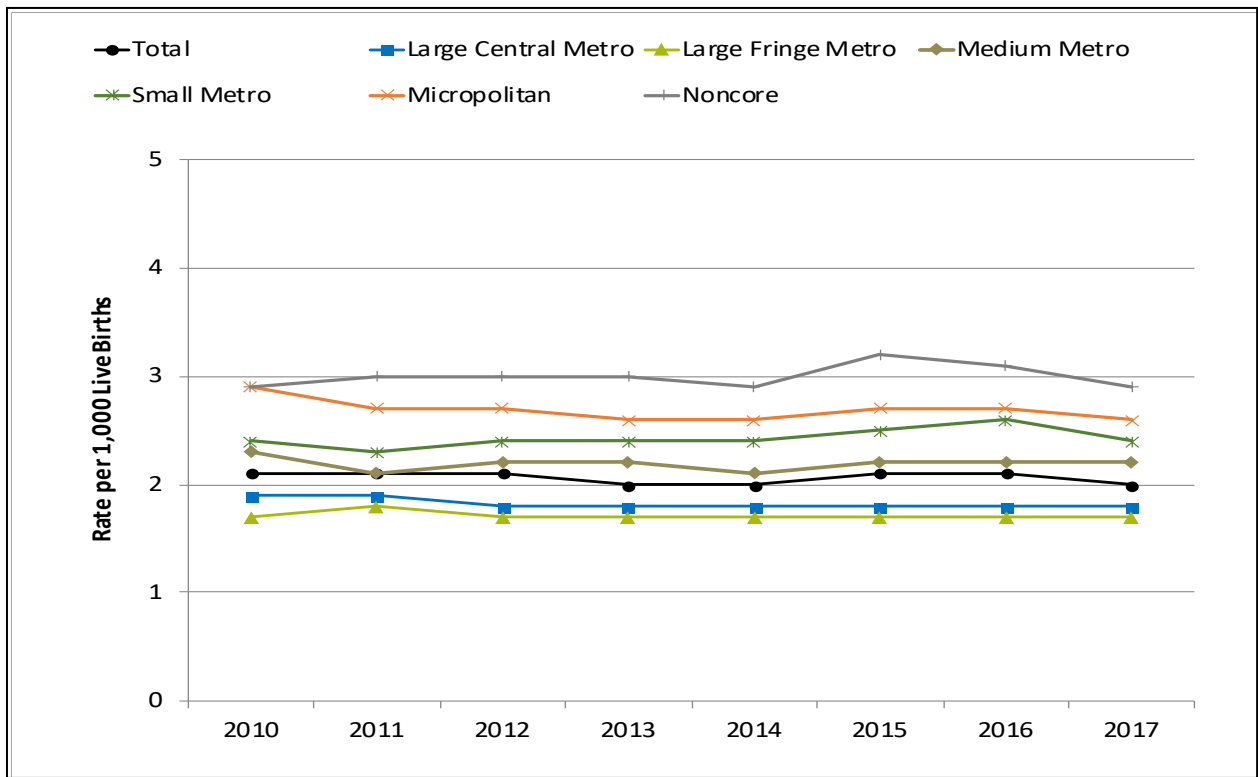
- **Disparities by Group:**

- ◆ Poor women ages 21-65 in small metropolitan areas were more likely to have received a Pap smear in the last 3 years (78.6%) compared with poor women in large fringe metropolitan areas (65.6%).
- ◆ Middle-income women ages 21-65 in medium metropolitan and micropolitan areas were less likely to have received a Pap smear in the last 3 years (76.8% and 75.0%, respectively) compared with middle-income women in large fringe metropolitan areas (82.9%).

## Healthy Living: Maternal and Child Health

### Infant Mortality

Infant mortality per 1,000 live births, birth weight 2,500 grams or more, by residence location, 2010-2017



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System, 2010-2017.

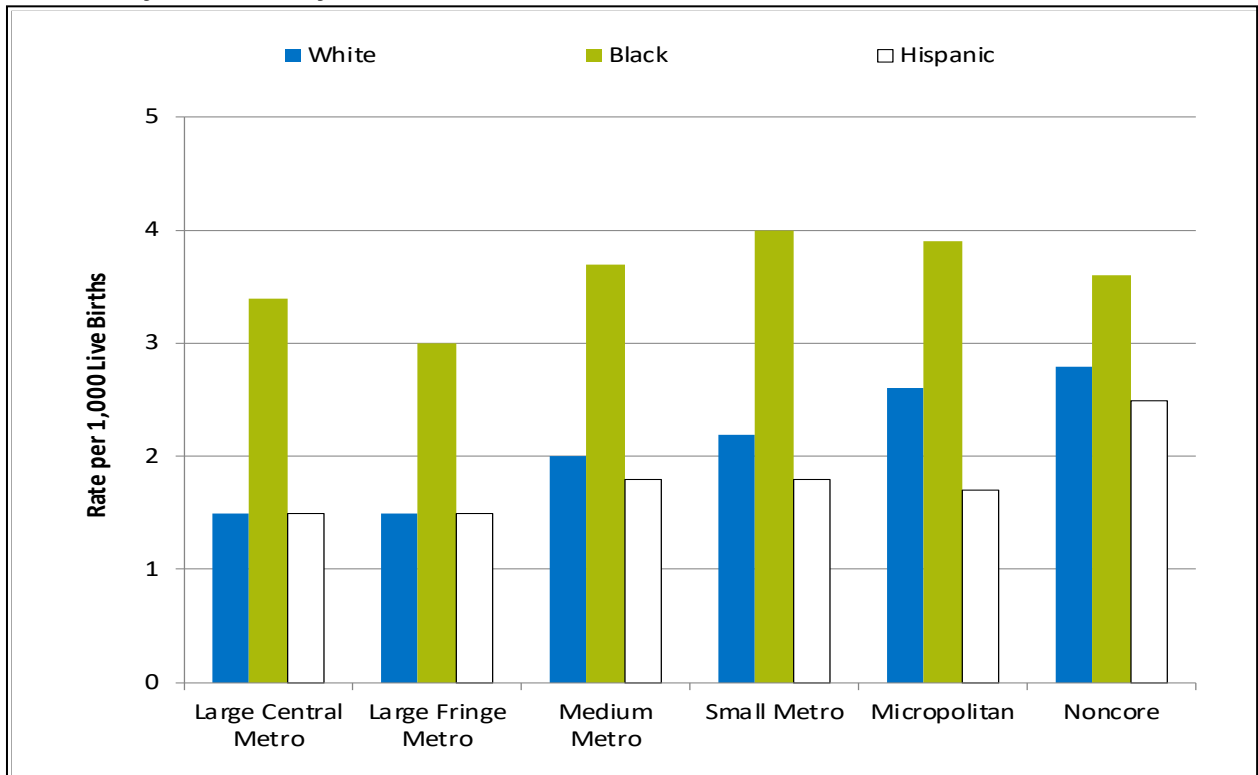
**Denominator:** Population of live births, birth weights 2,500 grams or more.

**Numerator:** Subset of the denominator who died within the first year.

**Note:** For this measure, lower rates are better.

- **Importance:** Infant mortality refers to the death of infants before their first birthday, and it is a key indicator of the health of a society (CDC, 2021c). Racial and geographic disparities in infant mortality in the United States persist due to complex factors, including structural racism, socioeconomic disadvantage, and inadequate access to sufficient pre- and perinatal healthcare (Kamal, et al., 2019).
- **Overall Rate:** In 2017, the mortality rate for infants with birth weight 2,500 grams or more was 2.0 per 1,000 live births.
- **Groups With Disparities in 2017:**
  - In medium and small metropolitan areas, the mortality rate for infants with birth weight 2,500 grams or more was higher compared with large fringe metropolitan areas (2.2 and 2.4 per 1,000 live births, respectively, vs. 1.7 per 1,000 live births).
  - In micropolitan and noncore areas, the mortality rate for infants with birth weight 2,500 grams or more was higher compared with large fringe metropolitan areas (2.6 and 2.9 per 1,000 live births, respectively, vs. 1.7 per 1,000 live births).

**Infant mortality per 1,000 live births, birth weight 2,500 grams or more, by residence location, stratified by race/ethnicity, 2017**



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System, 2017.

**Denominator:** Population of live births, birth weights 2,500 grams or more.

**Numerator:** Subset of the denominator who died within the first year.

**Note:** For this measure, lower rates are better. White and Black are non-Hispanic. Hispanic includes all races.

- **Importance:** Infant mortality refers to the death of infants before their first birthday, and it is a key indicator of the health of a society (CDC, 2021). Racial and geographic disparities in infant mortality in the United States persist due to complex factors, including structural racism, socioeconomic disadvantage, and inadequate access to sufficient pre and perinatal healthcare (Kamal, et al., 2019).

- **Groups With Disparities in 2017:**

- **Disparities by Location:**

- ◆ Blacks had higher levels of infant mortality compared with Whites at all levels on the urban/rural continuum except noncore areas.
    - ◆ In large central metropolitan areas, the infant mortality rate for Blacks was higher (3.4 per 1,000) compared with Whites (1.5 per 1,000).
    - ◆ In large fringe metropolitan areas, infant mortality for Blacks was higher (3.0 per 1,000) compared with Whites (1.5 per 1,000).
    - ◆ In medium metropolitan areas, the infant mortality rate for Blacks was higher (3.7 per 1,000) compared with Whites (2.0 per 1,000).



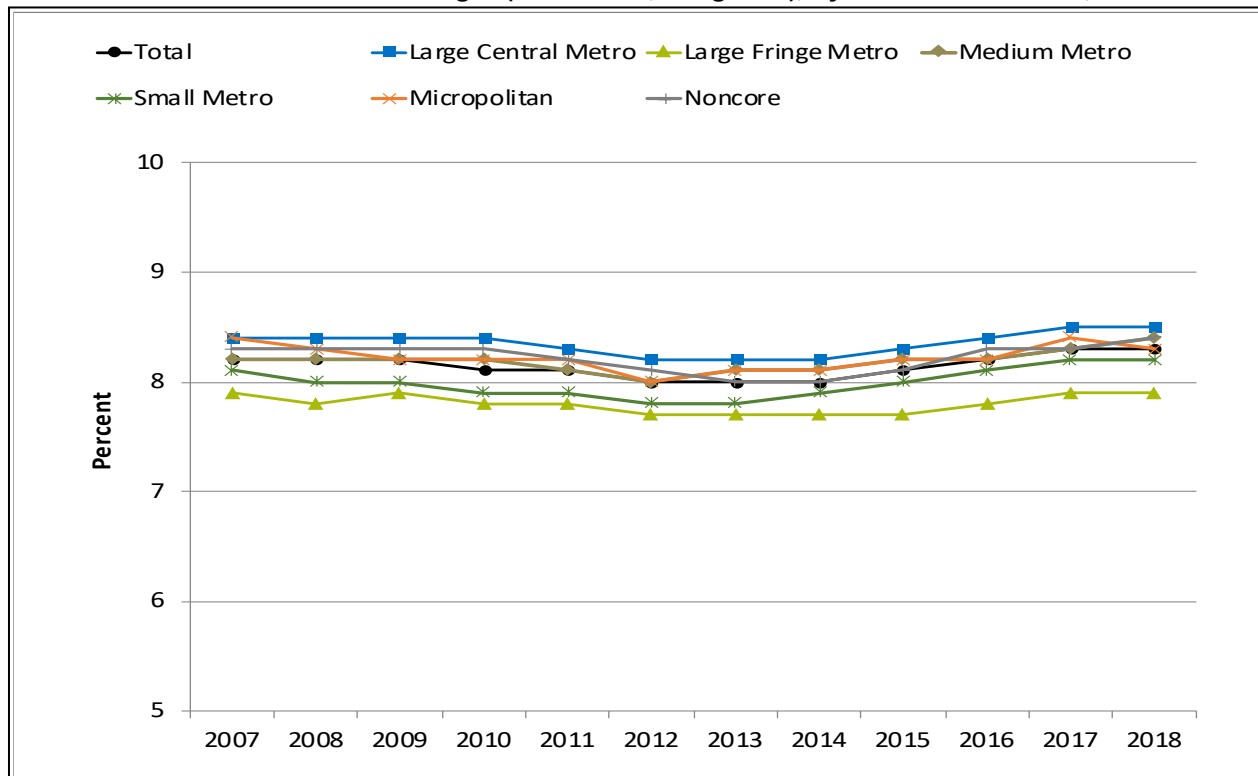
- ◆ In small metropolitan areas, the infant mortality rate for Blacks was higher (4.0 per 1,000) compared with Whites (2.2 per 1,000).
- ◆ In micropolitan areas, the infant mortality rate for Blacks was higher (3.9 per 1,000) compared with Whites (2.6 per 1,000). In addition, the infant mortality rate for Hispanics was lower (1.7 per 1,000) compared with Whites (2.6 per 1,000).

#### ■ Disparities by Group:

- ◆ Among all Hispanics, those in medium metropolitan and noncore areas had higher infant mortality rates (1.8 and 2.5, respectively, per 1,000) than those in large fringe metropolitan areas (1.5 per 1,000).
- ◆ Among all Blacks, those in medium metropolitan, small metropolitan, and micropolitan areas had higher infant mortality rates (3.7, 4.0, and 3.9, respectively, per 1,000) than those in large fringe metropolitan areas (3.0 per 1,000).
- ◆ Among all Whites, those in medium metropolitan, small metropolitan, micropolitan, and noncore areas had higher infant mortality rates (2.0, 2.2, 2.6, and 2.8, respectively, per 1,000) than those in large fringe metropolitan areas (1.5 per 1,000).

### Low Birth Weight

Live-born infants with low birth weight (less than 2,500 grams), by residence location, 2007-2018



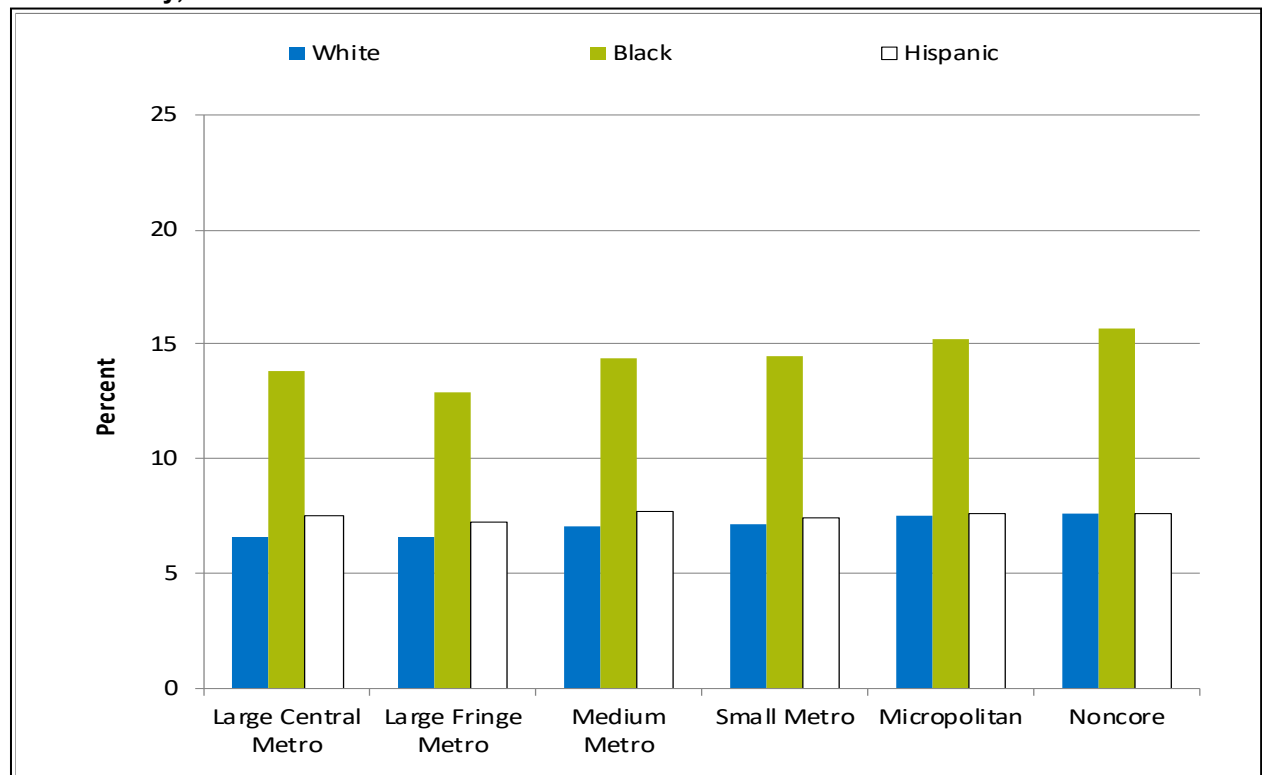
**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System, 2007-2018.

