Massachusetts Acute Care Hospital Inpatient Discharge Data

FFY 2016-2019

December 2020

CHIA.

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Background

Inpatient services in acute care hospitals serve a vital role in the continuum of health care services in Massachusetts, accounting for 809,048 hospital stays and nearly 4 million patient days of care in Federal Fiscal Year (FFY) 2019 (October 1, 2018 – September 30, 2019). To better understand trends in inpatient utilization, the Massachusetts Center for Health Information and Analysis (CHIA) has analyzed inpatient discharges in all acute care hospitals in Massachusetts over a four-year period, from FFY 2016 to FFY 2019. This report presents key measures of inpatient utilization overall and by hospital, patient, and discharge characteristics. It is accompanied by a databook with more detailed analyses and a technical appendix.

The source of this report is CHIA's Hospital Inpatient Discharge Database (HIDD), which contain discharge-level inpatient data provided by all 61 acute care hospitals in Massachusetts on patient characteristics, admission and discharge status, diagnoses, treatments, services, charges, and length of stay. Government agencies, health care providers, payers, and researchers use CHIA's HIDD for various purposes, including public health initiatives, analyses of preventable hospitalizations and readmissions, and comparative cost and outcomes research.

This report on CHIA's HIDD is the first in a new series providing analyses and trends from the Massachusetts Acute Hospital Case Mix Database. In addition to this report, CHIA is developing parallel reports for the other Case Mix databases, the Emergency Department Database (EDD) and Outpatient Observation Database (OOD), and in the future will produce data updates on a regular basis from all three sources to provide timely access to key analyses from these data as they are submitted and processed by the agency.

Discharges eligible for this report consist of those with a discharge date between October 1, 2015 and September 30, 2019. To find more information on requirements, data intake, internal processing, and data release, please see the Case Mix Data documentation provided on CHIA's website. For further information about the Massachusetts Acute Hospital Case Mix Database (Case Mix) data, including information about data governance, data submissions, data enhancements, and use cases, please see the Overview of the Massachusetts Acute Hospital Case Mix Database (December 2019). ■

Executive Summary

This report on CHIA's Hospital Inpatient Discharge Database (HIDD) is the first in a new series providing analyses and trends from the Massachusetts Acute Hospital Case Mix Database. This report presents key measures of inpatient utilization overall and by hospital, patient, and discharge characteristics.

During the period of FFY 2016 to 2019, overall acute care discharge volume remained relatively stable, while total patient days of care increased each year, reflecting a longer average length of stay for inpatient hospitalizations.

Inpatient stays for childbirth and other maternal-related care were among the most common reasons for admission, contributing to female patients representing a greater share of inpatient discharges than male patients. A growing share of hospitalizations were for older adults, with nearly 40% in FFY 2019 for those aged 65 and

older. Over ninety percent (93%) of all hospitalizations in Massachusetts were for patients with a permanent Massachusetts residence.

Nearly half of all hospitalizations had Medicare as the expected primary payer type; slightly less than one-third had commercial as their expected primary payer, and around one in five inpatient discharges had Medicaid as the expected primary payer. Discharges with an expected primary payer of Medicare increased between FFY 2016 and FFY 2019, whereas discharges for Medicaid decreased over the same period. Most inpatient stays resulted in discharge to a home setting, followed by discharges to the care of home health agencies and skilled nursing facilities. Discharges for patients living in the East Merrimack and Metro Boston regions had the highest share of discharges to a home setting, whereas the Cape and Islands and Berkshires regions had the highest shares of discharges to

skilled nursing facilities.

One in six inpatient discharges (17.5% in FFY 2019) required intensive care. Intensive care use was most common in specialty hospitals, Academic Medical Centers (AMCs), and community hospitals serving a high public payer patient population.

The most common primary diagnoses for hospital admissions other than childbirth and other maternal-related care were septicemia, heart failure, hip and knee replacements, and pneumonia. There was an increase in severity of illness classification from FFY 2016 to FFY 2019. Excluding procedures related to maternal care and newborns, the most common primary procedure types include respiratory intubation and mechanical ventilation, hip and knee replacement, alcohol and drug rehabilitation and detoxification, blood transfusions, and upper gastrointestinal endoscopies.

CHIA will continue to monitor this important component of the health care system as hospitals continue to evolve to meet the changing needs of the residents in the Commonwealth. ■

Introduction to Massachusetts Acute Care Hospitals

Section 8 of Chapter 12C of the Massachusetts General Laws grants CHIA authority to collect data from Massachusetts hospitals. CHIA, and its predecessor agency the Division of Health Care Finance and Policy, have collected data from Massachusetts acute care hospitals for more than twenty years, including inpatient, emergency department, and outpatient observation data. The HIDD contain discharge-level inpatient data on patient characteristics, admission and discharge status, diagnoses, treatments, services, charges, and length of stay.

In FFY 2019, 61 acute care hospitals reported a total inpatient discharge volume of 809,048 discharges in the HIDD. 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 AMCs, six are classified as teaching hospitals, and seven are classified as specialty hospitals.

- Over half (38 of 61) of Massachusetts acute care hospitals are 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. ∎

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	6
Specialty Hospital	7
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: 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 databook.

Data source: CHIA Hospital Profiles, 2019

Massachusetts Hospitals and Their Campuses, 2019
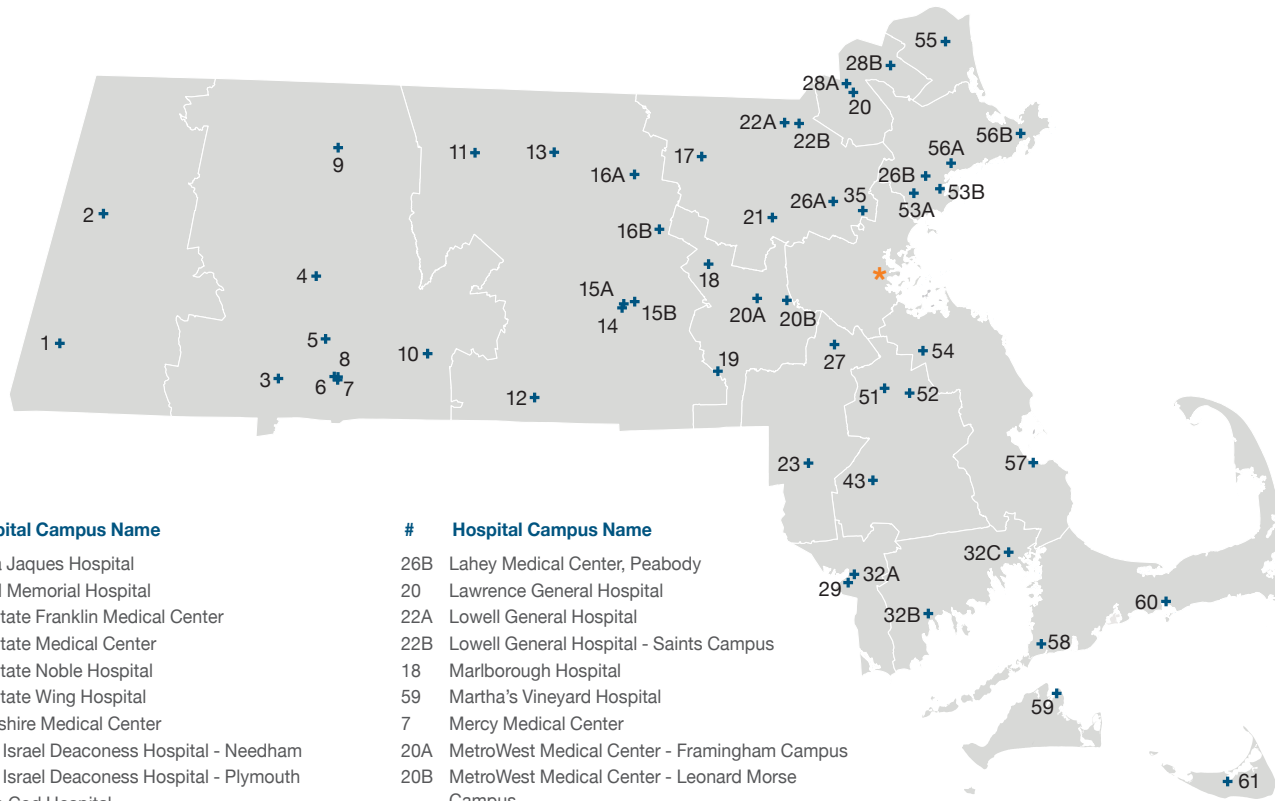
#	Hospital Campus Name
55	Anna Jaques Hospital
11	Athol Memorial Hospital
9	Baystate Franklin Medical Center
6	Baystate Medical Center
3	Baystate Noble Hospital
10	Baystate Wing Hospital
2	Berkshire Medical Center
25	Beth Israel Deaconess Hospital - Needham
57	Beth Israel Deaconess Hospital - Plymouth
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 databook.

Data source: CHIA Hospital Profiles, 2019 and MassGIS[1]

Metro Boston Hospitals and Their Campuses, 2019
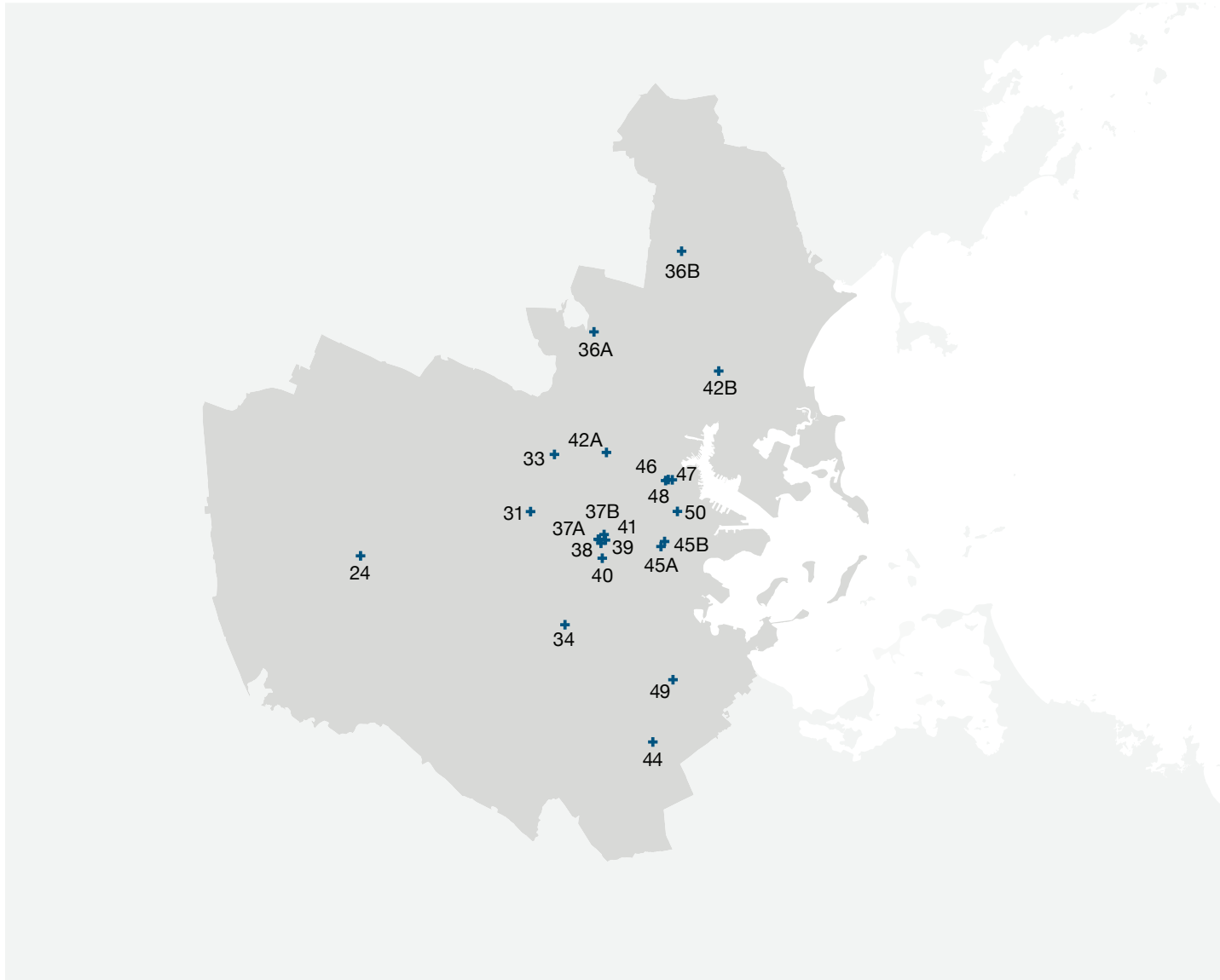
#	Hospital Campus Name
44	Beth Israel Deaconess Hospital - Milton
37B	Beth Israel Deaconess Medical Center - East Campus
37A	Beth Israel Deaconess Medical Center - West Campus
41	Boston Children's Hospital
45A	Boston Medical Center - Menino Pavilion Campus
45B	Boston Medical Center - Newton Pavilion 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 databook.

Data source: CHIA Hospital Profiles, 2019 and MassGIS[2]

Discharge Characteristics and Utilization

The total volume of inpatient discharges from Massachusetts acute care hospitals has remained relatively stable between FFY 2016 and 2019, with a change of less than 1% over the four-year period. However, the total patient days of care across all hospitals has increased by 4.7% over the same period, resulting in an increase in the average length of stay from 4.7 days in FFY 2016 to 4.9 days in FFY 2019.

Hospital Characteristics

Between FFY 2016 and 2019, over half of all inpatient discharges were from community hospitals. In FFY 2019, 38.6% of inpatient discharges were from community hospitals with a HPP designation, and 14.4% were from other community hospitals. Most other discharges were from AMCs (28.2%) and teaching hospitals (15.7%). Specialty hospitals make up the smallest share of inpatient discharges at just over 3 percent of all discharges in

each fiscal year. The share of inpatient discharges from hospitals with a HPP designation (more than 63% of all gross patient service revenue coming from government payers) has grown slightly between FFY 2016 and 2019.

Among hospital cohorts, AMCs have seen the largest relative increase in total patient days of care. An observed increase in the share of patient days of care provided by HPP hospitals is attributable to an increase in the number of hospitals designated as high public payer between FFY 2017 and FFY 2018. Specialty hospitals have the longest average length of stay among hospital cohorts at 6.5 days in FFY 2019.

Three in four inpatient discharges are from hospitals with a multi-acute hospital system affiliation. Partners HealthCare System (now known as Mass General Brigham) had the highest share of inpatient discharges among multi-hospital

systems, representing 19.7% of all inpatient discharges in FFY 2019. Beth Israel Lahey Health had the second highest share of inpatient discharges in FFY 2019 at 18.5%.

Patient Characteristics

The share of discharges for patients who are aged 65 and older has grown steadily since FFY 2016 and represented 41.3% of all discharges in FFY 2019. The number of discharges for female patients exceeded those of male patients by approximately 10 percentage points, due in part to admissions to the hospital for childbirth or other maternity-related conditions. Non-white and Hispanic populations represent a slowly growing share of inpatient discharges, consistent with racial and ethnic population trends in the Commonwealth as a whole.[3]

In FFY 2019, 93.4% of all inpatient discharges in the Commonwealth were for patients with a permanent residence in Massachusetts. Most inpatient discharges for out-of-state residents are residents of surrounding states in New England and New York.

Expected Primary Payer Type

The most common expected primary payer type was Medicare, which was associated with nearly half of all discharges in FFY 2019 (45.4%). Nearly one in three discharges have commercial insurance as the expected primary payer type, and around one in five discharges are associated with Medicaid as the expected primary payer type. Among patients aged 0-17 and 18-44, commercial insurance was most common, followed by Medicaid. Medicare was the most common expected primary payer type among those aged 65 and over. In FFY 2019, the Cape and Islands and Fall River regions had the highest share of discharges associated with Medicare as the expected primary payer type (58.5% and 55.0%, respectively), whereas Medicaid was most prevalent in the East Merrimack and Pioneer Valley/Franklin regions (30.5% and 27.4%, respectively). The regions with the highest share of commercial insurance were Metro West and Norwood/Attleboro (38.0% and 35.8%, respectively).

Discharge Setting

In FFY 2019, over half (54.7%) of inpatient stays resulted in a discharge to home. One in five discharges (20.8%) were discharges to home with home health care, and one in eight (12.0%) discharges were to a skilled nursing facility (SNF). Discharges for patients living in the East Merrimack and Metro Boston regions had the highest share of discharges to a home setting (57.8% and 57.6%, respectively). Discharges to HHAs were most common in the Cape and Islands region (28.8%), whereas the Cape and Islands and Berkshires regions had the highest shares of discharges to SNFs (16.9 and 15.0%, respectively). ■

Inpatient Utilization Overview, 2016-2019

Total Inpatient Discharges, 2016-2019

- 803,750 (2016)
- 808,866 (2017)
- 809,270 (2018)
- 809,048 (2019)
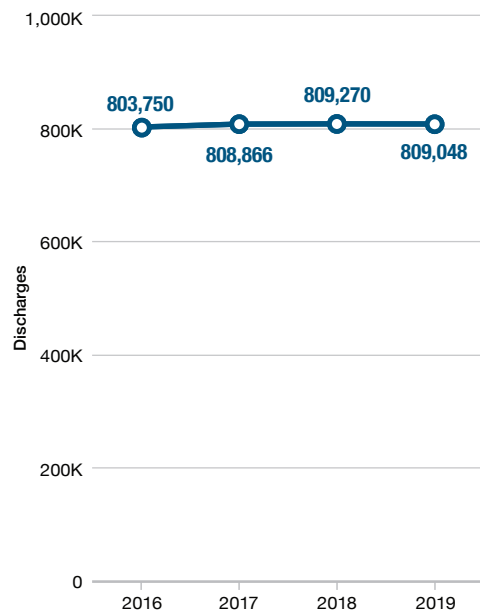
Total Inpatient Days, 2016-2019

- 3,815,632 (2016)
- 3,869,361 (2017)
- 3,945,704 (2018)
- 3,994,266 (2019)

Average Length of Stay, 2016-2019
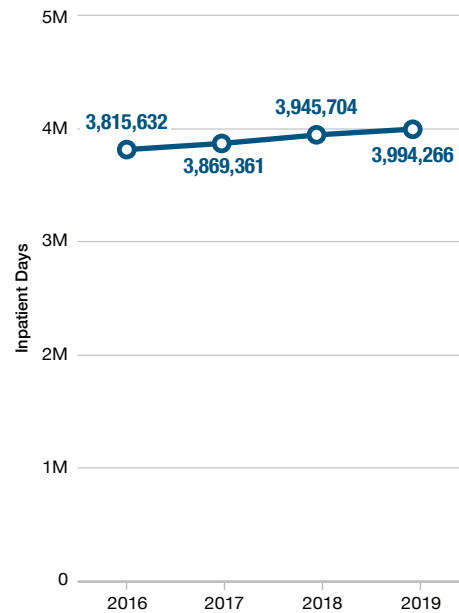
- 4.7 (2016)
- 4.8 (2017)
- 4.9 (2018)
- 4.9 (2019)
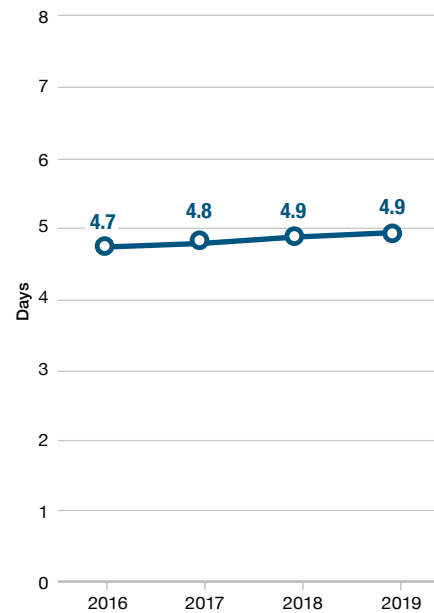
Discharges by Group, 2016-2019

Year	Age 18+, non-OB	Age 18+, OB	Age 0-17
2016	77.5%	9.4%	13.2%
2017	77.8%	9.2%	12.9%
2018	78.1%	9.2%	12.7%
2019	78.4%	9.1%	12.5%
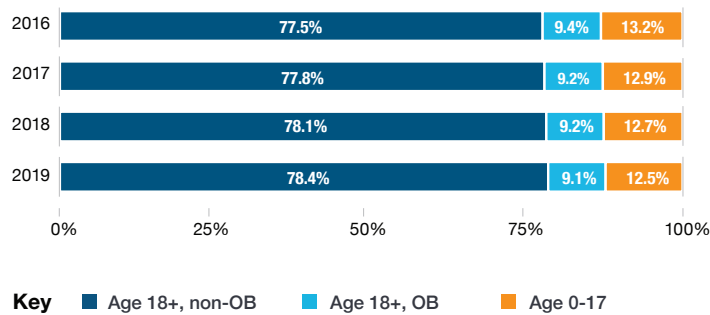
Inpatient Days by Group, 2016-2019
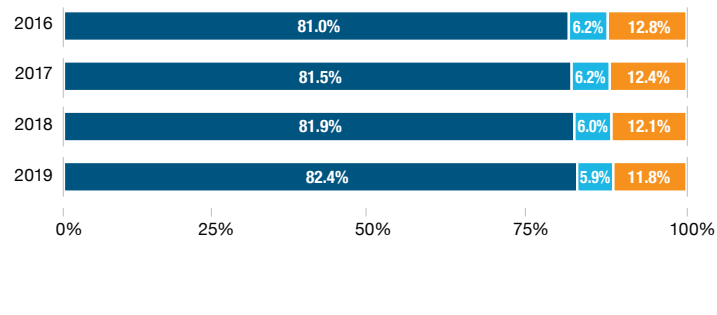
Year	Age 18+, non-OB	Age 18+, OB	Age 0-17
2016	81.0%	6.2%	12.8%
2017	81.5%	6.2%	12.4%
2018	81.9%	6.0%	12.1%
2019	82.4%	5.9%	11.8%

Key ▪ Age 18+, non-OB ▪ Age 18+, OB ▪ Age 0-17

Note: Discharges were grouped into one of three groups: ages 0-17, age 18 or older with an obstetric (OB) primary diagnosis, and age 18 or older without an OB primary diagnosis. Percentages may not sum to 100% due to rounding and because they exclude discharges with missing data. The number of discharges missing data was 8 in FFY 2016, 18 in FFY 2017, 16 in FFY 2018, and 17 in FFY 2019. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

