CENTER FOR HEALTH
INFORMATION AND ANALYSIS

MASSACHUSETTS HOSPITAL PROFILES

TECHNICAL APPENDIX

DATA THROUGH FISCAL YEAR 2013

JANUARY 2015

CHIA.
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Technical Appendix Overview

Acute and non-acute hospitals included in *Massachusetts Hospital Profiles- Data through Fiscal Year 2013* were profiled on service, payer mix, utilization, revenue, financial performance, and quality metrics. Multi-acute hospital systems were profiled based on revenue and financial performance metrics. Details for each of these metrics are included in this Technical Appendix.

Unless otherwise noted, metrics included in this report are based on financial data from Fiscal Year (FY) 2009 to FY13 reported by acute and non-acute hospitals. Discharge data from FY13 included in the acute hospital analysis was reported by acute hospitals in the Hospital Discharge Database, unless otherwise noted. Descriptive acute and non-acute hospital information is from FY13.

To compile the financial profiles, the Center for Health Information and Analysis (CHIA) relied on the following primary data sources: the DHCFP-403 Annual Hospital Cost Report (403 Cost Report), the Hospital Discharge Database (HDD), the Hospital Standardized Financial Statement Database, and Audited Financial Statements.

Hospital 403 Cost Report:
The 403 Cost Report is submitted each year by acute and non-acute hospitals, and contains data on costs, revenues, and utilization statistics. Acute hospitals are required to complete the 403 Cost Report based on a fiscal year end of September 30 regardless of their actual fiscal year end. Non-acute hospitals complete the 403 Cost Report based on their actual year end.

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 FY13 HDD data for the service metrics, which includes discharges between October 1, 2012 and September 30, 2013 for all acute hospitals.

Hospital Standardized Financial Statements:
The Hospital Standardized Financial Statements are submitted quarterly and annually by acute hospitals. They contain information on the hospital's assets, liabilities, revenues, expenses, and profit or losses. They reflect only the hospital's financial information; they do not reflect financial information for any larger health system with which a hospital may be affiliated.

Audited Financial Statements:
Audited Financial Statements are submitted annually by hospitals (or their parent systems, 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. Audited Financial Statements were used as a source primarily for the multi-acute hospital system profiles.

Quality Data Sources:
To compile the quality profiles, CHIA relied on the following primary data sources: HDD, the CMS Hospital Compare database, and The Leapfrog Group.

Data Verification:
CHIA held a series of stakeholder engagement sessions with payer representatives, acute and non-acute provider representatives, and other state agencies, to develop and refine proposed profile metrics.

Technical Appendix Overview

Each year's Hospital 403 Cost Reports, hospital and multi-acute hospital system Standardized Financial Statements, Relative Price, and quality data reports were verified in accordance with respective reporting regulation requirements. Additional verification reports including each hospital's reported financial data were sent to each acute and non-acute hospital for FY09-FY13.

Acute Hospitals

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 hospital with which the subject hospital is a member. This information was derived from the hospital's Standardized Financial Statements.

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

Multi-Acute Hospital System	Acute Hospital Member
Baystate Health	Baystate Franklin Medical Center Baystate Mary Lane Hospital Baystate Medical Center
Berkshire Health System	Berkshire Medical Center Fairview Hospital
Cape Cod Healthcare	Cape Cod Hospital Falmouth Hospital
CareGroup	Beth Israel Deaconess Hospital – Milton Beth Israel Deaconess Hospital – Needham Beth Israel Deaconess Hospital – Plymouth[1] Beth Israel Deaconess Medical Center Mount Auburn Hospital
Heywood Healthcare	Athol Hospital Heywood Hospital
Kindred Healthcare^	Kindred Hospital – Boston Kindred Hospital – Boston North Shore
Lahey Health System	Lahey Hospital & Medical Center Northeast Hospital
Partners HealthCare System	Brigham and Women's Hospital Brigham and Women's Faulkner Hospital Cooley Dickinson Hospital Martha's Vineyard Hospital Massachusetts General Hospital Nantucket Cottage Hospital Newton-Wellesley Hospital
Steward Health Care System	Merrimack Valley Hospital Morton Hospital Nashoba Valley Medical Center Quincy Medical Center Steward Carney Hospital Steward Good Samaritan Medical Center Steward Holy Family Hospital Steward Norwood Hospital

[1] Beth Israel Deaconess Hospital- Plymouth (formerly Jordan Hospital) was acquired by Beth Israel Deaconess Medical Center effective January 1, 2014. As this acquisition took place after FY13, data for Beth Israel Deaconess Hospital- Plymouth is not included in the CareGroup system profile.

	Steward Saint Anne's Hospital Steward St. Elizabeth's Medical Center
UMass Memorial Health Care	Clinton Hospital HealthAlliance Hospital Marlborough Hospital UMass Memorial Medical Center Wing Memorial Hospital
Tenet Healthcare^	MetroWest Medical Center Saint Vincent Hospital

^ Kindred Healthcare, Inc. and Tenet Healthcare Corporation are publicly traded multistate health systems. Each owns two acute hospitals in Massachusetts (Kindred owns Kindred Hospital – Boston and Kindred Hospital – Boston North Shore; Tenet owns MetroWest Medical Center and Saint Vincent Hospital). Due to their broad presence outside of Massachusetts, CHIA did not include Kindred or Tenet in the system profiles chapter.

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.

Regional Definitions

The geographic regions presented in this report are derived from the Health Policy Commission (HPC) static geographic regions.[2] The HPC regions were rolled up into larger regions for this publication to facilitate better comparison within each geographic area. In *Massachusetts Hospital Profiles- Data through Fiscal Year 2012* (published in March 2014), acute hospitals were divided into more specific HPC regions. See Exhibit D for a cross-walk between data periods. 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 Hallmark Health Kindred Hospital- Boston Massachusetts Eye and Ear Infirmary Massachusetts General Hospital Mount Auburn Hospital New England Baptist Hospital Newton-Wellesley Hospital Steward Carney Hospital Steward St. Elizabeth's Medical Center Tufts Medical Center
Northeastern Massachusetts	Anna Jaques Hospital Emerson Hospital Kindred Hospital- Boston North Shore

[2] 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 January 9, 2015).

Acute Hospitals

	Lahey Hospital & Medical Center Lawrence General Hospital Lowell General Hospital Merrimack Valley Hospital Nashoba Valley Medical Center North Shore Medical Center Northeast Hospital Steward Holy Family Hospital Winchester Hospital
Central Massachusetts	Athol Hospital Clinton Hospital Harrington Memorial Hospital HealthAlliance 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 Steward Norwood Hospital Sturdy Memorial Hospital
Western Massachusetts	Baystate Franklin Medical Center Baystate Mary Lane Hospital Baystate Medical Center Berkshire Medical Center Cooley Dickinson Hospital Fairview Hospital Holyoke Medical Center Mercy Medical Center Noble Hospital Wing Memorial Hospital
Metro South	Beth Israel Deaconess Hospital – Plymouth Morton Hospital Quincy Medical Center Signature Healthcare Brockton Hospital South Shore Hospital Steward Good Samaritan Medical Center
Southcoast	Steward Saint Anne's Hospital Southcoast Hospitals Group

Public Payer 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.[3] 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.[4]

[3] 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 42 CFR 485.601-647.
[4] 42 CFR 412.92.

Acute Hospital Cohorts

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-Disproportionate Share Hospitals (DSH)[5] 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, MassHealth and other government payers, including Commonwealth Care and the Health Safety Net.

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.

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

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 Berkshire 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 Baystate Mary Lane Hospital Beth Israel Deaconess Hospital – Milton Beth Israel Deaconess Hospital – Needham Beth Israel Deaconess Hospital – Plymouth Cooley Dickinson Hospital Emerson Hospital

[5] M.G.L. c. 6D, Section 1 defines a Disproportionate Share Hospital (DSH) as a hospital with a minimum of 63% of patient charges attributed to Medicare, Medicaid, and other government payers, including Commonwealth Care and the Health Safety Net.

