

New Racial Disparities in Heart Attack and Stroke Hospitalizations Emerge During Pandemic

Fewer strokes and cardiac emergencies happened overall during the pandemic, but people of color saw less of a drop in hospitalizations during lockdown compared with White patients.

KEY FINDINGS:

- Overall, acute coronary syndrome and cerebrovascular incidents declined in the 17 months following the onset of the COVID-19 pandemic, with total encounters for acute stroke down 8.01% and total encounters for acute myocardial infarction down 9.07% versus pre-pandemic levels.
- Patient populations of color and White patients had similar declines in encounters for less severe cerebrovascular and cardiovascular incidents (transient ischemic attack and angina) during the pandemic.
- Significant, new racial disparities were observed in encounters for more severe health events during the pandemic. The rate of hospital admissions for acute myocardial infarction declined just 2.20% among patients of color, while that rate fell 11.47% among White patients in the 17 months following the onset of the pandemic. Similarly, the hospital admissions for acute stroke declined 3.30% among patients of color and 8.08% among White patients during the pandemic.

INTRODUCTION:

The onset of the COVID-19 pandemic and ensuing year-and-a-half of regional surges, variants, and near-constant concern over exposure risk has fundamentally disrupted healthcare. Routine screenings and early interventions **declined significantly**, as many people delayed or deferred care, more sedentary lifestyles led the **majority of the U.S. population** to experience undesired weight changes, and risk factors such as **alcohol and tobacco use** skyrocketed. The effects of this shift can be seen in sharp relief in data on heart attack and stroke, where **studies have now found** that deaths from ischemic heart disease and hypertensive diseases in the United States increased during the COVID-19 pandemic, while hospitalizations for heart attack and stroke declined.

Compounding this trend, the pandemic also put a spotlight on racial disparities in care, with people of color at **greater risk** of contracting and dying from COVID-19 and more likely to experience more frequent and **serious complications stemming from their chronic conditions** compared with White patients.

How have these twin trends of deferred care and racial inequity in healthcare manifested themselves in the healthcare experiences of heart attack and stroke patients during the pandemic?

In order to provide a more granular view of trends in cardiovascular care among members of different racial and ethnic groups during the pandemic, Komodo Health tracked inpatient hospital admissions for patients experiencing acute coronary syndrome and cerebrovascular disease during the 17-month period prior to the COVID-19 pandemic and the 17-month period following the onset of the pandemic. These results were then stratified by race to isolate variations in the healthcare experiences of patients representing different demographic groups.

The analysis finds that while overall hospital admissions for severe cardiovascular events (acute myocardial infarction and acute stroke) declined during the pandemic, they declined significantly less for patient populations of color (Asian, Black, Hispanic, North American Native, and Other) than they did for the White population.

METHODOLOGY:

This analysis used Komodo's Healthcare Map™, the industry's largest and most complete database of de-identified, real-world patient journeys in the United States, to evaluate the differential impact of the COVID-19 pandemic on White patients and patients of color in two acute therapeutic areas: acute coronary syndrome and cerebrovascular disease.

Encounters that took place in the 17 months following the onset of the pandemic, from March 1, 2020, to July 31, 2021, were compared to a pre-pandemic baseline of the 17 months prior to the pandemic, from October 1, 2018, to February 28, 2020.

All medical encounters and hospital admissions related to the cardiac emergencies were observed for variations in frequency by race. Data on the following racial and ethnic groups were used: Asian, Black, Hispanic, North American Native, White, and Other. Non-White patients were grouped to create an aggregate finding for patients of color. The change in encounter volume from the pre-pandemic baseline period to the pandemic period was analyzed among White patients and patients of color. To compare the results between White patients and patients of color over time, pre-pandemic monthly encounter volume was standardized to reflect the deviation from the average volume during the baseline period for the respective racial group.

There is a spectrum of severity in both acute coronary syndrome and cerebrovascular disease. Within these disease areas, this analysis attempted to examine whether disease severity impacted racial disparities by segmenting the findings by severity of disease. Among encounters for acute coronary syndrome, those for acute myocardial infarction and for less severe angina were identified. Among encounters for cerebrovascular disease, those for acute stroke and for less severe transient ischemic attack (TIA) were identified. In this analysis, heart attack terminology is used interchangeably with acute myocardial infarction.

RESULTS:

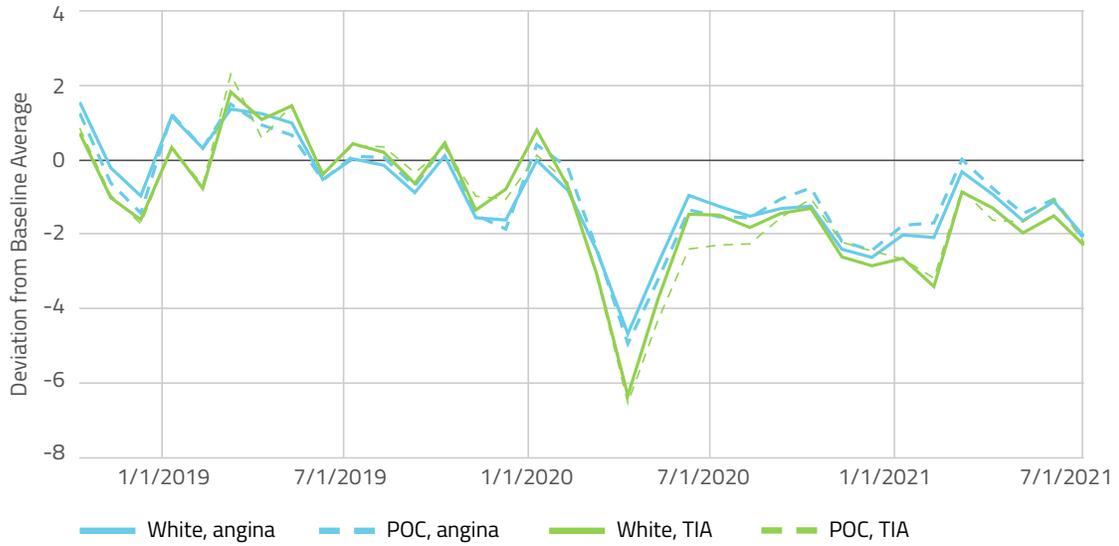
Overall Cerebrovascular and Cardiovascular Encounters Decline in Line With COVID-19 Trajectory

Across all demographic groups, the total number of healthcare encounters for cardiovascular disease, including physicians' office visits, emergency care, and hospital admission, declined in the 17 months following the onset of the COVID-19 pandemic, with total encounters for acute stroke down 8.01% and total encounters for acute myocardial infarction down 9.07% versus pre-pandemic levels.

As the charts below indicate, these declines were largely consistent across all demographic groups for less severe cerebrovascular and cardiovascular events, such as angina and TIA, and generally followed the trajectory of the COVID-19 pandemic, plummeting in March and April of 2020, climbing through the summer and autumn of 2020, and declining in the spring of 2021 as the Delta variant gained momentum in the United States.

Total encounters for angina fell 16.45% across all patient populations during the 17 months following the onset of the pandemic. That total was down 15.88% among patients of color and 16.75% among White patients. Similarly, total encounters for TIA fell 13.77% overall, 14.21% for patients of color, and 13.63% for White patients. When identifying trends in hospital admissions, declines were also consistently similar across all patient populations.

**OVERALL ENCOUNTERS FOR LESS SEVERE CARDIOVASCULAR AND CEREBROVASCULAR EVENTS:
ANGINA & TRANSIENT ISCHEMIC ATTACK**



**HOSPITAL ADMISSIONS FOR LESS SEVERE CARDIOVASCULAR AND CEREBROVASCULAR EVENTS:
ANGINA & TRANSIENT ISCHEMIC ATTACK**



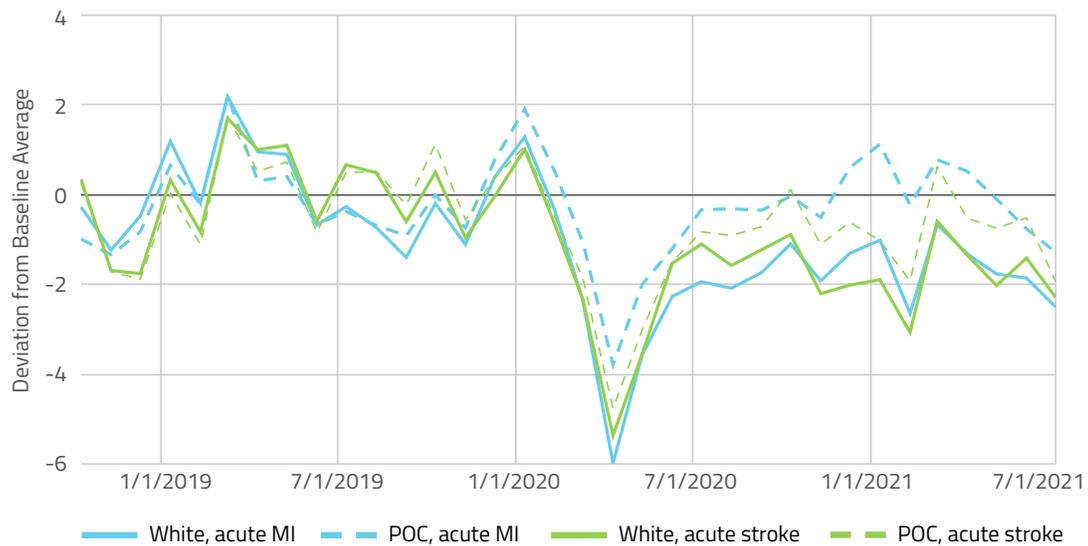
Significant, New Racial Disparities Observed in Encounters for More Severe Health Events

However, amid the pandemic, clear racial disparities were seen in encounters for more severe cardiovascular and cerebrovascular health events, such as acute myocardial infarction and acute stroke.