**Denominator:** Population of live-born infants.

**Note:** For this measure, lower rates are better.

- **Importance:** Low birth weight can cause serious health problems for infants and increase the risk of infant mortality. Several risk factors increase the chances of having a low-birth-weight baby, including age, chronic health conditions, and “being a member of a group that experiences the effects of racism and health disparities” (March of Dimes, 2021).
- **Overall Rate:** In 2018, 8.3% of live births were low birth weight (less than 2,500 grams).
- **Groups With Disparities in 2018:**
  - In 2018, there were no statistically significant differences in the rate of low-weight births across residence locations.

**Live-born infants with low birth weight (less than 2,500 grams), by residence location, stratified by race/ethnicity, 2018**



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System, 2018.

**Denominator:** Population of live-born infants.

**Note:** For this measure, lower rates are better. White and Black are non-Hispanic. Hispanic includes all races.

- **Importance:** Low birth weight can cause serious health problems for infants and increase the risk of infant mortality. Several risk factors increase the chances of having a low birthweight baby, including age, chronic health conditions, and “being a member of a group that experiences the effects of racism and health disparities” (March of Dimes, 2021).

- **Groups With Disparities in 2018:**

- **Disparities by Location:**

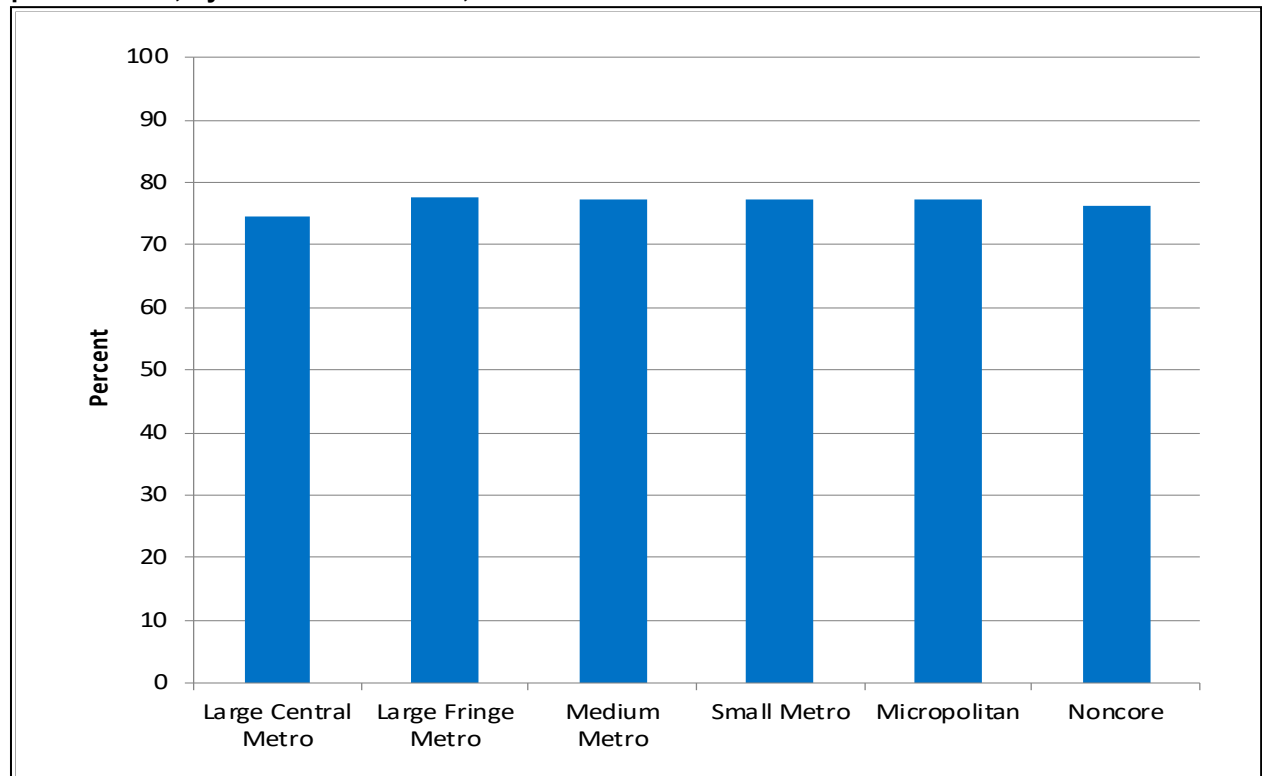
- ◆ In large central metropolitan areas, Black and Hispanic live-born infants were more likely to have low birth weight (less than 2,500 grams) (13.8% and 7.5%, respectively) compared with White live-born infants (6.6%).
- ◆ In large fringe metropolitan areas, Black and Hispanic live-born infants were more likely to have low birth weight (12.9% and 7.3%, respectively) compared with White live-born infants (6.6%).
- ◆ In medium metropolitan areas, Black live-born infants were more likely to have low birth weight (14.4%) compared with White live-born infants (7.1%).
- ◆ In small metropolitan areas, Black live-born infants were more likely to have low birth weight (14.5%) compared with White live-born infants (7.2%).
- ◆ In micropolitan areas, Black live-born infants were more likely to have low birth weight (15.2%) compared with White live-born infants (7.5%).
- ◆ In noncore areas, Black and Hispanic live-born infants were more likely to have low birth weight (15.7%) compared with White live-born infants (7.6%).

- **Disparities by Group:**

- ◆ Among Black live-born infants, those residing in medium metropolitan, small metropolitan, micropolitan, and noncore areas were more likely to have low birth weight (14.4%, 14.5%, 15.2%, and 15.7%, respectively) compared with Black live-born infants in large fringe metropolitan areas (12.9%).
- ◆ Among White live-born infants, those residing in micropolitan and noncore areas were more likely to have low birth weight (7.5% and 7.6%, respectively) compared with White live-born infants in large fringe metropolitan areas (6.6%).

### Early and Adequate Prenatal Care

Women who completed a pregnancy in the last 12 months who received early and adequate prenatal care, by residence location, 2018



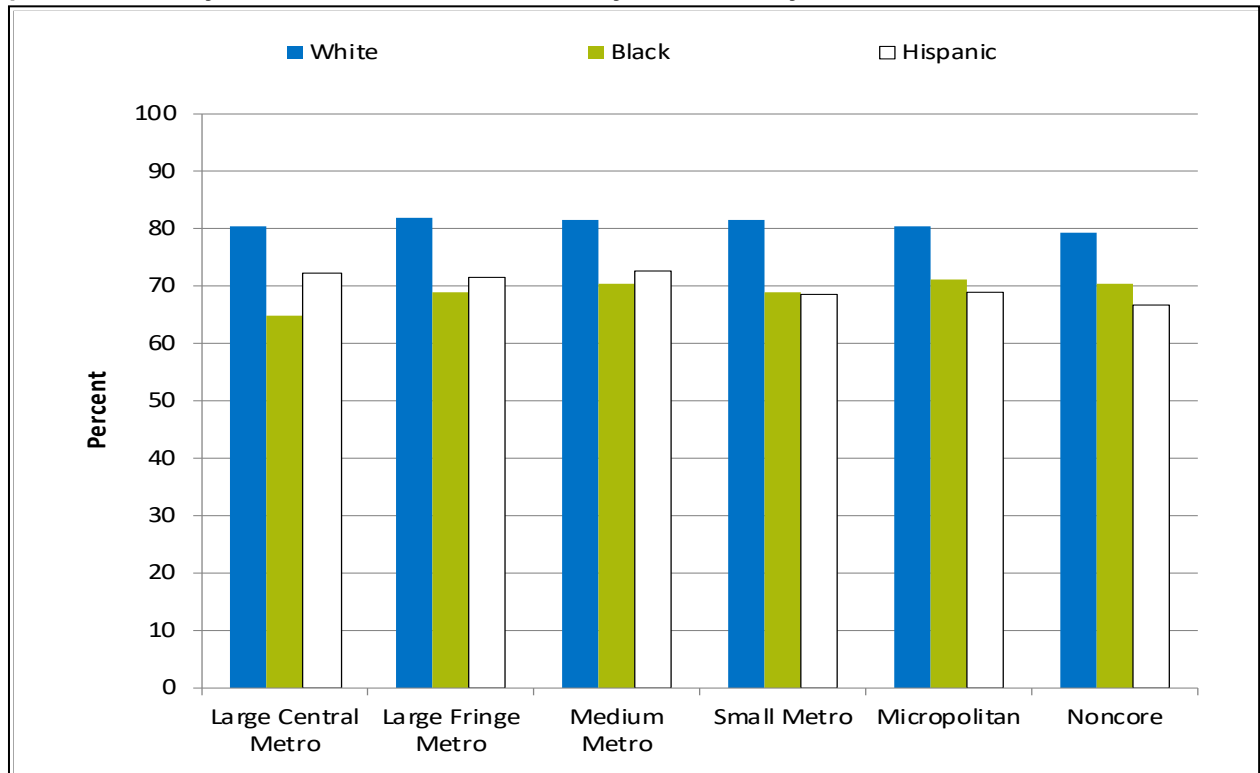
**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System, 2018.

**Denominator:** Live births occurring to residents in those States that use the 2003 revised birth certificate.

**Note:** Seventeen States did not use the 2003 revised birth certificate.

- **Importance:** Prenatal care can reduce the risk of pregnancy complications, improve the likelihood of healthy birth outcomes, and reduce the risk of complications for infants (NICHD, 2017). Women in rural areas may need to travel farther and longer in order to receive such care.
- **Groups With Disparities in 2018:**
  - In large central metropolitan areas, the percentage of women who completed a pregnancy in the last 12 months and received early and adequate prenatal care was lower (74.5%) compared with women in large fringe metropolitan areas (77.7%).

**Women who completed a pregnancy in the last 12 months who received early and adequate prenatal care, by residence location, stratified by race/ethnicity, 2018**



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System, 2018.

**Denominator:** Live births occurring to residents in those States that use the 2003 revised birth certificate.

**Note:** White and Black are non-Hispanic. Hispanic includes all races. Seventeen States did not use the 2003 revised birth certificate.

- **Importance:** Prenatal care can reduce the risk of pregnancy complications, improve the likelihood of healthy birth outcomes, and reduce the risk of complications for infants (NICHD, 2017). Women in rural areas may need to travel farther and longer in order to receive such care.
- **Groups With Disparities in 2018:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, Black and Hispanic women who completed a pregnancy in the last 12 months were less likely to receive early and adequate prenatal care (65.0% and 72.4%, respectively) compared with White women who completed a pregnancy in the last 12 months (80.4%).
    - ◆ In large fringe metropolitan areas, Black and Hispanic women who completed a pregnancy in the last 12 months were less likely to receive early and adequate prenatal care (68.9% and 71.6%, respectively) compared with White women who completed a pregnancy in the last 12 months (81.9%).

- ◆ In medium metropolitan areas, Black and Hispanic women who completed a pregnancy in the last 12 months were less likely to receive early and adequate prenatal care (70.5% and 72.7%, respectively) compared with White women who completed a pregnancy in the last 12 months (81.6%).
- ◆ In small metropolitan areas, Black and Hispanic women who completed a pregnancy in the last 12 months were less likely to receive early and adequate prenatal care (69% and 68.5%, respectively) compared with White women who completed a pregnancy in the last 12 months (81.4%).
- ◆ In micropolitan areas, Black and Hispanic women who completed a pregnancy in the last 12 months were less likely to receive early and adequate prenatal care (71.2% and 68.9%, respectively) compared with White women who completed a pregnancy in the last 12 months (80.4%).
- ◆ In noncore areas, Black and Hispanic women who completed a pregnancy in the last 12 months were less likely to receive early and adequate prenatal care (70.4% and 66.7%, respectively) compared with White women who completed a pregnancy in the last 12 months (79.4%).

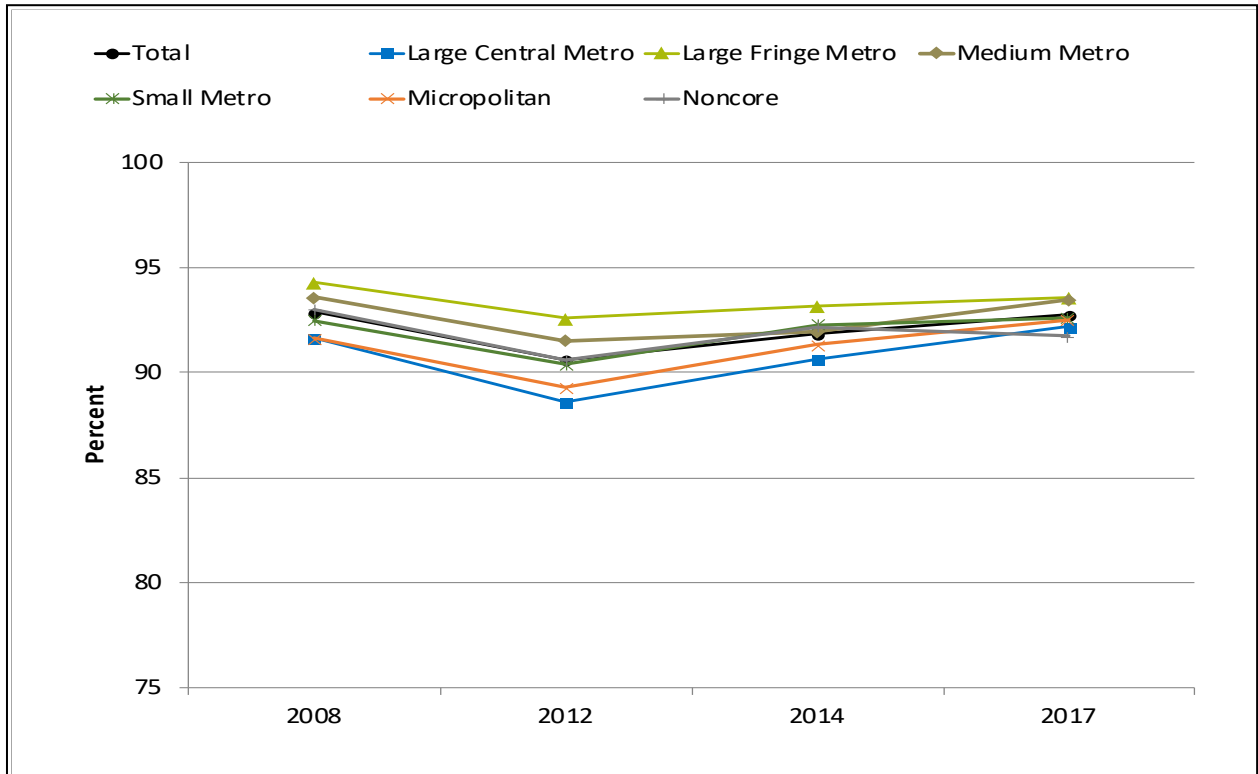
■ **Disparities by Group:**

- ◆ Among White women who completed a pregnancy in the last 12 months, those residing in noncore areas were less likely to receive early and adequate prenatal care (79.4%) compared with those in large fringe metropolitan areas (81.9%).
- ◆ Among Black women who completed a pregnancy in the last 12 months, those residing in large central metropolitan areas were less likely to receive early and adequate prenatal care (65.0%) compared with those in large fringe metropolitan areas (68.9%).
- ◆ Among Hispanic women who completed a pregnancy in the last 12 months, those residing in small metropolitan and noncore areas were less likely to receive early and adequate prenatal care (68.5% and 66.7%, respectively) compared with those in large fringe metropolitan areas (71.6%).