	Hallmark Health Lowell General Hospital MetroWest Medical Center Milford Regional Medical Center Nantucket Cottage Hospital Nashoba Valley Medical Center Newton-Wellesley Hospital Northeast Hospital South Shore Hospital Steward Norwood Hospital Winchester Hospital
Community-DSH	Athol Hospital Baystate Franklin Medical Center Cape Cod Hospital Clinton Hospital Fairview Hospital Falmouth Hospital Harrington Memorial Hospital^ HealthAlliance Hospital Heywood Hospital Holyoke Medical Center Lawrence General Hospital Marlborough Hospital^ Martha's Vineyard Hospital^ Mercy Medical Center Noble Hospital North Shore Medical Center Signature Healthcare Brockton Hospital Southcoast Hospitals Group Steward Good Samaritan Medical Center Steward Holy Family Hospital Sturdy Memorial Hospital^ Merrimack Valley Hospital Morton Hospital Quincy Medical Center Steward Saint Anne's Hospital Wing Memorial Hospital
Specialty[6]	Boston Children's Hospital Dana-Farber Cancer Institute Kindred Hospital – Boston Kindred Hospital – Boston North Shore Massachusetts Eye and Ear Infirmary New England Baptist Hospital

^These hospitals were in different cohorts in FY12.

[6] The Specialty acute hospital cohort also includes Shriners Hospital for Children- Boston and Shriners Hospital for Children-Springfield; however, these hospitals are not included in this year's publication.

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).

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.

The APR grouper and Massachusetts-specific baseline cost weights used in this year's publication represent an update from the grouper and weights used in previous reports. All case mix information included in this report has been grouped under APR grouper, version 30. This may result in comparative differences between publication years for individual hospitals.

Inpatient Discharge information was sourced from the 403 cost report. See the Inpatient Discharge metric for more information.

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.[7] 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

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 nor 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.

[7] American Trauma Society, Trauma Center Levels Explained. Available at: http://www.amtrauma.org/?page=TraumaLevels (accessed on January 9, 2015).

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.

Special public funding indicates whether the hospital received Delivery System Transformation Initiative (DSTI), Infrastructure and Capacity Building (ICB) or Community Hospitals Acceleration, Revitalization and Transformation (CHART) grants. Special public funding is grant money given to hospitals by the state or federal government. The amounts listed may be total grant allocations that will be disbursed over a period of time, or a portion of a grant that was disbursed in FY13. For more information please see the Special Public Funding notes contained in Exhibit C of this Appendix.

Commercial payer price level represents the hospital's calendar year 2013 commercial composite relative price percentile. This percentile was derived by taking the simple average of the hospital's blended (inpatient and outpatient) relative price percentiles across all payers. The composite percentile gives a sense of the rank of a provider's relative price compared to other hospitals across all commercial payers. For more information on relative prices, see the Relative Price metric description in this Appendix.

Inpatient cost per (Case Mix) Adjusted Discharge measures the hospital's adjusted inpatient costs divided by the product of the number of the hospital's discharges and its case mix index. Hospital costs were adjusted to remove direct medical education and physician compensation from the calculation. This measure compares the hospital's inpatient cost growth on a patient volume and severity adjusted basis. See Exhibit E of this Appendix for more information about this calculation.

Inpatient – outpatient revenue is derived from the amount of GPSR reported for inpatient and outpatient services in the hospital's 403 Cost Report.

Change in ownership notes change in ownership during the period of the analysis. In some cases, changes in ownership may have occurred subsequent to FY13.

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 Source:** FY13 HDD data 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 Exhibit B of this Appendix.

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:** FY13 HDD data 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 FY13 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: Growth Measures

Inpatient Net Revenue per CMAD growth rate for each hospital was calculated by dividing the hospital's Net Patient Service Revenue (NPSR) by the total CMADs for FY12 and FY13 and determining the percent change. NPSR includes both net inpatient revenue and inpatient premium revenue. The peer cohort growth rate denotes the growth in median revenue per CMAD from FY12 to FY13 for all cohort hospitals.

Inpatient Discharges growth rate for each hospital measures the percent change in discharges for inpatient admissions between FY12 and FY13. The peer cohort growth rate represents the median of the percent change across all hospitals in the cohort between FY12 and FY13.

Outpatient Revenue growth rate for each hospital represents the percent change in a hospital's reported net revenue for outpatient services between FY12 and FY13. 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.

Outpatient Visits growth rate for each hospital measures the percent change in total outpatient visits to a hospital between FY12 and FY13. Note that outpatient visits may not be uniformly reported across hospitals. The peer cohort growth rate represents the median of the percent change across all hospitals in the cohort between FY12 and FY13.

Acute Hospital Profiles: Payer Mix

Payer Mix measures the distribution of total GPSR for the hospital's most recent fiscal year 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 Source:** 403 Cost Report: Schedule 5a, Row 44, Columns 3 through14

- **Hospital Calculation:** State Programs = Medicaid Managed + Medicaid Non-Managed + Commonwealth Care + 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.

Each of the above was divided by Total GPSR to get the percentage for each payer category.

- **Average Hospital calculation:** Represents the mean of each hospital's percentage in each of the payer categories to arrive at a payer mix distribution for the average hospital.

    - For example, the Average Hospital's State Programs component = Mean of the proportion of each peer cohort hospital's State Programs funding. Note: "Average Hospital" group excludes specialty hospitals.

- DSH status applies when a hospital has a minimum of 63% of GPSR, measured by gross patient charges, attributed to Medicare, Medicaid, and other government payers, including Commonwealth Care and the Health Safety Net. This is a Massachusetts-specific designation. It should be noted that the Centers for Medicare and Medicaid Services (CMS) determines a hospital's DSH status according to different criteria.

Relative price is a calculated measure that compares different provider prices within a payer's network for a standard mix of insurance products (e.g. HMO, PPO, and Indemnity) to the average of all providers' prices in that network. The relative price method standardizes the calculation of provider prices and accounts for the effect of differences in the services providers deliver to patients, and the different product types that payers offer to their members.

- **Data Source:** Payer Data Reports submitted pursuant to 957 CMR 2.00

- Calendar Year (CY) 2013 Payer Specific Relative Price Levels: Shows the subject hospital's blended (inpatient and outpatient) relative price levels, expressed as a percentile, compared to the average blended relative price percentiles of the hospitals in its peer cohort for the subject hospital's three largest commercial payers. Note that relative price levels are specific to each payer's network and cannot be compared directly across payer networks.

Acute Hospital Profiles: Utilization Trends

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

- **Data Source:** 403 Cost Report: Schedule 3, Row 22, Column 12

- **Hospital index calculation:** Displays the percent change in the number of inpatient discharges for each year, using FY09 as the base year. FY10: (FY10- FY09)/FY09, FY11: (FY11-FY09)/FY09, FY12: (FY12-FY09)/FY09, FY13: (FY13-FY09)/FY09.

- **Cohort calculation:** Represents the median of the percent change across all hospitals in the cohort for each year. For example: Cohort for FY09 = median of (% change for hospital A, % change for hospital B, % change for hospital C...)

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 Source:** 403 Cost Report: Schedule 5a, Row 39, Column 2

- **Hospital index calculation:** Calculate the percent change between each year, using FY09 as the base year. FY10: (FY10-FY09)/FY09, FY11: (FY11-FY09)/FY09, FY12: (FY12-FY09)/FY09, FY13: (FY13-FY09)/FY09.

- **Cohort calculation:** Represents the median of the percent change across all hospitals in the cohort for each year. For example: Cohort for FY09 = 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 Source:** NPSR and discharges were sourced from the 403 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 403 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 403;
- Payer classification/status differences between the 403 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 403 Cost Report, the calculation of a hospital's total case mix adjusted discharges equals the number of discharges reported on the 403 Cost Report, multiplied by the case mix index.

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 Source:** 403 Cost Report: Schedule 5a, Rows 78.01 (net outpatient revenue) + 78.02 (outpatient premium revenue), Column 2

- **Hospital index calculation:** Displays the percent change between each year, using FY09 as the base year. FY10: (FY10-FY09)/FY09, FY11: (FY11-FY09)/FY09, FY12: (FY12-FY09)/FY09, FY13: (FY13-FY09)/FY09.

- **Cohort calculation:** Represents the median of the percent change across all hospitals in the cohort for each year. For example: Cohort for FY10 = 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 2009 through 2013.

- **Data Sources:** Financial Statements: The line numbers for each data point are as follows: Total Unrestricted Revenue (row 65), Operating Revenue (row 57.2), Non-Operating Revenue (row 64.1), Total Expenses (row 73), and Profit / Loss (row 74).

