MASSACHUSETTS HEALTH POLICY COMMISSION REVIEW OF

The Proposed Merger of Lahey Health System; CareGroup and its Component Parts, Beth Israel Deaconess Medical Center, New England Baptist Hospital, and Mount Auburn Hospital; Seacoast Regional Health Systems; and Each of their Corporate Subsidiaries into Beth Israel Lahey Health; AND The Acquisition of the Beth Israel Deaconess Care Organization by Beth Israel Lahey Health; AND The Contracting Affiliation Between Beth Israel Lahey Health and Mount Auburn Cambridge Independent Practice Association

(HPC-CMIR-2017-2)

Pursuant to M.G.L. ch. 6D, § 13
Preliminary Report
July 18, 2018

About the Health Policy Commission

The Massachusetts Health Policy Commission (HPC), established in 2012, is an independent state agency charged with monitoring health care spending growth in Massachusetts and providing data-driven policy recommendations regarding health care delivery and payment system reform. The HPC's mission is to advance a more transparent, accountable, and innovative health care system through its independent policy leadership and investment programs. For more information, visit www.mass.gov/HPC.

INTRODUCTION

Health care provider market changes, including consolidation and alignments between providers under new care delivery and payment models, can impact health care market functioning and the performance of the health care system in delivering high-quality, cost-effective care. Yet, due to confidential payer-provider contracts and limited information about provider organizations, the mechanisms by which market changes impact the cost, quality, and availability of health care services have not historically been apparent to government, consumers, and businesses which ultimately bear the costs of the health care system. Recognizing the importance and lack of transparency surrounding health care provider market changes, one of the Health Policy Commission's (HPC) core responsibilities is to monitor and publicly report on the evolving structure and composition of the provider market using the best available evidence.

Through the filing of notices of material change by provider organizations, the HPC tracks the frequency, type, and nature of changes in our health care market.[1] The HPC may also engage in a more comprehensive review of particular transactions anticipated to have a significant impact on health care costs or market functioning. The result of such "cost and market impact reviews" (CMIRs) is a public report detailing the HPC's findings. In order to allow for public assessment of the findings, the transactions may not be finalized until the HPC issues its Final Report. Where appropriate, such reports may identify areas for further review or monitoring, or be referred to other state agencies in support of their work on behalf of health care consumers. This first-in-the-nation public reporting process is a unique opportunity to enhance the transparency of significant changes to our health care system and can inform and complement the many important efforts of other agencies, such as the Attorney General's Office, the Center for Health Information and Analysis, the Department of Public Health, and the Division of Insurance, in monitoring and overseeing our health care market.

The HPC conducts its work during continued dynamic change among provider organizations, including ongoing consolidation, new contractual and clinical alignments, and the increased presence of alternative payment models focused on promoting accountable care. The CMIR process allows us to improve our understanding and increase the transparency of these trends, the opportunities and challenges they may pose, and their impact on short and long term health care spending, quality, and consumer access. In addition, our reviews enable us to identify particular factors for market participants to consider in proposing and responding to potential future organizational changes. Through this process, we seek to encourage providers and payers alike to evaluate and take steps to minimize negative impacts and enhance positive outcomes of any given material change.

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[1] *See* MASS. GEN. LAWS ch. 6D, § 13 (requiring health care providers to notify the HPC before making material changes to their operations or governance). *See also* MASS. HEALTH POLICY COMM'N, 958 CMR 7.00: NOTICES OF MATERIAL CHANGE AND COST AND MARKET IMPACT REVIEWS (Jan. 2, 2015), *available at* http://www.mass.gov/anf/docs/hpc/regs-and-notices/consolidated-regulations-circ.pdf (last visited July 14, 2018).

This document is the HPC's sixth CMIR report, examining the proposed merger of Lahey Health System; CareGroup and its component parts, Beth Israel Deaconess Medical Center, New England Baptist Hospital, and Mount Auburn Hospital; Seacoast Regional Health Systems; and each of their corporate subsidiaries into Beth Israel Lahey Health; the acquisition of the Beth Israel Deaconess Care Organization by Beth Israel Lahey Health; and the contracting affiliation between Beth Israel Lahey Health and Mount Auburn Cambridge Independent Practice Association. Based on criteria articulated in Massachusetts' health care cost containment legislation, Chapter 224 of the Acts of 2012, and informed by the facts of the transaction, we analyzed the likely impact of this transaction, relying on the best available data and information. Our work included review of the parties' stated goals for the transaction and the information they provided in support of how and when it would result in efficiencies and care delivery improvements.

Following an opportunity for the parties to respond to these findings in our Preliminary Report, we look forward to publishing our Final Report, including any referrals to other state agencies.

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ACRONYMS AND ABBREVIATIONS

ACO	Accountable Care Organization
AGO	Massachusetts Attorney General's Office
AMC	Academic Medical Center
APCD	All-Payer Claims Database
APM	Alternative Payment Methodology
CHART	Community Hospital Revitalization, Acceleration, and Transformation Program
CHIA	Massachusetts Center for Health Information and Analysis
CHNA	Community Health Needs Assessment
CMIR	Cost and Market Impact Review
CMS	Centers for Medicare and Medicaid Services
CPT	Current Procedural Terminology
DOJ	Department of Justice
DoN	Determination of Need
DPH	Massachusetts Department of Public Health
DRG	Diagnosis Related Group
ED	Emergency Department
EHR	Electronic Health Record
FTC	Federal Trade Commission
GPSR	Gross Patient Service Revenue
HHI	Herfindahl-Hirschman Index
HMO	Health Maintenance Organization
HPC	Health Policy Commission
HSA TME	Health Status Adjusted Total Medical Expenses
IQI	Inpatient Quality Indicator
MSSP	Medicare Shared Savings Program
NPSR	Net Patient Service Revenue
PCP	Primary Care Physician
POS	Point of Service
PPO	Preferred Provider Organization
PSA	Primary Service Area
PSI	Patient Safety Indicator
MA-RPO	Massachusetts Registration of Provider Organizations
TME	Total Medical Expenses
WTP	Willingness to Pay

NAMING CONVENTIONS

Parties and Related Organizations	
Anna Jaques	Anna Jaques Hospital
BayRidge	BayRidge Hospital
BIDCO	Beth Israel Deaconess Care Organization
BIDMC	Beth Israel Deaconess Medical Center
BID-Milton	Beth Israel Deaconess Hospital - Milton
BID-Needham	Beth Israel Deaconess Hospital - Needham
BID-Plymouth	Beth Israel Deaconess Hospital - Plymouth
BILH	Beth Israel Lahey Health
BILH CIN	Beth Israel Lahey Health Clinically Integrated Network
CHA	Cambridge Health Alliance
HMFP	Harvard Medical Faculty Physicians
Lahey	Lahey Health System
Lahey HMC	Lahey Hospital & Medical Center
Lawrence General	Lawrence General Hospital
LHBS	Lahey Health Behavioral Services
LCP ACO	Lahey Clinical Performance Accountable Care Organization
LCPN	Lahey Clinical Performance Network
MACIPA	Mount Auburn Cambridge Independent Practice Association
MetroWest	MetroWest Medical Center
Mt. Auburn	Mount Auburn Hospital
NE Baptist	New England Baptist Hospital
Northeast	Northeast Hospital
Seacoast	Seacoast Regional Health Systems
Winchester	Winchester Hospital

Payers	
BCBS	Blue Cross Blue Shield of Massachusetts
HPHC	Harvard Pilgrim Health Care
THP	Tufts Health Plan

Other Providers	
Atrius	Atrius Health
BMC	Boston Medical Center
Partners	Partners HealthCare System
Steward	Steward Health Care System
UMass	UMass Memorial Health Care

EXECUTIVE SUMMARY

In July 2017, Lahey Health System (Lahey); Beth Israel Deaconess Medical Center (BIDMC); New England Baptist Hospital (NE Baptist); Mount Auburn Hospital (Mt. Auburn); CareGroup, the corporate parent of BIDMC, NE Baptist, and Mt. Auburn; and Seacoast Regional Health Systems (Seacoast), the parent of Anna Jaques Hospital (Anna Jaques), signed an agreement to become corporately affiliated. The parties agreed to form a new corporate entity, now called Beth Israel Lahey Health (BILH),[2] which would become the sole corporate parent of Lahey, NE Baptist, Mt. Auburn, Seacoast, and BIDMC and its owned community hospitals, merging the hospital systems and all of their subsidiaries into one organization.

In October 2017, the parties' affiliated contracting networks, Beth Israel Deaconess Care Organization (BIDCO), Lahey Clinical Performance Network (LCPN), Lahey Clinical Performance Accountable Care Organization (LCP ACO), and Mount Auburn Cambridge Independent Practice Association (MACIPA) also signed an affiliation agreement. Under that agreement, BILH would create a clinically integrated network (BILH CIN) that would own BIDCO, LCPN, and LCP ACO. MACIPA would remain corporately independent, but would participate in the design, management, and governance of the BILH CIN.[3] The BILH CIN would jointly negotiate and establish contracts with payers on behalf of the BILH-owned and contracting affiliate hospitals[4] as well as employed and independent physicians who currently contract through BIDCO, LCPN, LCP ACO, and MACIPA. The parties have described the proposed BILH merger and BILH CIN affiliations as interrelated components of a single transaction.[5]

The parties describe the proposed transaction as a market-based solution to address rising health care expenditures, price disparities, payment variation, and health inequities that have been highlighted by the Health Policy Commission (HPC), Office of the Attorney General, and others.[6] The parties describe themselves as a high-quality and lower-cost alternative to other

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[2] The transaction agreements, notices of material change, and other filings refer to the new corporate entity as "NewCo." The HPC understands that the parties have since named this entity "Beth Israel Lahey Health (BILH)" and refers to the proposed organization by this name throughout the report. *See, e.g.*, Jessica Bartlett, *Beth Israel, Lahey Announce New Name for Mega-Merger*, BOSTON BUSINESS JOURNAL, May 23, 2018, *available at* https://www.bizjournals.com/boston/news/2018/05/23/beth-israel-lahey-announce-new-name-for-mega.html (last visited July 13, 2018).

[3] MOUNT AUBURN CAMBRIDGE INDEPENDENT PRACTICE ASSOCIATION, NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (July 13, 2017), AS REQUIRED UNDER MASS. GEN. LAWS CH. 6D, § 13, *available at* https://www.mass.gov/files/documents/2017/07/zl/20170713-macipa-caregroup-lahey-bidco-srhs-mcn.pdf (last visited July 13, 2018).

[4] The BILH CIN would establish payer contracts on behalf of the following BILH-owned hospitals: BIDMC, BID-Needham, BID-Milton, BID-Plymouth, Lahey HMC, Northeast, Winchester, Anna Jaques, and NE Baptist. It would also establish contracts on behalf of affiliated hospitals that are part of BIDCO's current contracting network, such as CHA and Lawrence General.

[5] LAHEY HEALTH SYSTEM, NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (July 13, 2017), AS REQUIRED UNDER MASS. GEN. LAWS CH. 6D, § 13, *available at* https://www.mass.gov/files/documents/2017/07/zo/20170713-lahey-bidco-caregroup-macipa-srhs-mcn.pdf (last visited July 13, 2018).

[6] *See* OFFICE OF ATTY. GEN. MAURA HEALEY, EXAMINATION OF HEALTHCARE COST TRENDS AND COST DRIVERS PURSUANT TO G.L. C. 12C, § 17, REPORT FOR ANNUAL PUBLIC HEARING UNDER G.L. C. 12C, § 17 (October 13,

providers in the market and claim that their expanded geographic coverage and scope of services will make them a more attractive option for payers and self-insured employers, and that they will strengthen access to affordable and equitable health care.

After a 30-day initial review, the HPC determined that the proposed transaction was likely to have a significant impact on costs and market functioning in Massachusetts and warranted further review.[7] Following an opportunity for the parties to respond to the findings in this Preliminary Report, the HPC will issue a Final Report. This transaction also required a Determination of Need (DoN), and the parties filed their DoN application with the Department of Public Health (DPH) on September 8, 2017. In an April 4, 2018 meeting, the DPH Commissioner and the Public Health Council voted to approve the DoN application with conditions.[8] However, the Notice of DoN does not go into effect until 30 days after the CMIR final report and DPH may rescind or amend an approved Notice of DoN on the basis of findings in a CMIR.[9]

This report is organized into four parts. Part I outlines our analytic approach and the data we utilized. Part II describes the parties to this CMIR and their goals and plans for undertaking the transaction. Part III then presents our findings. We conclude in Part IV. Below is a summary of the findings presented in Part III:

1. **Cost and Market Profile:** Historically, the parties have generally had low to moderate prices and moderate spending levels compared to other Massachusetts providers. As Lahey and BIDCO have grown by affiliating with or acquiring new community hospitals, their prices have not generally risen relative to competitors, and their spending has grown at generally the same rate as the rest of the market based on current available data. While BIDMC and Lahey have had some limited success at retaining local care at community hospitals they have recently acquired, shifts in care to their hospitals following past acquisitions and affiliations have come from both lower-priced and higher-priced hospitals, and spending trends for local patients have remained largely unchanged.

2016), *available at* https://www.mass.gov/files/documents/2016/10/ts/cc-market-101316.pdf (last visited July 13, 2018); MASS. HEALTH POLICY COMM'N, 2015 COST TRENDS REPORT: PROVIDER PRICE VARIATION (Feb. 2016), *available at* https://www.mass.gov/files/documents/2017/01/oj/2015-ctr-ppv.pdf (last visited July 13, 2018); MASS. HEALTH POLICY COMM'N, COMMUNITY HOSPITALS AT A CROSSROADS (Mar. 2016), *available at* http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/publications/community-hospitals-at-a-crossroads.pdf (last visited July 13, 2018); MASS. GEN. COURT, SPECIAL COMMISSION ON PROVIDER PRICE VARIATION REPORT (Mar. 15, 2017), *available at* http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/ppv-report-final.pdf (last visited July 13, 2018).

[7] *See* MASS. HEALTH POLICY COMM'N, MINUTES OF THE HEALTH POLICY COMM'N (Dec. 12, 2017) (voting to initiate the cost and market impact review of the BILH transaction), *available at* https://www.mass.gov/files/documents/2018/01/31/20180103%20-%20Meeting%20Minutes%20-%20December%2012%2C%202017%20Meeting.pdf) (last visited July 13, 2018).

[8] MASS. DEPT. OF PUBLIC HEALTH, NOTICE OF FINAL ACTION DON APPLICATION NO. NEWCO 17082413-TO CAREGROUP INC., LAHEY HEALTH SYSTEM INC., AND SEACOAST REGIONAL HEALTH SYSTEMS, *available at* https://www.mass.gov/files/documents/2018/04/17/newco-decision-letter.pdf (last visited July 13, 2018).

[9] DPH may rescind or amend an approved Notice of DoN if the Commissioner determines that the parties would fail to meet one or more of the specified DoN Factors. *See* 105 CMR 100, https://www.mass.gov/files/documents/2017/10/11/105cmr100.pdf (last visited July 13, 2018).

2. **Cost and Market Impact:** After the transaction, BILH's market share would nearly equal that of Partners HealthCare System (Partners), market concentration would increase substantially, and BILH would have significantly enhanced bargaining leverage with commercial payers. BILH's enhanced bargaining leverage would enable it to substantially increase commercial prices, increasing total health care spending by an estimated $138.3 to $191.3 million annually for inpatient, outpatient, and adult primary care services. Additional spending impacts would be likely for other services; for example, spending for specialty physician services would increase by an additional $29.8 million to $59.7 million annually if the parties obtain similar price increases for these services. These would be *in addition* to the price increases the parties would have otherwise received. These figures are likely to be conservative. The parties could obtain the projected price increases, significantly increasing health care spending, while remaining lower-priced than Partners.

   While plans to shift care to BILH from other providers and to lower-cost settings within the BILH system would generally be cost-reducing, there is no reasonable scenario in which such savings would offset spending increases if BILH obtains the projected price increases. Achieving all of the parties' care redirection goals could save approximately $8.7 million to $13.6 million annually at current price levels, or $5.2 million to $9.5 million annually with price increases, offsetting approximately 3% to 7% of the $138.3 to $191.3 million spending increase from projected price increases.

3. **Quality and Care Delivery Profile:** Historically, the parties have generally performed comparably to statewide average performance on hospital and ambulatory measures of clinical quality, with some variation among their hospitals and physician networks on specific measures. They have each developed unique structures to promote and improve the delivery of high-quality health care and have engaged in a wide variety of targeted care delivery initiatives. They have also participated in various government and commercial payer contracting arrangements that promote quality and efficiency, although their participation in individual payment models varies.

4. **Quality and Care Delivery Impact:** The parties have identified some quality metrics for ongoing measurement post-transaction, but have not yet identified baseline data or transaction-specific quality improvement goals. They are considering plans for integrating their unique quality oversight and management structures, and have stated an intention to expand or integrate current care delivery initiatives, but have not yet developed detailed plans for these efforts. While the parties' ongoing planning process may result in initiatives that could improve patient care, it is unclear whether, to what extent, and on what time frame such initiatives may be adopted or what specific impacts any such initiatives might have.

5. **Access Profile**: The hospitals proposing to join the BILH-owned system generally have a lower mix of Medicaid patients than the overall mix in their service areas and a lower Medicaid mix than comparator hospitals, although some serve a higher share of Medicare patients. In contrast, current BIDCO contracting affiliate hospitals that are anticipated to be BILH contracting affiliates (Cambridge Health Alliance, Lawrence General Hospital,

and MetroWest Medical Center) have a higher mix of Medicaid patients. The parties also provide a smaller proportion of inpatient and emergency department (ED) care to non-white patients and Hispanic patients than other large eastern Massachusetts hospital systems, and their patients come from more affluent communities on average. The parties are important providers of behavioral health services in eastern Massachusetts.

6. **Access Impact:** Based on the current patient mix of the proposed BILH-owned hospitals, the BILH-owned system would have the lowest mix of Medicaid discharges and among the lowest proportion of discharges and ED visits for non-white patients and Hispanic patients compared to other large eastern Massachusetts hospital systems. BILH's patients, on average, would also come from more affluent communities. It is not yet clear whether or how BILH's patient mix would change as a result of the proposed transaction, although the parties do not expect significant changes to their current payer mix. The parties' plans for how they might expand behavioral health services and other clinical services are still under development. Thus, it is not yet clear to what extent the transaction would enhance patient access to needed services.

In summary, while the BILH parties have historically been low-priced to mid-priced and have not increased their prices relative to the market as they have grown through smaller transactions to date, the BILH transaction is likely to enable the parties to obtain significantly higher commercial prices across inpatient, outpatient, and physician services. To the extent that they obtain price increases in line with their enhanced bargaining leverage, there is no reasonable scenario in which shifting patients to BILH or from higher-cost to lower-cost settings within BILH will offset such price increases. To date, the parties have not committed to constraining future price increases, despite the fact that their own financial projections indicate that they would be profitable without significant price increases.

The parties have also claimed that the transaction will result in improvements in the quality of patient care and access to services and are developing plans in these areas. Since their plans are still under development, it is not possible at this time to assess the likelihood or degree to which the transaction would result in improvements to health care quality or access, particularly for underserved and vulnerable patient populations such as lower-income patients and patients with behavioral health needs.

We invite the parties to address these and other concerns documented throughout this report in their written response, including any commitments. Following the period for written response, we look forward to publishing our Final Report, including any referrals or recommendations to other state agencies.

I. Analytic Approach and Data Sources

A. Analytic Approach

The Health Policy Commission (HPC) is tasked with examining impact in three interrelated areas in a cost and market impact review (CMIR):[10]

1. **Costs and Market Functioning**. The HPC may examine factors such as prices, total medical expenses, provider costs, and other measures of health care spending as well as market share, the provider's methods for attracting patient volume and health care professionals, and the provider's impact on competing options for care delivery.

2. **Quality and Care Delivery**. The HPC may examine factors related to the quality of services provided, including patient experience.

3. **Access to Care**. The HPC may also examine the availability and accessibility of services provided, such as the provider's role in serving at-risk, underserved, and government-payer patient populations.

Additionally, the HPC may consider any other factors it deems to be in the public interest, including consumer concerns.[11]

Within this statutory and regulatory framework, the HPC determines those factors most relevant to a given transaction and then gathers detailed information relevant to those factors from the sources discussed below. The HPC examines recent data to establish the parties' ***baseline performance and current trends*** in each of these areas prior to the transaction. The HPC then combines the parties' baseline performance with known details of the transaction, as well as the parties' goals and plans, to project the ***impact of the transaction on baseline performance***. The analytic section of this report is divided into three parts, each addressing the parties' baseline performance and the likely impact of the transaction: Section III.A addresses costs and market functioning, Section III.B addresses quality and care delivery, and Section III.C addresses access to care.

B. Data Sources

To conduct this review, we relied on the documents and data the parties produced to us in response to HPC information requests,[12] the parties' own description of the transaction as presented in their material change notices and application for Determination of Need (DoN) and supporting materials filed with the Massachusetts Department of Public Health (DPH), and

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[10] *See* Mass. Gen. Laws ch. 6D, § 13(d) and 958 CMR 7.06.
[11] *Id*.
[12] The parties provided information to the HPC over the course of more than six months, including responses to the HPC's initial information requests, to clarifying questions about initial submissions, and under their continuing obligation to produce information relevant to the HPC's information requests whenever it becomes available during the course of the HPC's review.

publicly available information published by the parties. The HPC also utilized extensive information from the Massachusetts Registration of Provider Organizations program (MA-RPO)[13] and obtained data and documents from a number of other sources. These include other state agencies such as the Massachusetts Attorney General's Office (AGO) Non-Profit Organizations/Public Charities Division, from which we received audited financial statements for non-profit institutions relevant to our review, and the Center for Health Information and Analysis (CHIA), from which we received provider- and payer-level data,[14] hospital discharge data,[15] and claims-level data from the All-Payer Claims Database (APCD);[16] federal agencies such as the Agency for Healthcare Research and Quality (AHRQ) and the Centers for Medicare and Medicaid Services (CMS); payers such as Blue Cross Blue Shield of Massachusetts (BCBS), Harvard Pilgrim Health Care (HPHC), and Tufts Health Plan (THP); and other market participants. The HPC appreciates the cooperation of all entities that provided information in support of this review.