Hospital Inpatient Discharges, 2016-2019
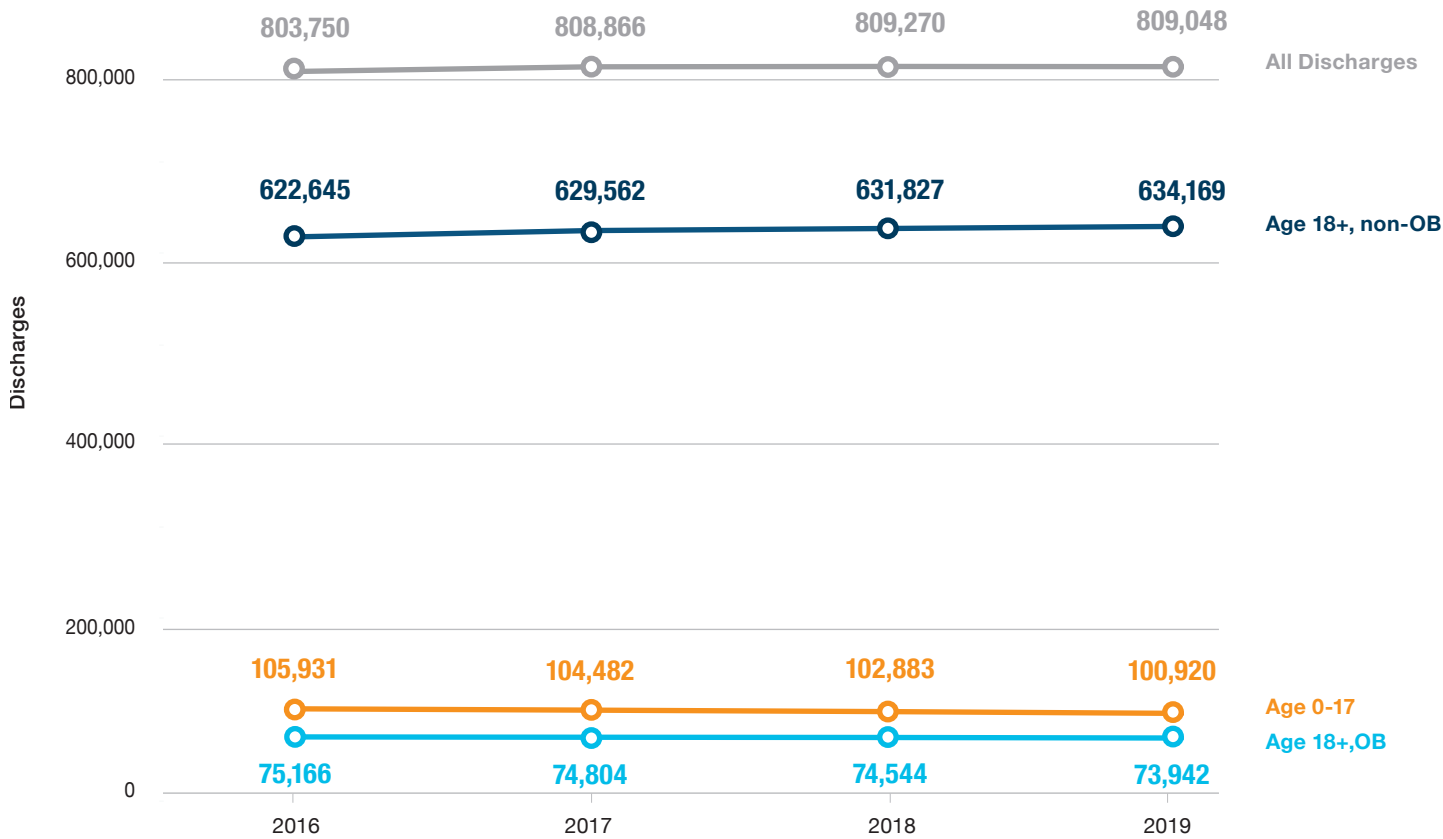
Note: Discharges were grouped into one of three obstetric groups: ages 0-17, age 18 or older with an obstetric (OB) primary diagnosis, and age 18 or older without an OB primary diagnosis. Figures may not sum to the total values because they exclude discharges with missing data. The number of discharges with missing data was 8 in FFY 2016, 18 in FFY 2017, 16 in FFY 2018, and 17 in FFY 2019. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

Hospital Inpatient Discharges by Hospital Cohort, 2016-2019
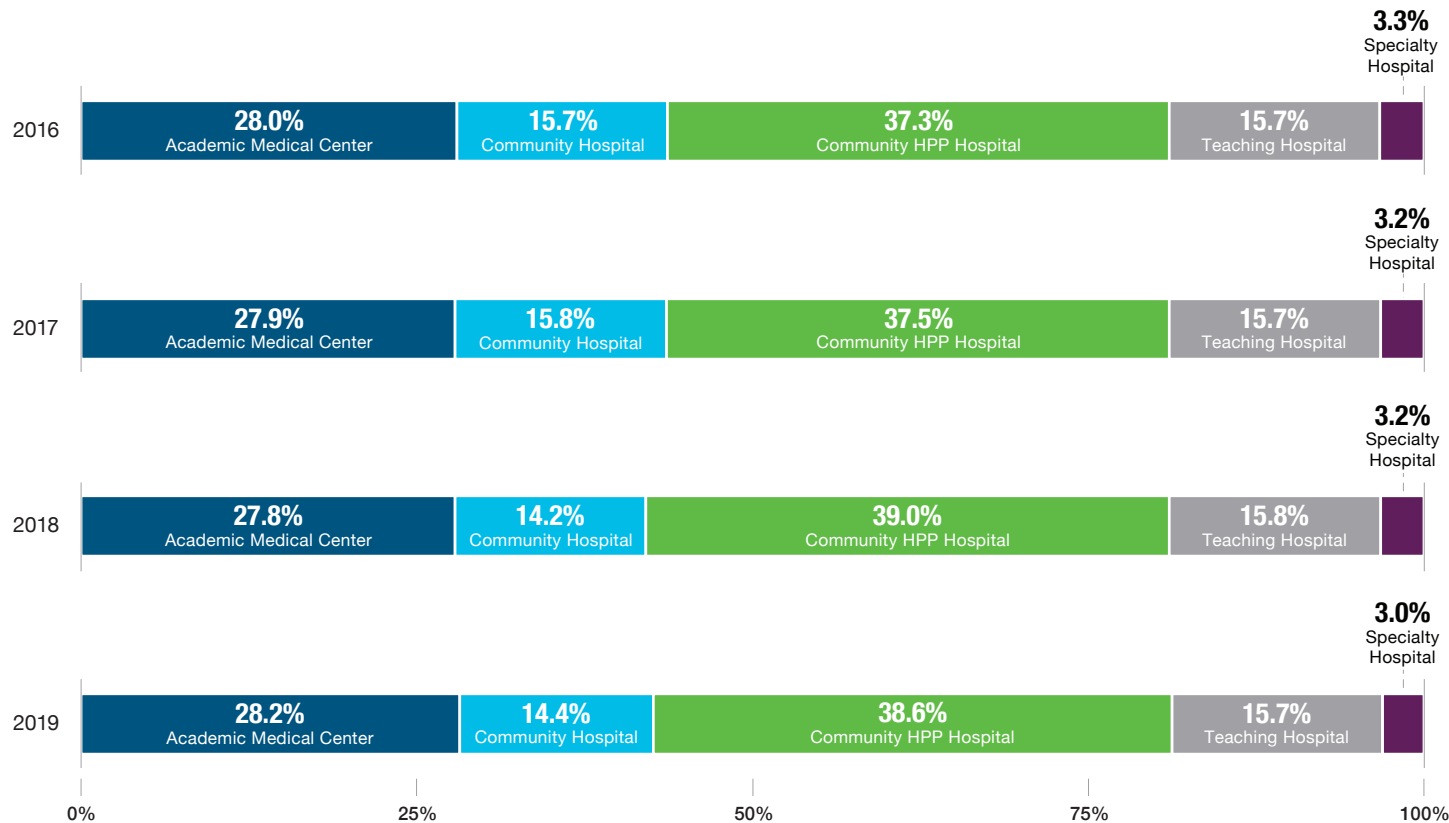
	2016	2017	2018	2019
Academic Medical Center	224,956	225,348	225,350	228,329
Community Hospital	126,547	127,632	114,847	116,815
Community HPP Hospital	299,896	302,948	315,665	312,451
Teaching Hospital	126,191	127,111	127,767	126,878
Specialty Hospital	26,160	25,827	25,641	24,575
Total	**803,750**	**808,866**	**809,270**	**809,048**

Note: Each acute care hospital is assigned to one of five mutually exclusive hospital groups: Academic Medical Centers (AMCs), teaching hospitals other than AMCs, community-High Public Payer (HPP) hospitals, other community hospitals, and specialty hospitals. Hospital characteristics are assessed at the end of the state fiscal year. Percentages may not sum to 100% due to rounding. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

Hospital Inpatient Discharges by System Affiliation, 2016-2019
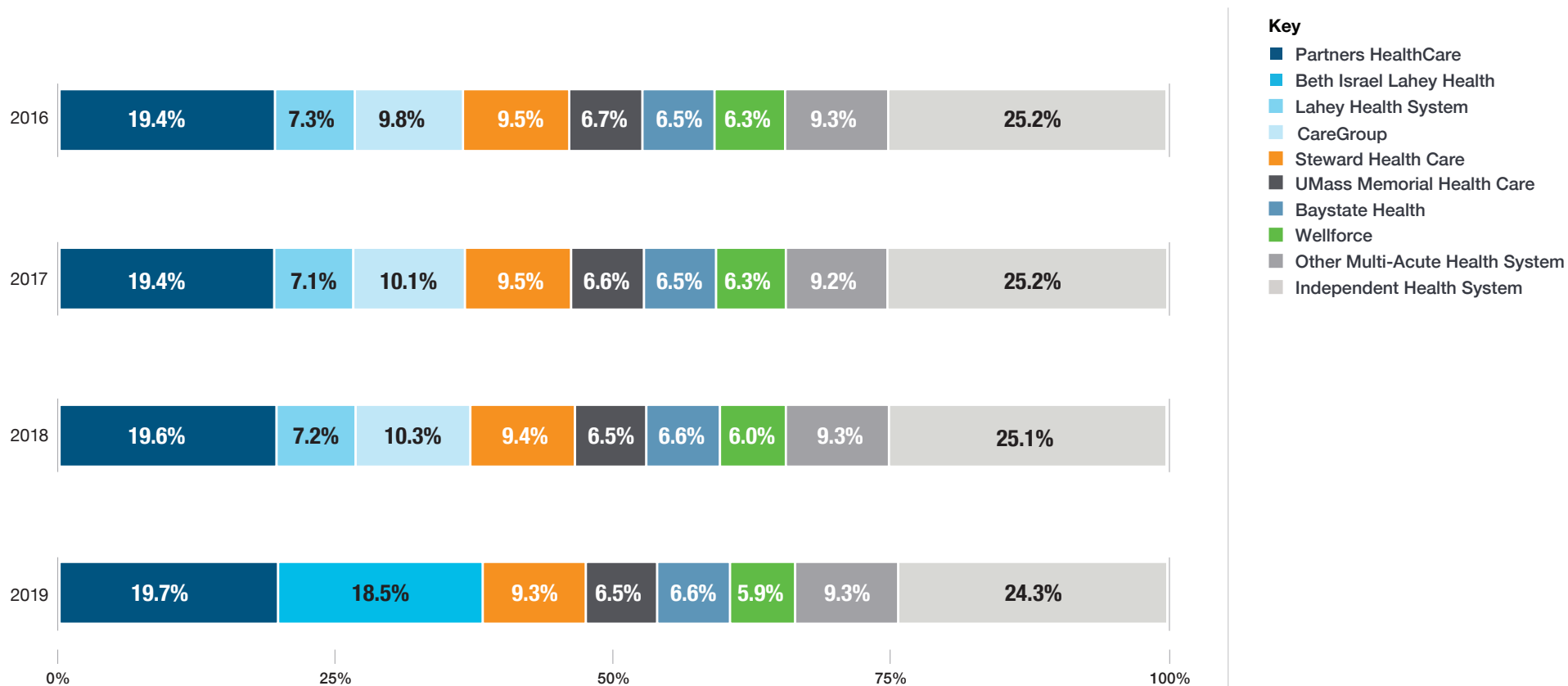
Key

- ■ Partners HealthCare
- ■ Beth Israel Lahey Health
- ■ Lahey Health System
- ■ CareGroup
- ■ Steward Health Care
- ■ UMass Memorial Health Care
- ■ Baystate Health
- ■ Wellforce
- ■ Other Multi-Acute Health System
- ■ Independent Health System

Year	Partners HealthCare	Beth Israel Lahey Health	Lahey Health System / CareGroup	Steward Health Care	UMass Memorial Health Care	Baystate Health	Wellforce	Other Multi-Acute Health System	Independent Health System
2016	19.4%	7.3%	9.8%	9.5%	6.7%	6.5%	6.3%	9.3%	25.2%
2017	19.4%	7.1%	10.1%	9.5%	6.6%	6.5%	6.3%	9.2%	25.2%
2018	19.6%	7.2%	10.3%	9.4%	6.5%	6.6%	6.0%	9.3%	25.1%
2019	19.7%	18.5%		9.3%	6.5%	6.6%	5.9%	9.3%	24.3%

Note: CareGroup and Lahey Health System merged to form Beth Israel Lahey Health on March 1, 2019. Although FFY 2019 starts on October 1, 2018, prior to the official merger date, this report uses Beth Israel Lahey Health for all of FFY 2019. As of FFY 2020, Partners HealthCare is now known as Mass General Brigham. Percentages may not sum to 100% due to rounding.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

Hospital Inpatient Discharges by High Public Payer Status of Hospitals, 2016-2019

	2016	2017	2018	2019
2016	56.7% HPP		43.3% Not HPP	
2017	57.3% HPP		42.7% Not HPP	
2018	60.5% HPP		39.5% Not HPP	
2019	60.2% HPP		39.8% Not HPP	

0%   25%   50%   75%   100%

	2016	2017	2018	2019
HPP	455,765	463,174	489,392	487,143
Not HPP	347,985	345,692	319,878	321,905
Total	**803,750**	**808,866**	**809,270**	**809,048**

Note: The Executive Office of Health and Human Services (EOHHS) categorizes certain acute hospitals as High Public Payer (HPP) hospitals for the purpose of setting MassHealth rates. A hospital qualified for 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.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Database (HIDD), 2016-2019

# Hospital Inpatient Discharges by Age Group, 2016-2019

	0-17	18-44	45-64	65-74	75+
2016	13.2%	22.7%	25.3%	15.6%	23.3%
2017	12.9%	22.1%	25.0%	16.3%	23.8%
2018	12.7%	21.9%	24.6%	16.5%	24.2%
2019	12.5%	21.8%	24.4%	16.8%	24.5%
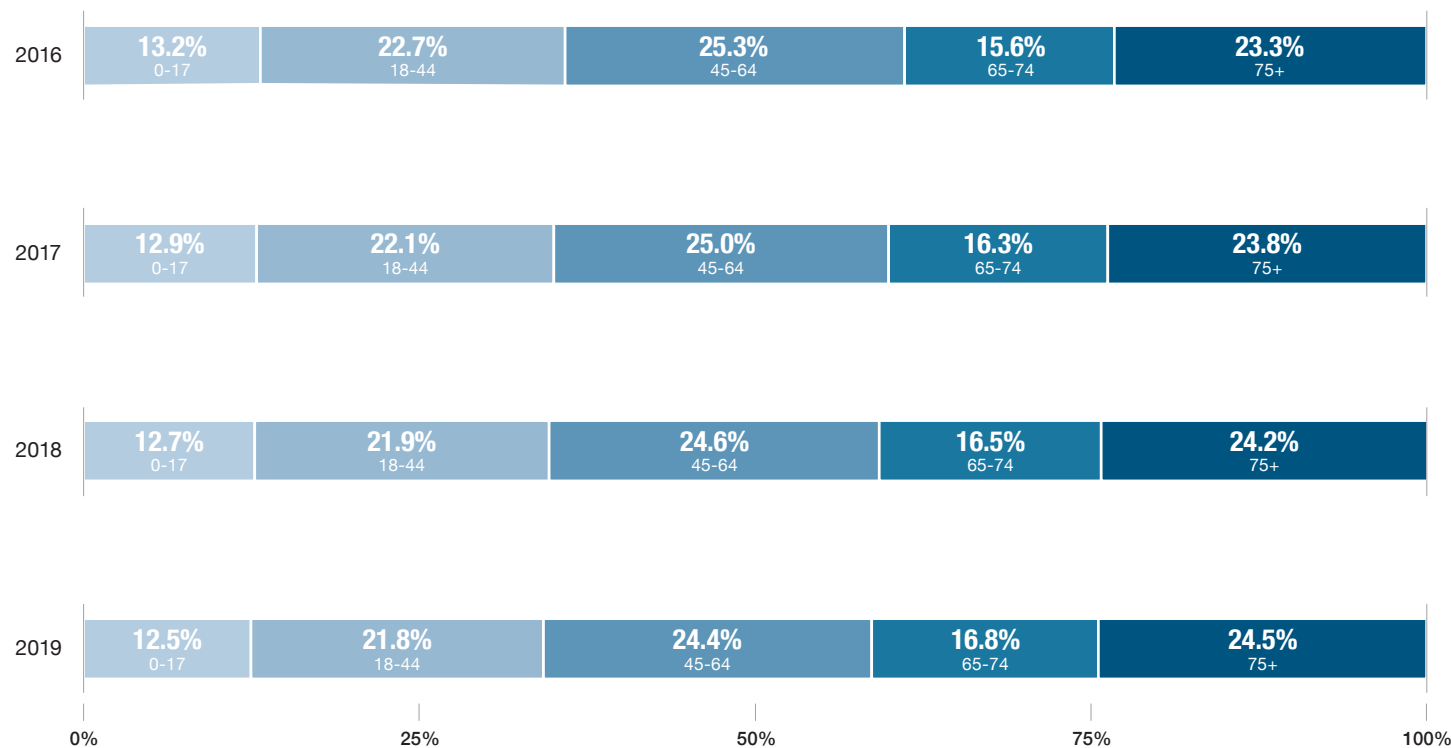
	2016	2017	2018	2019
0-17	105,931	104,482	102,883	100,920
18-44	182,214	178,524	177,481	176,080
45-64	202,913	201,957	199,149	197,683
65-74	125,781	131,670	133,645	136,139
75+	186,903	192,215	196,096	198,209
Total	**803,750**	**808,866**	**809,270**	**809,048**

Note: Figures for age may not sum to the total values due to rounding and because they exclude discharges with missing age. The number of discharges with missing age was 8 in FFY 2016, 18 in FFY 2017, 16 in FFY 2018, and 17 in FFY 2019.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

Hospital Inpatient Discharges by Gender, 2016-2019
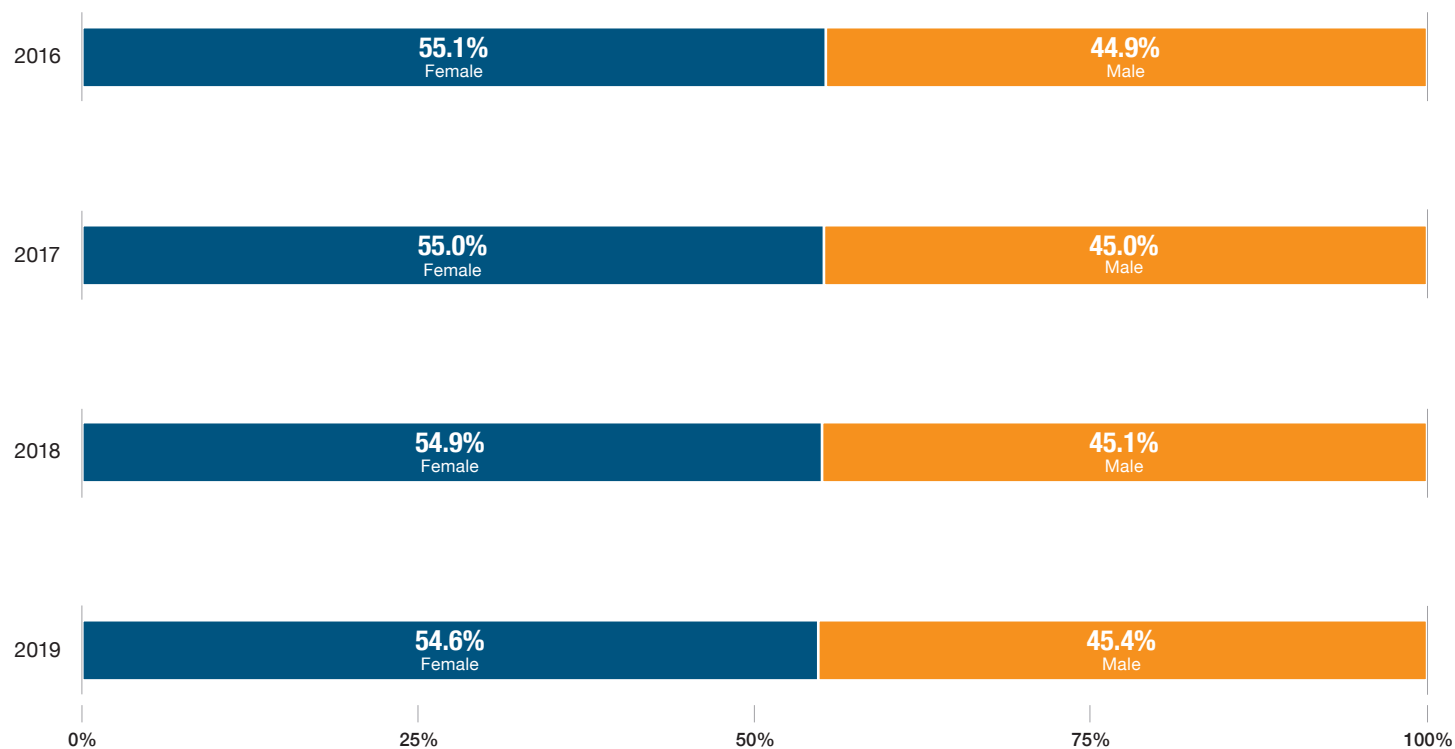
|	2016	2017	2018	2019
Female	443,173	445,169	444,446	442,008
Male	360,549	363,675	364,805	367,010
Total	**803,750**	**808,866**	**809,270**	**809,048**

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. The number of discharges with Unknown Gender was 28 in FFY 2016, 22 in FFY 2017, 19 in FFY 2018, and 30 in FFY 2019.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

Hospital Inpatient Discharges by Age Group and Gender, 2019
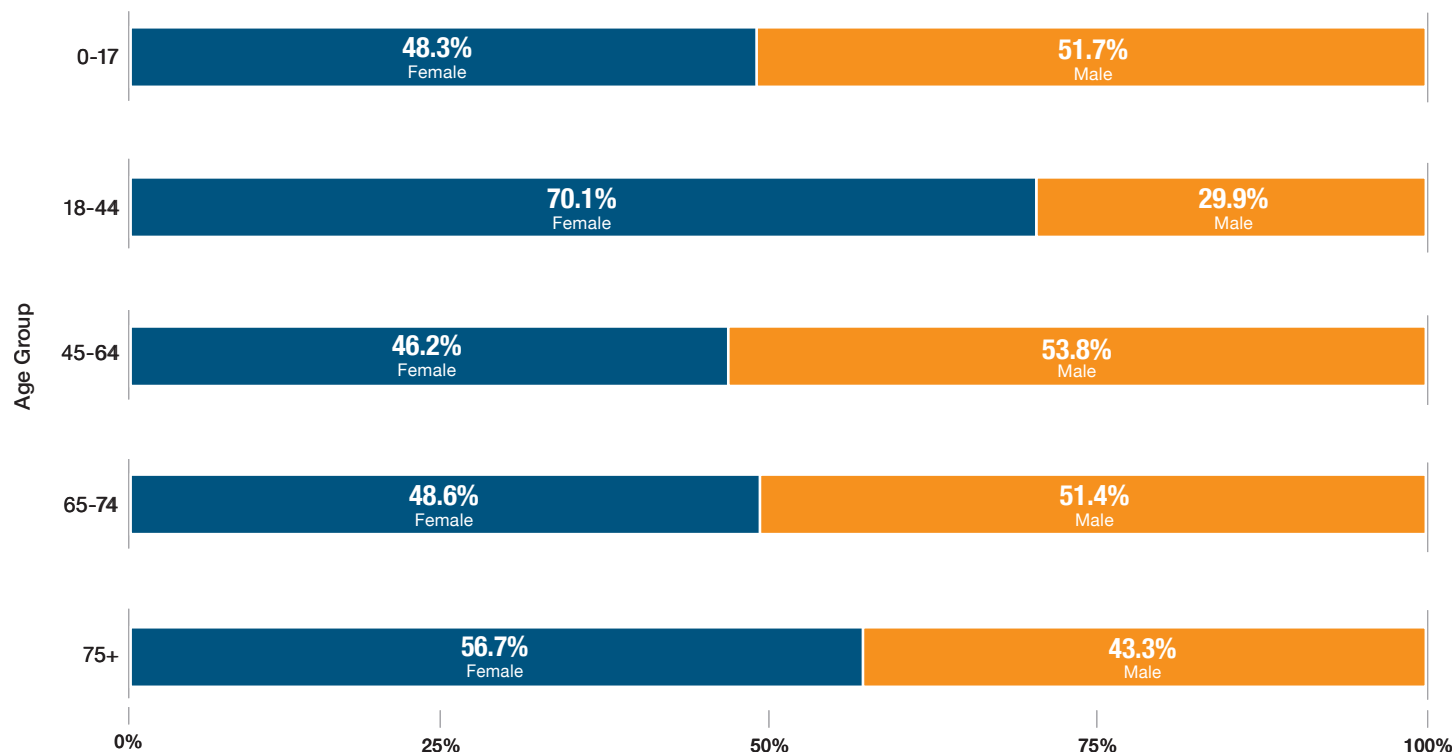
Note: Figures for male and female may not sum to the total values due to rounding and because they exclude discharges with Unknown Gender category. The number of discharges with Unknown Gender was 30 in FFY 2019.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

