

TRENDS IN OPIOID-RELATED HOSPITAL DISCHARGES IN MASSACHUSETTS

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INTRODUCTION

As of 2017, Massachusetts had the highest rate of emergency department (ED) visits and second highest for inpatient stays.¹ While Massachusetts continues to experience high rates of opioid-related injury and death, recent evidence suggests that the impact of the opioid epidemic was moderating prior to COVID-19. According to data released by the Massachusetts Department of Public Health (DPH), the opioid-related overdose death rate in Massachusetts declined from 2016 to 2019, falling an estimated eight percent. Likewise, prior work by the Massachusetts Health Policy Commission (HPC) on opioid-related hospitalizations have seen a moderating trend.² Despite this state-level trend, this prior work revealed that not all residents were experiencing these declines. Older residents, residents of low-income communities, and patients who report being of Black descent experienced slight increases in opioid-related hospitalizations.

OBJECTIVES

Even though the trend appears to be moderating overall for the state, this research aims to understand trends in opioid-related hospital use for specific population sub-groups. The HPC aims to characterize trends in the type of opioid-related hospitalizations (ED visits, inpatient stays), if an opioid-related diagnosis was the primary reason for the discharge, and if these reductions are seen equally across populations in the Commonwealth. The HPC examined changes by age, race/ethnicity, and community-income level.

STUDY DESIGN

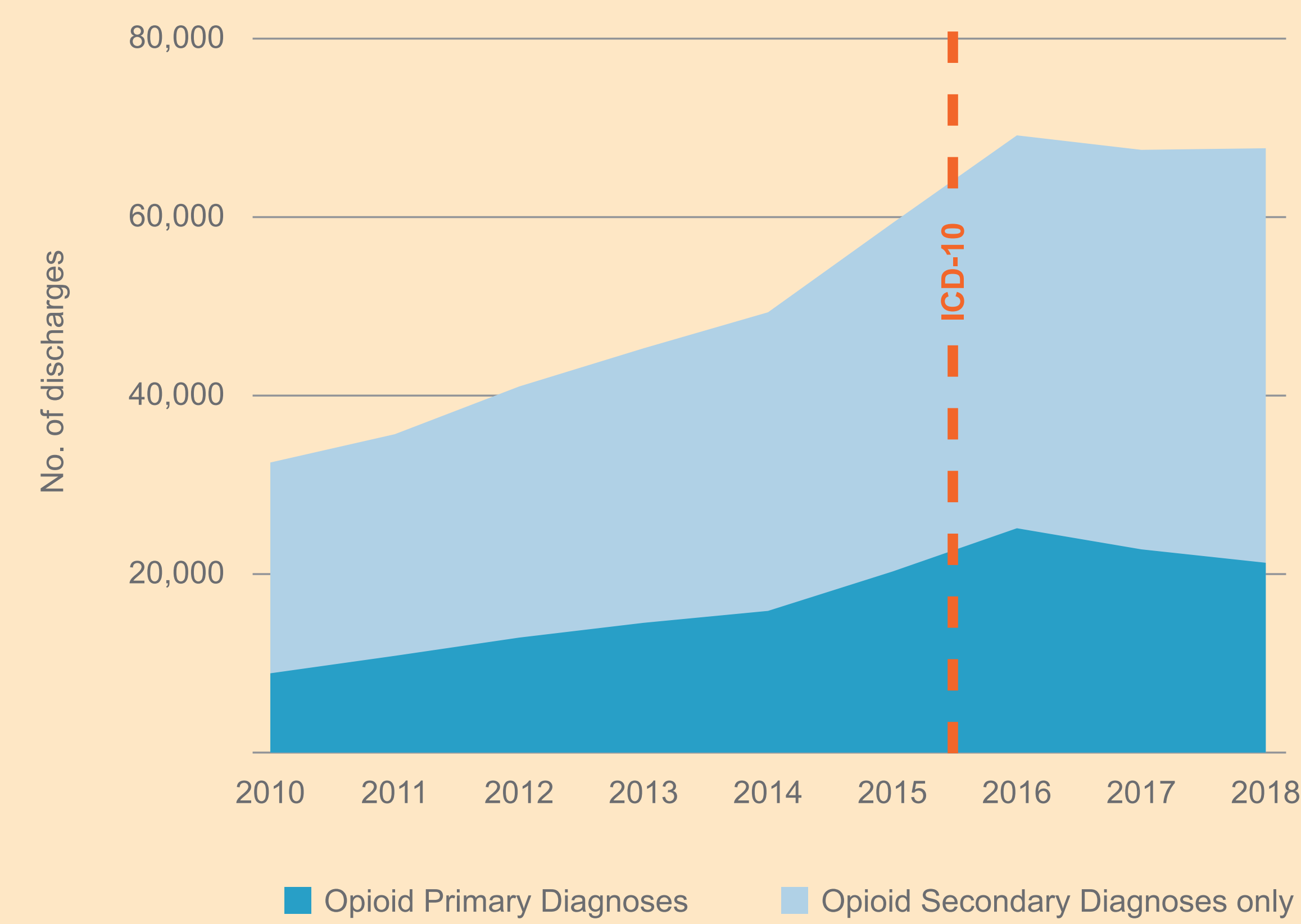
The current study examines opioid-related discharges using the Massachusetts Center for Health Information and Analysis' (CHIA) Hospital Inpatient and Emergency Department Discharge Databases. This data set captures all acute-hospital and ED discharges in the Commonwealth. This study examines discharges from October 2010 through September 2018 (fiscal year 2010-2018), looking at the role of secondary as well as primary opioid diagnoses for ED discharges and inpatient discharges. This work also examines whether any decreases in opioid-related discharges occur equally across community level income and patient race/ethnicity.