To assist in our review and analysis of information, the HPC engaged consultants with extensive experience evaluating provider organizations and their impact on health care costs and the health care market, including economists, actuaries, accountants, and experts in health care quality and care delivery. Working with these experts, the HPC comprehensively analyzed the data and other materials detailed above.

Where our analyses rely on nonpublic information produced by the parties or other market participants, MASS. GEN. LAWS ch. 6D, § 13 and 958 CODE MASS. REGS. 7.09 prohibit the HPC from disclosing such information without the consent of the producing entity, except in a preliminary or final CMIR report where "the commission believes that such disclosure should be made in the public interest after taking into account any privacy, trade secret or anti-competitive considerations."[17] Consistent with this requirement, this Preliminary Report contains

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[13] MASS. GEN. LAWS ch. 6D, § 11 and ch. 12C, § 9 (requiring provider organizations to register annually with the HPC and CHIA and provide information on organizational structure and affiliations, and other requested information); *see also* 958 CMR §§ 6.00 (2014) and 957 CMR §§ 11.00 (2017); *2015 Initial Registration*, MASS. HEALTH POLICY COMM'N, http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/material-change-notices-cost-and-market-impact-reviews/registration-of-provider-organizations/2015-initial-registration-data/ (last visited July 12, 2018).

[14] These data include relative price (RP) data and total medical expense (TME) data. *See Relative Price and Provider Price Variation*, CTR. FOR HEALTH INFO. & ANALYSIS, http://www.chiamass.gov/relative-price-and-provider-price-variation/ (last visited July 12, 2018); *Total Medical Expenses*, CTR. FOR HEALTH INFO. & ANALYSIS, http://www.chiamass.gov/total-medical-expenses-2/ (last visited July 7, 2018). The most recent available year of data for relative price was 2016 for hospitals and 2015 for physicians, and the most recent year of data for TME was 2016. In addition to the published data for these metrics, the HPC used the confidential raw data underlying these metrics provided by payers to CHIA. Harvard Pilgrim Health Care (HPHC) updated its 2016 outpatient hospital RP data after the most recent publication of RP by CHIA. For all uses of HPHC outpatient RP data in this report, the HPC used the updated submission of HPHC outpatient data.

[15] *See Case Mix Data*, CTR. FOR HEALTH INFO. & ANALYSIS, http://www.chiamass.gov/case-mix-data/ (last visited July 12, 2018). Our analyses for this report primarily used CHIA hospital discharge data and emergency department (ED) visit data for 2016, with retrospective analyses using data from as early as 2009. The 2017 hospital discharge data were made available too late to be incorporated into most analyses in this report.

[16] The APCD includes medical, pharmacy, and dental claims, as well as information about member eligibility, benefit design, and providers for all payers covering Massachusetts residents. *See All-Payer Claims Database*, CTR. FOR HEALTH INFO. & ANALYSIS, http://www.chiamass.gov/ma-apcd/ (last visited July 13, 2018).

[17] MASS. GEN. LAWS ch. 6D, § 13(c), *amended by* 2013 Mass. Acts 38, § 20.

only limited disclosures of such confidential information where the HPC has determined that the public interest in disclosure outweighs privacy, trade secret, and anti-competitive considerations.

For each analysis, the HPC utilized the most recent and reliable data available. Because data—whether publicly reported or privately held—is usually generated on a variable schedule from entity to entity, the most recent and reliable data primarily reflect 2015 to 2017 data; historic data used in longitudinal analyses are from as early as 2009.[18] We have noted the applicable year for the underlying data throughout this report and, wherever possible, we examined multiple years of data to analyze trends and to report on the consistency of findings over time. For data and materials produced by the parties and other market participants, the HPC tested the accuracy and consistency of the data collected to the extent possible, but also relied in large part on the producing party for the quality of the information provided.

The availability of accurate data, time constraints, and a focus on those analyses that complement—rather than duplicate—the work of other agencies may affect the analyses included in this and other reviews of material changes. Future reviews may encompass new and evolving analyses, depending on the facts of a transaction, recent market developments, areas of public interest, and the availability of improved data resources.[19]

Finally, most of our cost and market analyses focus on the anticipated impact in the commercially insured market. In the commercially insured market, prices for health care services—whether fee-for-service, global budgets, or other forms of alternative payments—are established through private negotiations between payers and providers. The terms of these payer-provider contracts vary widely, with regard to both price and other material terms that impact health care costs and market functioning.[20]

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[18] Some data sources use fiscal year rather than calendar year data, notably CHIA's hospital discharge data and Hospital Profiles. Therefore, hospital discharge and Hospital Profiles data presented here are fiscal year data.

[19] For example, this review includes a new "willingness-to-pay" analysis of the impact of the proposed transaction on competition in the health care market. *See* Section III.A.5 for details of this analysis and our findings.

[20] *See, e.g.*, OFFICE OF ATT'Y GEN. MARTHA COAKLEY, EXAMINATION OF HEALTH CARE COST TRENDS AND COST DRIVERS PURSUANT TO G.L. C. 118G, § 6 ½(b): REPORT FOR ANNUAL PUBLIC HEARING at 40-43 (Mar. 16, 2010), *available at* http://www.mass.gov/ago/docs/healthcare/2010-hcctd-full.pdf (last visited July 13, 2018); MASS. HEALTH POLICY COMM'N, 2015 COST TRENDS REPORT: PROVIDER PRICE VARIATION (Jan. 2016), *available at* http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/publications/2015-ctr-ppv.pdf (last visited July 13, 2018).

II. Overview of the Transaction and the Parties

A. The Proposed Transaction

In July 2017, Lahey Health System (Lahey); Beth Israel Deaconess Medical Center (BIDMC); New England Baptist Hospital (NE Baptist); Mount Auburn Hospital (Mt. Auburn); CareGroup, the corporate parent of BIDMC, NE Baptist, and Mt. Auburn; and Seacoast Regional Health Systems (Seacoast), the parent of Anna Jaques Hospital (Anna Jaques), signed an agreement to become corporately affiliated. The parties agreed to form a new corporate entity, now called Beth Israel Lahey Health (BILH),[21] which would become the sole corporate parent of NE Baptist, Mt. Auburn, Lahey, Seacoast, and BIDMC and its owned community hospitals, merging the hospital systems and all of their subsidiaries into one organization.

In October 2017, the parties' affiliated contracting networks, Beth Israel Deaconess Care Organization (BIDCO), Lahey Clinical Performance Network (LCPN), Lahey Clinical Performance Accountable Care Organization (LCP ACO), and Mount Auburn Cambridge Independent Practice Association (MACIPA) also signed an affiliation agreement. Under that agreement, BILH would create a clinically integrated network (BILH CIN) that would own BIDCO, LCPN, and LCP ACO. MACIPA would remain corporately independent, but would participate in the design, management, and governance of the BILH CIN.[22] The BILH CIN would jointly negotiate and establish contracts with payers on behalf of both owned and affiliated hospitals[23] as well as employed and independent physicians who currently contract through BIDCO, LCPN, LCP ACO, and MACIPA. The parties have described the proposed BILH merger and BILH CIN affiliations as interrelated components of a single transaction.[24] The new proposed relationships between the parties are summarized in the organizational chart and table below.

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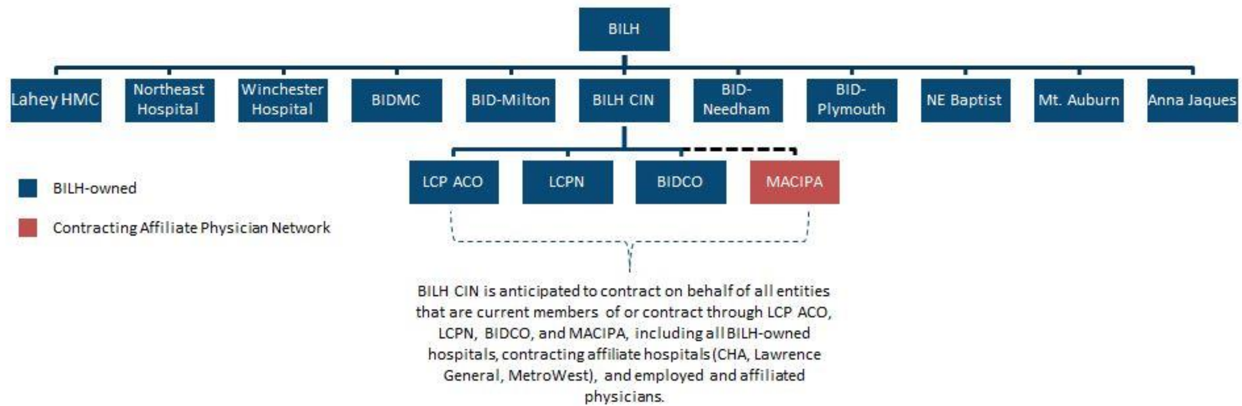
[21] The transaction agreements refer to the new corporate entity as "NewCo." The HPC understands that the parties have since named this entity "Beth Israel Lahey Health (BILH)" and we refer to the proposed organization by this name throughout the report. *See, e.g.*, Jessica Bartlett, *Beth Israel, Lahey Announce New Name for Mega-Merger*, Boston Business Journal, May 23, 2018, *available at* https://www.bizjournals.com/boston/news/2018/05/23/beth-israel-lahey-announce-new-name-for-mega.html (last visited July 13, 2018).

[22] Mount Auburn Cambridge Independent Practice Association, Notice Of Material Change To The Health Policy Comm'n (July 13, 2017), as required under Mass. Gen. Laws ch. 6D, § 13, *available at* https://www.mass.gov/files/documents/2017/07/zl/20170713-macipa-caregroup-lahey-bidco-srhs-mcn.pdf (last visited July 13, 2018).

[23] BILH would establish payer contracts on behalf of the following BILH-owned hospitals: BIDMC, Beth Israel Deaconess Hospital-Needham, Beth Israel Deaconess Hospital-Milton, and Beth Israel Deaconess Hospital-Plymouth, Lahey Hospital & Medical Center, Northeast Hospital, Winchester Hospital, Anna Jaques, and NE Baptist. It would also establish contracts on behalf of affiliated hospitals that are part of BIDCO's current contracting network, such as Cambridge Health Alliance and Lawrence General Hospital.

[24] Lahey Health System, Notice of Material Change to the Health Policy Comm'n (July 13, 2017), as required under Mass. Gen. Laws ch. 6D, § 13 [hereinafter Lahey Notice Of Material Change], *available at* https://www.mass.gov/files/documents/2017/07/zo/20170713-lahey-bidco-caregroup-macipa-srhs-mcn.pdf (last visited July 13, 2018).

Proposed BILH Organizational Chart (Hospital and Physician Network Entities Only)



Source: HPC interpretation based on information provided by the parties.
Note: MetroWest is a member of BIDCO, but is not currently participating in any BIDCO payer contracts.[25]

The table below shows the *current* corporate and contracting affiliations of the parties, as well as their *proposed* affiliations with BILH.

[25] MetroWest Medical Center (MetroWest) became a member of BIDCO in 2017, but does not yet participate in payer contracts established by BIDCO. MASSACHUSETTS REGISTRATION OF PROVIDER ORGANIZATIONS 2017 FILING: BETH ISRAEL DEACONESS CARE ORGANIZATION (Jan. 18, 2018) [hereinafter BIDCO 2017 MA-RPO FILING]. For more information about MetroWest joining BIDCO, see MASS. HEALTH POLICY COMM'N, REVIEW OF BETH ISRAEL DEACONESS CARE ORGANIZATION'S PROPOSED CONTRACTING AFFILIATION WITH NEW ENGLAND BAPTIST HOSPITAL AND NEW ENGLAND BAPTIST CLINICAL INTEGRATION ORGANIZATION (HPC-CMIR-2015-1) AND BETH ISRAEL DEACONESS CARE ORGANIZATION'S PROPOSED CONTRACTING AFFILIATION AND BETH ISRAEL DEACONESS MEDICAL CENTER'S AND HARVARD MEDICAL FACULTY PHYSICIANS' PROPOSED CLINICAL AFFILIATION WITH METROWEST MEDICAL CENTER (HPC-CMIR-2015-2 AND HPC-CMIR-2016-1) PURSUANT TO M.G.L. CH. 6D, § 13 FINAL REPORT (Sept. 7, 2016) [hereinafter 2016 BID CMIR FINAL REPORT], *available at* https://www.mass.gov/files/documents/2016/09/xi/bidco-nebh-metrowest-bidmc-final-cmir.pdf (last visited July 3, 2018). In an effort to be conservative and in recognition of the unique status of MetroWest as a member of BIDCO, and an anticipated contracting affiliate of BILH, but not a current participant in BIDCO payer contracts, in this report the HPC generally does not include MetroWest in analyses of market share, market concentration, or other analyses relating to competition and potential price changes. We do include MetroWest in discussion of the size of the BILH contracting network and in analyses where we are specifically looking at BILH contracting affiliate hospitals (e.g., contracting affiliate payer mix).

<table>
<tr><th>Entity Name</th><th colspan="2">Current Corporate Affiliation</th><th>Current Contracting Affiliation</th><th>Post-Transaction Corporate and Contracting Relationship</th></tr>
<tr><td>Lahey HMC</td><td colspan="2" rowspan="5">Lahey</td><td rowspan="5">Lahey</td><td rowspan="13">BILH owned</td></tr>
<tr><td>Northeast</td></tr>
<tr><td>Winchester</td></tr>
<tr><td>LCP ACO</td></tr>
<tr><td>LCPN</td></tr>
<tr><td>Mt. Auburn</td><td rowspan="2">Independent</td><td rowspan="6">CareGroup[26]</td><td>Independent</td></tr>
<tr><td>NE Baptist</td><td rowspan="10">BIDCO</td></tr>
<tr><td>BIDMC</td><td rowspan="4">BID-owned</td></tr>
<tr><td>BID-Milton</td></tr>
<tr><td>BID-Needham</td></tr>
<tr><td>BID-Plymouth</td></tr>
<tr><td>BIDCO</td><td colspan="2" rowspan="4">Independent</td></tr>
<tr><td>Anna Jaques</td></tr>
<tr><td>CHA</td><td rowspan="4">BILH contracting affiliates; no change to corporate affiliation</td></tr>
<tr><td>Lawrence General</td></tr>
<tr><td>MetroWest[27]</td><td colspan="2">Tenet Healthcare Corporation</td></tr>
<tr><td>MACIPA</td><td colspan="2">Independent</td><td>Independent</td></tr>
</table>

Notes: For simplicity, this chart omits some corporate subsidiaries of the parties, and does not show physician groups that contract through the LCPN, LCP ACO, and BIDCO contracting networks, some of which are owned by the parties and some of which are corporately independent.

The parties have described the governance model for BILH as involving both centralized oversight and management as well as local governance. BILH would be governed by a single board and select administrative functions would be provided at the BILH level. However, local hospital management and boards would continue to oversee day-to-day operations. The parties state that this shared governance would allow the system to take advantage of local knowledge and accountability to serve each hospital's community and address its unique needs, while gaining financial and operational efficiency by consolidating certain functions in a strong central board.[28]

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[26] CareGroup is a corporate entity under which BIDMC, Mt. Auburn, and NE Baptist jointly borrow funds and purchase services, but do not jointly contract with payers or share centralized operations. Thus, while some of the parties are currently members of CareGroup, we do not generally view them or treat them as corporately integrated in this report. *See* "What is CareGroup?," *infra* page 14.

[27] MetroWest is not yet participating in BIDCO payer contracts. *See supra* note 25.

[28] APPLICATION BY LAHEY HEALTH SYSTEM, CAREGROUP, AND SEACOAST REGIONAL HEALTH SYSTEMS FOR DETERMINATION OF NEED FOR TRANSFER OF OWNERSHIP, Response to Questions 2.1, 6.5, 6.6, and 13, Factor 1 at 17 (Sept. 7, 2017), [hereinafter DON NARRATIVE], *available at* https://www.mass.gov/files/documents/2017/09/zj/don-application-response-newco.pdf (last visited July 13, 2018).

The parties have stated a goal of full economic and clinical integration across the proposed BILH system, although many of the details of how this goal would be achieved are still being developed. The parties have a robust planning process and have formed approximately 30 working groups to explore how they might integrate clinical and administrative services. The groups consist of representatives from the parties and are responsible for recommending potential plans for future BILH structures and initiatives. Each group has a specific focus, including, for example: clinical collaboration, information technology, clinical support services, care continuum, finance, population health management, contracted services, and shared services. Some of the groups' proposals are relatively detailed while others are still early in development. The parties have stated that, in many cases, they are legally restricted from sharing information and further developing their plans while they remain separate corporate entities. In all cases, the parties have emphasized that this planning process is ongoing and any final decisions regarding integration and specific initiatives would not be made until after the transaction is finalized.

For example, the parties have stated that they plan to expand access to community-based services and promote access to convenient, low-cost care by investing in expanding specific services lines, including primary care, behavioral health, cancer care, and urgent care. Similarly, they have stated that they plan to build upon their individual quality improvement strategies through improved access to patient information and the sharing of best practices, evidence-based medicine, and quality improvement infrastructure.[29] They have also expressed a commitment to leverage existing expertise to improve quality, and have identified some measures they would monitor as an integrated system post-transaction. However, they have not yet decided on specific targets, timelines, or financing for any such initiatives; nor have they compared the expected benefits of these activities relative to activities that each system would pursue absent the proposed transaction.[30] These goals for quality improvement and service line expansions are discussed in more detail in Sections III.B and III.C, respectively.

The parties also expect that the transaction would improve their financial performance. The financial projections they have provided for the BILH system indicate that they expect they would achieve positive margins as a combined system, even if they do not obtain price increases as a result of the proposed transaction.[31] They expect higher revenue as a result of increases in volume, and decreased expenses as a result of savings in supplies and non-clinical functional areas. These include joint purchasing, shared administrative functions, revenue cycle

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[29] LAHEY NOTICE OF MATERIAL CHANGE, *supra* note 24.

[30] The parties would be required to report baseline data, measure specifications, and timelines to the DoN program six months after the transaction is concluded under the conditions imposed by the DoN program. See Section III.B.2 for more detail.

[31] BDO USA LLP, ANALYSIS OF THE REASONABLENESS OF ASSUMPTIONS USED FOR AND FEASIBILITY OF PROJECTED FINANCIALS OF: LAHEY HEALTH SYSTEM, INC. BETH ISRAEL DEACONESS MEDICAL CENTER, INC. MOUNT AUBURN HOSPITAL NEW ENGLAND BAPTIST HOSPITAL AND ANNA JAQUES HOSPITAL COMBINED TOGETHER AS NEWCO (Sept. 7, 2017) [hereinafter BDO REPORT], *available at* https://www.mass.gov/files/documents/2017/09/zv/don-cpa-certification-lahey.pdf (last visited July 13, 2018). Information provided confidentially by the parties indicates that the parties' "low," "medium," and "high" performance financial projections assume the same level of price increases as their "baseline" scenario, which trends forward the parties' current financial projections assuming the parties would gain no financial benefits, including no price increases as a result of the proposed merger.

management, and improved debt financing.[32] The parties have indicated that they intend to retain any such savings to fund their operations and "reinvest in services and programs needed to better care for [the BILH] patient panel."[33] These financial goals and projections are discussed in more detail in Section III.A.7.

The parties describe the proposed transaction as a market-based solution to address rising health care expenditures, price disparities, payment variation, and health inequities that have been highlighted by the HPC, AGO, and others.[34] In particular, the parties claim that BILH will "introduce competition, particularly price competition, into the marketplace" and generally position themselves as a high-quality and lower-cost alternative to other providers in the market.[35] They claim that their expanded geographic coverage and scope of services will make them a more attractive option to payers and self-insured employers and that they will strengthen access to affordable and equitable health care for Massachusetts residents by:

1) "Re-investing in advanced APMs to assume increased responsibility for health outcomes and efficiencies in care delivery (the 'right care');

2) Reducing outmigration to costlier sites of care when equivalent or better quality care is accessible in the local community (e.g., reducing "community appropriate" inpatient volume at academic medical centers and teaching hospitals) resulting in more patients treated closer to home at a reduced cost (the 'right place');

3) Providing a high-value, full continuum and geographically distributed alternative to peer organizations that is easily accessible to all patients and their families no matter their health concern (the 'right time'); and

4) Driving development of new insurance products with commercial payers that incentivize the utilization of high-quality, lower-cost providers and contribute to the reduction of premiums (the 'right price')."[36]

Finally, the parties have suggested that the transaction will better allow them to achieve other goals, stating that BILH will be better positioned to "properly incent providers within the delivery system to succeed under value based payment methodologies"; "optimally utilize the combined ambulatory, inpatient, community, tertiary, home care, and post-acute assets of [BILH] based on patient need and convenience"; "leverage existing community partnerships and evidence-based programs to maximum effect, strengthening… public health and prevention expertise and efforts"; "provide streamlined transitions of care and navigational supports to patients"; "bolster clinical programs and services to expand access"; "strengthen teaching and

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[32] *See* DoN Narrative, *supra* note 28. The parties' financial models assume that the proposed merger would result in savings in supply costs and non-clinical functional areas of between 1.5% and 3%.
[33] DoN Narrative, *supra* note 28, at 17.
[34] *See, e.g.*, Office of Atty. Gen. Maura Healey, Examination of Healthcare Cost Trends and Cost Drivers Pursuant to G.L. c. 12C, § 17, Report for Annual Public Hearing Under G.L. c. 12C, § 17 (October 13, 2016), *available at* https://www.mass.gov/files/documents/2016/10/ts/cc-market-101316.pdf (last visited July 13, 2018)
[35] DoN Narrative, *supra* note 28, at 14.
[36] *Id*. at 4-5.

research programs"; and "achieve operational synergies, economies of scale, and efficiencies…."[37] Section III examines these claims in light of our analyses of the parties' historic performance and the likely impact of the transaction on health care costs and market functioning, quality and care delivery, and access to care.