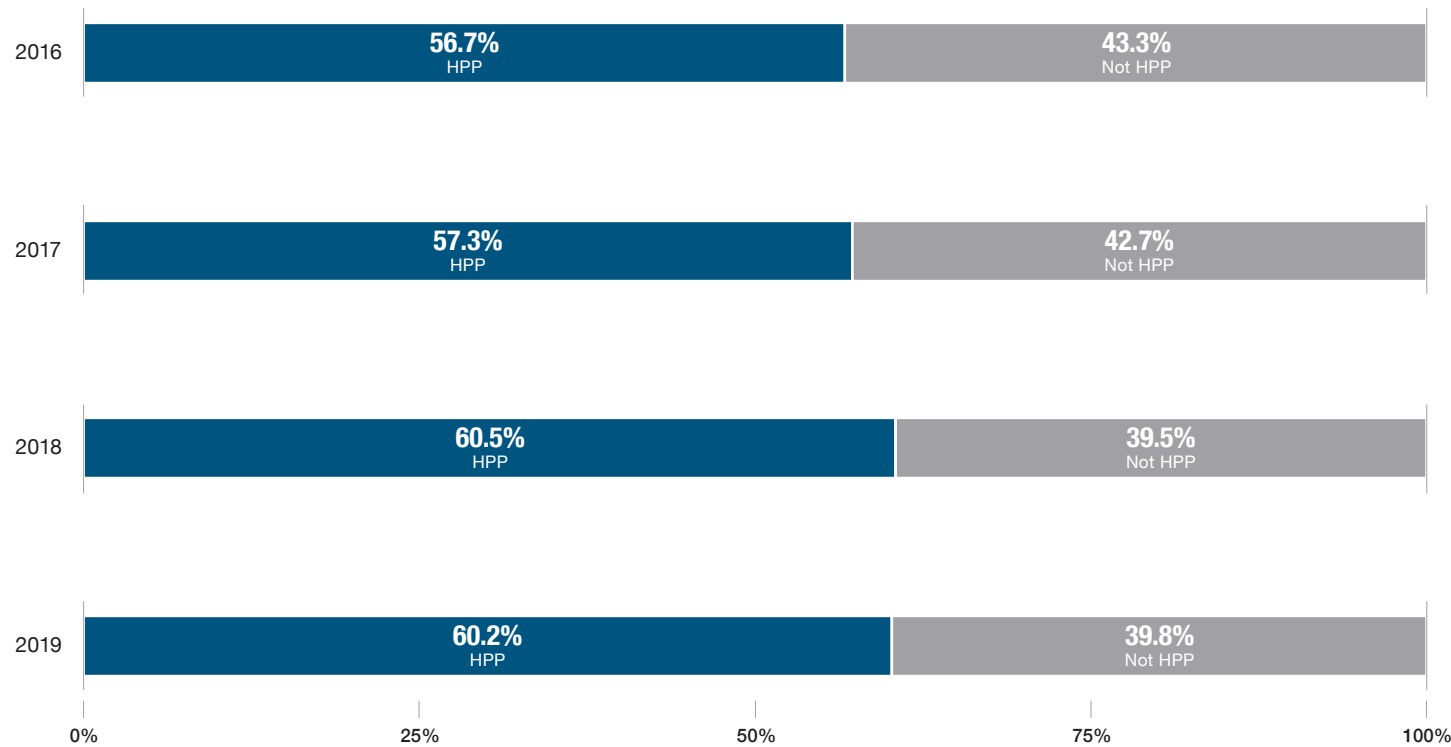# Hospital Inpatient Discharges by Race/Ethnicity, 2016-2019
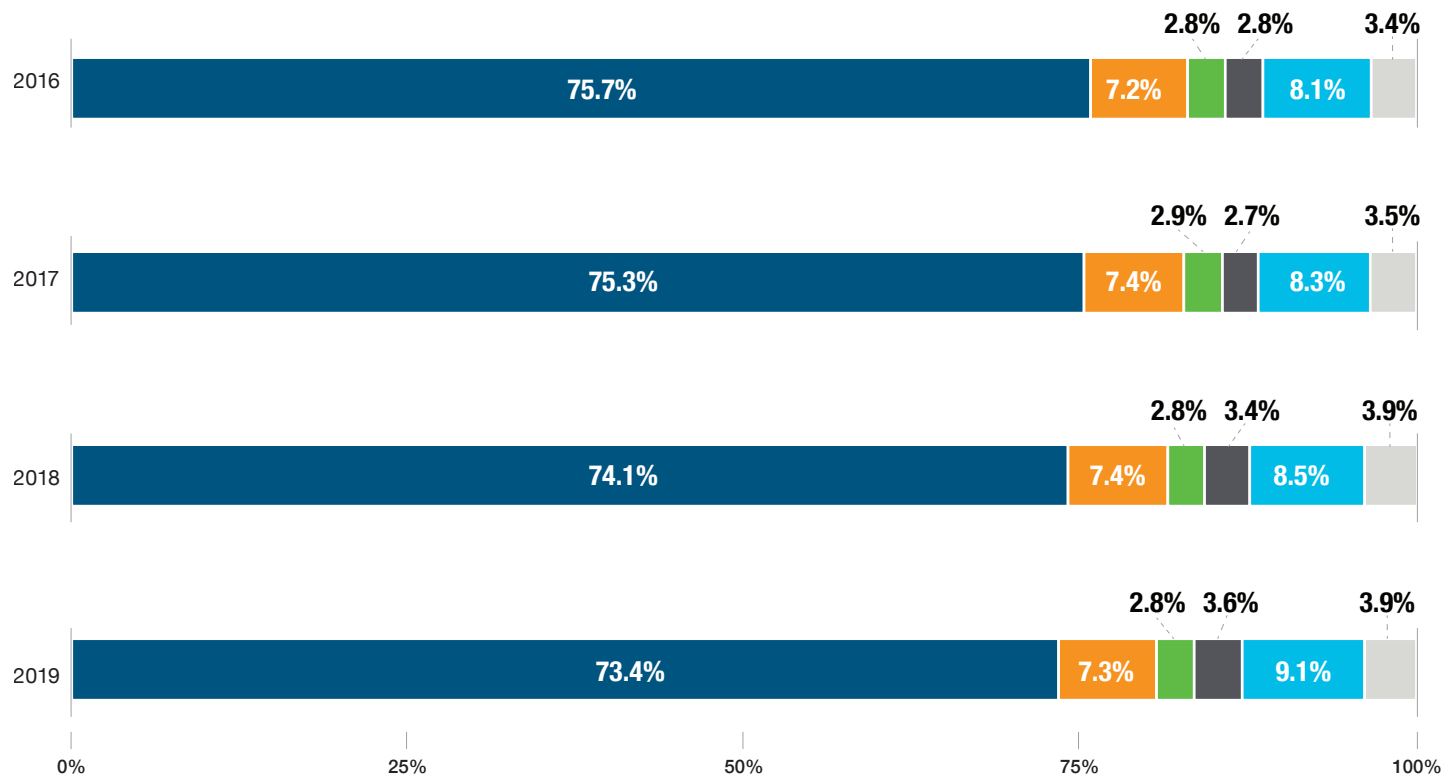
Key
- White, non-Hispanic
- Black, non-Hispanic
- Asian, non-Hispanic
- Other or Multiple Races, non-Hispanic
- Hispanic of Any Race
- Missing

	2016	2017	2018	2019
White, non-Hispanic	608,833	608,685	599,441	593,479
Black, non-Hispanic	57,898	59,887	59,810	58,971
Asian, non-Hispanic	22,406	23,172	22,345	22,667
Other or Multiple Races, non-Hispanic	22,539	21,762	27,223	28,891
Hispanic of Any Race	64,934	67,397	68,799	73,389
Missing	27,140	27,963	31,652	31,651
Total	**803,750**	**808,866**	**809,270**	**809,048**

Note: Percentages may not sum to 100% due to rounding. More detailed race/ethnicity categories are available in the databook accompanying this report. For category definitions, see technical appendix.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

Hospital Inpatient Discharges by Patient Region, 2019
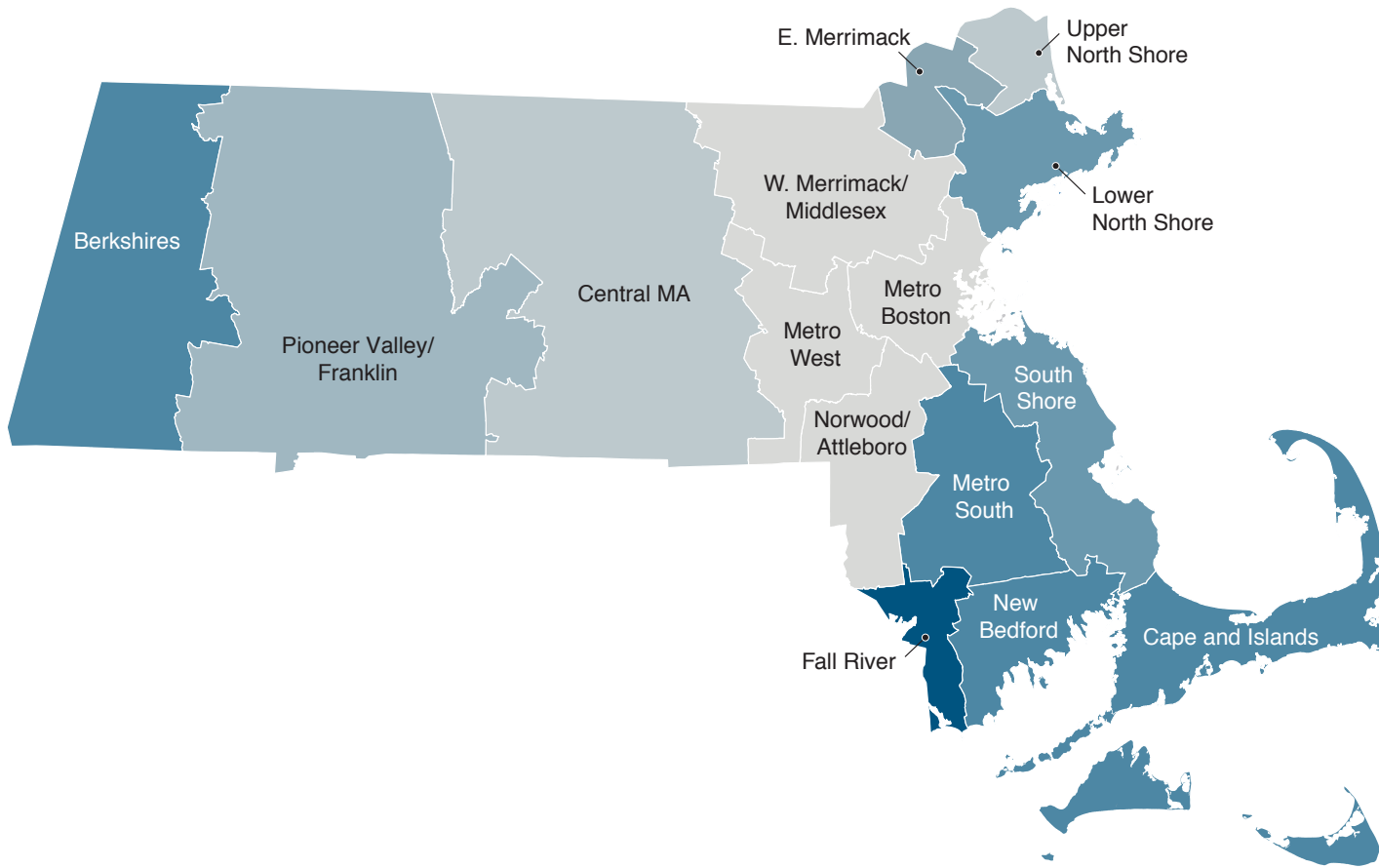
Discharges per 100,000 persons
- 9,000–9,999
- 10,000–10,999
- 11,000–11,999
- 12,000–12,999
- 13,000–13,999
- 14,000–14,999

Map labels: Berkshires, Pioneer Valley/Franklin, Central MA, W. Merrimack/Middlesex, E. Merrimack, Upper North Shore, Lower North Shore, Metro Boston, Metro West, Norwood/Attleboro, Metro South, South Shore, Fall River, New Bedford, Cape and Islands

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 (HPC). 7,566 discharges with foreign or invalid address information are not shown. Discharge rates per 100,000 persons were based on total FFY 2019 discharges and five-year population estimates from the 2019 American Community Survey, aggregated to the region level by ZIP code tabulation areas. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2019

Hospital Inpatient Discharges by Expected Primary Payer Type, 2016-2019

2016
| 43.9% Medicare | 21.4% Medicaid | 31.2% Commercial | | |

2.2% Other
1.3% Self-Pay

2017
| 44.6% Medicare | 21.4% Medicaid | 30.3% Commercial | | |

2.3% Other
1.5% Self-Pay

2018
| 45.1% Medicare | 20.5% Medicaid | 29.9% Commercial | | |

2.2% Other
2.2% Self-Pay

2019
| 45.4% Medicare | 19.2% Medicaid | 30.0% Commercial | | |

2.3% Other
3.1% Self-Pay

0%   25%   50%   75%   100%

	2016	2017	2018	2019
Medicare	352,485	361,042	364,793	367,138
Medicaid	172,382	172,723	166,263	155,327
Commercial	250,695	245,129	242,192	242,339
Other	17,920	18,203	17,989	18,884
Self-pay	10,237	11,750	18,027	25,335
Total	**803,750**	**808,866**	**809,270**	**809,048**

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. The number of discharges with missing expected primary payer type was 31 in FFY 2016, 19 in FFY 2017, 6 in FFY 2018, and 25 in FFY 2019. Other insurance includes Worker's Compensation, Other Government Payment, Auto Insurance, and Dental Plans. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

# Hospital Inpatient Discharges by Expected Primary Payer Type and Age Group, 2019

Age Group

0-17
- 0.5% Medicare
- 38.0% Medicaid
- 53.8% Commercial
- 3.2% Other
- 4.6% Self-Pay

18-44
- 8.4% Medicare
- 36.8% Medicaid
- 46.0% Commercial
- 3.1% Other
- 5.8% Self-Pay

45-64
- 27.4% Medicare
- 24.2% Medicaid
- 41.0% Commercial
- 3.1% Other
- 4.2% Self-Pay

65-74
- 82.8% Medicare
- 1.7% Medicaid
- 12.9% Commercial
- 1.7% Other
- 0.9% Self-Pay

75+
- 93.3% Medicare
- 1.0% Medicaid
- 4.3% Commercial
- 0.9% Other
- 0.5% Self-Pay

0%   25%   50%   75%   100%

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. The number of discharges with missing expected primary payer type was 25 in FFY 2019. Other insurance includes Worker's Compensation, Other Government Payment, Auto Insurance, and Dental Plans. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2019

Hospital Inpatient Discharges by Expected Primary Payer Type and Patient Region of Residence, 2019
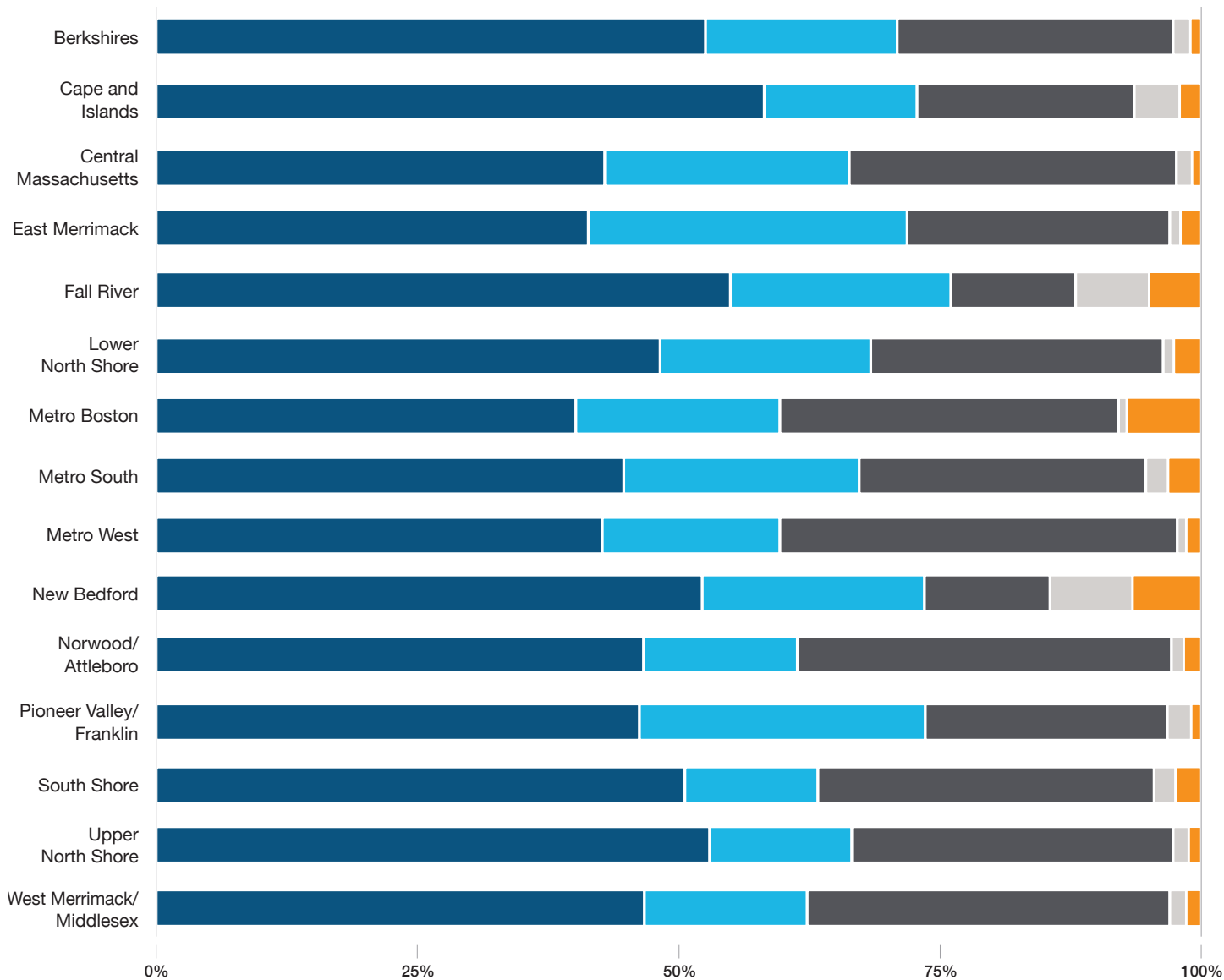
Key
- Medicare
- Medicaid
- Commercial
- Other
- Self-Pay

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 (HPC). Other insurance includes Worker's Compensation, Other Government Payment, Auto Insurance, and Dental Plans. 7,566 discharges with foreign or invalid address information and 25 discharges with missing expected primary payer type are not shown. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2019
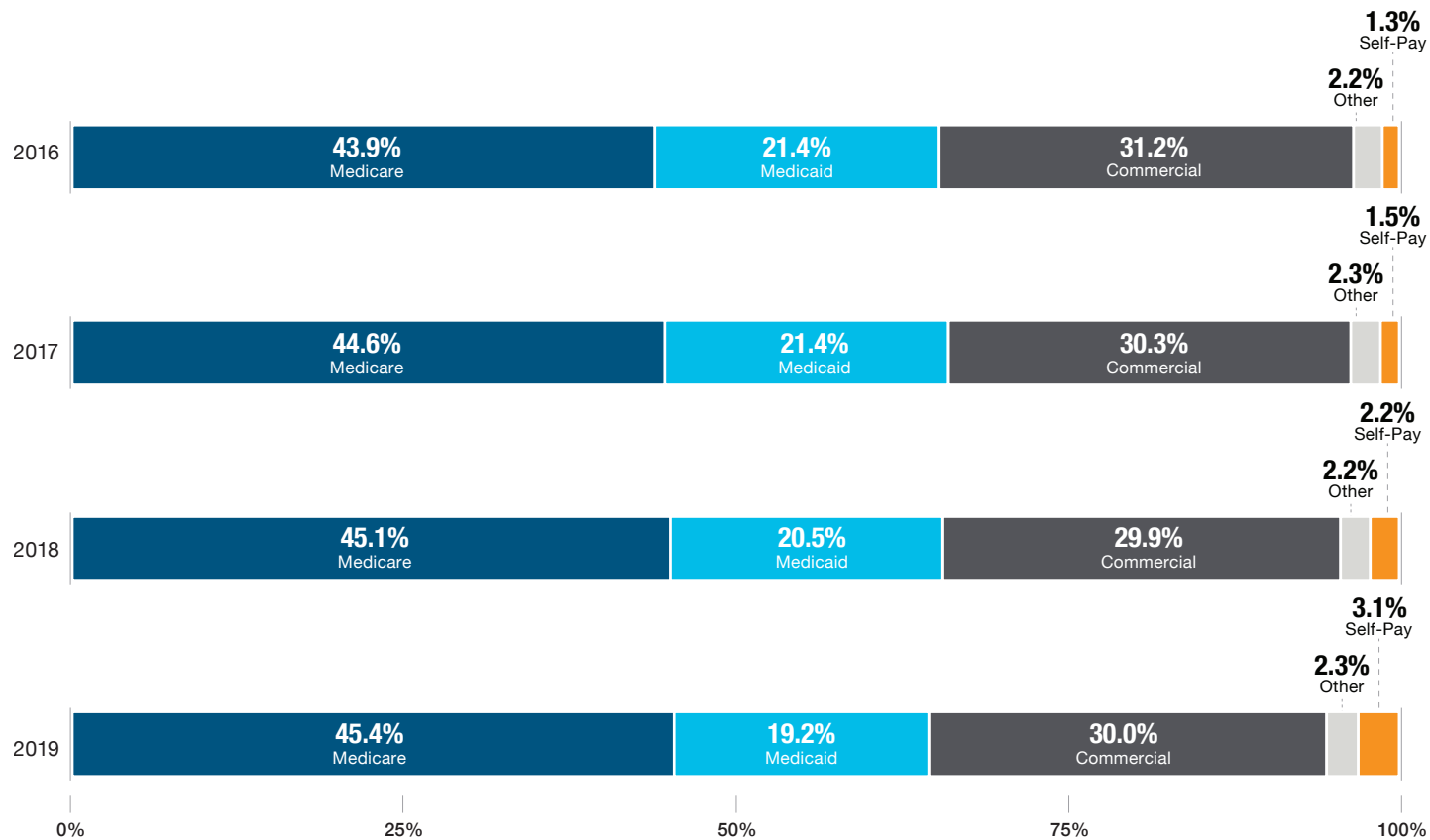
Hospital Inpatient Discharges by Discharge Setting, 2016-2019

