

# RESEARCH BRIEF

CHIA.

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## Black and Hispanic Residents Report Higher Likelihood of Potential Reliance on the Emergency Department for Health Care than White Residents in the Commonwealth

Findings from the Massachusetts Health Insurance Survey 2015-2019

### Summary

**Issue:** Racial/ethnic minorities, as well as persons of lower socioeconomic status (SES) and/or persons who are uninsured or dependent on public insurance have been found to have greater likelihood of preventable emergency department (ED) use. Factors such as health insurance type, underinsurance, and inconsistent access to a usual source of health care among these subpopulations have similarly been associated with higher reliance on the ED for health care.

**Objective:** The current study investigates the association between race/ethnicity, among other factors and the potential reliance on the ED for health care, in the Commonwealth of Massachusetts.

**Study Design:** The Massachusetts Health Insurance Survey (MHIS) is a statewide, population-based biennial survey of the non-institutionalized population. The current study analyzes MHIS data pooled from three biennial waves (2015, 2017, and 2019), with a combined sample of 14,876 residents.

Using multivariable logistic regression, the current study assesses the association between race/ethnicity and potential reliance on the ED, defined as using the ED for non-emergency conditions at their most recent visit or having three or more ED visits in the past 12 months. These analyses account for key demographic and socioeconomic characteristics, health status, health insurance coverage and health care access experiences over the past 12 months.

**Key Findings:** Compared to White residents, Black and Hispanic residents were 60% to 110% more likely to demonstrate a potential reliance on the ED, respectively, after accounting for individual-level demographic characteristics, health status and activity limitations, health insurance coverage, and health care access experiences, as well as family-level socioeconomic status over the past 12 months. Additionally, residents who are children, female, or have family income below 139% of the federal poverty level (FPL) or family educational attainment of less than a high school diploma were more likely to have a potential reliance on the ED. Moreover, residents in fair or poor health and/or with an activity limitation, residents using Medicare or other public insurance, as well as residents reporting that they were unable to get an appointment as soon as needed all had greater likelihoods of potential reliance on the ED.

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## Introduction

Frequent utilization of the emergency department (ED) for non-emergent conditions strained the health care system, impacting both hospitals and patients even prior to the COVID-19 pandemic.<sup>1</sup> Emergency department crowding has been associated with increased patient morbidity and mortality, prolonged wait times, medical errors, staff burnout, and excessive costs for the patient and health care system.<sup>2</sup> Notably, certain subpopulations such as racial/ethnic minorities, Medicare and Medicaid enrollees, and patients without insurance or a usual source of health care have been found to utilize the ED more than others, particularly for potentially preventable visits. There are lower cost health care settings where residents could receive the appropriate necessary care more efficiently than the ED. Hence, such visits to the ED may be preventable, given the appropriate alternative means for receiving care.<sup>3,4,5</sup>

While Massachusetts has made significant strides to mitigate barriers to accessing and affording care through both the Commonwealth's 2006 health care reforms and the ACA, substantial disparities persist among specific subpopulations.<sup>6</sup> For example, one study found that Massachusetts residents who were under 18 years of age, Black, and/or enrolled in Medicare had the highest likelihood of ED visits for preventable conditions.<sup>7</sup> In addition, prior analyses of the Massachusetts Health Insurance Survey (MHIS) data identified significant differences across subpopulations in potential reliance on the emergency department for care, defined as using the ED for non-emergency conditions at their most recent visit or having three or more visits to the ED in the 12 months preceding the survey.<sup>8</sup> Specifically, compared to White residents, Black and Hispanic residents reported significantly higher rates of potential reliance on the ED, consistent with prior research.