## Healthy Living: Clinical Preventive Services

### Blood Pressure Measurement

Adults who received a blood pressure measurement in the last 2 years and could state whether their blood pressure was normal or high, by residence location, 2008-2017



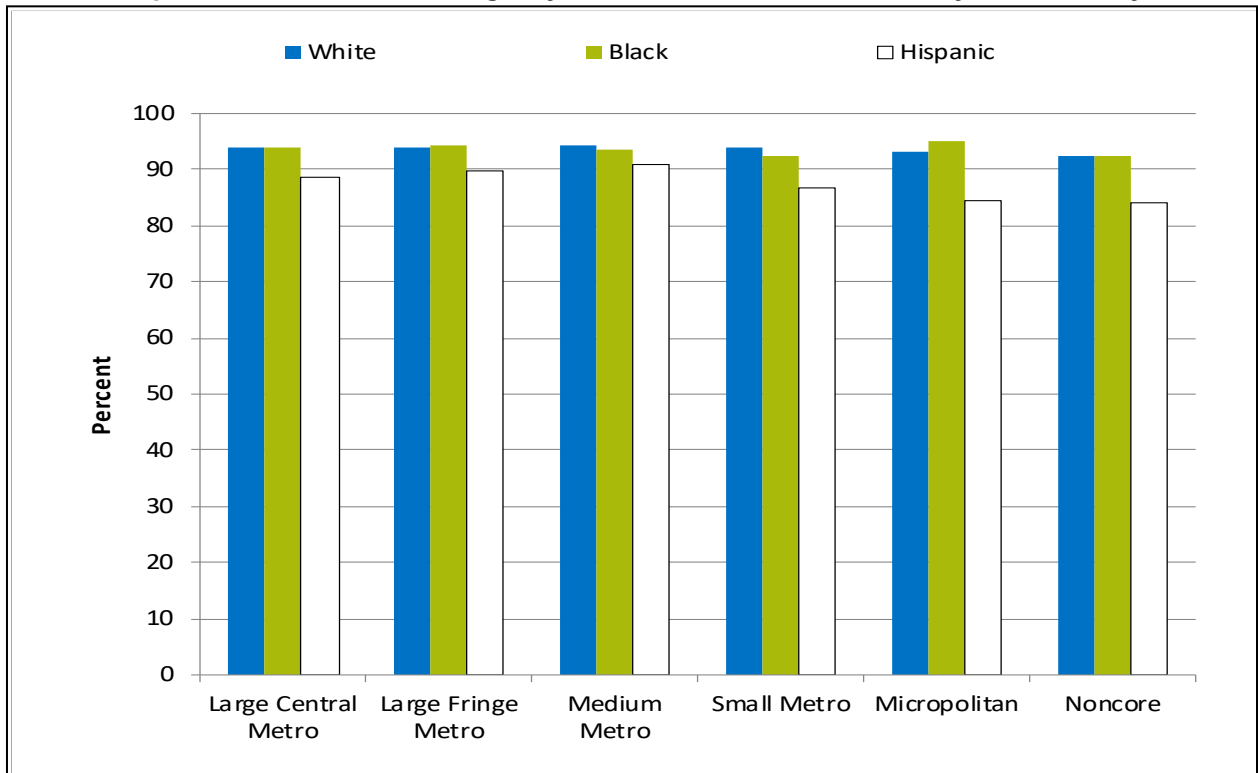
**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2008-2017.

**Denominator:** U.S. adult population age 18 and over.

**Note:** Estimates are age adjusted to the 2000 U.S. standard population.

- **Importance:** Members of rural populations are at greater risk of dying from heart disease. High blood pressure, smoking, and obesity are more common among rural residents (HHS Million Hearts, 2018).
- **Overall Rate:** In 2017, 92.8% of adults had their blood pressure measured within the past 2 years and could state whether their blood pressure was normal or high.
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, a lower percentage of adults had their blood pressure measured within the past 2 years and could state whether their blood pressure was normal or high (92.2%) compared with those in large fringe metropolitan areas (93.6%).

**Adults who received a blood pressure measurement in the last 2 years and could state whether their blood pressure was normal or high, by residence location, stratified by race/ethnicity, 2017**



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2017.

**Denominator:** U.S. adult population age 18 and over.

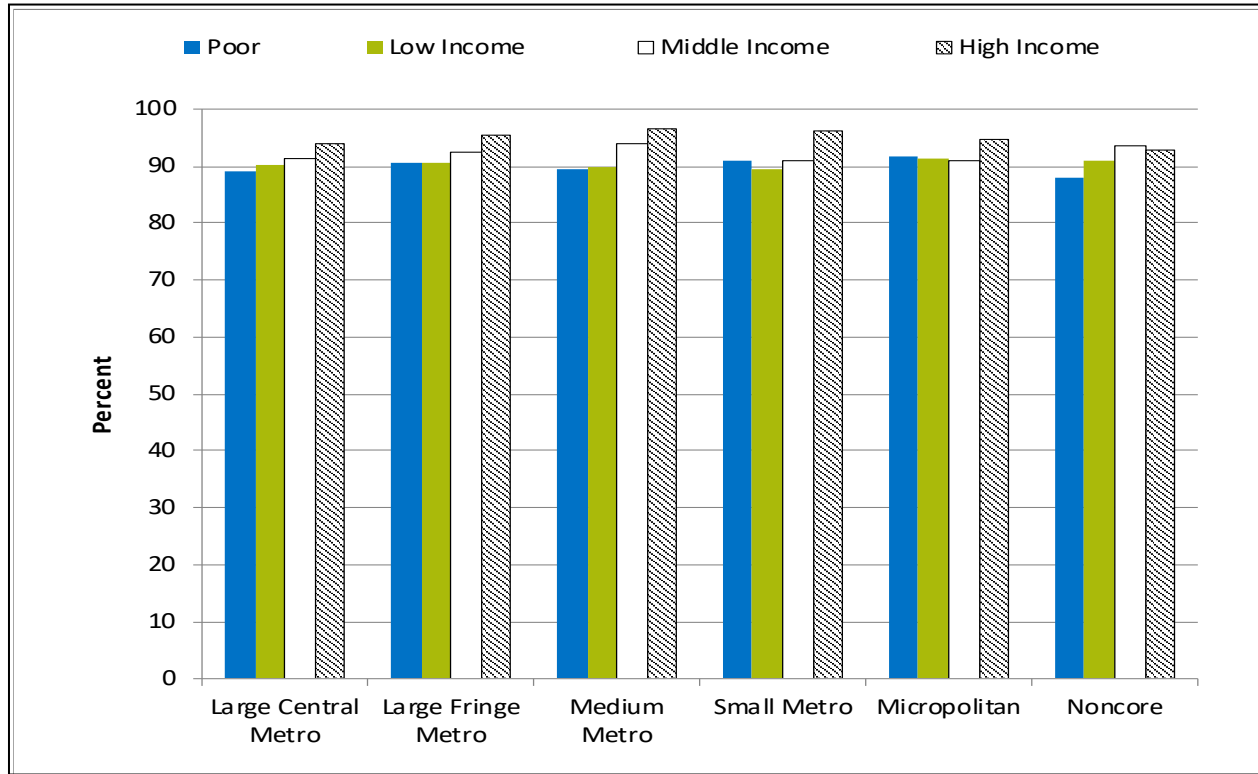
**Note:** White and Black are non-Hispanic. Hispanic includes all races.

- **Importance:** Members of rural populations are at greater risk of dying from heart disease. High blood pressure, smoking, and obesity are more common among rural residents (HHS Million Hearts, 2018).
- **Groups With Disparities in 2017:**
  - In large central metropolitan areas, the percentage of adults who received a blood pressure measurement in the last 2 years and could state whether their blood pressure was normal or high was lower for Hispanic adults (88.7%) compared with White adults (93.9%).
  - In large fringe metropolitan areas, the percentage of adults who received a blood pressure measurement in the last 2 years and could state whether their blood pressure was normal or high was lower for Hispanic adults (89.8%) compared with White adults (94.1%).
  - In medium metropolitan areas, the percentage of adults who received a blood pressure measurement in the last 2 years and could state whether their blood pressure was normal or high was lower for Hispanic adults (90.8%) compared with White adults (94.4%).
  - In small metropolitan areas, the percentage of adults who received a blood pressure measurement in the last 2 years and could state whether their blood pressure was normal or high was lower for Hispanics (86.6%) compared with White adults (93.8%).



- In micropolitan areas, the percentage of adults who received a blood pressure measurement in the last 2 years and could state whether their blood pressure was normal or high was lower for Hispanics (84.3%) compared with White adults in micropolitan areas (93.2%).

**Adults who received a blood pressure measurement in the last 2 years and could state whether their blood pressure was normal or high, by residence location, stratified by income, 2017**



**Source:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2017.

**Denominator:** U.S. adult population age 18 and over.

**Note:** Poor, low income, middle income, and high income indicate individuals whose household income is <100%, 100-199%, 200-399%, and 400% or more of the Federal poverty level, respectively.

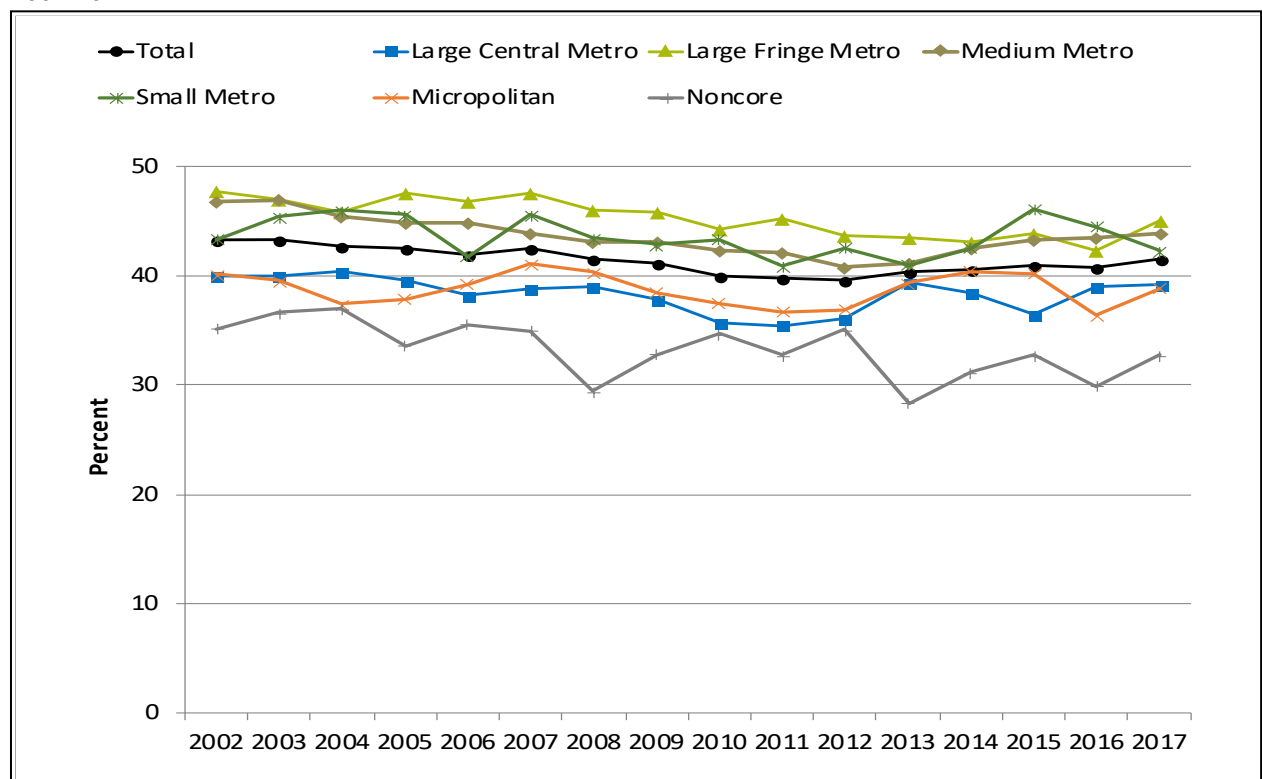
- **Importance:** Members of rural populations are at greater risk of dying from heart disease. High blood pressure, smoking, and obesity are more common among rural residents (HHS Million Hearts, 2018).
- **Groups With Disparities in 2017:**
  - In large central metropolitan areas, the percentage of adults who received a blood pressure measurement in the last 2 years and could state whether their blood pressure was normal or high was lower for middle-income, low-income, and poor adults (91.3%, 90.3%, and 89.2%, respectively) compared with high-income adults (93.9%).
  - In large fringe metropolitan areas, the percentage of adults who received a blood pressure measurement in the last 2 years and could state whether their blood pressure was normal or high was lower for middle-income, low-income, and poor adults (92.6%, 90.6%, and 90.6%, respectively) compared with high-income adults (95.3%).

- In medium metropolitan areas, the percentage of adults who received a blood pressure measurement in the last 2 years and could state whether their blood pressure was normal or high was lower for middle-income, low-income, and poor adults (94.0%, 89.8%, and 89.3%, respectively) compared with high-income adults (96.4%).
- In small metropolitan areas, the percentage of adults who received a blood pressure measurement in the last 2 years and could state whether their blood pressure was normal or high was lower for middle-income, low-income, and poor adults (91.0%, 89.5%, and 91.0%, respectively) compared with high-income adults (96.2%).

## Healthy Living: Adult Preventive Care

### Preventive Dental Service

Adults who received a preventive dental service in the calendar year, by residence location, 2002-2017



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2017.