Acute Hospital Profiles: Metric Descriptions

Total Margin measures the subject hospital's overall financial performance compared to the median total margin of the hospitals in its peer cohort.

- **Data Source:** Financial Statements: Excess of Revenue, Gains, & Other Support (row 74) divided by Total Unrestricted Revenue (row 65)

- **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.

- **Data Source:** Financial Statements: Operating Revenue (row 57.2) minus Total Expenses (row 73) divided by Total Unrestricted Revenue (row 65)

- **Cohort Calculation:** Calculated median for the cohort group.

Acute Hospital Quality Profiles: Metric Descriptions

As a new component, acute hospitals included in *Massachusetts Hospital Profiles- Data through Fiscal Year 2013* were profiled on select quality metrics. Details for each of these metrics are included in this Appendix.

To compile the profiles, CHIA relied on the following primary data sources: the Hospital Discharge Database (HDD), the CMS Hospital Compare database, and The Leapfrog Group.

Metrics included in this section are based on varied data periods due to differences in reporting time frames between the data sources. For each metric on the Acute Hospital Quality Profiles, the associated reporting time period is listed.

Acute Hospital Quality Profiles: Patient Safety

PSI 90 is a patient safety composite of 11 measures that indicate the frequency of procedural and post-surgical complications at a hospital. PSI 90 includes the following measures:

- PSI #3: Pressure Ulcer Rate
- PSI #6: Iatrogenic Pneumothorax Rate
- PSI #7: Central Venous Catheter-Related Blood Stream Infection Rate
- PSI #8: Postoperative Hip Fracture Rate
- PSI #9: Perioperative Hemorrhage or Hematoma Rate
- PSI #10: Postoperative Physiologic and Metabolic Derangement Rate
- PSI #11: Postoperative Respiratory Failure Rate
- PSI #12: Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate
- PSI #13: Postoperative Sepsis Rate
- PSI #14: Postoperative Wound Dehiscence Rate
- PSI #15: Accidental Puncture or Laceration Rate

The composite measure is risk-adjusted, and calculated such that the national average for each year is always 1.0. Lower scores are better.

- **Data Source:** Hospital Discharge Database (HDD)
- **Data Period:** FY2011, FY12, FY13
- **Hospital Calculation:** Reflects the rate of complications or adverse events at the hospital relative to the national average of 1.0.
- **Cohort Calculation:** Calculated median for the cohort group.

- **National Comparative:** Provided by the Agency for Healthcare Research and Quality (AHRQ).
- **Patient Population:** All Payers, Ages 18+.

Acute Hospital Quality Profiles: Patient Experience

Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) is a survey that measures patient perspectives on various aspects of their care. Results are adjusted for patient mix and survey mode (the format in which patients completed the survey) and compared to the national average. Higher scores are better.

- **Data Source:** Centers for Medicare & Medicaid Services (CMS) Hospital Compare
- **Data Period:** 2012-2013
- **Hospital Calculation:** All data were retrieved from CMS Hospital Compare as pre-calculated percentages. Where a hospital's performance is not included on Hospital Compare because of small numbers or missing data, the measure is also not included in the report.

  Displays the following categories of survey measures, and the percentage of patients who responded "always" for the following measures of patient experience:

  Communication Measures:

  - Patients who reported that their doctors "always" communicated well.
  - Patients who reported that their nurses "always" communicated well.

  Care Coordination Measures:

  - Patients who reported that YES, they were given information about what to do during their recovery at home.
  - Patients who reported that staff "always" explained about medicines before giving it to them.

  Comfort Measures:

  - Patients who reported that their room and bathroom were "always" clean.
  - Patients who reported that the area around their room was "always" quiet at night.
  - Patients who reported that they "always" received help as soon as they wanted.
  - Patients who reported that their pain was "always" well controlled.

  Overall Satisfaction Measures:

  - Patients who gave their hospital a rating of 9 or 10 on a scale from 0 (lowest) to 10 (highest).

  - Patients who reported YES, they would definitely recommend the hospital.

- **Cohort Calculation:** No cohort comparative is displayed for this measure.
- **National Comparative:** Displays the national average, calculated by CMS.
- **Patient Population:** All Payers, Ages 18+.

Acute Hospital Quality Profiles: Care Practices

Computerized Physician Order Entry (CPOE) assesses the proportion of total medication orders that were entered via an electronic system. Electronic Health Records (EHRs) include the ability to enter medication orders directly into the system. This is believed to reduce transcription errors from handwritten notes. Furthermore, some EHRs include medical error checking to notify the doctor if the ordered medication is inappropriate for a patient's current status, or if there are known interactions with the medications the patient is already taking.

- **Data Source:** The Leapfrog Group Hospital Survey
- **Data Period:** 2012-2013
- **Hospital Calculation:** All data were received from The Leapfrog Group as pre-calculated percentages. 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 report.
- **Cohort Calculation:** No cohort comparative is displayed for this measure.
- **Patient Population:** All Payers, All Ages.

Acute Hospital Quality Profiles: Readmissions

Hospital-Wide All-Cause Unplanned Readmission Measure (Medicare Fee-For-Service Only) is designed to follow patients for 30 days from discharge and determine if they are admitted to a hospital during this period. In some cases, a readmission may be part of the care plan, and the measure excludes these. Only Medicare Fee-For-Service (FFS) patients are followed and included in this measure. The measure is standardized for risk based on the clinical comorbidities of each patient, and compared to the national average. Lower numbers of readmissions are better.

- **Data Source:** CMS Hospital Compare
- **Data Period:** 2011-2012

- **Hospital Calculation:** Reflects the number of Medicare FFS patients readmitted to any hospital within 30 days for any unplanned reason, as calculated by CMS Hospital Compare.
- **Cohort Calculation:** Calculated median for the cohort group.
- **National Comparative:** Displays the national average, calculated by CMS.
- **Patient Population:** Medicare FFS only, Ages 65+.

Acute Hospital Quality Profiles: Obstetric Care

Early Elective Deliveries measures what proportion of non-clinically complicated deliveries were completed prior to 39 weeks without medical necessity. Forty-one acute hospitals reported data for this indicator. All data were received from The Leapfrog Group as pre-calculated percentages. 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 report.

- **Data Source:** The Leapfrog Group Hospital Survey.
- **Data Period:** 2012-2013
- **Hospital Calculation:** Displays the percentage of newborn deliveries at the hospital that were considered clinically unnecessary inductions that occurred before the 39th week of gestation.
- **Cohort Calculation:** Calculated median of the cohort group.
- **National Comparative:** National average calculated by The Leapfrog Group.
- **Patient Population:** All Payers, All Ages.

Acute Hospital Quality Profiles: Obstetric Care Complications

Injury to Neonates displays the hospital and cohort scores related to PSI #17 Birth Rate Trauma: Injury to Neonates

- **Data Source:** Hospital Discharge Database (HDD).
- **Data Period:** FY13
- **Hospital Calculation:** Displays the rate per 1,000 deliveries of this adverse event that occurred at the hospital.
- **Cohort Calculation:** Calculated median of the cohort group.
- **Patient Population:** All Payers, Ages 18+

Obstetric Trauma: With Instrument displays the hospital and cohort scores related to PSI #18 Obstetric Trauma: Vaginal Delivery with Instrument

- **Data Source:** Hospital Discharge Database (HDD).
- **Data Period:** FY13
- **Hospital Calculation:** Displays the rate per 1,000 deliveries of this adverse event, defined as a 2nd or 3rd degree laceration, which occurred at the hospital.
- **Cohort Calculation:** Calculated median of the cohort group.
- **Patient Population:** All Payers, Ages 18+

Obstetric Trauma: Without Instrument displays the hospital and cohort scores related to PSI #19 Obstetric Trauma: Vaginal Delivery without Instrument

- **Data Source:** Hospital Discharge Database (HDD).
- **Data Period:** FY13
- **Hospital Calculation:** Displays the rate per 1,000 deliveries of this adverse event, defined as a 2nd or 3rd degree laceration, which occurred at the hospital.
- **Cohort Calculation:** Calculated median of the cohort group.
- **Patient Population:** All Payers, Ages 18+

Acute Hospital Cohort Profiles: Metric Descriptions

The acute hospital cohort profiles measure 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 hospitals assigned to all other cohorts[8], which excludes specialty hospitals. The analytic metrics are largely the same as the metrics used for the individual hospital profiles. Please see the descriptions and calculation methods described in the Acute Hospital Metric Description section for more information.