The remainder of this section describes each of the parties to the transaction in greater detail.

B. Beth Israel Deaconess Medical Center

Founded in 1996 by the merger of Beth Israel Hospital and New England Deaconess Hospital, BIDMC[38] is the academic medical center (AMC) anchor for a non-profit health care system (BID-owned system), the third-largest in the Commonwealth by net patient service revenue (NPSR).[39] The system includes BIDMC, the Commonwealth's fifth largest acute hospital,[40] and three owned community hospitals:

- BIDMC, a 669-bed Academic Medical Center
- Beth Israel Deaconess Hospital-Needham (BID-Needham), a 41-bed hospital acquired in 2002[41]
- Beth Israel Deaconess Hospital-Milton (BID-Milton), a 68-bed hospital acquired in 2012[42]
- Beth Israel Deaconess Hospital-Plymouth (BID-Plymouth), a 169-bed hospital acquired in 2014[43]

In total, the BID-owned system includes 947 staffed beds across eastern Massachusetts.[44] The system also owns two physician practices, Jordan Physician Associates (69 physicians) and

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[37] *Id*. at 5-6.
[38] *A History of Improving Care for All,* BETH ISRAEL DEACONESS MEDICAL CENTER, https://www.bidmc.org/about-bidmc/a-history-of-improving-care-for-all (last visited July 13, 2018).
[39] See the Data Appendix, Figure 1, for more information on the Commonwealth's seven largest provider systems by NPSR.
[40] CTR. FOR HEALTH INFO. & ANALYSIS, HOSPITAL PROFILE: BETH ISRAEL DEACONESS MEDICAL CENTER (Jan. 2018), *available at* http://www.chiamass.gov/assets/docs/r/hospital-profiles/2016/bi-deac.pdf (last visited July 13, 2018) (BIDMC is the fifth largest hospital by staffed bed count).
[41] *A History of Improving Care for All,* BETH ISRAEL DEACONESS MEDICAL CENTER, https://www.bidmc.org/about-bidmc/a-history-of-improving-care-for-all (last visited July 13, 2018); CTR. FOR HEALTH INFO. & ANALYSIS, HOSPITAL PROFILE: BID-NEEDHAM HOSPITAL (JAN. 2018), *available at* http://www.chiamass.gov/assets/docs/r/hospital-profiles/2016/bid-need.pdf (last visited July 13, 2018).
[42] CTR. FOR HEALTH INFO. & ANALYSIS, HOSPITAL PROFILE: BETH ISRAEL DEACONESS HOSPITAL - MILTON (Jan. 2018), *available at* http://www.chiamass.gov/assets/docs/r/hospital-profiles/2016/milton.pdf (last visited July 13, 2018).
[43] CTR. FOR HEALTH INFO. & ANALYSIS, HOSPITAL PROFILE: BETH ISRAEL DEACONESS HOSPITAL - PLYMOUTH (Jan. 2018), *available at* http://www.chiamass.gov/assets/docs/r/hospital-profiles/2016/bid-plymouth.pdf (last visited July 13, 2018).

Affiliated Physicians Group (APG), also known as BID Healthcare (128 physicians).[45] APG operates primary care practices in the system's community hospital service areas.

BIDMC has an affiliation with Harvard Medical Faculty Physicians at Beth Israel Deaconess Medical Center (HMFP), which employs many of the physicians at BIDMC and its owned community hospitals.[46] HMFP consists of approximately 1,306 physicians, including approximately 209 primary care physicians (PCPs).[47] HMFP is corporately distinct from the BID-owned system, but has an exclusive affiliation agreement with the system for patient care, research, and teaching services, and comprises the majority of medical staff at BIDMC.[48] HMFP also employs the physicians who staff APG's primary care practices, and provides some specialty services to BIDMC's clinical affiliates. While HMFP is not a party to the proposed transaction, the HPC understands that the affiliation agreement between BIDMC and HMFP is expected to continue.

What is CareGroup?

BIDMC and its owned community hospitals, along with Mt. Auburn and NE Baptist, are the members of CareGroup. CareGroup is a corporate entity under which these provider organizations jointly borrow funds and purchase services, but do not jointly contract with payers or share centralized operations. In contrast to the current CareGroup relationship, BIDMC, Mt. Auburn, NE Baptist, Lahey, and Anna Jaques plan to be operationally integrated under the proposed transaction, including through a joint governance structure, shared finances, and joint contracting with payers. For further details on the parties' planned structure under the proposed transaction, see Section II.A.

The BID-owned system is currently the third largest provider system in Massachusetts by total NPSR and its total net assets are second in size only to

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[44] BIDMC plans to build a new 10-story, inpatient building on its West Campus, which would contain up to 128 single-bedded medical/surgical rooms and up to 30 intensive care and critical care rooms, with a total of 69 net new beds. *See BIDMC Task Force Meeting*, BOSTON PLANNING AND DEVELOPMENT AGENCY (Jan. 22, 2018), http://www.bostonplans.org/news-calendar/calendar/2018/01/22/bidmc-task-force-meeting (last visited July 12, 2018). The proposal would be subject to review by DPH's DoN program. *See New Inpatient Building,* BETH ISRAEL DEACONESS MEDICAL CENTER, https://www.bidmc.org/patient-and-visitor-information/new-inpatient-building (last visited July 13, 2018).

[45] HPC analysis of MA-RPO data for 2017; APG's legal name is Medical Care of Boston Management Corporation.

[46] BETH ISRAEL DEACONESS MEDICAL CENTER (BIDMC), NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (Jan. 14, 2016), AS REQUIRED UNDER MASS. GEN. LAWS CH. 6D, § 13, *available at* https://www.mass.gov/files/documents/2017/01/xb/20160114-bidmc-mw-hmfp.pdf (last visited July 13, 2018); HARVARD MEDICAL FACULTY PHYSICIANS (HMFP), NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (Jan. 14, 2016), AS REQUIRED UNDER MASS. GEN. LAWS CH. 6D, § 13, *available at* https://www.mass.gov/files/documents/2017/01/nt/20160115-hmfp-bidmc-mwmc-2.pdf (last visited July 13, 2018); METROWEST MEDICAL CENTER, NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (JAN. 14, 2016), AS REQUIRED UNDER MASS. GEN. LAWS CH. 6D, § 13, *available at* https://www.mass.gov/files/documents/2017/01/qz/20160114-metrowest-bidmc-hmfp-mcn.pdf (last visited July 13, 2018). Many of HMFP's physicians are also faculty members at Harvard Medical School.

[47] Counts of physicians in HMFP are based on information provided by BIDCO to the HPC's MA-RPO program for 2017.

[48] BETH ISRAEL DEACONESS MEDICAL CENTER (BIDMC), NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (July 29, 2013), AS REQUIRED UNDER MASS. GEN. LAWS CH. 6D, § 13, [hereinafter BIDMC-JORDAN MCN] *available at* https://www.mass.gov/files/documents/2016/07/vx/beth-israel-deaconess-jordan-hospital.pdf (last visited July 13, 2018).

Partners HealthCare System (Partners).[49] The system has a strong financial balance sheet. At the end of fiscal year 2016, it had an above-average reserve of days cash on hand, a high current ratio, and a low debt-to-capital ratio relative to other large Massachusetts provider systems.[50] It generated a positive operating margin and total margin every year since 2012, although the results have declined in recent years. Its average age of plant is higher than that of comparator systems, suggesting a potential need for new capital investment.[51]

BIDMC has clinical affiliations with many providers throughout the state. BIDMC is affiliated with Community Care Alliance, a partnership of six community health centers, where BIDMC physicians provide specialty care.[52] Additionally, BIDMC is the preferred referral partner for tertiary and quaternary services for the BID-owned community hospitals as well as for BIDCO contracting affiliate hospitals Cambridge Health Alliance (CHA), Lawrence General Hospital (Lawrence General), and Anna Jaques, and provides clinical support across many of their specialty service lines. BIDMC also has close clinical relationships with Signature Healthcare Brockton Hospital (Signature Brockton),[53] Atrius Health (Atrius),[54] and BIDCO contracting affiliate hospital NE Baptist.[55]

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[49] The HPC reviewed audited financial statements from 2012 to 2016 for six of the seven largest provider systems in Massachusetts, measured by NPSR. These were, in descending order, Partners, UMass, the BID-owned system, Steward Health Care System, Lahey, Atrius Health, and Wellforce (including Tufts Medical Center, Circle Health, and MelroseWakefield Healthcare, formerly Hallmark Health System). These financial statements are available from the Charities Division of the Massachusetts AGO at *Non-Profits & Charities Document Search*, OFFICE OF ATT'Y. GEN. MAURA HEALEY, http://www.charities.ago.state.ma.us/ (last visited July 13, 2018). Current financial statements were not available from Steward; the HPC therefore reviewed financial information on Steward published by the AGO as part of its assessment and monitoring efforts, as well as fiscal year 2015 financial information provided to the MA-RPO program. *See* OFFICE OF ATT'Y. GEN. MAURA HEALEY, REPORTS ON STEWARD HEALTH CARE SYSTEM PURSUANT TO 2010 AND 2011 ASSESSMENT & MONITORING AGREEMENTS 33-38 (Dec. 30, 2015), *available at* http://www.mass.gov/ago/docs/healthcare/shcs-report-123015.pdf (last visited July 13, 2018). Steward's ranking by NPSR is based on fiscal year 2015.

[50] Days cash on hand is the number of days of operating expenses that the system could pay with its current available cash, cash equivalents, and short-term investments. Current ratio measures the systems' ability to meet its current liabilities with its current assets. Debt to capitalization compares how much debt a system has to its overall assets. See the Data Appendix, Figure 1, for more detail.

[51] *See* Data Appendix, Figure 1.

[52] The six community health centers are: Bowdoin Street Health Center, which operates under the BIDMC hospital license, Charles River Community Health, The Dimock Center, Fenway Health, Outer Cape Health Services, and South Cove Community Health Center. *See Community Care Alliance*, BETH ISRAEL DEACONESS MEDICAL CTR., https://www.bidmc.org/about-bidmc/helping-our-community/community-initiatives/community-benefits/bidmcs-community-health-centers/community-care-alliance (last visited July 12, 2018).

[53] Since 2013, BIDMC has had a clinical relationship with Signature Brockton, under which BIDMC is a preferred provider for Signature Brockton, BIDMC physicians provide select specialty services to Signature Brockton patients, and Signature Brockton hosts BIDMC medical and surgical residents. MASSACHUSETTS REGISTRATION OF PROVIDER ORGANIZATIONS 2017 FILING: BETH ISRAEL DEACONESS MEDICAL CENTER (May 11, 2018).

[54] BIDMC has been affiliated with Atrius, the state's largest independent physician group, since 2010. BIDMC and Atrius have established shared systems, including for bi-directional electronic medical record access, and processes to better coordinate care and patient experience for shared patients. BIDMC and its owned community hospitals are preferred providers of tertiary care for Atrius patients. *See id.*; *Our Affiliated Hospitals,* ATRIUS HEALTH, https://www.atriushealth.org/about-us/our-care-network/our-affiliated-hospitals (last visited July 13, 2018).

[55] NE Baptist, BIDMC, and HMFP have been clinically affiliated since 2014, when they began developing a joint musculoskeletal care delivery system, anchored by a joint venture. The goals of the affiliation included creating a broader network of NE Baptist-branded musculoskeletal care, integrating HMFP into NE Baptist's medical staff, and future development of a new NE Baptist hospital facility; NE Baptist and BIDMC have so far focused on

BIDMC, its owned community hospitals, and its owned and affiliated physician groups jointly contract with payers through the contracting organization BIDCO, which is described in more detail in the next section.

C. BETH ISRAEL DEACONESS CARE ORGANIZATION (BIDCO)

Founded in 2012 by BIDMC and the Beth Israel Deaconess Physician Organization,[56] BIDCO is a provider organization that operates clinical integration programs and contracts with payers on behalf of its members, the majority of which are not corporately affiliated. BIDCO describes itself as "a value-based physician and hospital network and an Accountable Care Organization" that offers "physician groups and hospitals the structure to contract together, share risk, and build centralized care management systems, with the goal of providing the highest quality care in the most cost-efficient way."[57]

BIDCO establishes payer contracts on behalf of its members and provides its members with information sharing and clinical integration structures designed to support risk contract success, including data gathering and analysis, and care management programs focused on improving quality and efficiency for specific risk patient populations. BIDCO was a Medicare Pioneer Accountable Care Organization (ACO) from 2011 to 2016 and joined the Medicare Shared Savings Program (track 3) in 2017.[58] In 2017, BIDCO became an HPC-certified ACO and began performance on a MassHealth ACO contract in 2018. BIDCO establishes both risk and non-risk commercial, managed Medicare, and managed Medicaid contracts on behalf of members, including with the three largest commercial payers in the Commonwealth (for its hospitals and physicians) and some of the smaller commercial payers (for its physicians only).[59] While all BIDCO members participate in BIDCO commercial contracts, only a subset participate in BIDCO's MassHealth ACO contracts; for example, both CHA and Lawrence General have created their own MassHealth ACOs.

Since its creation in 2012 by BIDMC and the Beth Israel Deaconess Physician Organization (including HMFP), eight additional hospitals and five physician groups have joined

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integration of services and care processes at their main campus locations. *See* BETH ISRAEL DEACONESS MEDICAL CENTER (BIDMC), NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (Mar. 18, 2014), AS REQUIRED UNDER MASS. GEN. LAWS CH. 6D, § 13, *available at* http://www.mass.gov/anf/docs/hpc/material-change-notices/hpc-notice-of-material-change-form-bidmc.pdf (last visited July 13, 2018); HARVARD MEDICAL FACULTY PHYSICIANS (HMFP), NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (Mar. 18, 2014), AS REQUIRED UNDER MASS. GEN. LAWS CH. 6D, § 13, *available at* http://www.mass.gov/anf/docs/hpc/material-change-notices/hpc-notice-of-material-change-hmfp-bidmc-nebh-strategic-relationship-agreement.pdf (last visited July 13, 2018); NEW ENGLAND BAPTIST HOSPITAL, NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (Mar. 18, 2014), AS REQUIRED UNDER MASS. GEN. LAWS CH. 6D, § 13, *available at* http://www.mass.gov/anf/docs/hpc/material-change-notices/hpc-notice-of-material-change-form-nebh.pdf (last visited July 13, 2018).

[56] We understand that HMFP will retain its role jointly governing BIDCO until the structure and governance of BIDCO are fully incorporated into that of the BILH CIN.

[57] *See About Us,* BETH ISRAEL DEACONESS CARE ORGANIZATION, http://www.bidpo.org/aboutus/index.html (last visited July 10, 2018).

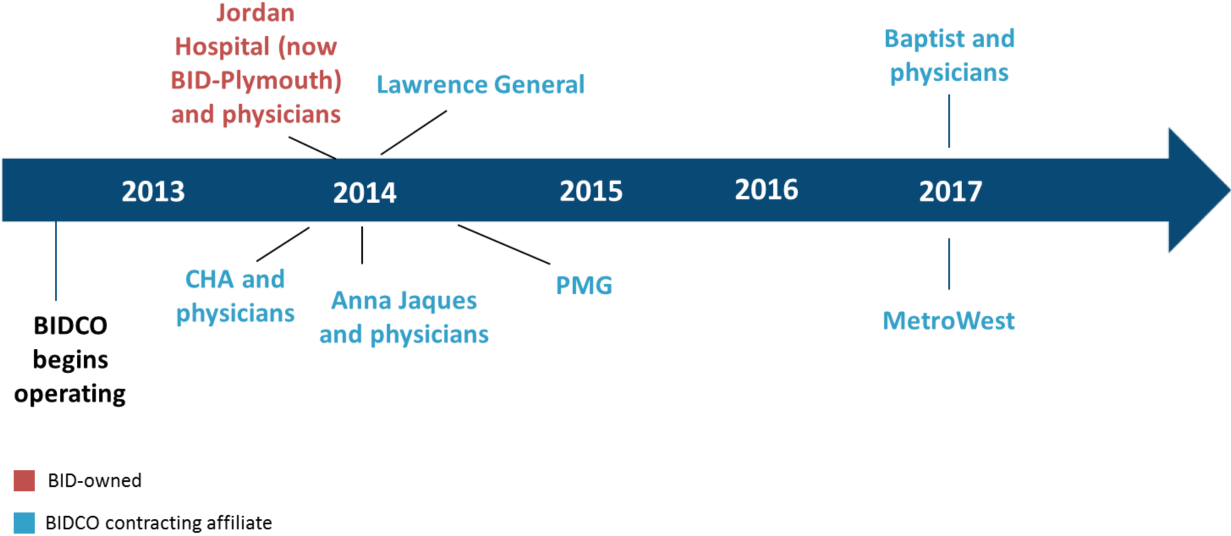
[58] See Section III.B.5 for more details on BIDCO's participation in Medicare ACOs.

[59] 2016 BID CMIR FINAL REPORT, *supra* note 25, at 16 and Exh. A, at 11.

BIDCO. All of BIDMC's owned hospitals and physician groups are members of and contract with payers through BIDCO: BID-Needham; BID-Milton; and BID-Plymouth and its affiliated physician group, Jordan Physician Associates (all joined in 2014). BIDCO also contracts with payers on behalf of member contracting affiliates that are not owned by BIDMC: CHA and its affiliated physician group the Cambridge Health Alliance Physician Organization (joined in early 2014); Anna Jaques and its affiliated physician group Whittier IPA (joined in 2014); PMG Physician Associates (joined in 2014); Lawrence General (joined in 2014); and NE Baptist and its affiliated physician group New England Baptist Clinical Integration Organization (NEBCIO) (joined in 2017).[60] MetroWest Medical Center (MetroWest) also joined BIDCO in 2017, but does not yet participate in any payer contracts established by BIDCO.[61]

[60] BETH ISRAEL DEACONESS CARE ORGANIZATION (BIDCO), NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (Aug. 1, 2013), AS REQUIRED UNDER MASS. GEN. LAWS. CH. 6D, § 13, *available at* https://www.mass.gov/files/documents/2016/07/nk/bidco-cha-notice-of-material-change-bidco.pdf (last visited July 13, 2018); BETH ISRAEL DEACONESS CARE ORGANIZATION (BIDCO), NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (Aug. 8, 2013), AS REQUIRED UNDER MASS. GEN. LAWS. CH. 6D, § 13, *available at* https://www.mass.gov/files/documents/2016/07/ng/bidco-jordan-mcn.pdf (last visited July 13, 2018); BETH ISRAEL DEACONESS CARE ORGANIZATION (BIDCO), NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (Feb. 28, 2014), AS REQUIRED UNDER MASS. GEN. LAWS. CH. 6D, § 13, [hereinafter BIDCO-ANNA JAQUES MCN] *available at* https://www.mass.gov/files/documents/2016/07/te/bidco-hpc-notice-02-28-2014.pdf (last visited July 13, 2018); BETH ISRAEL DEACONESS CARE ORGANIZATION (BIDCO), NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (May 7, 2014), AS REQUIRED UNDER MASS. GEN. LAWS. CH. 6D, § 13, *available at* https://www.mass.gov/files/documents/2016/07/nn/bidco-lgh-hcp-notice-5-6-14.pdf (last visited July 13, 2018); BETH ISRAEL DEACONESS CARE ORGANIZATION (BIDCO), NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (July 28, 2014), AS REQUIRED UNDER MASS. GEN. LAWS CH. 6D, § 13, *available at* https://www.mass.gov/files/documents/2016/07/vu/beth-israel-deaconess-care-organization-mcn.pdf (last visited July 13, 2018); BIDCO-NE BAPTIST-NEBCIO NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (Oct. 2, 2015), AS REQUIRED UNDER MASS. GEN. LAWS CH. 6D, § 13, *available at* https://www.mass.gov/files/documents/2016/10/qc/20151002-bidco-nebh-nebcio.pdf (last visited July 13, 2018); BIDCO-METROWEST NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (OCT. 30, 2015), AS REQUIRED UNDER MASS. GEN. LAWS CH. 6D, § 13, *available at* https://www.mass.gov/files/documents/2016/10/ry/20151030-notice-of-material-change-bidco-mwmc.pdf (last visited July 13, 2018).

[61] *See* BIDCO 2017 MA-RPO FILING, *supra* note 25.



BIDCO now includes nine hospitals and more than 2,500 physicians, including 539 PCPs.[62]

[62] BIDCO 2017 MA-RPO FILING, *supra* note 25. More than half of the BIDCO physicians are employed by HMFP.

Current BIDCO Hospital Members

	BIDCO Hospital Members	City/Town	CHIA Hospital Cohort	Staffed Beds
BID-owned	Beth Israel Deaconess Medical Center (BIDMC)	Boston	Academic Medical Center	669
	Beth Israel Deaconess Hospital-Milton (BID-Milton)	Milton	Community	68
	Beth Israel Deaconess Hospital-Needham (BID-Needham)	Needham	Community	41
	Beth Israel Deaconess Hospital-Plymouth (BID-Plymouth)	Plymouth	Community, High Public Payer	169
Contracting Affiliates	Anna Jaques Hospital	Newburyport	Community	140
	Cambridge Health Alliance (CHA)	Cambridge, Somerville, and Everett	Teaching, High Public Payer[63]	229
	Lawrence General Hospital	Lawrence	Community, High Public Payer	230
	MetroWest Medical Center (MetroWest)[64]	Framingham and Natick	Community, High Public Payer	337
	New England Baptist Hospital (NE Baptist)	Boston	Specialty Teaching	100
			Total	1,883

Source: CHIA HOSPITAL PROFILES DATABOOK, *infra* note 134.