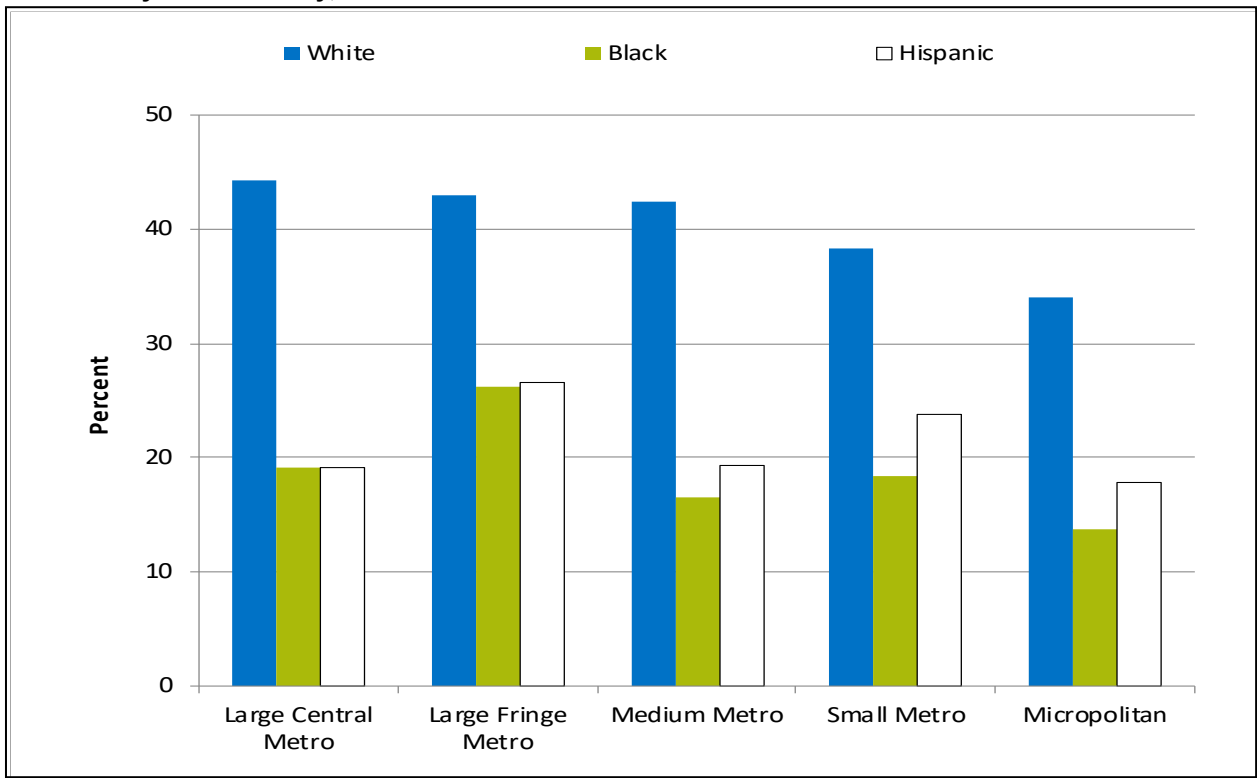
Denominator: U.S. civilian noninstitutionalized population age 18 and over.

- **Importance:** The percentage of the population without dental insurance is more than twice that of those who are medically uninsured (Mertz, 2016). Regular preventive dental care can catch problems early, when they are usually easier to treat. But many people do not get needed care, often because they cannot afford it (ODPHP, 2021c).
- **Overall Rate:** In 2017, the percentage of adults who had received a preventive dental service in the calendar year was 41.6%.

- **Groups With Disparities in 2017:**

- Adults in large central metropolitan areas were less likely to have received a preventive dental service in the calendar year compared with adults in large fringe metropolitan areas (39.2% vs. 45.1%).
- Adults in micropolitan and noncore areas were also less likely to have received a preventive dental service in the calendar year compared with adults in large fringe metropolitan areas (38.9% and 32.7%, respectively, vs. 45.1%).

**Adults who received a preventive dental service in the calendar year, by residence location, stratified by race/ethnicity, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized population age 18 and over.

**Note:** White and Black are non-Hispanic. Hispanic includes all races. Noncore areas are not included because data for groups other than Whites did not meet criteria for statistical reliability.

- **Importance:** The percentage of the population without dental insurance is more than twice that of those who are medically uninsured (Mertz, 2016). Regular preventive dental care can catch problems early, when they are usually easier to treat. But many people do not get needed care, often because they cannot afford it (ODPHP, 2021c).

- **Groups With Disparities in 2017:**

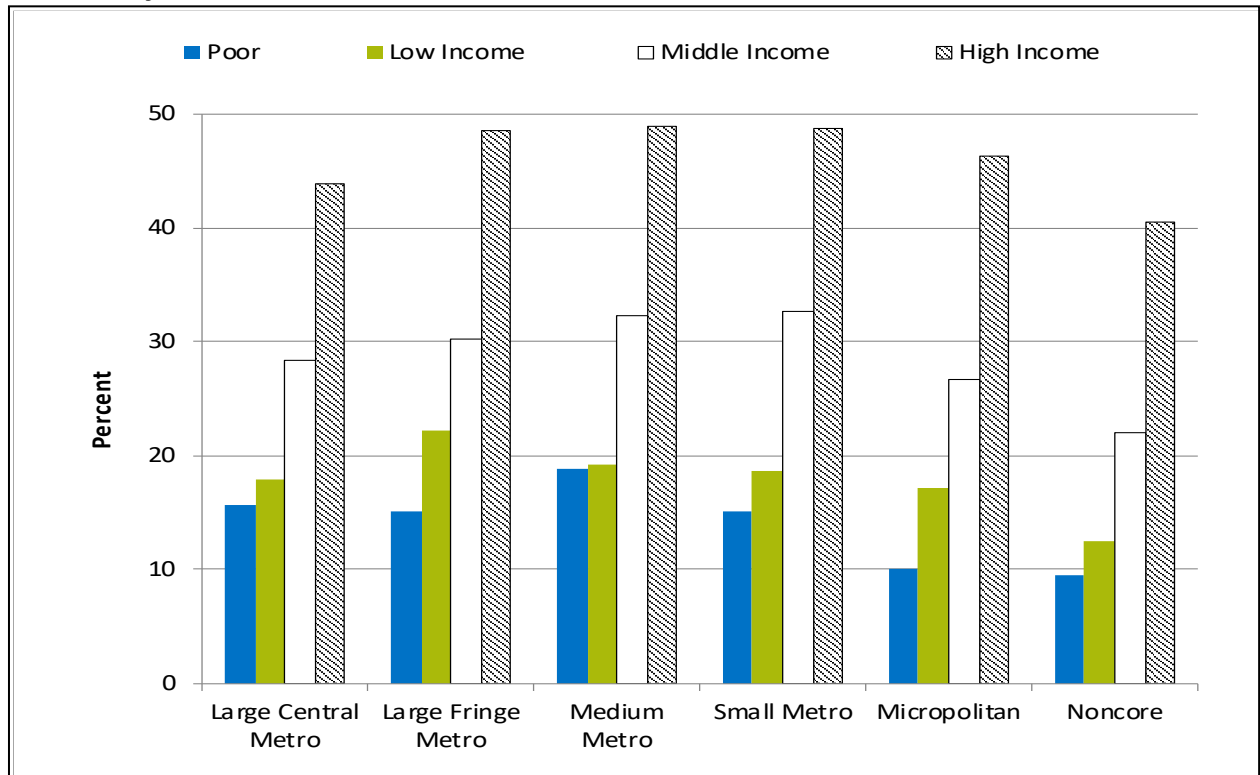
- **Disparities by Location:**

- ◆ In large central metropolitan areas, Black and Hispanic adults were less likely to have received a preventive dental service in the calendar year (19.1% and 19.2%, respectively) compared with White adults (44.3%).
- ◆ In large fringe metropolitan areas, Black and Hispanic adults were less likely to have received a preventive dental service in the calendar year (26.3% and 26.6%, respectively) compared with White adults (42.9%).
- ◆ In medium metropolitan areas, Black and Hispanic adults were less likely to have received a preventive dental service in the calendar year (16.6% and 19.4%, respectively) compared with White adults (42.5%).
- ◆ In small metropolitan areas, Black and Hispanic adults were less likely to have received a preventive dental service in the calendar year (18.4% and 23.8%, respectively) compared with White adults (38.4%).
- ◆ In micropolitan areas, Black and Hispanic adults were less likely to have received a preventive dental service in the calendar year (13.8% and 17.9%, respectively) compared with White adults (34.1%).

- **Disparities by Group:**

- ◆ Among White adults, those residing in micropolitan areas were less likely to have received a preventive dental service in the calendar year (34.1%) compared with those in large fringe metropolitan areas (42.9%).
- ◆ Among Black adults, those residing in medium metropolitan, small metropolitan, and micropolitan areas were less likely to have received a preventive dental service in the calendar year (16.6%, 18.4%, and 13.8%, respectively) compared with those in large fringe metropolitan areas (26.3%).
- ◆ Among Hispanic adults, those residing in large central metropolitan areas were less likely to have received a preventive dental service in the calendar year (19.2%) compared with those in large fringe metropolitan areas (26.6%).

**Adults who received a preventive dental service in the calendar year, by residence location, stratified by income, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized population age 18 and over.

**Note:** Poor, low income, middle income, and high income indicate individuals whose household income is <100%, 100-199%, 200-399%, and 400% or more of the Federal poverty level, respectively.

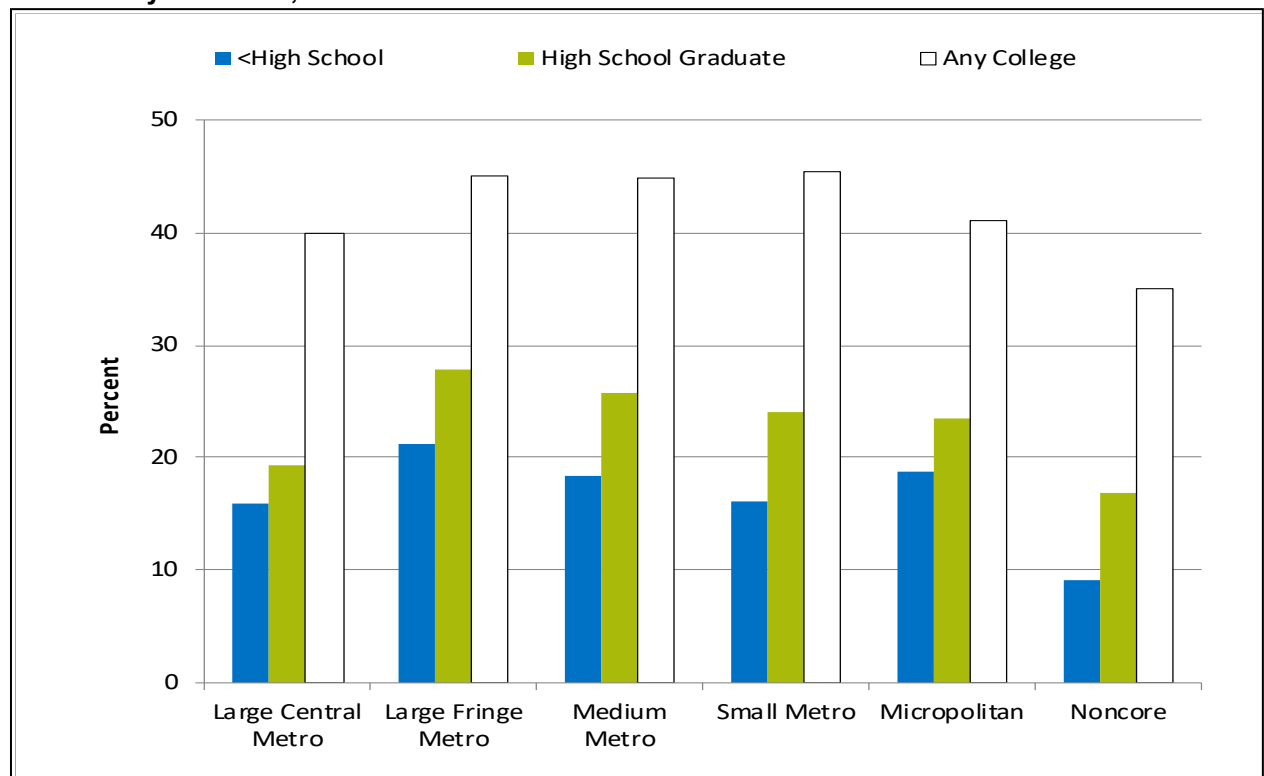
- **Importance:** The percentage of the population without dental insurance is more than twice that of those who are medically uninsured (Mertz, 2016). Regular preventive dental care can catch problems early, when they are usually easier to treat. But many people do not get needed care, often because they cannot afford it (ODPHP, 2021c).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, middle-income, low-income, and poor adults were less likely to have received a preventive dental service in the calendar year (28.4%, 18.0%, and 15.6%, respectively) compared with high-income adults (43.8%).
    - ◆ In large fringe metropolitan areas, middle-income, low-income, and poor adults were less likely to have received a preventive dental service in the calendar year (30.3%, 22.3%, and 15.2%, respectively) compared with high-income adults (48.6%).
    - ◆ In medium metropolitan areas, middle-income, low-income, and poor adults were less likely to have received a preventive dental service in the calendar year (32.3%, 19.3%, and 18.8%, respectively) compared with high-income adults (49.0%).

- ◆ In small metropolitan areas, middle-income, low-income, and poor adults were less likely to have received a preventive dental service in the calendar year (32.6%, 18.6%, and 15.1%, respectively) compared with high-income adults (48.8%).
- ◆ In micropolitan areas, middle-income, low-income, and poor adults were less likely to have received a preventive dental service in the calendar year (26.7%, 17.1%, and 10.1%, respectively) compared with high-income adults (46.3%).
- ◆ In noncore areas, middle-income, low-income, and poor adults were less likely to have received a preventive dental service in the calendar year (22.0%, 12.5%, and 9.6%, respectively) compared with high-income adults (40.5%).

■ **Disparities by Group:**

- ◆ Among middle-income adults, those residing in noncore areas were less likely to have received a preventive dental service in the calendar year (22.0%) compared with those in large fringe metropolitan areas (30.3%).
- ◆ Among low-income adults, those residing in noncore areas were less likely to have received a preventive dental service in the calendar year (12.5%) compared with those in large fringe metropolitan areas (22.3%).

**Adults who received a preventive dental service in the calendar year, by residence location, stratified by education, 2017**



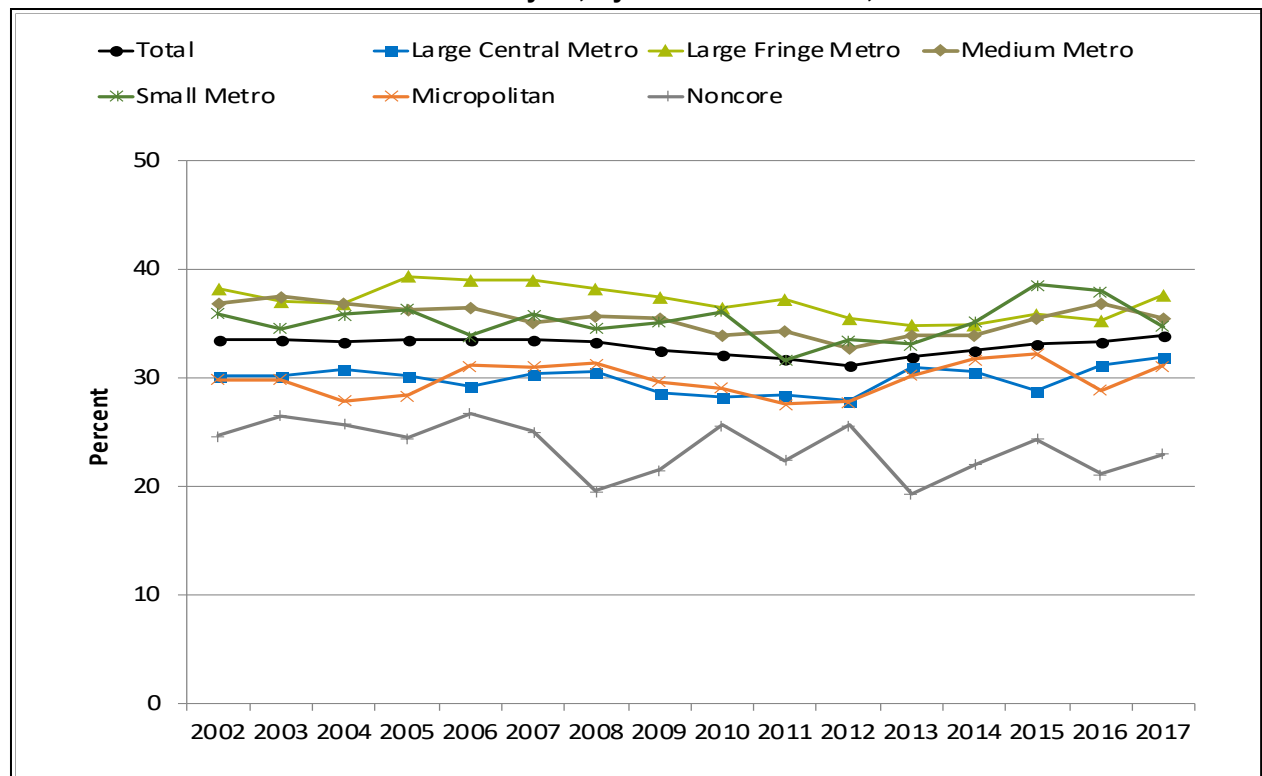
**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized population age 18 and over.