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 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 hospitals.

[8] Note that specialty hospitals are not assigned to any cohort due to their unique service mix and/or populations served.

Non-Acute Hospitals

Non-acute hospitals in Massachusetts are typically identified as psychiatric, rehabilitation, and chronic care facilities. CHIA has defined non-acute hospitals in this publication using the Massachusetts Department of Public Health (DPH) and Department of Mental Health (DMH) license criteria.

Non-Acute Hospital Location and Multi-Hospital System Affiliations

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 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:

Multi-Hospital System	Non-Acute Hospital Member
Arbour Health System	Arbour Hospital Arbour-Fuller Memorial Arbour-HRI Hospital Westwood Pembroke Hospital
HealthSouth	HealthSouth Rehabilitation of Western Massachusetts
Kindred Health Care	Kindred Hospital Northeast
Partners HealthCare System	McLean Hospital Spaulding Rehabilitation Hospital of Cape Cod Spaulding North Shore Spaulding Rehabilitation Hospital Spaulding Hospital Cambridge
Steward Health Care System	New England Sinai Hospital
Whittier Health System	Whittier Pavilion Whittier Rehabilitation Hospital Bradford Whittier Rehabilitation Hospital Westborough

Non-Acute Hospital Cohorts

Non-acute hospitals were assigned to peer cohorts based upon MassHealth regulatory designations, defined by the criteria below[9]:

> **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.[10]

[9] State-owned non-acute hospitals are not included in this publication.
[10] 42 CFR 412.29(b)(2)

Non-Acute Hospitals

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.

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.

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

Cohort Designation	Non-Acute Hospital
Psychiatric Hospitals	Arbour Hospital Arbour-Fuller Memorial Arbour-HRI Hospital Baldpate Hospital Bournewood Hospital McLean Hospital Walden Behavioral Care Westwood Pembroke Hospital Whittier Pavilion
Rehabilitation Hospitals	Braintree Rehabilitation Hospital HealthSouth Fairlawn Rehabilitation Hospital HealthSouth Rehabilitation Hospital of Western Massachusetts New Bedford Rehabilitation Hospital New England Rehabilitation Hospital Spaulding Rehabilitation Hospital of Cape Cod Spaulding Rehabilitation Hospital Whittier Rehabilitation Hospital Bradford Whittier Rehabilitation Hospital Westborough
Chronic Care Hospitals	Kindred Hospital Northeast New England Sinai Hospital Radius Specialty Hospital Spaulding Hospital Cambridge Spaulding North Shore Vibra Hospital of Western Mass
Specialty Non-Acute Hospitals	AdCare Hospital of Worcester Franciscan Hospital for Children Hebrew Rehabilitation 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 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).

Inpatient Discharge information was sourced from Schedule 3 of the 403 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 403 Cost Report.

Inpatient – outpatient revenue is derived from the amount of GPSR reported for inpatient and outpatient services in the hospital's 403 Cost Report.

Adjusted Cost per Day measures the hospital's adjusted inpatient costs divided by the hospital's total patient days. Hospital costs were adjusted to remove direct medical education and physician compensation from the calculation. See Exhibit F for an example of the Inpatient Cost per Day calculation.

Change in ownership notes change in ownership during the period of the analysis. In some cases, changes in ownership may have occurred subsequent to FY13.

Non-Acute Hospital Profiles: Payer Mix

Payer Mix measures the distribution of total GPSR for FY13 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 Source:** 403 Cost Report: Schedule 5a, Row 44, Columns 3 through 14

- **Hospital Calculation:** State Programs = Medicaid Managed + Medicaid Non-Managed + Commonwealth Care + 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. Dividing each of the above by Total GPSR results in the percentages displayed for each of the three categories.

- **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 hospital.
    - For example, the Average Hospital's state programs component = Mean of the proportion of each peer cohort hospital's State Programs funding. Note: "Average Hospital" group excludes specialty hospitals.

Non-Acute Hospital Profiles: Services

Types of inpatient services are defined by Discharges.

- **Data Sources:** FY13 403 Cost Report; Schedule 3, Column 12, Rows 1 through 21.

- **Hospital calculation:** Hospital's absolute count by weighted average bed type.

- **Cohort calculation:** Hospital's absolute bed type count divided by cohort's total discharges by that specific bed type.

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

- **Data Sources:** 403 Cost Report, Schedule 3, Column 13, Row 22

- **Hospital calculation:** Calculated percent change in the ALOS for each year, using FY09 as the base year. FY10: (FY10-FY09)/FY09, FY11: (FY11-FY09)/FY09, FY12: (FY12-FY09)/FY09, FY13: (FY13-FY09)/FY09.

- **Cohort calculation:** Represents the median of the percent change across all hospitals in the cohort for each year. For example: Cohort for FY09 = median of (% change for hospital A, % change for hospital B, % change for hospital C...)

Non-Acute Hospital Profiles: Utilization

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:** 403 Cost Report, Schedule 3, Column 6, Row 22
- **Hospital Index calculation:** Calculated percent change in Inpatient Days for each year, using FY09 as the base year. FY10: (FY10-FY09)/FY09, FY11: (FY11-FY09)/FY09, FY12: (FY12-FY09)/FY09, FY13: (FY13-FY09)/FY09.
- **Cohort calculation:** Represents the median of the percent change across all hospitals in the cohort for each year. For example Cohort for FY09 = median of (% change for hospital A, % change for hospital B, % change for hospital C…)

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

- **Data Source:** 403 Cost Report; Schedule 5a, Column 2, Row 39
- **Hospital Index calculation:** Displays the percent change in the Outpatient Visits for each year, using FY09 as the base year. FY10: (FY10-FY09)/FY09, FY11: (FY11-FY09)/FY09, FY12: (FY12-FY09)/FY09, FY13: (FY13-FY09)/FY09.
- **Cohort calculation:** Represents the median of the percent change across all hospitals in the cohort for each year. For example Cohort for FY09 = median of (% change for hospital A, % change for hospital B, % change for hospital C…)

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 Source:** NPSR was sourced from schedule 5a, column 2, rows 65.01 (net inpatient revenue) and 65.02 (inpatient premium revenue) of the 403 Cost Report. Inpatient days were sourced from Schedule 3, column 6, row 22 of the 403 cost report.
- **Hospital Index calculation:** Displays the percent change in the Inpatient Net Patient Service Revenue per Day for each year, using FY09 as the base year. FY10: (FY10-FY09)/FY09, FY11: (FY11-FY09)/FY09, FY12: (FY12-FY09)/FY09, FY13: (FY13-FY09)/FY09.
- **Cohort calculation:** Represents the median of the percent change across all hospitals in the cohort for each year. For example Cohort for FY09 = median of (% change for hospital A, % change for hospital B, % change for hospital C…)

Change in 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 Source:** 403 Cost Report; Schedule 5a, Column 2, Rows 78.01 (net outpatient revenue) and 78.02 (outpatient premium revenue)

- **Hospital Index calculation:** Displays the percent change in the Outpatient Revenue for each year, using FY09 as the base year. FY10: (FY10-FY09)/FY09, FY11: (FY11-FY09)/FY09, FY12: (FY12- FY09)/FY09, FY13: (FY13-FY09)/FY09.

- **Cohort calculation:** Represents the median of the percent change across all hospitals in the cohort for each year. For example, Cohort for FY09 = median of (% change for hospital A, % change for hospital B, % change for hospital C…)

Non-Acute Hospital Profiles: Financial Performance

Total Revenue, Total Costs and Profit / Loss measure the amount of the subject hospital's Total Revenue, Operating Revenue, Non-Operating Revenue, Total Costs, and Total Profit or Loss for each year from 2009 through 2013.

- **Data Sources:** 403 Cost Report, Schedule 23. The line numbers for each data point are as follows: Total Unrestricted Revenue (row 65), Operating Revenue (row 55 + row 56 + row 57+ row 60 + row 64), Non-Operating Revenue (row 58 + row 59), Total Expenses (row 73), and Profit / Loss: (row 74).

