Massachusetts Acute Care Hospital Outpatient Observation Data

FFY 2016-2019

January 2022

CHIA.

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Executive Summary

This report of hospital outpatient observation visits is the newest addition to the series of analyses produced by the Massachusetts Center for Health Information and Analysis (CHIA) to provide the public, providers, and policymakers information about acute care utilization in the Commonwealth. This is the first report on utilization and trends in outpatient observation visits in the Commonwealth. It complements other CHIA reports on acute care utilization and health system performance regarding inpatient and emergency department (ED) utilization, hospital readmissions, revisits to the ED after hospital discharge, and behavioral health and readmissions.

Observation visits, like ED visits, are classified as outpatient care, and they may serve a variety of functions, including the assessment of patients who may require additional diagnostic or therapeutic treatment beyond care in the emergency department, but may not always require admission to the inpatient setting. This report uses data from CHIA's Acute Hospital Case Mix Database, including the Outpatient Observation Databases (OOD) and Hospital Inpatient Discharge Databases (HIDD). It presents key measures of statewide outpatient observation utilization, as well as metrics by hospital, patient, and visit characteristics. Except where specified, outpatient observation visits in this report include only those visits that did not result in an inpatient admission at

the same facility, as observation visits resulting in inpatient admissions are classified as inpatient discharges and are reported elsewhere.

Throughout this report, annual rates are provided for federal fiscal year (FFY) 2019, and trends are provided for the years FFY 2016-2019.

Key Findings:

- In FFY 2019, there were 330,324 total observation visits among Massachusetts acute care hospitals: two-thirds of those observation visits (216,037) were observation only and one-third (114,287) resulted in an inpatient admission.

- Total observation visits were stable from FFY 2016 to 2019, with a change of less than 1% over the four-year period.

- Over half (51.2%) of all observation visits were among non-elderly adults (aged 18-64); elderly adults (65 and older) represented another 40.0% of visits, and children represented 8.8% of visits.

- The most common expected primary payer type for observation visits was Medicare (42.4%), followed by commercial insurance (27.6%) and Medicaid (22.7%).

- Per capita observation visit rates were highest in the New Bedford and Fall River regions and lowest in the West Merrimack/Middlesex and Metro Boston regions.

- The most common primary diagnoses for observation visits were nonspecific chest pain, syncope, and abdominal pain among adults. Tonsillitis, appendicitis, bronchitis, and asthma were the most common primary diagnoses among pediatric patients.

- Although the number of observation visits has remained relatively stable over the past four years, the proportion of visits associated with behavioral health increased by 20.2%.

- The proportion of observation visits with behavioral health primary diagnoses was over three times greater among visits with an expected primary payer type of Medicaid (13.3%) than the proportion for commercial insurance (4.0%) or Medicare (3.8%). ∎

Background

Outpatient observation visits are an important component of acute hospital care, yet they have received less attention in health services research than other acute care setting utilization such as inpatient hospitalizations and emergency department (ED) visits. Observation visits, like ED visits, are classified as outpatient care, and they may serve a variety of functions, including the assessment of patients who may require additional diagnostic or therapeutic treatment beyond care in the ED, but may not require admission to the inpatient setting.[1] Most outpatient observation visits (89%) began in the ED. However, observation visits are in many ways like inpatient hospitalizations. They may provide overlapping services and, at many facilities, patients in observation may even occupy some of the same beds as those used for inpatient stays. The distinction between these two settings is often most clear at the billing level, depending on the type and intensity of services provided.

In 2003, the Centers for Medicare and Medicaid Services (CMS) first recognized observation visits offering payments for some common diagnoses associated with observation including chest pain, heart failure and asthma.[2] Since the initiation of observation visits, they have become increasingly common both nationally and in the Commonwealth:[3] between the years of 2006 to 2014, the number of observation visits in the Massachusetts Outpatient Observation Databases increased by over 60%.

In 2012, CMS implemented the Hospital Readmissions Reduction Program, which penalizes hospitals for higher-than-expected Medicare readmission rates for certain discharge diagnoses. Since a readmission is defined in reference to an inpatient level of care, there has been concern that an unintended consequence of this program is that it may incentivize hospitals to choose to place patients in the observation setting instead.[4] Additionally, in 2013, CMS implemented the "Two-Midnight Rule," requiring physicians to attest to the medical need of a minimum of two nights to justify billing the admission as an inpatient stay. Hospital stays lasting fewer than two midnights (with certain exceptions[5]) are generally classified as observation visits.[6] Together, these policies have been attributed as important factors in shaping the landscape of observation visits. From a patient and patient advocacy perspective, these policies have been criticized as not transparent and problematic for patients and families,[7] as it can be difficult for patients to know whether they have been admitted to observation or inpatient status. To address these concerns, Congress passed the NOTICE Act in 2017 to require hospitals to clearly communicate this to patients.

This is the first report on utilization and trends in outpatient observation visits in the Commonwealth. It covers state fiscal years 2016-2019 and complements other CHIA reports on acute care utilization and health system performance regarding inpatient and ED utilization, hospital readmissions, revisits to the ED after hospital discharge, and behavioral health and readmissions.

This report is part of a new series providing analyses and trends from the Massachusetts Acute Hospital Case Mix Database. In addition to this report, CHIA published parallel reports on inpatient visits in Massachusetts in December 2020 and ED visits in September 2021. For further information about the Acute Hospital Case Mix data and measures used in this report, please see the technical appendix. ■

Introduction to the Massachusetts Outpatient Observation Databases

To better understand patterns and trends in outpatient observation utilization, CHIA has analyzed observation visits in all Massachusetts acute care hospitals over a four-year period, from FFY 2016 to FFY 2019 (October 1, 2015 – September 30, 2019). This report presents key measures of statewide outpatient observation utilization, and by hospital, patient, and visit characteristics, as well as a deeper look at visits for behavioral health conditions. Annual rates in this report are provided for FFY 2019 and trends are provided for the years FFY 2016-2019, except where otherwise specified. The report is accompanied by a databook with more detailed analyses and findings for FFY 2016-2019 as well as a technical appendix.

The source of this report is CHIA's Acute Hospital Case Mix Database (Case Mix), including CHIA's Outpatient Observation Databases (OOD) and Hospital Inpatient

Discharge Databases (HIDD). These databases contain visit-level data provided by all acute care hospitals in Massachusetts on patient characteristics, admission and departure status, diagnoses, treatments, services, charges, and length of stay. Observation visits are allocated to one of two databases hierarchically: observation visits not resulting in an inpatient admission are recorded in the OOD, whereas those visits resulting in an inpatient admission are recorded in the HIDD.

In FFY 2019, all 61 acute care hospitals in Massachusetts reported observation visits. Hospitals reported a total observation stay volume of 330,324 visits, of which two-thirds (216,037) resulted in discharge from the observation setting and one-third (114,287) resulted in an inpatient admission. Except where noted, this report focuses on the observe-and-release population in the OOD, that is,

patients who were treated in the observation setting and released without an inpatient admission at the same facility.*

Acute care hospitals in this report are classified using characteristics that include hospital cohort, high public payer (HPP) status, and multi-system affiliation.

- Most acute care hospitals (42 of 61) in Massachusetts are classified as community hospitals. Additionally, six hospitals are classified as Academic Medical Centers (AMCs), seven are classified as teaching hospitals, and six are classified as specialty hospitals.

- Over half (38 of 61) of Massachusetts acute care hospitals were classified as high public payer (HPP), meaning that the hospital received more than 63

percent of its Gross Patient Service Revenue from government payers. These include Medicare, Medicaid, and other government payers such as the Massachusetts Health Safety Net. Of the 42 community hospitals, 30 hospitals are designated as HPP hospitals.

- Most acute care hospitals (47 of 61) in Massachusetts are affiliated with a multi-acute hospital system, consisting of two or more hospitals. (Note that hospitals may have multiple campuses but still be classified as individual hospitals.) In FFY 2019, there were 11 multi-hospital systems in Massachusetts, down from 12 in FFY 2018 after the merger of CareGroup and Lahey Health System to form Beth Israel Lahey Health as of March 1, 2019. ■

* The 114,287 observation stays resulting in an inpatient admission represented 14.1% of all inpatient stays in FFY 2019. For more information on inpatient stays with observation care services, please see CHIA's **main reporting** on inpatient care.

Observation Visit Utilization Overview, 2006-2019
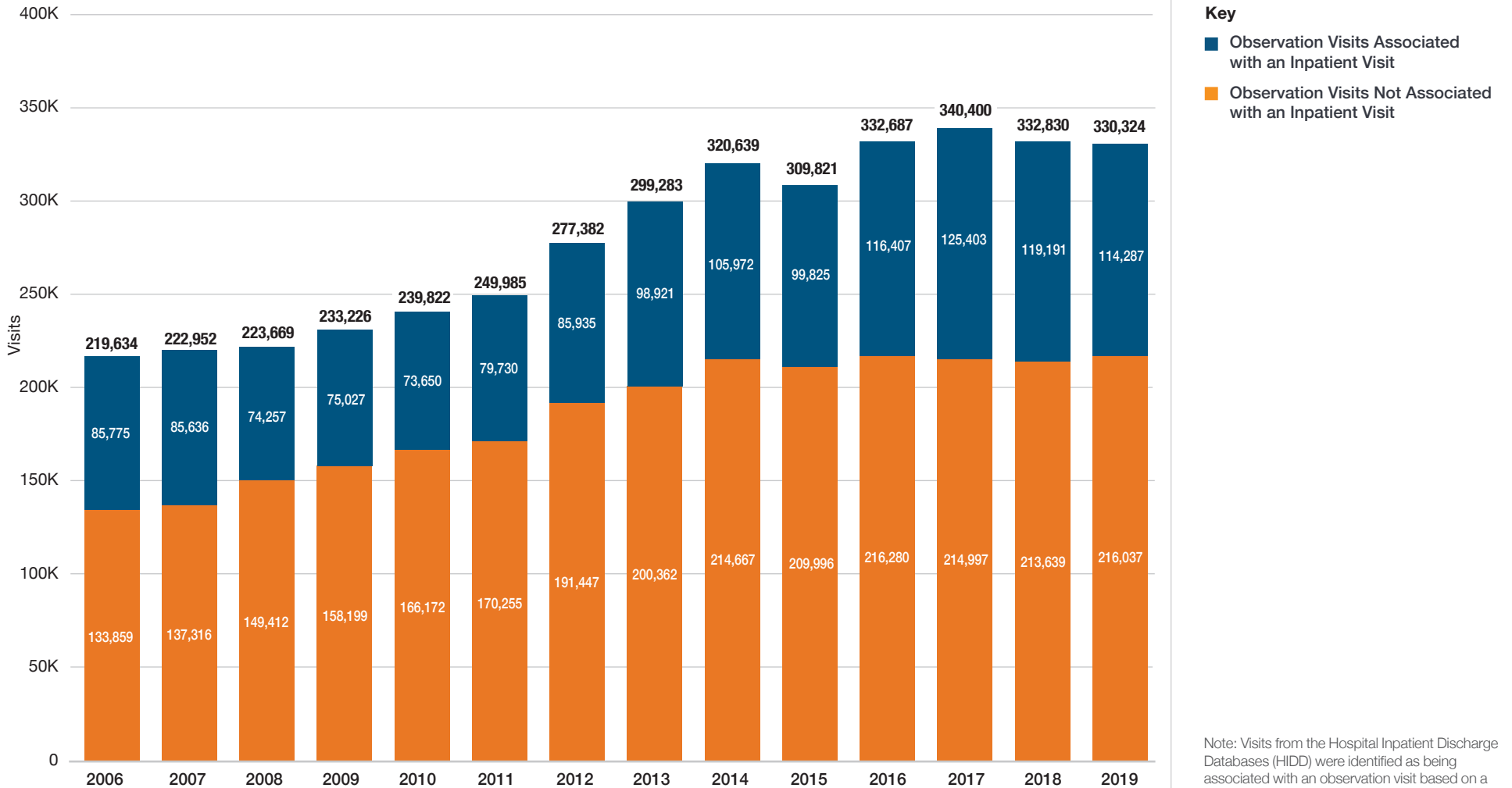
Key

■ Observation Visits Associated with an Inpatient Visit

■ Observation Visits Not Associated with an Inpatient Visit

Year	Total	Not Associated	Associated
2006	219,634	133,859	85,775
2007	222,952	137,316	85,636
2008	223,669	149,412	74,257
2009	233,226	158,199	75,027
2010	239,822	166,172	73,650
2011	249,985	170,255	79,730
2012	277,382	191,447	85,935
2013	299,283	200,362	98,921
2014	320,639	214,667	105,972
2015	309,821	209,996	99,825
2016	332,687	216,280	116,407
2017	340,400	214,997	125,403
2018	332,830	213,639	119,191
2019	330,324	216,037	114,287

Note: Visits from the Hospital Inpatient Discharge Databases (HIDD) were identified as being associated with an observation visit based on a hospital-provided indicator, as well as revenue codes and admission source. For more detailed information, please see the technical appendix.

Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD) and HIDD, 2016-2019

Characteristics of Massachusetts Hospitals, 2019

Hospital Characteristic	Number of Hospitals
All Acute Care Hospitals	**61**
Cohort	
Academic Medical Center	6
Community Hospital	12
Community Hospital-High Public Payer	30
Teaching Hospital	7
Specialty Hospital	6
High Public Payer	
Yes	38
No	23
Tax Status	
Non-Profit/Municipal	51
For-Profit	10
System Affiliation	
Not Affiliated	14
Affiliated	47

Hospital Characteristic	Number of Hospitals
Hospital System	
Baystate Health	4
Berkshire Health Systems	2
Beth Israel Lahey Health	10
Cape Cod Healthcare	2
Heywood Healthcare	2
Partners HealthCare	9
Shriners Hospital for Children	2
Steward Health Care	8
Tenet Healthcare	2
UMass Memorial Health Care	3
Wellforce	3

Note: All 61 acute care hospitals in Massachusetts reported observation visits. Hospitals may comprise one or more campuses; reporting for this table is at the hospital level. For a list of hospitals and campuses included in this report, please see the technical appendix.