Opioid-related discharges were identified using ICD-9 and ICD-10 diagnosis codes designated by the Agency for Healthcare Research and Quality, United States Department of Health and Human Services. Discharges with opioid-related diagnosis codes, primary or secondary, were included in this analysis. All discharges from acute care hospitals and EDs were included regardless of discharge status (including patients who died).

For race/ethnicity and income-level analyses, the HPC used 2018 American Community Survey 5-year estimates for average community income by zip code tabulation area (ZCTA), population by race/ethnicity, and population by ZCTA. For income-level work, the ZCTAs were divided into 4 income quartiles based on population, which were then linked to the patient ZCTA. For race/ethnicity analysis, all patients were identified based on hospital-reported race/ethnicity. For both community-income and race/ethnicity analysis, only Massachusetts residents were included in the study.

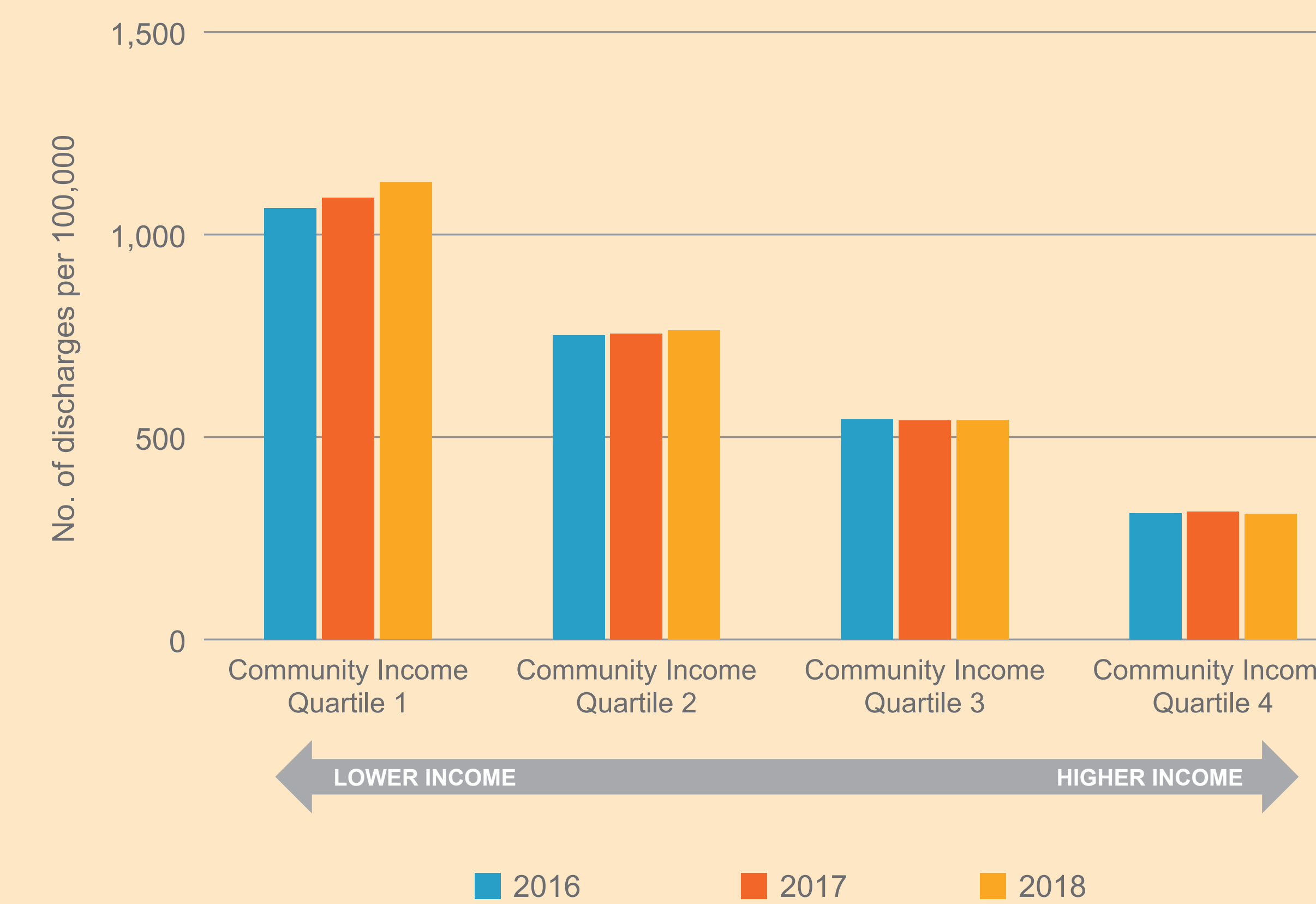
RESULTS

After several consecutive years of double-digit increases, the statewide rate of opioid-related hospital utilization in Massachusetts decreased slightly (2.1%) between fiscal year 2016 and 2018. However, trends differed by hospital setting. Opioid-related ED volume decreased from 2016 to 2018 (8%), while inpatient discharges increased 5% over this time (not shown). The increase in opioid-related inpatient discharges was largely due to secondary opioid diagnoses; of these, 18% had a primary diagnosis that was behavioral-health related. Examining these hospitalizations by age, the largest decline occurred for patients 20 to 24 years old (40% decrease), while the largest increase was in adults 65-74 (18%).



