

# Massachusetts Hospital Profiles

Data Through Fiscal  
Year 2020

April 2022

Technical Appendix



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# FY20 Massachusetts Acute and Non-Acute Care Hospitals (April 2022)

## TECHNICAL APPENDIX

### Table of Contents

- Introduction ..... 2
  - Multi-Acute Hospital System Affiliation and Location ..... 3
  - Regional Definitions ..... 4
  - Special Designations ..... 6
  - Hospital Types ..... 7
- At a Glance ..... 9
- Acute Hospital Profiles: Services ..... 12
- Acute Hospital Profiles: Utilization Trends ..... 14
- Acute Hospital Profiles: Patient Revenue Trends ..... 15
- Acute Hospital Profiles: Financial Performance ..... 16
- Non-Acute Hospital Location and Multi-Hospital System Affiliations ..... 19
- Non-Acute Hospital Profiles: Services ..... 22
- Non-Acute Hospital Profiles: Utilization ..... 23
- Non-Acute Hospital Profiles: Patient Revenue Trends ..... 24
- Non-Acute Hospital Profiles: Financial Performance ..... 24
- Appendix A: Acute Hospitals ..... 25
- Appendix B: Non-Acute Hospitals ..... 27
- Appendix C: Diagnosis Related Groups ..... 28
- Appendix D: Special Public Funding ..... 32

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## Introduction

Acute and non-acute hospitals included in *Massachusetts Hospital Profiles - Data through Fiscal Year 2020* were profiled on service, payer mix, quality, utilization, revenue, and financial performance. Details for each of these metrics are included in this technical appendix.

The Center for Health Information and Analysis (CHIA) relied on the following primary data sources to present information: the Hospital Cost Report, the Hospital Discharge Database (HDD), and the Hospital Standardized Financial Statement database.

Unless otherwise noted, metrics included in this report are based on data reported by acute and non-acute hospitals from Fiscal Year (FY) 2016 to FY2020. Descriptive acute and non-acute hospital information is from FY2020.

Hospital financial performance and utilization were significantly impacted by the COVID-19 pandemic during 2020. The time period covered in this report incorporates the impact of COVID-19 on hospitals during their fiscal year 2020. Governor Baker declared a state of emergency on March 10, 2020.

### **Hospital Cost Report:**

The Hospital Cost Report is submitted each year by acute and non-acute hospitals and contains data on costs, revenues, and utilization statistics. Beginning in FY2015, the new Hospital Cost Report requires hospitals to submit based on the same time frames as the Medicare 2552 Cost Report filing schedules, which reflects the unique fiscal year end of each hospital.

### **Hospital Discharge Database (HDD):**

HDD data is submitted quarterly by acute hospitals and contains patient-level data identifying charges, days, and diagnostic information for all acute inpatient discharges. CHIA used FY2020 HDD data as of October 2021 for the service metrics, which includes discharges between October 1, 2019 and September 30, 2020 for all acute hospitals.

### **Hospital Standardized Financial Statements:**

The Hospital Standardized Financial Statements are submitted quarterly and annually by acute hospitals based on their individual fiscal year end. The Standardized Financial Statements contain information on the hospital's assets, liabilities, revenues, expenses, and profits or losses.

### **Audited Financial Statements:**

Audited Financial Statements are submitted annually by hospitals (or their parent organizations, if applicable). In addition to the financial figures that are found in the Hospital Standardized Financial Statements, the Audited Financial Statements contain an opinion from an independent auditor as well as notes from hospital or system management that elaborate on the financial performance and standing of the hospital or system during the fiscal year.

### **Quality Data Sources:**

To compile the hospital quality measures, CHIA relied on the following primary data sources: HDD, the Centers for Medicare & Medicaid Services (CMS) Hospital Compare database, and The Leapfrog Group.

**Data Verification:**

Each year's Hospital Cost Report, hospital and multi-acute hospital system financial statements, Relative Price, and quality data reports were verified in accordance with respective reporting regulation requirements. Additional data verification forms that included each hospital's reported financial data were sent to each acute and non-acute hospital for FY2016-FY2020.

An **acute hospital** is a hospital that is licensed by the Massachusetts Department of Public Health and contains a majority of medical-surgical, pediatric, obstetric, and maternity beds.

**Multi-Acute Hospital System Affiliation and Location**

Massachusetts hospitals are generally affiliated with a larger health system. Health systems may include multiple hospitals and/or provider organizations while others may have only one hospital with associated providers or provider organizations. Multi-acute hospital system membership identifies those health systems with more than one acute hospital. This information was derived from Audited Financial Statements.

Below is a list of Massachusetts multi-acute hospital systems and their acute hospital members as of the end of each system's fiscal year 2020:

<b>MULTI-ACUTE HOSPITAL SYSTEM</b>	<b>ACUTE HOSPITAL MEMBER</b>
Baystate Health	Baystate Franklin Medical Center Baystate Medical Center Baystate Noble Baystate Wing Hospital
Berkshire Health Systems	Berkshire Medical Center Fairview Hospital
Beth Israel Lahey Health	Anna Jaques Hospital Beth Israel Deaconess Hospital – Milton Beth Israel Deaconess Hospital – Needham Beth Israel Deaconess Hospital – Plymouth Beth Israel Deaconess Medical Center Lahey Hospital & Medical Center Mount Auburn Hospital New England Baptist Hospital Northeast Hospital Winchester Hospital
Cape Cod Healthcare	Cape Cod Hospital Falmouth Hospital
Heywood Healthcare	Athol Hospital Heywood Hospital
Mass General Brigham	Brigham and Women's Hospital Brigham and Women's Faulkner Hospital Cooley Dickinson Hospital

<b>MULTI-ACUTE HOSPITAL SYSTEM</b>	<b>ACUTE HOSPITAL MEMBER</b>
	Martha's Vineyard Hospital Massachusetts Eye and Ear Infirmary Massachusetts General Hospital Nantucket Cottage Hospital Newton-Wellesley Hospital North Shore Medical Center
Shriners Hospitals for Children <sup>^</sup>	Shriners Hospitals for Children – Boston Shriners Hospitals for Children – Springfield
Steward Health Care System	Morton Hospital, A Steward Family Hospital Nashoba Valley Medical Center, A Steward Family Hospital Steward Carney Hospital Steward Good Samaritan Medical Center Steward Holy Family Hospital Steward Norwood Hospital Steward Saint Anne's Hospital Steward St. Elizabeth's Medical Center
UMass Memorial Health Care	HealthAlliance-Clinton Hospital Marlborough Hospital UMass Memorial Medical Center
Wellforce	Lowell General Hospital MelroseWakefield Hospital Tufts Medical Center
Tenet Healthcare <sup>^</sup>	MetroWest Medical Center Saint Vincent Hospital

<sup>^</sup>Tenet Healthcare Corporation and Shriners Hospitals for Children are multi-state health systems with a large presence outside of Massachusetts. Both own two acute hospitals in Massachusetts (Tenet owns MetroWest Medical Center and Saint Vincent Hospital; Shriners owns Shriners Hospitals for Children – Boston and Shriners Hospitals for Children - Springfield).

## Regional Definitions

The location for each acute hospital in this report was obtained, where possible, from hospital licensing information collected by the Massachusetts Department of Public Health (DPH). The hospital license includes information on a hospital's campuses and satellite offices.