Total Margin measures the subject hospital's overall financial performance compared to the median total margin of the hospitals in its peer cohort.

- **Data Source:** 403 Cost Report; Schedule 23, Column 2, Row 173

- **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.

- **Data Source:** 403 Cost Report: Schedule 23, Column 2, Row 174

- **Cohort Calculation:** Calculated median for the cohort group.

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.

Multi-Acute Hospital Systems

The Health System Profiles chapter consists of two sections: (1) a comparative graphic showing the nine multi-acute hospital systems in Massachusetts[11] drawn to scale based on operating revenue, and (2) individual pages for each system detailing the organizations that comprise the system.

The **Comparative Overview** is a proportional representation of the size of each system using operating revenue from the smallest system (Heywood Healthcare) as the base.

- For example: in FY13, Berkshire Health Systems had approximately $429 million in operating revenue, which is 3.3 times greater than Heywood Healthcare's approximately $129 million in operating revenue. Accordingly, Berkshire Health Systems' circle is presented with an area 3.3 times larger than Heywood Healthcare's circle.

The individual system profiles define organizations within the system by the following categories:

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

- **Non-Acute Hospitals:** typically identified as psychiatric, rehabilitation, and chronic care facilities. CHIA has defined non-acute hospitals in this publication using the Massachusetts Department of Public Health (DPH) and Department of Mental Health (DMH) license criteria.

- **Physician Organizations:** A medical practice comprised of two or more physicians organized to provide patient care services.

- **Health Plans:** An organization that contracts or offers to provide, deliver, arrange for, pay for, or reimburse any of the costs of health care services.

- **Other Health Care Providers:** any organization within a system that is engaged in providing health care services and is not categorized as an acute hospital, a non-acute hospital, a physician organization, or a health plan.

- **Other Organizations:** all organizations that are not an acute hospital, a non-acute hospital, a physician organization, a health plan, or other health care provider. Revenue and net asset values were derived by adding up values for any organization in the financial statements not already categorized in the profile as a health care-related organization.

Some system financial statements reported to CHIA included the names and descriptions of organizations but did not include financial information for them. These organizations are presented in the profiles in text format, rather than displayed within a circle like the other organizations.

Unless otherwise noted, metrics included in these profiles are based on financial data from FY13 reported by the systems. Descriptive information is from FY13.

[11] Kindred Healthcare, Inc. and Tenet Healthcare Corporation are publicly traded multistate health systems. Each owns two acute hospitals in Massachusetts (Kindred owns Kindred Hospital – Boston and Kindred Hospital – Boston North Shore; Tenet owns MetroWest Medical Center and Saint Vincent Hospital). Due to their broad presence outside of Massachusetts, CHIA did not include Kindred or Tenet in the system profiles chapter.

To compile the profiles, CHIA relied on the following primary data sources: consolidated system-level Audited Financial Statements, hospital Audited Financial Statements, and the 403 Cost Report.

All revenue and net asset information is sourced from each system's parent organization and affiliates' FY13 consolidated Audited Financial Statements.[12]

Each system's total **Operating Revenue** and **Net Assets** equal the sum of the components displayed in the individual system profiles, less any intercompany eliminations.

Consolidating Eliminations are intercompany transactions that are eliminated during the financial consolidation process. Eliminations were totaled from operating revenue and net asset information in the audited financial statement from each system. The total of the operating revenue and net assets after accounting for eliminations may not sum to the overall system operating revenue and net asset values displayed on each profile due to rounding.[13]

Data Verification:
Data verification reports including each system's reported data were sent to each system. Over the course of the development of this publication, CHIA adjusted or deleted some of the metrics based on feedback from the systems. Changes include revisions to the descriptions of some organizations and an additional section displaying consolidating eliminations.

[12] Steward Health Care System's revenue and net asset information is sourced from its FY12 audited consolidated financial statements, which is the most recent consolidated-level data available to CHIA.
[13] Data used in Steward Health Care System's organizational breakout only includes financial information from the hospital entities and does not include consolidation eliminations.

Operating revenue is revenue earned from services associated with patient care, including academic research. It excludes revenue earned from non-operating activities, such as gains associated with the sale of property or income from investments.

Net assets reflect the difference between total assets and total liabilities.

Profitability ratios: CHIA standardized calculations for operating and total margins to account for the varied presentation of financial statement reporting among health systems.

> **Total profit/loss** (often presented in hospital financial statements as "excess of revenues over expenses") and **total margin** are measures of the system's overall financial performance, the former being in dollars and the latter a percentage.
>
> - **System calculation:** Total Profit/Loss = Total Income – Total Expenses
> - **System calculation:** Total Margin = Total Income ÷ (Operating Revenue + Non-Operating Gains/Losses)

Employee statistics show the approximate number of employees in the system.

Multi-Acute Hospital Systems: Metric Descriptions

The **Percentage of Massachusetts Acute Hospitals** section shows the proportion of total discharges and inpatient/outpatient revenue at each system in relation to all acute hospitals in Massachusetts. Specialty hospitals were included when preparing these calculations. This information was calculated using data from 403 Cost Reports.

Percent of Discharges is the number of discharges for inpatient admissions.

- **Data Source:** 403 Cost Report: Schedule 5a, Column 2, Row 25
- **System Calculation:** Discharge Percent = Total discharges across all acute hospitals in a system divided by total statewide acute hospitals' discharges multiplied by 100

Percent of Inpatient Revenue reflects each system's inpatient net patient service revenue (NPSR) as a percentage of total inpatient NPSR reported by Massachusetts acute hospitals in 2013.

- **Data Source:** 403 Cost Report: Schedule 5a, Column 2, Rows 65.01 and 65.02
- **System Calculation:** Inpatient NPSR Percent = Total inpatient NPSR across all acute hospitals in system divided by total statewide acute hospitals' inpatient NPSR multiplied by 100

Percent of Outpatient Revenue reflects each system's outpatient net patient service revenue (NPSR) as a percentage of total outpatient NPSR reported by Massachusetts acute hospitals in 2013.

- **Data Source:** 403 Cost Report: Schedule 5a, Column 2, Rows 78.01 and 78.02
- **System Calculation:** Total outpatient NPSR across all acute hospitals in system divided by total statewide acute hospitals' outpatient NPSR multiplied by 100

Multi-Acute Hospital Systems: Other Organizations

Financial information for **Other Organizations** includes revenue and net assets from organizations that did not appear to fit into the other categories (acute hospital, non-acute hospital, health plan, etc.). It includes parent-level entities as well as the following organizations within each system:

Baystate Health, Inc.

- Ingraham Corp., a holding company for Baystate Health Ambulance
- Baystate Administrative Services, Inc., an administrative services entity
- Baystate Total Home Care, Inc., a not-for-profit entity that holds, leases, and manages real estate on behalf of Baystate
- Baystate Health Insurance Company, Ltd., a captive insurance company
- Baystate Health Foundation, Inc., a charitable foundation

Berkshire Health Systems, Inc.

- BHS Management Services, Inc., a corporation that provides management services to Berkshire's affiliates
- Berkshire Indemnity Company SPC, a captive insurance entity
- Tri-State Medical Management, Corp., a corporation that manages a physician office location for the benefit of Berkshire Medical Center

Cape Cod Healthcare, Inc.

- Cape Cod Healthcare Foundation, Inc., a not-for-profit corporation organized to provide development and fundraising support to Cape Cod Healthcare
- Heritage at Falmouth, a not-for-profit corporation that owns an assisted living facility
- Cape Health Insurance Company, a captive insurance company
- Cape Cod Hospital Medical Office Building, a for-profit provider of leased and subleased space to Cape Cod Hospital and related affiliations

CareGroup, Inc.

- Greater Boston Musculoskeletal Center (GBMC) Real Estate Company, LLC, an entity created as part of a joint venture between New England Baptist and Shields Healthcare Group to develop a new location for an ambulatory surgery facility in Dedham, Massachusetts.

Heywood Healthcare, Inc.

- Heywood Hospital Realty Corp., a corporation that owns medical office buildings

Lahey Health System, Inc.