Data source: CHIA Hospital Profiles, 2019

Massachusetts Hospitals and Their Campuses, 2019
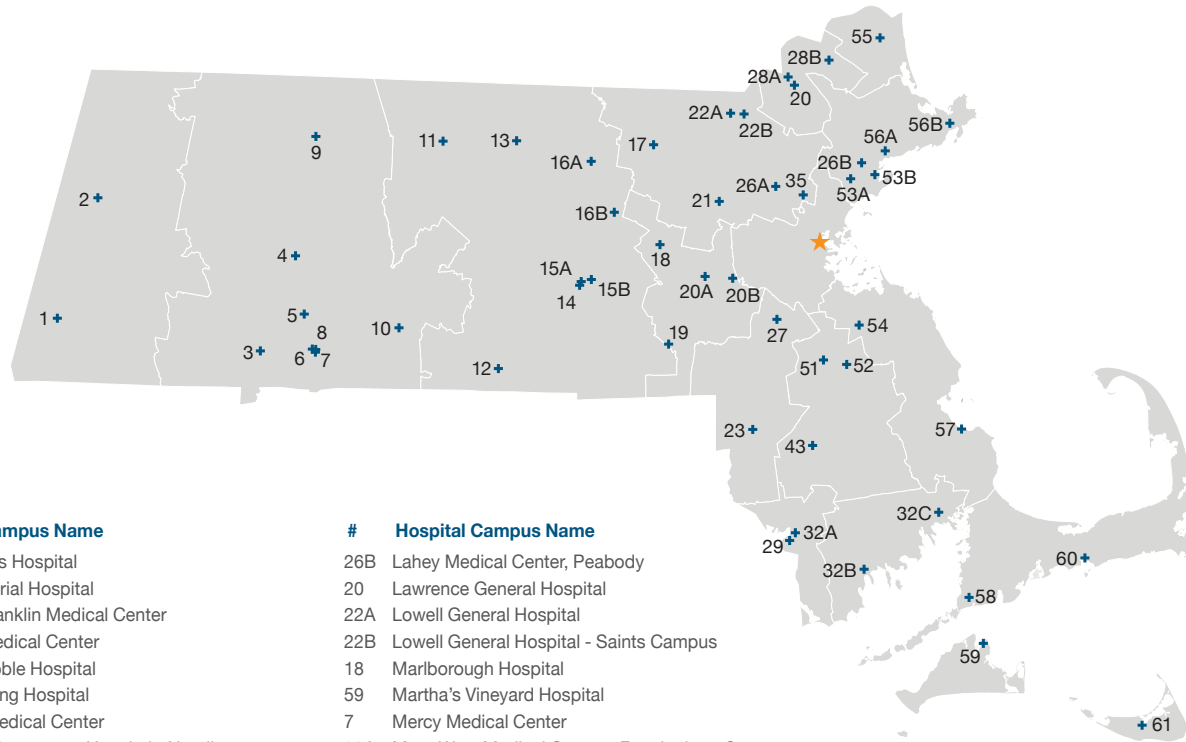
#	Hospital Campus Name
55	Anna Jaques Hospital
11	Athol Memorial Hospital
9	Baystate Franklin Medical Center
6	Baystate Medical Center
3	Baystate Noble Hospital
10	Baystate Wing Hospital
2	Berkshire Medical Center
25	Beth Israel Deaconess Hospital - Needham
57	Beth Israel Deaconess Hospital - Plymouth
60	Cape Cod Hospital
4	Cooley Dickinson Hospital
21	Emerson Hospital
1	Fairview Hospital
58	Falmouth Hospital
12	Harrington Memorial Hospital
16A	HealthAlliance Hospital - Leominster Campus
16B	HealthAlliance-Clinton Hospital
13	Heywood Hospital
5	Holyoke Medical Center
56B	Lahey Health - Addison Gilbert Hospital
56A	Lahey Health - Beverly Hospital
26A	Lahey Hospital & Medical Center

#	Hospital Campus Name
26B	Lahey Medical Center, Peabody
20	Lawrence General Hospital
22A	Lowell General Hospital
22B	Lowell General Hospital - Saints Campus
18	Marlborough Hospital
59	Martha's Vineyard Hospital
7	Mercy Medical Center
20A	MetroWest Medical Center - Framingham Campus
20B	MetroWest Medical Center - Leonard Morse Campus
19	Milford Regional Medical Center
43	Morton Hospital
61	Nantucket Cottage Hospital
17	Nashoba Valley Medical Center
53B	North Shore Medical Center - Salem Campus
53A	North Shore Medical Center - Union Campus
14	Saint Vincent Hospital
8	Shriners Hospitals for Children Springfield
52	Signature Healthcare Brockton Hospital
54	South Shore Hospital
32A	Southcoast Hospitals Group - Charlton Memorial Campus
32B	Southcoast Hospitals Group - St. Luke's Campus

#	Hospital Campus Name
32C	Southcoast Hospitals Group - Tobey Hospital Campus
51	Steward Good Samaritan Medical Center
28B	Steward Holy Family Hospital - Haverhill
28A	Steward Holy Family Hospital - Methuen
27	Steward Norwood Hospital
29	Steward Saint Anne's Hospital
23	Sturdy Memorial Hospital
15A	UMass Memorial Campus
15B	UMass Memorial Medical Center - University Campus
35	Winchester Hospital

Note: Hospitals may comprise one or more campuses; reporting on this page is at the hospital campus level. For a list of all hospitals and campuses included in this report, please see the technical appendix.

Data source: CHIA Hospital Profiles, 2019 and MassGIS [8]

Metro Boston Hospitals and Their Campuses, 2019
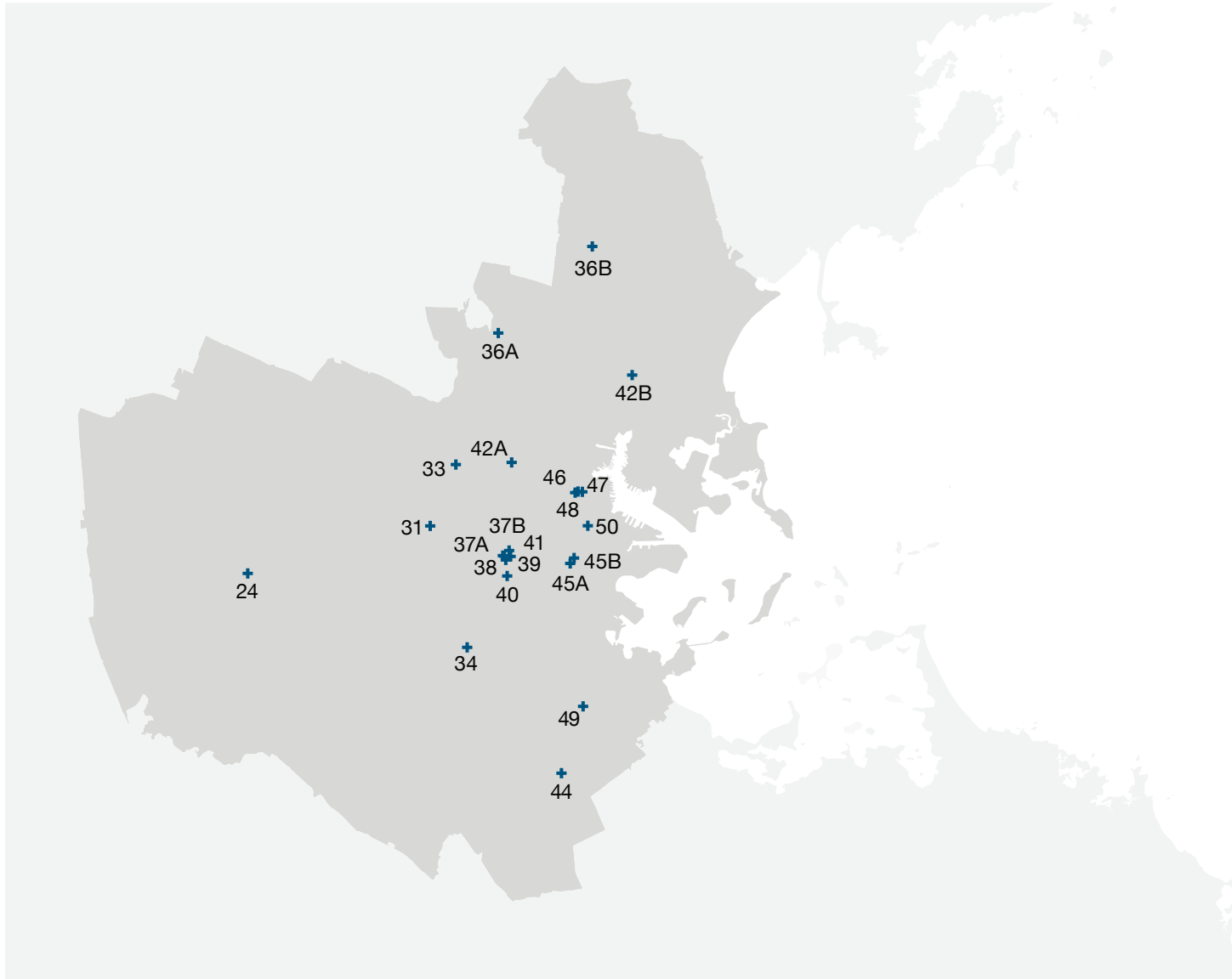
#	Hospital Campus Name
44	Beth Israel Deaconess Hospital - Milton
37B	Beth Israel Deaconess Medical Center - East Campus
37A	Beth Israel Deaconess Medical Center - West Campus
41	Boston Children's Hospital
45A	Boston Medical Center - Menino Pavilion Campus
45B	Boston Medical Center - Newton Pavilion Campus
34	Brigham and Women's Faulkner Hospital
39	Brigham and Women's Hospital
42A	Cambridge Health Alliance - Cambridge Hospital Campus
42B	Cambridge Health Alliance - Everett Hospital Campus
38	Dana-Farber Cancer Institute
36A	Lawrence Memorial Hospital Campus - MelroseWakefield Healthcare
46	Massachusetts Eye and Ear Infirmary
47	Massachusetts General Hospital
36B	MelroseWakefield Hospital Campus - MelroseWakefield Healthcare
33	Mount Auburn Hospital
40	New England Baptist Hospital
24	Newton-Wellesley Hospital
48	Shriners Hospitals for Children Boston
49	Steward Carney Hospital
31	Steward St. Elizabeth's Medical Center
50	Tufts Medical Center

Note: Hospitals may comprise one or more campuses; reporting on this page is at the hospital campus level. For a list of all hospitals and campuses included in this report, please see the technical appendix.

Data source: CHIA Hospital Profiles, 2019 and MassGIS[9]

Statewide Outpatient Observation Visit Characteristics and Utilization

Outpatient observation visits are an important yet underdiscussed part of the acute care hospital setting with over 200,000 observe-and-release visits each year from FFY 2016 to FFY 2019. This section presents visit-level information on observation visits that did not result in an inpatient admission, including annual trends for FFY 2016-2019, as well as analyses for FFY 2019. Except where otherwise noted, analyses in this section are for observation visits that did not result in an inpatient admission.
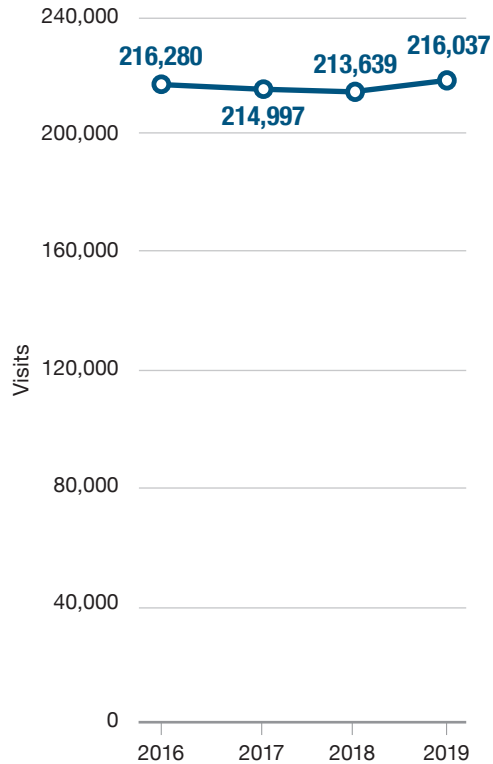
Key Findings:

- There were 330,324 total observation visits, of which two-thirds (216,037) were observation only and did not result in an inpatient admission and one-third (114,287) resulted in an inpatient admission.

- From FFY 2016 to FFY 2019, total observation visits were stable overall, with a change of less than 1%.

- The majority (59.9%) of all outpatient observation visits were from community hospitals; community hospitals with a high public-payer designation made up 44.8% of all observation visits in FFY 2019.

- Over half (51.2%) of all observation visits were among non-elderly adults (aged 18-64); elderly adults (65 and older) represented another 40.0% of visits, and children represented 8.8% of visits.

- The most common expected primary payer type for observation visits was Medicare (42.4%), followed by commercial insurance (27.6%) and Medicaid (22.7%).

- Per capita observation visit rates were highest in the New Bedford and Fall River regions and lowest in the West Merrimack/Middlesex and Metro Boston regions.
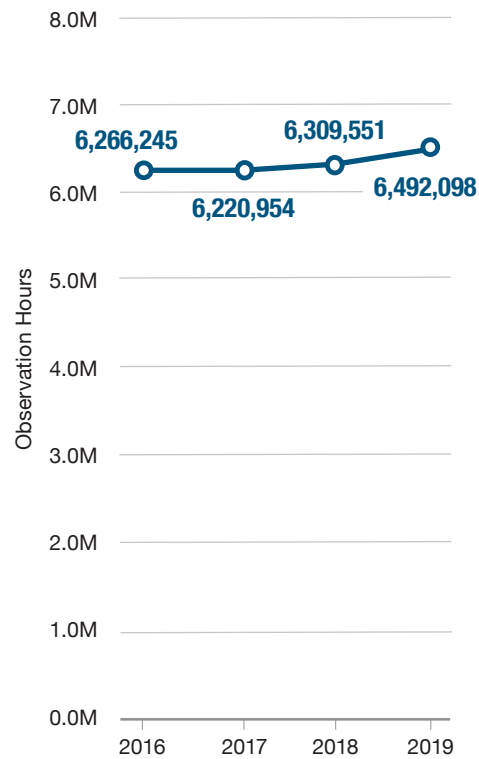
- The percentage of observation visits for female patients exceeded that of male patients by over 10 percentage points, due in part to hospital visits for maternity-related conditions (55.1 % vs. 44.9 %). ∎

Overall Utilization among Outpatient Observation Visits, 2016-2019

**Total Observation Visits,
2016-2019**

Visits

240,000
216,280   214,997   213,639   216,037
200,000

160,000

120,000

80,000

40,000

0
        2016   2017   2018   2019

**Total Observation Hours,
2016-2019**

Observation Hours

8.0M

7.0M
6,266,245   6,309,551
6.0M   6,220,954   6,492,098

5.0M

4.0M

3.0M

2.0M

1.0M

0.0M
        2016   2017   2018   2019

**Observation Average Length of Stay,
2016-2019**

Hours

40

35

30   29.0   29.5
        28.9   30.1

25

20

15

10

5

0
        2016   2017   2018   2019
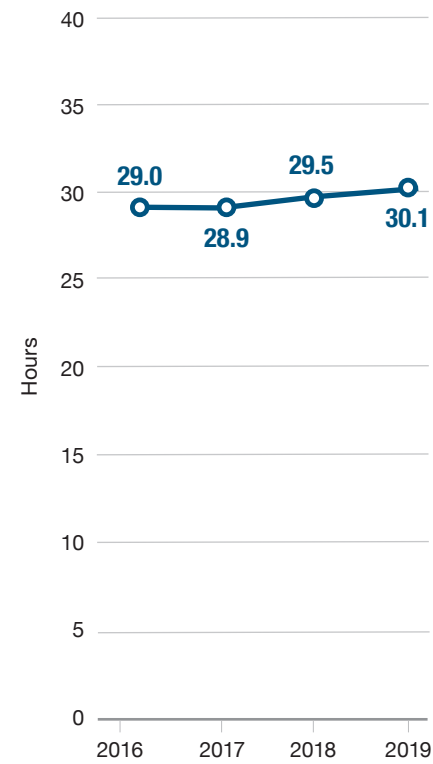
Note: Total observation hours and average length of stay were calculated using the provided length of stay in hours for each outpatient observation visit as reported by acute care hospitals. The number of observation visits with missing length of stay included 21 in FFY 2016, 22 in FFY 2017, 33 in FFY 2018, and 20 in FFY 2019. For more information, please see the technical appendix.

Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2016-2019

Observation Visits by Hospital Characteristics, 2019

Hospital Cohort

18.8% Academic Medical Center	**15.1%** Community Hospital	**44.8%** Community HPP Hospital	**16.4%** Teaching Hospital	**4.9%** Specialty Hospital

0%   25%   50%   75%   100%
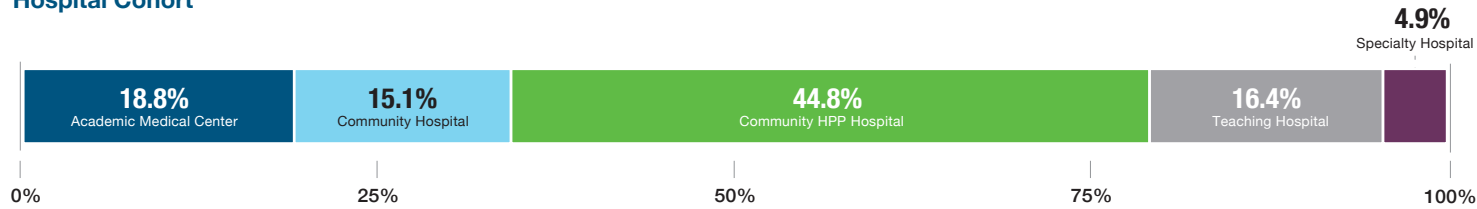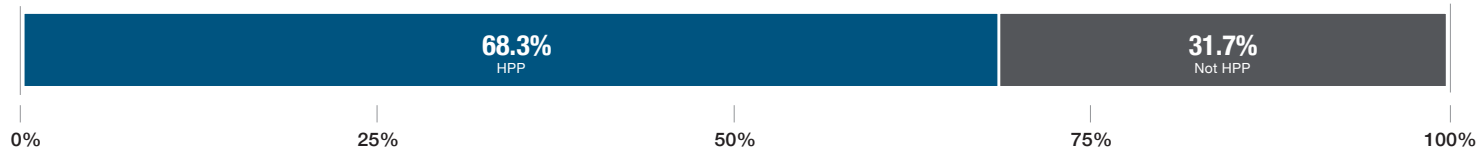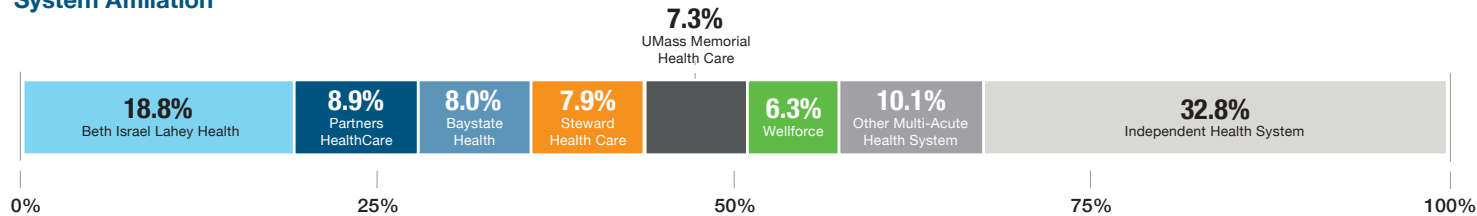
High Public Payer Status

68.3% HPP	**31.7%** Not HPP

0%   25%   50%   75%   100%

System Affiliation

18.8% Beth Israel Lahey Health	**8.9%** Partners HealthCare	**8.0%** Baystate Health	**7.9%** Steward Health Care	**7.3%** UMass Memorial Health Care	**6.3%** Wellforce	**10.1%** Other Multi-Acute Health System	**32.8%** Independent Health System

0%   25%   50%   75%   100%

Note: A hospital qualified for High Public Payer (HPP) status if it had 63% or more of gross patient service revenue attributed to Medicare, Medicaid, and other government payers, including the Health Safety Net. Percentages may not sum to 100% due to rounding. For more information on hospital characteristics provided on this page, please see the technical appendix.

Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2016-2019

Observation Visits by Patient and Visit Characteristics, 2019

Expected Primary Payer Type

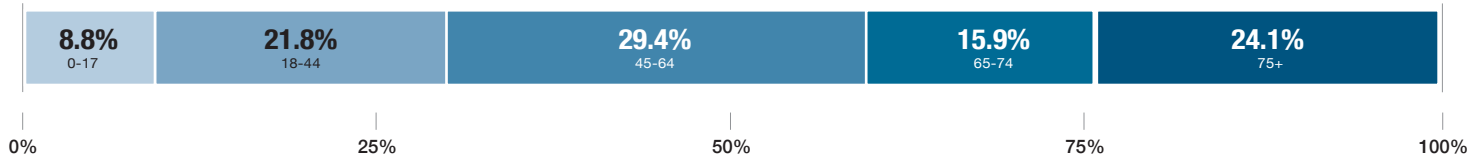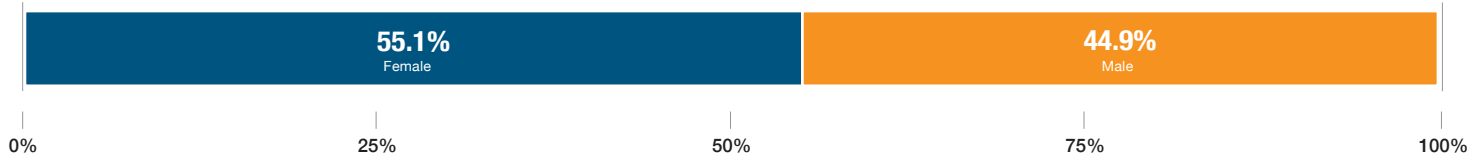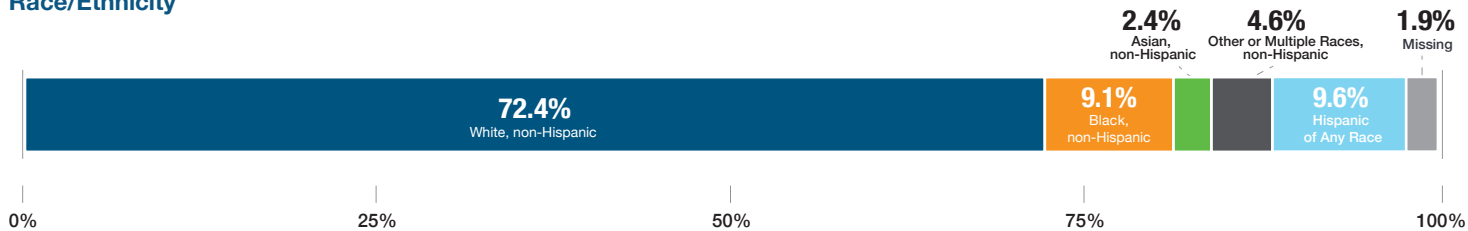| 42.4% Medicare	22.7% Medicaid	27.6% Commercial	3.2% Other	4.1% Self-Pay

0%   25%   50%   75%   100%

Age Group

8.8% 0-17	21.8% 18-44	29.4% 45-64	15.9% 65-74	24.1% 75+

0%   25%   50%   75%   100%

Gender

55.1% Female	44.9% Male

0%   25%   50%   75%   100%

Race/Ethnicity

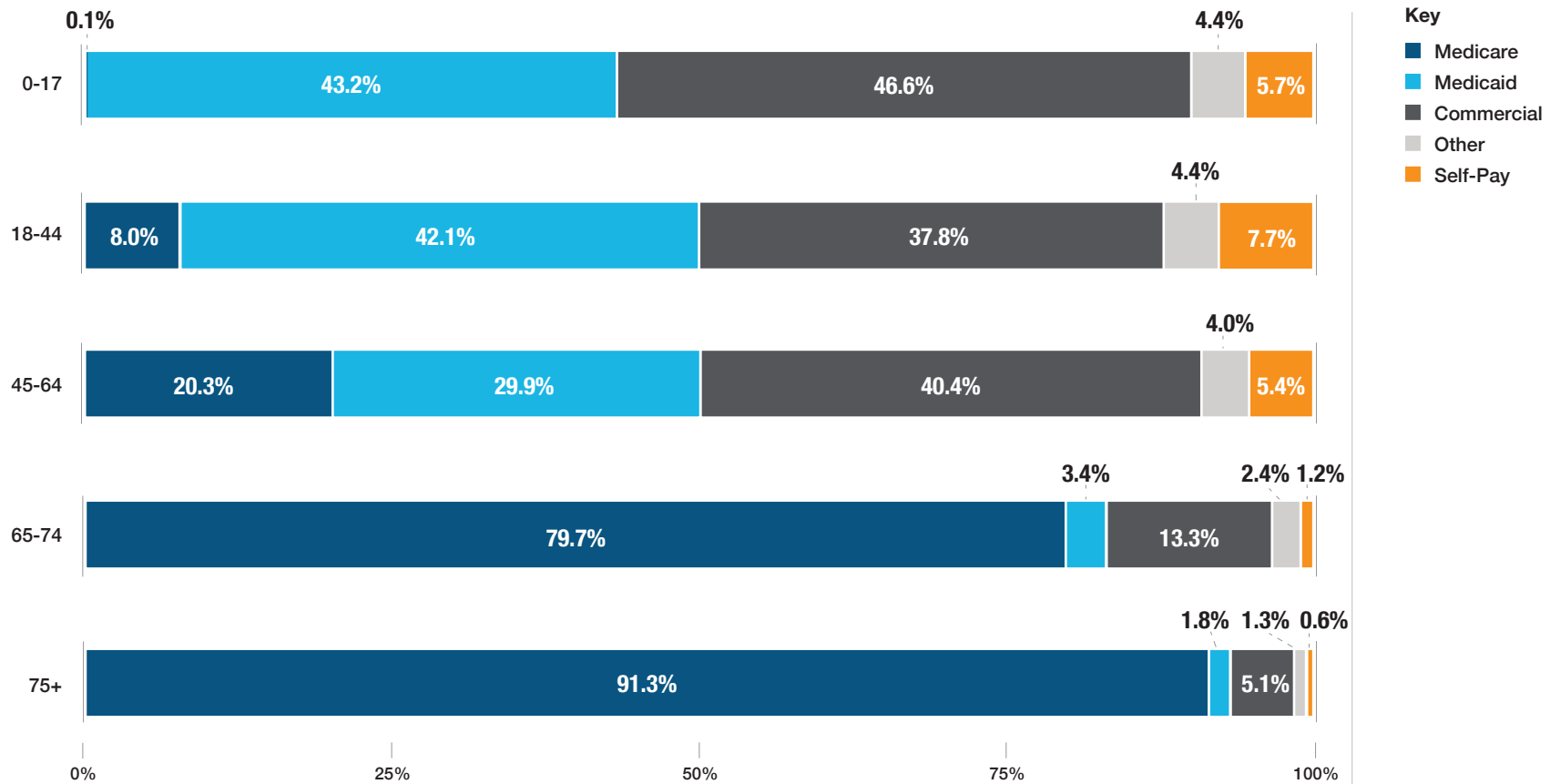| 72.4% White, non-Hispanic	9.1% Black, non-Hispanic		2.4% Asian, non-Hispanic	4.6% Other or Multiple Races, non-Hispanic	9.6% Hispanic of Any Race	1.9% Missing

0%   25%   50%   75%   100%
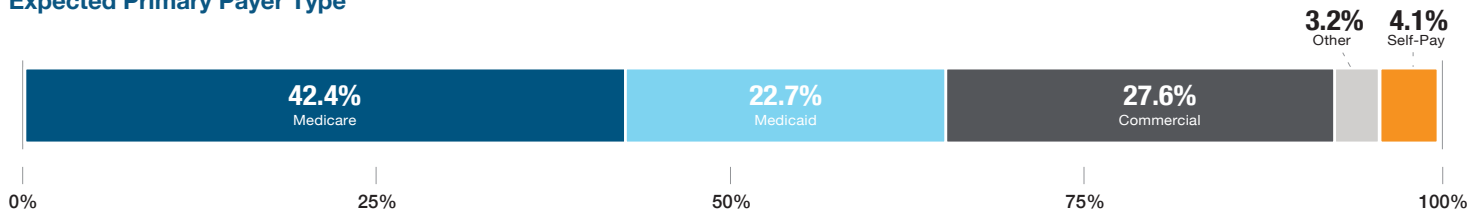
Note: Figures may not sum to the total values due to rounding and because they exclude visits with missing data for expected primary payer type, age, and gender. In FFY 2019, there with 16 visits with missing expected primary payer type, 18 visits with missing age, and 7 visits with missing or unknown gender. More detailed race/ethnicity categories are available in the databook accompanying the report. For more detailed information on the visit and patient characteristics provided on this page, please see the technical appendix.

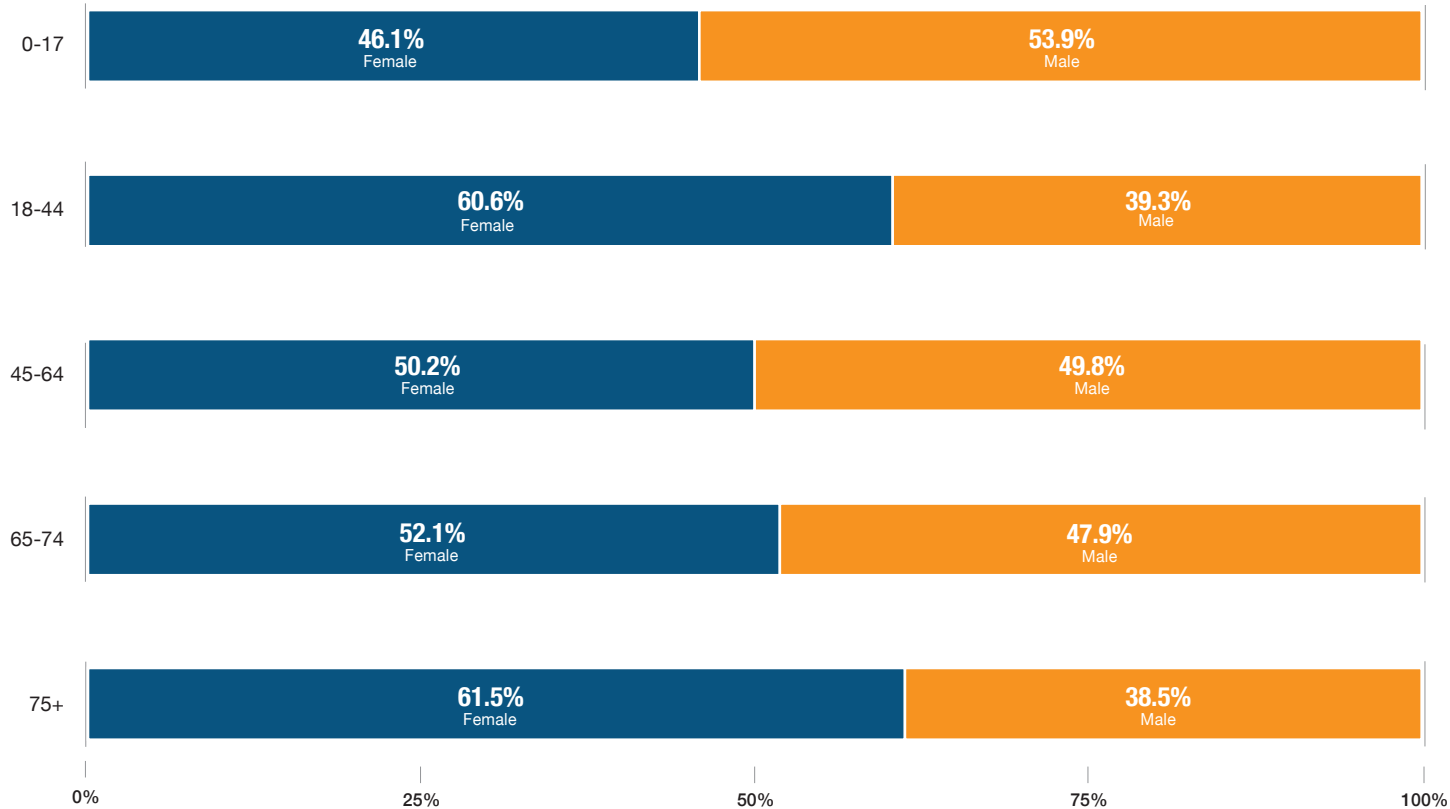Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2016-2019

Observation Visits by Expected Primary Payer Type and Age Group, 2019

Key
- Medicare
- Medicaid
- Commercial
- Other
- Self-Pay

0-17
- 0.1%
- 43.2% (Medicaid)
- 46.6% (Commercial)
- 4.4% (Other)
- 5.7% (Self-Pay)

18-44
- 8.0% (Medicare)
- 42.1% (Medicaid)
- 37.8% (Commercial)
- 4.4% (Other)
- 7.7% (Self-Pay)

45-64
- 20.3% (Medicare)
- 29.9% (Medicaid)
- 40.4% (Commercial)
- 4.0% (Other)
- 5.4% (Self-Pay)

65-74
- 79.7% (Medicare)
- 3.4% (Medicaid)
- 13.3% (Commercial)
- 2.4% (Other)
- 1.2% (Self-Pay)

75+
- 91.3% (Medicare)
- 1.8% (Medicaid)
- 5.1% (Commercial)
- 1.3% (Other)
- 0.6% (Self-Pay)

Note: Figures for expected primary payer type may not sum to the total values due to rounding and because they exclude discharges with missing payer type information. Other insurance includes Worker's Compensation, Other Government Payment, Auto Insurance, and Dental Plans. In FFY 2019, there with 16 visits with missing expected primary payer type and 18 visits with missing age. For more information, please see the technical appendix.

Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2019

Observation Visits by Age Group and Gender, 2019

0-17
46.1% Female | 53.9% Male

18-44
60.6% Female | 39.3% Male

45-64
50.2% Female | 49.8% Male

65-74
52.1% Female | 47.9% Male

75+
61.5% Female | 38.5% Male

0%   25%   50%   75%   100%

Note: Figures for male and female may not sum to the total values due to rounding and because they exclude discharges with Unknown Gender category. In FFY 2019, there were 18 visits with missing age, and 7 visits with missing or unknown gender. For more information, please see the technical appendix.

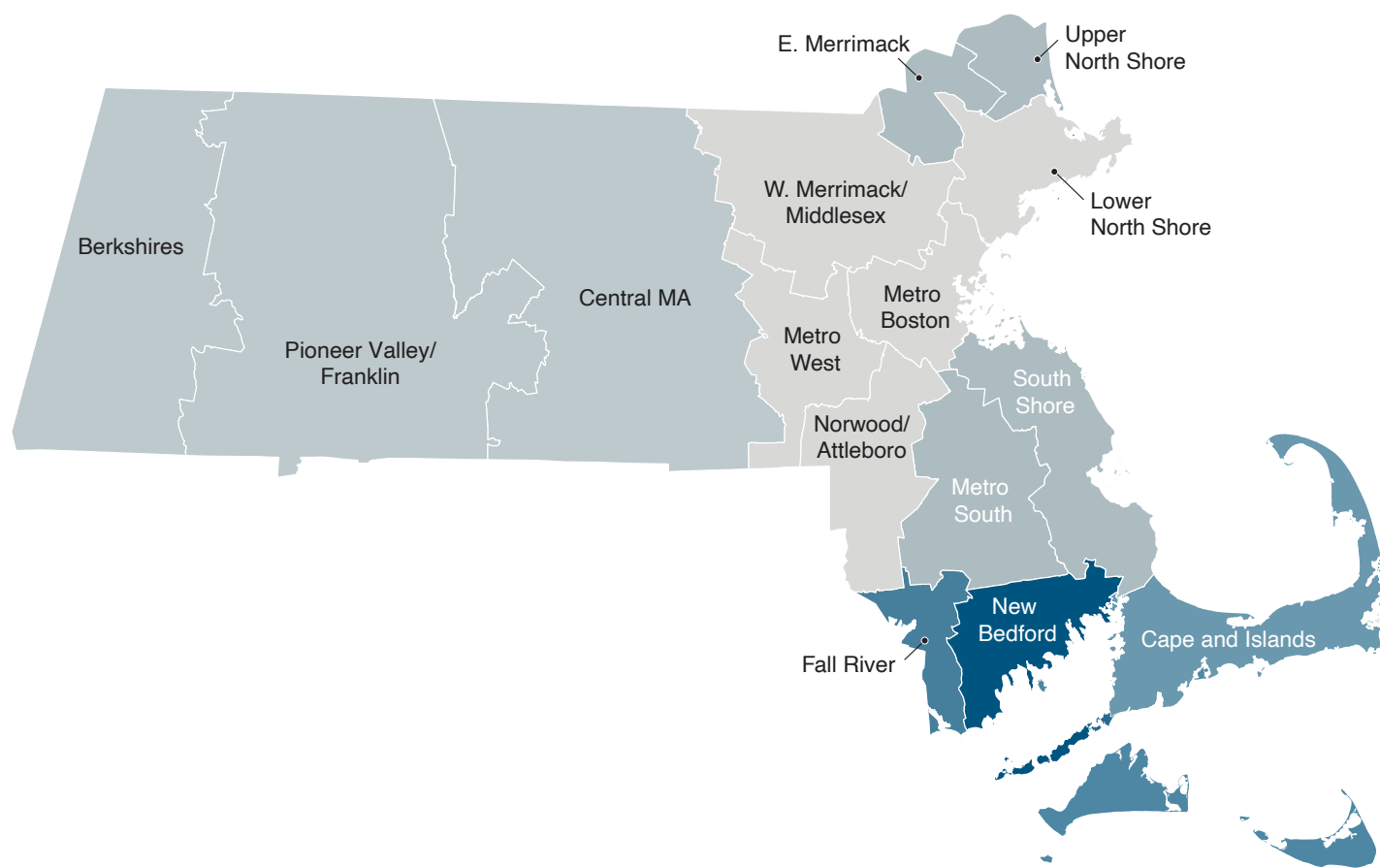Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2019

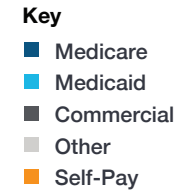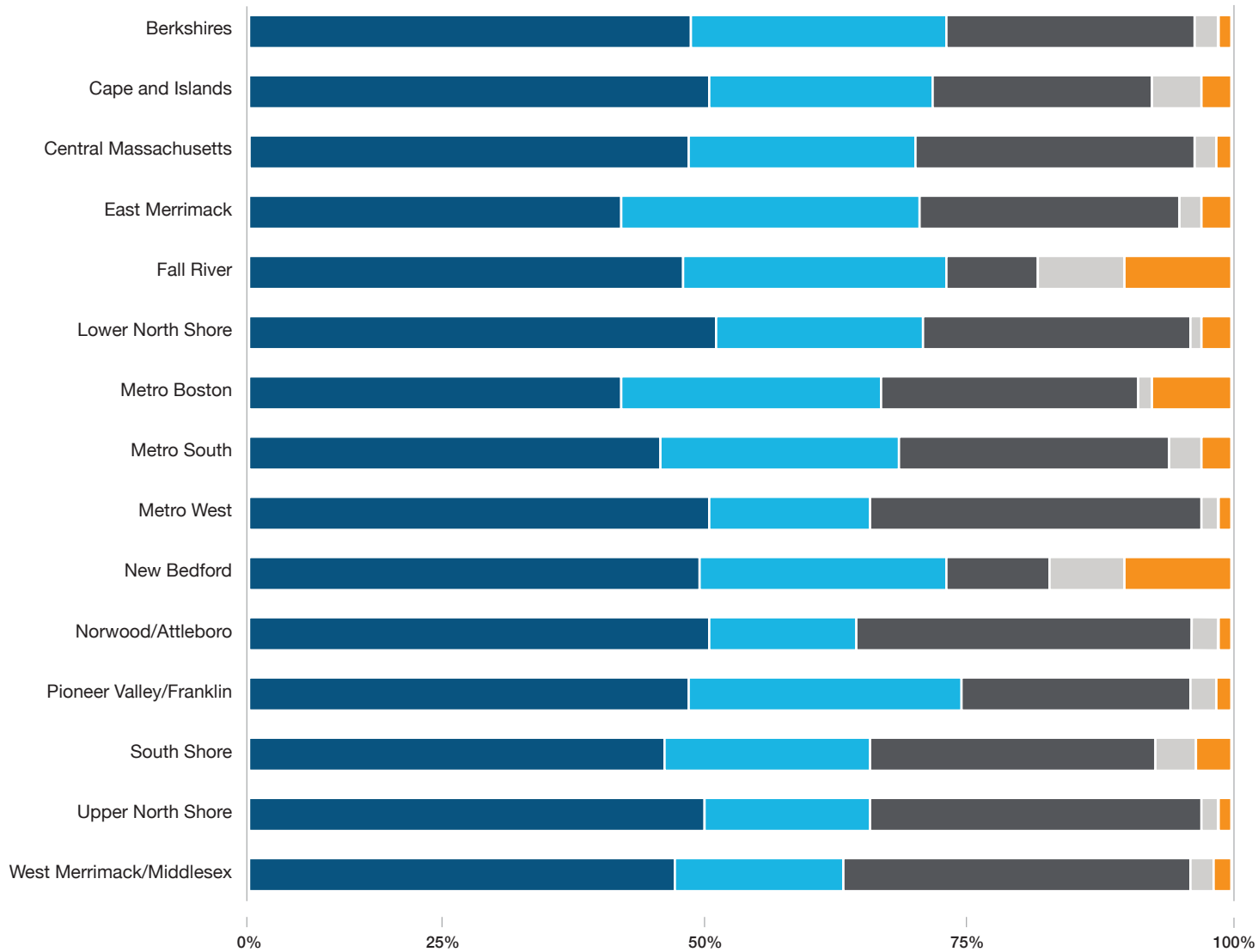# Observation Visits by Patient Region of Residence, 2019

Visits per 100,000 persons

- ☐ <3,000
- ☐ 3,000–<4,000
- ☐ 4,000–<5,000
- ■ 5,000+

Note: Patient residence was determined from permanent address information provided on the discharge, including valid ZIP code, city/town and two-character permanent state identification codes. Discharges for permanent Massachusetts residents were assigned by ZIP code to one of 15 regions defined by the Health Policy Commission. Please see the technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2019

Observation Visits by Expected Primary Payer Type and Patient Region of Residence, 2019

Key
- ■ Medicare (dark blue)
- ■ Medicaid (light blue)
- ■ Commercial (dark gray)
- ■ Other (light gray)
- ■ Self-Pay (orange)

Note: Analysis includes information on expected primary payer type as provided by the hospital and does not include information on secondary or supplemental payer information. Figures for expected primary payer type may not sum to the total values due to rounding and because they exclude discharges with missing payer type information. Other insurance includes Worker's Compensation, Other Government Payment, Auto Insurance, and Dental Plans. The number of discharges with missing expected primary payer type was 16 in FFY 2019. Please see the technical appendix for more information.