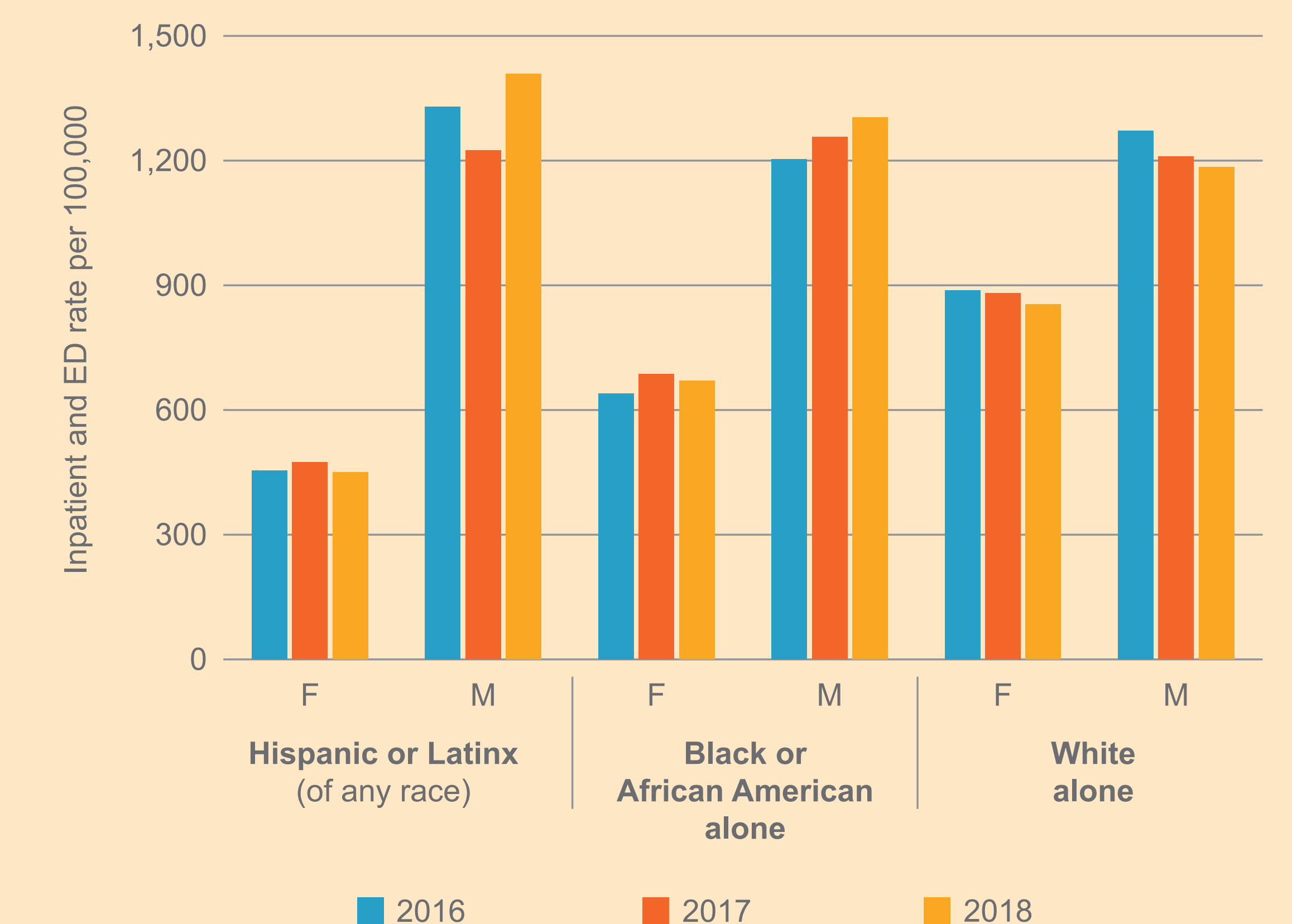
Note: Dates are based on the federal fiscal year, which runs from October 1 to September 30. Some discontinuity in trends may exist between 2015 and 2016 due to the transition from ICD-9 diagnosis codes to ICD-10 diagnosis codes on October 1, 2015. From 2011 to 2014, the CHIA databases included only the patient's first 15 diagnosis codes. However, as of 2015 all of a patient's diagnosis codes are included.