The geographic regions presented in this report are derived from the Health Policy Commission (HPC) static geographic regions. The HPC regions were rolled up into larger regions for this publication to facilitate better comparison within each geographic area. The acute hospitals and the regions to which they were assigned are:

**MASSACHUSETTS REGION****ACUTE HOSPITAL ASSIGNED TO REGION**

Metro Boston

Beth Israel Deaconess Hospital – Milton  
Beth Israel Deaconess Hospital – Needham  
Beth Israel Deaconess Medical Center  
Boston Children’s Hospital  
Boston Medical Center  
Brigham and Women’s Faulkner Hospital  
Brigham and Women’s Hospital  
Cambridge Health Alliance  
Dana-Farber Cancer Institute  
Massachusetts Eye and Ear Infirmary  
Massachusetts General Hospital  
Melrose Wakefield Healthcare  
Mount Auburn Hospital  
New England Baptist Hospital  
Newton-Wellesley Hospital  
Shriners Hospitals for Children – Boston  
Steward Carney Hospital  
Steward St. Elizabeth’s Medical Center  
Tufts Medical Center

Northeastern Massachusetts

Anna Jaques Hospital  
Emerson Hospital  
Lahey Hospital & Medical Center  
Lawrence General Hospital  
Lowell General Hospital  
Nashoba Valley Medical Center, A Steward Family Hospital  
North Shore Medical Center  
Northeast Hospital  
Steward Holy Family Hospital  
Winchester Hospital

Central Massachusetts

Athol Hospital  
Harrington Memorial Hospital  
HealthAlliance-Clinton Hospital  
Heywood Hospital  
Saint Vincent Hospital  
UMass Memorial Medical Center

Cape and Islands

Cape Cod Hospital  
Falmouth Hospital  
Martha’s Vineyard Hospital  
Nantucket Cottage Hospital

Metro West

Marlborough Hospital  
MetroWest Medical Center  
Milford Regional Medical Center

MASSACHUSETTS REGION	ACUTE HOSPITAL ASSIGNED TO REGION
	Steward Norwood Hospital Sturdy Memorial Hospital
Western Massachusetts	Baystate Franklin Medical Center Baystate Medical Center Baystate Noble Hospital Baystate Wing Hospital Berkshire Medical Center Cooley Dickinson Hospital Fairview Hospital Holyoke Medical Center Mercy Medical Center Shriners Hospitals for Children – Springfield
Metro South	Beth Israel Deaconess Hospital – Plymouth Morton Hospital, A Steward Family Hospital Signature Healthcare Brockton Hospital South Shore Hospital Steward Good Samaritan Medical Center
Southcoast	Steward Saint Anne’s Hospital Southcoast Hospitals Group

<sup>1</sup> For descriptions of the regions, see <http://www.mass.gov/anf/docs/hpc/2013-cost-trends-report-technical-appendix-b3-regions-of-massachusetts.pdf> (last accessed March 7, 2017).

## Special Designations

Certain acute hospitals in Massachusetts have a special status among public payers due to their rural or relatively isolated locations:

**Critical Access Hospital** is a state designation given to hospitals that have no more than 25 acute beds, are located in a rural area, and are more than a 35-mile drive from the nearest hospital or more than a 15-mile drive in areas with mountainous terrains or secondary roads.<sup>1</sup> Critical Access Hospitals receive cost-based payments from Medicare and MassHealth.

**Sole Community Hospital** is a Medicare designation given to hospitals that are located in rural areas or are located in areas where it is difficult to access another hospital quickly. These hospitals are eligible to receive higher inpatient payments from Medicare than other hospitals.<sup>2</sup>

<sup>1</sup> In addition, Critical Access Hospitals include hospitals that were, prior to January 1, 2006, designated by the State as a "necessary provider" of health care services to residents in the area. There are additional requirements to be designated as a Critical Access Hospital, including length of stay requirements, staffing requirements, and other provisions. See Code of Federal Regulations: 42 CFR 485.601-647.

<sup>2</sup> Code of Federal Regulation: 42 CFR 412.92.

## Hospital Types

In order to develop comparative analytics, CHIA assigned hospitals to peer cohorts. The acute hospitals were assigned to one of the following cohorts according to the criteria below:

**Academic Medical Centers (AMCs)** are a subset of teaching hospitals. AMCs are characterized by (1) extensive research and teaching programs and (2) extensive resources for tertiary and quaternary care, and are (3) principal teaching hospitals for their respective medical schools and (4) full service hospitals with case mix intensity greater than 5% above the statewide average.

**Teaching hospitals** are those hospitals that report at least 25 full-time equivalent medical school residents per one hundred inpatient beds in accordance with Medicare Payment Advisory Commission (MedPAC) and do not meet the criteria to be classified as AMCs.

**Community hospitals** are hospitals that are not teaching hospitals and have a public payer mix of less than 63%.

**Community - High Public Payer (HPP)** are community hospitals that are disproportionately reliant on public revenues by virtue of a public payer mix of 63% or greater. Public payers include Medicare, Medicaid, and other government payers, including the Health Safety Net.

**Specialty hospitals** are not included in any cohort comparison analysis due the unique patient populations they serve and/or the unique sets of services they provide.

We are using the FY2019 Cohort Designations to be consistent with the Massachusetts Acute Hospital and Health System Financial Performance: FY 2020 published in September 2021.

COHORT DESIGNATION	ACUTE HOSPITAL
AMC	Beth Israel Deaconess Medical Center Boston Medical Center Brigham and Women's Hospital Massachusetts General Hospital Tufts Medical Center UMass Memorial Medical Center
Teaching	Baystate Medical Center Brigham and Women's Faulkner Hospital Cambridge Health Alliance Lahey Hospital & Medical Center Mount Auburn Hospital Saint Vincent Hospital Steward Carney Hospital Steward St. Elizabeth's Medical Center
Community	Anna Jaques Hospital Beth Israel Deaconess Hospital – Milton Beth Israel Deaconess Hospital – Needham Cooley Dickinson Hospital Emerson Hospital



**COHORT DESIGNATION****ACUTE HOSPITAL**

	Martha's Vineyard Hospital Melrose Wakefield Healthcare Milford Regional Medical Center Nantucket Cottage Hospital Newton-Wellesley Hospital South Shore Hospital Winchester Hospital
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Community – High Public Payer

Athol Hospital  
 Baystate Franklin Medical Center  
 Baystate Noble Hospital  
 Baystate Wing Hospital  
 Berkshire Medical Center  
 Beth Israel Deaconess Hospital – Plymouth  
 Cape Cod Hospital  
 Fairview Hospital  
 Falmouth Hospital  
 Harrington Memorial Hospital  
 HealthAlliance-Clinton Hospital  
 Heywood Hospital  
 Holyoke Medical Center  
 Lawrence General Hospital  
 Lowell General Hospital  
 Marlborough Hospital  
 Mercy Medical Center  
 MetroWest Medical Center  
 Morton Hospital, A Steward Family Hospital  
 Nashoba Valley Medical Center, A Steward Family Hospital  
 North Shore Medical Center  
 Northeast Hospital  
 Signature Healthcare Brockton Hospital  
 Southcoast Hospitals Group  
 Steward Good Samaritan Medical Center  
 Steward Holy Family Hospital  
 Steward Norwood Hospital  
 Sturdy Memorial Hospital  
 Steward Saint Anne's Hospital

Specialty

Boston Children's Hospital  
 Dana-Farber Cancer Institute  
 Massachusetts Eye and Ear Infirmary  
 New England Baptist Hospital  
 Shriners Hospitals for Children – Boston  
 Shriners Hospitals for Children – Springfield

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## At a Glance

**Hospital system affiliation** notes with which multi-acute hospital system, if any, the hospital is affiliated.

**Hospital system surplus (loss)** is the hospital system's profit/loss in FY 2020.

**Change in ownership** notes change in ownership during the period of the analysis.

**Total staffed beds** are the average number of beds during the fiscal year that were in service and staffed for patient use.

**Inpatient occupancy rate** is the average percent of staffed inpatient beds occupied during the reporting period. Percentage of occupancy is calculated as follows: Inpatient Days divided by Weighted Average Staffed Beds times 365 (or the number of days in the reporting period).