[63] Some teaching hospitals provide advanced clinical services more similar to AMCs, and share other features with AMCs (e.g., referral, pricing, and service mix patterns), while others provide a range of services and share features more similar to those of community hospitals. *See* MASS. HEALTH POLICY COMM'N, COMMUNITY HOSPITALS AT A CROSSROADS 3, N. 3. (Mar. 2016) [hereinafter CROSSROADS REPORT], *available at* http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/publications/community-hospitals-at-a-crossroads.pdf (last visited July 13, 2018). Because CHA functions in many ways more like a community hospital (e.g., sharing similar pricing and patient mix patterns), for our purposes we include it in our discussions of "BIDCO community hospitals" throughout this report except where specifically noted.
[64] MetroWest is not yet participating in BIDCO payer contracts. *See supra* note 25.

Current BIDCO Physician Group Members

BIDCO Physician Group Members	# Physicians
Harvard Medical Faculty Physicians at BIDMC (HMFP)	1,306
Affiliated Physicians Inc.	329
Cambridge Health Alliance Physician Organization	389
Lawrence General IPA (d/b/a Choice Plus Network)	133
New England Baptist Clinical Integration Organization	125
Whittier IPA	103
Jordan Physician Associates	69
Joslin Clinic Physicians	51
Milton Physician Organization	48
Total	2,553

Source: BIDCO 2017 MA-RPO FILING, *supra* note 25.

D. SEACOAST REGIONAL HEALTH SYSTEMS

Seacoast is the parent organization of Anna Jaques, a 140-bed community hospital located in Newburyport,[65] and Seacoast Affiliated Group Practice. Seacoast Affiliated Group Practice is a 34-physician multi-specialty practice that includes 8 PCPs and is a part of Whittier IPA, a group of community physicians affiliated with Anna Jaques.[66] Anna Jaques and Whittier IPA joined BIDCO as contracting affiliates in 2014, although they continue to establish some payer contracts independently.[67] A small provider system, Seacoast has experienced financial difficulties in recent years, including small negative operating margins in fiscal years 2015 and 2016, and a large decrease in net assets from 2014 to 2016.[68]

Anna Jaques has been clinically affiliated with BIDMC since 2010, although it remains corporately independent. BIDMC and Anna Jaques collaborate in clinical areas including medical oncology, emergency department (ED), gynecologic oncology, vascular surgery,

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[65] CTR. FOR HEALTH INFO. & ANALYSIS, HOSPITAL PROFILE: ANNA JAQUES HOSPITAL (Jan. 2018), *available at* http://www.chiamass.gov/assets/docs/r/hospital-profiles/2016/annajac.pdf (last visited July 14, 2018). Information publicly available from Anna Jaques lists 123 beds. *See About AJH*, ANNA JAQUES HOSPITAL, https://www.ajh.org/about (last visited July 13, 2018).

[66] BIDCO 2017 MA-RPO FILING, *supra* note 25.

[67] BIDCO-ANNA JAQUES MCN, *supra* note 60.

[68] At the end of fiscal year 2016, Seacoast had a strong current ratio, although it had a lower amount of cash and readily available assets than some other small hospital systems, and a high debt-to-capital ratio. Its average age of plant was high, suggesting a potential need for capital spending. Seacoast's operating margins in 2015 and 2016 were -0.3% and -0.6%, respectively, and its net assets decreased by 29% from fiscal year 2014 to fiscal year 2016. *See* Data Appendix, Figure 1.

maternal-fetal medicine, and primary care.[69] BIDMC also provides tele-stroke services to the Anna Jaques ED and is Anna Jaques' preferred provider for tertiary care.[70]

E. New England Baptist Hospital

NE Baptist, the only orthopedic specialty hospital in Massachusetts, is a non-profit specialty hospital located in Boston. It has 100 staffed beds and specializes in the treatment of orthopedic and musculoskeletal conditions.[71] It is a teaching affiliate of Tufts University School of Medicine, Harvard School of Public Health, and the Harvard School of Medicine.[72] In addition to its main hospital, NE Baptist operates three licensed outpatient facilities: New England Baptist Outpatient Surgery Satellite in Dedham, New England Baptist Outpatient Care Center at Chestnut Hill, and New England Baptist Surgical Care in Brookline.[73]

NE Baptist is the corporate parent of NEBCIO, an entity formed to establish payer contracts on behalf of NE Baptist-affiliated physicians. NEBCIO consists of 125 physicians, including approximately 14 PCPs and 111 specialists; 46 of the NEBCIO physicians are directly employed.[74] NE Baptist has maintained modest but positive operating margins and total margins over the last several fiscal years, and is financially stable despite a small downturn in NPSR in fiscal year 2016.[75] NE Baptist is part of CareGroup, and NE Baptist and NEBCIO joined BIDCO as contracting affiliates in 2017.[76] NE Baptist has a number of clinical affiliations, including with Atrius, BIDMC, and Joslin Diabetes Center.[77]

F. Lahey Health System

Lahey is a non-profit health system that was formed in May 2012 by the merger of Northeast Health System and the Lahey Clinic Foundation. Lahey acquired Winchester Hospital (Winchester) in July 2014.[78] Lahey is now the fifth largest provider system in the Commonwealth by NPSR,[79] with the following general acute care hospitals and a total of 859 beds:

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[69] Massachusetts Registration of Provider Organizations 2017 Filing: Seacoast Regional Health Systems (Jan. 8, 2018).
[70] *Id.*; *Clinical Affiliation with Beth Israel Deaconess Medical Center,* Anna Jaques Hospital, https://www.ajh.org/about/beth-israel-deaconess-affiliation (last visited July 13, 2018).
[71] Ctr. for Health Info. & Analysis, Hospital Profile: New England Baptist Hospital (Jan. 2018), *available at* http://www.chiamass.gov/assets/docs/r/hospital-profiles/2016/ne-bapti.pdf (last visited July 13, 2018).
[72] *Id.*
[73] Massachusetts Registration of Provider Organizations 2017 filing: New England Baptist hospital (Jan. 26, 2018) [hereinafter NE Baptist 2017 MA-RPO Filing].
[74] *Id.*
[75] Although NE Baptist's NPSR decreased slightly in fiscal year 2016, NE Baptist also succeeded in decreasing its operating expenses in that year, preserving its positive operating margin. NE Baptist's days cash on hand and current ratio both increased from fiscal year 2014 to fiscal year 2016. *See* Data Appendix, Figure 1.
[76] *See* 2016 BID CMIR Final Report, *supra* note 25.
[77] NE Baptist 2017 MA-RPO Filing, *supra* note 73.
[78] Mass. Health Policy Comm'n, Review of Lahey Health System's Proposed Acquisition of Winchester Hospital (HPC-CMIR-2013-3) Pursuant to M.G.L. ch. 6D, § 13 Final Report (May 22, 2014), *available at* https://www.mass.gov/files/documents/2016/09/uw/20140522-final-cmir-report-lhs-wh.pdf (last visited July 12, 2018) [hereinafter Lahey-Winchester CMIR].
[79] *See* Data Appendix, Figure 1.

- Lahey Hospital & Medical Center (Lahey HMC) in Burlington and Peabody (345 beds)[80]
- Northeast Hospital (Northeast) (404 beds), with main campuses in Beverly (Beverly Hospital) and Gloucester (Addison Gilbert Hospital), and a satellite psychiatric hospital in Lynn (BayRidge Hospital)[81]
- Winchester Hospital in Winchester (229 beds)[82]

Lahey HMC, in Burlington and Peabody, is Lahey's central and largest hospital, and acts as the tertiary hospital for the Lahey community hospitals. It also serves as a teaching hospital of Tufts University School of Medicine. Lahey has a number of clinical affiliations, including with Atrius, Boston Children's Hospital, and Emerson Hospital.[83]

In addition to its general acute care hospitals, Lahey owns outpatient centers in Danvers and Lexington;[84] urgent care centers in Danvers, Gloucester, Wilmington, and Woburn; and more than a dozen community primary care and satellite specialty care locations throughout northeastern Massachusetts and southern New Hampshire.[85] Lahey Health Behavioral Services (LHBS) provides inpatient, outpatient, and residential mental health and substance use disorder treatment services.[86] Inpatient behavioral health care is provided at Northeast's campuses, including BayRidge Hospital.[87] Lahey Health Continuing Care provides care for seniors, including home health services, adult day health services, skilled nursing care, and assisted living.[88]

Lahey negotiates contracts with payers on behalf of its hospitals and its employed and affiliated physicians. Lahey's managed care network, LCPN, negotiates payer contracts on behalf of approximately 217 PCPs and 1,003 specialists practicing in northeastern Massachusetts and southern New Hampshire.[89] LCPN has participated in the Medicare Shared Savings Program

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[80] CTR. FOR HEALTH INFO. & ANALYSIS, HOSPITAL PROFILE: LAHEY HOSPITAL AND MEDICAL CENTER (Jan. 2018), *available at* http://www.chiamass.gov/assets/docs/r/hospital-profiles/2016/lahey.pdf (last visited July 13, 2018).
[81] CTR. FOR HEALTH INFO. & ANALYSIS, HOSPITAL PROFILE: NORTHEAST HOSPITAL (Jan. 2018), *available at* http://www.chiamass.gov/assets/docs/r/hospital-profiles/2016/northeas.pdf (last visited July 13, 2018).
[82] CTR. FOR HEALTH INFO. & ANALYSIS, HOSPITAL PROFILE: WINCHESTER HOSPITAL (Jan. 2018), *available at* http://www.chiamass.gov/assets/docs/r/hospital-profiles/2016/winchest.pdf (last visited July 13, 2018).
[83] MASSACHUSETTS REGISTRATION OF PROVIDER ORGANIZATIONS 2017 FILING: LAHEY HEALTH SYSTEM (Feb. 2, 2018) [hereinafter LAHEY 2017 MA-RPO FILING].
[84] *Id*.
[85] *Departments and Locations,* LAHEY HOSPITAL & MEDICAL CENTER, http://www.lahey.org/DepartmentsandLocations/ (last visited July 13, 2018).
[86] *History of Lahey Health Behavioral Services,* LAHEY HEALTH BEHAVIORAL SERVICES, http://www.nebhealth.org/about-lhbs/history-of-lahey-health-behavioral-services/ (last visited July 13, 2018).
[87] *Services and Locations,* LAHEY HEALTH BEHAVIORAL SERVICES, http://www.nebhealth.org/services-locations/ (last visited July 14, 2018). BayRidge is licensed by DPH as part of Northeast Hospital.
[88] *Lahey Health Continuing Care*, LAHEY HEALTH SYSTEM, https://www.beverlyhospital.org/locations--services/health-services/senior-health-services/continuing-care (last visited July 13, 2018).
[89] LAHEY 2017 MA-RPO FILING, *supra* note 83. Lahey's physician groups include physicians employed by and affiliated with Lahey HMC (Lahey HMC physicians), Northeast (Northeast physicians), and Winchester (Winchester physicians). Lahey's physician groups together employ approximately 887 physicians. Northeast physicians are often referred to in data as Northeast PHO. Winchester physicians are sometimes referred to in data

(track 1) since 2013, became an HPC-certified ACO in 2017, and began performance on a MassHealth ACO (Model C) contract in 2018.[90]

Lahey maintained positive total margins for fiscal years 2012 through 2016, although in fiscal year 2015 it experienced an operating loss.[91] Documents provided by the parties indicate that Lahey also experienced a substantial operating loss in fiscal year 2017.[92] Lahey identified expense growth and slow revenue growth due to difficulty hiring and retaining physicians as among the main drivers of its poor performance, and implemented reforms that it expects will result in at least break-even performance in fiscal year 2019. Lahey's days cash on hand has declined in recent years, and is lower than that of other large Massachusetts provider systems.[93]

G. Mount Auburn Hospital

Mt. Auburn is a 233-bed, non-profit hospital located in Cambridge, Massachusetts.[94] It is a teaching hospital affiliated with Harvard Medical School. Mt. Auburn is a preferred hospital provider for Atrius and Mt. Auburn has a clinical affiliation with BIDMC under which BIDMC's stroke team provides telemedicine services to Mt. Auburn patients.[95] As discussed above, Mt. Auburn is a member of CareGroup along with BIDMC and NE Baptist, but currently establishes payer contracts independently.[96] Mt. Auburn has been a financially stable organization that achieved positive operating margins and total margins in each year from fiscal year 2013 to fiscal year 2016.[97] Documents provided by the parties indicate that Mt. Auburn experienced operating losses in fiscal year 2017, but that it expects to return to at least break-even performance in fiscal year 2019.

H. Mount Auburn Cambridge Independent Practice Association

MACIPA is an independent physician association with approximately 460 physician members, including approximately 93 PCPs and approximately 367 specialists.[98] MACIPA includes the employed physicians at Mt. Auburn, some CHA physicians, and physicians from small private practices. MACIPA contracts independently on behalf of its members for

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as Winchester Physician Associates (WPA), Winchester's employed physician group, and sometimes as Winchester PHO, which includes both employed and affiliated physicians.

[90] See Section III.B.5 for more details on Lahey's participation in public payer ACO programs.

[91] *See* Data Appendix, Figure 1.

[92] Fiscal year 2017 audited financial statements for the parties were not yet publicly available at the time of writing.

[93] *See* Data Appendix, Figure 1.

[94] Ctr. for Health Info. & Analysis, Hospital Profile: Mount Auburn Hospital (Jan. 2018), *available at* http://www.chiamass.gov/assets/docs/r/hospital-profiles/2016/mt-aubur.pdf (last visited July 13, 2018).

[95] Massachusetts Registration of Provider Organizations 2017 Filing: Mount Auburn Hospital (Jan. 24, 2018).

[96] *Id.*; *see* "What is CareGroup?" *supra* page 14.

[97] At the end of fiscal year 2016, Mt. Auburn's days cash on hand ratio was significantly higher than comparable small hospital systems, and its current ratio was over 4.5. Operating margins have been consistently positive although its total margin declined substantially from fiscal year 2014 to fiscal year 2015 and its average age of plant is high, suggesting a potential need for capital spending. *See* Data Appendix, Figure 1.

[98] Massachusetts Registration of Provider Organizations 2017 Filing: Mount Auburn Cambridge Independent Practice Association (May 14, 2018) [hereinafter MACIPA 2017 MA-RPO Filing]. Mt. Auburn employs 215 of MACIPA's physicians.

government and commercial payer contracts and provides services to its members, including developing and managing programs for care management, preventive medicine, population management, patient experience, pharmacy, social work, health coaching, health information exchange, and quality support services.[99] MACIPA participated in the Pioneer ACO program from 2011 until 2014 and began participating in the Medicare Shared Savings' Program (track 3) in January 2017.[100]

I. THE PROPOSED BILH SYSTEM

Based on the parties' current size and the proposed transaction, the BILH system would be one of the largest provider systems in Massachusetts and nearly equal in size to Partners, owning ten general acute care hospitals with 2,398 acute care beds. BILH is also anticipated to contract on behalf of three additional hospitals that are currently BIDCO contracting affiliates, with an additional 796 beds.[101] BILH would also contract on behalf of 4,233 physicians, including 849 PCPs.

Massachusetts Hospital Counts by System (2016)

System	Number of Owned Acute Care Hospitals	Number of Owned Non-Acute Care	Number of Contracting Affiliate Hospitals	Total Contracting Network (Acute + Non-Acute)
Partners	8	4	1	13
BILH	10	0	3	13
Steward	8	1	0	9
Wellforce	3	0	0	3

Source: 2017 MA-RPO Filing.

Notes: Hospitals with multiple campuses are counted only once. For example, Northeast Hospital is counted as one of the 10 BILH hospitals, although Northeast includes Beverly Hospital, Addison-Gilbert Hospital, and BayRidge psychiatric hospital, which all operate as campuses of Northeast. MetroWest is included in the count of BILH contracting affiliate hospitals; *see supra* note 25. Partners contracts on behalf of Emerson Hospital.

[99] *Id.*

[100] See Section III.B.5 for more details on Lahey's participation in Medicare ACO programs.

[101] See *supra* Section II.C for a chart of current BIDCO hospital members.

Massachusetts Bed Counts by System (2016 - Acute Care Hospitals Only)

System	Number of Staffed Beds (Owned)	Number of Staffed Beds (Contracting Affiliates)	Total Staffed Beds in Contracting Network (percent of all MA staffed beds)
BILH	2,398	796	3,194 (22.2%)
Partners	2,906	199	3,105 (21.6%)
Steward	1,159	0	1,159 (8.1%)
Wellforce	772	0	772 (5.4%)
2016 Total			14,394

Source: CHIA HOSPITAL PROFILES DATABOOK, *infra* note 134.
Note: As described in *supra* note 25, MetroWest is included in the count of BILH contracting affiliates; BILH would have approximately 20% of all staffed beds if MetroWest were not included.

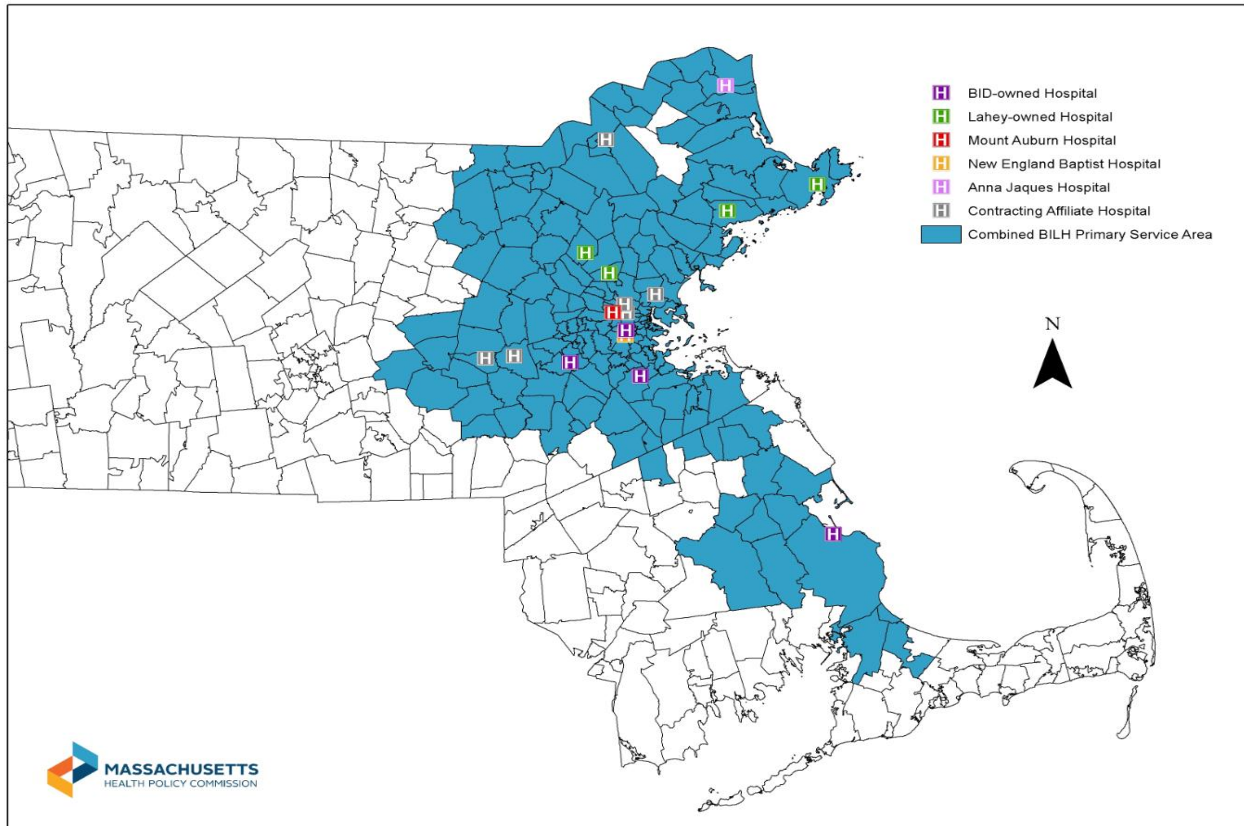
Massachusetts Physician Counts by System (2017)

System	Number of Physicians (% of all reported MA physicians)	Number of PCPs (% of all reported MA PCPs)
Partners	5,197 (23.5%)	922 (16.5%)
BILH	4,233 (19.1%)	849 (15.2%)
Steward	2,380 (10.7%)	586 (10.5%)
Wellforce	1,595 (7.2%)	494 (8.9%)
Atrius Health	897 (4%)	357 (6.4%)
2017 Total	22,150	5,580

Source: 2017 MA-RPO Filing
Notes: 2017 total reflects only physicians reported to the MA-RPO program. PCP counts reflect physicians reported as a PCP or as both a specialist and PCP in field RPO-96.

As shown below, the inpatient service areas of the BILH hospitals would include most of eastern Massachusetts.

BILH Hospitals and Combined General Acute Inpatient Service Areas



Notes: Primary service areas shown are based on CHIA 2016 hospital discharge data, as described in the Data Appendix. Because NE Baptist provides primarily orthopedic and musculoskeletal services, its service area is not included in the combined general acute care service area. MetroWest's service area is included because it is a member of BIDCO and is anticipated to be a BILH contracting affiliate, even though it is not yet contracting with payers through BIDCO. *See supra* note 25.

Financially, BILH would be second in size only to Partners. In fiscal year 2016, the parties that would form the BILH owned system had combined NPSR of over $4.79 billion and net assets of over $2.65 billion.[102] By comparison, Partners had over one and a half times the parties' NPSR ($7.57 billion) and just over double their net assets ($5.74 billion) in the same fiscal year. However, BILH would have more than double the NPSR and two and a half times the net assets of the next largest provider system in the Commonwealth, UMass Memorial Health Care (UMass) ($2.27 billion NPSR and $845.8 million net assets in fiscal year 2016).[103]

The remainder of this report analyzes the parties' past performance and the potential impacts of the proposed transaction on the areas of costs and market functioning, quality and care delivery, and access to care.