- **Importance:** The percentage of the population without dental insurance is more than twice that of those who are medically uninsured (Mertz, 2016). Regular preventive dental care can catch problems early, when they are usually easier to treat. But many people do not get needed care, often because they cannot afford it (ODPHP, 2021c).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, adults with a high school education or less than a high school education were less likely to have received a preventive dental service in the calendar year (19.4% and 16.0%, respectively) compared with adults with any college education (40.0%).
    - ◆ In large fringe metropolitan areas, adults with a high school education or less than a high school education were less likely to have received a preventive dental service in the calendar year (27.8% and 21.2%, respectively) compared with adults with any college education (45.0%).
    - ◆ In medium metropolitan areas, adults with a high school education or less than a high school education were less likely to have received a preventive dental service in the calendar year (25.7% and 18.3%, respectively) compared with adults with any college education (44.8%).
    - ◆ In small metropolitan areas, adults with a high school education or less than a high school education were less likely to have received a preventive dental service in the calendar year (24.0% and 16.2%, respectively) compared with adults with any college education (45.4%).
    - ◆ In micropolitan areas, adults with a high school education or less than a high school education were less likely to have received a preventive dental service in the calendar year (23.5% and 18.8%, respectively) compared with adults with any college education (41.0%).
    - ◆ In noncore areas, adults with a high school education or less than a high school education were less likely to have received a preventive dental service in the calendar year (16.9% and 9.1%, respectively) compared with adults with any college education (35.0%).
  - **Disparities by Group:**
    - ◆ Among adults with any college education, those residing in noncore areas were less likely to have received a preventive dental service in the calendar year (35.0%) compared with those in large fringe metropolitan areas (45.0%).
    - ◆ Among adults with a high school education, those residing in large central metropolitan and noncore areas were less likely to have received a preventive dental service in the calendar year (19.4% and 16.9%, respectively) compared with those in large fringe metropolitan areas (27.8%).
    - ◆ Among adults with less than a high school education, those residing in noncore areas were less likely to have received a preventive dental service in the calendar year (9.1%) compared with those in large fringe metropolitan areas (21.2%).

## Dental Visits

Adults with a dental visit in the calendar year, by residence location, 2002-2017

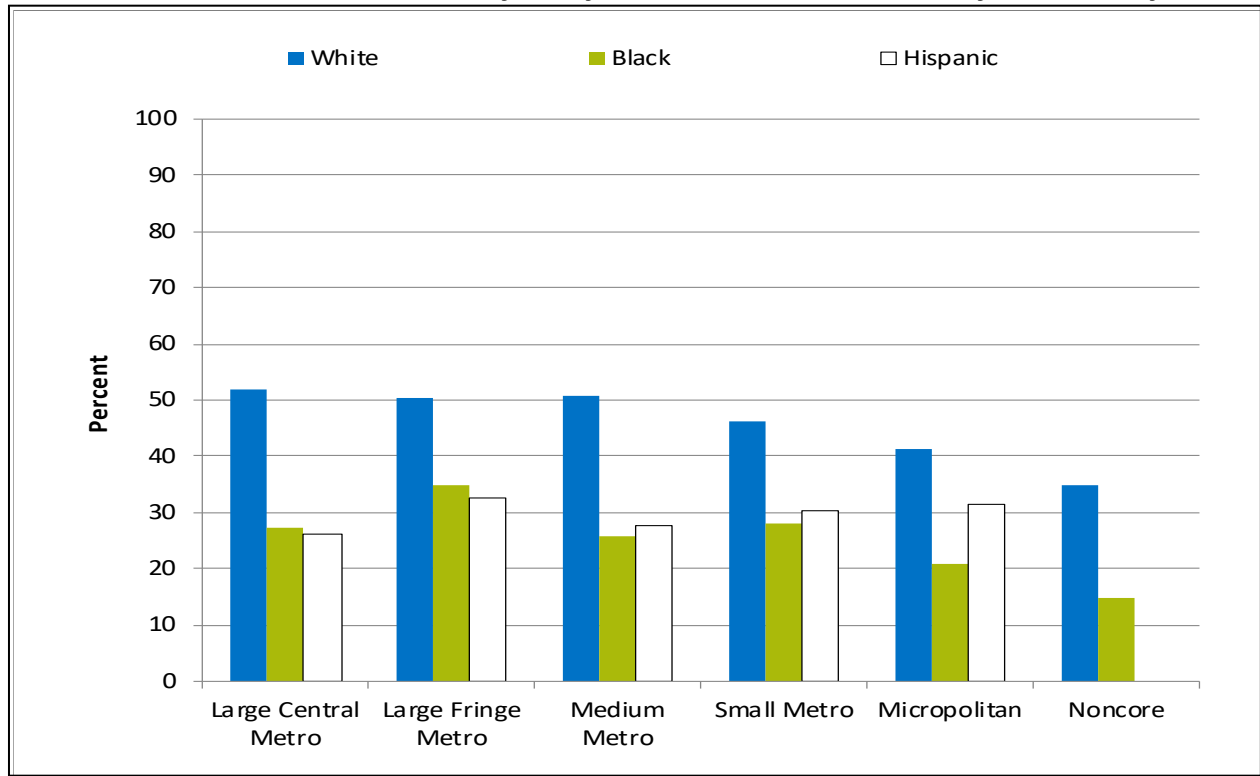


Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2017.

Denominator: U.S. civilian noninstitutionalized population age 18 and over.

- **Importance:** The percentage of the population without dental insurance is more than twice that of those who are medically uninsured (Mertz, 2016). Regular preventive dental care can catch problems early, when they are usually easier to treat. But many people do not get needed care, often because they cannot afford it (ODPHP, 2021c).
- **Overall Rate:** In 2017, the percentage of adults who had a dental visit in the calendar year was 33.9%.
- **Groups With Disparities in 2017:**
  - In micropolitan areas, the percentage of adults who had a dental visit in the calendar year (31.1%) was lower compared with adults in large fringe metropolitan areas (37.6%).
  - In noncore areas, the percentage of adults who had a dental visit in the calendar year (23.0%) was lower compared with adults in large fringe metropolitan areas (37.6%).



**Adults with a dental visit in the calendar year, by residence location, stratified by race/ethnicity, 2017**

**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized population age 18 and over.

**Note:** White and Black are non-Hispanic. Hispanic includes all races. Data for noncore areas for Hispanic adults are not included because they did not meet criteria for statistical reliability.

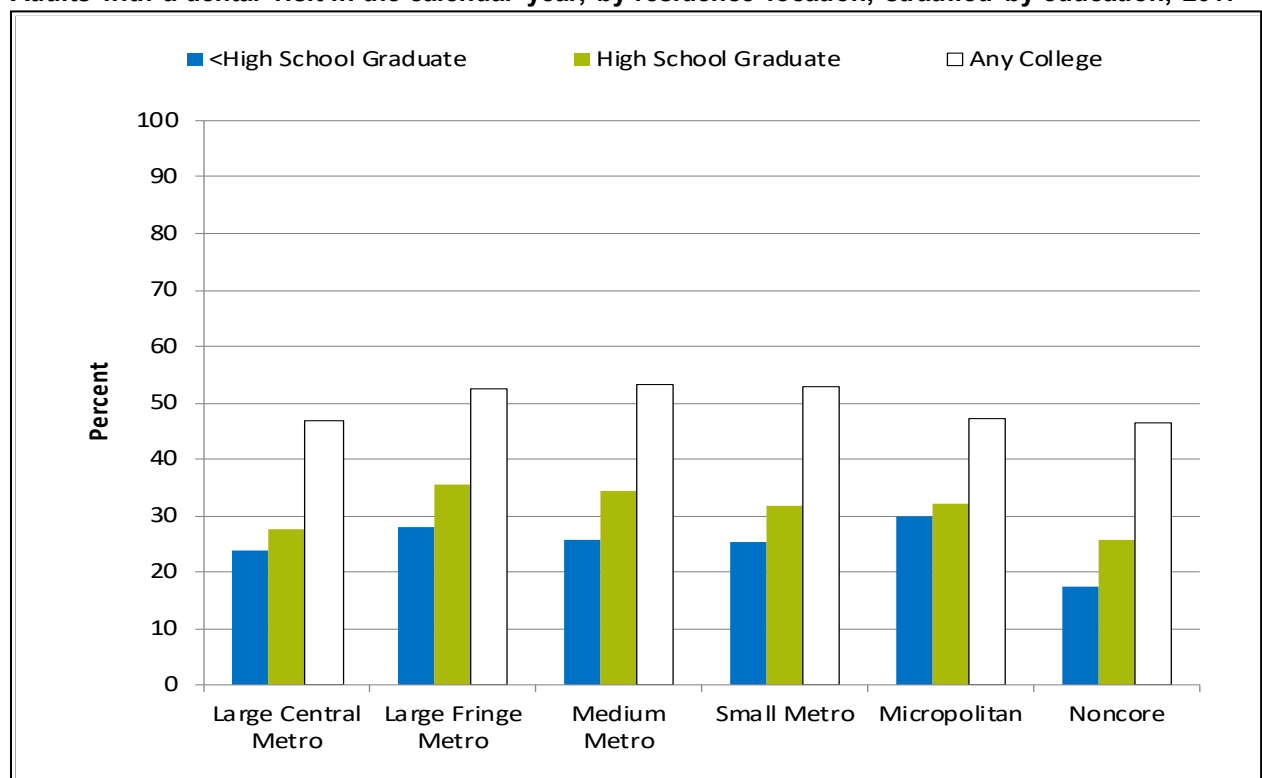
- **Importance:** The percentage of the population without dental insurance is more than twice that of those who are medically uninsured (Mertz, 2016). Regular preventive dental care can catch problems early, when they are usually easier to treat. But many people do not get needed care, often because they cannot afford it (ODPHP, 2021c).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, Black and Hispanic adults were less likely to have a dental visit in the calendar year (27.2% and 26.0%, respectively) compared with White adults (52.1%).
    - ◆ In large fringe metropolitan areas, Black and Hispanic adults were less likely to have a dental visit in the calendar year (34.9% and 32.8%, respectively) compared with White adults (50.4%).
    - ◆ In medium metropolitan areas, Black and Hispanic adults were less likely to have a dental visit in the calendar year (25.9% and 27.7%, respectively) compared with White adults (50.9%).
    - ◆ In small metropolitan areas, Black and Hispanic adults were less likely to have a dental visit in the calendar year (28.1% and 30.4%, respectively) compared with White adults (46.1%).

- ◆ In micropolitan areas, Black adults were less likely to have a dental visit in the calendar year (20.8%) compared with White adults (41.3%).
- ◆ In noncore areas, Black adults were less likely to have a dental visit in the calendar year (15.0%) compared with White adults (35.0%).

■ **Disparities by Group:**

- ◆ Among White adults, those residing in micropolitan and noncore areas were less likely to have a dental visit in the calendar year (41.3% and 35.0%, respectively) compared with those in large fringe metropolitan areas (50.4%).
- ◆ Among Black adults, those residing in large central metropolitan, medium metropolitan, micropolitan, and noncore areas were less likely to have a dental visit in the calendar year (27.2%, 25.9%, 20.8%, and 15.0%, respectively) compared with those in large fringe metropolitan areas (34.9%).
- ◆ Among Hispanic adults, those residing in large central metropolitan areas were less likely to have a dental visit in the calendar year (26.0%) compared with those in large fringe metropolitan areas (32.8%).