- Lahey Clinic Foundation, Inc., a corporation organized to hold capital assets, investments, debt, and infrastructure costs
- Lahey Health Shared Sevices, Inc., a supporting corporation with the corporate purpose of providing administrative support to the System and its affiliates
- Lahey Clinic Insurance Company, Ltd., a captive reinsurance company
- Lahey Clinical Performance Accountable Care Organization, LLC, a corporation organized to operate an accountable care organization and participate in the Federal Medicare Shared Savings Program
- Lahey Clinical Performance Network, LLC, a corporation organized to contract with payers on behalf of participating providers and/or care units that are part of the System.

- Lahey Clinic Canadian Foundation, a Canadian Foundation that performs fundraising activities directed at citizens and residents of Canada
- Northeast Health System, Inc., a corporation that functions as the holding company for Northeast Hospital Corp. and the Northeast affiliates
- NE Proprietary Corp., a corporation organized for the purpose of establishing and operating health care facilities, services, and organizations

Partners HealthCare System, Inc.

- Partners Community Healthcare, Inc. (PCHI) was renamed in FY14 to Partners Community Physician Organization (PCPO). PCPO represents and provides management services to Partners community network of physicians and hospitals and implements population health management programs.

Steward Health Care System, LLC

- Steward Health Care Network, Inc., a company that manages and negotiates managed care contracts
- Tailored Risk Assurance Company, Ltd., a captive insurance company
- Steward has partnered with two Massachusetts health plans to create community hospital network insurance products:
- Steward Community Care is a partnership with Fallon Community Health Plan
- Steward Community Choice is a partnership with Tufts Health Plan

UMass Memorial Health Care, Inc.

- UMass Memorial Health Ventures, Inc., a joint venture interest holder
- UMass Memorial Realty, Inc.

Acute Hospitals

Athol Hospital responded to the FY09 to FY13 data verification process for FY12 and FY13 data only.

Beth Israel Deaconess Medical Center (BIDMC) reported Graduate Medical Education (GME) costs on more than one line in the 403 Cost Report, and the corresponding statistics for those GME costs in more than one column on Schedules IX and III, respectively, on the 403 Cost Report. To ensure inclusion of these additional reported fields, CHIA manually calculated total GME expenses for BIDMC.

Beth Israel Deaconess Hospital- Plymouth (formerly Jordan Hospital) was acquired by Beth Israel Deaconess Medical Center effective January 1, 2014. As this acquisition took place after FY13, data for Beth Israel Deaconess Hospital- Plymouth is not included in the CareGroup system profile.

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

Kindred Hospitals have limited acute hospital information included in this report, as they are considered long-term acute care hospitals. Kindred Hospital- Boston and Kindred Hospital- Boston North Shore are acute hospitals; however, as their data does not align with the other acute hospitals, they are not included in the cohort analysis.

Lowell General Hospital acquired Saints Medical Center effective July 1, 2012. For FY12, the Financial Statement data submitted by Lowell General Hospital includes 3 months of financial data for Saints Medical Center, in addition to 12 months of financial information for Lowell General Hospital. Saints Medical Center did not submit additional financial statement data for FY12. Each entity submitted a separate 403 Cost Report for FY09 through FY12. For FY13, both Financial Statement and 403 Cost Report data submitted by Lowell General Hospital includes Saints Medical Center data.

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.

Mercy Hospital changed its fiscal year end date from December 31 to June 1 beginning July 1, 2013. Its 2013 Financial Statement filing reflects six months of data (January 1, 2013- June 30, 2013).

North Adams Regional Hospital announced on March 25, 2014 a closure of the hospital and related health care businesses effective March 28, 2014.

Saints Medical Center submitted 403 Cost Report data for FY09 through FY13, but financial statements only for FY09 through FY11 due to a merger with Lowell General Hospital effective July 1, 2012.

Shriners Hospitals for Children (both Boston and Springfield locations) are not included in this report due to insufficient data reported.

Steward Good Samaritan Medical Center is located in the Metro South region; however, one of its campuses is located in Metro West region. Information for the campus located in Metro West is included in the Steward Good Samaritan Medical Center metrics.

Steward Health Care System: Fiscal year data for certain hospitals in the Steward Health Care System was annualized for comparison purposes.

Steward Health Care acquired six hospitals in FY10:

1. Steward St. Elizabeth's Medical Center
2. Steward Saint Anne's Hospital
3. Steward Carney Hospital
4. Steward Good Samaritan Medical Center
5. Steward Norwood Hospital
6. Steward Holy Family Hospital

FY11 403 Cost Report data for these hospitals reflects a period of 329 days, while FY10 403 Cost Report data reflects a period of 401 days. To account for these variances, 403-sourced data was annualized for these two fiscal years.

Non-acute Hospitals

Spaulding Hospital Cambridge (formerly Youville Hospital) did not submit 403 Cost Report data for FY09 due to a purchase transaction by Spaulding Hospital effective November 15, 2009. The 403 Cost Report submitted for FY10 reflects a partial year of 10.5 months. No adjustments were made to annualize as this was the first year of operations, and CHIA determined that the report would not materially distort the trend analysis. As of FY13, Spaulding Hospital Cambridge no longer provides outpatient services,

Bournewood Hospital is a sub-chapter S corporation.

Radius Specialty Hospital closed its Roxbury and Quincy rehabilitation facilities in October 2014.

Whittier Pavilion began operations in FY09; therefore, FY09 data is not be comparable to its subsequent years. In addition, outpatient services began in FY13. FY13 outpatient data represents a partial year of operation for these services.

Multi-Acute Hospital Systems

Baystate Health, Inc.

- In September 2014, UMass Memorial Health Care transferred ownership of Wing Memorial Hospital to Baystate Health.

CareGroup, Inc.

- The financial figures on CareGroup's system profile were sourced from separately from Audited Financial Statements for Beth Israel Deaconess Medical Center, Mount Auburn Hospital, and New England Baptist Hospital (i.e., members of CareGroup's Obligated Group). The total operating revenue and net assets may not fully reflect CareGroup's financial performance, although CareGroup's website notes that the Obligated Group members account for over 90% of

total assets and nearly 90% of the system's total revenue.[14] CareGroup's system profile may also not fully reflect consolidating eliminations at the parent level that may reduce total operating revenue and net assets. CHIA felt that presenting the separately audited financial information in a combined manner was appropriate to show the members of the CareGroup system and their relative size. CareGroup notes that its business model is a "confederation model in which the affiliates jointly borrow and purchase common services such as information technology support, but otherwise operate on a largely autonomous basis."[15]

- On January 1, 2014, Beth Israel Deaconess Medical Center became the sole corporate member of Jordan Health Systems, Inc. (Jordan). Jordan consists of Jordan Hospital, a local physicians' practice (Jordan Physician Associates), and several management and real estate holding entities.

Lahey Health System, Inc.

- In October 2013, Winchester Hospital and its affiliate Winchester Physician Associates, Inc. announced its intention to become a member of Lahey Health. The transaction went into effect in July 2014.
- In July 2014, Lahey announced its intention to become the sole corporate member of the Visiting Nurse Association of Middlesex-East, Inc. (VNAME) and the parent of VNAME's affiliate, Community Care, Inc. The transaction went into effect in October 2014.

Steward Health Care System, LLC

- In March 2014, Steward announced its intention to make Merrimack Valley Hospital, which was already owned by Steward, a campus of Steward Holy Family Hospital. This event went into effect in August 2014.
- On November 6th, 2014, Steward announced an imminent closure of Quincy Medical Center, which occurred on December 26, 2014. The hospital building is now operating as a satellite emergency department for Steward Carney Hospital.

UMass Memorial Health Care, Inc.

- In September 2014, UMass Memorial Health Care transferred ownership of Wing Memorial Hospital to Baystate Health.
- In June 2014, UMass Memorial Health Ventures, Inc. sold a portion of its share in Fairlawn Rehabilitation Hospital to New England Rehabilitation Management Co., LLC, which is a subsidiary of HealthSouth Corporation. UMass now has a 20% share of Fairlawn. Previously, Fairlawn had been operated as a 50-50 joint venture between UMass and HealthSouth.

Additional information on changes to health systems can be found on the Health Policy Commission's website under Material Change Notices. Available at: www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/material-change-notices-cost-and-market-impact-reviews (last accessed January 9, 2015).

[14] See http://www.caregroup.org/CGOverview.asp (Accessed January 9, 2015).
[15] Ibid.