This research brief further investigates the association between race/ethnicity and potential reliance on the ED using multivariable logistic regression. This allows us to account for demographic and socioeconomic characteristics, health status, insurance coverage, and health care access experiences in the past 12 months that may contribute to the disparate utilization of the ED by racial/ethnic minority residents in Massachusetts. The measures included in these analyses represent factors previously found to be associated with frequent utilization of the ED and ED use for non-emergency visits.<sup>9,10</sup>

This research brief is part of a compendium of reports and briefs focused on health care equity in the Commonwealth. Understanding the factors associated with potential reliance on the ED, particularly for historically marginalized populations, may help inform policies aimed at enhancing access to non-emergency health services, mitigate unmet health care needs, and reduce potential reliance on the ED. Although the data collected in these analyses precede the start of the COVID-19 pandemic, these findings may help to inform policies aimed at reducing existing inequities and strengthen the Commonwealth's health care system as the pandemic evolves.

### **Data Source and Measures**

The current study uses the MHIS, a statewide, population-based survey of non-institutionalized residents of the Commonwealth. The survey, conducted biennially, aims to quantify rates of health insurance or uninsurance in the state and capture aspects of health care access, utilization, and affordability among residents and their families. Analyses in this report use combined MHIS data across three biennial waves (2015-2019) to provide reliable estimates for population subgroups. Measure definitions are shown in Table 1.

### **Modeling**

Bivariate and multi-variable logistic regression models were run. First, bivariate analyses of the association between race/ethnicity with potential ED reliance were conducted, and the rates of potential reliance on the ED for each racial/ethnic group were estimated (Figure 2). Next, demographic characteristics, self-reported health status and activity limitations, health insurance type, and health care access experiences over the past 12 months were added as covariates in the model.

**Table 1: Measure Definitions**

**OUTCOME MEASURE**

Potential Reliance on the ED: Residents reported using the emergency department (ED) for non-emergency condition(s) at their most recent visit (i.e., a regular doctor could have treated condition if one had been available) or had three or more visits to the ED in the past 12 months preceding the survey.

**COVARIATES**

**Demographic and Socioeconomic Factors**

*Race*

- Non-Hispanic Black (referred to as “Black”)
- Non-Hispanic White (referred to as “White”)
- Non-Hispanic Other/Multiple Races (referred to as “Other/multiple races”)
- Hispanic (includes residents identifying as Hispanic or Latino/Latina)

*Age*

- Children (18 years and under)
- Non-Elderly Adults (19-64 years)
- Elderly Adults (65+ years)

*Gender*

- Male
- Female

*Highest Level of Educational Attainment in the Family*

- Less than High School
- High School Graduate or GED
- Some College
- 4 Year College Degree or More

*Family Income*

- Below 139% of the Federal Poverty Level (FPL)
- From 139% to less than 300% of the FPL
- From 300% to less than 400% of the FPL
- At or above 400% of the FPL

**Health Status and Activity Limitations**

**Health Status:** Residents were asked to describe their health status at the time of the survey, including whether they are limited in any way in their activities due to physical, mental, or emotional problem:

- Fair or poor health and an activity limitation
- Fair or poor health or an activity limitation
- Good or excellent health and no activity limitation

## Health Insurance Coverage

**Insurance Type:** Residents were asked whether they had health insurance coverage at the time of the survey, and if so, what type. Responses were categorized as follows:

- Employer Sponsored Insurance (ESI)
- Medicare
- Other Private Insurance
- Other Public Insurance (e.g., Medicaid)
- Other Unspecified Coverage
- Uninsured

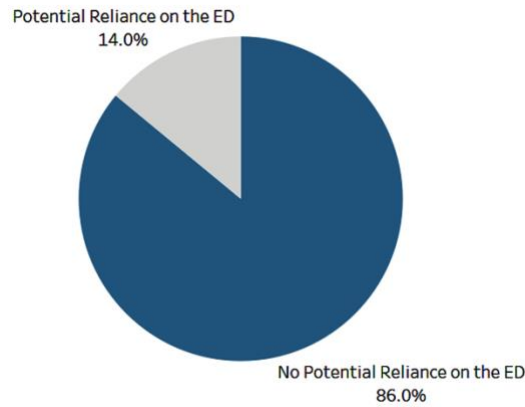
## Health Care Access Experiences Over the Past 12 Months