**Adults with a dental visit in the calendar year, by residence location, stratified by education, 2017**

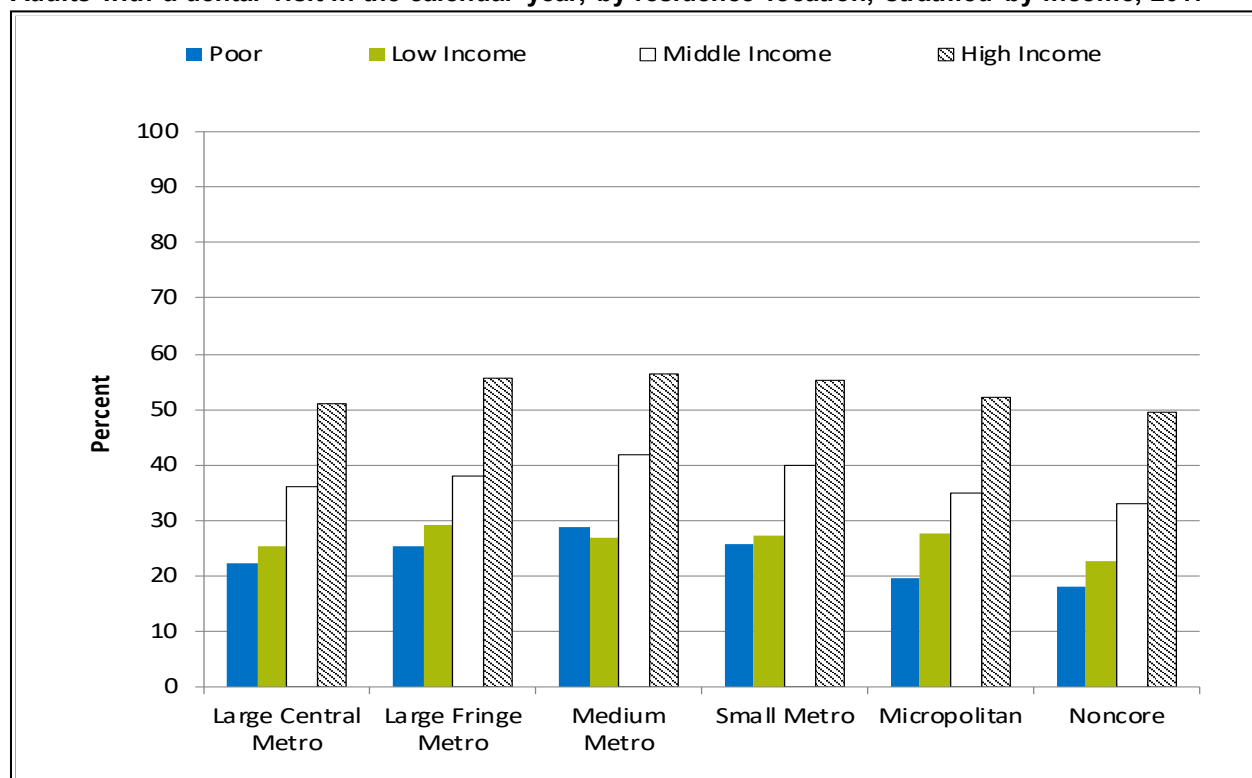


**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized population age 18 and over.

**Note:** For this measure, higher rates are better.

- **Importance:** The percentage of the population without dental insurance is more than twice that of those who are medically uninsured (Mertz, 2016). Regular preventive dental care can catch problems early, when they are usually easier to treat. But many people do not get needed care, often because they cannot afford it (ODPHP, 2021c).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, high school graduates and adults who had not graduated from high school were less likely to have a dental visit in the calendar year (27.6% and 23.9%, respectively) compared with adults with any college education (46.9%).
    - ◆ In large fringe metropolitan areas, high school graduates and adults who had not graduated from high school were less likely to have a dental visit in the calendar year (35.6% and 27.8%, respectively) compared with adults with any college education (52.5%).
    - ◆ In medium metropolitan areas, high school graduates and adults who had not graduated from high school were less likely to have a dental visit in the calendar year (34.4% and 25.7%, respectively) compared with adults with any college education (53.2%).
    - ◆ In small metropolitan areas, high school graduates and adults who had not graduated from high school were less likely to have a dental visit in the calendar year (31.8% and 25.2%, respectively) compared with adults with any college education (52.7%).
    - ◆ In micropolitan areas, high school graduates and adults who had not graduated from high school were less likely to have a dental visit in the calendar year (32.0% and 30.0%, respectively) compared with adults with any college education (47.1%).
    - ◆ In noncore areas, high school graduates and adults who had not graduated from high school were less likely to have a dental visit in the calendar year (25.7% and 17.3%, respectively) compared with adults with any college education (46.5%).
  - **Disparities by Group:**
    - ◆ Among adults with any college education, those residing in large central metropolitan areas were less likely to have a dental visit in the calendar year (46.9%) compared with those in large fringe metropolitan areas (52.5%).
    - ◆ Among adult high school graduates, those residing in large central metropolitan and noncore areas were less likely to have a dental visit in the calendar year (27.6% and 25.7%, respectively) compared with those in large fringe metropolitan areas (35.6%).
    - ◆ Among adults who had not graduated from high school, those residing in noncore areas were less likely to have a dental visit in the calendar year (17.3%) compared with those in large fringe metropolitan areas (27.8%).

**Adults with a dental visit in the calendar year, by residence location, stratified by income, 2017**

**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized population age 18 and over.

**Note:** For this measure, higher rates are better. Poor, low income, middle income, and high income indicate individuals whose household income is <100%, 100-199%, 200-399%, and 400% or more of the Federal poverty level, respectively.

- **Importance:** The percentage of the population without dental insurance is more than twice that of those who are medically uninsured (Mertz, 2016). Regular preventive dental care can catch problems early, when they are usually easier to treat. But many people do not get needed care, often because they cannot afford it (ODPHP, 2021c).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, middle-income, low-income, and poor adults were less likely to have a dental visit in the calendar year (35.9%, 25.5%, and 22.3%, respectively) compared with high-income adults (51.0%).
    - ◆ In large fringe metropolitan areas, middle-income, low-income, and poor adults were less likely to have a dental visit in the calendar year (37.8%, 29.0%, and 25.4%, respectively) compared with high-income adults (55.7%).
    - ◆ In medium metropolitan areas, middle-income, low-income, and poor adults were less likely to have a dental visit in the calendar year (42.0%, 27.0%, and 28.7%, respectively) compared with high-income adults (56.3%).

- ◆ In small metropolitan areas, middle-income, low-income, and poor adults were less likely to have a dental visit in the calendar year (40.0%, 27.4%, and 25.7%, respectively) compared with high-income adults (55.2%).
- ◆ In micropolitan areas, middle-income, low-income, and poor adults were less likely to have a dental visit in the calendar year (34.8%, 27.6%, and 19.7%, respectively) compared with high-income adults (52.0%).
- ◆ In noncore areas, middle-income, low-income, and poor adults were less likely to have a dental visit in the calendar year (32.9%, 22.7%, and 17.9%, respectively) compared with high-income adults (49.3%).

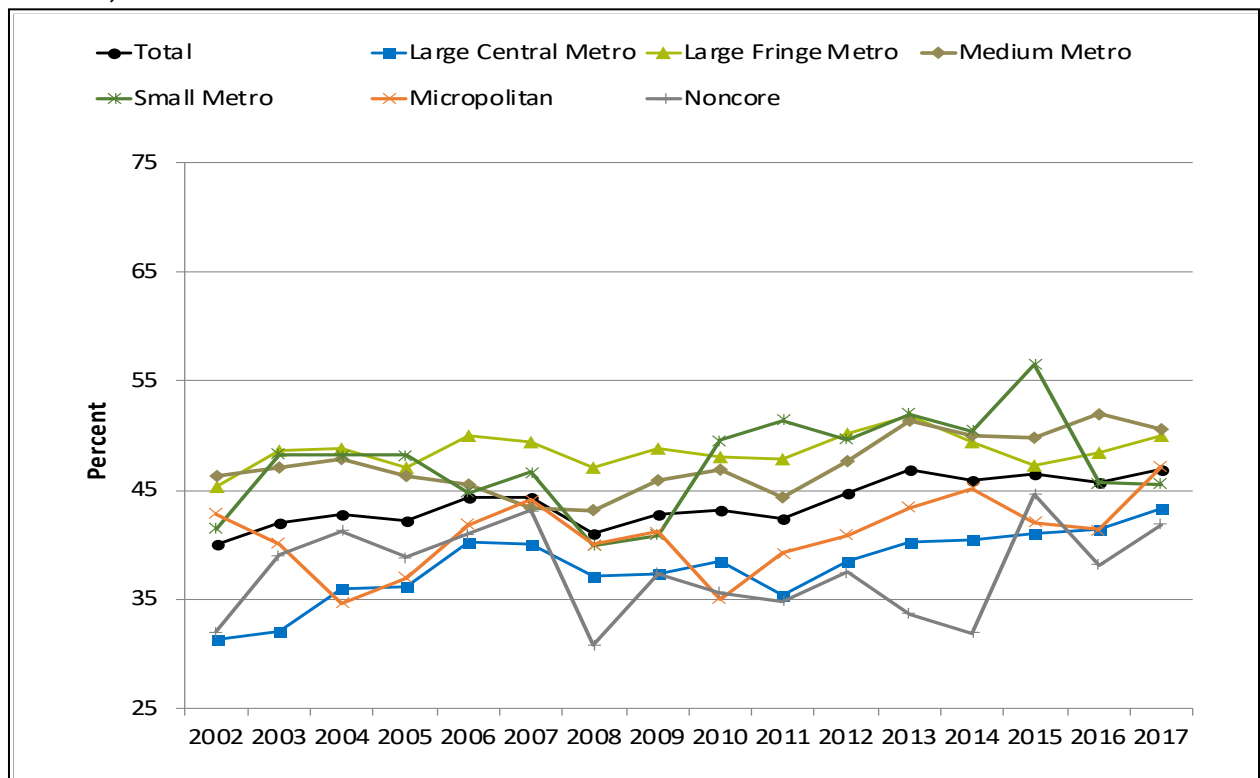
■ **Disparities by Group:**

- ◆ Among high-income adults, those residing in large central metropolitan areas were less likely to have a dental visit in the calendar year (51.0%) compared with those in large fringe metropolitan areas (55.7%).

**Healthy Living: Childhood Preventive Care**

*Preventive Dental Services for Children*

Children ages 2-17 who received a preventive dental service in the calendar year, by residence location, 2002-2017

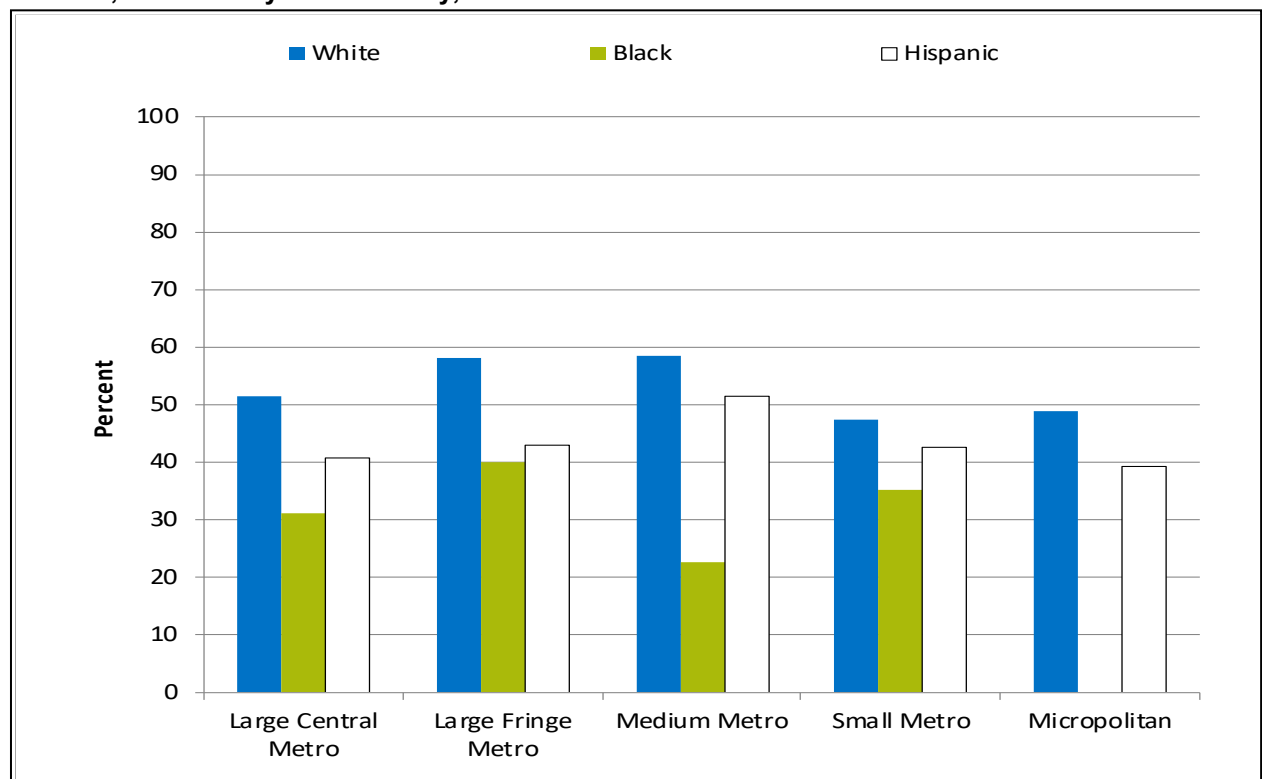


**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2017.

**Denominator:** U.S. civilian noninstitutionalized population ages 2-17 years.

- **Importance:** Cavities (also known as caries or tooth decay) are one of the most common chronic diseases of childhood in the United States (CDC, 2021a). Children who have poor oral health often miss more school and receive lower grades than children who do not (Griffin, et al., 2016). Children residing in rural areas were less likely to have a preventive dental visit, more likely to have teeth reported in fair or poor condition, and less likely to have received fluoride treatment or dental sealants than urban children (Crouch, et al., 2021). Regular preventive dental care can catch problems early, when they are usually easier to treat (ODPHP, 2021c).
- **Overall Rate:** In 2017, the percentage of children ages 2-17 who received a preventive dental service in the calendar year was 46.9%.
- **Groups With Disparities in 2017:**
  - In large central metropolitan areas, the percentage of children ages 2-17 who received a preventive dental service in the calendar year (43.3%) was lower compared with children ages 2-17 who resided in large fringe metropolitan areas (50.0%).

**Children ages 2-17 who received a preventive dental service in the calendar year, by residence location, stratified by race/ethnicity, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

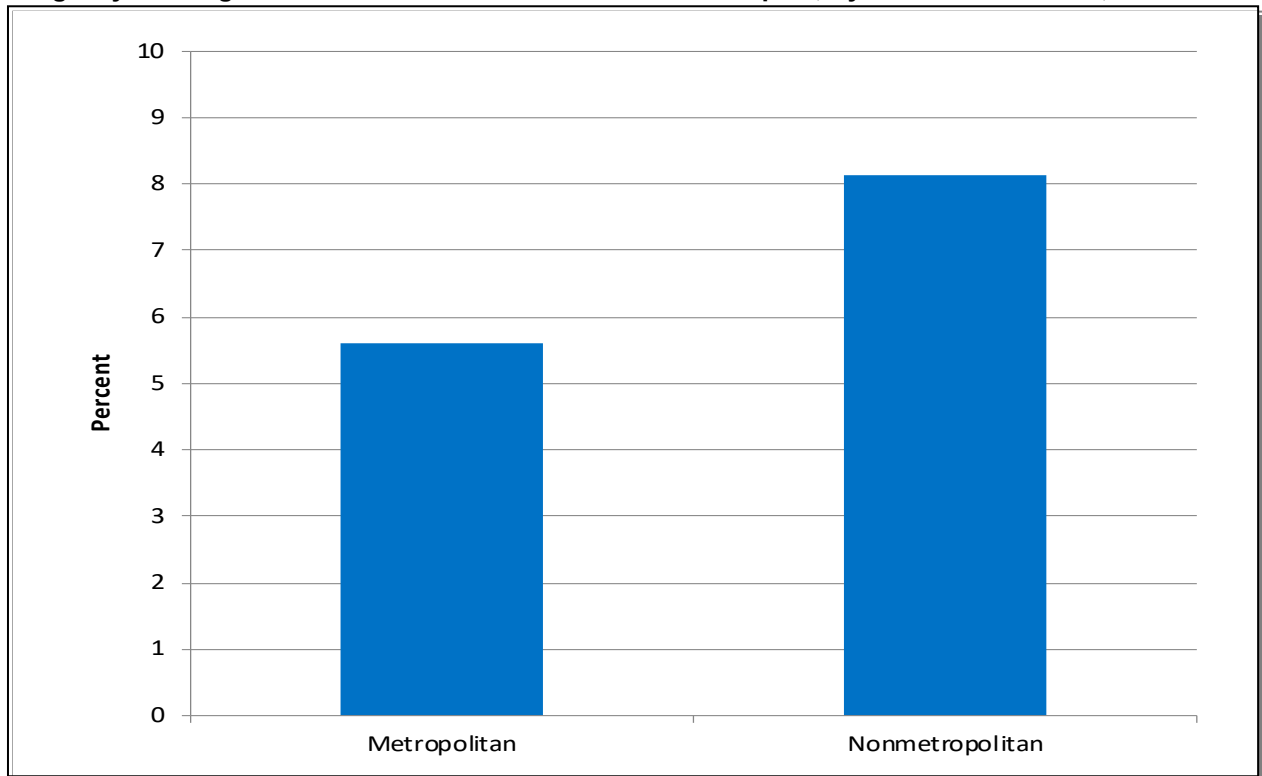
**Denominator:** U.S. civilian noninstitutionalized population ages 2-17 years

**Note:** White and Black are non-Hispanic. Hispanic includes all races. Data for micropolitan areas for Black children are not included because they did not meet criteria for statistical reliability. Data for noncore areas are not included because only the data for Whites met criteria for statistical reliability.