**Trauma Center designation** is determined by the Massachusetts Department of Public Health and the American College of Surgeons, with Level 1 being the highest designation given to tertiary care facilities. Facilities can be designated as Adult and/or Pediatric Trauma Centers.<sup>3</sup> While there are five levels of trauma center designations recognized nationally, Massachusetts hospitals only fall under Levels 1, 2, and 3 for Adult and/or Levels 1 and 2 for Pediatric.

**Level 1 Trauma Center** is a comprehensive regional resource that is a tertiary care facility central to the trauma system. A Level 1 Trauma Center is capable of providing total care for every aspect of injury, from prevention through rehabilitation.

**Level 2 Trauma Center** is able to initiate definitive care for all injured patients, and provide 24- hour immediate coverage by general surgeons, as well as coverage by the specialties of orthopedic surgery, neurosurgery, anesthesiology, emergency medicine, radiology and critical care.

**Level 3 Trauma Center** has demonstrated an ability to provide prompt assessment, resuscitation, surgery, intensive care and stabilization of injured patients and emergency operations, including the ability to provide 24-hour immediate coverage by emergency medicine physicians and prompt availability of general surgeons and anesthesiologists.

**Case mix index (CMI)** is a relative value assigned to the hospital's mix of inpatients to determine the overall acuity of the hospital's patients and is compared with the CMI of peer hospitals and the statewide average CMI. CHIA calculated each hospital's CMI by applying the 3M™ All Patient Refined (APR) grouper, version 30 with Massachusetts-specific baseline cost weights to each hospital's HDD data. Hospitals validate their HDD data submissions annually with CHIA.

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<sup>3</sup> American Trauma Society, Trauma Center Levels Explained. Available at: <http://www.amtrauma.org/?page=TraumaLevels> (last accessed October 6<sup>th</sup>, 2017).

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The APR grouper and Massachusetts-specific baseline cost weights used in this year's publication are consistent with those used in last year's publication. All case mix information included in this report has been grouped under APR grouper, version 30.

**Inpatient Net Patient Service Revenue (NPSR) per Case Mix Adjusted Discharge (CMAD)** measures the hospital's inpatient NPSR divided by the product of the hospital's discharges and its case mix index. Inpatient NPSR includes both net inpatient revenue and inpatient premium revenue. Effective FY 2020 supplemental revenue is not included in net patient service revenue for all hospitals. Prior to FY 2020, reporting of supplemental revenue varied by hospital.

**Inpatient NPSR per CMAD** growth rate for each hospital represents the percent change in a hospital's calculated Inpatient NPSR per CMAD.

**Inpatient – Outpatient Revenue** is derived from the amount of GPSR reported for inpatient and outpatient services in the Hospital Cost Report.

**Outpatient revenue** is the hospital's reported net revenue for outpatient services. Net outpatient service revenue includes both net outpatient revenue and outpatient premium revenue. Effective FY 2020 supplemental revenue is not included in net patient service revenue for all hospitals. Prior to FY 2020, reporting of supplemental revenue varied by hospital.

**Outpatient Revenue** growth rate for each hospital represents the percent change in a hospital's reported net revenue for outpatient services. Note that this measure examines the growth in total outpatient revenue and is not adjusted for patient volume, severity or service mix.

**Total revenue** is the hospital's total unrestricted revenue in FY 2020.

**COVID Funding Included in Total Revenue** is COVID-19 relief funding reported as other operating revenue in the financial statements during FY 2020. This may include COVID-19 relief funding received under the CARES Act, HHS public health and social service emergency funds, private foundation grants or contributions, or state relief funds.

**Total surplus (loss)** is the hospital's reported profit/loss in FY 2020.

**Public payer mix** is determined based upon the hospital's reported Gross Patient Service Revenue (GPSR). See Payer Mix metric description in this appendix for more information. We are using the FY2019 GPSR to be consistent with the Massachusetts Acute Hospital and Health System Financial Performance: FY2020 Published in September 2021.

**Calendar Year (CY) 2019 Commercial Statewide Relative Price** reflects a relativity calculated for a given provider across all commercial payers (statewide RP or "S-RP"). For more information on S-RP methodology, refer to <https://www.chiamass.gov/assets/docs/r/pubs/2021/Relative-Price-Methodology-2019.pdf>

**Top three commercial payers** represent those with the largest percentage share of total commercial payments at that hospital.

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**Inpatient discharges** data was sourced from the Hospital Cost Report. See the Inpatient Discharge metric for more information.

**Inpatient discharges** growth rate for each hospital measures the percent change in discharges for inpatient admissions.

**Emergency department visits** include any visit by a patient to an emergency department that results in registration at the Emergency Department but does not result in an outpatient observation stay or the inpatient admission of the patient at the reporting facility. An Emergency Department visit occurs even if the only service provided to a registered patient is triage or screening.

**Emergency department visits** growth rate for each hospital measures the percent change in emergency department visits.

**Outpatient visits** are the total outpatient visits reported by the hospital. Note that outpatient visits may not be uniformly reported across hospitals. Where substantial increases / decreases were observed, hospitals were notified and afforded the opportunity to update the information provided. In most cases, hospitals provided explanations but did not revise their data.

**Outpatient visits** growth rate for each hospital measures the percent change in total outpatient visits to a hospital.

**Readmission rate** is calculated using the Hospital-Wide All-Cause Unplanned 30-day Readmission Measure developed by CMS and the Yale Center for Outcomes Research, and applied to the Massachusetts adult all-payer population. Readmissions are defined as an admission for any reason to the same or a different hospital within 30 days of a previous discharge. Obstetric, primary behavioral health, cancer, and rehabilitation discharges are excluded from the calculations. The raw readmissions rate is reported, which is the number of readmissions within 30 days divided by the total number of eligible discharges. Readmission rates for fiscal years 2019 and 2020 were calculated using a different methodology than in prior years. These rates may not be comparable to earlier years. For more information, please see: <https://www.chiamass.gov/assets/docs/r/pubs/2022/Readmissions-Technical-Appendix-2011-2020.pdf>

**Early elective deliveries rate** measures the proportion of deliveries that were completed between 37 to 39 weeks gestation without medical necessity, following an induction or cesarean section. Thirty-six acute hospitals reported data for this indicator. All data were received from The Leapfrog Group as pre-calculated percentages. The patient population represents all payers and all ages, and the data period was 2020. Participation in the Leapfrog survey is voluntary; where a hospital does not complete the survey or report on certain items in the survey, the measure is also not included in the profiles.

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## Acute Hospital Profiles: Services

**Most common inpatient diagnosis related groups (DRGs)** and the percentage of those DRGs treated at that hospital for the region.

- **Data Sources:** FY 2020 HDD data as of October 2021 and the 3M™ APR-DRG 30 All Patient Refined Grouper
- **Hospital Calculation:** Each discharge was grouped and ranked by DRG code. The subject hospital's 10 most frequently occurring DRGs were identified and those DRGs were then summed for all hospitals in the region in order to calculate the percent of regional discharges that were treated at the subject hospital. The total number of the subject hospital's discharges was compared to the sum of all hospital discharges in the region to determine the overall proportion of regional discharges.

For more information on DRGs, please see Appendix C.

**Most common communities** from where the hospital's inpatient discharges originated, and the total percent of all discharges (from Massachusetts hospitals) from that community that went to that hospital.

- **Data Source:** FY 2020 HDD data as of October 2021 for discharge information; patient origin was determined by the zip codes from where the patients resided. In larger cities, the top communities may reflect postal code neighborhoods.
- **Hospital Calculation:** The zip code for each patient discharge was matched with the USPS community name, and then grouped and ranked. The most frequently occurring communities were then summed for all hospitals in the region to calculate the percent of community discharges that went to the subject hospital.

A **hospital's top communities by inpatient origin** were determined using a hospital's FY20 discharge data from the HDD. Patient origin was determined by the reported zip code for each patient's residence. In larger cities, communities may include multiple zip codes. These zip codes were rolled up to reflect postal code neighborhoods based on the United States Postal Service Database. For more information on the zip codes included within each region, please see the databook.