Year	Home	HHA	SNF	Rehab	Hospice	Other
2016	57.2% Home	18.5% HHA	12.8% SNF	3.1% Rehab	0.8% Hospice	7.5% Other
2017	55.1% Home	20.5% HHA	12.4% SNF	3.1% Rehab	1.0% Hospice	7.9% Other
2018	54.5% Home	21.0% HHA	12.2% SNF	3.3% Rehab	1.0% Hospice	8.0% Other
2019	54.7% Home	20.8% HHA	12.0% SNF	3.2% Rehab	1.2% Hospice	8.2% Other

0%   25%   50%   75%   100%
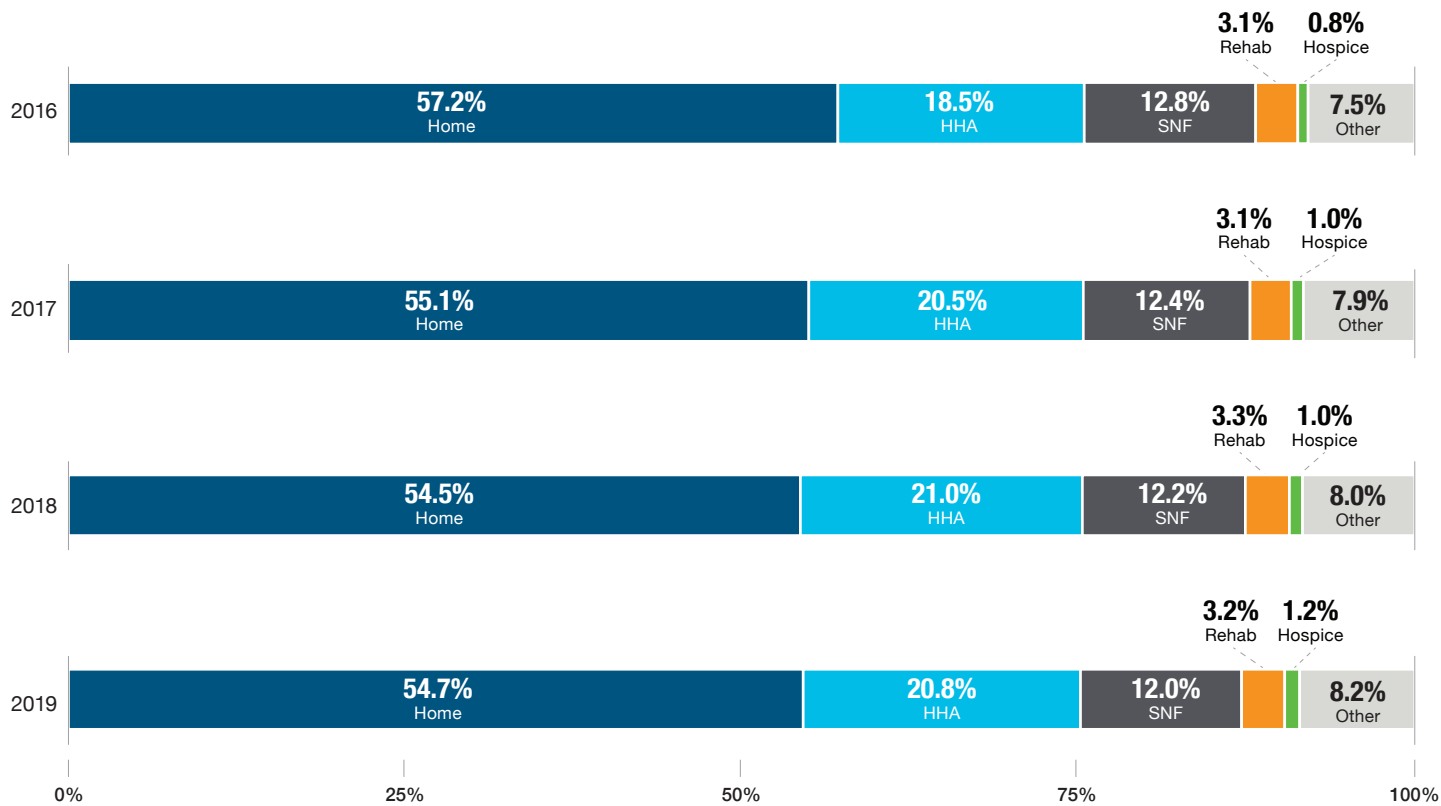
	2016	2017	2018	2019
Home	459,954	445,472	440,816	442,152
HHA	148,342	165,845	170,200	167,923
SNF	102,843	100,660	98,727	97,067
Rehab	25,095	24,943	26,427	26,136
Hospice	6,750	7,774	8,466	9,452
Other	60,549	64,149	64,605	66,262
Total	803,750	808,866	809,270	809,048

Note: Discharge setting was classified into one of five categories: Home, Home with Home Health Agency (HHA), Skilled Nursing Facility (SNF), Rehabilitation (or rehab), Hospice, and Other. Figures for discharge setting may not sum to the total values due to rounding and because they exclude discharges with missing discharge setting information. The number of discharges with missing discharge setting was 217 in FFY 2016, 23 in FFY 2017, 29 in FFY 2018, and 56 in FFY 2019. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2019
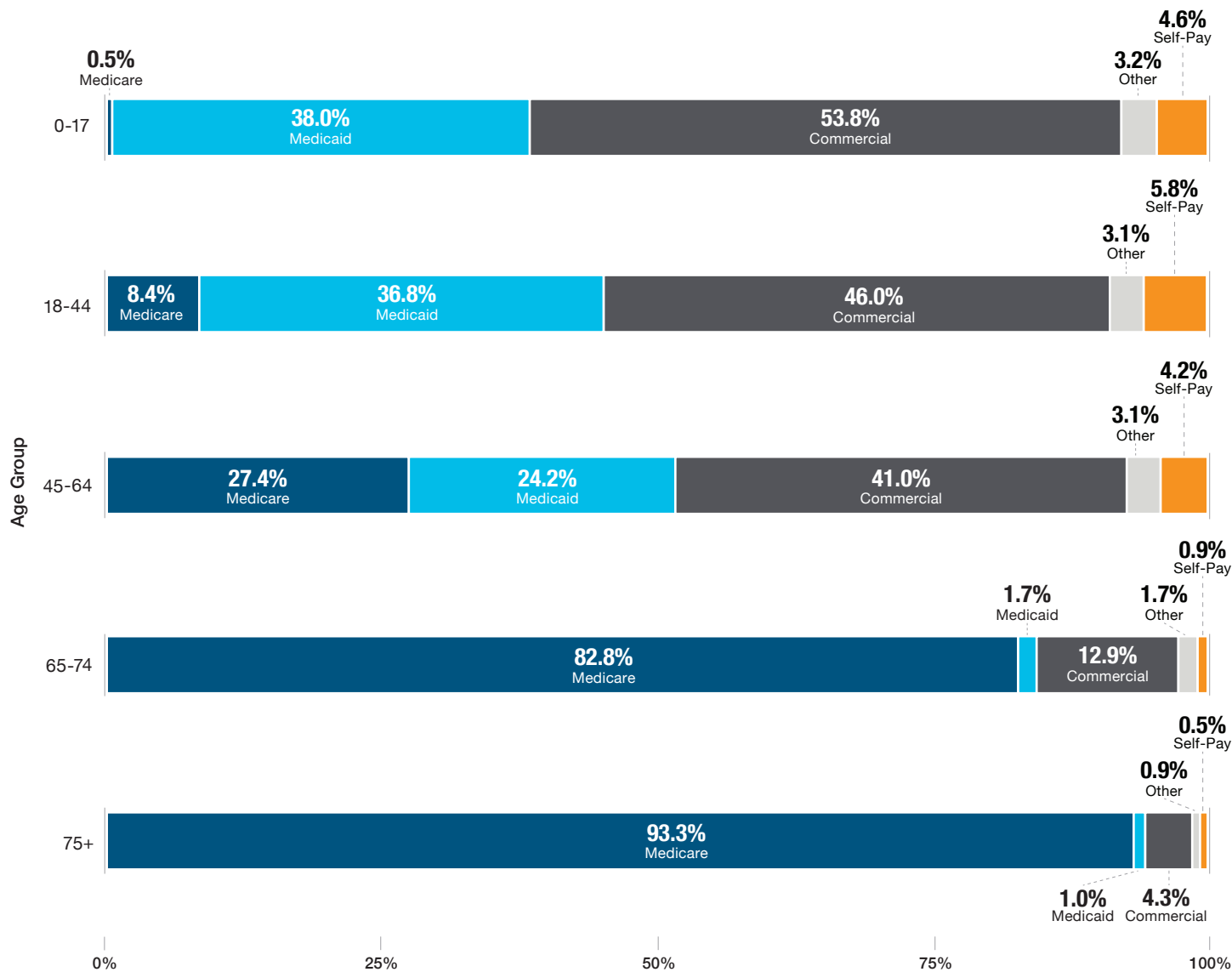
Hospital Inpatient Discharges by Discharge Setting and Patient Region, 2019
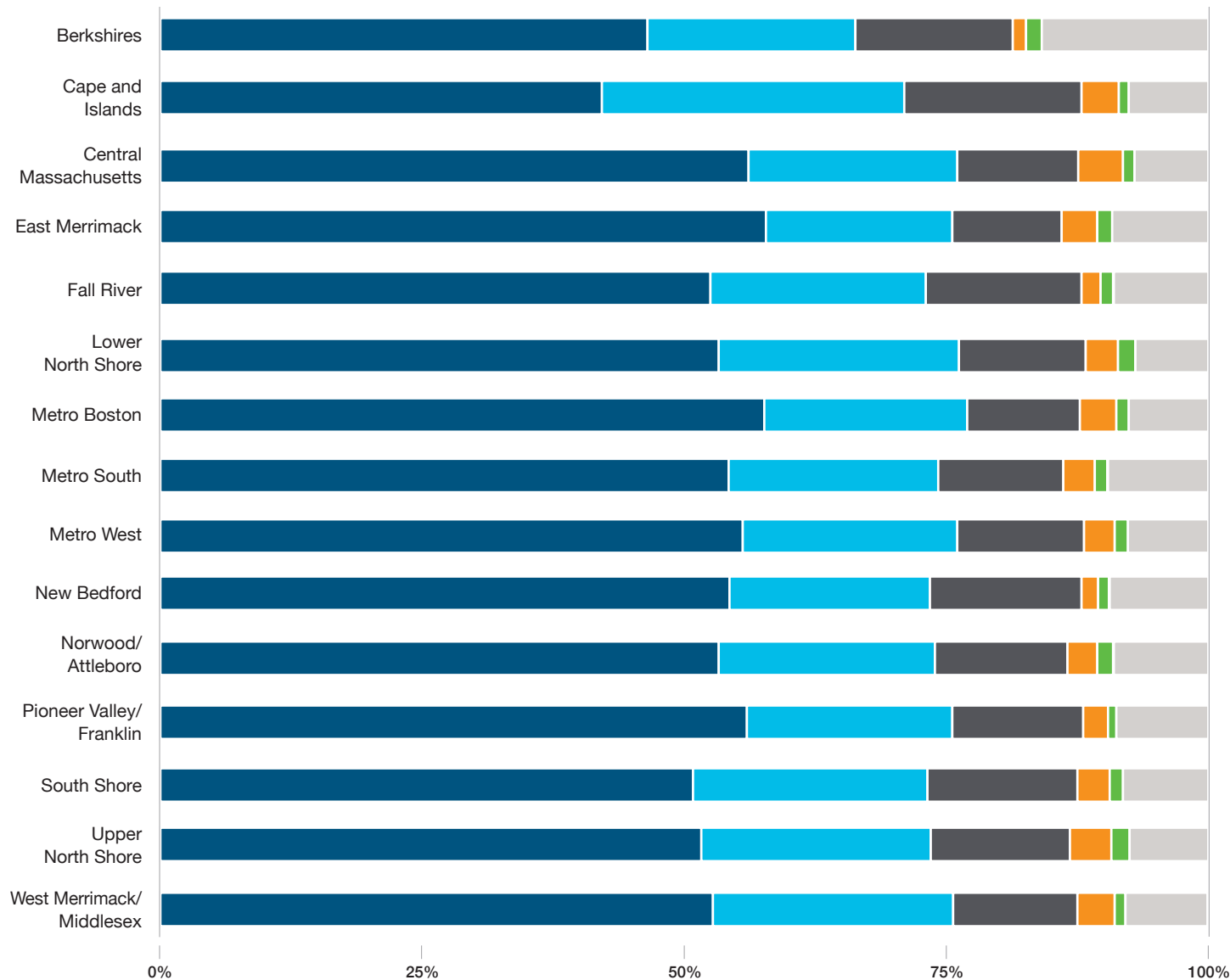
Key
- Home
- HHA
- SNF
- Rehab
- Hospice
- Other

Note: Patient region of residence was calculated using the provided permanent address information 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 (HPC). Discharge setting was classified into one of five categories: Home, Home with Home Health Agency (HHA), Skilled Nursing Facility (SNF), Rehabilitation (or rehab), Hospice, and Other. 56 discharges missing discharge setting are not shown. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2019

Total Patient Days of Care, 2016-2019
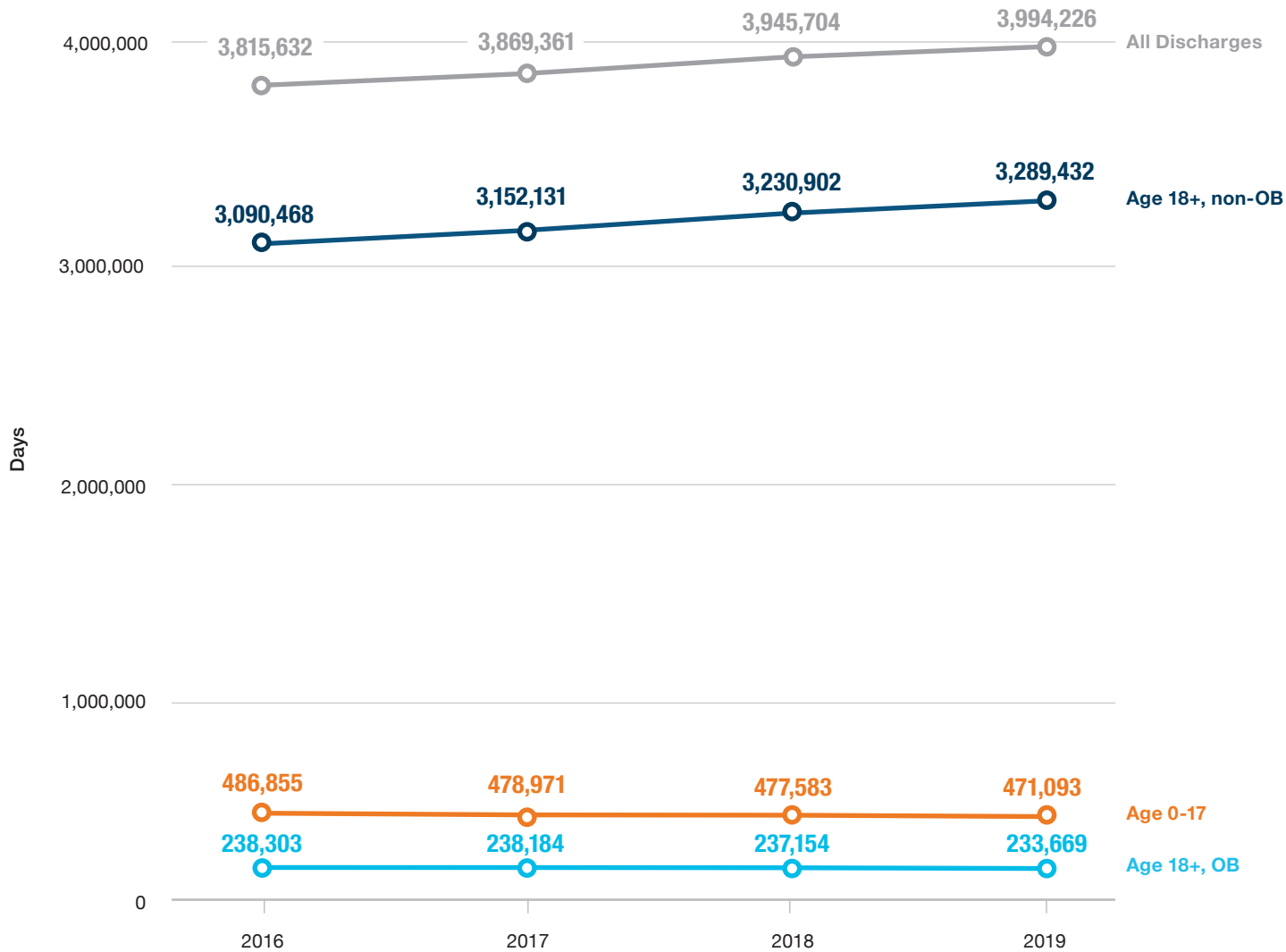
Days

	2016	2017	2018	2019	
All Discharges	3,815,632	3,869,361	3,945,704	3,994,226	All Discharges
Age 18+, non-OB	3,090,468	3,152,131	3,230,902	3,289,432	Age 18+, non-OB
Age 0-17	486,855	478,971	477,583	471,093	Age 0-17
Age 18+, OB	238,303	238,184	237,154	233,669	Age 18+, OB

Note: Total patient days of care is an aggregate measure of the sum of the length of stay, or the days of care, associated with each discharge. Discharges were grouped into one of three obstetric groups: ages 0-17, age 18 or older with an obstetric (OB) primary diagnosis, and age 18 or older without an OB primary diagnosis. Figures for may not sum to the total values because they exclude discharges with missing data. The number of discharges with missing data was 8 in FFY 2016, 18 in FFY 2017, 16 in FFY 2018, and 17 in FFY 2019.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

Total Patient Days of Care by Hospital Cohort, 2016-2019

Note: Total patient days of care is an aggregate measure of the sum of the length of stay, or the days of care, associated with a discharge within a category or group. Each acute care hospital is assigned to one of five mutually exclusive hospital groups: Academic Medical Centers (AMCs), teaching hospitals other than AMCs, community-High Public Payer (HPP) hospitals, other community hospitals, and specialty hospitals. Hospital characteristics are assessed at the end of the state fiscal year. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

Average Length of Stay, 2016-2019

Note: Length of stay (LOS) is calculated by subtracting the admission date from the discharge date. Discharges were grouped into one of three obstetric groups: age 0-17, age 18 or older with an obstetric (OB) primary diagnosis, and age 18 or older without an OB primary diagnosis. All discharges includes a small number of discharges missing age information. The number of discharges with missing information was 8 in FFY 2016, 18 in FFY 2017, 16 in FFY 2018, and 17 in FFY 2019. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

Average Length of Stay by Hospital Cohort, 2016-2019

Note: Length of stay (LOS) is calculated by subtracting the admission date from the discharge date. Each acute care hospital is assigned to one of five mutually exclusive hospital groups: Academic Medical Centers (AMCs), teaching hospitals other than AMCs, community-High Public Payer (HPP) hospitals, other community hospitals, and specialty hospitals. Hospital characteristics are assessed at the end of the state fiscal year. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

SECTION 3:

Intensive Care Utilization

A discharge was indicated as having any intensive care use if there were any charges with a revenue code associated with the Intensive Care Unit (ICU), Cardiac Care Unit (CCU), Pediatric ICU (PICU), Neonatal ICU (NICU), or any other type of intensive care. For a list of relevant revenue centers, see the technical appendix.

- In FFY 2019, 17.5% of discharges were associated with intensive care use, accounting for 16.6% of all days of patient care.

- Specialty hospitals had the highest share of inpatient discharges associated with intensive care use at 21.9% in FFY 2019, followed by AMCs and community hospitals with HPP status, both at 19.5% in FFY 2019. Community hospitals without HPP status had the lowest share of discharges associated with intensive care use at 7.0% in FFY 2019.

- Adults aged 18-44 had the lowest rates of intensive care use, at 9.3%, followed by newborns aged less than one year at 9.8%. This may be due in part to the fact that intensive care use was less common among hospitalizations for childbirth and other maternal-related conditions. Other age groups had similar shares of intensive care use, at approximately one in every five discharges (20.3-22.3%).