- **Importance:** Cavities (also known as caries or tooth decay) are one of the most common chronic diseases of childhood in the United States (CDC, 2021a). Children who have poor oral health often miss more school and receive lower grades than children who do not (Griffin, et al., 2016). Children residing in rural areas were less likely to have a preventive dental visit, more likely to have teeth reported in fair or poor condition, and less likely to have received fluoride treatment or dental sealants than urban children (Crouch, et al., 2021). Regular preventive dental care can catch problems early, when they are usually easier to treat (ODPHP, 2021c).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, Black and Hispanic children ages 2-17 were less likely to receive a preventive dental service (31.2% and 40.8%, respectively) compared with White children ages 2-17 (51.5%).
    - ◆ In large fringe metropolitan areas, Black and Hispanic children ages 2-17 were less likely to receive a preventive dental service (40.0% and 43.1%, respectively) compared with White children ages 2-17 (58.1%).
    - ◆ In medium metropolitan areas, Black children ages 2-17 were less likely to receive a preventive dental service (22.8%) compared with White children ages 2-17 (58.5%).
  - **Disparities by Group:**
    - ◆ Among Black children ages 2-17, those residing in medium metropolitan areas were less likely to receive a preventive dental service (22.8%) compared with those residing in large fringe metropolitan areas (40.0%).

## Healthy Living: Functional Status Preservation and Supportive and Palliative Care *Pain in Nursing Home Residents*

Long-stay nursing home residents with moderate to severe pain, by residence location, 2017



**Source:** Centers for Medicare & Medicaid Services, Skilled Nursing Facility Quality Reporting Program), Residence Assessment Files, MDS 3.0, 2017.

**Denominator:** Medicare chronic care nursing home long-stay residents with a valid target assessment, excluding admission assessments and assessments with inconsistent or missing responses.

**Note:** For this measure, lower rates are better.

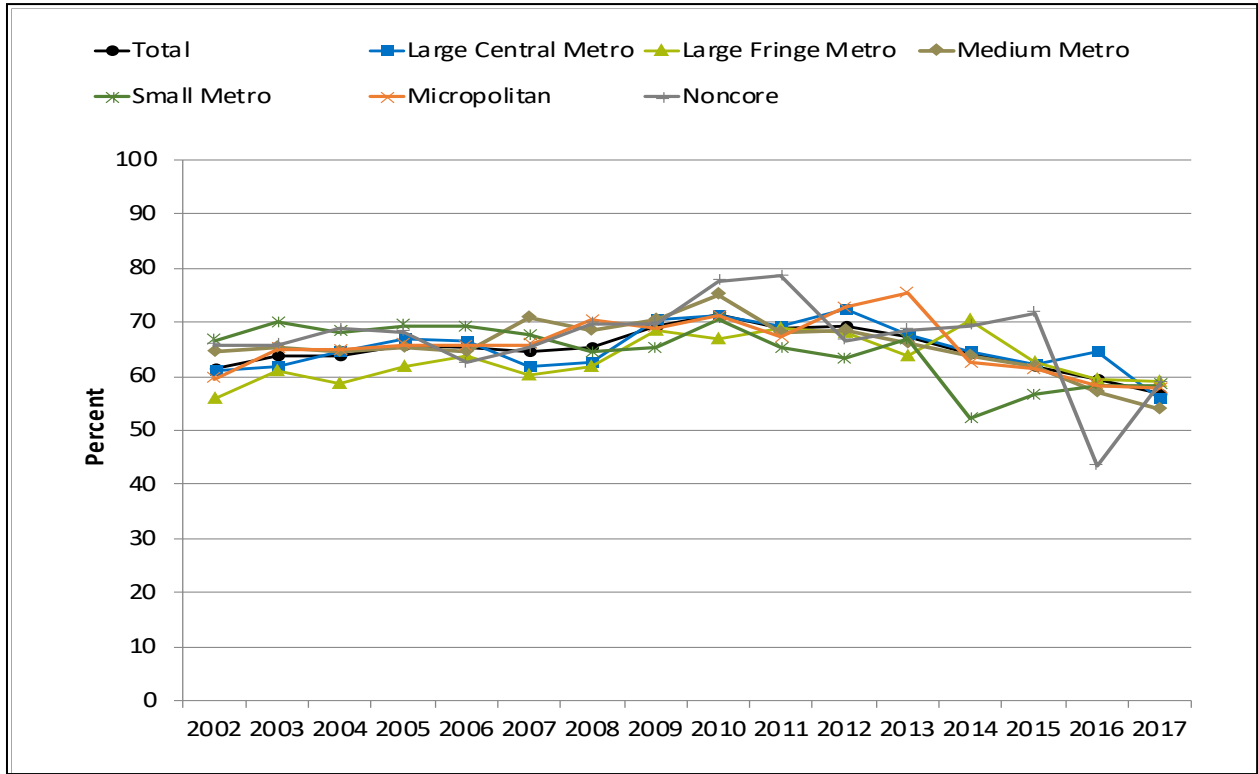
- **Importance:** One in five nursing home residents has persistent pain and although this estimate is greatly improved due to changes in policy and culture, many residents may be undertreated (Hunnicut, et al., 2017).D
- **Groups With Disparities in 2017:**
  - ◆ The percentage of long-stay nursing home residents with moderate to severe pain was higher in nonmetropolitan areas (8.2%), compared with metropolitan areas (5.6%).



## Affordability

### Delays in Care Due to Cost

People unable to get or delayed in getting needed medical care, dental care, or prescription medicines who cited cost as a factor, by residence location, 2002-2017



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2017.

**Denominator:** U.S. civilian noninstitutionalized population who were unable to get or delayed in getting needed medical care, dental care, or prescription medications.

**Note:** For this measure, lower rates are better.

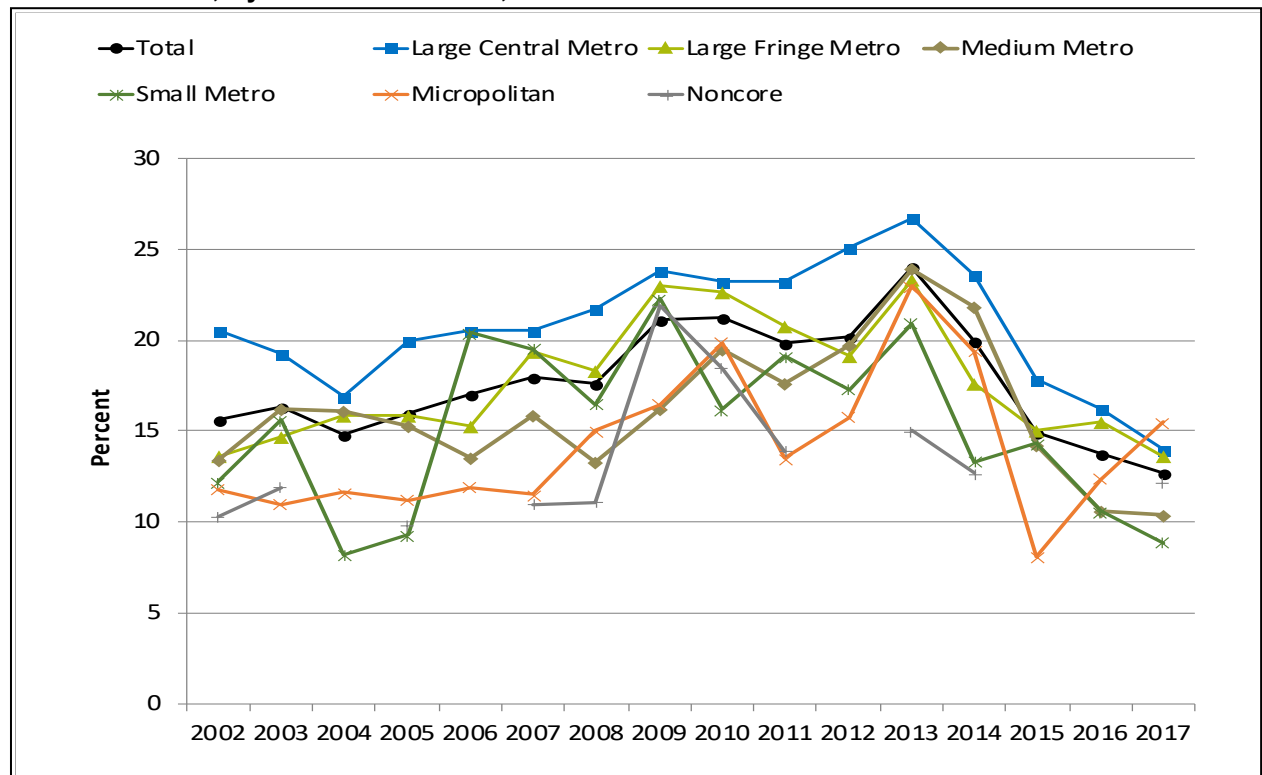
- **Importance:** Delay of care and nonadherence with treatment are associated with worse health outcomes and higher expenditures. Routine care avoidance can result in missed opportunities for management of chronic conditions, receipt of routine vaccinations, or early detection of new conditions, which might worsen outcomes (Czeisler, et al., 2020).
- **Overall Rate:** In 2017, the percentage of people unable to get or delayed in getting needed medical care, dental care, or prescription medicines who cited cost was 56.8%.
- **Trends:**
  - From 2002 to 2017, the percentage of people unable to get or delayed in getting needed medical care, dental care, or prescription medicines who cited cost decreased in small metropolitan areas .

- **Groups With Disparities in 2002:**

- The percentage of people unable to get or delayed in getting needed medical care, dental care, or prescription medicines who cited cost in small metropolitan areas (66.7%) was higher compared with people unable to get or delayed in getting needed medical care, dental care, or prescription medicines who cited cost in large fringe metropolitan areas (55.8%). This gap has been improving (narrowing) over time.

### Lack of Usual Source of Care for Financial or Insurance Reasons

People without a usual source of care who indicate a financial or insurance reason for not having a source of care, by residence location, 2002-2017



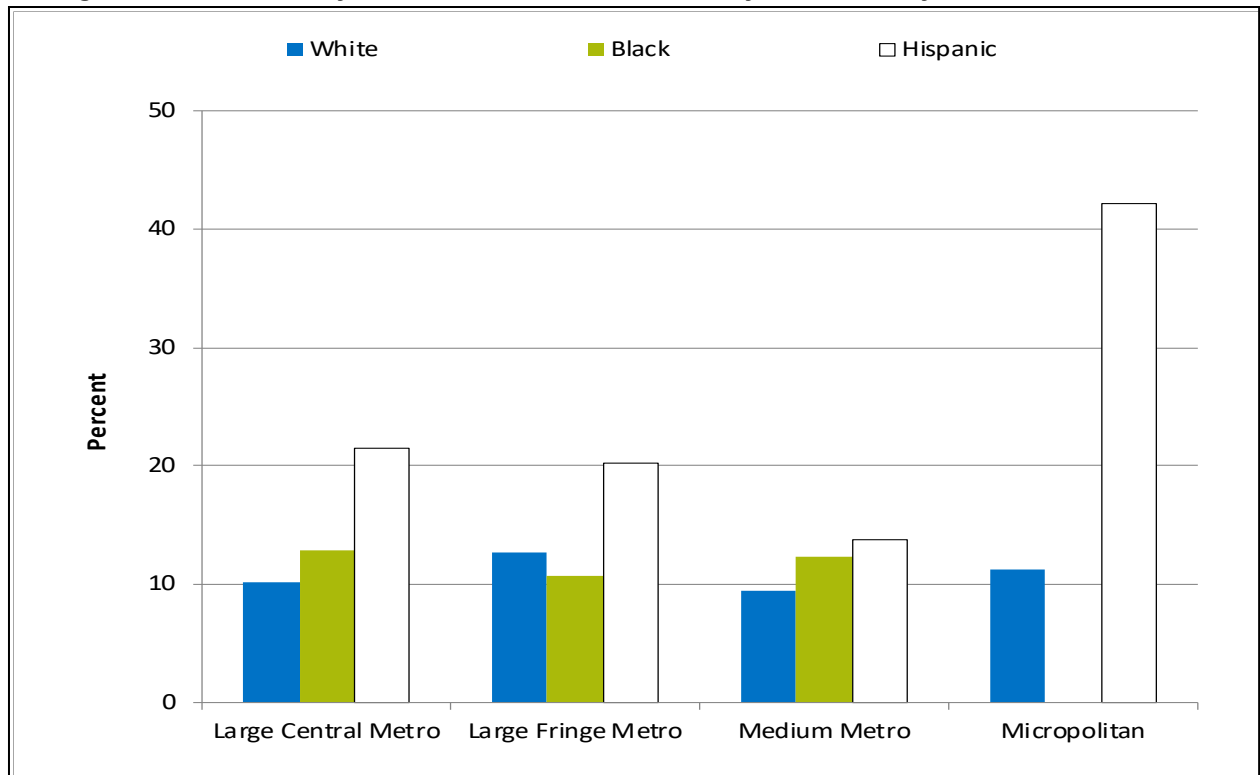
**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2017.

**Denominator:** U.S. civilian noninstitutionalized population who reported having no usual source of care.

**Note:** For this measure, lower rates are better.

- **Importance:** Having a usual source of healthcare has been consistently associated with greater use of preventive services, decreased use of emergency services, and patients’ ratings of quality and satisfaction with care (Finney Rutten, et al., 2015).
- **Overall Rate:** In 2017, the percentage of people without a usual source of care who indicated a financial or insurance reason for not having a source of care was 12.7%.
- **Groups With Disparities in 2017:**
  - In small metropolitan areas, the percentage of people without a usual source of care who indicated a financial or insurance reason for not having a source of care (8.9%) was lower compared with people in large fringe metropolitan areas (13.6%).

**People without a usual source of care who indicated a financial or insurance reason for not having a source of care, by residence location, stratified by race/ethnicity, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized population who reported having no usual source of care.

**Note:** For this measure, lower rates are better. White and Black are non-Hispanic. Hispanic includes all races. Data for micropolitan areas for Blacks are not included because they did not meet criteria for statistical reliability. Data for small metropolitan and noncore areas are not included because only the data for Whites met criteria for statistical reliability.