For example, Boston zip codes were rolled up to the following designations: Boston (Downtown) includes: Back Bay, Beacon Hill, Downtown Boston, the Financial District, East Boston, Fenway/Kenmore, South Boston and South End. The remaining Boston communities with multiple zip codes were rolled up to these designations: Allston, Brighton, Charlestown, Dorchester, Dorchester Center, Hyde Park, Jamaica Plain, Mattapan, Mission Hill, Roslindale, Roxbury, and West Roxbury.

## Acute Hospital Profiles: Quality Measures

To compile provider quality performance information, CHIA relied on the following primary data sources: CHIA's Hospital Discharge Database (HDD), the Centers for Medicare and Medicaid Services (CMS) Hospital Compare database, and The Leapfrog Group. Metrics are based on varied data periods due to differences in reporting time frames across the data sources. For each metric, the associated reporting time period is listed.

**Health Care-Associated Infections** of three different types are reported:

1. **Central Line-Associated Blood Stream Infections (CLABSI):** This measure captures the observed rate of health care-associated central line-associated bloodstream infections among patients in an inpatient acute hospital, compared to the expected number of infections based on the hospital's characteristics and case mix.
2. **Catheter-Related Urinary Tract Infections (CAUTI):** This measure captures the observed rate of health care-associated catheter-related urinary tract infections among patients in an inpatient acute hospital (excluding patients in Level II or III neonatal ICUs), compared to the expected number of infections based on the hospital's characteristics and case mix.
3. **Surgical Site Infections (SSI): Colon Surgery:** This measure captures the observed rate of deep incisional primary or organ/space surgical site infections during the 30-day postoperative period following inpatient colon surgery, compared to the expected number of infections based on the hospital's characteristics and case mix.

- **Data source:** CMS Hospital Compare
- **Data Period:** 2019
- **Hospital Calculation:** These health care-associated infections are reported using the Standard Infection Ratio (SIR), which is the number of infections in a hospital compared to the number of expected infections. The SIR for CLABSI and CAUTI is risk adjusted for type of patient care locations, hospital affiliation with a medical school, and bed size. The SIR for SSI: Colon Surgery is risk adjusted for procedure-related factors, such as: duration of surgery, surgical wound class, use of endoscope, re-operation status, patient age, and patient assessment at time of anesthesiology.

All SIRs for Health Care-Associated Infections are retrieved from CMS Hospital Compare as pre-calculated SIRs.

- **Cohort Calculation:** Not applicable
- **National Comparative:** CMS Hospital Compare

- **Patient Population:** All payers, Age 18+

**Hospital Readmission rates** are calculated using the Hospital-Wide All-Cause Unplanned 30-day Readmission Measure developed by CMS and the Yale Center for Outcomes Research, and applied to the Massachusetts adult all-payer population. Readmissions are defined as an admission for any reason to the same or a different hospital within 30 days of a previous discharge. Obstetric, primary behavioral health, cancer, and rehabilitation discharges are excluded from the calculations. The raw readmission rate is reported, which is the number of readmissions within 30 days divided by the total number of eligible discharges. For SFY 2019 and 2020, hospital readmission rates were limited to discharges from New England and New York. For more information, please see the [readmissions report technical appendix](#).

- **Data source:** CHIA's Hospital Discharge Database
- **Hospital Calculation:** The raw readmission rate reflects the number of unplanned readmissions within 30 days divided by the total number of eligible discharges during the designated time period.
- **Cohort Calculation:** Not applicable
- **State Comparative:** The method yields a statewide readmission rate across all the Commonwealth's acute-care hospitals for the designated time period.
- **Patient Population:** All payers, age 18+, excluding obstetric, primary psychiatric, cancer, and rehabilitation discharges.

## Acute Hospital Profiles: Utilization Trends

**Change in volume of inpatient discharges** measures discharges for inpatient admissions.

- **Data Sources:**  
Massachusetts Hospital Cost Report: Tab 5, Line 47, Column 1
- **Hospital index calculation:** Displays the percent change in the number of inpatient discharges for each year, using FY 2016 as the base year. FY 2017:  $(FY\ 2017 - FY\ 2016) / FY\ 2016$ , FY 2018:  $(FY\ 2018 - FY\ 2016) / FY\ 2016$ , FY 2019:  $(FY\ 2019 - FY\ 2016) / FY\ 2016$ , FY 2020:  $(FY\ 2020 - FY\ 2016) / FY\ 2016$ .
- **Cohort calculation:** Represents the percent change of total discharges across all hospitals in the cohort for each year. For example: Cohort for FY 2017 =  $(\text{Sum of discharges at cohort hospitals in FY 2017} - \text{Sum of discharges at cohort hospitals in FY 2016}) / \text{Sum of discharges at cohort hospitals in FY 2016}$ .

**Change in volume of outpatient visits** measures total outpatient visits to a hospital. Note that outpatient visits may not be uniformly reported across hospitals.

- **Data Sources:**  
Massachusetts Hospital Cost Report: Tab 5, Line 301, Column 1
- **Hospital index calculation:** Calculate the percent change between each year, using FY16 as the base year. FY 2017: (FY 2017-FY 2016)/FY 2016, FY 2018: (FY 2017-FY 2016)/FY 2016, FY 2019: (FY 2018-FY 2016)/FY 2016, FY 2020: (FY 2019-FY 2016)/FY 2016.
- **Cohort calculation:** Represents the median of the percent change across all hospitals in the cohort for each year. For example: Cohort for FY 2016 = median of (% change for hospital A, % change for hospital B, % change for hospital C...)

## Acute Hospital Profiles: Patient Revenue Trends

**Net inpatient service revenue per case mix adjusted discharge (CMAD)** measures the hospital's net inpatient service revenue (NPSR) divided by the product of the number of the hospital's discharges and its case mix index. NPSR includes both net inpatient revenue and inpatient premium revenue.

- **Data Sources:** NPSR and discharges were sourced from the Massachusetts Hospital Cost Report; Case Mix Index (CMI) is sourced from HDD.
- **Hospital calculation:** The hospital's inpatient net revenue per CMAD was calculated by dividing NPSR by the total CMAD for each year.
- **Cohort calculation:** The range of all revenue/CMAD values for cohort hospitals are represented by the vertical black line. The cohort value denotes the median revenue per CMAD for all cohort hospitals.

### Variation in inpatient discharge counts:

Hospitals may report different numbers of discharges on the Hospital Cost Report and the HDD. Hospitals have explained that this is due to:

- *Timing* – while HDD is accurate when submitted (75 days after the close of a quarter), a case may be reclassified as outpatient, usually due to a change in payer designation. Payers may have different clinical criteria for defining an inpatient and outpatient stay.
- *HDD edits* – discharges reported by the hospital that did not pass HDD edits may have been excluded from the HDD but included in the Hospital Cost Report;
- Payer classification/status differences between the Hospital Cost Report and HDD;

Since a hospital's case mix index is calculated using the HDD, which often includes a lower number of discharges than reported by the hospital on the Hospital Cost Report, the calculation of a hospital's total case mix adjusted discharges equals the number of discharges reported on the Hospital Cost Report, multiplied by the case mix index.



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**Change in total outpatient revenue** measures a hospital's reported net revenue for outpatient services. Net outpatient service revenue includes both net outpatient revenue and outpatient premium revenue. Note that this measure examines the growth in total outpatient revenue and is not adjusted for patient volume, severity or service mix.