- Intensive care use varied by expected primary payer type, with lower rates of any intensive care use among commercial insurance and Medicaid. These payers covered most maternity-related and newborn discharges in the Commonwealth. ■

Hospital Inpatient Discharges With and Without Use of Intensive Care, 2016-2019
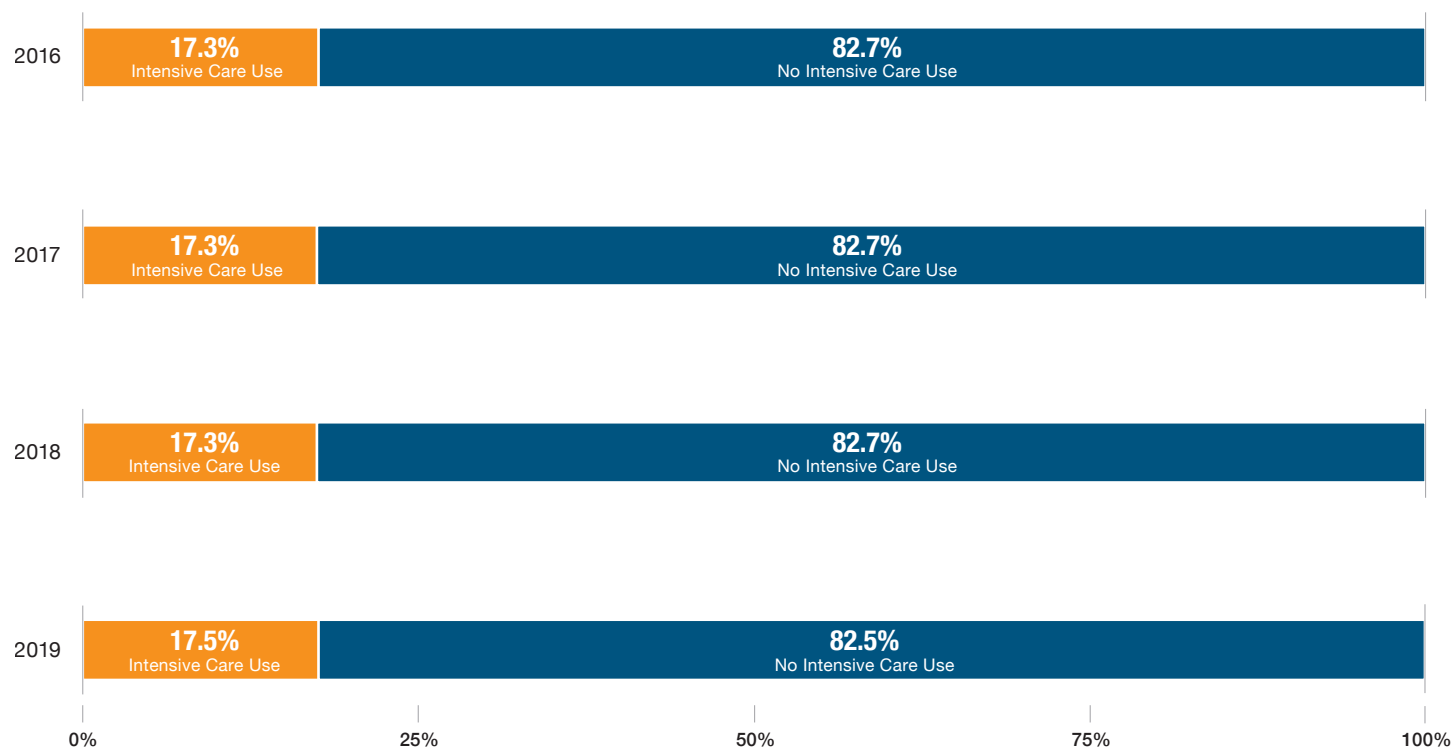
	2016	2017	2018	2019
Any Intensive Care Use	139,300	140,088	140,268	141,298
No Intensive Care Use	664,450	668,778	669,002	667,750
Total	**803,750**	**808,866**	**809,270**	**809,048**

Note: A discharge was characterized as having intensive care use if the discharge had any non-zero charge for revenue codes associated with intensive care services. These include stays in the Intensive Care Unit (ICU), Coronary Care Unit (CCU), Neonatal Intensive Care Unit (NICU), Pediatric Intensive Care Unit (PICU), and other intensive care use. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

Hospital Inpatient Discharges With and Without Use of Intensive Care by Hospital Cohort, 2019
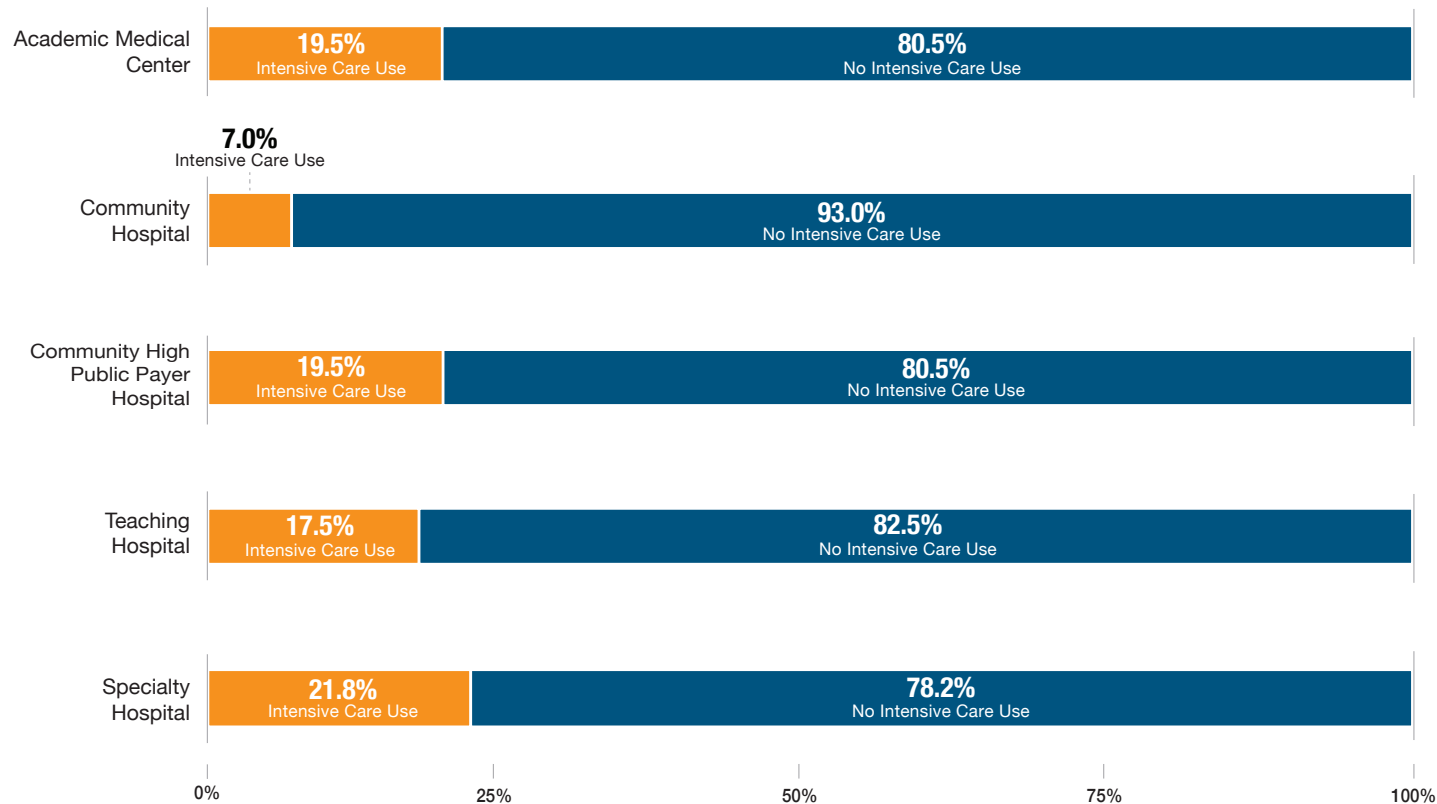
Note: Each acute care hospital is assigned to one of five mutually exclusive hospital groups: Academic Medical Centers (AMCs), teaching hospitals other than AMCs, community-High Public Payer (HPP) hospitals, other community hospitals, and specialty hospitals. Hospital characteristics are assessed at the end of the state fiscal year. A discharge was characterized as having intensive care use if the discharge had any non-zero charge for revenue codes associated with intensive care services. These include stays in the Intensive Care Unit (ICU), Coronary Care Unit (CCU), Neonatal Intensive Care Unit (NICU), Pediatric Intensive Care Unit (PICU), and other intensive care use. See technical appendix for more information.

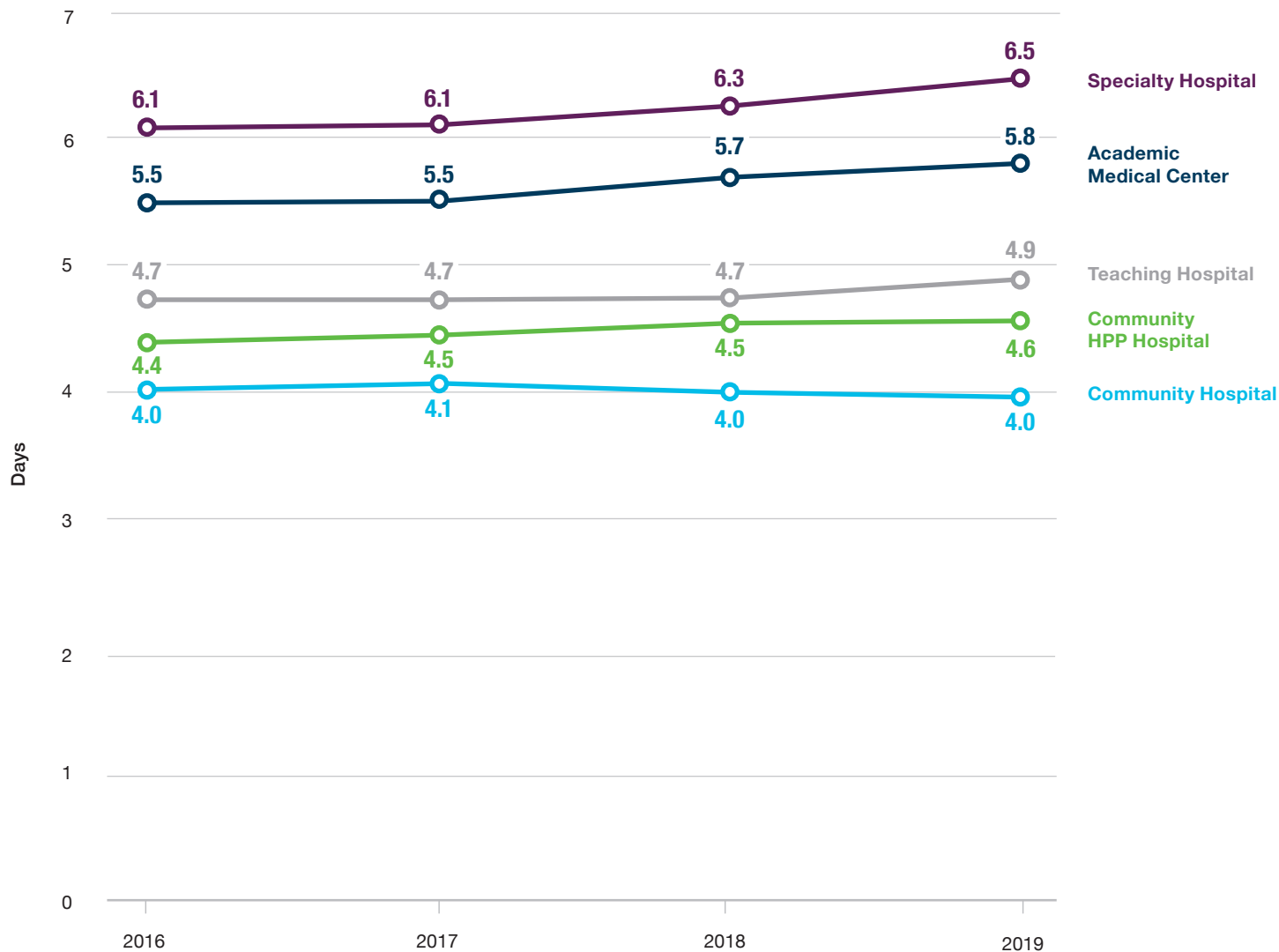Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2019

Hospital Inpatient Discharges With and Without Use of Intensive Care by Age Group, 2019

Newborn (<1)
9.8% Intensive Care Use
90.2% No Intensive Care Use

1-17
20.3% Intensive Care Use
79.7% No Intensive Care Use

18-44
9.3% Intensive Care Use
90.7% No Intensive Care Use

45-64
20.4% Intensive Care Use
79.6% No Intensive Care Use

65-74
22.3% Intensive Care Use
77.7% No Intensive Care Use

75+
21.1% Intensive Care Use
78.9% No Intensive Care Use

0%   25%   50%   75%   100%

Note: A discharge was characterized as having intensive care use if the discharge had any non-zero charge for revenue codes associated with intensive care services. These include stays in the Intensive Care Unit (ICU), Coronary Care Unit (CCU), Neonatal Intensive Care Unit (NICU), Pediatric Intensive Care Unit (PICU), and other intensive care use. This analysis excludes 17 discharges missing age information. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2019

Hospital Inpatient Discharges With and Without Use of Intensive Care by Expected Primary Payer Type, 2019

Commercial	**12.8%** Intensive Care Use / **87.2%** No Intensive Care Use	242,339
Medicare	**21.3%** Intensive Care Use / **78.7%** No Intensive Care Use	367,138
Medicaid	**14.8%** Intensive Care Use / **85.2%** No Intensive Care Use	155,327
Other	**23.8%** Intensive Care Use / **76.2%** No Intensive Care Use	18,884
Self-pay	**18.3%** Intensive Care Use / **81.7%** No Intensive Care Use	25,335

0%   25%   50%   75%   100%

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. Other insurance includes Worker's Compensation, Other Government Payment, Auto Insurance, and Dental Plans. A discharge was characterized as having intensive care use if the discharge had any non-zero charge for revenue codes associated with intensive care services. These include stays in the Intensive Care Unit (ICU), Coronary Care Unit (CCU), Neonatal Intensive Care Unit (NICU), Pediatric Intensive Care Unit (PICU), and other intensive care use. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2019

Inpatient Days of Care by Intensive Care Use, 2016-2019

	Intensive Care Use	No Intensive Care Use
2016	16.1%	83.9%
2017	16.0%	84.0%
2018	16.4%	83.6%
2019	16.6%	83.4%

0%   25%   50%   75%   100%
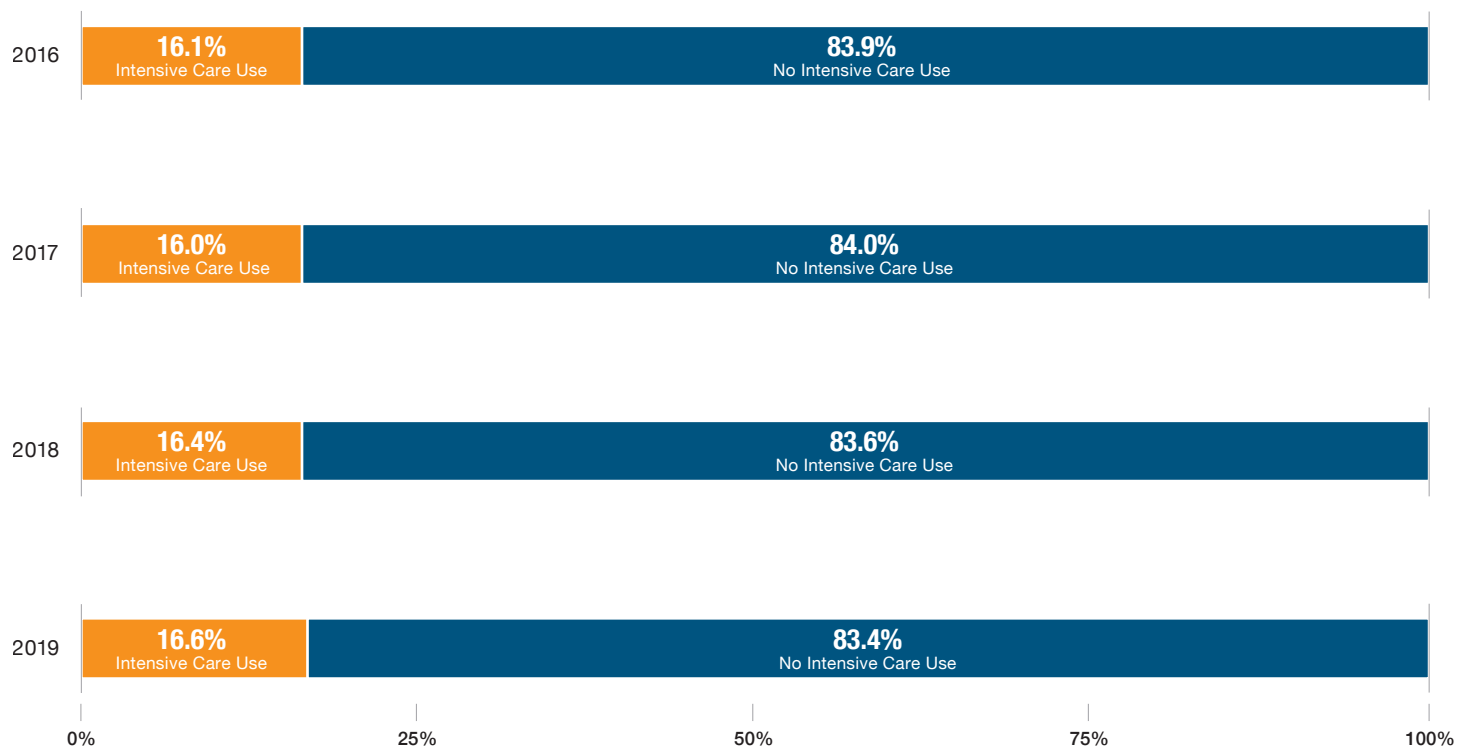
Note: The number of days of care associated with intensive care was calculated by summing the units, or days of care, associated with revenue codes corresponding to intensive care use. See technical appendix for more information.

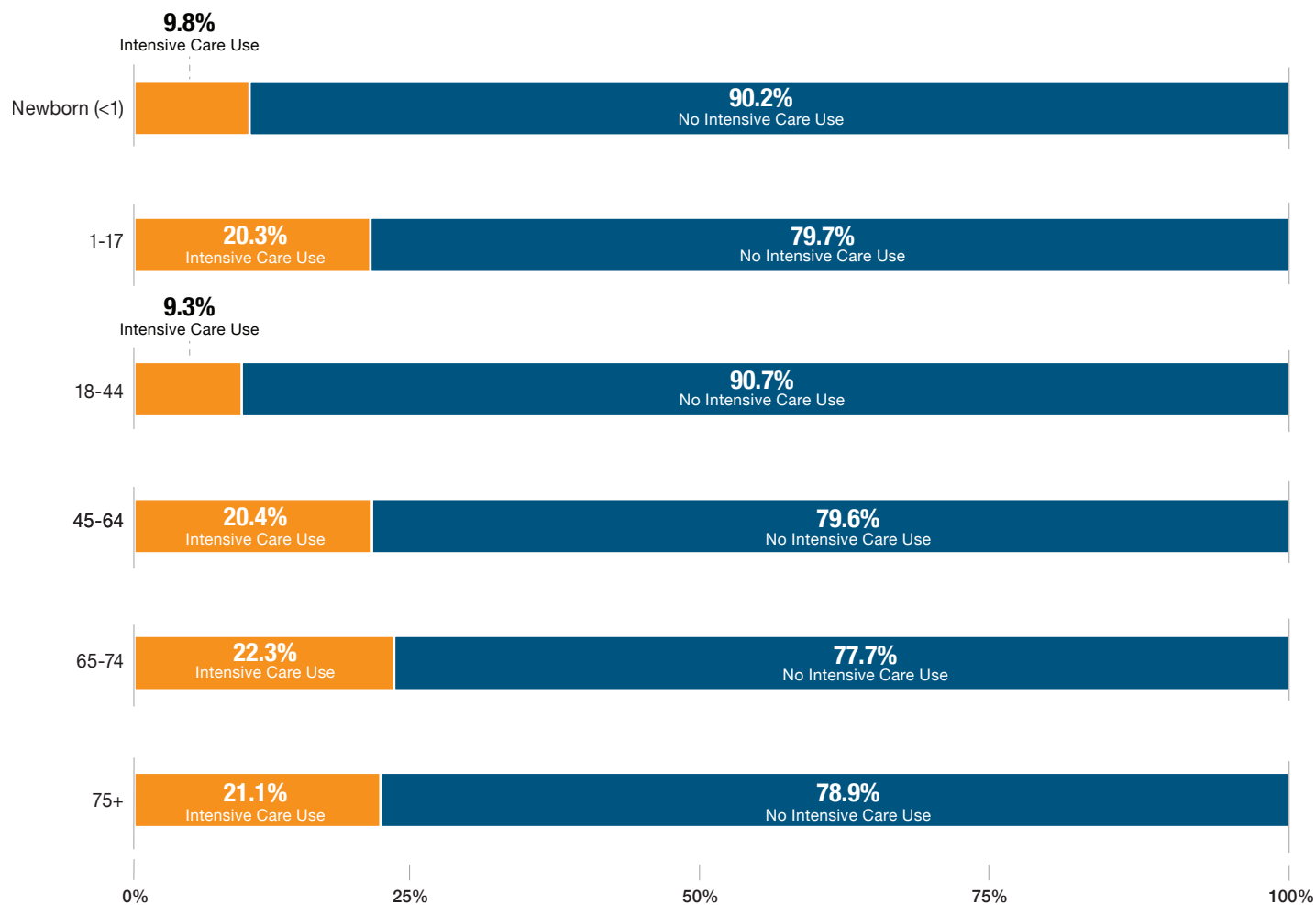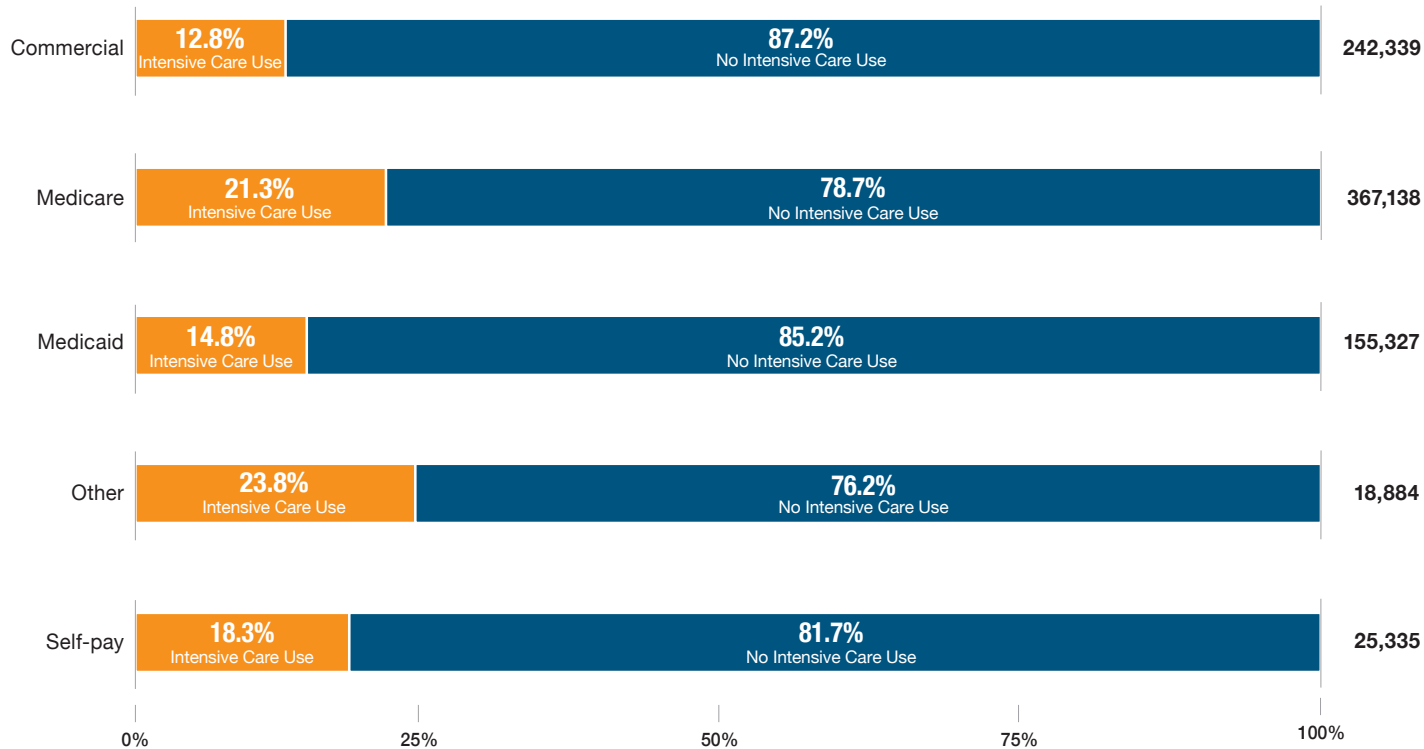Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

Type and Severity of Hospitalization

Inpatient discharges were classified into one of five mutually exclusive hospitalization types based on the primary diagnosis for that hospital stay: maternal/neonatal, mental health/substance use, injury, surgical, or medical. These categories are based on a hierarchal classification developed by the Agency for Healthcare Research and Quality (AHRQ; see technical appendix for details.) In FFY 2016–2019, more than two-thirds of hospitalizations were categorized as either surgical or medical. Slightly over 7% of discharges were classified as mental health/substance use-related.

All-Patient Refined Diagnosis Related Groups (APR-DRGs) & Severity of Illness (SOI)

In 2019, three of the five most common APR-DRGs were associated with childbirth and neonatal care. Other common APR-DRGs include septicemia and related infections, heart failure, knee and hip joint replacements,

pneumonia, chronic obstructive pulmonary disease (COPD), and cardiac arrhythmia and conduction disorders. Of the most common APR-DRGs, septicemia had the longest length of stay at an average of 6 days, followed by heart failure at 5.3 days. Among the most common APR-DRGs associated with childbirth, Cesarean delivery (C-section) resulted in a longer average length of stay compared to discharges associated with a vaginal delivery (4.4 days versus 2.6 days, respectively).