While the state-wide rate showed a slight decline over this period, residents in the lowest income quartile in the state saw a slight increase from 2016 to 2018 (2.9%) while the remaining income quartiles saw a decrease. Despite accounting for only 25% of the population, the lowest income quartile accounted for 41% of all opioid discharges in 2018. Those living in the highest income quartile in the state accounted for 11% of all opioid-related discharges. Over 50% of all opioid-related hospitalizations had the primary payer listed as Medicaid.



Note: Income quartiles were calculated from 2018 median income by ZCTA and are based on the median income of a patient's residential community, rather than the patient's actual income. Only Massachusetts residents were included in this analysis.

From 2016-2018, patients of Black and Hispanic descent experienced increases (7% and 3%) while patients of White descent saw a decrease (6%). These rates further varied by sex. Black/African American men (8.4%) and Hispanic men (6%) saw the greatest increases in opioid-related discharges between 2016 and 2018 while they decreased 6.8% for White men. Among women, the rate of opioid-related hospitalization increased for Black women (4.7%) while the rates for Hispanic women and White women decreased (0.8% and 3.8%, respectively).



Note: U.S. Census data used for the calculation of the rate included only people with single race. The census estimates of multi-racial populations are not included in the rate calculation. Racial data from the Hospital Inpatient Discharge Database may classify people with two or more races differently than the census data does, so rates per 100,000 should be interpreted with caution. Each year's rate is calculated in the same manner, so the rates can be compared over time. The analysis does not include racial classifications of Asian or Other, as each had low numbers and together comprised 1.5% of opioid-related discharges. Racial data was missing from 1.6% of opioid-related discharges.

CONCLUSION

These findings indicate some progress in stabilizing the statewide rate of opioid-related hospital use, but significant challenges endure for many patients and communities. The increase in opioid-related secondary diagnoses may be a positive indication that more patients are being recognized and can be referred to opioid treatment; however, some recent literature has found miscoding of opioid-related secondary diagnoses. Importantly, this data indicates that there are widening disparities by race/ethnicity and sex as well as by community-income level. Indeed, there are indications that disparities that were widening in 2018 have greatly expanded during 2020, in part due to the COVID-19 pandemic.

The COVID-19 pandemic disproportionately impacted lower income communities and communities of color. The Massachusetts DPH released its preliminary 2020 opioid overdose death report showing that after 4 years of declines, the estimated number of opioid-overdose deaths increased to 2016 levels (up 5% from 2019).³ The report also showed that the greatest increase in opioid-related deaths from 2019 to 2020 were among Black men (69%) while these deaths among White men declined 6%. Regardless of the direction in state-wide trends in opioid-related hospitalizations, it is essential to use the data to understand if all populations are equally impacted, or if health disparities continue to worsen.

POLICY IMPLICATIONS

More targeted work is needed to meet the needs of all residents, including access to treatment – particularly medication for opioid use disorder with proven efficacy. The impacts of the COVID-19 pandemic have increased opioid-related injuries and deaths, especially among populations that are heavily impacted by COVID-19, including Black and Hispanic patients, increasing the urgency to address the opioid epidemic in these populations. Furthermore, limiting examination of trends in opioid-related hospitalizations to the overall population will not allow for targeted intervention to the groups with highest need, in this case people in lower income communities and people of Black and Hispanic descent.

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1. HCUP Fast Stats. Healthcare Cost and Utilization Project (HCUP). October 2018. Agency for Healthcare Research and Quality, Rockville, MD. <https://www.hcup-us.ahrq.gov/faststats/OpioidUseServlet?setting1=IP#export>
2. Massachusetts Health Policy Commission, "Opioid-Related Acute Hospital Utilization in Massachusetts". June 2019. Available at: <https://www.mass.gov/doc/opioid-related-acute-hospital-utilization-in-massachusetts-chartpack/download>
3. Massachusetts Department of Public Health, Current Opioid Statistics Updated data – As of May 2021. Available at: <https://www.mass.gov/lists/current-opioid-statistics#updated-data-%E2%80%93-as-of-may-2021>