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[102] Based on the sum of NPSR and total net assets for all parties to the proposed merger. See the Data Appendix, Figure 1, for more information on the parties' key financial metrics.
[103] *Id.*

III. ANALYSIS OF THE PARTIES' PAST PERFORMANCE AND IMPACTS OF THE PROPOSED TRANSACTION

Our analysis of a proposed transaction includes assessments of potential impacts on costs and market functioning, care delivery and quality, and access to care. In the following sections we examine the parties' baseline performance in each of these areas and then assess the potential impacts of the proposed transaction based on this past performance and the parties' stated plans and commitments.

A. COSTS AND MARKET FUNCTIONING

The law governing CMIRs directs the HPC to examine different measures of the parties' respective cost and market position, including their size, prices, health status adjusted total medical expenses (HSA TME), and market shares.[104] The HPC examined these measures over time and compared to other providers to establish a profile of the parties' baseline performance leading up to the proposed transaction. The HPC then combined the parties' performance to date with details of the transaction and the parties' goals and plans to project the likely impacts of the transaction on health care spending and market functioning.[105] The HPC's findings are summarized below.

Cost and Market Profile:

- Historically, the parties have generally had low to moderate prices compared to other Massachusetts providers. Even as BIDCO and Lahey have grown, their prices have not generally risen relative to comparators, based on current available data.

- The parties have also historically had moderate spending levels compared to other Massachusetts providers. As BIDCO and Lahey have grown, their spending has also grown at generally the same rate as the rest of the market based on current available data.

- BIDCO, BIDMC, and Lahey have stated goals of keeping low-acuity care in the community and reducing spending in connection with their past community hospital acquisitions and affiliations. While BIDMC and Lahey have had some limited success at retaining local care at community hospitals they have recently acquired, shifts in care to their hospitals following past acquisitions and affiliations have come from both lower-

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[104] *See* Section I.A. Because provider organizations primarily negotiate with commercial, not government, payers for prices, commercial market share is more relevant for assessing the competitive impact of a transaction. Our assessments of market shares for provider organizations or contracting networks are based on the share of services of hospitals or physicians for which the organization establishes commercial contracts, as well as any providers from which a provider organization receives patient service revenue.

[105] One of the HPC's central responsibilities is to monitor health care spending to ensure that the Commonwealth can successfully meet the health care cost growth benchmark set forth in Chapter 224 of the Acts of 2012, and one mechanism through which we meet this responsibility is to conduct cost and market impact reviews. MASS. GEN. LAWS ch. 6D, § 9 (requiring the HPC to establish annually "a health care cost growth benchmark for the average growth in total health care expenditures in the commonwealth," pegged to the growth rate of the gross state product).

priced and higher-priced hospitals, and spending for local patients has remained largely unchanged.

Cost and Market Impact:

The transaction would create a second-largest system with market share nearly equivalent to Partners, and it will significantly enhance the parties' bargaining leverage with commercial payers, enabling the parties to substantially increase commercial prices.

- After the transaction, BILH would be nearly equivalent in market share to Partners, and market concentration would increase substantially.

- Consistent with the parties' claim that the transaction will make them more attractive to payers, the HPC finds that the transaction would significantly enhance the parties' bargaining leverage with commercial payers.

- BILH's enhanced bargaining leverage would enable it to substantially increase commercial prices, increasing total health care spending by an estimated **$138.3 to $191.3 million** annually for inpatient, outpatient, and adult primary care services; additional spending impacts would be likely for other services (e.g., specialty physician services).

- These projected price increases are likely to be conservative.

- Despite the fact that the parties' financial projections indicate that BILH would not need substantial price increases to achieve positive financial margins, they have not committed to limiting future price increases. The parties could obtain the projected price increases, significantly increasing health care spending, while still remaining lower-priced than Partners.

Achieving care redirection consistent with the parties' estimates could result in savings, but there is no reasonable scenario in which such savings would offset spending increases if BILH obtains the price increases described above.

- While the parties are still developing plans for how they will attract patient volume to their system from other providers, shifts in care to BILH would generally be cost-saving. Similarly, redirecting care within BILH to lower-priced settings would be cost-saving.

- However, even if BILH achieves all of its stated care redirection goals, the savings would offset approximately 3% to 7% of the spending impact if BILH obtains the price increases described above.

- The parties intend to work with payers to develop new, innovative insurance products, but it is unclear how such products would increase market competition or reduce spending, particularly if the parties do not offer lower prices in such products.

- It is also unclear how BILH would reduce spending by more effectively competing with other providers.

The remainder of this section discusses these findings in greater depth.

1. <u>The parties have generally had low to moderate prices compared to other Massachusetts providers.</u>

In explaining their rationale for the transaction, the parties have emphasized that they are lower-priced than their competitors and, therefore, that increases in their patient volume post-merger would reduce health care spending. To evaluate these claims, the HPC examined the parties' current prices and recent price trends, using the relative price measure developed by CHIA.[106] A relative price of 1.0 represents each payer network's average price across inpatient, outpatient or physician services.[107] Accordingly, a relative price of 1.2 means that the provider's price level is 20% above the average inpatient, outpatient, or physician price in a payer's network.

When we examined the parties' inpatient and outpatient hospital relative prices for the three largest commercial payers, we found that, individually, many of the parties' hospitals have moderate prices, while BIDCO community hospitals (both BID-owned and the BIDCO contracting affiliates) are lower-priced. [108,109]

Recognizing that different hospitals serve different volumes of patients, we also evaluated the average inpatient and outpatient relative prices for BID-owned and Lahey-owned hospitals, weighted by the volume at each system hospital.[110] The charts below show weighted average inpatient and outpatient relative price by system for the BID-owned and Lahey systems compared to other major hospital systems in eastern Massachusetts.

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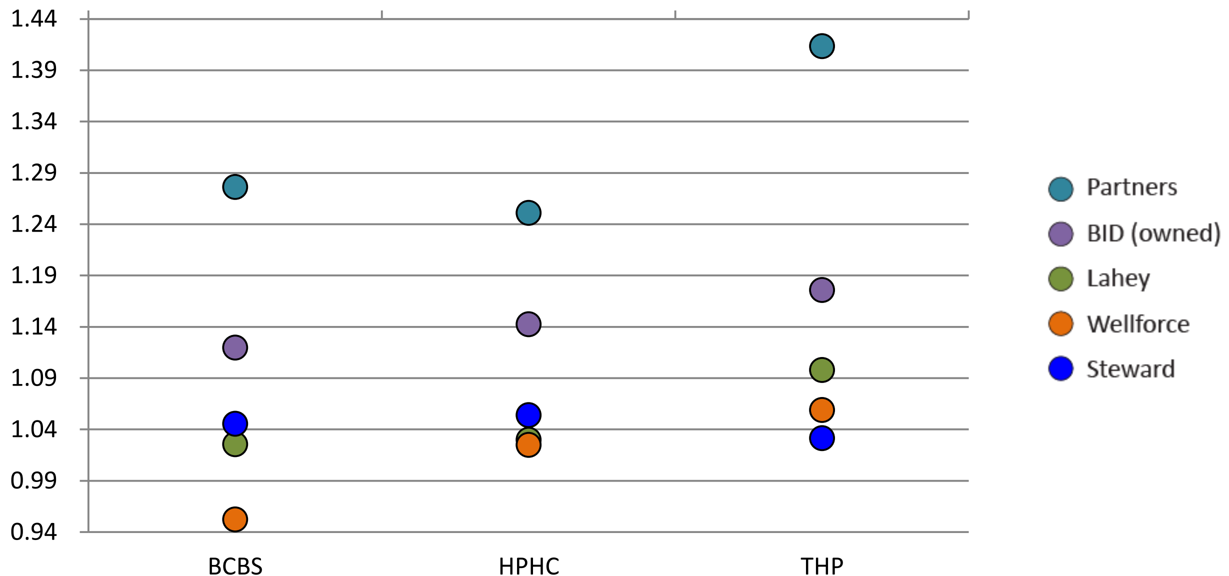
[106] For the most recent relative price data, see CTR. FOR HEALTH INFO. & ANALYSIS, PROVIDER PRICE VARIATION IN THE MASSACHUSETTS HEALTH CARE MARKET (CALENDAR YEAR 2016 DATA) (APRIL 2018) [hereinafter CHIA RELATIVE PRICE DATABOOK], *available at* http://www.chiamass.gov/assets/docs/r/pubs/18/Relative-Price-Databook-2018.xlsx (last visited July 13, 2018).

[107] Relative price is a standardized pricing measure that accounts for differences among provider service volume, service mix, patient acuity, and insurance product types in order to allow comparison of negotiated price levels. For details on the methodology for calculating relative price, see CTR. FOR HEALTH INFO & ANALYSIS, RELATIVE PRICE METHODOLOGY PAPER (Sept. 2016), *available at* http://www.chiamass.gov/assets/docs/r/pubs/16/RP-Methodology-Paper-9-15-16.pdf (last visited July 13, 2018).

[108] See the Data Appendix, Figures 2A through 2E, for charts showing 2016 inpatient relative price data for all party hospitals for BCBS, HPHC, and THP and outpatient relative price data for BCBS and THP.

[109] Because relative price accounts for all service lines and NE Baptist specializes in certain services, we also examined prices for inpatient orthopedic services (MDC 08) using BCBS, HPHC, and THP claims data from the 2015 APCD. The results were fairly similar to the BCBS inpatient relative prices displayed in the chart below. NE Baptist received higher prices than Northeast, Winchester, Lowell, and BID-Milton for these services, and lower prices than all of its other comparator hospitals, including AMCs and non-AMCs.

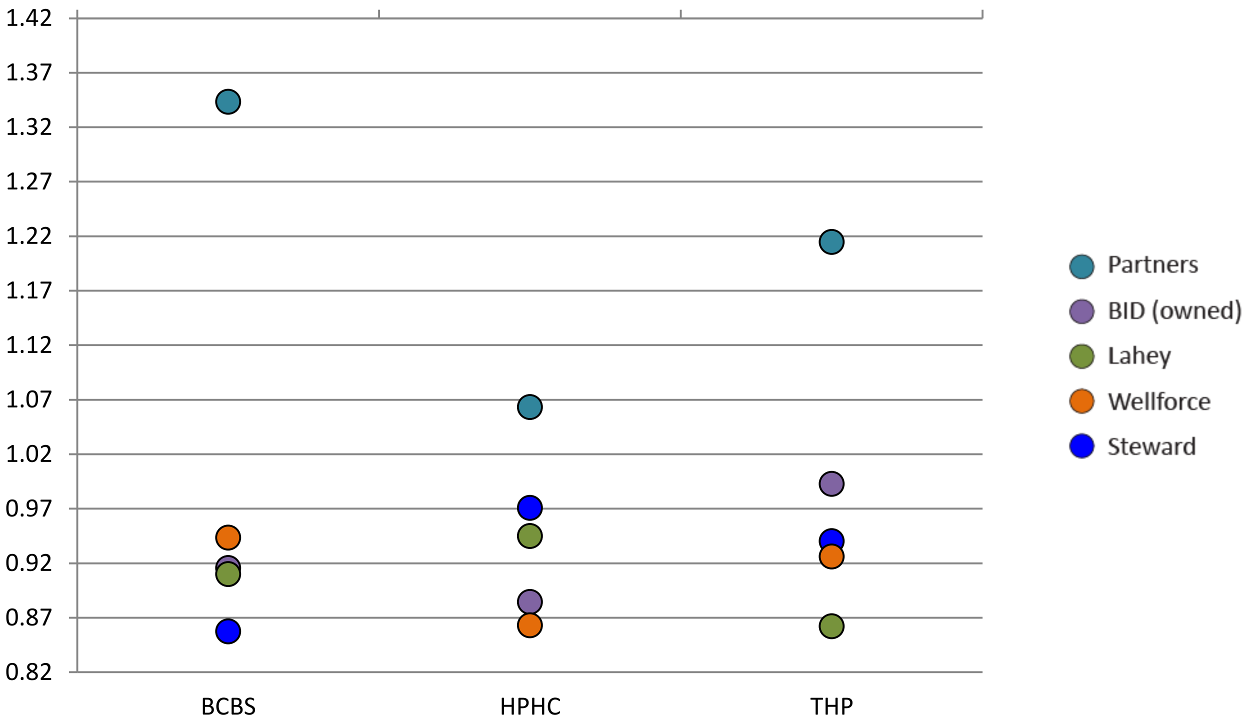
[110] We calculated system average inpatient relative price by payer for BCBS, HPHC, and THP by taking the weighted average of the inpatient relative prices for each hospital owned by the system, weighting by each hospital's inpatient discharges. CHIA RELATIVE PRICE DATABOOK, *supra* note 106. System average outpatient relative price by payer is constructed similarly, except that the outpatient relative prices for each hospital in a system are weighted by a proxy for outpatient volume, calculated by dividing a hospital's outpatient revenue by its outpatient relative price.



Source: HPC analysis of CHIA RELATIVE PRICE DATABOOK, *supra* note 106.
Notes: Because relative price is calculated individually by payer, the price level associated with each payer's network average relative price (1.0) is not the same for different payers. Therefore, relative price should not be compared across payers.
BID-owned hospitals: BIDMC, BID-Milton, BID-Needham, BID-Plymouth
Lahey hospitals: Lahey HMC, Northeast, Winchester
Comparators: Partners (including Brigham & Women's Hospital, Massachusetts General Hospital, Newton-Wellesley Hospital, North Shore Medical Center, Brigham & Women's Faulkner Hospital, Martha's Vineyard Hospital, and Nantucket Cottage Hospital[111]); Steward (including Steward Carney Hospital, Steward Good Samaritan Medical Center, Steward Holy Family Hospital, Morton Hospital, Nashoba Valley Medical Center, Norwood Hospital, Steward St. Anne's Hospital, and Steward St. Elizabeth's Medical Center); and Wellforce (including Tufts Medical Center, Lowell General Hospital, and MelroseWakefield Healthcare)

[111] THP does not have inpatient relative price data for Martha's Vineyard in 2016, so the Partners system-level relative price does not include Martha's Vineyard for THP. We calculated the system-level relative price for Partners for BCBS and HPHC with and without Martha's Vineyard and Nantucket Cottage, and found that the result was the same.

System Average Outpatient Relative Price (2016)



Source: HPC analysis of CHIA RELATIVE PRICE DATABOOK, *supra* note 106.
Notes: Because relative price is calculated individually by payer, the price level associated with each payer's network average relative price (1.0) is not the same for different payers. Therefore, relative price should not be compared across payers.
BID-owned hospitals: BIDMC, BID-Milton, BID-Needham, BID-Plymouth
Lahey hospitals: Lahey HMC, Northeast, Winchester
Comparators: Partners (including Brigham & Women's Hospital, Massachusetts General Hospital, Newton-Wellesley Hospital, North Shore Medical Center, Brigham & Women's Faulkner Hospital, Martha's Vineyard Hospital, and Nantucket Cottage Hospital); Steward (including Steward Carney Hospital, Steward Good Samaritan Medical Center, Steward Holy Family Hospital, Morton Hospital, Nashoba Valley Medical Center, Norwood Hospital, Steward St. Anne's Hospital, and Steward St. Elizabeth's Medical Center); and Wellforce (including Tufts Medical Center, Lowell General Hospital, and MelroseWakefield Healthcare)

Evaluating the weighted price across the system reinforces past findings by the HPC and others that Partners is, by a substantial margin, higher-priced than other Massachusetts systems. Aside from Partners, the BID-owned and Lahey systems are not generally lower-priced than other Massachusetts systems. The BID-owned system is consistently the second-highest priced system for inpatient services, and Lahey is generally comparably priced to Steward Health Care System (Steward) and Wellforce.[112]

We also examined relative price for the parties' physician networks and found that BIDCO, Lahey, and MACIPA generally have low to moderate physician prices compared to other eastern Massachusetts physician groups, and they are consistently lower-priced than

[112] For THP, Lahey has somewhat higher inpatient prices than Steward and Wellforce, but somewhat lower outpatient prices.

Partners and Atrius. The relative ranking among BIDCO, Lahey, and MACIPA physician prices varies by payer.[113]

Finally, recognizing that both the Lahey system and the BIDCO network have grown substantially in recent years, we examined the extent to which there were price changes associated with the parties' past transactions, including both corporate acquisitions and contracting affiliations with community hospitals. Using the most recent inpatient and outpatient relative price data, we found that overall, the prices of community hospitals that were recently acquired by BIDMC or Lahey or became affiliated with BIDCO have not risen relative to their local competitors in the years following those transactions.[114]

In addition, we examined changes in the weighted average relative price for the BIDCO hospitals (both BID-owned and BIDCO contracting affiliates) and the Lahey hospitals for the three largest commercial payers.[115] We found that the weighted average inpatient and outpatient relative price across the BIDCO and Lahey hospitals also did not generally increase following new community hospital affiliations. [116]

Overall, we have not found evidence that the parties have negotiated higher prices, either for new community hospital affiliates or for their hospitals overall, following past acquisitions or contracting affiliations with community hospitals.[117]

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[113] See the Data Appendix, Figure 2F, for a chart showing physician group relative price data for BCBS, HPHC, and THP. In some cases, we understand that the gap between the parties may have narrowed in the years following this 2015 data.

[114] Their prices also did not decrease relative to local competitors. For each year, we examined the ratio of the focal community hospitals' inpatient and outpatient relative prices to the weighted average of their local competitors. For inpatient services, we used 2016 CHIA hospital discharge data to weight hospitals based on their average share of inpatient discharges by payer in each community hospital's inpatient PSA from 2010 to 2016. For outpatient services, we weighted hospitals by a proxy for their outpatient volume in the PSA, calculated by multiplying their inpatient volume in the PSA by their ratio of outpatient to inpatient revenue. The parties also examined a similar question, comparing community hospital inpatient and outpatient relative price compared to a set of comparators over time. The HPC and the parties used different comparators and slightly different methods, which yielded slightly different results in individual cases, but the overall conclusion—that there is no evidence, to date, of significant price increases relative to local competitors—is the same.

[115] We based this analysis on the same methodology used to calculate the system weighted average relative prices. *See supra* note 110. To calculate changes in the weighted average relative prices from 2012 to 2016, we held each hospital's volume constant. We weighted each hospital's inpatient price in each year by its share of total discharges from 2012 to 2016. We weighted each hospital's outpatient price in each year by a proxy for outpatient volume, calculated as its share of outpatient revenue divided by its outpatient relative price from 2014 to 2016 (due to data limitations, we were unable to include outpatient weights for 2012 and 2013). We also evaluated physician relative price over time for BIDCO and Lahey, and similarly did not find evidence of rising relative prices. Note that for Lahey, we incorporated relative price for all Lahey physician groups, weighting their separate relative prices based on revenue in the CHIA RELATIVE PRICE DATABOOK, *supra* note 106.

[116] The weighted average inpatient and outpatient relative price also did not decrease.

[117] However, past acquisitions lacked the scale and competitive overlap of the current proposed transaction. For example, when Lahey acquired Winchester, the HPC modeled changes in market concentration and found smaller changes than those described in this review at Section III.A.4. *See* LAHEY-WINCHESTER CMIR, *supra* note 78, at 36. We also evaluated the changes in market concentration effectuated by the acquisitions of Northeast, BID-Milton and BID-Plymouth, and the contracting affiliations between BIDCO and Lawrence General, CHA, and Anna Jaques. The increases in market concentration in the inpatient PSAs of these hospitals are all smaller than those described for nearly all PSAs in this review at Section III.A.4. For some recent transactions, there are also few post-transaction years of data available to examine.

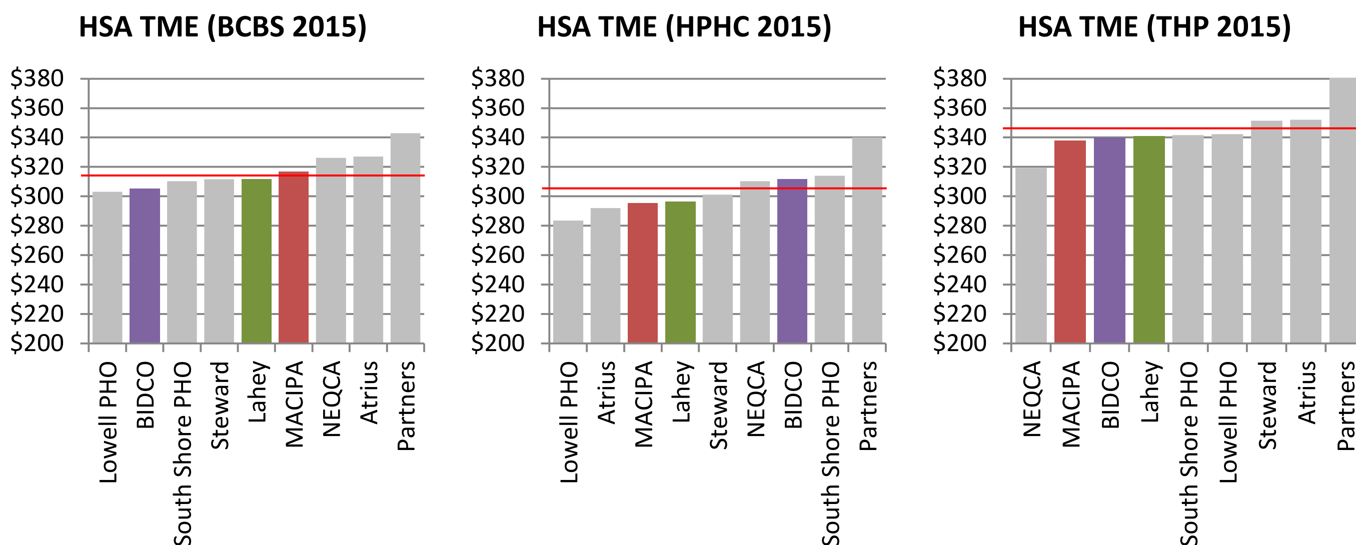
2. The parties have had moderate spending levels compared to other Massachusetts providers.