Technical Appendix:
Exhibit B. Diagnosis Related Groups (DRGs)

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 Pneumonia	Bronchiolitis & RSV Pneumonia	138
Burns w/ or w/o Skin Grft	Partial Thickness Burns w Or w/o Skin Graft	844
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

C. Spinal Fusion & Oth Procs	Cervical Spinal Fusion & Other Back/Neck Proc Exc Disc Excis/Decomp	321
Chemotherapy	Chemotherapy	693
Chest Pain	Chest Pain	203
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
Delivery DRGs	Comprised Of Three Individual DRGs That Were Condensed: Newborn Cesarean Delivery Vaginal Delivery	 640 540 560
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 Influ 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 SCD	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
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
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	Blood 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 Muscle-skel Syst Dx	Other Musculoskeletal System & Connective Tissue Diagnoses	351
Oth OR 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 & Related	Other Skin, Subcutaneous Tissue & Related Procedures	364
Pancreas Dis exc Malig	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
Post-Op, Oth Device Infect	Post-Operative, Post-Traumatic, Other Device Infections	721
Procedures for Obesity	Procedures For Obesity	403
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 Dxs	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

Technical Appendix:
Exhibit C. Special Public Funding

Delivery System Transformation Initiatives (DSTI) is a federal-state partnership that provides incentive payments to support and reward seven safety net hospitals in Massachusetts for investing in integrated care, quality innovations, and infrastructure to support alternative payment models. The DSTI amounts listed in the table below are to be distributed over a three year period.

Infrastructure & Capacity Building (ICB) program is a federal and state-funded program administered by MassHealth to help hospitals transition to integrated delivery systems that provide more effective and cost-efficient care to patients in need.

The **Community Hospital Acceleration, Revitalization, and Transformation Investment Program (CHART)** is a four-year, $120M program funded by an industry assessment of select providers and insurers and administered by the Health Policy Commission that makes phased investments to promote efficient, effective care delivery in non-profit, non-teaching, lower cost community hospitals.

Hospital	DSTI	ICB	CHART (Phase I)
Anna Jaques Hospital		$285,779	$333,500
Athol Hospital		$500,000	$484,128
Baystate Franklin Medical Center			$476,400
Baystate Mary Lane Hospital			$499,600
Baystate Medical Center		$220,415	*Ineligible*
Berkshire Medical Center		$325,000	*Ineligible*
Beth Israel Deaconess Hospital – Milton			$261,200
Beth Israel Deaconess Hospital – Needham			$300,000
Beth Israel Deaconess Hospital – Plymouth		$197,500	$245,818
Beth Israel Deaconess Medical Center		$377,215	*Ineligible*
Boston Children's Hospital			*Ineligible*
Boston Medical Center	$310,700,000		*Ineligible*
Brigham and Women's Hospital			*Ineligible*
Cambridge Health Alliance	$134,600,000		*Ineligible*
Cape Cod Hospital			*Ineligible*
Clinton Hospital			*Ineligible*
Cooley Dickinson Hospital			*Ineligible*
Dana-Farber Cancer Institute			*Ineligible*
Emerson Hospital			$202,575
Fairview Hospital		$500,000	*Ineligible*
Falmouth Hospital			*Ineligible*
Brigham and Women's Faulkner Hospital			*Ineligible*
Hallmark Health			$749,360
Harrington Memorial Hospital			$491,600
HealthAlliance Hospital			$410,000
Heywood Hospital		$295,822	$316,384
Holyoke Medical Center	$24,500,000		$500,000
Kindred Hospital – Boston			*Ineligible*
Kindred Hospital – Boston North Shore			*Ineligible*
Lahey Hospital & Medical Center			*Ineligible*
Lawrence General Hospital	$43,300,000		$100,000
Lowell General Hospital			$497,900
Marlborough Hospital			
Martha's Vineyard Hospital		$500,000	*Ineligible*
Massachusetts Eye and Ear Infirmary			*Ineligible*

Massachusetts General Hospital			*Ineligible*
Mercy Medical Center	$45,600,000		$233,134
MetroWest Medical Center			*Ineligible*
Milford Regional Medical Center		$243,100	$499,810
Mount Auburn Hospital			*Ineligible*
Nantucket Cottage Hospital			*Ineligible*
New England Baptist Hospital			
Newton-Wellesley Hospital			*Ineligible*
Noble Hospital		$272,861	$344,665
North Adams Regional Hospital		$100,000	$395,311
North Shore Medical Center			*Ineligible*
Northeast Hospital		$100,000	$359,000
Saint Vincent Hospital			*Ineligible*
Shriners Hospital for Children – Boston			
Shriners Hospital for Children – Springfield			*Ineligible*
Signature Healthcare Brockton Hospital	$50,100,000		$438,400
South Shore Hospital			*Ineligible*
Southcoast Hospitals Group			$1,183,357
Steward Carney Hospital	$19,200,000		*Ineligible*
Steward Holy Family Hospital		$299,566	*Ineligible*
Steward Good Samaritan Medical Center		$299,566	*Ineligible*
Merrimack Valley Hospital		$308,334	*Ineligible*
Morton Hospital		$308,334	*Ineligible*
Nashoba Valley Medical Center		$308,334	*Ineligible*
Steward Norwood Hospital		$308,334	*Ineligible*
Quincy Medical Center		$308,334	*Ineligible*
Steward Saint Anne's Hospital		$308,334	*Ineligible*
Steward St. Elizabeth's Medical Center		$308,334	*Ineligible*
Sturdy Memorial Hospital		$48,000	*Ineligible*
Tufts Medical Center			*Ineligible*
UMass Memorial Medical Center		$2,000,129	*Ineligible*
Winchester Hospital			$286,500
Wing Memorial Hospital		$506,767	$357,000
TOTAL	$628,000,000	$9,230,058	$9,965,642

Technical Appendix:
Exhibit D. FY12 and FY13 Regional Assignments

Acute Hospital	FY12 Region	FY13 Region
Anna Jaques Hospital	Upper North Shore	Northeastern Massachusetts
Athol Hospital	Central Massachusetts	Central Massachusetts
Baystate Franklin Medical Center	Pioneer Valley/Franklin	Western Massachusetts
Baystate Mary Lane Hospital	Pioneer Valley/Franklin	Western Massachusetts
Baystate Medical Center	Pioneer Valley/Franklin	Western Massachusetts
Berkshire Medical Center	Berkshires	Western Massachusetts
Beth Israel Deaconess Hospital – Milton	Metro Boston	Metro Boston
Beth Israel Deaconess Hospital – Needham	Metro Boston	Metro Boston
Beth Israel Deaconess Hospital – Plymouth	South Shore	Metro South
Beth Israel Deaconess Medical Center	Metro Boston	Metro Boston
Boston Medical Center	Metro Boston	Metro Boston
Brigham and Women's Hospital	Metro Boston	Metro Boston
Cambridge Health Alliance	Metro Boston	Metro Boston
Cape Cod Hospital	Cape and Islands	Cape and Islands
Boston Children's Hospital	Metro Boston	Metro Boston
Clinton Hospital	Central Massachusetts	Central Massachusetts
Cooley Dickinson Hospital	Pioneer Valley/Franklin	Western Massachusetts
Dana-Farber Cancer Institute	Metro Boston	Metro Boston
Emerson Hospital	West Merrimack/Middlesex	Northeastern Massachusetts
Fairview Hospital	Berkshires	Western Massachusetts
Falmouth Hospital	Cape and Islands	Cape and Islands
Faulkner Hospital	Metro Boston	Metro Boston
Hallmark Health Systems	Metro Boston	Metro Boston
Harrington Memorial Hospital	Central Massachusetts	Central Massachusetts
HealthAlliance Hospital	Central Massachusetts	Central Massachusetts
Heywood Hospital	Central Massachusetts	Central Massachusetts
Holyoke Hospital	Pioneer Valley/Franklin	Western Massachusetts
Lahey Hospital & Medical Center	West Merrimack/Middlesex	Northeastern Massachusetts
Lawrence General Hospital	East Merrimack	Northeastern Massachusetts
Lowell General Hospital	West Merrimack/Middlesex	Northeastern Massachusetts
Marlborough Hospital	Metro Boston	Northeastern Massachusetts
Martha's Vineyard Hospital	Cape and Islands	Cape and Islands
Massachusetts Eye & Ear Infirmary	Metro Boston	Metro Boston
Massachusetts General Hospital	Metro Boston	Metro Boston
Mercy Hospital	Pioneer Valley/Franklin	Western Massachusetts
Merrimack Valley Hospital	East Merrimack	Northeastern Massachusetts
MetroWest Medical Center	Metro West	Metro West
Milford Regional Medical Center	Metro West	Metro West
Morton Hospital	Metro South	Metro South
Mount Auburn Hospital	Metro Boston	Metro Boston
Nantucket Cottage Hospital	Cape and Islands	Cape and Islands
Nashoba Valley Medical Center	West Merrimack/Middlesex	Northeastern Massachusetts
New England Baptist Hospital	Metro Boston	Metro Boston
Newton-Wellesley Hospital	Metro Boston	Metro Boston
Noble Hospital	Pioneer Valley/Franklin	Western Massachusetts
North Adams Regional Hospital	Berkshires	Western Massachusetts