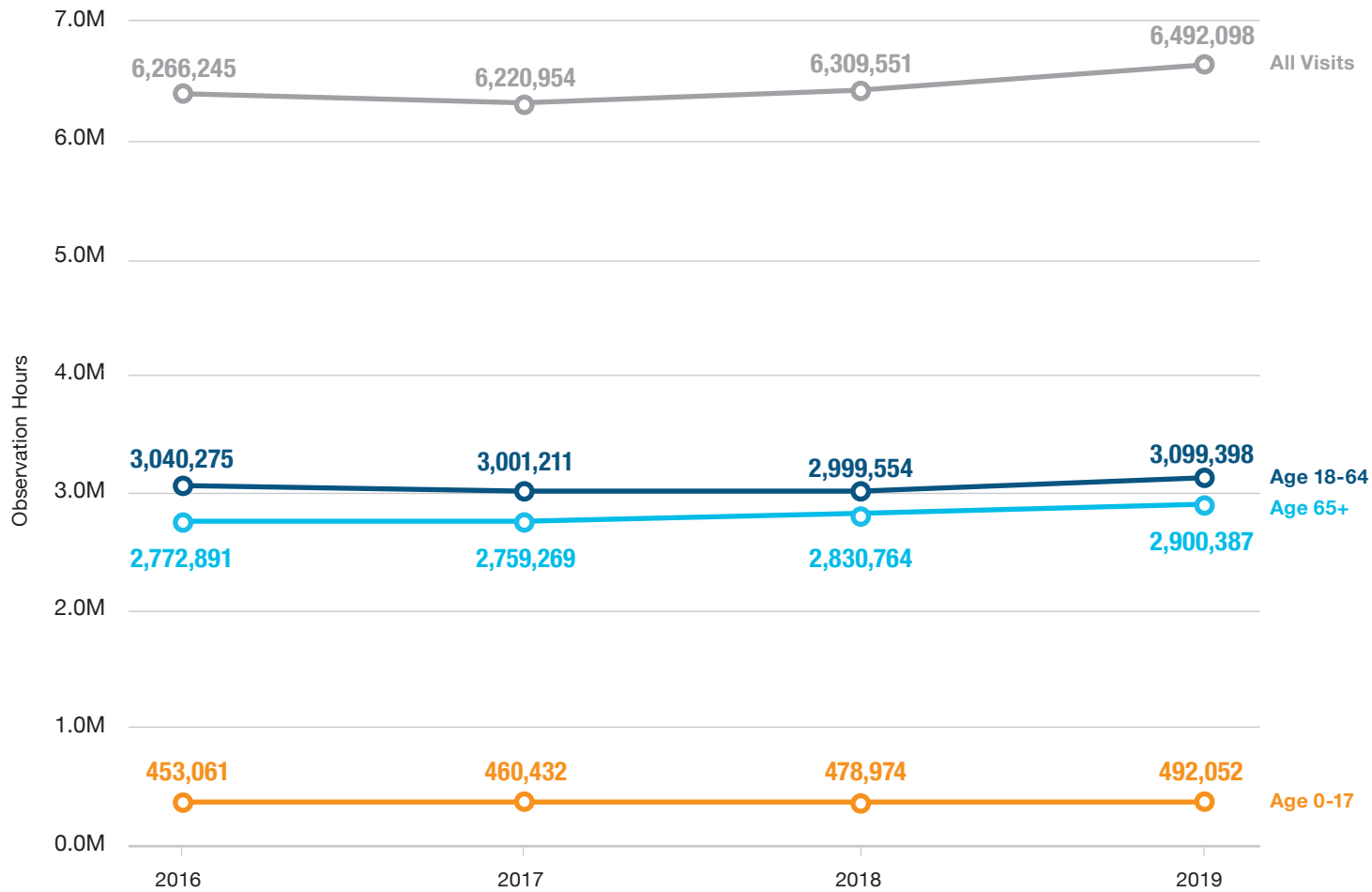Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2019
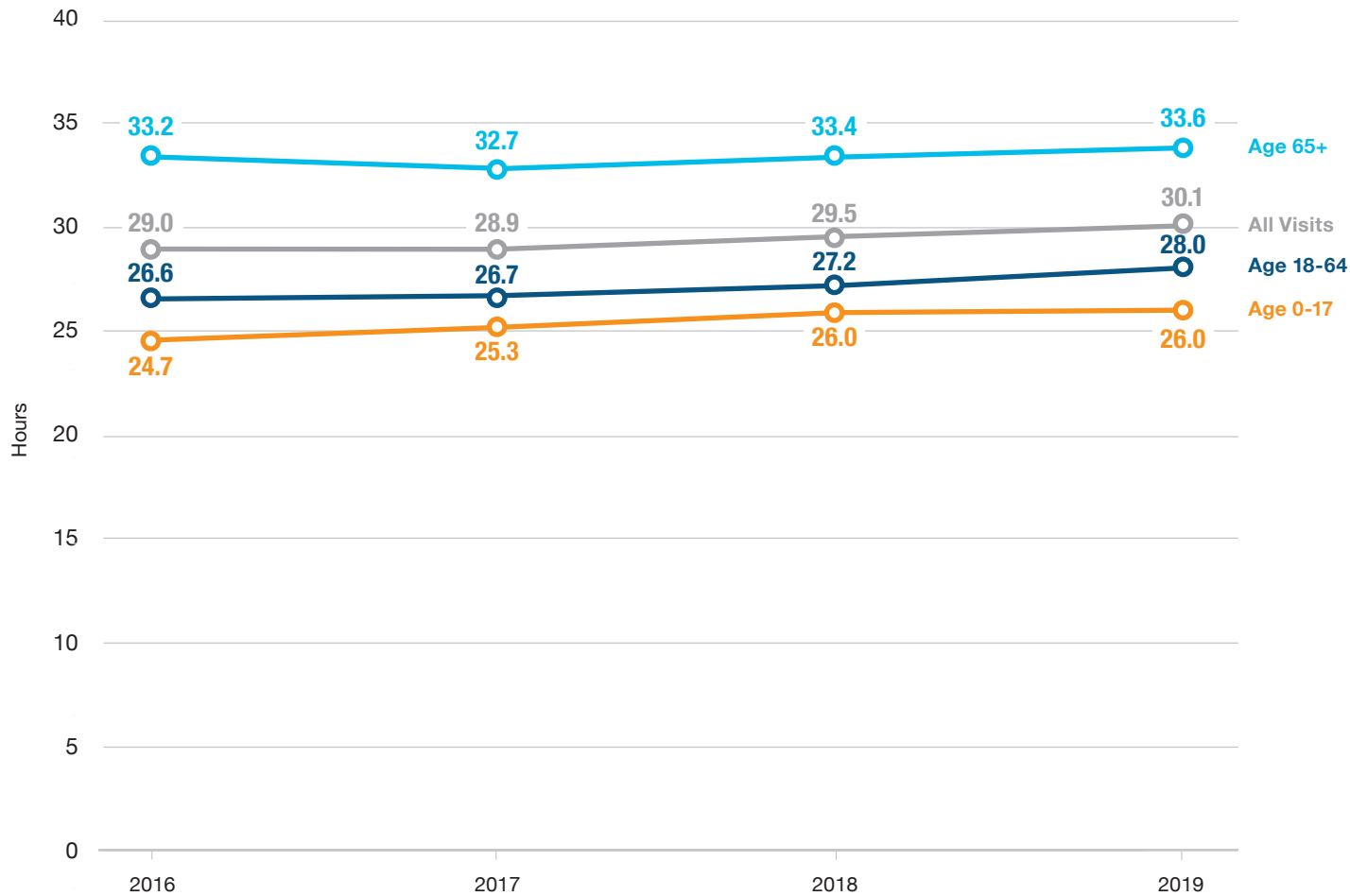
Total Observation Hours by Age Group, 2016-2019

Note: Total observation hours were calculated using the provided length of stay in hours for each outpatient observation visit as reported by acute care hospitals. The number of observation visits with missing length of stay included 21 in FFY 2016, 22 in FFY 2017, 33 in FFY 2018, and 20 in FFY 2019. The number of visits with missing age included 2 in FFY 2016, 10 in FFY 2017, 21 in FFY 2018, and 18 in FFY 2019. For more information, please see the technical appendix.

Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2016-2019

Average Length of Stay in Hours by Age Group, 2016-2019

Note: Average length of stay was calculated using the provided length of stay in hours for each outpatient observation visit as reported by acute care hospitals. The number of observation visits with missing length of stay included 21 in FFY 2016, 22 in FFY 2017, 33 in FFY 2018, and 20 in FFY 2019. The number of visits with missing age included 2 in FFY 2016, 10 in FFY 2017, 21 in FFY 2018, and 18 in FFY 2019. For more information, please see the technical appendix.

Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2016-2019
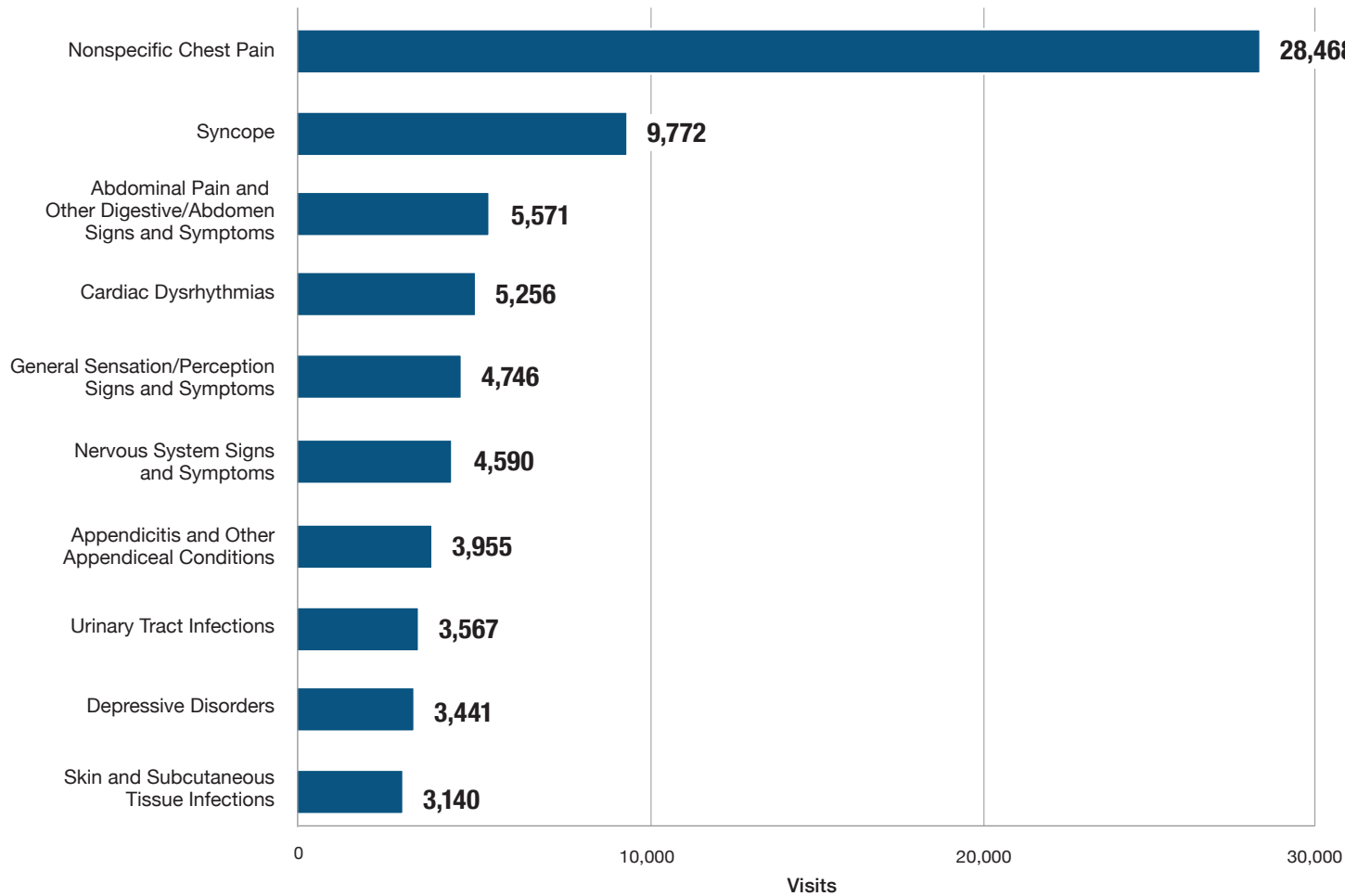
Primary Diagnoses among Observation Visits

Observation visits were categorized into clinical meaningful mutually exclusive categories based on the listed primary diagnosis code using the Clinical Classifications Software Refined (CCSR) for ICD-10-CM diagnoses developed by the Agency for Healthcare Research and Quality (AHRQ). All analyses in this section are for observation visits not resulting in an inpatient admission. For more information, please see the technical appendix.

Key Findings:

- Nonspecific chest pain was the most common primary diagnosis among observation visits, comprising 13.2% of all visits in FFY 2019. Other common primary diagnoses across all observation visits included syncope, abdominal pain, and cardiac dysrhythmias.

- Among the top 10 reasons for an observation visit, primary diagnoses of urinary tract infections were associated with the longest length of stay, at nearly two days (42.7 hours).

- The most common primary diagnoses for observation visits were nonspecific chest pain, syncope, and abdominal pain among adults. The most common primary diagnoses among pediatric patients were tonsillitis, appendicitis, and respiratory conditions including bronchitis and asthma.

- Behavioral health primary diagnoses, including depressive disorders and alcohol-related disorders, were among the top 10 reasons for observation among patients between the age of 18 and 64. ■
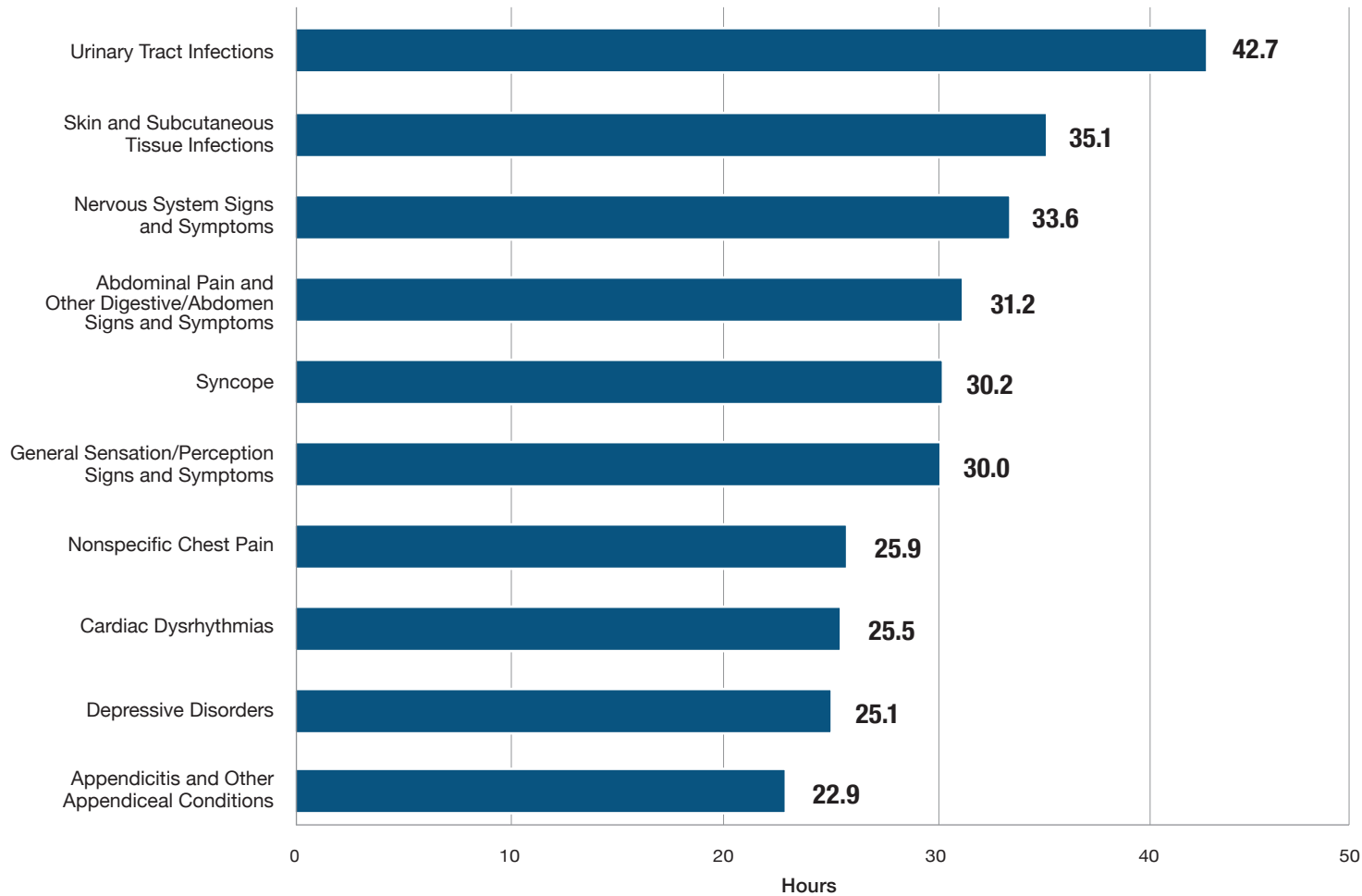
Most Common Observation Visit Primary Diagnoses, 2019

Diagnosis	Visits
Nonspecific Chest Pain	28,468
Syncope	9,772
Abdominal Pain and Other Digestive/Abdomen Signs and Symptoms	5,571
Cardiac Dysrhythmias	5,256
General Sensation/Perception Signs and Symptoms	4,746
Nervous System Signs and Symptoms	4,590
Appendicitis and Other Appendiceal Conditions	3,955
Urinary Tract Infections	3,567
Depressive Disorders	3,441
Skin and Subcutaneous Tissue Infections	3,140

Visits

Note: For this analysis, visits were categorized into clinically meaningful mutually exclusive categories based on the listed primary diagnosis code using the Clinical Classifications Software Refined (CCSR) for ICD-10-CM diagnoses developed by the Agency for Healthcare Research and Quality (AHRQ). For more information, please see the technical appendix.

Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2019

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Average Length of Stay in Hours among Most Common Observation Visit Primary Diagnoses, 2019

Diagnosis	Hours
Urinary Tract Infections	42.7
Skin and Subcutaneous Tissue Infections	35.1
Nervous System Signs and Symptoms	33.6
Abdominal Pain and Other Digestive/Abdomen Signs and Symptoms	31.2
Syncope	30.2
General Sensation/Perception Signs and Symptoms	30.0
Nonspecific Chest Pain	25.9
Cardiac Dysrhythmias	25.5
Depressive Disorders	25.1
Appendicitis and Other Appendiceal Conditions	22.9

Note: For this analysis, visits were categorized into clinically meaningful mutually exclusive categories based on the listed primary diagnosis code using the Clinical Classifications Software Refined (CCSR) for ICD-10-CM diagnoses developed by the Agency for Healthcare Research and Quality (AHRQ). Average length of stay was calculated using the provided length of stay in hours for each outpatient observation visit as reported by the acute care hospital. For more information, please see the technical appendix.