- **Data Sources:**  
Massachusetts Hospital Cost Report: Tab 5, Line 209, Column 1
- **Hospital index calculation:** Displays the percent change between each year, using FY16 as the base year. FY 2017: (FY 2017-FY 2016)/FY 2016, FY 2018: (FY 2018-FY 2016)/FY 2016, FY 2019: (FY 2019-FY 2016)/FY 2016, FY 2020: (FY 2020-FY 2016)/FY 2016.
- **Cohort calculation:** Represents the median of the percent change across all hospitals in the cohort for each year. For example: Cohort for FY16= median of (% change for hospital A, % change for hospital B, % change for hospital C...)

## Acute Hospital Profiles: Financial Performance

**Total Revenue, Total Costs and Profit / Loss** measure the amount of the subject hospital's Total Revenue, Total Costs, and Total Profit or Loss for each year from 2016 through 2020.

- **Data Sources:** Financial Statements: Total Unrestricted Revenue, Operating Revenue, Other Operating Revenue: Federal and State & Other COVID-19 Relief Funds, Non-Operating Revenue, Total Expenses, and Profit / Loss.

**Total Margin** measures the subject hospital's overall financial performance compared to the median total margin of the hospitals in its peer cohort. For FY 2020 these margins include COVID relief funding reported as operating revenue.

- **Data Sources:** Financial Statements: Excess of Revenue, Gains, & Other Support divided by Total Unrestricted Revenue
- **Cohort Calculation:** Calculated median for the cohort group.

**Operating Margin** measures the subject hospital's financial performance of its primary, patient care activities compared to the median operating margin of the hospitals in its peer cohort. For FY 2020 these margins include COVID relief funding reported as operating revenue.

- **Data Sources:** Financial Statements: Operating Revenue minus Total Expenses divided by Total Unrestricted Revenue
- **Cohort Calculation:** Calculated median for the cohort group.

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**Note:** Hospitals may have been assigned to different cohorts in previous years due to payer mix in that given year or other factors. To remain consistent in comparisons between cohorts across multiple years, hospitals were retroactively assigned to their FY 2019 cohort designations for all years examined. The number of hospitals included in a given cohort may vary from year to year due to hospital closures.

The acute hospital cohort profile measures the acute hospital cohorts as composites of the individual hospitals assigned to each cohort. In general, metrics were determined by aggregating the values of all hospitals assigned to the cohort. For comparison purposes, the individual cohorts are compared to one another and all hospitals statewide, including specialties.<sup>4</sup> The analytic metrics are largely the same as the metrics used for the individual hospital profiles, except as noted below. Please see the descriptions and calculation methods described in the Acute Hospital Metric Description section for more information.

**Inpatient Severity Distribution** measures the percentage of a cohort's discharges that falls into each statewide severity quintile. This metric provides a way to compare the severity levels of the cohort's patients to those of other acute hospitals in Massachusetts.

- **Data Source:** Hospital Discharge Database (HDD) as of October 2021.
- **Data Period:** FY 2020
- **Cohort Calculation:** Every discharge in the state has a Diagnosis Related Group (DRG) code associated with it. Severity quintiles were determined by ranking all possible DRG outputs by case-weight. The cohort calculation shows the percentage of a cohort's aggregate discharges that falls into each quintile. These proportions were then compared with the proportions of aggregated discharges by severity quintile for all hospitals assigned to other cohorts.

*In cases where metrics were similar to the acute hospital profile metrics, data was aggregated to determine cohort measures. For example:*

**The most common inpatient DRGs** for each subject cohort were determined by categorizing all of the hospitals' discharges by cohort using the All Patient Refined Grouper (3M™ APR-DRG 30), which were then summed and ranked. Each of the subject cohort's ten most frequently occurring DRGs were then divided by the statewide count per DRG to obtain the percent of discharges to the statewide total.

*The cohort comparison metric for **payer mix** is different from comparisons among acute hospitals:*

**Payer mix** was calculated differently from other measures due to the fact that the underlying charges that comprise GPSR differ across hospitals. For this measure, the cohort payer mix was first calculated for each hospital assigned to the cohort in the manner described in the Acute Hospital Profiles section of this Appendix. The mean of the

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<sup>4</sup> Note that specialty hospitals are not assigned to any cohort due to their unique service mix and/or populations served.

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individual cohort hospital's experience was determined and is displayed here. The same method was used to determine the trend in outpatient visits for comparison to all other cohort hospital.

## Non-Acute Hospital Location and Multi-Hospital System Affiliations

Non-acute hospitals in Massachusetts are typically identified as psychiatric, rehabilitation, chronic care facilities and state owned non-acute hospitals including department of mental health/public health hospitals.

The location for each non-acute hospital in this report was obtained, where possible, from hospital licensing information collected by DPH. The hospital license includes information on a hospital's campuses and satellite offices.

Multi-hospital system membership identifies the health system with which the subject non-acute hospital is a member. This information was derived from the hospital's Audited Financial Statements.

Below is a list of Massachusetts multi-hospital systems and their non-acute hospital members:

<b>MULTI-HOSPITAL SYSTEM</b>	<b>NON-ACUTE HOSPITAL MEMBER</b>
Acadia Healthcare	Haverhill Pavilion Southcoast Behavioral
Curahealth Hospitals	Curahealth Stoughton
Encompass Health	Encompass Rehabilitation Hospital of Braintree Encompass Rehabilitation Hospital of Western MA Encompass Rehabilitation Hospital of New England Fairlawn Rehabilitation Hospital, Encompass
Health Partners New England	Taravista Behavioral Health Miravista Behavioral Health
Mass General Brigham	McLean Hospital Spaulding Rehabilitation Hospital Boston Spaulding Rehabilitation Hospital Cape Cod Spaulding Hospital Cambridge
Signature Healthcare	Westborough Behavioral Healthcare Hospital
Steward Health Care System	New England Sinai Hospital
Vibra Healthcare	Vibra Hospital of Western MA Vibra New Bedford Rehabilitation Hospital
Universal Health Service	Arbour Hospital Arbour Fuller Arbour HRI Hospital Westwood Lodge Pembroke
Whittier Health System	Whittier Rehabilitation Hospital Bradford Whittier Rehabilitation Hospital Westborough

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## **Non-Acute Hospital Cohorts**

Non-acute hospitals were assigned to peer cohorts based upon MassHealth regulatory designations, defined by the criteria below<sup>5</sup>:

**Psychiatric hospitals** are licensed by the DMH for psychiatric services, and by DPH for substance abuse services.

**Rehabilitation hospitals** provide intensive post-acute rehabilitation services, such as physical, occupational, and speech therapy services. For Medicare payment purposes, the federal government classifies hospitals as rehabilitation hospitals if they provide more than 60% of their inpatient services to patients with one or more of 13 diagnoses listed in federal regulations.<sup>6</sup>

**Chronic care hospitals** are hospitals with an average length of stay greater than 25 days. These hospitals typically provide longer-term care, such as ventilator-dependent care. Medicare classifies chronic hospitals as Long-Term Care Hospitals, using the same 25-day threshold.

**Department of Mental Health Hospitals** are state owned non-acute hospital provides psychiatric and mental health care for those with otherwise limited access to facilities providing such care.

**Department of Public Health Hospitals** are multi-specialty hospitals that provides acute and chronic care to those for whom community facilities are not available or access to health care is restricted.

Non-acute specialty hospitals were not included in any cohort comparison analysis due the unique patient populations they serve and/or the unique sets of services they provide. Non-acute hospitals that were considered specialty hospitals include:

- AdCare Hospital of Worcester - provides substance abuse services
- Franciscan Hospital for Children - provides specialized children's services
- Hebrew Rehabilitation Hospital - specializes in providing longer term care than other chronic hospitals

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<sup>5</sup> State-owned non-acute hospitals are included in this publication started with the 2018 report.