The HPC also evaluated the parties' performance in managing patient spending by examining total medical expense (TME) data collected by CHIA for the health maintenance organization (HMO)/point of service (POS) patients who have selected BIDCO, Lahey, or MACIPA PCPs. As a measure of per member per month spending on all medical services, TME reflects both utilization and price. High TME can reflect high utilization of services or high prices of the hospitals or physicians that patients use, or a combination of both. We examined health-status-adjusted TME (HSA TME) to account for underlying health differences that may affect spending levels for different physician groups. [118]

The parties' physician networks generally have moderate spending for patients of their PCPs compared to other eastern Massachusetts physician groups as shown below. BIDCO, Lahey, and MACIPA all have HSA TME within approximately 4% of the payer network average for the three largest commercial payers in the most recent final HSA TME data, and their spending levels are below Partners in all three payer networks and below Atrius in two of the three.[119] We also found that the parties' HSA TME levels relative to each other vary by payer; no party is consistently higher-spending or lower-spending than the others. The chart below shows the parties' per member per month HSA TME, as well as that of their major eastern Massachusetts competitors, for the three largest commercial payers.

[118] TME is expressed as a per member per month dollar figure that reflects the average monthly covered medical expenses paid by the payer and the member for all of the health care services the member receives in a year. TME is publicly reported by provider organization for patients who have explicitly selected a PCP affiliated with that organization (this only includes patients in HMO and POS products, which require patients to select a PCP and obtain referrals to other providers through that PCP). It is standard industry practice to adjust for health status differences when comparing TME, so that a provider caring for a sicker population will not appear to have higher spending solely for that reason.

[119] This analysis is based on a comparison of each party's HSA TME to the weighted average HSA TME in each payer network. Network averages are weighted by physician group member months. For this analysis, we created a combined HSA TME for Lahey HMC physicians, Winchester physicians, and Northeast physicians, based on each group's member months, because some payers report one or both of these organizations separately.



Notes: Because payers use different risk adjustment tools, per member per month spending levels should not be compared between payer networks. The red line in each graph indicates the payer's network average HSA TME.

The HPC has also examined spending by physician network by looking at both HMO and preferred provider organization (PPO) claims in the APCD for all services provided to patients attributable to PCPs in these networks.[120] Consistent with findings from the HSA TME data, spending for the parties' primary care patients is generally moderate compared to other Massachusetts provider groups.[121]

We also examined annual growth of each party's HSA TME for the three largest commercial payers to evaluate their performance over time.[122] We found that BIDCO and Lahey

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[120] These spending figures differ from HSA TME in that they reflect spending for all patients attributed to a provider group's PCPs (including PPO members), but only include claims-based spending. For details on the attribution methodology used, see MASS. HEALTH POLICY COMM'N, 2017 COST TRENDS REPORT 29-30 (March 2018) [hereinafter 2017 HPC COST TRENDS REPORT], *available at* https://www.mass.gov/files/documents/2018/03/28/Cost%20Trends%20Report%202017.pdf (last visited July 13, 2018).

[121] See the Data Appendix, Figure 3, for a chart showing these findings.

[122] Network averages are computed by calculating a weighted (by member months) average HSA TME across all of the physician groups within each payer's network. For purposes of assessing the HSA TME growth of Lahey, we calculated a weighted average as described in *supra* note 119. To ensure that we are comparing HSA TME values calculated using the same risk adjustment tool and methodology, we only calculate growth rates between years reported in the same CHIA data book. CHIA reports TME data in three year increments (e.g., final 2013, final 2014, and preliminary 2015 data are reported in CHIA's 2016 Annual Report TME Databook), and payers are required to file TME data using the same risk adjustment tool for all three years contained in a given data book. Here, we used the 2015 Databook to calculate the growth rate between 2012 and 2013, the 2016 Databook to calculate the growth rate between 2013 and 2014, and the 2017 Databook to calculate the growth rate between 2014 and 2015, as well as the growth rate between 2015 and preliminary 2016. CTR. FOR HEALTH INFO. & ANALYSIS, 2015 ANNUAL REPORT TME DATABOOK (2015), *available at* http://www.chiamass.gov/assets/2015-annual-report/2015-Report-All-Files.zip (last visited July 13, 2018); CTR. FOR HEALTH INFO. & ANALYSIS, 2016 ANNUAL REPORT TME DATABOOK (2016), *available at* http://www.chiamass.gov/assets/2016-annual-report/2016-Annual-Report-databooks-and-technical-appendices.zip (last visited July 13, 2018); CTR. FOR HEALTH INFO. & ANALYSIS, 2017 ANNUAL REPORT TME DATABOOK (2017), *available at* http://www.chiamass.gov/assets/2017-annual-report/2017-Annual-Report-Databooks.zip (last visited July 13, 2018).

experienced only modest changes in HSA TME growth over time, and that these changes were generally in line with changes in payer network averages.[123] We did not find changes in their performance following recent acquisitions or affiliations with new community hospitals.

3. The parties have had some limited success at retaining local care at community hospitals they have recently acquired, but spending trends for local patients have remained largely unchanged.

As detailed in Section II.A., one of the parties' claims is that the transaction will enable them to "Reduc[e] outmigration to costlier sites of care when equivalent or better quality care is accessible in the local community (e.g., reducing "community appropriate" inpatient volume at academic medical centers and teaching hospitals) resulting in more patients treated closer to home at a reduced cost (the "right place")."[124] In connection with past acquisitions of and contracting affiliations with community hospitals, both Lahey and BIDMC/BIDCO have stated a similar goal of keeping low-acuity care in the community, thereby achieving savings.[125]

To understand the extent to which the parties have achieved such goals in the past, which can inform assessments of how successful the parties may be in achieving these goals in the current transaction, the HPC examined where patients living in primary service areas (PSAs) of newly acquired or affiliated community hospitals received inpatient care before and after the community hospital's affiliation with BIDMC, BIDCO, or Lahey.[126] We looked at the community hospital's share of discharges in its PSA separately for discharges we defined as "community-appropriate" and for those that are higher-acuity.[127] We also compared trends at newly-affiliated community hospitals with the statewide trends for all community hospitals.[128]

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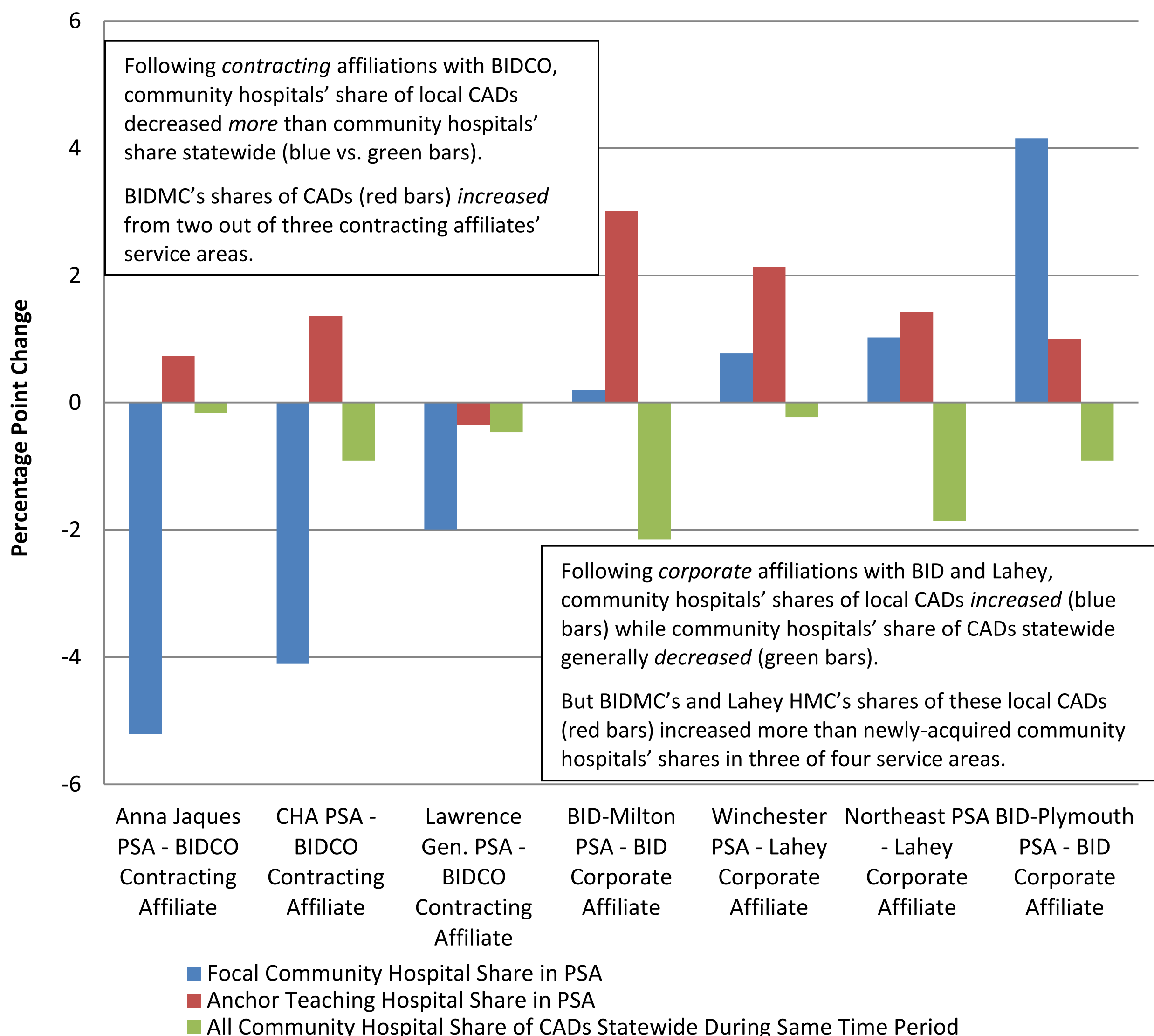
[123] MACIPA's performance varies more significantly from payer network averages; for some payers in some years, MACIPA's growth is notably lower than the network average, and in others higher.
[124] DON NARRATIVE, *supra* note 28, at 4.
[125] *See* Robert Weisman, *Adding Milton Hospital, Beth Israel Enters New Era*, BOSTON GLOBE, Jan. 3, 2012, *available at* https://www.bostonglobe.com/business/2012/01/03/adding-milton-hospital-beth-israel-enters-new-era/Vnptj0Cu6vXyDT82CjB8vJ/story.html (last visited July 13, 2018); Richard Gaines, *Northeast, Lahey Join Forces*, Gloucester Times, Jul. 19, 2011, *available at* http://www.gloucestertimes.com/news/local_news/northeast-lahey-join-forces/article_67a2b52a-ab5f-5c83-98b5-84675f69ac6f.html (last visited July 13, 2018); Chelsea Conaboy, *Beth Israel Deaconess, Cambridge Health to Partner*, BOSTON GLOBE, May 3, 2013, *available at* https://www.bostonglobe.com/lifestyle/health-wellness/2013/05/02/beth-israel-deaconess-cambridge-health-alliance-form-partnership/hDXbzqCTwAP4BZ35w8RY7J/story.html (last visited July 13, 2018); BIDMC-JORDAN MCN, *supra* note 48; LAHEY-WINCHESTER CMIR, *supra* note 78, at 6; Press Release, Lawrence General Hospital, Lawrence General Hospital Announces Stronger Affiliation with Beth Israel Deaconess Medical Center, *available at* http://www.lawrencegeneral.org/about-us/news-details.aspx?newsid=92 (last visited July 13, 2018); BIDCO-ANNA JAQUES MCN, *supra* note 60.
[126] The HPC did not examine trends for BID-Needham, because it was acquired in 2000 and pre-transaction data are not available.
[127] The methodology to define "community-appropriate" discharges is designed to be very conservative, identifying care that nearly any Massachusetts community hospital could deliver. We recognize that many community hospitals can provide more complex care, and therefore we also examined patterns in site of care for higher-acuity discharges. Community-appropriate discharges are defined as follows: Starting from the full 2015 hospital discharge database, the HPC first excluded diagnosis related groups (DRGs) that are too complex for most community hospitals (e.g., transplants, major chest procedures, serious extensive burn treatment, and major trauma procedures), then excluded DRGs with "complications or comorbidities" or "major complications or comorbidities." We also excluded DRGs with fewer than 500 total discharges statewide and those where community hospitals collectively provided fewer than 15% of discharges. We employed our standard data cleaning methods, including exclusions of non-

The graph below details the change in shares between the last year before the transaction and the most recent year with available data (2016) across all payer types (commercial, Medicare, Medicaid, and other). Changes in the share of the "focal" community hospital—i.e., the hospital newly acquired by BIDMC or Lahey or newly affiliated with and contracting through BIDCO—are shown in blue, while changes in the share of the anchor teaching hospital—i.e., BIDMC or Lahey HMC—are shown in red. The change in statewide community hospital shares over the same time periods are shown in green.

Massachusetts residents, non-acute discharges, and normal newborns and transfers (to prevent double-counting). Finally, we excluded from our analysis those discharges transferred to a teaching hospital, on the basis that in such cases a judgment was made that the particular patient required care at a non-community setting and therefore that the discharge would not have been appropriate for redirection to the community. Approximately 12% of DRGs, accounting for 41% of discharges in 2016, are defined as "community-appropriate."

[128] The parties also conducted some analyses that distinguished between lower-acuity and higher-acuity discharges. The HPC applied the parties' definitions of lower-acuity and higher-acuity care to the same analysis described below and found that the overall results were broadly consistent with our findings, as described below.



Source: HPC analysis of 2009-2016 CHIA hospital discharge data

To varying degrees, the community hospitals that became BIDCO *contracting affiliates* experienced declining shares of community-appropriate discharges in their service area following affiliation, and these decreases exceeded the statewide trend during the same time period. In Anna Jaques' and CHA's PSAs, however, BIDMC's share of local community-appropriate discharges grew as Anna Jaques' and CHA's shares declined. In contrast, the hospitals that were *acquired* by BIDMC or Lahey experienced growing shares of community-appropriate discharges. In every PSA except BID-Plymouth's, however, we found that the anchor teaching hospital share of local community-appropriate discharges increased by more

than the focal community hospital's share.[129,130] That is, growth in the *system's* share was due more to the anchor hospital itself drawing a higher share of local patients (BID-Plymouth is the exception).

We also evaluated changes in shares for higher-acuity discharges, both for all payers and for commercial payers only.[131] See the Data Appendix, Figures 4A and 4C, for charts showing these data.

We then evaluated whether volume shifts to BIDCO or Lahey after recent community hospital affiliations came from lower-priced or higher-priced hospitals, resulting in higher or lower average prices for commercial payers.[132] In three of the five PSAs where BIDCO or Lahey hospitals' shares of all local commercial discharges increased after affiliations, commercial payers ended up paying a somewhat reduced average price in three service areas (Northeast, Winchester and BID-Milton); the average price increased in the remaining in two service areas (BID-Plymouth and CHA). In these five PSAs, the increased share of discharges at BIDCO or Lahey hospitals was accompanied by a decreased share of discharges at *both* lower-priced and higher-priced hospitals. Thus, while the parties have demonstrated some success at retaining inpatient care at their owned (but not affiliated) community hospitals, the overall effect has not always been that patients are receiving care in a lower-cost setting. Shifts in care have come from both lower-priced and higher-priced hospitals, and care has shifted both to the systems' higher-priced anchor teaching hospitals, BIDMC and Lahey HMC, and to the lower-priced local community hospital.

Finally, we examined spending, as measured by unadjusted and HSA TME, for individuals living near the recently acquired or affiliated community hospitals. [133] We found that

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[129] When only commercial discharges are examined, Winchester and Northeast (both acquired by Lahey) retained a somewhat greater share of local community-appropriate discharges than Lahey. Nonetheless, the general finding is consistent across all-payer and commercial payer discharge trends—where there have been community hospital acquisitions, the community hospital retained a greater share of local community appropriate discharges, but the anchor teaching hospitals' shares of local community appropriate discharges also increased; where there have been community hospital contracting affiliations, contracting affiliates' shares of local discharges have not generally increased, while anchor teaching hospitals' shares of such discharges have generally either increased slightly or decreased less than community hospitals' shares. See the Data Appendix, Figure 4B, for a chart showing these commercial discharges.

[130] Lahey has described a policy under which patients who present at Lahey HMC may be transferred to Northeast or Winchester where clinically appropriate and convenient for the patient, and the parties report that more than 1,000 such transfers have occurred since 2012. *See* LAHEY HEALTH SYSTEM, CAREGROUP, AND SEACOAST REGIONAL HEALTH SYSTEMS, RESPONSE TO ADDITIONAL QUESTION REQUEST, at 4, *available at* https://www.mass.gov/files/documents/2018/02/12/don-response-to-additional-questions-newco.pdf (last visited July 17, 2018). We recognize the value of such a policy, which may both reduce spending and increase convenience for patients. It is likely that without this policy, the patterns described here would be less favorable for Northeast and Winchester.

[131] Higher-acuity discharges are those discharges that remain after separating out "community appropriate" discharges as defined above. *See supra* note 127, describing the methodology for identifying community appropriate discharges. Some hospitals (e.g., Lawrence General, BID-Milton, and Northeast) show a pattern for higher acuity discharges that differs from that for community appropriate discharges.

[132] Unlike the analysis above, which applied to all payers, here we evaluated the impact of transactions for commercial payers.

[133] We calculated each PSA's HSA TME and unadjusted TME by payer for the three largest commercial payers by weighting HSA TME and unadjusted TME for each zip code within a hospital's PSA by the patient member months

spending growth for these patients was not generally lower than trends in eastern Massachusetts and statewide, likely reflecting the fact that the overall numbers of patients that have been redirected is relatively small and, as described above, patients have not always shifted to lower-priced settings. Based on these results, we find that BIDCO and Lahey have had some limited success at retaining care at their community hospitals after recent community hospital acquisitions, but that even where care has shifted to these systems after recent transactions, spending trends for local patients have remained largely unchanged.[134]

4. After the transaction, BILH would be nearly equivalent in market share to Partners, and market concentration would increase substantially.

Comparisons of providers' market shares show their relative importance to patients and the payers that cover those patients. Increased market share and market concentration (i.e., fewer providers accounting for a larger share of volume) may also increase a provider's bargaining leverage to negotiate higher commercial prices and other favorable contract terms with commercial payers. The HPC examined the parties' market shares both statewide and within their primary service areas (PSAs).[135] Statewide market shares illustrate the parties' overall

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for the payer in each zip code. We calculated HSA TME and unadjusted TME for eastern Massachusetts for each payer by applying the same methodology to all zip codes in eastern Massachusetts, excluding Cape Cod, Nantucket, and Martha's Vineyard. We examined changes in spending for patients living in these PSAs using HSA TME from 2013 to 2016 and unadjusted TME and risk scores from 2009 to 2016, and compared pre- and post-transaction levels and growth rates in the PSA to statewide and eastern Massachusetts data.

[134] In addition to market shares and spending, we reviewed CHIA Hospital Cost Report data on changes in internal costs and operating margins for the community hospitals that affiliated with the parties. Examining inpatient costs per case-mix-adjusted discharge, a measure of the cost efficiency of hospital care, we found that BID-Milton, Winchester, and Lawrence General had downward trends after affiliation, suggesting greater efficiency, while the trends for other new affiliates were flat, or in some cases volatile. The operating margins of Northeast and Winchester improved in the fiscal years after their acquisitions, while the operating margins of the BID-owned community hospitals tended to follow the trends of other Massachusetts community hospitals, rising in some years and falling in others. Lawrence General and CHA did not experience consistent trends in operating margin after affiliating with BIDCO. *See* CTR. FOR HEALTH INFO. & ANALYSIS, MASS. HOSPITAL PROFILES COMPENDIUM 13 (Jan. 2018), *available at* http://www.chiamass.gov/assets/docs/r/hospital-profiles/2016/Massachusetts-Hospitals-Profiles-Compendium-2016.pdf (last visited July 14, 2018) (showing median hospital operating margin by hospital cohort for fiscal years 2012 through 2016); CTR. FOR HEALTH INFO. & ANALYSIS, MASSACHUSETTS HOSPITAL PROFILES ACUTE DATABOOK DATA THROUGH FISCAL YEAR 2016 (Jan. 2018), *available at* http://www.chiamass.gov/assets/docs/r/hospital-profiles/2016/Acute-Care-Massachusetts-Hospitals-Databook-FY16-1-23-18-v2.xlsx (last visited July 14, 2018) [hereinafter CHIA HOSPITAL PROFILES DATABOOK] (showing individual hospital operating margins).

[135] The CMIR statute directs the HPC to "examine factors relating to the provider or provider organization's business and its relative market position," including "the provider or provider organization's size and market share within its *primary service areas*" and "the provider or provider organization's impact on competing options for the delivery of health care services within its *primary service areas*." MASS. GEN. LAWS ch. 6D, § 13(d) (emphasis added). The HPC defines a hospital's inpatient and outpatient primary service areas or PSAs as the areas from which a hospital draws 75% of its inpatient and outpatient commercial patients, respectively. For details regarding the HPC's methodology for defining an inpatient PSA, see MASS. HEALTH POLICY COMM'N, TECHNICAL BULLETIN FOR 958 CMR 7.00: NOTICES OF MATERIAL CHANGE AND COST AND MARKET IMPACT REVIEWS (Aug. 6, 2014) [hereinafter TECHNICAL BULLETIN], *available at* http://www.mass.gov/anf/docs/hpc/regs-and-notices/technical-bulletin-circ.pdf (last visited July 13, 2018). As articulated by the Federal Trade Commission and Department of Justice, "[a]lthough a PSA does not necessarily constitute a relevant geographic market, it nonetheless serves as a useful screen for evaluating potential competitive effects." Statement of Antitrust Enforcement Policy Regarding

importance in Massachusetts, while shares and market concentration in primary service areas illustrate the parties' importance in those areas where most of their patients reside.

a. Inpatient and Outpatient Market Shares

Statewide, BIDCO and Lahey have the second and third largest shares, respectively, of inpatient and outpatient services, and Partners has more than twice the shares of BIDCO. After the transaction, BILH's statewide share of inpatient and outpatient services would become a close second to Partners', and BILH's share would be more than triple that of the third largest system.