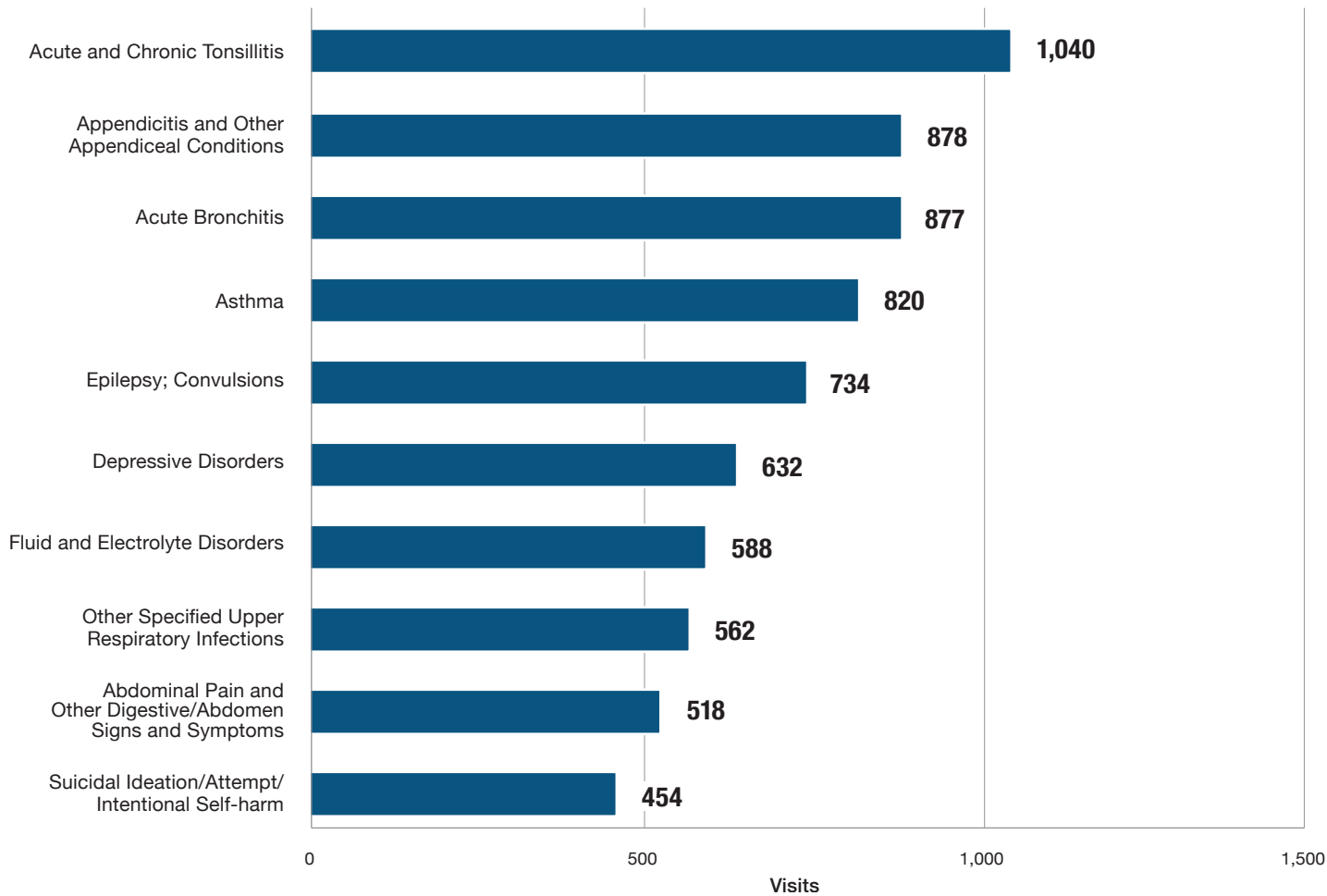Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2019

Most Common Primary Diagnoses among Patients Aged 0-17, 2019

Note: For this analysis, visits were categorized into clinically meaningful mutually exclusive categories based on the listed primary diagnosis code using the Clinical Classifications Software Refined (CCSR) for ICD-10-CM diagnoses developed by the Agency for Healthcare Research and Quality (AHRQ). For more information, please see the technical appendix.

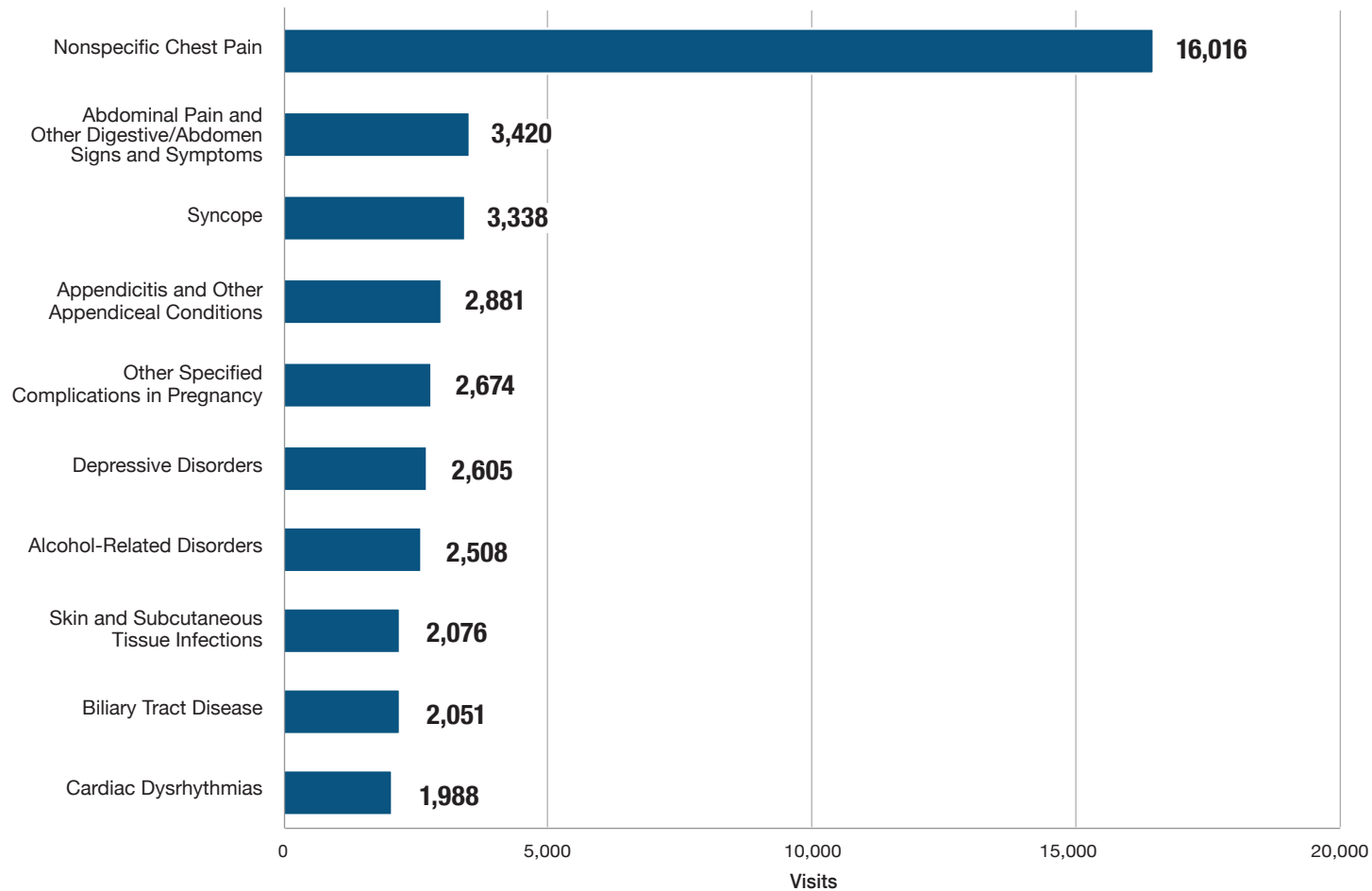Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2019
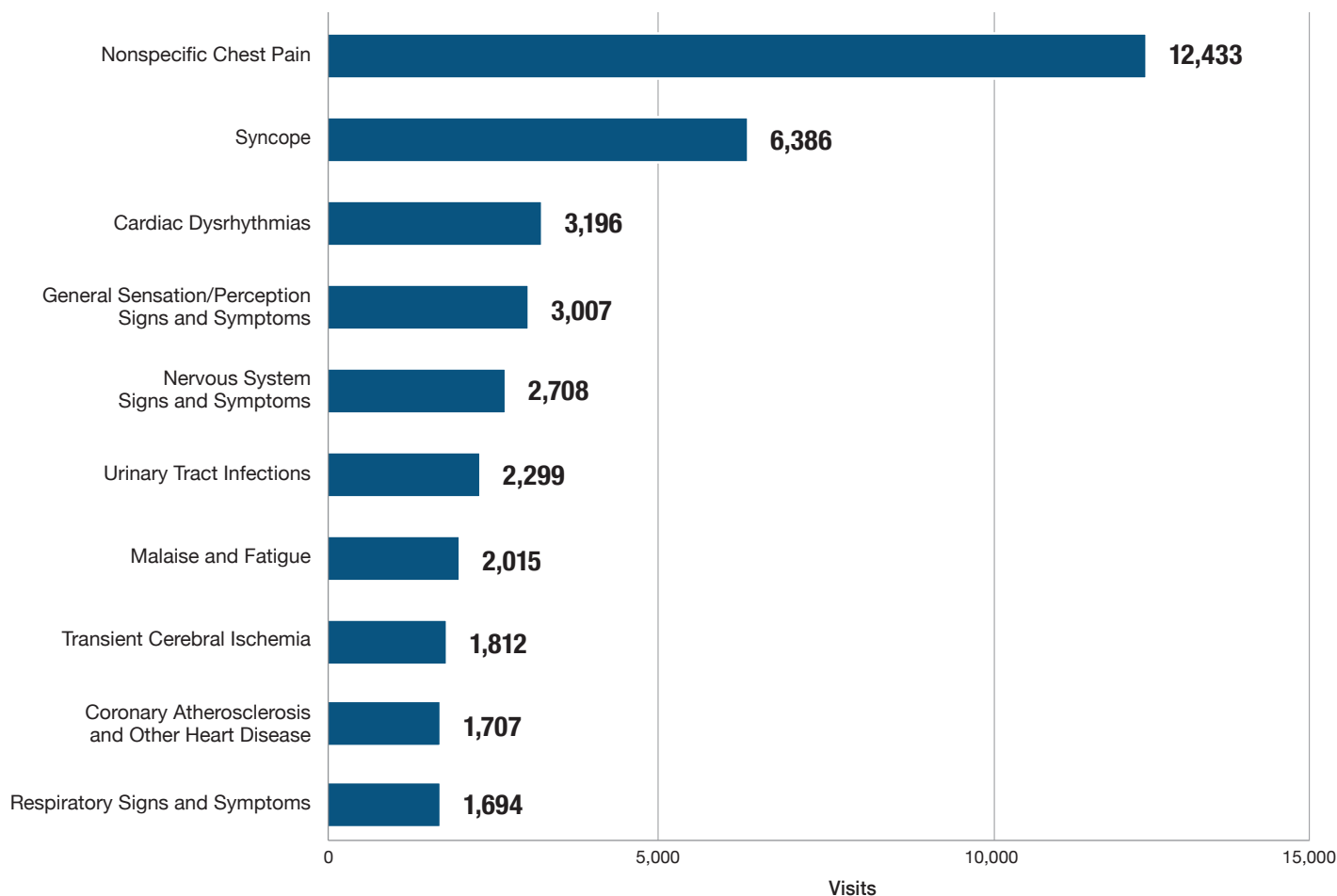
Most Common Primary Diagnoses among Patients Aged 18-64, 2019

Note: For this analysis, visits were categorized into clinically meaningful mutually exclusive categories based on the listed primary diagnosis code using the Clinical Classifications Software Refined (CCSR) for ICD-10-CM diagnoses developed by the Agency for Healthcare Research and Quality (AHRQ). For more information, please see the technical appendix.

Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2019

Most Common Primary Diagnoses among Patients Aged 65+, 2019

Nonspecific Chest Pain — 12,433
Syncope — 6,386
Cardiac Dysrhythmias — 3,196
General Sensation/Perception Signs and Symptoms — 3,007
Nervous System Signs and Symptoms — 2,708
Urinary Tract Infections — 2,299
Malaise and Fatigue — 2,015
Transient Cerebral Ischemia — 1,812
Coronary Atherosclerosis and Other Heart Disease — 1,707
Respiratory Signs and Symptoms — 1,694

Visits (x-axis: 0, 5,000, 10,000, 15,000)

Note: For this analysis, visits were categorized into clinically meaningful mutually exclusive categories based on the listed primary diagnosis code using the Clinical Classifications Software Refined (CCSR) for ICD-10-CM diagnoses developed by the Agency for Healthcare Research and Quality (AHRQ). For more information, please see the technical appendix.

Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2019

SECTION 4:

Behavioral Health and Observation Visits

In this section, observation visits for behavioral health conditions were defined as visits with a primary diagnosis of either a mental health condition or substance use disorder based on the listed primary diagnosis code using the Clinical Classifications Software Refined (CCSR) for ICD-10-CM diagnoses developed by the Agency for Healthcare Research and Quality (AHRQ). All analyses in this section are for observation visits not resulting in an inpatient admission. For more information, please see the technical appendix.
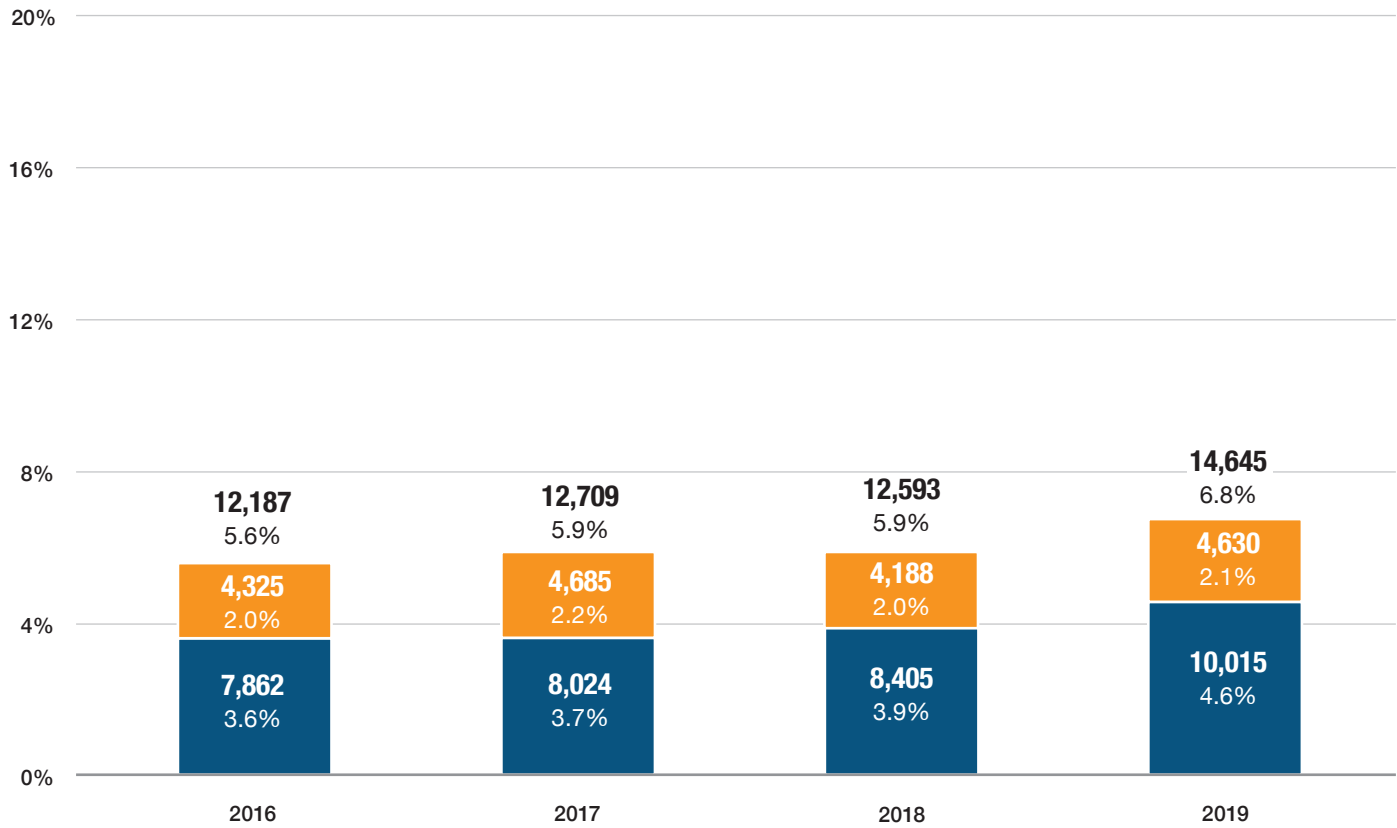
Key Findings:

- 6.8% of observation visits had a primary diagnosis of a behavioral health condition; among those visits, 4.6% were mental health diagnoses and 2.1% were substance use disorder diagnoses.