<sup>6</sup> Code of Federal Regulations: 42 CFR 412.29(b)(2)

Below is a list of non-acute hospital cohorts and the hospitals assigned to each:

<b>COHORT DESIGNATION</b>	<b>NON-ACUTE HOSPITAL</b>
Psychiatric Hospitals	Arbour Hospital Arbour Fuller Memorial Arbour HRI Hospital Bournemouth Hospital Haverhill Pavilion Hospital for Behavioral Medicine McLean Hospital Southcoast Behavioral Hospital Taravista Health Center Walden Behavioral Care Westborough Behavioral Healthcare Hospital Westwood Lodge Pembroke
Rehabilitation Hospitals	Encompass Rehabilitation Hospital of Braintree Encompass Rehabilitation Hospital of New England Encompass Rehabilitation Hospital of Western MA Fairlawn Rehabilitation Hospital, Encompass Spaulding Rehabilitation Hospital Boston Spaulding Rehabilitation Hospital Cape Cod Vibra Hospital of Southeastern Massachusetts Whittier Rehabilitation Hospital Bradford Whittier Rehabilitation Hospital Westborough
Chronic Care Hospitals	Curahealth Stoughton New England Sinai Hospital Spaulding Hospital Cambridge Vibra Hospital of Western Massachusetts
Specialty Non-Acute Hospitals	AdCare Hospital of Worcester Franciscan Hospital for Children Hebrew Rehabilitation Hospital
Department of Mental Health Hospitals	Cape Cod & Islands Community Mental Health Center Corrigan Mental Health Center Solomon Carter Fuller Mental Health Center Taunton State Hospital Worcester State Hospital
Department of Public Health Hospitals	Lemuel Shattuck Hospital Pappas Rehabilitation Hospital for Children Tewksbury Hospital Western Massachusetts Hospital

**Total staffed beds** are the average number of beds during the fiscal year that were in service and staffed for patient use. Beds ordinarily occupied for less than 24 hours are usually not included.

**Percent occupancy rate** is the median percent of staffed inpatient beds occupied during the reporting period. Percentage of occupancy is calculated as follows: Inpatient Days divided by Weighted Average Staffed Beds times 365 (or the number of days in the reporting period).

**Total inpatient days** include all days of care for all patients admitted to each unit. Measure includes the day of admission but not the day of discharge or death. If both admission and discharge or death occur on the same day, the day is considered a day of admission and is counted as one patient day.

**Total inpatient discharge** information was sourced from Tab 3 of the Massachusetts Hospital Cost Report.

**Public payer mix** was determined based upon the hospital's reported GPSR. See Payer Mix metric description for more information.

**Total revenue** was sourced from the hospital's Hospital Cost Report.

**Inpatient – outpatient revenue** is derived from the amount of GPSR reported for inpatient and outpatient services in the hospital's Hospital Cost Report.

## Non-Acute Hospital Profiles: Services

**Types of inpatient services** are defined by Discharges.

- **Data Sources:**  
Massachusetts Hospital Cost Report: Tab 3, Column 5, Lines 1 to 19.
- **Hospital calculation:** Hospital's absolute count of discharges by specific bed type.
- **Cohort calculation:** Hospital's absolute discharge count divided by cohort's total discharges by that specific bed type.

**Payer Mix** measures the distribution of total GPSR for across the major payer categories. This provides information regarding the proportion of services, as measured by gross charges, which a hospital provides to patients from each category of payer.

- **Data Sources:**  
Massachusetts Hospital Cost Report: Tab 5, Line 302, Col 2 through 13
- **Payer Category Definitions:** State Programs = Medicaid Managed + Medicaid Non-Managed + Health Safety Net (HSN); Federal Programs = Medicare Managed + Medicare Non-Managed + Other Government; Commercial & Other = Managed Care + Non-Managed Care + Self Pay + Workers Comp + Other + Connector Care. Dividing each of the above by Total GPSR results in the percentages displayed for each of the three categories.
- **Cohort Calculation:** Displays the mean of the percentages in each of the above payer categories across all hospitals in the cohort.

- **Average Hospital Calculation:** Displays the mean of the percentages in each of the payer categories to get each of the component percentages for the average non-acute hospital.
  - Note: “Average Hospital” group includes specialty hospitals.

**Change in Volume of Inpatient Days** includes all days of care for all patients admitted to each unit. Measure includes the day of admission but not the day of discharge or death. If both admission and discharge or death occur on the same day, the day is considered a day of admission and is counted as one patient day.

- **Data Sources:**  
Massachusetts Hospital Cost Report: Tab 3, Column 4, Line 500
- **Hospital Index calculation:** Calculated percent change in Inpatient Days for each year, using FY 2016 as the base year. FY 2017: (FY 2017-FY 2016)/FY 2016, FY 2018: (FY 2018-FY 2016)/FY 2016, FY 2019: (FY 2019-FY 2016)/FY 2016, FY 2020: (FY 2020-FY 2016)/FY 2016.
- **Cohort calculation:** Represents the median of the percent change across all hospitals in the cohort for each year. For example Cohort for FY16 = median of (% change for hospital A, % change for hospital B, % change for hospital C...)

**Median Average Length of Stay (ALOS)** measures the average duration of an inpatient admission.

- **Data Sources:**  
Massachusetts Hospital Cost Report: Tab 3, Column 8, Line 500
- **Cohort calculation:** The growth in median ALOS for each cohort is calculated relative to FY 2016 as the base year. FY 2017: (FY 2017-FY 2016)/FY 2016, FY 2018: (FY 2018-FY 2016)/FY 2016, FY 2019: (FY 2019-FY 2016)/FY 2016, FY 2020: (FY 2020-FY 2016)/FY 2016.
- This is plotted against the growth in median ALOS among all non-acute hospitals, including specialties, relative to FY 2016.

## Non-Acute Hospital Profiles: Utilization

**Volume of Inpatient Days** includes all days of care for all patients admitted to each unit. Measure includes the day of admission but not the day of discharge or death. If both admission and discharge or death occur on the same day, the day is considered a day of admission and is counted as one patient day.

- **Data Sources:**  
Massachusetts Hospital Cost Report: Tab 3, Column 4, Line 500

**Average Length of Stay (ALOS)** measures the average duration of an inpatient admission.

- **Data Sources:**  
Massachusetts Hospital Cost Report: Tab 3, Column 8, Line 500



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**Volume of Outpatient Visits** measures the total outpatient visits to a hospital.

- **Data Sources:**  
Massachusetts Hospital Cost Report: Tab 5, Column 1, Line 301

## Non-Acute Hospital Profiles: Patient Revenue Trends

**Inpatient Revenue per Day** is the hospital's net inpatient service revenue (NPSR) divided by its total inpatient days.

- **Data Sources:**  
Massachusetts Hospital Cost Report: NPSR including premium revenue was sourced from Tab 5, Column 1, Line 208. Inpatient days were sourced from Tab 5, Column 1, Line 300.

**Total Outpatient Revenue** measures a hospital's reported net revenue for outpatient services. Note that this measure examines the growth in total outpatient revenue and is not adjusted for patient volume. In addition, several non-acute hospitals do not provide outpatient services.

- **Data Sources:**  
Massachusetts Hospital Cost Report: Tab 5, Line 209 (outpatient NPSR including premium revenue)

## Non-Acute Hospital Profiles: Financial Performance

**Operating Revenue, Total Revenue, Total Costs and Profit / Loss** displays the amount of each hospital's Total Revenue, Operating Revenue, Total Costs, and Total Profit or Loss.

- **Data Sources:**  
Massachusetts Hospital Cost Report, Tab 11, Column 1, Total Unrestricted Revenue (Row 65), Total Expenses (Row 73), and Profit / Loss: (Row 74).

**Total Margin** measures the subject hospital's overall financial performance.

- **Data Sources:**  
Massachusetts Hospital Cost Report, Tab 11, Column 1, Line 74 (Excess of Revenue, Gains & other support Over Expenses) divided by Tab 11, Column 1, Line 65 (Total Unrestricted Revenue, Gains and Other Supports)

**Note:** Some for-profit hospitals are organized as S corporations. For-profit entities that are organized as S corporations, in accordance with Internal Revenue Code, do not pay federal income tax on their taxable income. Instead, the shareholders are liable for individual federal income taxes on their portion of the hospital's taxable income. Therefore, these hospitals may have income that appears higher than hospitals organized as a C corporation, which are taxed separately from their owners.