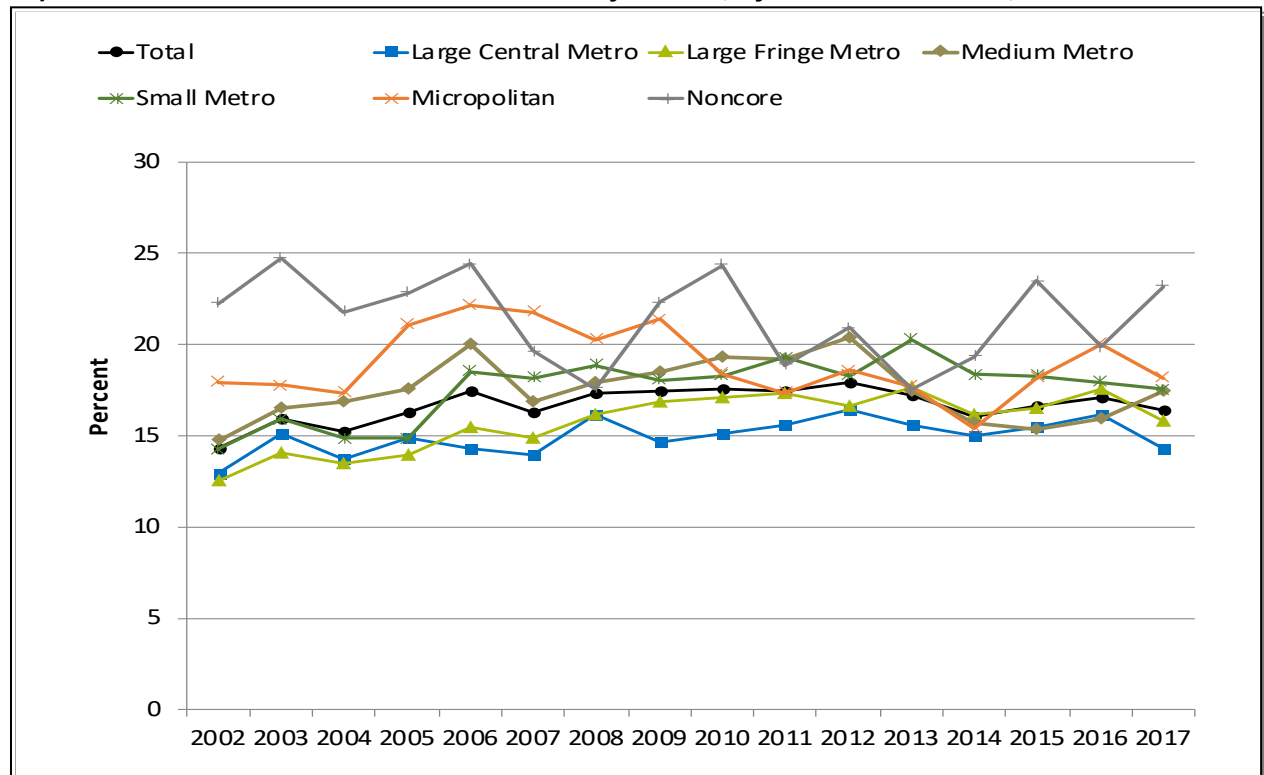
- **Importance:** Having a usual source of healthcare has been consistently associated with greater use of preventive services, decreased use of emergency services, and patients' ratings of quality and satisfaction with care (Finney Rutten, et al., 2015).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, the percentage of people without a usual source of care who indicated a financial or insurance reason for not having a source of care was higher for Hispanics (21.5%) than for Whites (10.1%).
    - ◆ In large fringe metropolitan areas, the percentage of people without a usual source of care who indicated a financial or insurance reason for not having a source of care was higher for Hispanics (20.3%) than for Whites (12.7%).
    - ◆ In micropolitan areas, the percentage of people without a usual source of care who indicated a financial or insurance reason for not having a source of care was higher for Hispanics (42.2%) than for Whites (11.3%).

■ **Disparities by Group:**

- ◆ Among Hispanics, the percentage of individuals without a usual source of care who indicated a financial or insurance reason for not having a source of care was higher in micropolitan areas (42.2%) compared with large fringe metropolitan areas (20.3%).

**High Health Insurance Premiums and Medical Expenses**

People under age 65 whose family’s health insurance premium and out-of-pocket medical expenditures were more than 10% of total family income, by residence location, 2002-2017



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2017.

**Denominator:** U.S. civilian noninstitutionalized population under age 65.

**Note:** For this measure, lower rates are better.

- **Importance:** High premiums and out-of-pocket payments can be a significant barrier to accessing needed medical treatment, resulting in higher comorbidity and lower quality of life (Henrikson, et al., 2017). In addition, the advent of high-deductible health plans is placing a financial burden on many people, especially those with chronic conditions (Reed, et al., 2012; Zimmerman, 2011).
- **Overall Rate:** In 2017, the percentage of people under age 65 whose family’s health insurance premium and out-of-pocket medical expenditures were more than 10% of total family income was 16.4%.

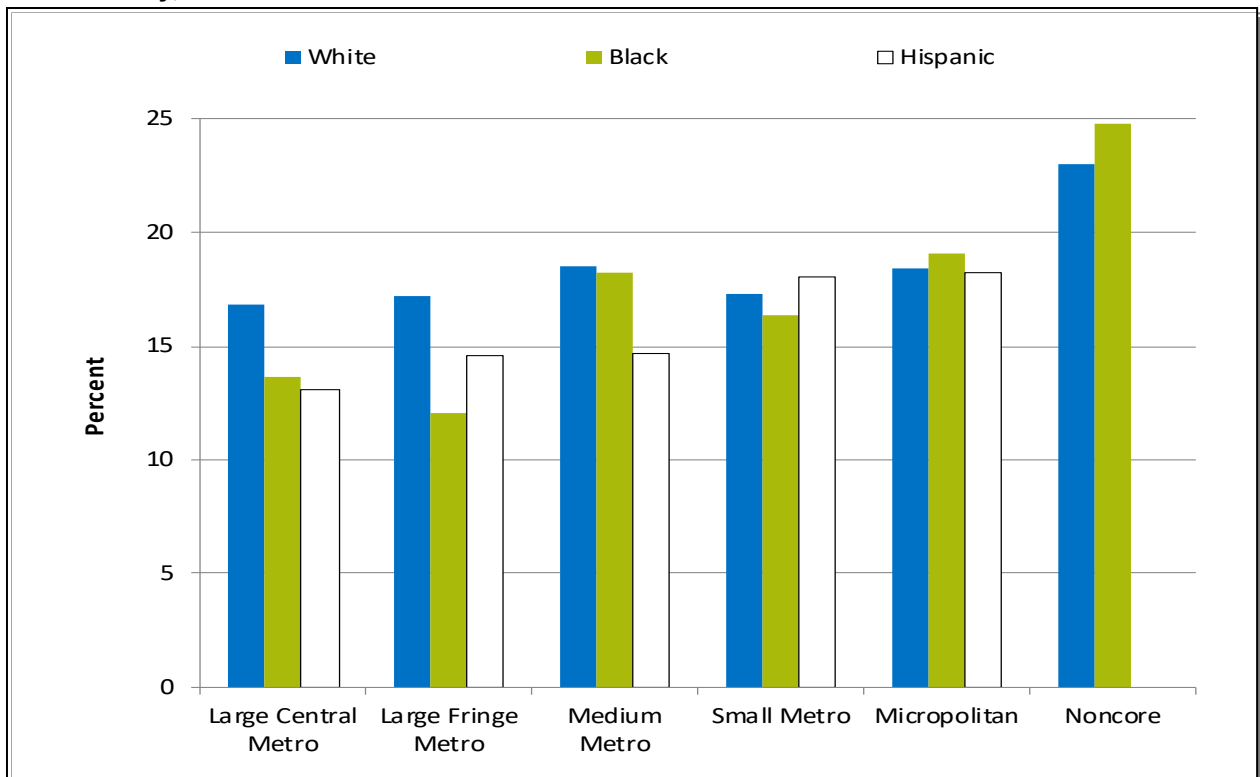
• **Trends:**

- From 2002 to 2017, the percentage of people under age 65 whose family’s health insurance premium and out-of-pocket medical expenditures were more than 10% of total family income increased in large fringe metropolitan areas.
- From 2002 to 2017, the percentage of people under age 65 whose family’s health insurance premium and out-of-pocket medical expenditures were more than 10% of total family income increased in small metropolitan areas.

• **Groups With Disparities in 2017:**

- In noncore areas, the percentage of people under age 65 whose family’s health insurance premium and out-of-pocket medical expenditures were more than 10% of total family income (23.2%) was higher compared with people residing in large fringe metropolitan areas (15.9%).

**People under age 65 whose family’s health insurance premium and out-of-pocket medical expenditures were more than 10% of total family income, by residence location, stratified by race/ethnicity, 2017**



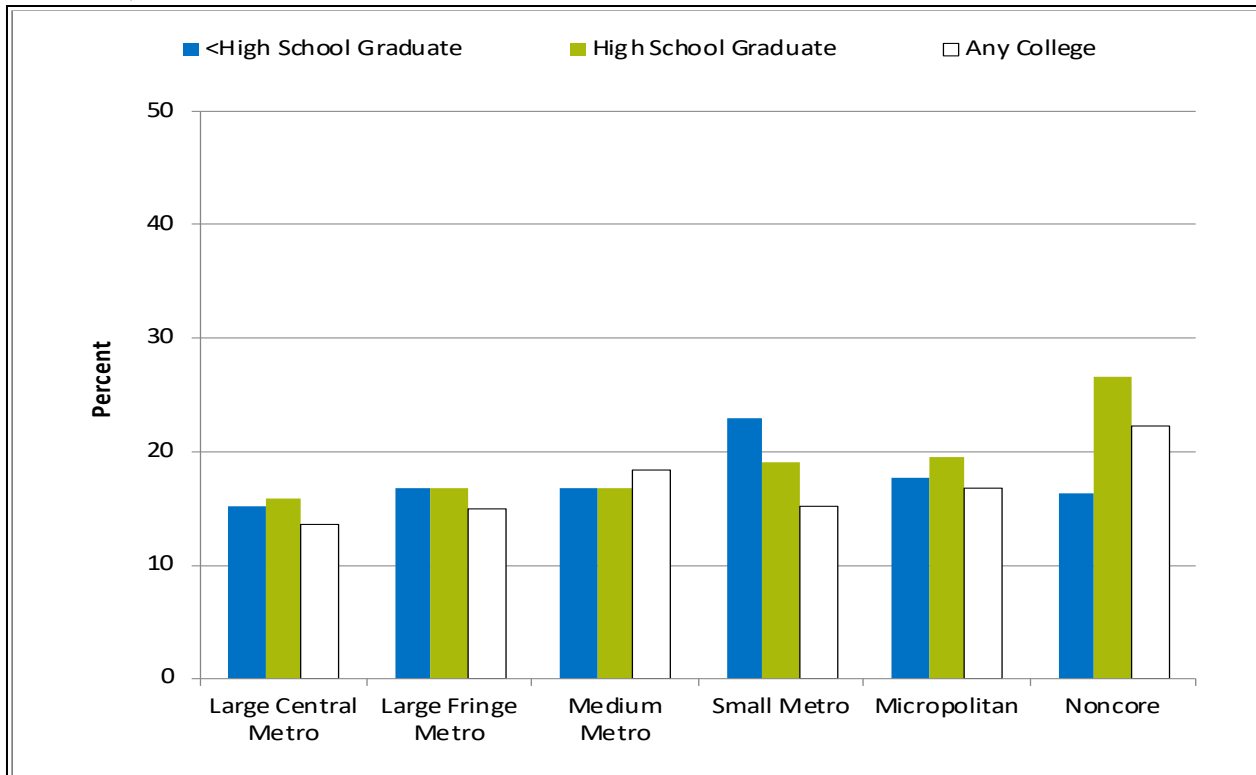
**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized population under age 65.

**Note:** For this measure, lower rates are better. White and Black are non-Hispanic. Hispanic includes all races. Data for Hispanics for noncore areas did not meet criteria for statistical reliability.

- **Importance:** High premiums and out-of-pocket payments can be a significant barrier to accessing needed medical treatment, resulting in higher comorbidity and lower quality of life (Henrikson, et al., 2017). In addition, the advent of high-deductible health plans is placing a financial burden on many people, especially those with chronic conditions (Reed, et al., 2012; Zimmerman, 2011).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In large central metropolitan areas, the percentage of people under age 65 whose family's health insurance premium and out-of-pocket medical expenditures were more than 10% of total family income was lower for Hispanics (13.1%) compared with Whites (16.8%).
    - ◆ In large fringe metropolitan areas, the percentage of people under age 65 whose family's health insurance premium and out-of-pocket medical expenditures were more than 10% of total family income was lower for Blacks (12.1%) compared with Whites (17.2%).
    - ◆ In medium metropolitan areas, the percentage of people under age 65 whose family's health insurance premium and out-of-pocket medical expenditures were more than 10% of total family income was lower for Hispanics (14.7%) compared with Whites (18.5%).
  - **Disparities by Group:**
    - ◆ Among Blacks, the percentage of people under age 65 whose family's health insurance premium and out-of-pocket medical expenditures were more than 10% of total family income was higher for those residing in medium metropolitan and noncore areas (18.2% and 24.8%, respectively) compared with those residing in large fringe metropolitan areas (12.1%).

**People under age 65 whose family's health insurance premium and out-of-pocket medical expenditures were more than 10% of total family income, by residence location, stratified by education, 2017**



**Source:** Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2017.

**Denominator:** U.S. civilian noninstitutionalized population under age 65.

**Note:** For this measure, lower rates are better.

- **Importance:** High premiums and out-of-pocket payments can be a significant barrier to accessing needed medical treatment, resulting in higher comorbidity and lower quality of life (Henrikson, et al., 2017). In addition, the advent of high-deductible health plans is placing a financial burden on many people, especially those with chronic conditions (Reed, et al., 2012; Zimmerman, 2011).
- **Groups With Disparities in 2017:**
  - **Disparities by Location:**
    - ◆ In small metropolitan areas, the percentage of people under age 65 whose family's health insurance premium and out-of-pocket medical expenditures were more than 10% of total family income was higher for people who had not graduated from high school (22.9%) compared with people with any college education (15.2%).

### ■ Disparities by Group:

- ◆ Among people with any college education, the percentage under age 65 whose family's health insurance premium and out-of-pocket medical expenditures were more than 10% of total family income was higher for those residing in medium metropolitan areas (18.4%) compared with those residing in large fringe metropolitan areas (14.9%).
- ◆ Among high school graduates, the percentage under age 65 whose family's health insurance premium and out-of-pocket medical expenditures were more than 10% of total family income was higher for those living in noncore areas (26.7%) compared with those residing in large fringe metropolitan areas (16.8%).

## Summary and Conclusion

Today, more than 60 million people live in rural America.<sup>vi</sup> Historically, rural communities have struggled with issues related to access to care, recruitment and retention of healthcare providers, and economic viability of small rural and critical access hospitals. Rural residents have higher rates of age-adjusted mortality (Gong, et al., 2019), chronic disease (SRHRC, 2020), and potentially excess deaths (Garcia, et al., 2019b) than their urban counterparts.

Disparities in life expectancy between rural and urban communities have continued (Moy, et al., 2017; Singh & Siahpush, 2014), and rural residents have a greater probability of severe maternal mortality and morbidity compared with urban residents (Kozhimannil, et al., 2019).

### Federal Resource for Rural Health

The Federal Office of Rural Health Policy (FORHP) was established in 1987 to serve as the focal point for rural health activities in the U.S. Department of Health and Human Services, with two distinct but complementary roles:

- Statutory charge to advise the HHS Secretary on rural health issues across the Department, including interactions with the Medicare and Medicaid programs, and to support policy-relevant research on rural health issues.
- Administration of grant programs focused on supporting and enhancing healthcare delivery in rural communities.

The Office of Rural Health Policy was established under section 711 of the Social Security Act, 42 U.S.C. § 912 ([https://www.ssa.gov/OP\\_Home/ssact/title07/0711.htm](https://www.ssa.gov/OP_Home/ssact/title07/0711.htm)). By locating both functions in the same office, FORHP is able to use its policy role to inform the development of grant programs and its grant role to provide community-level perspective when assessing the impact of HHS policy on rural areas.

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<sup>vi</sup> The rural population was calculated using 2010 census data and the Federal Office of Rural Health Policy definition of rural areas, <https://www.hrsa.gov/rural-health/about-us/definition/index.html>.



## **Conclusion**

The Chartbook on Rural Healthcare provides an indepth overview of the status of access and quality measures, as well as disparities and trends in these measures for rural populations. The chartbook is an important source of data on these issues for the Office of Rural Health Policy and informs the Office's work on behalf of rural Americans.

Future priorities to improve quality and disparities in the delivery of care in rural areas should include further efforts to collect and stratify data both by rurality and race/ethnicity. The priorities should also focus on areas where the 2021 chartbook revealed worsening access to care and disparities for rural residents.

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