- While the total volume of observation visits stayed relatively consistent from FFY 2016 to FFY 2019, the volume of observation visits associated with behavioral

health conditions increased by over 20% over the four-year period.

- The proportion of observation visits with behavioral health primary diagnoses was over three times greater among visits with an expected primary payer type of Medicaid (13.3%) than the proportion for commercial insurance (4.0%) or Medicare (3.8%).

- About one in seven (15.6%) observation visits for adults aged 18 to 44 had a behavioral health primary diagnosis, higher than all other age groups (0.7-9.0%).

- Observation visits with behavioral health primary diagnoses were more common among male patients (8.3%) than female patients (5.5%).

- Observation visits with behavioral health primary diagnoses were more common among non-Hispanic Black patients (8.0%) than patients of other races and ethnicities (3.4-7.0%).

# Observation Visits with Behavioral Health Primary Diagnoses, 2016-2019

Key
- 🟧 Substance Use
- 🟦 Mental Health

Year	Total	Substance Use	Mental Health
2016	12,187 (5.6%)	4,325 (2.0%)	7,862 (3.6%)
2017	12,709 (5.9%)	4,685 (2.2%)	8,024 (3.7%)
2018	12,593 (5.9%)	4,188 (2.0%)	8,405 (3.9%)
2019	14,645 (6.8%)	4,630 (2.1%)	10,015 (4.6%)

Note: Visits were categorized into clinically meaningful mutually exclusive behavioral health categories based on primary diagnosis codes using the CCSR categories for ICD-10-CM diagnoses. For more information, please see the technical appendix.

Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2016-2019

Observation Visits by Patient Region of Residence among Non-Behavioral Health Visits, 2019
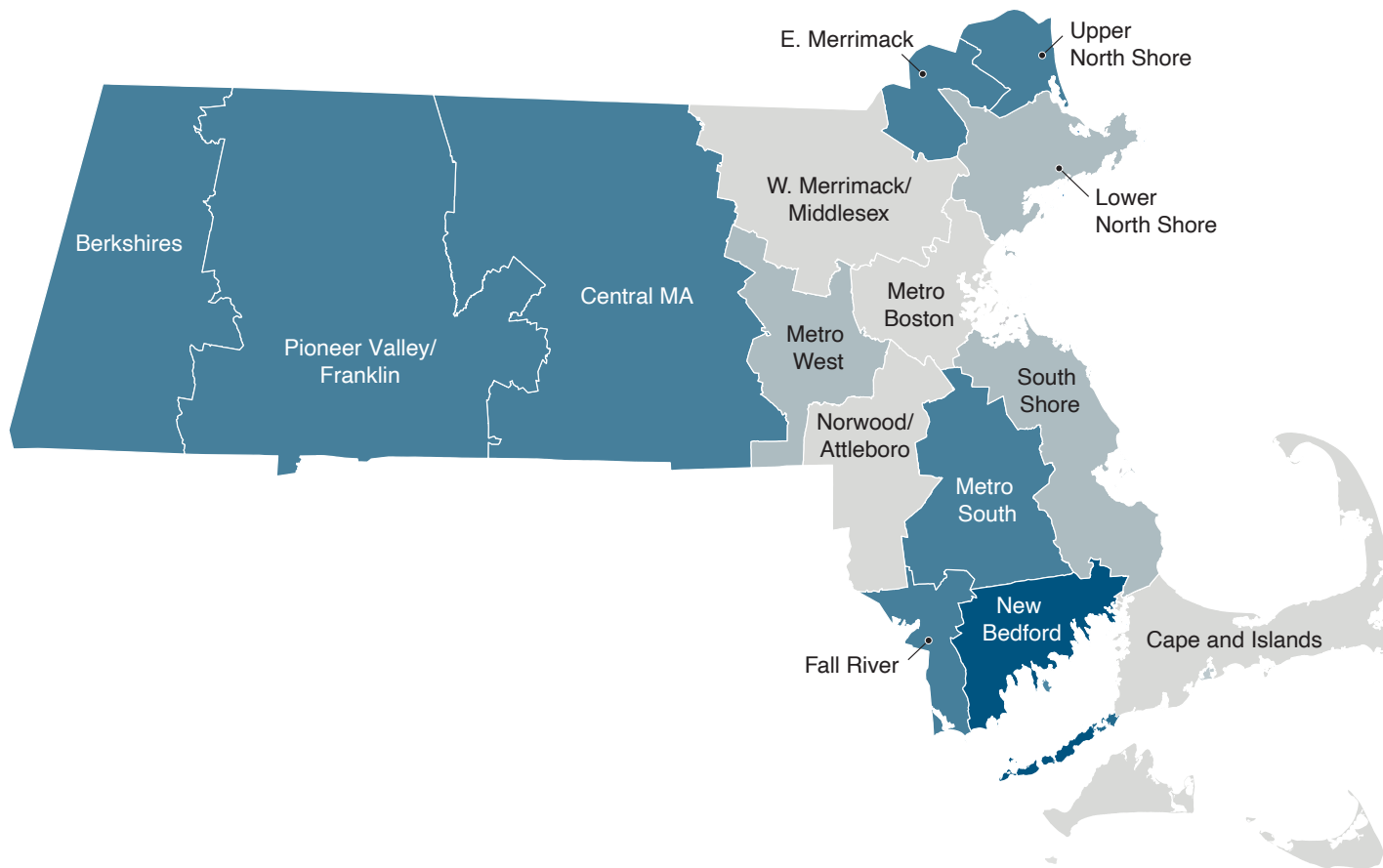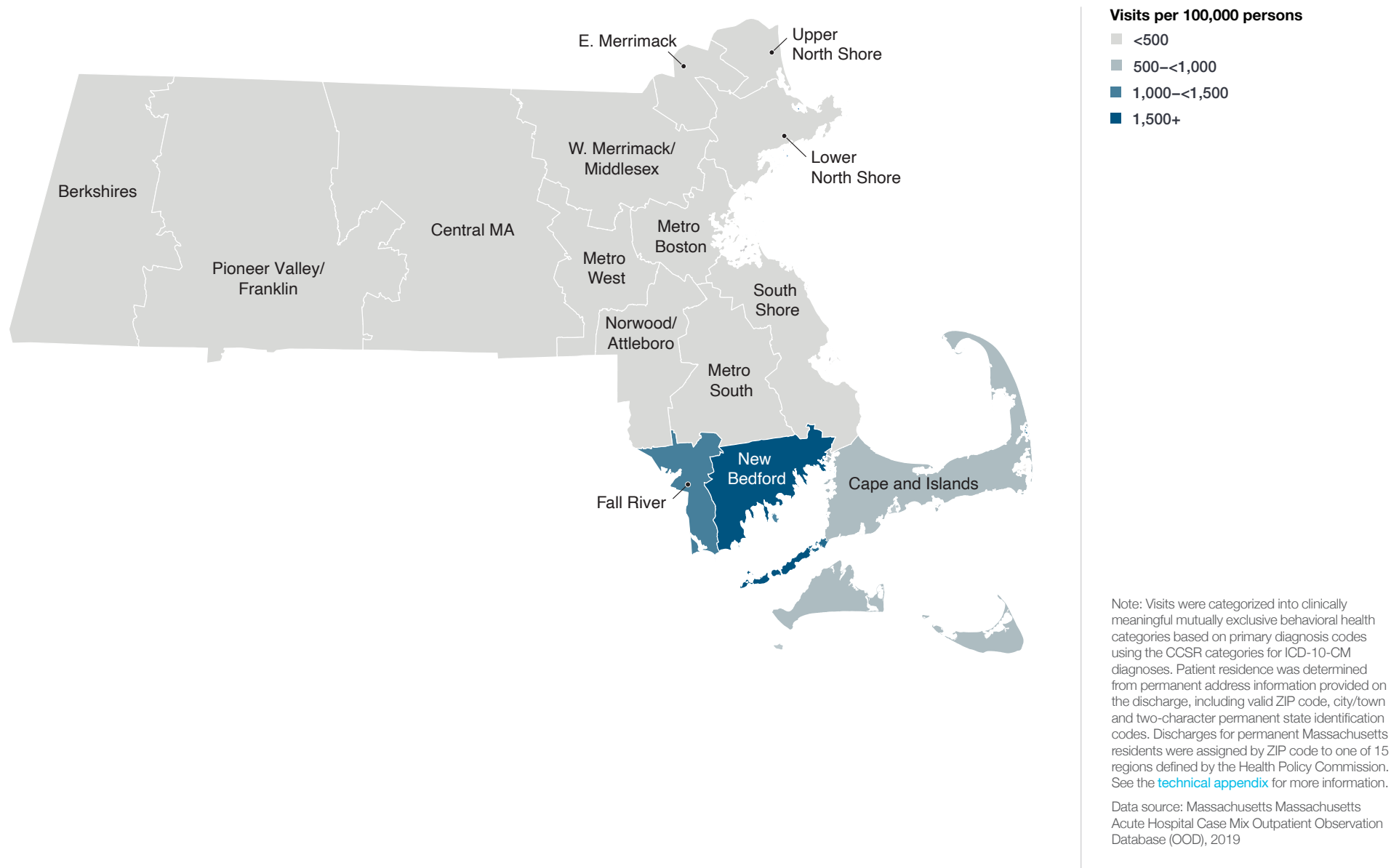

Visits per 100,000 persons

- <2.500
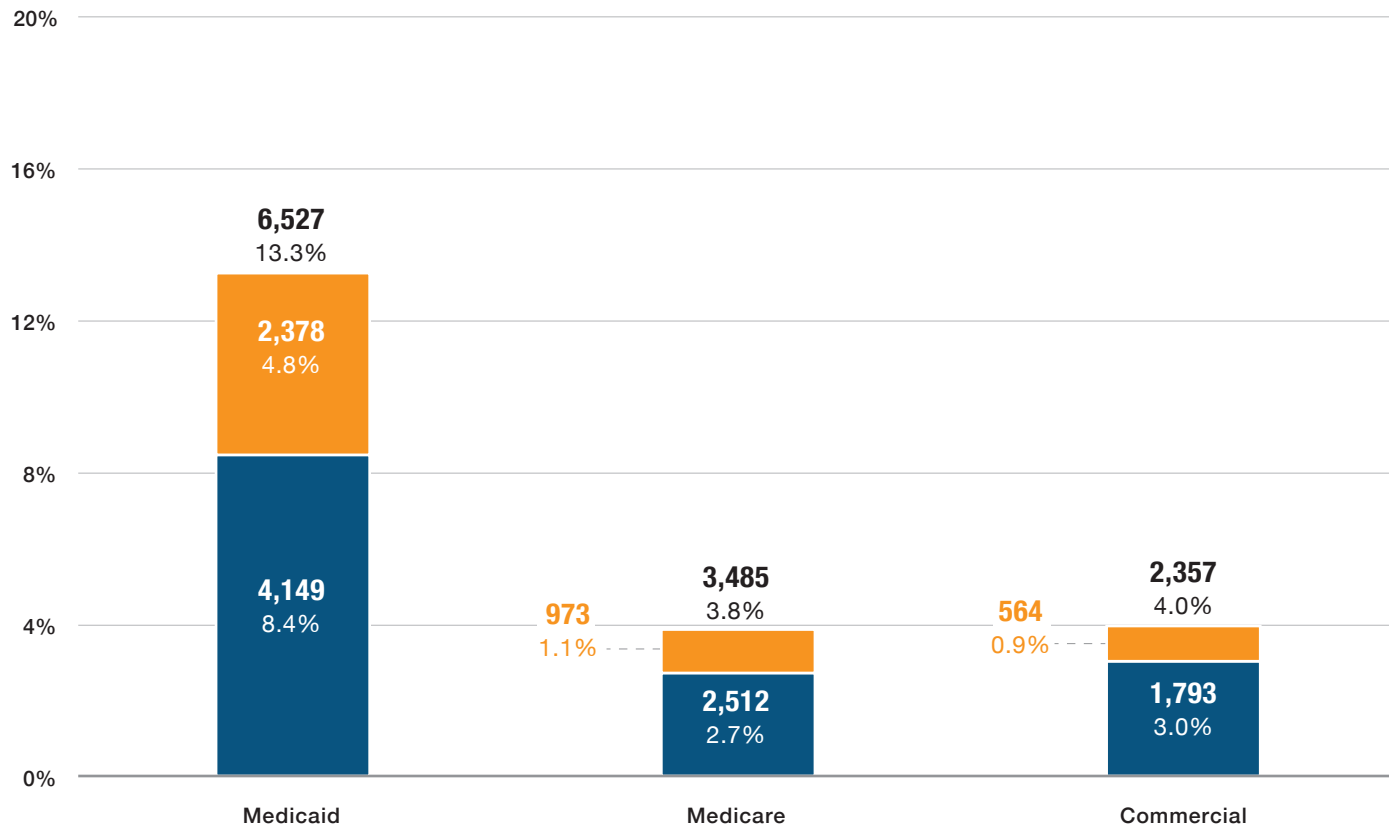- 2,500–<3,000
- 3,000–<3,500
- 3,500+

Note: Visits were categorized into clinically meaningful mutually exclusive behavioral health categories based on primary diagnosis codes using the CCSR categories for ICD-10-CM diagnoses. Patient residence was determined from permanent address information provided on the discharge, including valid ZIP code, city/town and two-character permanent state identification codes. Discharges for permanent Massachusetts residents were assigned by ZIP code to one of 15 regions defined by the Health Policy Commission. See the technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2019

Observation Visits by Patient Region of Residence among Behavioral Health Visits, 2019

Visits per 100,000 persons

- <500
- 500–<1,000
- 1,000–<1,500
- 1,500+

Note: Visits were categorized into clinically meaningful mutually exclusive behavioral health categories based on primary diagnosis codes using the CCSR categories for ICD-10-CM diagnoses. Patient residence was determined from permanent address information provided on the discharge, including valid ZIP code, city/town and two-character permanent state identification codes. Discharges for permanent Massachusetts residents were assigned by ZIP code to one of 15 regions defined by the Health Policy Commission. See the technical appendix for more information.