SOI is a classification of the functional status of a patient, defined as the extent of physiologic decomposition or organ system loss of function. Within each APR-DRG, patients are assigned to one of four severity groups indicating minor, moderate, major, and extreme severity, respectively. From FFY 2016 to FFY 2019, despite little change in the overall volume of discharges, the share of discharges classified at major or extreme levels of severity has been increasing.

The average length of stay for those with extreme SOI was 11.6 days in FFY 2019, followed by major SOI at 5.6 days, moderate SOI at 4.0 days and minor at 2.9 days.

Diagnoses and Procedures

Discharges were also classified using Clinical Classifications Software – Refined for ICD-10-CM (CCSR) and Clinical Classifications Software for ICD-10-PCS (CCS) as tools for grouping patient's primary diagnoses and principal procedure codes, respectively (see technical appendix for more information).

Childbirth was the most common primary diagnosis among patients aged 0-17 in FFY 2019. After childbirth, other common visits for this age group include respiratory conditions such as acute bronchitis, asthma, and respiratory failure and pneumonia, depressive disorders, and epilepsy. Among the non-obstetric adult population, the most common primary diagnoses include those associated with septicemia, osteoarthritis, heart failure, pneumonia, and COPD.

In FFY 2019, some of the most common principal procedure codes were associated with childbirth and neonatal care including child delivery, C-sections, vaccinations and inoculations, and circumcision. Other common principal procedures included respiratory intubation and mechanical ventilation, knee and hip replacement, alcohol and drug rehabilitation and detoxification, blood transfusion, and upper gastrointestinal endoscopy. ■

Hospital Inpatient Discharges by Hospitalization Type, 2016-2019
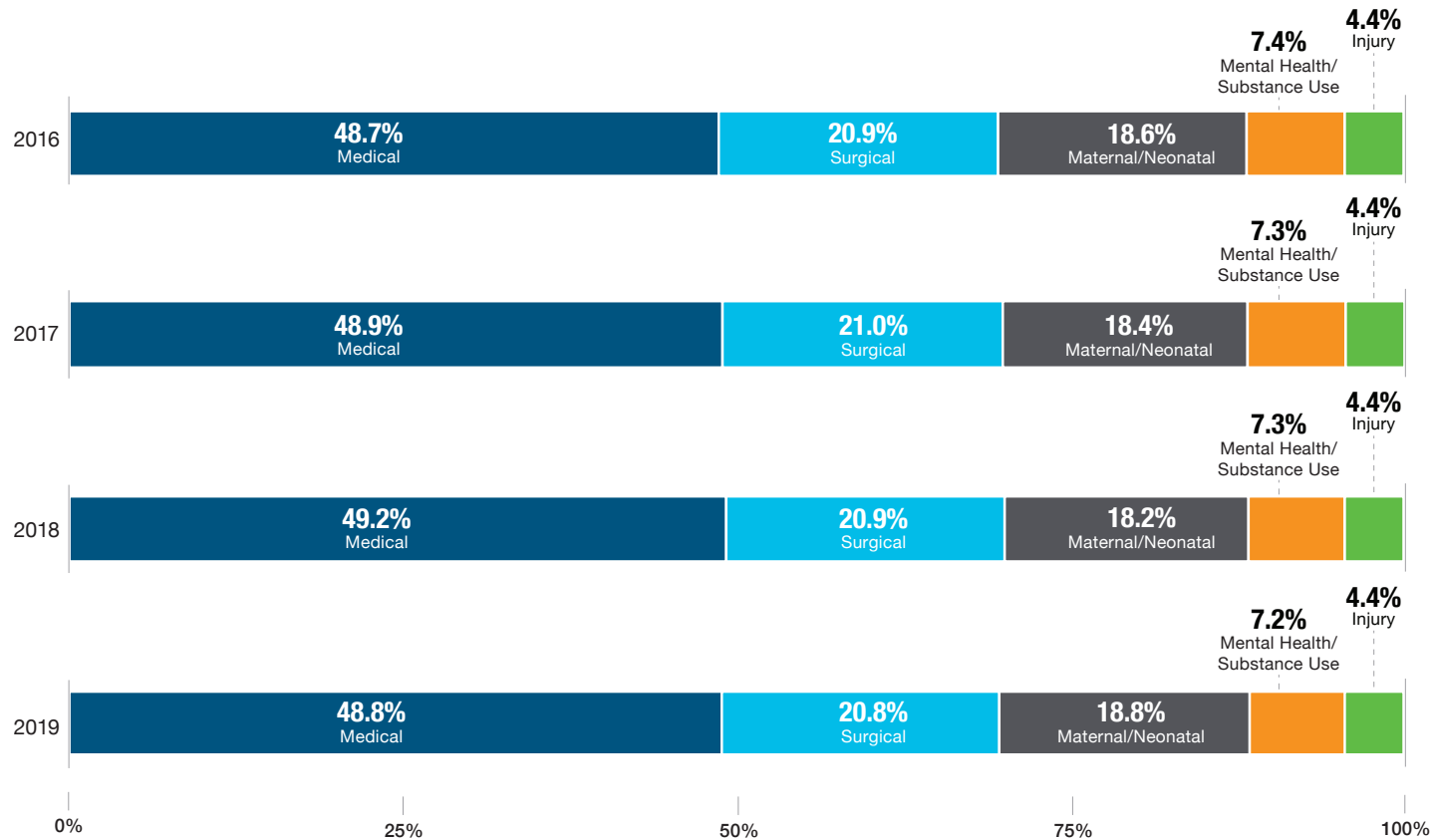
	2016	2017	2018	2019
Medical	391,251	395,853	398,381	394,896
Surgical	167,782	169,548	168,899	168,120
Maternal/Neonatal	149,801	148,619	147,515	151,938
Mental Health/Substance Use	59,359	59,331	58,729	58,453
Injury	35,556	35,514	35,745	35,641
Total	**803,750**	**808,866**	**809,270**	**809,048**

Note: Each hospitalization was assigned to a single hospitalization type hierarchically using a methodology developed by the Agency for Health Care Quality and Research. The principal diagnosis for the hospital stay was used to categorize all discharges into one of five mutually exclusive hospitalization types in the following order: maternal/neonatal, mental health/substance use, injury, surgical, and medical. Figures may not sum to totals due to rounding and one discharge with missing information in each of FFY 2016, 2017, and 2018. See technical appendix for more information.

Data source: Massachusetts Acute Hospital

Hospital Inpatient Discharges by Most Common APR-DRGs, 2019
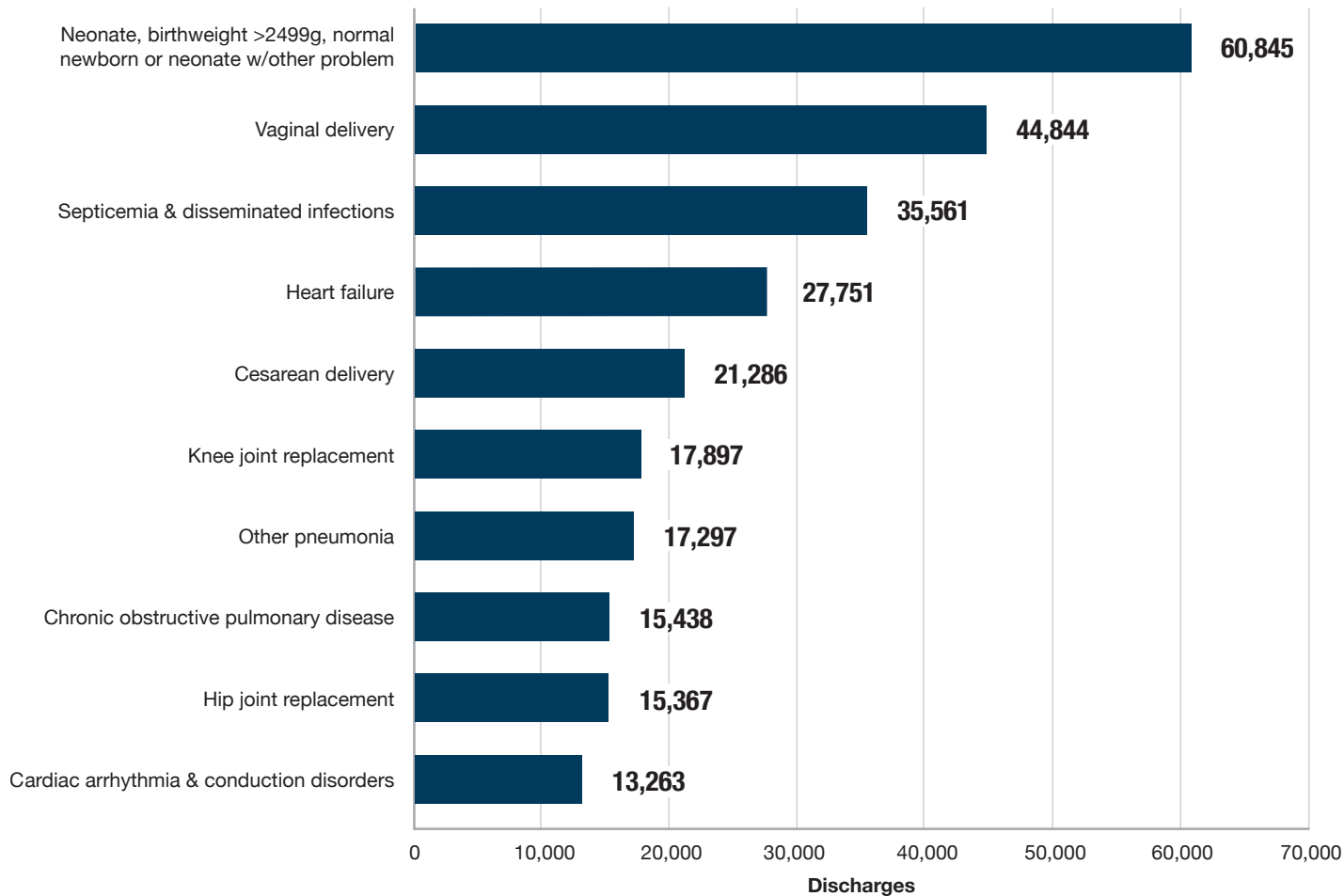
Category	Discharges
Neonate, birthweight >2499g, normal newborn or neonate w/other problem	60,845
Vaginal delivery	44,844
Septicemia & disseminated infections	35,561
Heart failure	27,751
Cesarean delivery	21,286
Knee joint replacement	17,897
Other pneumonia	17,297
Chronic obstructive pulmonary disease	15,438
Hip joint replacement	15,367
Cardiac arrhythmia & conduction disorders	13,263

Discharges

Note: The All Patient Refined–Diagnosis Related Groups (APR-DRGs) are a severity and risk-adjusted classification system that provides means of adjusting for patient differences. The discharge diagnosis classification is based on APR-DRG version 30.0. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2019

Hospital Inpatient Discharges by Most Common APR-DRGs among Patients Aged 0-17, 2019
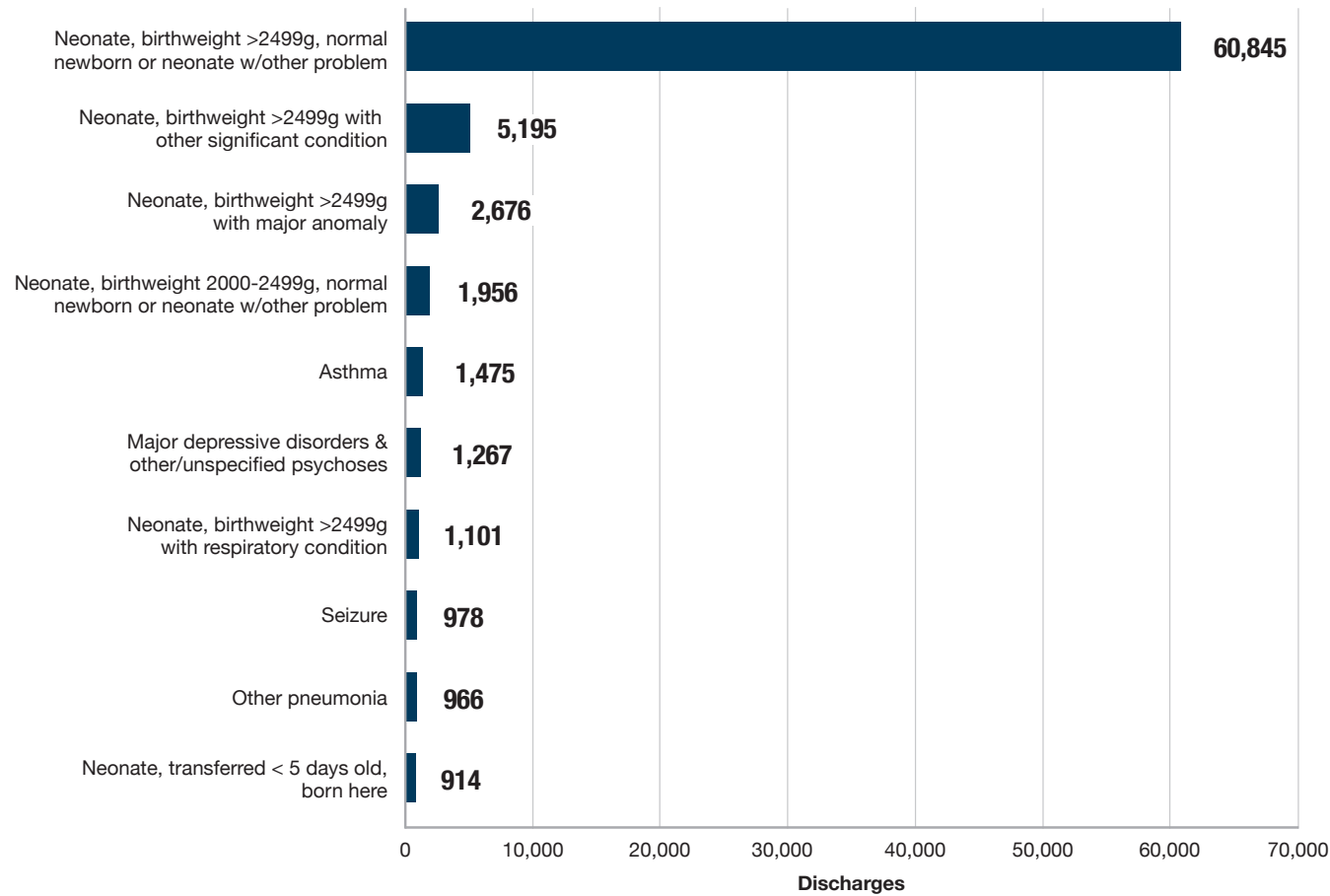
APR-DRG	Discharges
Neonate, birthweight >2499g, normal newborn or neonate w/other problem	60,845
Neonate, birthweight >2499g with other significant condition	5,195
Neonate, birthweight >2499g with major anomaly	2,676
Neonate, birthweight 2000-2499g, normal newborn or neonate w/other problem	1,956
Asthma	1,475
Major depressive disorders & other/unspecified psychoses	1,267
Neonate, birthweight >2499g with respiratory condition	1,101
Seizure	978
Other pneumonia	966
Neonate, transferred < 5 days old, born here	914

Note: The All Patient Refined–Diagnosis Related Groups (APR-DRGs) are a severity and risk-adjusted classification system that provides a means of adjusting for patient differences. The discharge diagnosis classification is based on APR-DRG version 30.0. See technical appendix for more information. This analysis excludes 17 discharges missing age information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2019

Hospital Inpatient Discharges by Most Common APR-DRGs among Non-Obstetric Patients Aged 18+, 2019

Category	Discharges
Septicemia & disseminated infections	35,399
Heart failure	27,740
Knee joint replacement	17,894
Other pneumonia	16,331
Chronic obstructive pulmonary disease	15,421
Hip joint replacement	15,359
Cardiac arrhythmia & conduction disorders	13,188
Kidney & urinary tract infections	11,882
Renal failure	11,725
Cellulitis & other bacterial skin infections	10,295

Discharges

Note: The All Patient Refined–Diagnosis Related Groups (APR-DRGs) are a severity and risk-adjusted classification system that provides a means of adjusting for patient differences. The discharge diagnosis classification is based on APR DRG version 30.0. This analysis excludes 17 discharges missing age information. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2019

Hospital Inpatient Discharges by Most Common APR-DRGs among Obstetric Patients Aged 18+, 2019

Note: The All Patient Refined–Diagnosis Related Groups (APR-DRGs) are a severity and risk-adjusted classification system that provides a means of adjusting for patient differences. The discharge diagnosis classification is based on APR DRG version 30.0. This analysis excludes 17 discharges missing age information. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2019

Most Common APR-DRGs by Expected Primary Payer Type, 2019
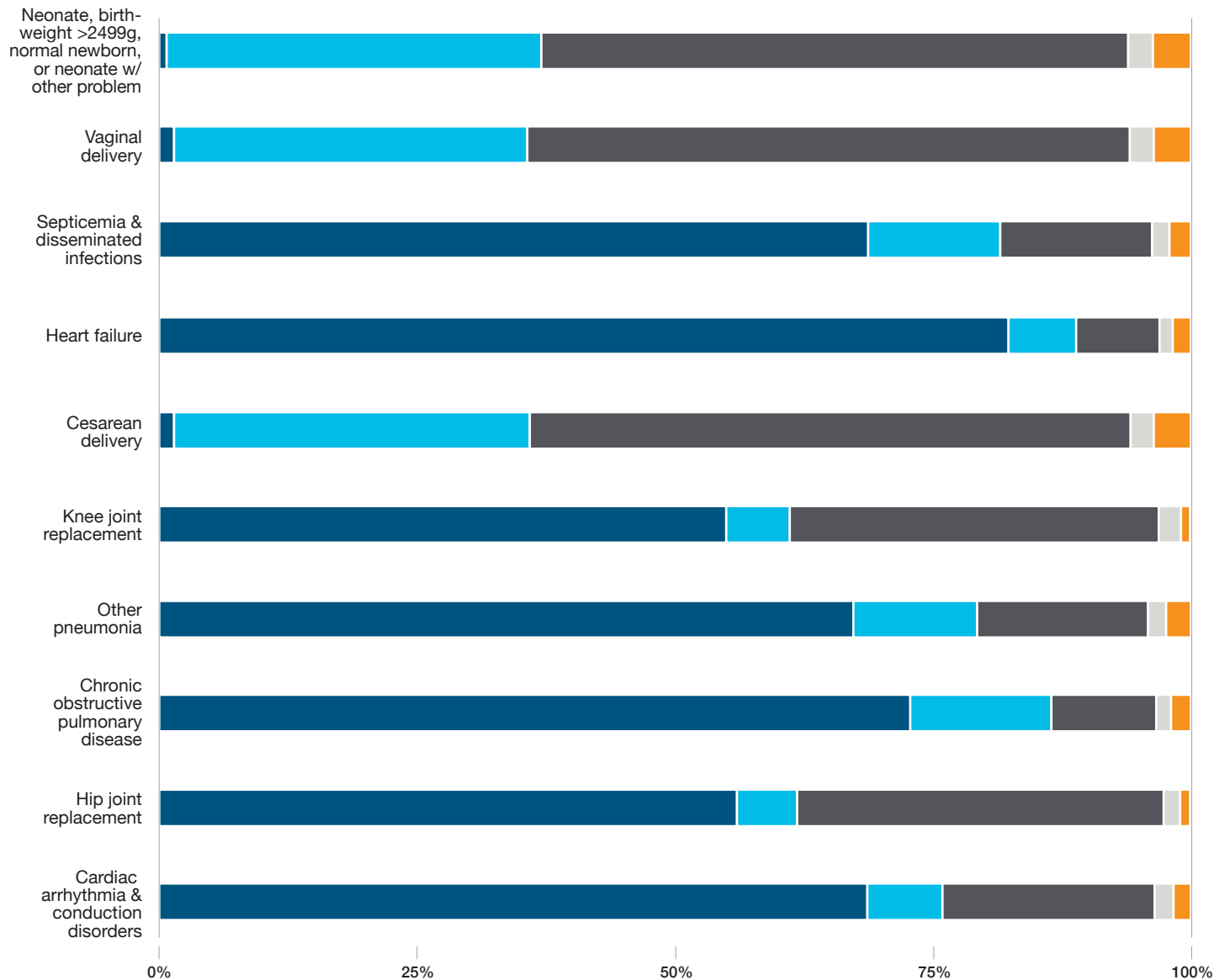
Key
- Medicare
- Medicaid
- Commercial
- Other
- Self-Pay

Note: The All Patient Refined–Diagnosis Related Groups (APR-DRGs) are a severity and risk-adjusted classification system that provides a means of adjusting for patient differences. The discharge diagnosis classification is based on APR DRG version 30.0. Analysis includes information on expected primary payer type as provided by the hospital, and does not include information on secondary or supplemental payer information. Other insurance includes Worker's Compensation, Other Government Payment, Auto Insurance, and Dental Plans. See technical appendix for more information.