Statewide Market Shares for Inpatient and Outpatient Services

Hospital System/Network	Inpatient Statewide Share[136] (2016)	Outpatient Statewide Share[137] (2015)
Partners	27.0%	26.9%
BIDCO, Lahey, Mt. Auburn combined	**23.8%** (13.1% + 8.1% + 2.7%)	**24.9%** (12.3% + 10.2% + 2.4%)
UMass	7.0%	5.2%
Wellforce	6.2%	6.8%
Steward	5.9%	4.6%
All Other Facilities	30.1%	31.6%

The HPC also examined shares in each of the parties' general acute care hospitals' PSAs in accordance with the CMIR statute. In many of the individual PSAs for the BILH hospitals,

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Accountable Care Organizations (ACO), 76 FED. REG. 67026, 67028 (Oct. 28, 2011), *available at* http://www.gpo.gov/fdsys/pkg/FR-2011-10-28/pdf/2011-27944.pdf (last visited July 13, 2018).

[136] We used 2016 CHIA hospital discharge data to identify each provider's share of commercial hospital discharges provided in Massachusetts for general acute care services (i.e., services provided in non-specialty inpatient hospitals), excluding normal newborns (including normal newborns would effectively double-count a single delivery as two discharges), non-acute discharges (e.g., discharges with a length of stay of greater than 180 days, rehabilitation discharges), and out-of-state patients. See the Data Appendix, Figures 5A through 5D, for maps of each hospital's inpatient PSA.

[137] We used claims-level data from the 2015 APCD for BCBS, HPHC, and THP to identify services provided by all facilities, including acute and non-acute care hospital outpatient departments and satellite facilities, and freestanding ambulatory surgery centers. We then determined the share of patient visits at each provider, counting all claims on the same day at the same provider for the same patient as a single visit.

BILH would have the largest share of inpatient and outpatient services by a substantial margin.[138]

The parties are also especially important providers of certain specialty services. In particular, the HPC focused on the parties' shares of musculoskeletal services and maternity care. As described in the HPC's 2016 review of BIDCO's proposed contracting affiliation with NE Baptist, NE Baptist provides a very substantial share of inpatient and outpatient orthopedic services.[139] After the transaction, BILH would provide 40.6% of a range of inpatient orthopedic and musculoskeletal services statewide,[140,141] and the eastern Massachusetts market would have two dominant provider networks for orthopedic and musculoskeletal services: Partners and BILH.[142]

In addition, Northeast, Winchester, Mt. Auburn, and BIDMC are important providers of maternity care, and the parties would have a combined share of 26.3% of all maternity discharges statewide, with higher shares in individual hospital PSAs.[143]

b. Adult Primary Care Services

Statewide, the market for primary care services is less concentrated than the market for inpatient and outpatient services. Currently, BIDCO and Lahey have the fourth and seventh

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[138] We found that the parties generally have substantial shares of inpatient and outpatient services in their PSAs, and that, in many of those PSAs, these shares would increase substantially following the transaction. A combined BILH would have shares of discharges in its hospitals' PSAs ranging from 22.3% in BID-Needham's PSA to 63.4% in Anna Jaques PSA. For outpatient facility visits, BILH's share would range from 20.0% in BID-Milton's PSA to 64.3% in Anna Jaques' PSA. See the Data Appendix, Figures 7A and 7B, for tables showing shares in each PSA for inpatient and outpatient services.

[139] 2016 BID CMIR FINAL REPORT, *supra* note 25, at 30-33.

[140] We examined shares for NE Baptist's "core" inpatient services using the same methodology described in the 2016 BID CMIR FINAL REPORT, *supra* note 25 at 31, n. 119 and n. 121. We updated the set of "core" services using 2016 CHIA hospital discharge data. The 26 MS-DRGs included in our definition of NE Baptist's core services are 453-462, 466-473, 483-489, and 509. These accounted for over 93% of NE Baptists' commercial discharges in 2016. We examined shares for outpatient orthopedic surgical services using the method described in 2016 BID CMIR FINAL REPORT, *supra* note 25 at 32, n. 125, updated with 2015 APCD claims data for BCBS, HPHC, and THP.

[141] The parties' combined share of inpatient orthopedic services would be higher in BILH hospitals' inpatient PSAs, reaching a high of 67.2% (in Anna Jaques' PSA). BILH would have a 47.9% share in NE Baptist's inpatient PSA, which encompasses much of eastern Massachusetts. The parties' combined share of outpatient orthopedic surgical services would be 34.9% in NE Baptist's outpatient PSA, which encompasses most of eastern Massachusetts (BIDCO, including NE Baptist, currently provides 25.8% of these services). See the Data Appendix, Figures 7C and 7D, for tables showing shares for major providers in NE Baptist's inpatient and outpatient PSAs.

[142] In NE Baptist's inpatient and outpatient PSAs, which encompass most of eastern Massachusetts, BILH and Partners would account for 75.5% orthopedic and musculoskeletal discharges and over 63% of outpatient orthopedic and musculoskeletal surgical services.

[143] The parties' combined share would be higher in BILH hospitals' inpatient PSAs, reaching a high of 77.7% (in Anna Jaques' PSA). BILH would provide approximately one third or more of all maternity discharges in all BILH hospitals' PSAs except those of BID-Milton, BID-Needham, and NE Baptist, and BILH would be the largest provider of maternity services in half of its hospital PSAs. The maternity discharges are defined as those DRGs falling into the Major Diagnostic Category for maternity services (MDC 14), which includes DRGs for pregnancy, childbirth, and puerperium. See the Data Appendix, Figure 7E, for detailed information about the parties' and other major providers' market shares in their PSAs.

largest shares of adult primary care services statewide, respectively. After the transaction, BILH would surpass Partners in its share of statewide adult primary care visits.

Statewide Shares of Adult Primary Care Services

Physician Network	Share of Adult Primary Care Visits
BIDCO, Lahey, MACIPA combined	**17.7%** (9.6% + 5.6% + 2.3%)
Partners	14.1%
Atrius	13.2%
Steward	12.6%
Wellforce	7.3%
UMass	6.0%
All Others	29.1%

The parties' shares are more significant in their own primary care PSAs.[144]

c. Market Concentration

Consistent with past reviews, the HPC also examined inpatient market concentration before and after the proposed transactions in the parties' PSAs, since increased market concentration, while not determinative, can be probative of the impact of a transaction on market leverage and the ability of the parties to negotiate higher prices.[145] For each BILH hospital PSA, the HPC calculated the Herfindahl-Hirschman Index (HHI),[146] a commonly used measure of

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[144] In their respective PSAs, BIDCO, Lahey, and MACIPA provide 18.8%, 26.3%, and 13.5% of adult primary care visits, exceeding Partners' share in these PSAs. Following the transaction, BILH would become the largest provider of adult primary care visits in each of BIDCO's, Lahey's, and MACIPA's current PSAs, ahead of both of the other major Boston-area primary care provider networks, Atrius and Partners. We defined primary care services using the methodology described in 2016 BID CMIR FINAL REPORT, *supra* note 25, at 28, n. 111, updated with 2015 APCD claims data for BCBS, HPHC, and THP. See the Data Appendix, Figures 6A through 6C, for maps of the parties' adult primary care PSAs and Figure 7F for a table detailing the parties' current shares.

[145] For example, the Department of Justice and Federal Trade Commission have noted that "[m]ost studies of the relationship between competition and hospital prices generally find increased hospital concentration is associated with increased price." U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, IMPROVING HEALTHCARE: A DOSE OF COMPETITION 1, 15 (July 2004), *available at* http://www.ftc.gov/reports/healthcare/040723healthcarerpt.pdf (last visited July 14, 2018).

[146] The HHI is calculated by squaring the market share of each firm competing in the market and then summing the resulting numbers. For example, for a market consisting of four firms with shares of 30, 30, 20, and 20 percent, the HHI is 2,600 (900 + 900 + 400 + 400 = 2,600). HHIs range from near 0 (perfect competition) to 10,000 (one firm with a monopoly). When firms are equally sized, the HHI is equal to 100 times the per-firm market share. For

market concentration. The Department of Justice (DOJ) and Federal Trade Commission (FTC) use changes in HHIs in PSAs as screens for determining whether a given transaction raises competitive concerns and warrants further scrutiny.[147] The highest level of scrutiny is reserved for transactions that result in a "highly concentrated market" (defined as an HHI of greater than 2,500) where the increase in HHI resulting from the transaction is greater than 200. Such transactions are presumed likely to enhance market power.[148]

Here, we found that HHIs for inpatient services increased substantially in most of the party hospitals' inpatient PSAs, with seven of the 12 BILH-owned and contracting affiliate PSAs exceeding thresholds where the increase would be presumed likely to enhance market power, as highlighted in red in the chart below.[149,150]

Summary of Changes in Market Concentration

Current Network/ System Affiliation	PSA	Pre-Transaction HHI	Post-Transaction HHI	HHI change
Lahey-owned	Lahey HMC	2,217	3,164	947
Lahey-owned	Winchester	2,316	3,556	1,240
Lahey-owned	Northeast	3,504	4,031	527
BID-owned	BIDMC	2,030	2,711	681
BID-owned	BID-Milton	1,902	1,976	73
BID-owned	BID-Needham	3,522	3,608	86
BID-owned	BID-Plymouth	2,384	2,422	38
BIDCO contracting affiliate	Anna Jaques	2,886	4,482	1,597
BIDCO contracting affiliate	CHA	2,239	3,493	1,254
BIDCO contracting affiliate	Lawrence General	2,082	3,118	1,036
BIDCO contracting affiliate	NEBH	1,598	2,115	518
Independent	Mt. Auburn	2,490	3,450	960

example, two firms with a 50% share each give rise to an HHI of 5,000. Three firms with 33.3% share each give rise to an HHI of 3,333, and so on.

[147] *See* U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES § 5.3 (2010), *available at* http://www.justice.gov/atr/public/guidelines/hmg-2010.pdf (last visited July 14, 2018) [hereinafter FTC/DOJ HORIZONTAL MERGER GUIDELINES]. As discussed in *supra* note 135, the DOJ and the FTC use market shares within PSAs as "a useful screen for evaluating potential competitive effects." To that end, and consistent with MASS. GEN. LAWS ch. 6D, § 13 (2012), we have used PSAs for our analyses, but we have not conducted a formal market definition analysis.

[148] FTC/DOJ HORIZONTAL MERGER GUIDELINES, *supra* note 147.

[149] As explained in *supra* note 25, we do not include MetroWest as part of BIDCO or BILH in these analyses and treat it as an independent hospital, both to be conservative and because MetroWest is not currently contracting with any payers through BIDCO.

[150] The FTC and DOJ consider a market to be moderately concentrated if it has an HHI between 1,500 and 2,500, and highly concentrated if it has an HHI over 2,500. *See* FTC/DOJ HORIZONTAL MERGER GUIDELINES, *supra* note 147. The degree of market concentration that would be generated by this transaction is generally greater than that of the parties' previous acquisitions and contracting affiliations. *See supra* note 117.

5. The transaction would significantly enhance the parties' bargaining leverage with commercial payers, which would enable BILH to substantially increase commercial prices.

The HPC also conducted a merger simulation, working closely with a team of economists with extensive expertise in hospital mergers, to determine the transaction's likely impact on BILH's bargaining leverage with commercial payers and its ability to negotiate higher prices. The HPC employed what is now the standard model for understanding hospital competition—generally referred to as the two stage competition model and "willingness-to-pay" analyses—which has been accepted by courts in a range of recent antitrust cases,[151] and which has been shown to be effective in identifying potentially anti-competitive mergers.[152]

"Willingness-to-pay" (WTP) refers to an econometric model that quantifies bargaining leverage by estimating the difference between the value of a payer's network when it includes a given provider versus when it does not.[153] That difference in network value with and without a provider is an estimation of the "attractiveness" of a given provider to patients[154] that is computed by using detailed information about actual patients and the providers they chose for specific services. By using detailed information about patients, the services provided, and the providers they chose, WTP models account for the fact that different patients in different circumstances are likely to make different choices; for example, these data can reveal that

[151] With regard to court acceptance, see *Opinion, Saint Alphonsus Med. Ctr. - Nampa Inc. v. St. Luke's Health Sys., Ltd.*, No. 14-35173 (9th Cir. Feb. 10, 2015), at n.10 ("This 'two-stage model' of health care competition is 'the accepted model.'" Citing John J. Miles, 1 Health Care & Antitrust L. § 1:5 (2014)). *Complaint, In re Evanston Northwestern Healthcare Corp.*, No. 9315 (2004). *See also, United States v. Rockford Mem'l Corp.*, 717 F. Supp. 1251, 1266-78 (N.D. Ill. 1989), aff'd, 898 F.2d 1278 (7th Cir. 1990); *ProMedica Health Sys., Inc. v. FTC*, 749 F.3d 559 (6th Cir. 2014); *St. Alphonsus Med. Ctr.-Nampa Inc. v. St. Luke's Health Sys., Ltd.*, 778 F.3d 775 (9th Cir. 2015); *FTC et al. v. Advocate Health Care et al.*, No. 15 C 11473 (7th Cir. Oct. 31, 2016); and *FTC et al. v. Penn State Hershey Medical Center et al.*, No. 1:15-cv-2363 (3d Cir. June 2016).

[152] A recent study that evaluated the effectiveness of merger screening tools based on actual subsequent price changes found that out of five different screening tools, WTP correctly flagged a likelihood of price increases most often and also had the lowest rate of "false positives," or flagging a likely price increase where none occurred. *See* Christopher Garmon, *The accuracy of hospital merger screening methods*, 48 RAND J. OF ECON. 1068 (2017) [hereinafter Garmon].

[153] Economic research has shown that hospitals that have a higher value to payer networks generally negotiate higher prices with health plans. Cory Capps, David Dranove, & Mark Satterthwaite, *Competition and Market Power in Option Demand Markets*, 34 RAND J. OF ECON. 737 (2003) [hereinafter Capps, Dranove & Satterthwaite 2003]; Robert J. Town & Gregory Vistnes, *Hospital Competition in HMO Networks*, 20 J. OF HEALTH ECON. 733 (2001); Martin Gaynor & William B. Vogt, *Competition among Hospitals*, 34 RAND J. OF ECON. 764 (2003); Gary M. Fournier & Yunwei Gai, *What Does Willingness-to-Pay Reveal About Hospital Market Power in Merger Cases?* (iHEA 2007 6th World Congress: Explorations in Health Economics Paper, 2007) *available at* https://papers.ssrn.com/sol3/papers.cfm?abstract_id=993213 (last visited July 13, 2018).

[154] Under the two-stage competition model, providers first compete—largely on the basis of price—to participate in commercial payer networks, and the providers and payers often negotiate intensely over the price and other terms of the providers' participation. In the second stage of competition, in-network providers compete—largely on the basis of non-price factors (e.g., quality, specific services provided)—for patients. The two stages of competition are interrelated. When a provider is more attractive to patients, its inclusion in an insurance network makes that insurer's network more marketable to employers and consumers. Thus, when a provider is more attractive to patients (stage-two competition), it will have more leverage with payers in negotiations over price and network inclusion (stage-one competition) and be able to command a higher price.

patients are more likely to choose a hospital that is close to their home for labor and delivery but are more willing to travel for complex procedures. The model also can account for the fact that not all providers offer all services. Of particular relevance, the WTP model gives a prediction of where patients would shift if one provider were to become unavailable to patients (i.e., for any given provider, what are the most likely alternatives for patients). This measures the degree to which providers are close substitutes for each other from the perspective of patients.

For the BILH transaction, we created separate WTP models for inpatient,[155] outpatient facility, and adult primary care services.[156,157] We related the estimated willingness-to-pay per visit for each Massachusetts provider to prices in commercial insurance networks and found, as expected, a strong and positive relationship.[158] We then used these estimated models to determine how willingness-to-pay would change if providers that were previously unaffiliated began to contract jointly.[159]

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[155] To estimate an inpatient WTP model, we used detailed data on tens of thousands of hospital discharges in Massachusetts (i.e., all hospital discharges from 2016) to examine the actual choices patients made for hospital care, alongside key information about the patients (e.g., zip code of residence, age, gender, diagnosis, disease category) and the hospitals they chose to determine those factors that, on average, lead particular types of patients to choose particular hospitals. We used a conditional logit model to estimate the demand for inpatient services among patients. Using the estimated model, we computed WTP for each system, which is defined as the difference between the value of a network that includes that hospital and the value of a network that does not. The conditional logit model included indicator variables (fixed effects) for each hospital that capture the combined effect of each hospital's attributes (e.g., location, teaching status, service offerings, etc.).

[156] To estimate an outpatient and adult primary care WTP, we used detailed claim-line data from the 2015 APCD, alongside key information about patients (e.g., zip code, gender, age, primary diagnosis, and ambulatory payment classification weights) and their chosen facility/provider, including network affiliation information from MA-RPO data. We used data from the BCBS, THP, and HPHC, the three largest commercial payers, for outpatient facility services, but only BCBS and HPHC data on professional claims due to data limitations. This model mirrors that used by the FTC's expert in *FTC & State of Idaho v. St. Luke's Health System & Saltzer Medical Group*, No. 1:13-cv-00116. For outpatient and physician services, rather than estimate a conditional logit model, we use a "micro-shares" approach. This non-parametrically estimates the probabilities that patients with a given set of attributes (a "patient micro segment") will select each outpatient provider or PCP. The micro-share estimated probabilities are used to compute WTP for each system.

[157] For primary care services, we limited our analyses to preventative care and evaluation and management visits. Specifically, we examined all services provided in a single day to a single patient by a single PCP (defined as a "visit") involving 10 Current Procedural Terminology (CPT) codes for evaluation and management visits (99201-99205 for new patients and 99211-99215 for existing patients) and 14 CPT codes for preventative care/annual physical exam visits (99381-99387 for new patients and 99391-99397 for existing patients).

[158] The prices for the inpatient analysis are based on the confidential revenue per discharge data underlying 2013 through 2015 inpatient relative prices. The prices for the outpatient facility analysis are the outpatient relative prices found in the 2013 through 2015 relative price datasets. CTR. FOR HEALTH INFO. & ANALYSIS, PROVIDER PRICE VARIATION IN THE MASSACHUSETTS HEALTH CARE MARKET (CALENDAR YEAR 2013 DATA) (Feb. 2015); CTR. FOR HEALTH INFO. & ANALYSIS, PROVIDER PRICE VARIATION IN THE MASSACHUSETTS HEALTH CARE MARKET (CALENDAR YEAR 2014 DATA) (Feb. 2016), *available at* http://www.chiamass.gov/assets/docs/r/pubs/16/relative-price-databook-2014.xlsx (last visited July 5, 2018); CTR. FOR HEALTH INFO. & ANALYSIS, PROVIDER PRICE VARIATION IN THE MASSACHUSETTS HEALTH CARE MARKET (CALENDAR YEAR 2015 DATA) (May 2017), *available at* http://www.chiamass.gov/assets/docs/r/pubs/17/Relative-Price-Databook-2017.xlsx (last visited July 5, 2018). The prices for the adult primary care services are total allowed amount per work RVU computed using 2013 to 2015 APCD professional claims data for BCBS and HPHC.

[159] When providers begin contracting with payers jointly, and those providers are close substitutes for each other, payers cannot hold prices down by using the threat of turning to one of those two providers if the other does not offer an attractive price. In this way, the loss of a significant competitive alternative can drive up prices. For example, a payer might be able to market a network that excluded the most popular local hospital for maternity care

In the BILH transaction, we found that the parties' bargaining leverage as measured by WTP is projected to increase substantially for all services modeled—inpatient, outpatient, and adult primary care services. Because WTP is highly correlated with prices, we can estimate what this increase in WTP would imply in terms of one-time commercial price increases and annual spending impacts for the parties' inpatient, outpatient, and adult primary care services.[160] This model projects that the increase in BILH's bargaining leverage would likely allow it to obtain one-time[161] commercial price increases of:

- 5% to 6.7% for inpatient services, with an annual commercial spending impact of $38.3 million to $51.4 million;[162]
- 8.4% to 12.2% for outpatient facility services, with an annual commercial spending impact of $88.4 to $128.4 million;[163] and
- 8.7% to 9% for adult primary care services, with an annual commercial spending impact of $11.5 million, to the extent that such price increases were not offset by savings from improved care management.[164]

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if it included the second most popular local hospital for maternity care (and vice versa). However, if those two hospitals merged and began to contract together and could *both* threaten to leave a network if certain price or other terms were not met, a payer might find it very difficult to exclude both hospitals from its network and might instead be willing to pay higher rates. In other words, because the outside option of not contracting with *either hospital* would be sharply less attractive to a payer, the merged hospitals would have greater bargaining leverage and a greater ability to obtain higher rates than they would when they were independent competitors.

[160] To identify the impact on prices of increases in WTP for all BILH CIN hospitals, we estimated a regression equation that quantifies the relationship between WTP per discharge and price. The regressions for inpatient, outpatient, and adult primary care services all include variables to control for provider costs. We control for provider cost based on Capps, Dranove & Satterthwaite 2003, *supra* note 153, which links variable profit (i.e., revenue minus variable cost) to a hospital's WTP: $PQ - CQ = \alpha \times WTP$, where P is the per-discharge price, Q is the number of discharges, and $C(Q)$ is variable cost. This equation can be rearranged as $P = \alpha \times \frac{WTP}{Q} + \frac{C(Q)}{Q}$. This shows that, when quantifying the relationship between price and WTP, the right hand side should also include a measure of variable cost. We use the empirical relationship between WTP-per-discharge for a provider and its price, as estimated by the regression model, to predict how prices will likely change as WTP increases.