- **Told Doctor's Office or Clinic Was Not Accepting New Patients:** Over the past 12 months, residents were told doctor's office or clinic was not accepting new patients.
- **Uninsured or Told Doctor's Office or Clinic Did Not Accept Health Insurance Plan:** Over the past 12 months, residents were uninsured at any time or were told by a doctor's office or clinic that their insurance was not being accepted.
- **Unable to Get an Appointment at a Doctor's Office or Clinic as Soon as Needed:** Over the past 12 months, residents were unable to get an appointment at a doctor's office or clinic as soon as they thought one was needed.
- **Usual Source of Health Care:** Residents were asked whether there is a place where they usually go when they are sick or when they need advice about their health other than the ED.

# What share of Massachusetts residents demonstrated potential reliance on the ED?

Fourteen percent of Massachusetts residents demonstrated potential reliance on the ED, representing nearly one million residents (Figure 1).

**Figure 1. Percentage of Massachusetts residents reporting potential reliance on the ED, 2015-2019**

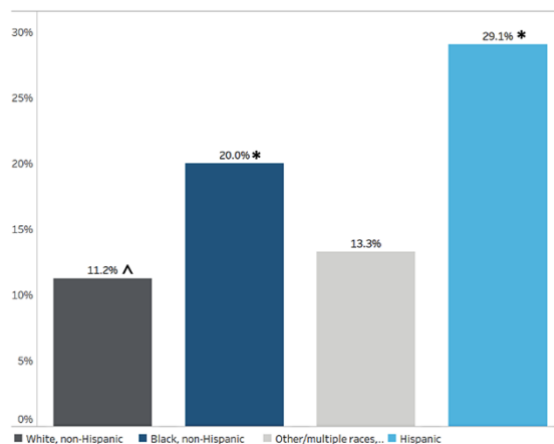


Note: All rates refer to the 12 months preceding survey completion (2015-2019).

## Racial/Ethnic Differences

There were significant differences among residents who reported potential reliance on the ED by race/ethnicity. Compared to White residents (11.2%), Black residents were nearly two times as likely and Hispanic residents were nearly three times as likely to demonstrate a potential reliance on the ED (20.0% and 29.1%, respectively) (Figure 2).

**Figure 2. Percentage of Massachusetts residents reporting potential reliance on the ED by race/ethnicity, 2015-2019**



Notes: ^Reference group = White, non-Hispanic. All rates refer to the 12 months preceding survey completion (2015-2019).

\*Rate is significantly different than the reference category at the p <0.05 level

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## Are demographic characteristics, health status, insurance coverage, and/or recent health care access experiences associated with potential reliance on the ED?

To further assess the association between potential reliance on the ED and race/ethnicity, these analyses evaluate the association between potential ED reliance and demographic and socioeconomic characteristics, health status, health insurance coverage, and health care access experiences in the past 12 months. Understanding these associations is a preliminary step in understanding the individual and structural conditions associated with potential ED reliance.