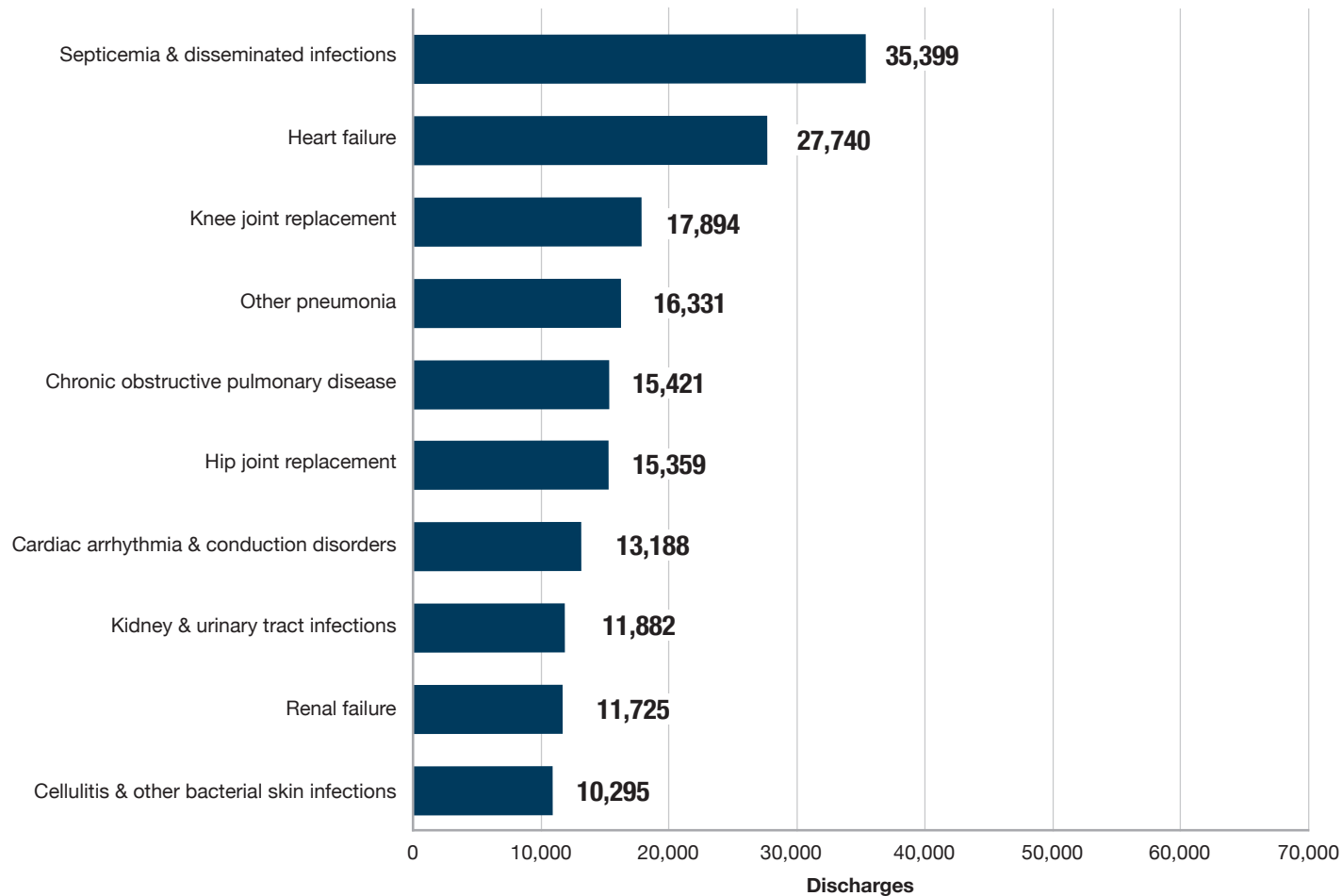Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2019

Average Length of Stay by Most Common APR-DRGs, 2019
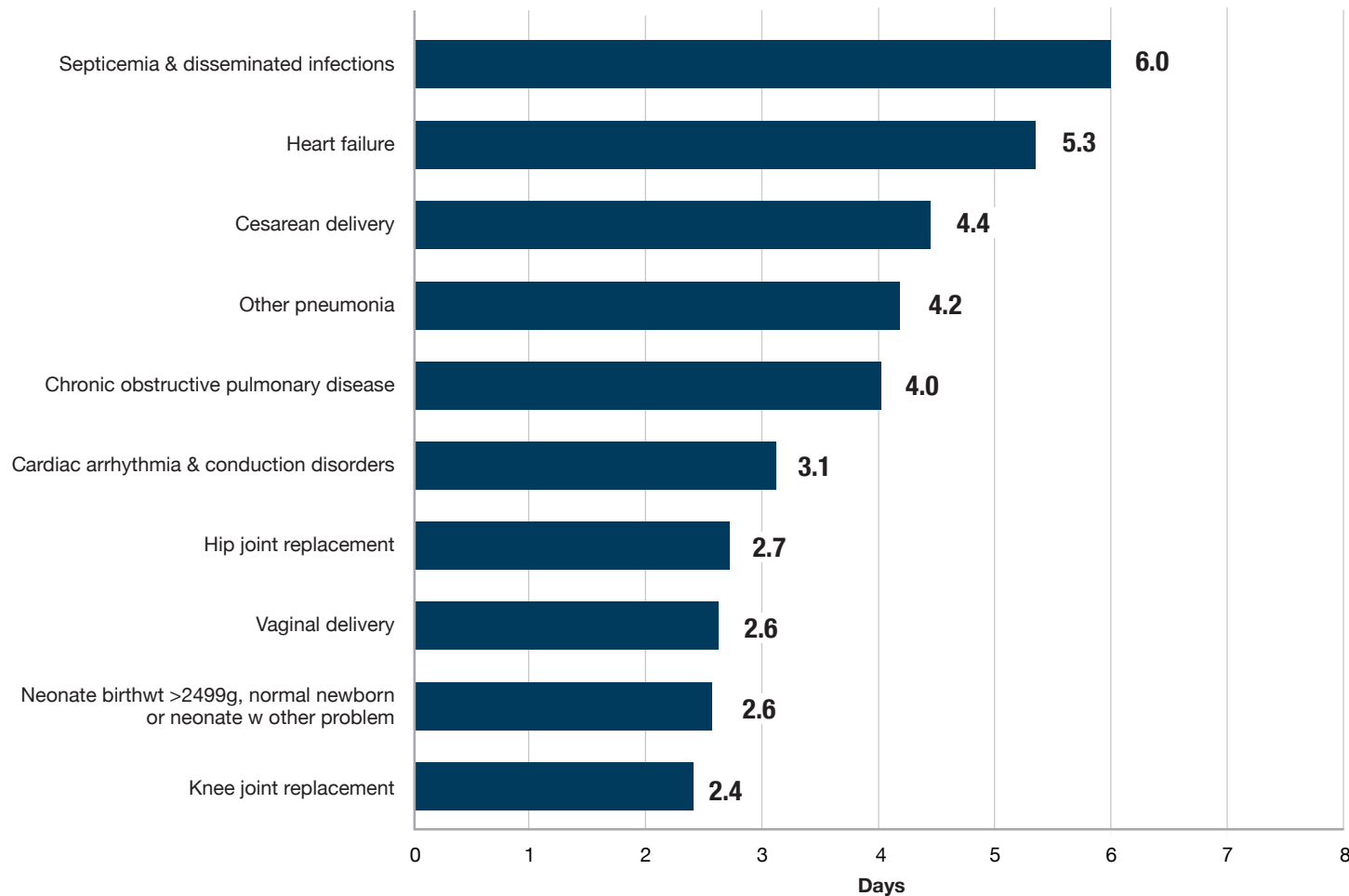
Septicemia & disseminated infections — 6.0
Heart failure — 5.3
Cesarean delivery — 4.4
Other pneumonia — 4.2
Chronic obstructive pulmonary disease — 4.0
Cardiac arrhythmia & conduction disorders — 3.1
Hip joint replacement — 2.7
Vaginal delivery — 2.6
Neonate birthwt >2499g, normal newborn or neonate w other problem — 2.6
Knee joint replacement — 2.4

Days (x-axis: 0 to 8)

Note: The All Patient Refined–Diagnosis Related Groups (APR-DRGs) are a severity and risk-adjusted classification system that provides a means of adjusting for patient differences. The discharge diagnosis classification is based on APR DRG version 30.0. Length of stay (LOS) is calculated by subtracting the admission date from the discharge date. See the technical appendix for more information.

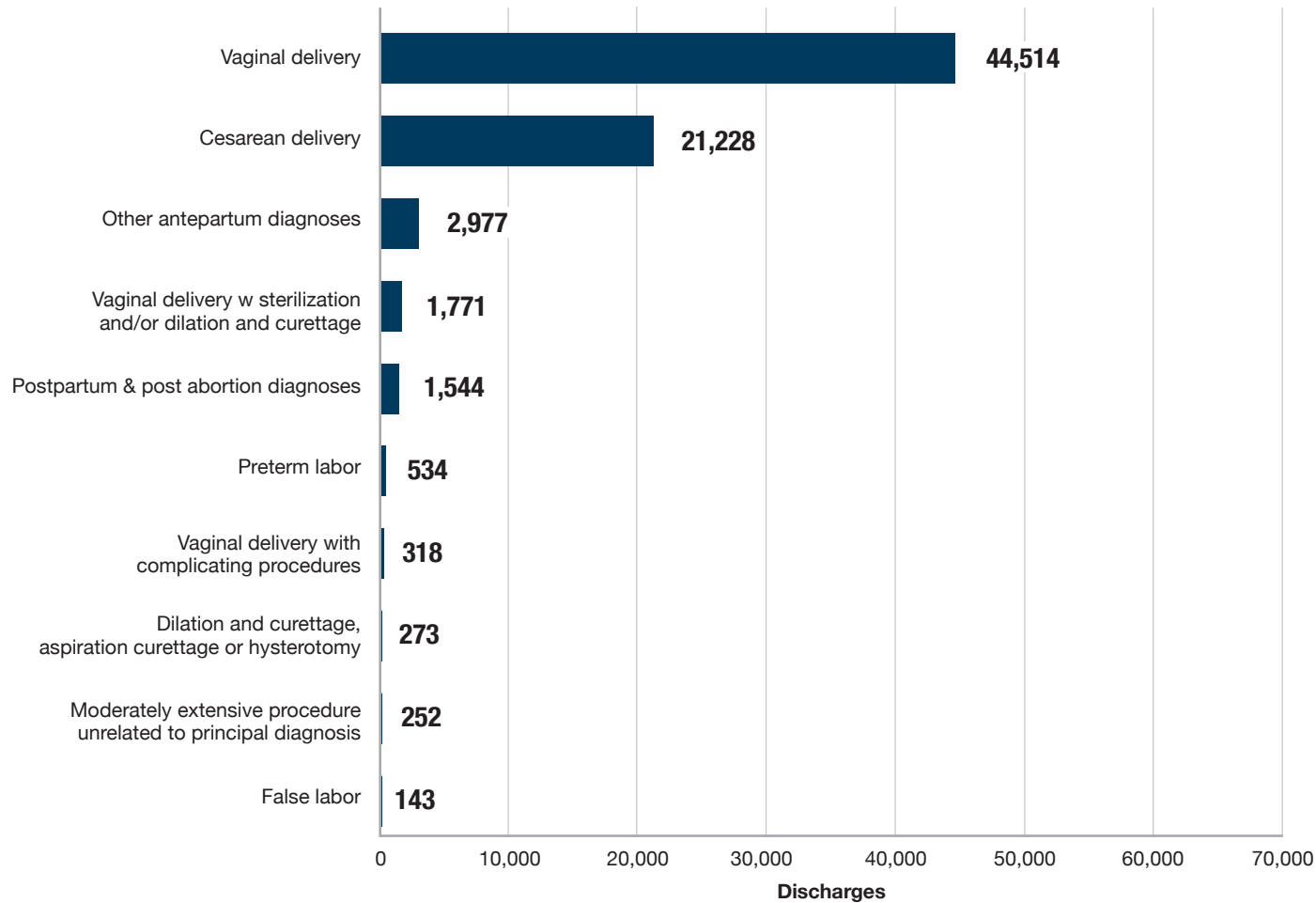Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2019

Hospital Inpatient Discharges by APR-DRG Severity, 2016-2019
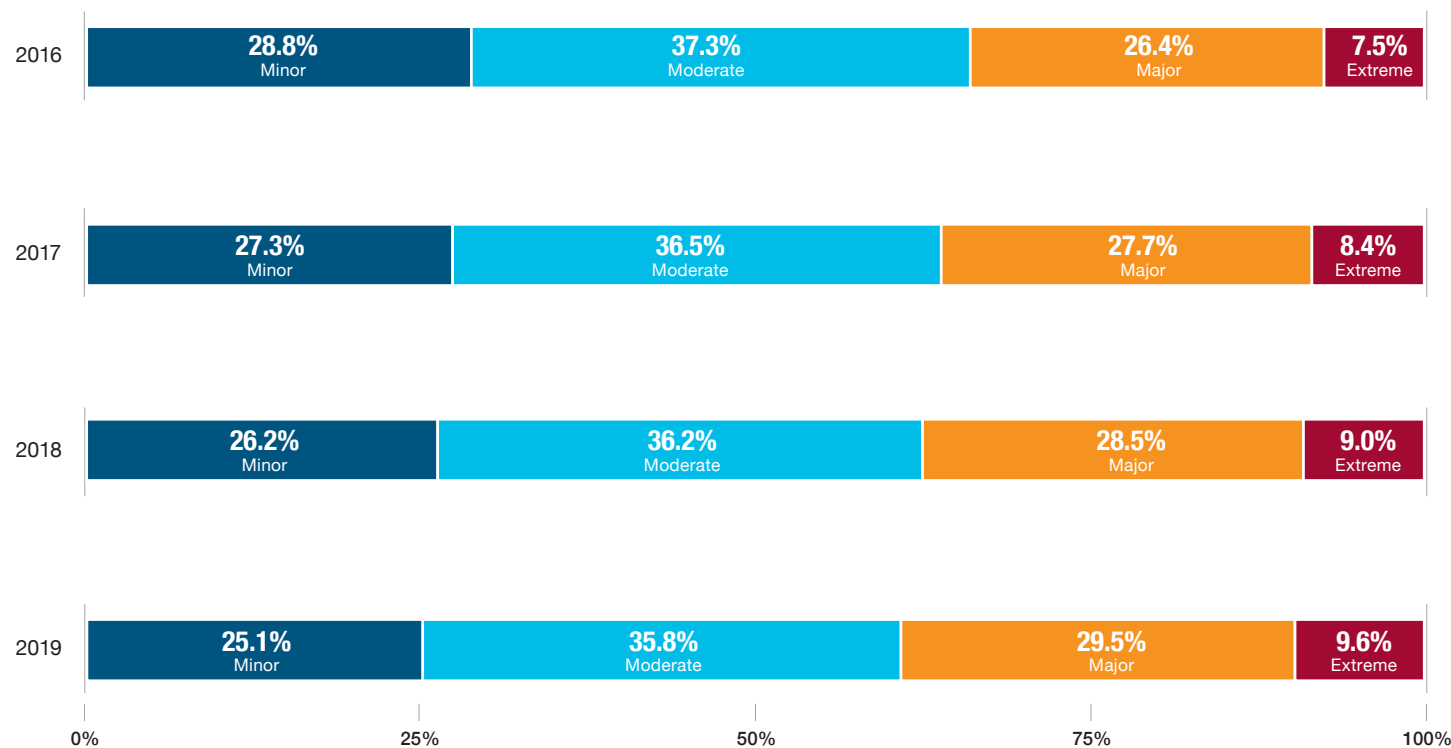
	2016	2017	2018	2019
Minor	231,288	221,138	212,364	203,336
Moderate	299,978	295,507	293,162	289,489
Major	212,460	224,399	230,690	238,382
Extreme	59,933	67,770	72,980	77,719
Total	**803,750**	**808,866**	**809,270**	**809,048**

Note: The All Patient Refined–Diagnosis Related Groups (APR-DRGs) are a severity and risk-adjusted classification system that provides a means of adjusting for patient differences. All APR-DRGs have 4 severity of illness subclasses calculated mainly on the patient's provided secondary diagnoses as well as the patient's age and non-operating room procedures (1="Minor", 2="Moderate", 3="Major", and 4="Extreme"). The discharge diagnosis classification is based on APR DRG version 30.0. Percentages may not sum to the total due to rounding and missing APR-DRG and SOI data. The number of discharges with missing data was 91 in FFY 2016, 52 in FFY 2017, 74 in FFY 2018, and 122 in FFY 2019. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2019

Average Length of Stay by APR-DRG Severity, 2016-2019
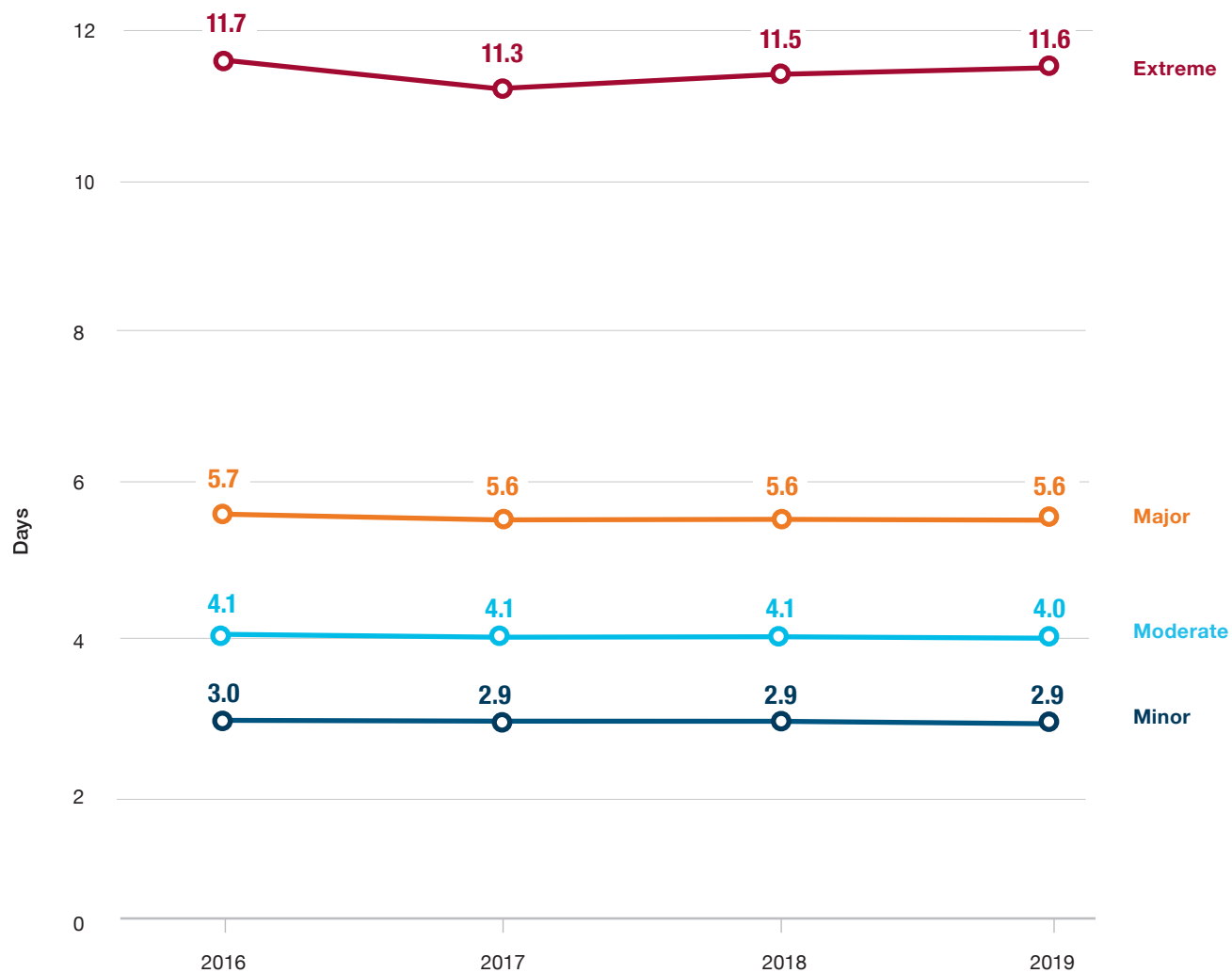
Note: The All Patient Refined–Diagnosis Related Groups (APR-DRGs) are a severity and risk-adjusted classification system that provides a more effective means of adjusting for patient differences. All APR-DRGs have 4 severity of illness subclasses calculated mainly on the patient's provided secondary diagnoses as well as the patient's age and non-operating room procedures (1="Minor", 2="Moderate", 3="Major", and 4="Extreme"). The discharge diagnosis classification is based on APR DRG version 30.0. Length of stay (LOS) is calculated by subtracting the admission date from the discharge date. This analysis excludes a small number of discharges with missing data. See the technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2019

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

Diagnosis	Discharges
Liveborn	69,120
Acute bronchitis	2,122
Depressive disorders	1,554
Asthma	1,522
Epilepsy; convulsions	1,164
Pneumonia (except that caused by tuberculosis)	1,116
Hemolytic jaundice and perinatal jaundice	994
Cardiac and circulatory congenital anomalies	976
Skin and subcutaneous tissue infections	603
Respiratory failure; insufficiency; arrest	593

Discharges

Note: Discharges were grouped into one of three groups: ages 0-17, age 18 or older with an obstetric primary diagnosis, and age 18 or older without an obstetric primary diagnosis. For this analysis, discharges 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). This analysis excludes 17 discharges missing age information. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

Most Common Primary CCSR Diagnoses among Non-Obstetric Patients Aged 18+, 2019

Diagnosis	Discharges
Septicemia	42,029
Osteoarthritis	30,473
Heart failure	28,698
Pneumonia (except that caused by tuberculosis)	17,237
Chronic obstructive pulmonary disease	15,801
Cardiac dysrhythmias	15,582
Alcohol-related disorders	15,157
Acute myocardial infarction	13,882
Diabetes mellitus with complication	12,888
Urinary tract infections	12,584