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## Appendix A: Acute Hospitals

**Baystate Mary Lane** hospital merged with Baystate Wing hospital in FY 2016.

**Beth Israel Lahey Health** formed in March, 2019 including the following hospitals: **Addison Gilbert Hospital** (Northeast), **Anna Jaques Hospital**, **BayRidge Hospital** (Northeast), **Beth Israel Deaconess Hospital – Milton**, **Beth Israel Hospital – Needham**, **Beth Israel Hospital – Plymouth**, **Beth Israel Deaconess Medical Center**, **Beverly Hospital** (Northeast), **Lahey Hospital & Medical Center**, **Lahey Medical Center**, **Peabody**, **Mount Auburn Hospital**, **New England Baptist Hospital**, and **Winchester Hospital**. This is reflected in this report.

As Beth Israel Lahey Health became financially consolidated in March 2019, seven months of financial data was reported for FY 2019 for the system and its affiliated hospitals and physician organizations representing the period from March 1 through September 30, 2019.

### **Boston Medical Center**

Outpatient metrics for Boston Medical Center (BMC) include information for the following freestanding community health centers:

1. East Boston Neighborhood Health Center
2. Codman Square Health Center
3. Dorchester House Multi-Service Center
4. South Boston Community Health Center

The FY2018-FY2020 cost reports include the physician charges. Physician charges were not included in the Gross Patient Service Revenue (GPSR), Net Patient Service Revenue (NPSR), expenses or statistics of the cost reports in the prior years.

**Clinton Hospital** merged with HealthAlliance Hospital effective October 1, 2017 to become HealthAlliance-Clinton Hospital.

**Harrington Memorial Hospital** and parent Harrington Healthcare System joined UMass Memorial Healthcare in July, 2021. This will be reflected in future publications.

**Lawrence General Hospital** submitted their unweighted discharge count for Normal Neonate Births for FY 2020 as the information from the HDD was not able to be corrected in time for this publication. The submitted discharge count of 1,382 was used in their profiles.

**Massachusetts Eye and Ear Infirmary** joined Mass General Brigham effective April 1, 2018.

Partners Health Care announced in November 2019 that it changed its name to **Mass General Brigham**. This is reflected in this publication.

**MelroseWakefield Hospital** was formerly Hallmark Health.

**Mount Auburn Hospital** changed their methodology for counting outpatient visits to include all clinic visits for the entity starting in FY2020.

**Nantucket Cottage Hospital's** outpatient visits in FY 2020 include the first full year of the rural health clinic.

**Steward Health Care's** hospitals did not provide their audited financial statements, therefore the financial data is as reported or as filed.

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**Steward Norwood Hospital** was temporarily closed in July 2020 and remains closed as of this publication.

**Tufts Medical Center's** net patient service revenues include their Pharmacy Revenue.

On October 20, 2014, **Tufts Medical Center** and **Lowell General Hospital** combined under a new parent company (**Wellforce**) and created a new multi-acute hospital system. **Hallmark Health** joined Wellforce in FY2017.

### **All Hospitals**

All COVID Funding metrics are presented as reported by the hospital or entity with the exception of Steward Health Care. Steward Health Care did not report any of the COVID relief funding received by their eight hospitals as operating revenue. After obtaining the publicly available audited financial statements, their data was revised by CHIA to include the Provider Relief Funds received by each of the hospitals in their operating revenue.

Effective FY 2020 supplemental revenue is not included in net patient service revenue for all hospitals. Prior to FY 2020, reporting of supplemental revenue varied by hospital.

There was an accounting change adopted by most hospitals beginning in FY 2020 in which unrealized gains and losses on investments are now recognized as non-operating income.

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## Appendix B: Non-Acute Hospitals

**Bournewood Hospital:** A sub-chapter S corporation.

**Curahealth Hospitals:** All the Kindred Hospitals in Massachusetts were bought by Curahealth Hospitals in the Fall of 2016. Curahealth Boston and North Shore subsequently closed after approximately a year into new ownership. Curahealth Stoughton remains open.

**Haverhill Pavilion:** Bought Whittier Pavilion in 2019. Outpatient Services closed.

**High Point Hospital** is a new psychiatric hospital opened in 2016 and closed in 2019.

**Hospital for Behavioral Medicine** New psychiatric hospital opened in FY19 with first data reporting FY20.

**Miravista Behavioral Health** is a new psychiatric hospital opened in 2021 with first data reporting FY22.

**Solomon Carter Fuller Mental Health Center** Self pay revenue for 22-64 IMD service is grouped as state program revenue

**Southcoast Behavioral Hospital** is a new psychiatric hospital opened in 2016.

**Spaulding Hospital Cambridge:** As of 2013, Spaulding Hospital Cambridge no longer provides Outpatient services.

**Spaulding North Shore** discontinued inpatient operations as of July 31, 2015 and subsequently closed.

**Taravista Behavioral Health** is a new psychiatric hospital opened in 2017.

**Taunton State Hospital** Self pay revenue for 22-64 IMD service is grouped as state program revenue

**Westborough Behavioral Healthcare** Hospital is a new psychiatric hospital opened in 2017 first data reporting FY18.

**Westwood Lodge Pembroke Hospital,** Westwood Hospital was closed by the Department of Mental Health on 8/25/2017, the Pembroke Hospital site remains open.

**Whittier Pavilion** began providing outpatient services in FY14. FY14 outpatient data represents a partial year of operation for these services. Sold to Haverhill Pavilion in 2019.

**Worcester State Hospital** Self pay revenue for 22-64 IMD service is grouped as state program revenue

## Appendix C: Diagnosis Related Groups

**Diagnosis Related Groups (DRGs)** are used to classify the patient illnesses a hospital treats.

The 10 most common DRGs for each hospital were determined by categorizing all of a hospital's discharges into DRGs defined in the All Patient Refined Grouper (3M™ APR-DRG 30) and ranked by the total number of discharges. In most cases, it was necessary for CHIA to abbreviate the DRG name in order to fit the space available.

Below is a list of abbreviated DRG descriptions that appear in the report, and the full name and APR-DRG 30 code for each DRG.

ABBREVIATED DESCRIPTION	DESCRIPTION	APR DRG V.30
3rd Degree Brn w Skn Grft	Extensive 3rd Degree Burns w Skin Graft	841
Acute Leukemia	Acute Leukemia	690
Acute Myocardial Infarct.	Acute Myocardial Infarction	190
Adjust Dis/Neuroses exc DD	Adjustment Disorders & Neuroses Except Depressive Diagnoses	755
Alcohol & Drug w/ Rehab	Alcohol & Drug Dependence w Rehab Or Rehab/Detox Therapy	772
Alcohol Abuse & Dependence	Alcohol Abuse & Dependence	775
Angina Pectoris	Angina Pectoris & Coronary Atherosclerosis	198
Appendectomy	Appendectomy	225
Asthma	Asthma	141
Bacterial Skin Infections	Cellulitis & Other Bacterial Skin Infections	383
Bipolar Disorders	Bipolar Disorders	753
Bone Marrow Transplant	Bone Marrow Transplant	3
Bronchiolitis & RSV Pneumonia	Bronchiolitis & RSV Pneumonia	138
Burns w/ or w/o Skin Grft	Partial Thickness Burns w Or w/o Skin Graft	844
C. Spinal Fusion & Other Procs	Cervical Spinal Fusion & Other Back/Neck Proc Exc Disc Excis/Decomp	321
Card Cath - Heart Disease	Cardiac Catheterization For Ischemic Heart Disease	192
Cardiac Arrhythmia	Cardiac Arrhythmia & Conduction Disorders	201
Cardiac Valve w/o Cath	Cardiac Valve Procedures w/o Cardiac Catheterization	163
CC W Circ Disord Exc IHD	Cardiac Catheterization W Circ Disord Exc Ischemic Heart Disease	191
Cesarean Delivery	Cesarean Delivery	540
Chemotherapy	Chemotherapy	693
Chest Pain	Chest Pain	203