### Demographic and Socioeconomic Characteristics

#### Residents of Black or Hispanic descent have higher odds relying on the ED after adjusting for other factors

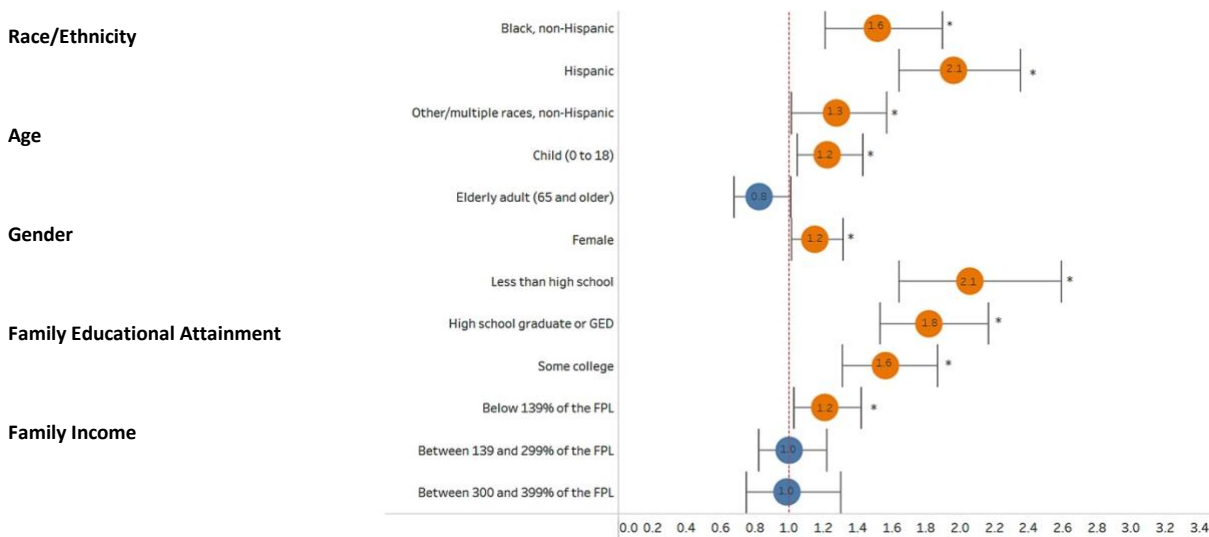
Results shown in figures 3 through 6 reflect the odds ratios (OR) of having a potential reliance on the ED after adjustment for all the covariates included in the final model.<sup>i</sup> As illustrated in Figure 3, compared with White residents, Black residents were 60% more likely (OR = 1.6) and Hispanic residents were 110% more (OR = 2.1) likely to demonstrate a potential reliance on the ED, respectively, after accounting for all other factors. Although these racial/ethnic gaps were slightly lower than in the unadjusted analyses (Figure 2), the association between race/ethnicity and potential ED reliance persisted after controlling for a multitude of potential confounding factors.

In addition to race/ethnicity, potential ED reliance was also associated with age, gender, family education, and family income. Children (0 to 18 years) were 22% more likely to have a potential ED reliance compared to non-elderly adults. Female residents were 15% more likely to have a potential ED reliance compared to males, and those who have a family income below 139% of the FPL were 21% more likely to have a potential ED reliance compared with residents with a family income at or above 400% of the FPL. Family educational attainment was highly correlated with potential reliance on the ED. Notably, residents in families with an educational attainment of less than a high school diploma were at least twice as likely to demonstrate a potential ED reliance, compared with residents in families with a four-year degree or more.

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<sup>i</sup> An odds ratio quantifies the association between each exposure variable and the outcome. It represents the likelihood that an outcome will occur given the presence of a particular exposure (predictor variable), compared to the likelihood of occurring in the absence of that exposure.

**Figure 3. Odds ratios of potential reliance on the ED after adjusting for demographic and socioeconomic characteristics**



Note: \*Measure is significantly different than the reference category at the  $p < 0.05$  level.

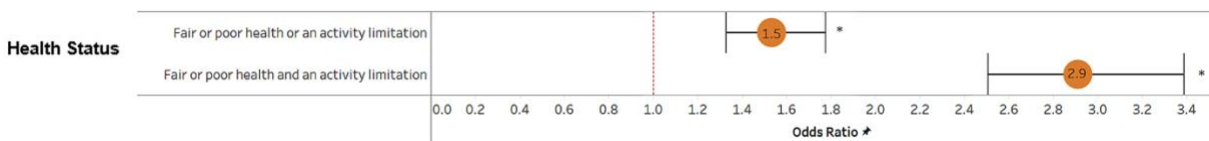
Reference categories are as follows: Race/Ethnicity = White; Age = Non-elderly adult (19 to 64); Gender = Male; Highest Level of Educational Attainment = 4-year college degree or more; Family Income = 400% of the FPL or more.