Discharges

Note: Discharges were grouped into one of three groups: ages 0-17, age 18 or older with an obstetric primary diagnosis, and age 18 or older without an obstetric primary diagnosis. For this analysis, discharges 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). This analysis excludes 17 discharges missing age information. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019
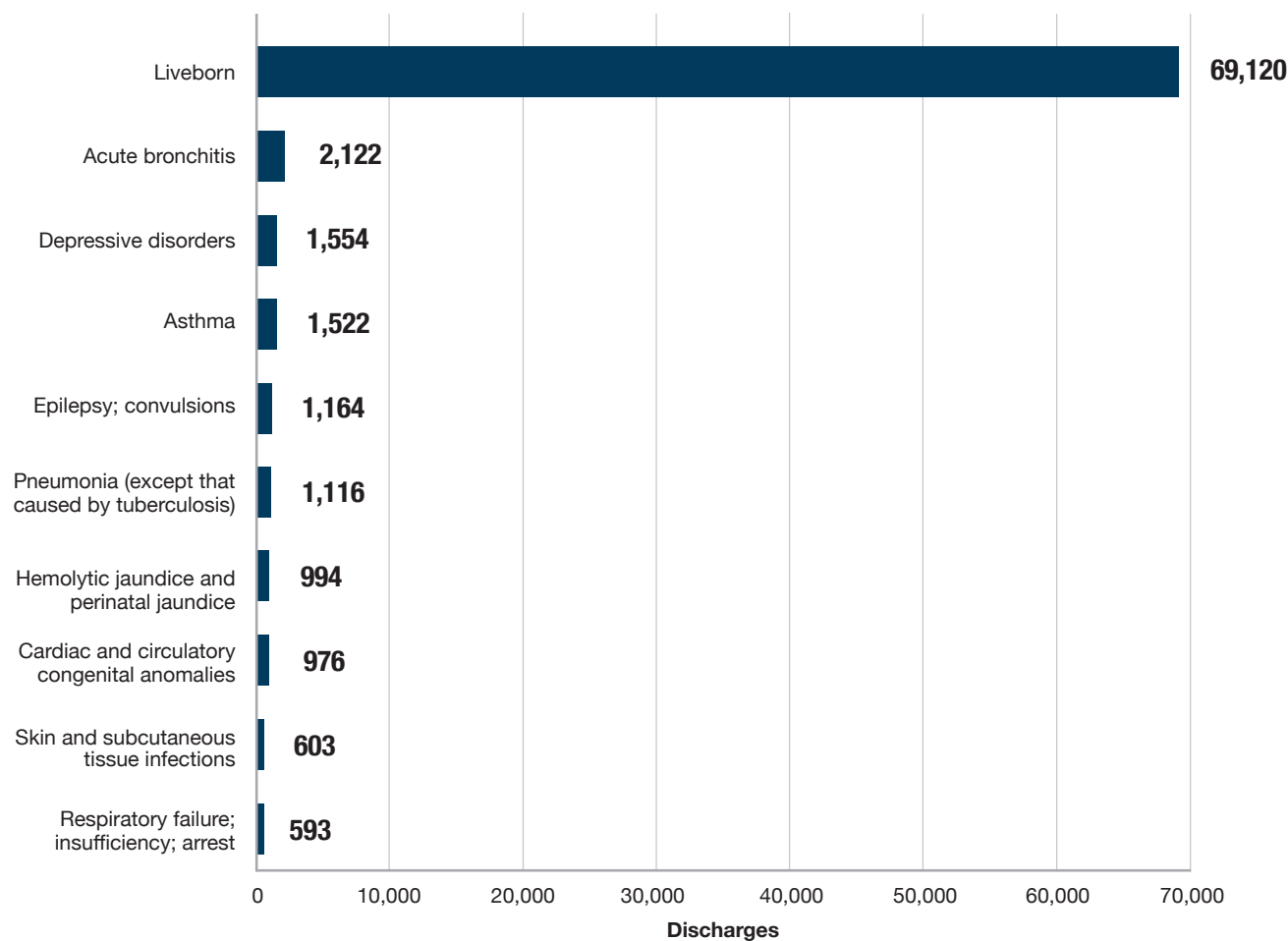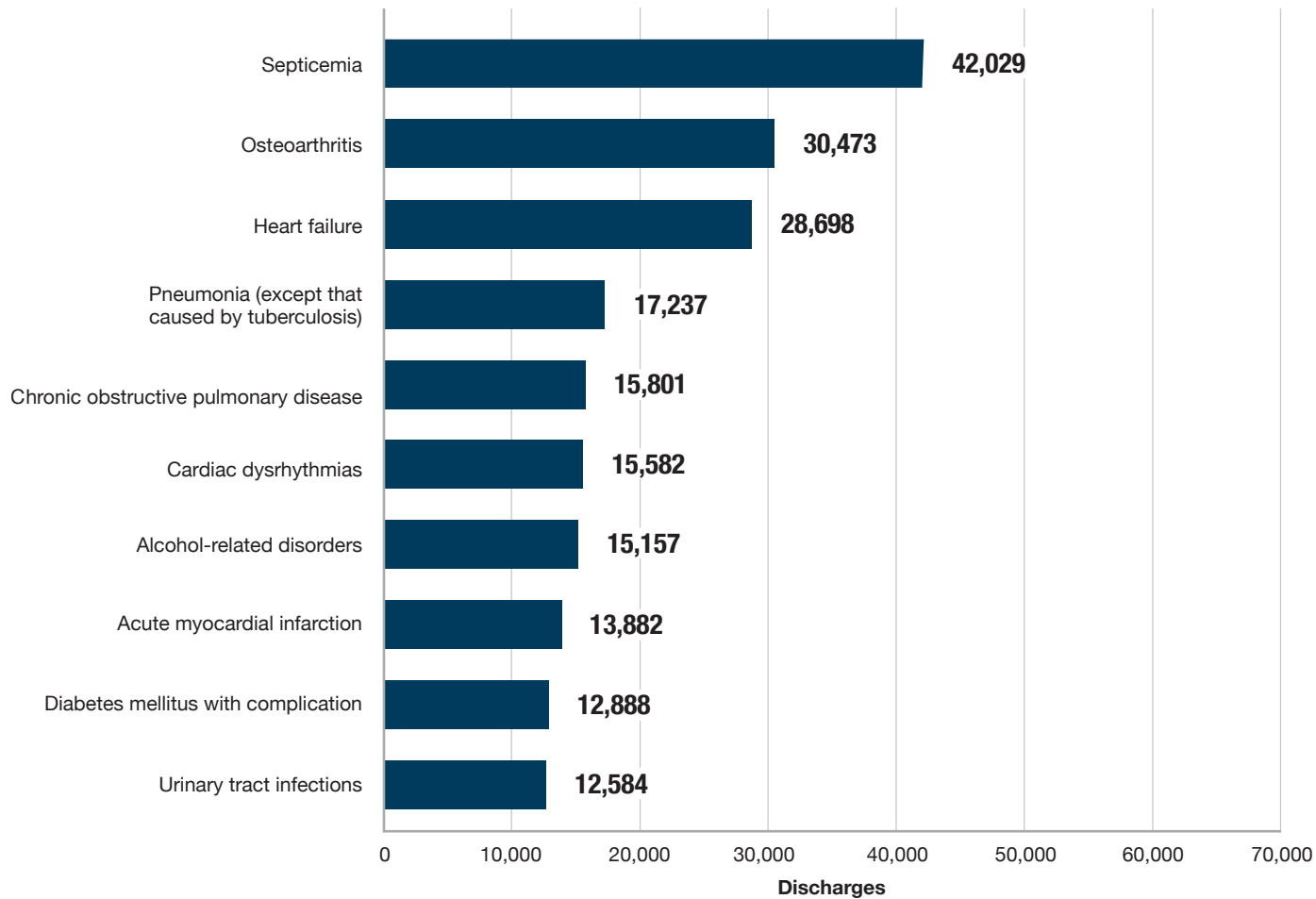
Most Common Primary CCSR Diagnoses among Obstetric Patients Aged 18+, 2019

Diagnosis	Discharges
Complications specified during childbirth	13,275
Prolonged pregnancy	8,645
Previous Cesarean section	7,889
Malposition, disproportion or other labor complications	7,207
Hypertension complicating pregnancy or childbirth	7,165
Uncomplicated pregnancy, delivery or puerperium	6,261
OB-related trauma to perineum and vulva	5,776
Early or threatened labor	3,644
Maternal care related to fetal conditions	3,353
Other specified complications in pregnancy	2,905

Discharges

Note: Discharges were grouped into one of three groups: ages 0-17, age 18 or older with an obstetric primary diagnosis, and age 18 or older without an obstetric primary diagnosis. For this analysis, discharges 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). This analysis excludes 17 discharges missing age information. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

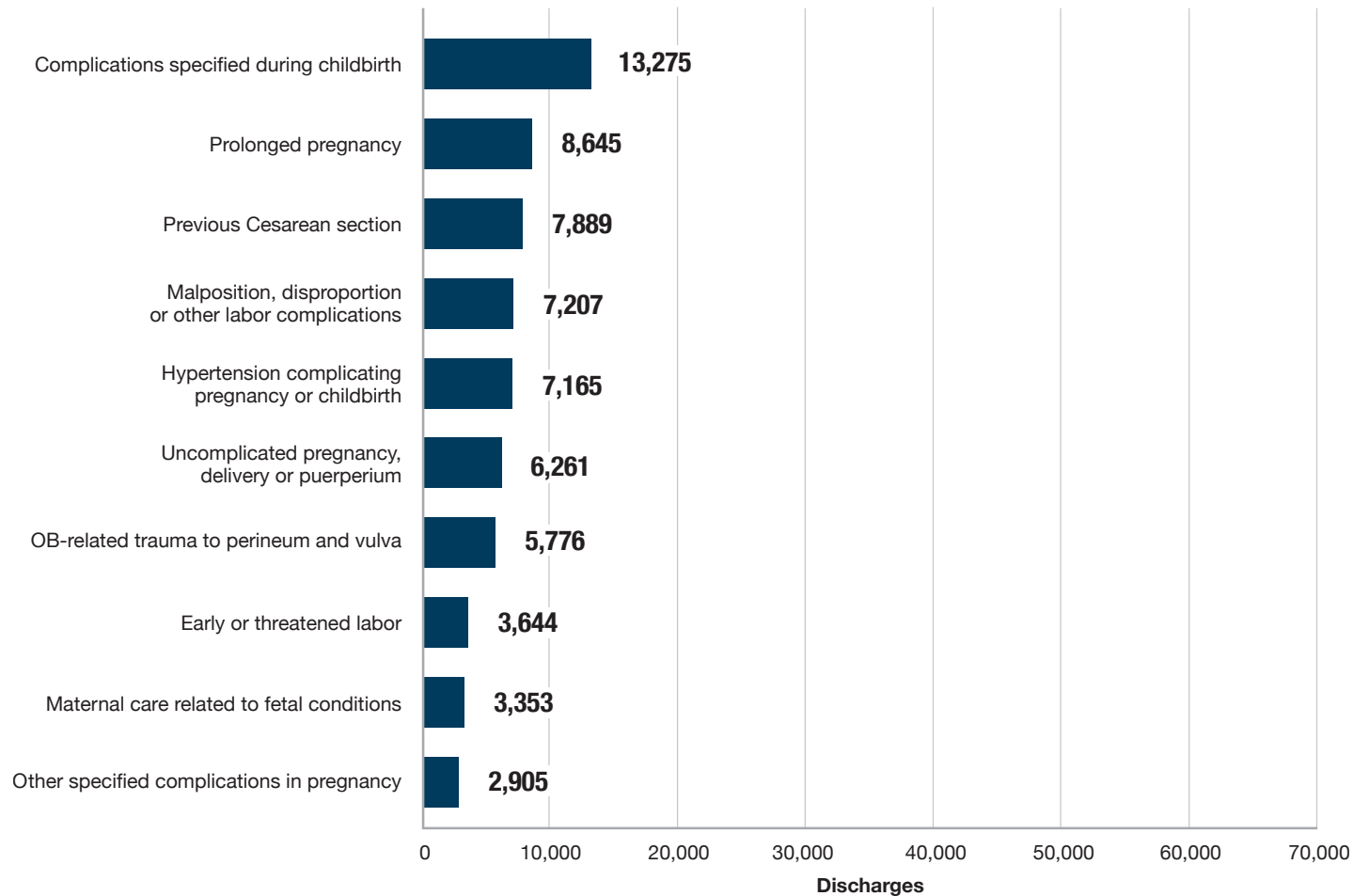# Most Common Principal CCS Procedures among Patients Aged 0-17, 2019

Horizontal bar chart. X-axis labeled "Discharges" from 0 to 50,000.

Procedure	Discharges
Prophylactic vaccinations and inoculations	29,818
Circumcision	14,685
Respiratory intubation and mechanical ventilation	4,195
Other therapeutic procedures	2,379
Enteral and parenteral nutrition	1,097
Ophthalmologic and otologic diagnosis and treatment	1,034
Diagnostic spinal tap	850
Other non-OR procedures on mouth and throat	676
Electroencephalogram (EEG)	669
Cancer chemotherapy	630

Note: Discharges were grouped into one of three groups: ages 0-17, age 18 or older with an obstetric primary diagnosis, and age 18 or older without an obstetric primary diagnosis. For this analysis, discharges were categorized into clinically meaningful mutual exclusive categories based on the listed primary procedure code using the Clinical Classifications Software for Services and Procedures (CCS-Services and Procedures) developed by the Agency for Healthcare Research and Quality (AHRQ). This analysis excludes 17 discharges missing age information. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

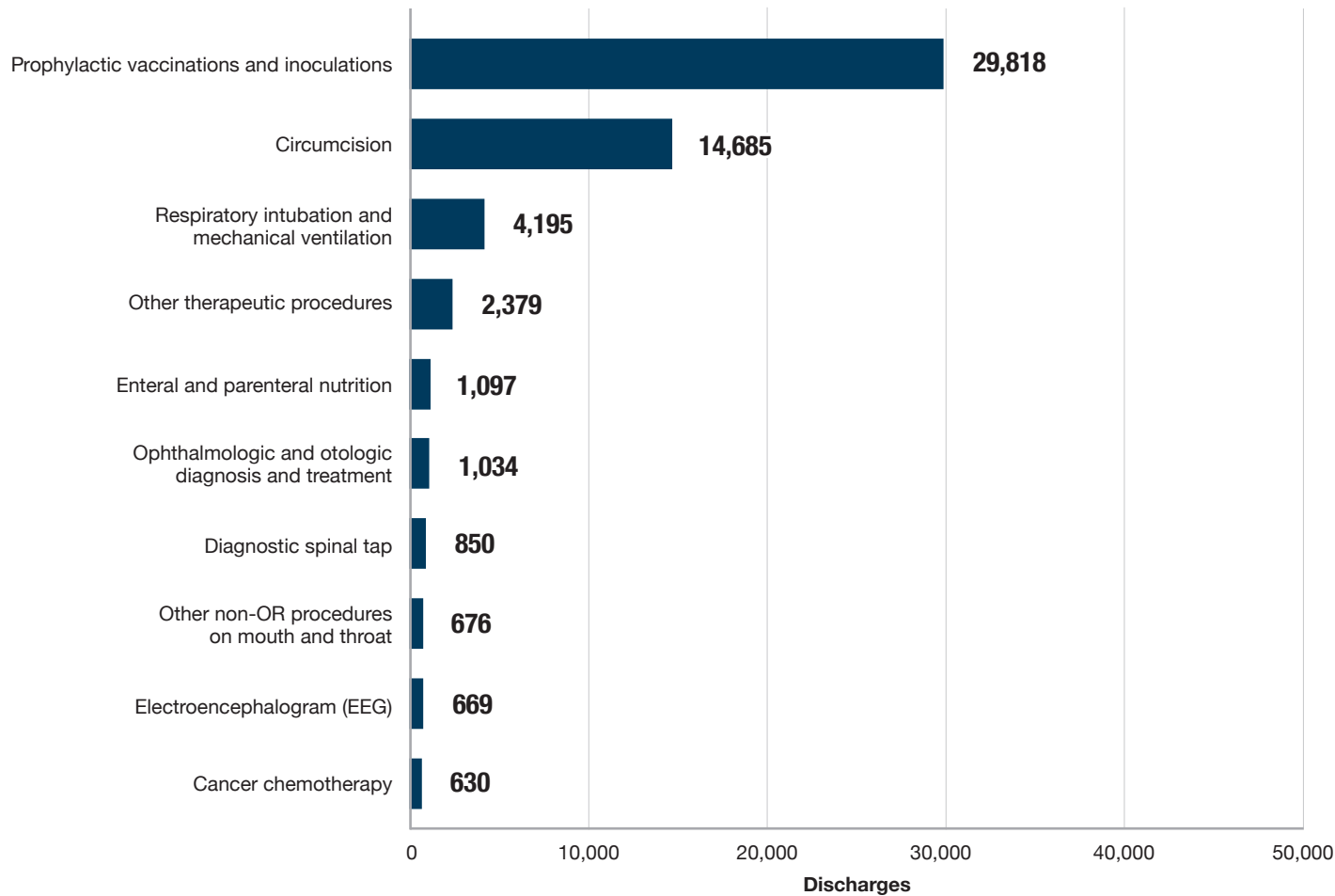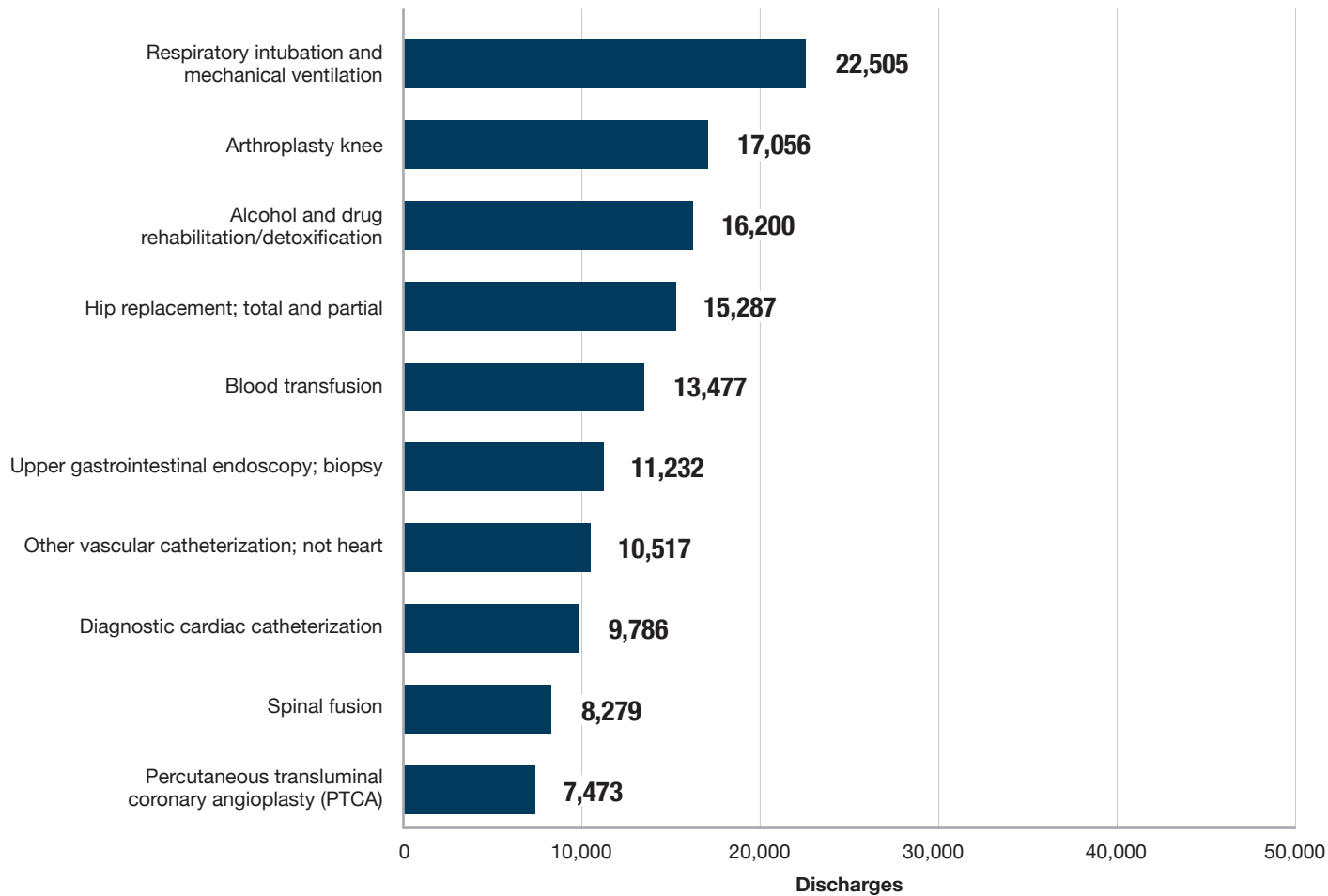# Most Common Principal CCS Procedures among Non-Obstetric Patients Aged 18+, 2019

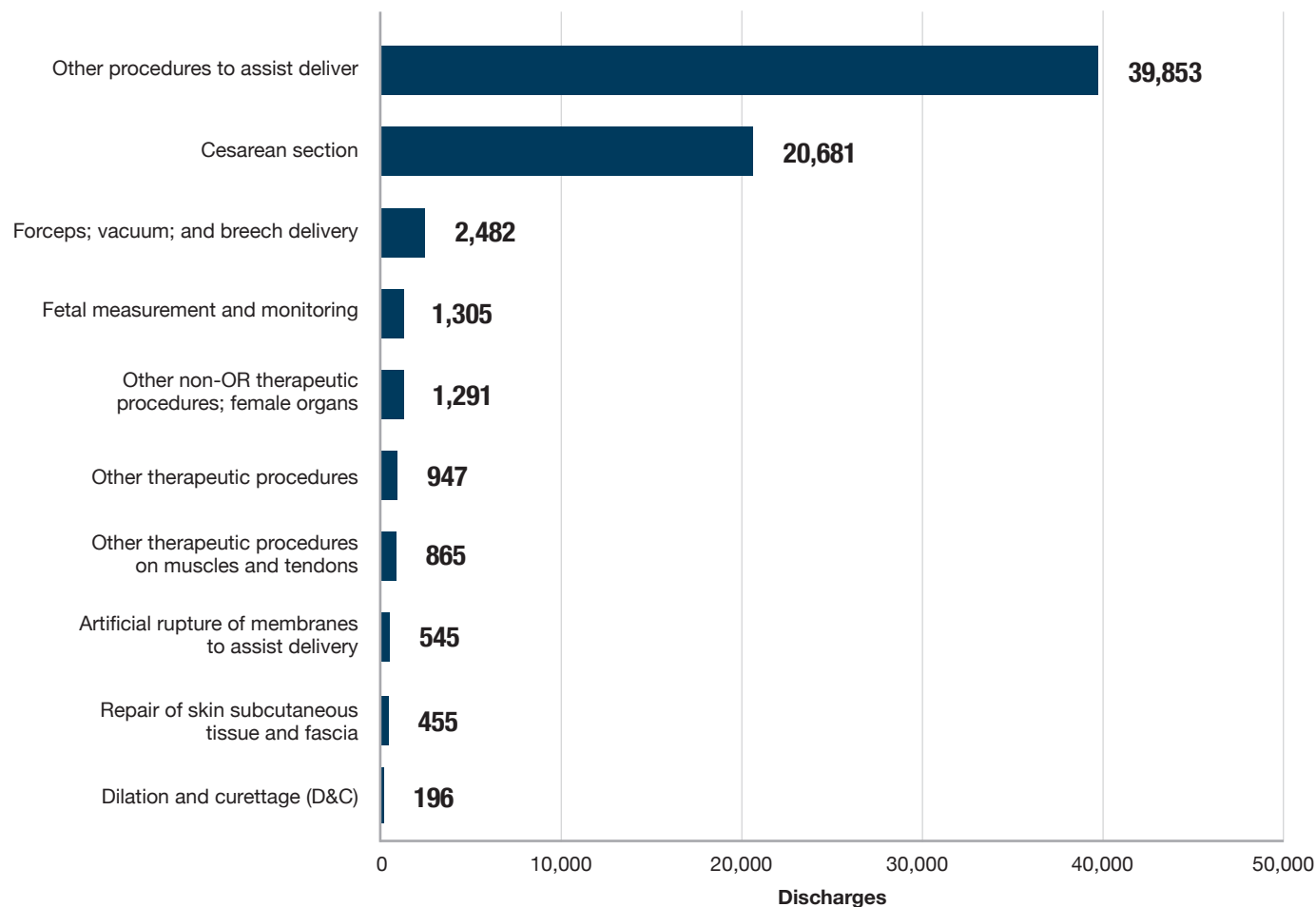| Procedure	Discharges
Respiratory intubation and mechanical ventilation	22,505
Arthroplasty knee	17,056
Alcohol and drug rehabilitation/detoxification	16,200
Hip replacement; total and partial	15,287
Blood transfusion	13,477
Upper gastrointestinal endoscopy; biopsy	11,232
Other vascular catheterization; not heart	10,517
Diagnostic cardiac catheterization	9,786
Spinal fusion	8,279
Percutaneous transluminal coronary angioplasty (PTCA)	7,473

Discharges

Note: Discharges were grouped into one of three groups: ages 0-17, age 18 or older with an obstetric primary diagnosis, and age 18 or older without an obstetric primary diagnosis. For this analysis, discharges were categorized into clinically meaningful mutual exclusive categories based on the listed primary procedure code using the Clinical Classifications Software for Services and Procedures (CCS-Services and Procedures) developed by the Agency for Healthcare Research and Quality (AHRQ). This analysis excludes 17 discharges missing age information. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

Most Common Principal CCS Procedures among Obstetric Patients Aged 18+, 2019

Procedure	Discharges
Other procedures to assist deliver	39,853
Cesarean section	20,681
Forceps; vacuum; and breech delivery	2,482
Fetal measurement and monitoring	1,305
Other non-OR therapeutic procedures; female organs	1,291
Other therapeutic procedures	947
Other therapeutic procedures on muscles and tendons	865
Artificial rupture of membranes to assist delivery	545
Repair of skin subcutaneous tissue and fascia	455
Dilation and curettage (D&C)	196

Discharges

Note: Discharges were grouped into one of three groups: ages 0-17, age 18 or older with an obstetric primary diagnosis, and age 18 or older without an obstetric primary diagnosis. For this analysis, discharges were categorized into clinically meaningful mutual exclusive categories based on the listed primary procedure code using the Clinical Classifications Software for Services and Procedures (CCS-Services and Procedures) developed by the Agency for Healthcare Research and Quality (AHRQ). This analysis excludes 17 discharges missing age information. See technical appendix for more information.

Data source: Massachusetts Acute Hospital Case Mix Hospital Inpatient Discharge Databases (HIDD), 2016-2019

Notes

1 MassGIS, "MassGIS Data: Acute Care Hospitals," date last modified October 20, 2020, https://docs.digital.mass.gov/dataset/massgis-data-acute-care-hospitals.

2 See note 1.

3 U.S. Census Bureau, "ACS Demographic and Housing Estimates," 2015-2019 American Community Survey 5-Year Estimates (Massachusetts), Explore Census Data, accessed December 10, 2020, https://data.census.gov/cedsci/.