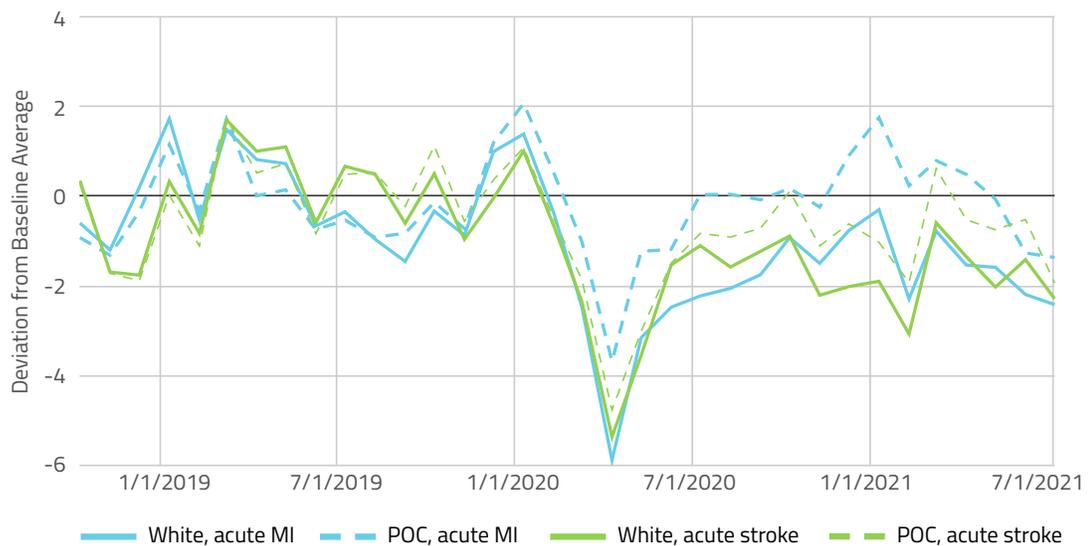
As the charts below indicate, White patients experienced a sharper decrease in incidents in the early months of the pandemic. Overall, people of color saw less of a drop in incidents and hospitalizations compared with White patients and rebounded to their pre-pandemic levels faster than White patients.

These trends are seen among overall encounters but are particularly evident within hospitalizations. White patients admitted to the hospital with an acute myocardial infarction declined 11.47% in the 17 months following the onset of the pandemic, while that rate fell just 2.20% for patients of color. Similarly, hospital admissions for acute stroke declined 8.08% among White patients, while that rate fell just 3.30% among patients of color.

**OVERALL ENCOUNTERS FOR SEVERE CARDIOVASCULAR AND CEREBROVASCULAR EVENTS:
ACUTE MYOCARDIAL INFARCTION & ACUTE STROKE**



**HOSPITAL ADMISSIONS FOR SEVERE CARDIOVASCULAR AND CEREBROVASCULAR EVENTS:
ACUTE MYOCARDIAL INFARCTION & ACUTE STROKE**



DISCUSSION:

This analysis highlights the effects of the COVID-19 pandemic on hospital utilization for cerebrovascular and cardiovascular incidents. These findings add to public health concerns and previous research showing that preventive as well as acute care was delayed or deferred during the pandemic.

For less severe manifestations of these diseases, angina and TIA, this analysis found similar decreases in utilization for both patients of color and White patients. This is unsurprising as all groups would have experienced similar impacts from state mandates and lockdowns, which limited access to all non-urgent medical services. At the same time, the decreased rate of care does not necessarily reflect a decreased incidence of disease, and varying factors may have contributed to drops in care for different demographic groups. For instance, according to a [2020 survey](#), fear of COVID exposure in medical facilities may have been higher among the Black and Hispanic populations, who also experienced higher rates of COVID-19 infection.

Utilization for higher-severity events declined more in the White population than in populations of color. This may reflect more severe complications of COVID-19 in populations of color and likely reflects more poorly controlled disease overall. These groups face more barriers of access to preventive treatment and primary care, which may lead to more complications and higher rates of severe disease that require hospitalization. These findings are in line with the large body of evidence that patients of color are disproportionately impacted in nearly all areas of health and healthcare. [Other research](#) has also shown that Black, Hispanic, and Asian populations experienced a disproportionate rise in deaths caused by cardiovascular and cerebrovascular disease during the pandemic.

LIMITATIONS:

This analysis was based on insurance data, which underrepresents uninsured populations. Given the uneven access to insurance coverage across racial categories, the rate of hospitalizations were normalized. This was done by dividing the number of cases per month by the average number of cases for each population in the pre-pandemic period.

Future directions for analysis should examine the factors that contribute to these disparities in outcomes such as barriers to access, disease-related prehospital death, and differences in incidence and severity of COVID-19.

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About Komodo Health

Komodo Health builds groundbreaking software solutions powered by our Healthcare Map™ – the industry's largest and most comprehensive view of real-world, patient journey data. Komodo's next-generation analytics make it easy to unlock meaningful insights and create more cost-effective, value-driven solutions that improve patient outcomes. In our mission to reduce the global burden of disease, we help healthcare and Life Sciences enterprises answer healthcare's most complex questions.