### Health Status and Activity Limitations

#### Residents with activity limitations or in fair or poor health have higher odds of relying on the ED

In addition to demographic characteristics, health status and activity limitations were also associated with potential ED reliance (Figure 4). Specifically, residents who reported being in fair or poor health or having an activity limitation were more than 50% more likely to have a potential ED reliance compared with residents who reported being in good or excellent health with no activity limitation. Residents who reported both having an activity limitation and being in fair or poor health were 190% more likely to demonstrate a potential reliance on the ED compared with residents in good or excellent health without any activity limitation, the highest odds ratio across all measures. These gaps may reflect a greater actual need for more frequent ED services and/or decreased access to preventive medical care or lack of access to same-day/after-hours appointments among certain residents (e.g., those with chronic conditions), as both scenarios may contribute to potential ED reliance.<sup>11</sup>

**Figure 4. Odds ratios of potential reliance on the ED after adjusting for health status**



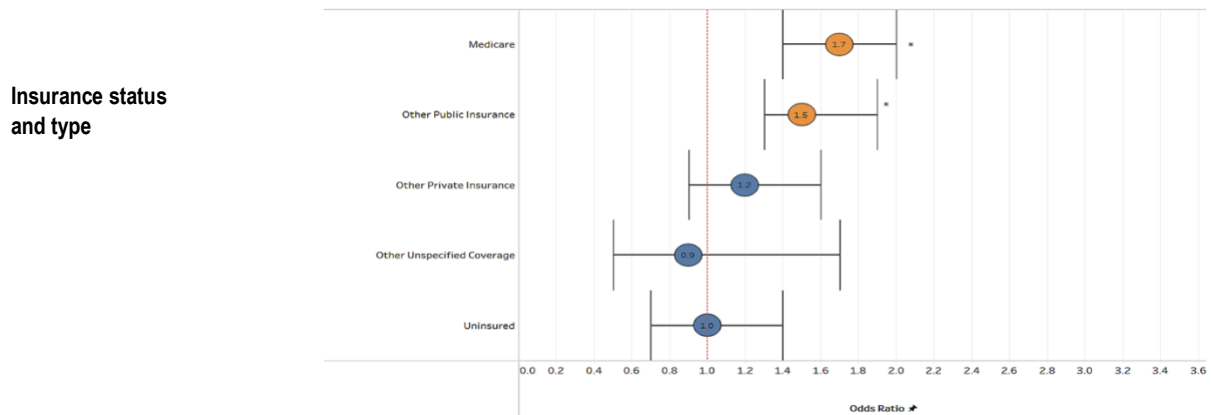
Notes: Fair or poor health includes residents who report that they were limited in their activities because of a “physical, mental, or emotional problem.”

\* Measure is significantly different than the reference category (Good or excellent health and no activity limitation) at the  $p < 0.05$  level.

## Health Insurance Coverage

Residents enrolled in public insurance programs were more likely to demonstrate a potential reliance on the ED for care. Health insurance status and type were associated with potential reliance on the ED. Specifically, residents enrolled in Medicare were 70% more likely, and those with other public insurance were 50% more likely to demonstrate a potential reliance on the ED compared with residents with employer-sponsored insurance (ESI) (Figure 5). Additionally, higher likelihood of potential ED reliance among residents enrolled in Medicare or other public insurance may reflect greater actual need for emergency care for serious conditions and/or more limited options for preventive care when using public insurance, although research on this association is mixed.<sup>12,13</sup> Uninsurance was not associated with potential reliance on the ED.

Figure 5. Odds ratios of potential reliance on the ED after adjusting for health insurance coverage



Note: \* Measure is significantly different than the reference category (Employer-sponsored health insurance) at the  $p < 0.05$  level.