Data source: Massachusetts Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2019

Observation Visits with Behavioral Health Primary Diagnoses by Expected Primary Payer Type, 2019
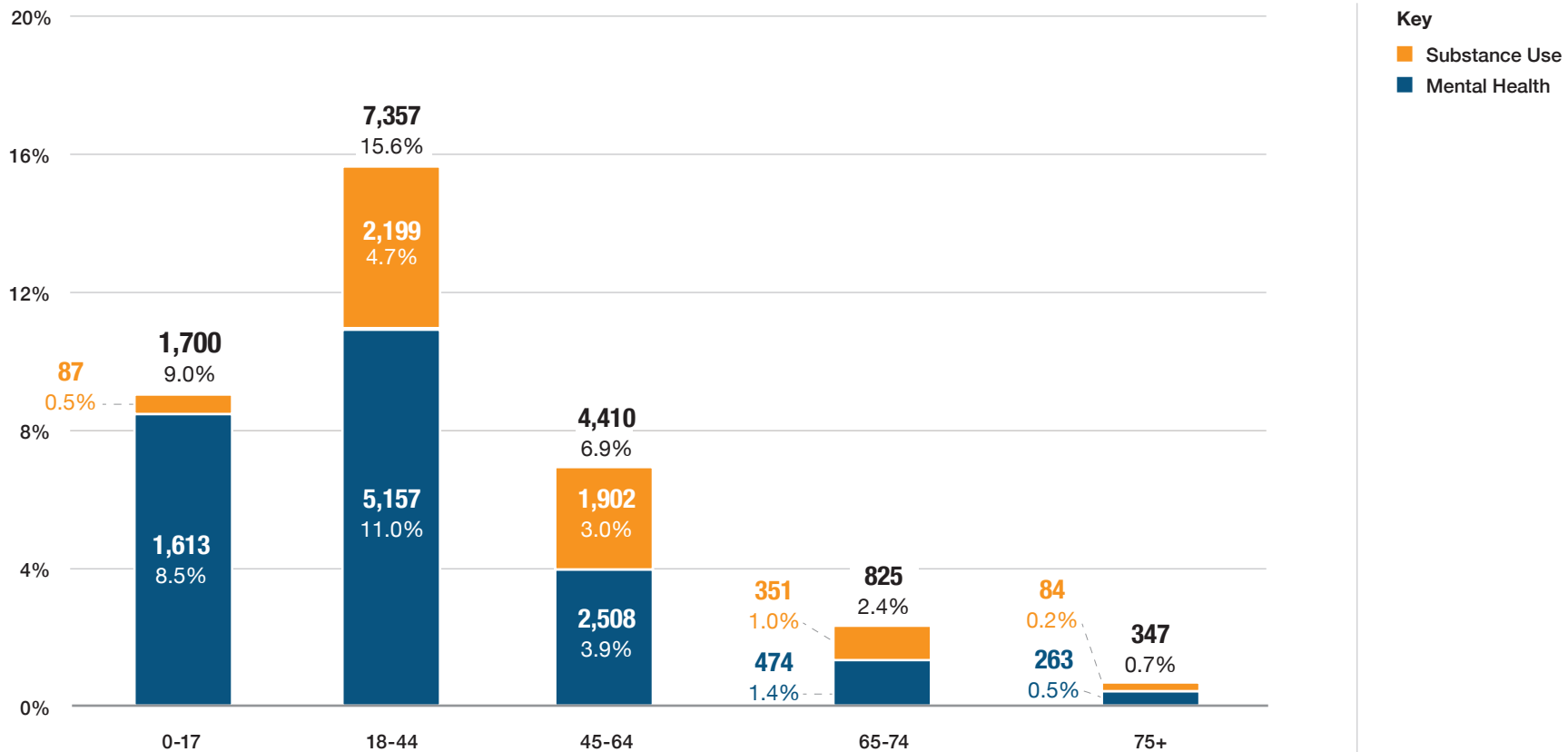
Key
- 🟧 Substance Use
- 🟦 Mental Health

Note: Visits were categorized into clinically meaningful mutually exclusive behavioral health categories based on primary diagnosis codes using the CCSR categories for ICD-10-CM diagnoses. Visits with an expected primary payer type of Other, Self-Pay and Missing were excluded from the chart. For more information, please see the technical appendix.

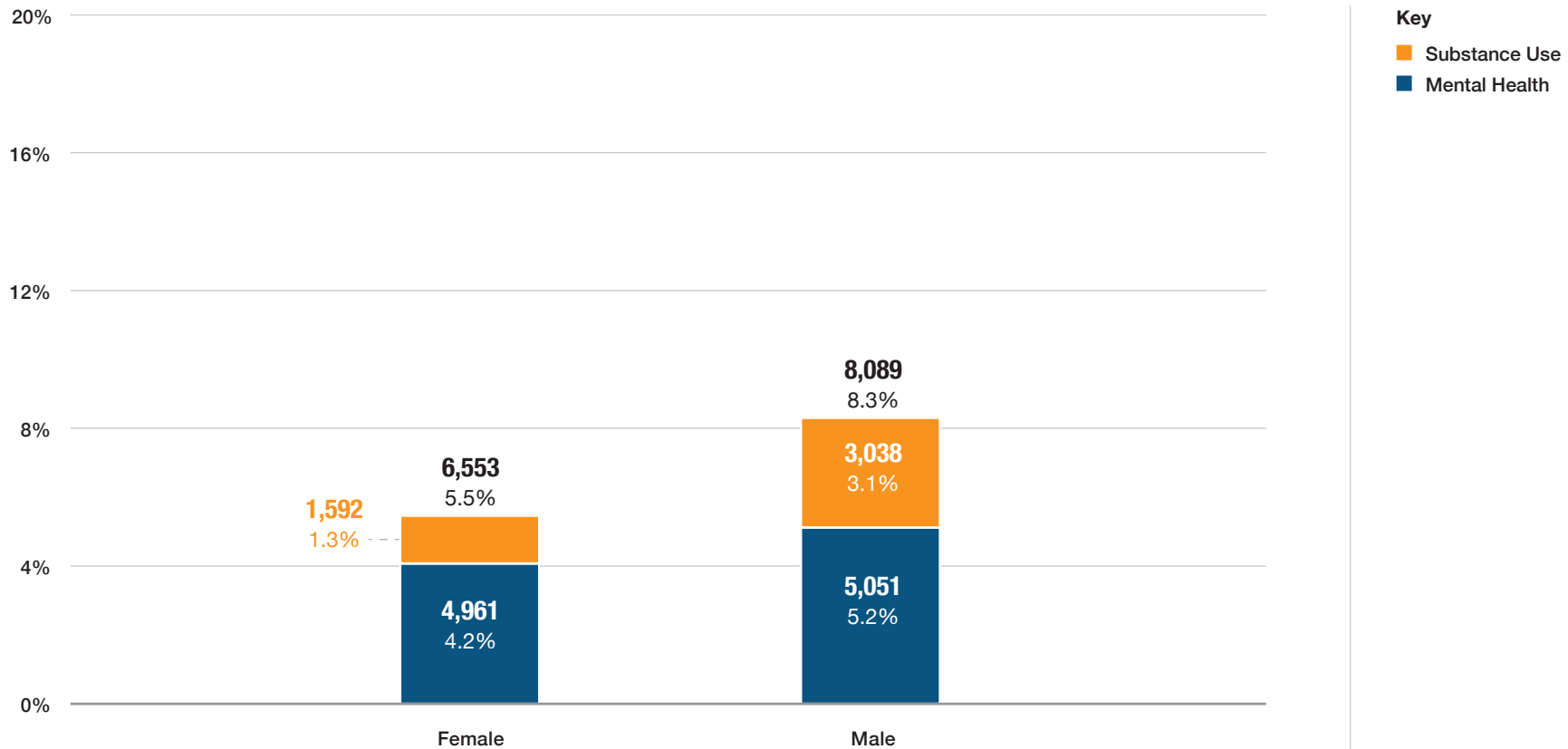Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2019

Observation Visits with Behavioral Health Primary Diagnoses by Age Group, 2019

Key
- Substance Use
- Mental Health

Note: Visits were categorized into clinically meaningful mutually exclusive behavioral health categories based on primary diagnosis codes using the CCSR categories for ICD-10-CM diagnoses. In FFY 2019, there were 18 visits with missing age. For more information, please see the technical appendix.

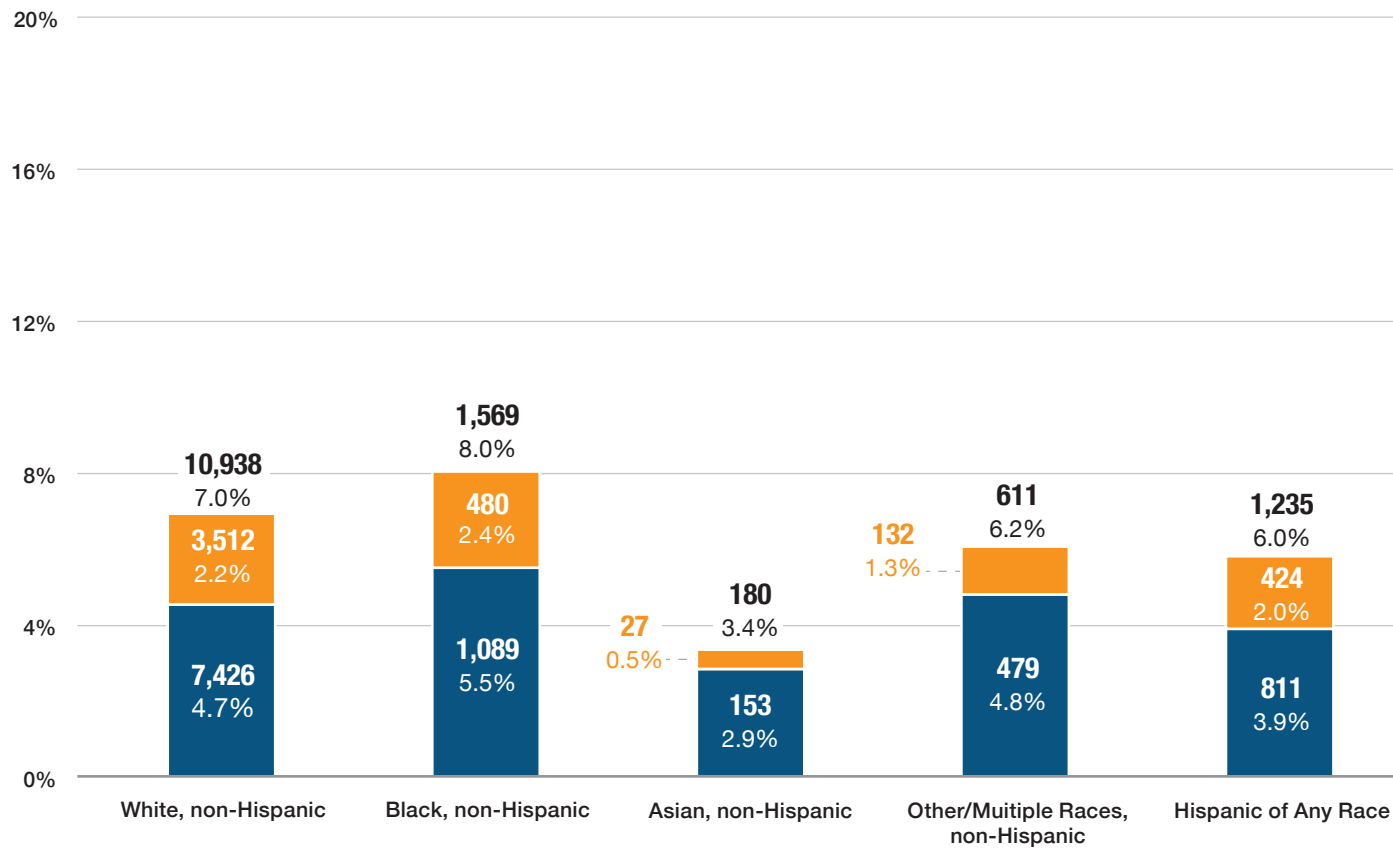Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2019

Observation Visits with Behavioral Health Primary Diagnoses by Gender, 2019

Key
- ■ Substance Use
- ■ Mental Health

Female
- 6,553 — 5.5%
- 1,592 — 1.3% (Substance Use)
- 4,961 — 4.2% (Mental Health)

Male
- 8,089 — 8.3%
- 3,038 — 3.1% (Substance Use)
- 5,051 — 5.2% (Mental Health)

Note: Visits were categorized into clinically meaningful mutually exclusive behavioral health categories based on primary diagnosis codes using the CCSR categories for ICD-10-CM diagnoses. In FFY 2019, there were 7 visits with missing or unknown gender. For more information, please see the technical appendix.

Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2019

Observation Visits with Behavioral Health Primary Diagnoses by Race and Ethnicity, 2019

Key
- Substance Use
- Mental Health

Note: Visits were categorized into clinically meaningful mutually exclusive behavioral health categories based on primary diagnosis codes using the CCSR categories for ICD-10-CM diagnoses. Visits with missing race/ethnicity were excluded from this graphic. For more information, please see the technical appendix.

Data source: Massachusetts Acute Hospital Case Mix Outpatient Observation Database (OOD), 2019

Notes

1 Centers for Medicare and Medicaid Services, "Inpatient or outpatient hospital status affects your costs," https://www.medicare.gov/what-medicare-covers/what-part-a-covers/inpatient-or-outpatient-hospital-status

2 Baugh CW, Venkatesh AK and Bohan JS, 2011, "Emergency department observation units: A clinical and financial benefit for hospitals," *Health Care Management Review*, Volume 36, Issue 1

3 AARP Public Policy Institute, "Rapid Growth in Medicare Hospital Observation Services: What's Going On?," September 2013, https://www.aarp.org/content/dam/aarp/research/public_policy_institute/health/2013/rapid-growth-in-medicare-hospital-observation-services-AARP-ppi-health.pdf

4 Poon SJ et al., 2021, "Medicare Two-Midnight Rule Accelerated Shift To Observation Stays," *Health Affairs*, Volume 40, Issue 11

5 Centers for Medicare and Medicaid Services, "Fact Sheet: Two-Midnight Rule," October 2015, https://www.cms.gov/newsroom/fact-sheets/fact-sheet-two-midnight-rule-0

6 Medicare Payment Advisory Comission, "Report to the Congress: Medicare and the Health Care Delivery System," June 2018, https://www.medpac.gov/document/http-www-medpac-gov-docs-default-source-reports-jun18_medpacreporttocongress_rev_nov2019_note_sec-pdf/

7 See note 2.

8 MassGIS, "MassGIS Data: Acute Care Hospitals," December 2018, https://www.mass.gov/info-details/massgis-data-acute-care-hospitals

9 See note 8.