<b>ABBREVIATED DESCRIPTION</b>	<b>DESCRIPTION</b>	<b>APR DRG V.30</b>
Cleft Lip & Palate Repair	Cleft Lip & Palate Repair	95
COPD	Chronic Obstructive Pulmonary Disease	140
Craniotomy; exc Trauma	Craniotomy Except For Trauma	21
CVA Occlusion w/ Infarct	CVA & Precerebral Occlusion W Infarct	45
D&L Fusion exc Curvature	Dorsal & Lumbar Fusion Proc Except For Curvature Of Back	304
D&L Fusion for Curvature	Dorsal & Lumbar Fusion Proc For Curvature Of Back	303
Degen Nrvs Syst exc MS	Degenerative Nervous System Disorders Exc Mult Sclerosis	42
Depression exc MDD	Depression Except Major Depressive Disorder	754
Digestive Malignancy	Digestive Malignancy	240
Diverticulitis/osis	Diverticulitis & Diverticulosis	244
Drug/Alcohol Abuse, LAMA	Drug & Alcohol Abuse Or Dependence, Left Against Medical Advice	770
Eye Procs except Orbit	Eye Procedures Except Orbit	73
Factors Infl Hlth Status	Signs, Symptoms & Other Factors Influencing Health Status	861
Foot & Toe Procedures	Foot & Toe Procedures	314
Full Burns w/ Skin Graft	Full Thickness Burns w Skin Graft	842
Hand & Wrist Procedures	Hand & Wrist Procedures	316
Heart Failure	Heart Failure	194
Hip & Femur; Non-Trauma	Hip & Femur Procedures For Non-Trauma Except Joint Replacement	309
Hip Joint Replacement	Hip Joint Replacement	301
Infects - Upper Resp Tract	Infections Of Upper Respiratory Tract	113
Intervertebral Disc Excis	Intervertebral Disc Excision & Decompression	310
Intestinal Obstruction	Intestinal Obstruction	247
Kidney & UT Infections	Kidney & Urinary Tract Infections	463
Knee & Lower Excpt Foot	Knee & Lower Leg Procedures Except Foot	313
Knee Joint Replacement	Knee Joint Replacement	302
Lymphoma & Non-Acute Leuk	Lymphoma, Myeloma & Non-Acute Leukemia	691
Maj Cranial/Facial Bone	Major Cranial/Facial Bone Procedures	89
Maj HEM/IG Dx exc SC	Major Hematologic/Immunologic Diag Exc Sickle Cell Crisis & Coagul	660
Maj Larynx & Trachea Proc	Major Larynx & Trachea Procedures	90
Maj Male Pelvic Procs	Major Male Pelvic Procedures	480
Maj Resp & Chest Proc	Major Respiratory & Chest Procedures	120

<b>ABBREVIATED DESCRIPTION</b>	<b>DESCRIPTION</b>	<b>APR DRG V.30</b>
Maj Resp Infect & Inflam	Major Respiratory Infections & Inflammations	137
Maj Sml & Lrg Bowel Procs	Major Small & Large Bowel Procedures	221
Maj. Depressive Disorders	Major Depressive Disorders & Other/Unspecified Psychoses	751
Malignancy- Hept/Pancreas	Malignancy Of Hepatobiliary System & Pancreas	281
Mastectomy Procedures	Mastectomy Procedures	362
Normal Neonate Birth	Neonate Birthwt>2499G, Normal Newborn or Neonate w Other Problem	640
Non-Bact Gastro, Nausea	Non-Bacterial Gastroenteritis, Nausea & Vomiting	249
O.R. Proc for Tx Comp	O.R. Procedure For Other Complications Of Treatment	791
Opioid Abuse & Dependence	Opioid Abuse & Dependence	773
Org Mental Hlth Disturb	Organic Mental Health Disturbances	757
Other Anemia and Blood Dis	Other Anemia & Disorders of Blood & Blood-Forming Organs	663
Other Antepartum Dxs	Other Antepartum Diagnoses	566
Other Digestive System Dx	Other Digestive System Diagnoses	254
Other ENT & Cranial Dxs	Other Ear, Nose, Mouth, Throat & Cranial/Facial Diagnoses	115
Other ENT Procedures	Other Ear, Nose, Mouth & Throat Procedures	98
Other Nervous Syst Procs	Other Nervous System & Related Procedures	26
Other Pneumonia	Other Pneumonia	139
Other Resp & Chest Procs	Other Respiratory & Chest Procedures	121
Othr Back & Neck Disorder	Other Back & Neck Disorders, Fractures & Injuries	347
Othr Maj Head/Neck procs	Other Major Head & Neck Procedures	91
Othr Muscl Sys & Tis Proc	Other Musculoskeletal System & Connective Tissue Procedures	320
Othr Muscl Sys & Tis Dx	Other Musculoskeletal System & Connective Tissue Diagnoses	351
Othr O.R. Procs for Lymph/HEM	Other O.R. Procedures For Lymphatic/Hematopoietic/Other Neoplasms	681
Othr Skin & Breast Dis	Other Skin, Subcutaneous Tissue & Breast Disorders	385
Othr Skin, Tis & Rel Procs	Other Skin, Subcutaneous Tissue & Related Procedures	364
Pancreas Dis exc Malign	Disorders Of Pancreas Except Malignancy	282
Per Cardio procs w/ AMI	Percutaneous Cardiovascular Procedures w AMI	174
Per Cardio procs w/o AMI	Percutaneous Cardiovascular Procedures w/o AMI	175

<b>ABBREVIATED DESCRIPTION</b>	<b>DESCRIPTION</b>	<b>APR DRG V.30</b>
Post-Op, Oth Device Infect	Post-Operative, Post-Traumatic, Other Device Infections	721
Procedures for Obesity	Procedures For Obesity	403
Proc W Diag Of Rehab, Aftercare	Procedure W Diag of Rehab, Aftercare or Other Contact W Health Service	850
Pulm Edema & Resp Failure	Pulmonary Edema & Respiratory Failure	133
Rehabilitation	Rehabilitation	860
Renal Failure	Renal Failure	460
Respiratory Malignancy	Respiratory Malignancy	136
Schizophrenia	Schizophrenia	750
Seizure	Seizure	53
Septicemia Infections	Septicemia & Disseminated Infections	720
Shoulder & Arm Procs	Shoulder, Upper Arm & Forearm Procedures	315
Sickle Cell Anemia Crisis	Sickle Cell Anemia Crisis	662
Skin Graft for Skin Dx's	Skin Graft For Skin & Subcutaneous Tissue Diagnoses	361
Syncope & Collapse	Syncope & Collapse	204
Tendon, Muscle, Soft Tis	Tendon, Muscle & Other Soft Tissue Procedures	317
Thyroid & Other Procs	Thyroid, Parathyroid & Thyroglossal Procedures	404
Vaginal Delivery	Vaginal Delivery	560



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## Appendix D: Special Public Funding

The Health Care Innovation Investment (HCII) program is a unique opportunity for Massachusetts providers, health plans, and their partners to implement innovative models that deliver better health and better care at a lower cost. Chapter 224 of the Acts of 2012, the state's landmark cost containment law, established this competitive investment program to support health care innovation and transformation.

The Community Hospital Reinvestment Trust Fund (CHRTF) provides funding to acute care hospitals to pay for independent operational or financial audits to identify investment opportunities that will increase the hospital's sustainability and efficiency.