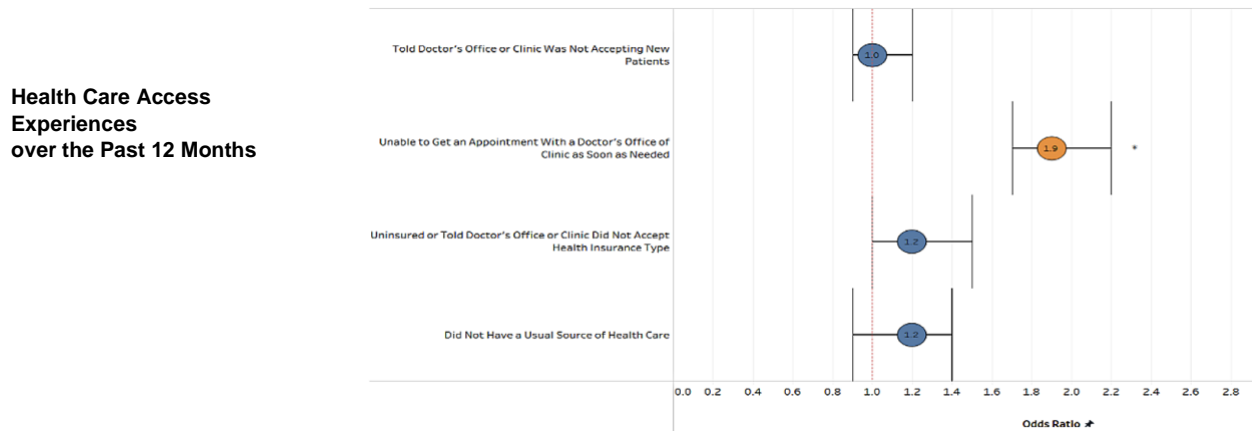


## Health Care Access Experiences over the Past 12 Months

Residents who were unable to get an appointment at a doctor's office or clinic in a timely manner were nearly twice as likely to rely on the ED

Having difficulties accessing care in the past 12 months was also associated with potential reliance on the ED (Figure 6). For example, residents who were unable to get an appointment with a doctor's office or clinic as soon as needed were 90% more likely to demonstrate a potential reliance on the ED compared to residents who did not experience this difficulty. These findings may reflect a patient's perceived urgency of their condition encouraging them to seek out and rely on the ED for care instead of a doctor's office or clinic. Being uninsured or having difficulties using one's insurance, being unable to enroll as a new patient a doctor's office or clinic, and not having a usual source of care were not associated with potential ED reliance after adjustment for all other access difficulties, as well as all other covariates.

Figure 6. Odds ratios of potential reliance on the ED after adjusting for health care access experiences in the past 12 months after adjustment for all other covariates



Notes: Usual source of health care excludes the emergency department.

\*Measure is significantly different than the reference category ("No") at the  $p < 0.05$  level.

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## Discussion

This research brief investigates the association between race/ethnicity and potential reliance on ED for health care after accounting for demographic and socioeconomic characteristics, health status and activity limitations, health insurance coverage, and resident health care access experiences in the past 12 months among Massachusetts residents. The results suggest race/ethnicity is highly associated with potential ED reliance even after adjusting for other key factors associated with health care utilization.

Notably, the magnitude of the difference in the likelihood of potential reliance on the ED among Black versus White residents is identical to the magnitude of the gap in between residents who reported being in fair or poor health or having an activity limitation, compared with those in good health without any activity limitation. This is particularly striking considering what is likely a greater need for more frequent emergency and non-emergency care for individuals with chronic illness or activity limitations. Similarly, residents who are Hispanic, who are in families with less than a high school diploma, or who are in fair or poor health with an activity limitation were at least twice as likely to have a potential ED reliance relative to their respective reference groups (OR: 2.1, 2.1, and 2.9, respectively). These findings are consistent with prior studies citing the disproportionate reliance on the ED among racial/ethnic minority residents as well as among families of low socioeconomic status.<sup>14,15,16</sup>