North Shore Medical Center	Lower North Shore	Northeastern Massachusetts
Northeast Hospital	Lower North Shore	Northeastern Massachusetts
Quincy Hospital	South Shore	Metro South
Saint Vincent Hospital	Central Massachusetts	Central Massachusetts
Saints Medical Center	West Merrimack/Middlesex	
Signature Healthcare Brockton Hospital	Metro South	Metro South
South Shore Hospital	South Shore	Metro South
Southcoast Health Systems	New Bedford and Fall River	Southcoast
Steward Carney Hospital	Metro Boston	Metro Boston
Steward Good Samaritan Medical Center	Metro South	Metro South
Steward Holy Family Hospital	East Merrimack	Northeastern Massachusetts
Steward Norwood Hospital	Norwood/Attleboro	Metro West
Steward Saint Anne's Hospital	Fall River	Southcoast
Steward St. Elizabeth's Medical Center	Metro Boston	Metro Boston
Tufts Medical Center	Metro Boston	Metro Boston
UMass Memorial Medical Center	Central Massachusetts	Central Massachusetts
Winchester Hospital	West Merrimack/Middlesex	Northeastern Massachusetts
Wing Memorial Hospital	Pioneer Valley/Franklin	Western Massachusetts

Technical Appendix:
Exhibit E. Acute Hospital Inpatient Cost per CMAD Calculation

Adjusted Cost per CMAD							
	Schedule, Line, Column						
IP Routine Costs	2,100,10						$ -
GME Costs							
Post Grad Med Education	9,35,12	$ -					
Post Grad Med Education	25,35,3	$ -	Less Physician Costs included above in Col 3 so they are not double counted;				
Total Post Grad Med Education		$ -					
Med Staff - Teaching	9,32,12	$ -					
Med Staff - Teaching	25,32,3	$ -	Less Physician Costs included above in Col 3 so they are not double counted;				
Total Med Staff - Teaching		$ -					
Med Staff - Admin	9,33,12	$ -					
Med Staff - Admin	25,33,3	$ -	Less Physician Costs included above in Col 3 so they are not double counted;				
Med Staff - Admin		$ -					
Total Med Staff (B+C)		$ -					
Determination of Total GME O/H attributed to I/P							
Stats - Post Grad - hours of service		Stat		%	Allocation of GME O/H		
Total Ancillary	13,56,18	-		0.0000	$ -		
IP Routine	13,78,18	-		0.0000	$ -		$ -
Total Patient and Non-Patient	L3,100,18	-			$ -		
Allocation of GME Allocated to Total Ancillary Reallocated to I/P Ancillary							
Stats - IP and OP costs		Stat		%	Allocation of GME Ancillary		
IP Ancillary Costs	17,22,4	$ -		0.0000	$ -		$ -
Total Patient and Non-Patient	17,42,4	$ -					
Determination of Total Med Staff O/H attributed to I/P							
Stats - Med Staff - hours of service		Stat		%	Allocation of GME O/H		
Total Ancillary	13,56,17	-		0.0000	$ -		
IP Routine	13,78,17	-		0.0000	$ -		$ -
Total Patient and Non-Patient	L3,100,17	-			$ -		
Allocation of Med Staff Allocated to Total Ancillary Reallocated to I/P Ancillary							
Stats - IP and OP Costs		Stat		%	Allocation of GME Ancillary		
IP Ancillary Costs	17,22,4	$ -		0.0000	$ -		$ -
Total Patient and Non-Patient	17,42,4	$ -					
Physician Professional Fees O/H	25,43,3	-					
Stats - Costs		Stat		%	Allocation of Physician O/H to IP		
IP Ancillary	17,22,4	-		0.0000	$ -		$ -
IP Routine	17,22,3	-		0.0000	$ -		$ -
Total Patient and Non-Patient	17,42,2	-			$ -		
Physician Professional Fees Ancillary	25,78,3	$ -					
Stats - Costs		Stat		%	ocation of Physician Ancillary to IP		
IP costs	17,22,4	$ -		0.0000	$ -		$ -
Total Patient and Non-Patient	17,42,4	$ -					
Physician Direct IP costs	25,100,3	$ -					$ -
less Non-Comparable Cost Adjustment							$ -
Total Comparable Costs							$ -
Divided by CMADS							
Comparable IP Costs per CMAD							

Technical Appendix:
Exhibit F. Non-Acute Hospital Inpatient Cost per Day

Inpatient Cost per Day	Schedule, Line, Column	Stat / Amount	%	Allocation	Note	Total
IP Routine Costs	2,100,10					$ -
GME Costs						
Post Grad Med Education	9,35,12	$ -				
Post Grad Med Education	25,35,3	$ -			Less Physician Costs included above in Col 3 so they are not double counted;	
Total Post Grad Med Education		$ -				
Med Staff - Teaching	9,32,12	$ -				
Med Staff - Teaching	25,32,3	$ -			Less Physician Costs included above in Col 3 so they are not double counted;	
Total Med Staff - Teaching		$ -				
Med Staff - Admin	9,33,12	$ -				
Med Staff - Admin	25,33,3	$ -			Less Physician Costs included above in Col 3 so they are not double counted;	
Med Staff - Admin		$ -				
Total Med Staff (B+C)		$ -				
Determination of Total GME O/H attributed to I/P						
Stats - Post Grad - hours of service		Stat	%	Allocation of GME O/H		
Total Ancillary	13,56,18	-	0.0000	$ -		
IP Routine	13,78,18	-	0.0000	$ -		$ -
Total Patient and Non-Patient	13,100,18	-		$ -		
Allocation of GME Allocated to Total Ancillary Reallocated to I/P Ancillary						
Stats - IP and OP costs		Stat	%	Allocation of GME Ancillary		
IP Ancillary Costs	17,22,4	$ -	0.0000	$ -		$ -
Total Patient and Non-Patient	17,42,4	$ -				
Determination of Total Med Staff O/H attributed to I/P						
Stats - Med Staff - hours of service		Stat	%	Allocation of GME O/H		
Total Ancillary	13,56,17	-	0.0000	$ -		
IP Routine	13,78,17	-	0.0000	$ -		$ -
Total Patient and Non-Patient	13,100,17	-		$ -		
Allocation of Med Staff Allocated to Total Ancillary Reallocated to I/P Ancillary						
Stats - IP and OP Costs		Stat	%	Allocation of GME Ancillary		
IP Ancillary Costs	17,22,4	$ -	0.0000	$ -		$ -
Total Patient and Non-Patient	17,42,4	$ -				
Physician Professional Fees O/H	25,43,3	-				
Stats - Costs		Stat	%	Allocation of Physician O/H to IP		
IP Ancillary	17,22,4	-	0.0000	$ -		$ -
IP Routine	17,22,3	-	0.0000	$ -		$ -
Total Patient and Non-Patient	17,42,2	-		$ -		
Physician Professional Fees Ancillary	25,78,3	$ -				
Stats - Costs		Stat	%	Allocation of Physician Ancillary to IP		
IP costs	17,22,4	$ -	0.0000	$ -		$ -
Total Patient and Non-Patient	17,42,4	$ -				
Physician Direct IP costs	25,100,3	$ -				$ -
less Non-Comparable Cost Adjustment						$ -
Total Comparable Costs						$ -
Divided by Days						$ -
Comparable IP Costs per Day						