Our findings also highlight higher potential ED reliance among children and female residents, which may reflect the higher rates of interaction with the health care system among pediatric and female patients, as well as perceived urgency of pediatric caregivers. In addition, residents enrolled in public insurance were at least 50% more likely to have a potential ED reliance compared with residents with ESI, potentially reflecting the constrained care choices among residents enrolled in certain programs (e.g., MassHealth) and/or potential barriers to accessing preventive care due to their insurance type. Moreover, urgent care centers are disproportionately in wealthier neighborhoods.<sup>17,18</sup> While some patients may choose to use the ED despite other options, structural aspects of the health system, high health care costs, underinsurance, and limited resources for certain subpopulations, may make seeking care in the ED a more attractive option for some residents, despite the financial and care quality risks associated with frequent use.<sup>19,20</sup> Furthermore, the strong association between potential ED reliance and being unable to get an appointment at a doctor's office or clinic as soon as the resident felt one was needed may reveal how the anticipated urgency of their care may relate to patient decision-making. Prior studies indicate that the perceived convenience of emergency care, as well as urgency anxiety and perceptions of the quality of emergency-based services are associated with patients' decisions to use the ED.<sup>21</sup>

Understanding the causes and challenges of potential ED reliance is a crucial first step toward designing effective interventions to mitigate the use of the ED for non-emergency conditions for all patients. This study emphasizes that racial/ethnic gaps persist after adjustment for several key confounding factors in the state with the highest health insurance coverage rates. While the MHS survey data present a unique opportunity to evaluate and compare health care access experiences among residents across the Commonwealth, certain nuances in patient experiences are challenging to capture from survey data alone. For example, health status and age-specific health care needs make it challenging to identify the specific reasons for potential ED reliance. Future analyses would benefit from the inclusion of medical records and patient history to aid in the understanding of clinical profiles that may be associated with potential ED reliance, as well as patient characteristics associated with potential ED reliance. These analyses would help inform policies to enhance equitable access to non-emergency health services, mitigate unmet health care needs, and reduce ED reliance, thereby improving health care access experiences for all Commonwealth residents.

# Appendix

	ODDS RATIO	95% CI	
		Lower CI	Upper CI
<b>Race / Ethnicity</b>			
Black*	1.577	1.261	1.972
Hispanic*	2.064	1.728	2.466
Other/multiple races *	1.289	1.010	1.645
<b>Other demographics, health status and health care access experiences</b>			
<b>Age</b>			
Child (0 to 18 years old)*	1.221	1.048	1.424
Elderly adult (65 and older)	0.831	0.683	1.012
<b>Gender</b>			
Female*	1.152	1.010	1.313
<b>Family Educational Attainment</b>			
Less than high school*	2.083	1.656	2.620
High school graduate or GED*	1.825	1.534	2.171
Some college*	1.554	1.308	1.847
<b>Family Income</b>			
Below 139% of the FPL*	1.208	1.027	1.421
Between 139 and 299% of the FPL	0.999	0.822	1.213
Between 300 and 399% of the FPL	0.986	0.749	1.297
<b>Health Status / Activity Limitations</b>			
Fair/poor health or an activity limitation*	1.536	1.330	1.775
Fair/ poor health and an activity limitation*	2.905	2.498	3.378
<b>Insurance Coverage</b>			
Medicare*	1.653	1.359	2.010
Other private insurance	1.223	0.910	1.642
Other public insurance*	1.547	1.256	1.907
Other unspecified	0.918	0.486	1.735
Uninsured	0.960	0.651	1.416
<b>Health Care Access Experiences</b>			
Unable to get an appointment at a doctor's office or clinic as soon as needed*	1.905	1.651	2.199
Uninsured or told doctor's office or clinic did not accept health insurance plan:	1.196	0.972	1.473
Told doctor's office or clinic was not accepting new patients	1.032	0.861	1.236
Usual source of care (no)	1.152	0.934	1.422

Notes: Reference categories: Race/ethnicity = White; Age = Non-elderly adult (19-64); Gender = Male; Education = 4 year college or more; Family income = At or above 400% of the FPL; Health Status / Activity Limitation = Good or Excellent Health and No activity Limitation; Insurance = Employer-sponsored Insurance; Problem timely appointment = No; Problem using insurance = No; Problem enrolling new patient = No; Usual source of care: Yes

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