[161] These one-time increases would not necessarily occur over the course of a single year but could, for example, be effectuated over a three-year contract term, reducing the likelihood that HSA TME would increase in excess of the benchmark in any single year. However, these price increases would result in a permanently increased price *level* with the annual spending impacts detailed in this section.

[162] Our WTP analysis found that the transaction would yield a 10.8% increase in inpatient WTP for the BILH system as a whole. A WTP increase of this magnitude has been flagged as a reliable indicator that a proposed merger merits further investigation. Garmon, *supra* note 152 (finding that the best threshold for identifying transactions that merit further investigation is a WTP change over 6%; in his sample, seven of nine mergers with statistically significant post-merger price increases (i.e., larger increases than control hospitals) had WTP changes over 6%, while of six mergers with statistically significant price decreases, three had WTP change of less than 6%.). Some hospitals in this analysis contribute more than others to the increase in WTP for the BILH system and to the system's corresponding projected price increases. For example, we found that if we exclude Mt. Auburn from the BILH system in the analysis, BILH's inpatient WTP would increase by 7.2% instead of 10.8%. Without Mt. Auburn, we would predict that BILH would be able to obtain price increases in the range of 3.2% to 4.3% rather than 5.0% to 6.7%, in addition to the price increases the parties would otherwise have been able to obtain. *See* Data Appendix, Figure 7G, for a chart showing the extent of overlap between the parties' market shares in different regions.

[163] We found that the outpatient WTP increase from this merger would be 12.2%.

In total, we estimate that commercial spending would increase by $138.3 million to $191.3 million annually for inpatient, outpatient, and adult primary care services if the parties obtain these projected price increases, with additional price increases likely across other services not formally quantified (e.g., specialty physician services). Because the projected price increases across inpatient, outpatient, and adult primary care services are quite consistent,[165] we might expect to find similar ranges of price increases across other sets of services not modeled.[166] If we were to apply 5% to 10% price increases to all other BILH physician services (e.g., specialty physician spending), commercial spending for these services would increase by $29.8 to $59.7 million annually, in addition to the price increases modeled above.[167]

All such price increases would be *in addition* to the price increases the parties would have otherwise received and would permanently increase the baseline price level for the parties, meaning that any future percent increases would apply to a higher base of spending, and thus have an increased dollar impact on health care spending.

6. These projected price increases are likely to be conservative.

The enhanced bargaining leverage and related projected price increases detailed above are likely to be conservative estimates of the overall effect of the proposed merger on prices and spending. For example, the willingness-to-pay analyses are based on current volume at each of the party hospitals. However, as discussed in Section III.A.8 below, BILH expects to increase its volume by, for example, reducing the use of non-BILH providers by BILH primary care patients, and enhancing BILH's brand. To the extent that BILH achieves its goal of attracting more patients, its importance to payers would be expected to increase as well, meaning that it would likely have leverage to increase prices to a greater extent than the increase from eliminating competition between the parties based on their current volume as modeled through the WTP analyses.

Additionally, several recent economic studies have documented so-called "cross-market merger effects" that would not be captured in the WTP analyses and would be expected to result in additional bargaining leverage for the merged entity.[168] As described above, willingness-to-

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[164] We found that WTP for the parties' adult primary care services would increase by 10.4%.
[165] The consistency of these results likely also reflects that such estimates are robust.
[166] For example, we understand there to be overlap between the parties' specialty physician services. Based on data provided through the MA-RPO program, the BIDCO, Lahey, and MACIPA physician all include specialists in allergy and immunology, pathology, cardiology, colorectal surgery, radiology, dermatology, general surgery, orthopedics, ophthalmology, plastic surgery, podiatry, pulmonology, rheumatology, and urology, among others. *See* BIDCO 2017 MA-RPO FILING, *supra* note 25; LAHEY 2017 MA-RPO FILING, *supra* note 83; MACIPA 2017 MA-RPO FILING, *supra* note 98.
[167] We understand that the parties will ultimately seek to have all of BILH CIN operate under single contracts with each payer, which could mean that their prices converge to the same level over time (although this is not technically required for the operation of a single contract). As we do not expect any of the parties' physician groups to accept price reductions as a result of the transaction, we modeled the impact if each party's physicians received the same price as the highest-priced group for each commercial payer network, based on 2015 physician relative prices and revenue. We found that the impact from such increases is comparable to those described here.
[168] *See* Leemore Dafny, Kate Ho & Robin Lee, *The Price Effects of Cross-Market Mergers: Theory and Evidence from the Hospital Industry* (Nat'l Bureau of Econ. Research, Working Paper No. 22106, 2018) [hereinafter Dafny,

pay analyses quantify the attractiveness of providers *to patients* in order to assess the additional value of including the provider in a payer's contracting network. Where two providers are close substitutes from the perspective of an individual patient, willingness-to-pay analyses predict that a merger between the two providers will generally increase their prices. Where two providers are merging or begin contracting jointly but are not close substitutes for patients, a willingness-to-pay analysis generally will not predict a significant increase in their bargaining leverage. However, in practice, decisions about purchasing a health plan—and thus, choosing a provider network—are more often made by employers than individuals. Where an employer is choosing a plan, it may seek to ensure in-network access to geographically dispersed hospitals for employees who commute from different geographies. Therefore, providers who are geographically far apart may be substitutes for *employers*, even when they would not be close substitutes for individual patients.[169] Being substitutes from the perspective of employers effectively makes providers substitutes for the payers that market to those employers. In this case, a merger between relatively distant providers (but close enough such that many firms would have employees in the areas near each system) could have substantial price effects; a recent study found that merging hospitals located 30 and 90 minutes from one another (within the same state) had, after four years, 19% higher prices than non-merging hospitals.[170] The WTP analyses detailed above do not capture any potential cross-market merger effects. Thus, to the extent that similar cross-market effects applied here, BILH could potentially increase its prices by more than projected above.[171]

There are other mechanisms detailed in economic literature that could also increase spending beyond those the WTP analyses capture. For example, there is some evidence that mergers can increase the bargaining leverage of rival hospitals through the so-called *price reinforcement effect*. If BILH negotiates higher prices after the merger, this could improve the bargaining position of rival hospitals, particularly those with lower prices than BILH, because their exclusion from a payer's network would send more patients to the more expensive BILH network. If these other providers negotiate higher prices, this would further increase spending.[172,173]

Ho, Lee 2018], *available at* http://www.nber.org/papers/w22106.pdf (last visited July 14, 2018); Matthew S. Lewis& Kevin E. Pflum, *Hospital systems and bargaining power: evidence from out-of-market acquisitions*, 48 RAND J. OF ECON. 579 (2017) [hereinafter Lewis & Pflum]; Gregory S. Vistnes & Yianis Sarafidis, *Cross-market hospital mergers: A holistic approach*, 79 ANTITRUST L. J. 253 (2013).

[169] For example, an employer based in Boston may be willing to purchase an insurance product for its employees that excluded some key hospitals on the North Shore or which excluded some key hospitals on the South Shore, but may be far more reluctant to purchase a product that excluded key hospitals in both regions. This dynamic would confer additional bargaining leverage to a provider with hospitals in both regions, even though an individual patient would be unlikely to view a hospital on the North Shore as a substitute for a hospital on the South Shore and vice versa.

[170] Dafny, Ho, Lee 2018, *supra* note 168. The authors conclude that these effects are due to the "common customer" effect—that is, the existence of employers (or households) that value hospitals in different markets. Where hospitals are further than 90 minutes apart, or are located across state lines, the effects on price are not statistically significant. *See also*, Lewis & Pflum, *supra* note 170 (finding that independent hospitals acquired by systems in different markets raise prices by about 17% more than unacquired, stand-alone hospitals).

[171] The parties' statement that BILH "will cover a large enough geography to better meet insurer and employer needs…" suggests that cross-market effects may meaningfully increase bargaining leverage in the current transaction. *See* DON NARRATIVE, *supra* note 28, at 3.

[172] *See* Leemore Dafny, *Estimation and Identification of Merger Effects: An Application to Hospital Mergers*, 52 J. OF L. AND ECON. 523 (2009).

7. Despite the fact that the parties' financial projections indicate that BILH would not need substantial price increases to achieve positive financial margins, they have not committed to limiting future price increases. The parties could obtain the projected price increases, significantly increasing health care spending, while remaining lower-priced than Partners.

As described in Section II.A., the parties have provided financial projections for the proposed BILH system.[174] The baseline projection combines the parties' individual projected financial performance assuming no impacts of the transaction, while the parties' low, medium, and high performance projections assume various levels of achievement of the parties' stated goals. The baseline projection shows that the parties expect BILH to achieve small but increasing positive financial margins as a system even absent any changes or shared initiatives.[175] The substantial additional revenue included in their other scenarios would be generated by increased volume due to shifts in patient care, as discussed in the next sections. In addition, the parties' scenarios include potential efficiencies in non-clinical functional areas and supply costs of between 1.5% and 3%, based on conservative assumptions. The parties also anticipate achieving more favorable debt financing rates as a combined system, which could also result in small additional efficiencies.[176] The parties have indicated that they intend to retain any such efficiencies to fund their operations and "reinvest in services and programs needed to better care for [the BILH] patient panel."[177] Importantly, all of the projections anticipate positive financial margins and none relies on price increases in excess of the parties' baseline scenario, which assumes no change as a result of the proposed transaction, in order to achieve such margins.

Despite the fact that the parties expect BILH to be profitable even without substantial price increases, the parties have not committed to constraining future price increases.[178] The

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[173] Additionally, with fewer firms, *tacit coordination* (e.g., on service offerings or advertising territories) may be more feasible or sustainable. The DOJ recently settled such a case against Henry Ford Allegiance Health. *See* Press Release, U.S. Dep't of Justice, Justice Department Reaches Settlement with Henry Ford Allegiance Health on Antitrust Charges (Feb. 9, 2018), *available at* https://www.justice.gov/opa/pr/justice-department-reaches-settlement-henry-ford-allegiance-health-antitrust-charges (last visited July 14, 2018).
[174] BDO REPORT, *supra* note 31.
[175] *Id*. at 8-9.
[176] *See* DON NARRATIVE, *supra* note 28 at 17. CareGroup, which holds debt on behalf of BIDMC, Baptist, and Mt. Auburn, is currently rated "Baa1 - stable" by Moody's. *Rating Action: Moody's assigns Baa1 to CareGroup's (MA) Ser. J (2018); outlook stable*, MOODY'S INVESTORS SERVICE, https://www.moodys.com/research/Moodys-assigns-Baa1-to-CareGroups-MA-Ser-J-2018-outlook--PR_904600792 (May 23, 2018) (last visited July 14, 2018). Lahey holds debt through Northeast Health System, also rated Baa1 - stable, as well as through Winchester and at the Lahey system level; Lahey and Winchester are not rated by Moody's, but are rated A and A-, respectively, by Standard and Poors. Alia Paavola, *S&P Downgrades Lahey Health System Obligated Group Bond Rating to 'A'*, BECKER'S HOSPITAL REVIEW, August 21, 2017, *available at* https://www.beckershospitalreview.com/finance/s-p-downgrades-lahey-health-system-obligated-group-bond-rating-to-a.html (last visited July 14, 2018). If the parties refinance their current long-term debt at a more favorable rate, it would likely result in small savings on their interest payments; for example, an interest rate reduction of half a percentage point on the parties' current total debt would result in annual savings to the parties of approximately $6 million based on the current debt obligations of the parties shown on their audited financial statements. More favorable rates would also apply to additional debt the parties may take on in future.
[177] DON NARRATIVE, *supra* note 28, at 17.
[178] For example, in response to the question from the DoN program "how will you limit price increases?" the parties responded that BILH would "function in a competitive marketplace in an environment that requires extensive transparency and accountability coupled with close regulatory scrutiny of health care costs by the Department of

parties state that they plan to remain a lower-priced provider and would not seek to diminish their value as a lower-priced provider.[179] However, BILH could increase its prices significantly, with a substantial impact on health care spending, and still remain a lower-priced provider than Partners: the price increases projected above would close approximately 31% to 44% of the current gap between the parties' and Partners' inpatient and outpatient prices.[180]

8. Achieving care redirection consistent with the parties' estimates could result in savings, but there is no reasonable scenario in which such savings would offset spending increases if BILH obtains the price increases described above.

As described in Section II.A., the parties claim that the transaction would result in reduced health care expenditures both by attracting more patients to the BILH system, which would be lower-cost than competitors, and by redirecting care to lower-cost settings within their system. While many of the parties' plans for how they would achieve these goals are still under development, and we therefore cannot opine on the likelihood that the parties would achieve care redirection consistent with their estimates,[181] we modeled the likely scope of savings if the parties were to achieve care redirection in line with their projections.

Based on materials provided by the parties regarding their goals and expectations for the transaction, the HPC identified four key mechanisms by which the parties could redirect care and potentially achieve savings:

Public Health, HPC, and other regulators" rather than offering any express commitment. LAHEY HEALTH SYSTEM, CAREGROUP, AND SEACOST REGIONAL HEALTH SYSTEMS, RESPONSE TO SECOND QUESTION REQUEST at 6 (Dec. 2017), *available at* https://www.mass.gov/files/documents/2017/12/13/newco-don-questions-responses.pdf (last visited July 17, 2018). While Massachusetts has an accountability framework for total health care spending in the state through its health care cost growth benchmark, the benchmark itself does not cap individual prices or spending performance, and there are limits on when and how a Performance Improvement Plan, the key enforcement mechanism for the benchmark, can address individual performance.

[179] *See* MASS. DEP'T. OF PUBLIC HEALTH, STAFF REPORT TO THE PUBLIC HEALTH COUNCIL FOR THE DETERMINATION OF NEED FOR DON APPLICATION NEWCO-17082413 at 23 (Mar. 5, 2018), *available at* https://www.mass.gov/files/documents/2018/03/06/newco-staff-report.pdf [hereinafter DON STAFF REPORT] (last visited July 13, 2018) ("NewCo … argues that maintaining its competitive position in the marketplace requires retaining its status as a high-value provider compared to system alternatives. Moreover, NewCo asserts that it will face competition from larger systems, and NewCo will need to differentiate itself by providing value within a broad and complementary system.").

[180] As described in Section II.A., the parties' financial projections show that they expect positive margins for BILH even assuming price increases that are *lower* than what the parties have generally achieved to date. Thus, while the parties have not committed to limiting future price increases, it is also worth noting that the financial success of the BILH system does not appear to depend on substantial price increases.

[181] We understand that the parties are currently engaged in a rigorous planning process designed to improve retention of current BILH primary care patients at BILH hospitals, including through communication and marketing; benefit design; patient navigation tools and other supports to enhance patient access and convenience; referral management tools and supports for in-system referrals; and other mechanisms. See Section III.C.3, *infra*, for further discussion of the parties' plans. These plans could result in increased volume at BILH, but we are not able to determine the probability that the parties will achieve any specific level of volume increases. Therefore our models are based on the assumption most favorable to the parties—that the parties would achieve their care redirection goals. However, see Section III.A.3 above, regarding past performance of BIDCO and Lahey in "keeping care local" following affiliations with community hospitals. We did find evidence that BIDCO and Lahey have increased their systems' overall share of local volume following acquisitions, although that has not always resulted in patients receiving care in lower-cost settings, and we have not seen changes in spending trends.

- Increased retention of current BILH primary care patients at BILH hospitals;[182]
- Increased volume at BILH hospitals due to enhanced consumer preference or brand;
- Recruitment of new primary care patients (or physicians) to BILH; and
- Shifts of patient volume within BILH from BIDMC and Lahey HMC to lower-priced BILH hospitals

We modeled the spending impact for each of these four mechanisms, assuming that the parties were able to achieve their projected levels of care redirection. As detailed below, we found that redirecting care to the parties' hospitals from competitors would, on balance, be cost-saving. Similarly, redirecting care to lower-priced settings within BILH would be cost-saving. However, even if the parties redirected care in line with their projections, the savings would not offset spending increases if BILH achieves the price increases described in Section III.A.5. Indeed, we can find no reasonable scenario in which the savings from shifts in care would be sufficient to offset the price increases detailed above.[183]

a. Increased retention of current BILH patients

The parties have stated that they expect most of their new hospital volume to come from their current primary care patients; specifically, the parties seek to attract more patients to BILH hospitals by reducing "leakage" (i.e., retaining at BILH hospitals a portion of current primary care patients who receive hospital care from non-BILH providers) for elective services. The parties provided the HPC with estimates of the proportion of leakage they expect to retain at BILH hospitals for each physician network (BIDCO, LCPN, MACIPA) as a result of the transaction.[184] Based on current data on hospital utilization[185] for patients with BIDCO, LCPN, and MACIPA PCPs, we modeled the change in spending if the parties recapture the proportions of leakage they project.[186] We found that the parties' patients currently use hospitals that are

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[182] "Retention" here refers to retaining patients with BILH PCPs within the BILH system when these patients seek hospital services. "Leakage" is the opposite of retention; when patients with a PCP in a given system seek care from non-system providers, they may be described as having "leaked" from a system.

[183] For example, to fully mitigate a 5% to 6.7% inpatient price increase, BILH would have to increase its commercial inpatient volume by more than 50%. However, based on current bed counts, average length of stay, and occupancy rates, and assuming that the parties increased their patient volume proportionally for commercial and public payers, we find that BILH could add no more than 14% additional volume *across the system* before needing to add more beds.

[184] The parties' various estimates relating to volume recapture were internally inconsistent. The HPC has used the estimates that are most favorable to the parties in the analyses described here.

[185] We received 2016 data from the three largest commercial payers showing "site of care statistics" for their HMO/POS members. "Site of care" statistics show the total volume of inpatient and outpatient services provided to BIDCO, Lahey, and MACIPA primary care patients at different in-system and out-of-system hospitals, and the corresponding amounts paid for these services. This allows the HPC to identify the proportions in which the parties' primary care patients receive care from non-BILH hospitals.

[186] For this analysis, we applied the parties' assumptions about what percentages of BIDCO, LCPN, and MACIPA "elective" inpatient volume going to non-BILH hospitals would be recaptured. We assumed that volume going to

higher-priced as well as lower-priced than BILH hospitals, so shifts in volume to BILH from some of these hospitals would decrease spending, while shifts to BILH from others would increase spending. Based on the mix of non-BILH hospitals that the parties' patients currently use, reducing leakage would, on balance, reduce spending. We expect that achieving the parties' projected leakage reduction would save approximately $4.8 million to $6.9 million annually for inpatient and outpatient services for all commercial payers if all prices, including the merging parties' prices (notwithstanding the increase in bargaining leverage) were to remain unchanged.[187] However, if BILH were to obtain the price increases projected above, the value of this leakage recapture would be diminished, yielding $2.4 million to $4.5 million in savings annually.[188,189]

b. Enhanced consumer preference or brand

The parties also expect that an enhanced brand as a result of the transaction would result in a modest number of additional patients choosing to receive inpatient and outpatient care at BILH hospitals.[190] The HPC used a simulation based on the hospital choice model developed for

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non-BILH AMCs would be distributed between BIDMC, NE Baptist, Lahey HMC, and Mt. Auburn, that care going to non-BILH teaching hospitals would be distributed between NE Baptist, Mt. Auburn, and Lahey HMC, and that care going to non-BILH community hospitals would be distributed among BILH community hospitals. We assumed care returning to the BILH system would be distributed based on how each practice group's patients staying within the BILH system are currently distributed. We assumed contracting affiliate hospitals that would not be BILH-owned (CHA, Lawrence General, and MetroWest), out-of-state hospitals, and specialty hospitals would not be affected by these changes.

[187] We applied the parties' assumptions about the portion of each BILH's physician network's inpatient "leakage" (care provided by non-BILH hospitals) that would be retained in order to estimate the total volume of inpatient discharges that would be brought back into the BILH system if the parties were successful in reaching estimated levels of retention. Because the parties only provided estimates of the portion of inpatient discharges they expected to be able to retain, we made the assumption that outpatient care would be retained at similar rates. Based on the methodology described at *supra* note 186, we then estimated the BILH hospitals to which these services would shift if care were retained in-system. We calculated a price differential between each non-party hospital expected to lose patients and each BILH hospital expected to gain patients under this model using 2016 inpatient and outpatient hospital relative prices. To calculate a spending impact, we multiplied the amounts paid to each non-party hospital by the corresponding price differential to estimate how much the services would cost when provided within BILH, and compared the resulting amount with current spending. Because we only had data for the three largest commercial payers' HMO/POS members, we scaled the results up in order to model a spending impact for all commercial payers, including PPO members. For inpatient services, we calculated the ratio of all commercial discharges to HMO/POS discharges for the three largest commercial payers in the 2016 relative price data set, and multiplied our inpatient results by this ratio to estimate an inpatient spending impact for all commercial payers. For outpatient services, we calculated and applied a similar ratio based on outpatient revenue.

[188] To estimate a spending impact with price increases, we followed the methodology above, adjusting the relative price differential to reflect a price increase for the BILH hospitals to which care would shift.

[189] Although the parties did not project that they could eliminate leakage to non-BILH hospitals, we also modeled the scope of savings that would be possible if all leakage for elective hospital care were eliminated. We found that even if the parties were able to recapture *all* of their current leakage for elective services, the savings to commercial payers would be $25.8 million annually at current prices, and $13 million to $16.7 million annually with projected price increases, a small fraction of the amount needed to offset the spending impact of projected price increases.

[190] The parties provided different estimates of the increased volume they expect from brand enhancement. The HPC modeled the savings that would result if the parties achieved the largest of their estimates (i.e., the most favorable assumption to the parties). Specifically, we utilized an estimate of the percentage of BILH's total projected post-transaction volume increase that they expect to come from "consumer awareness" (i.e., brand enhancement). Based

our inpatient willingness-to-pay analyses to determine, if the parties achieve their expected volume increase, from which hospitals and systems the parties would most likely draw patients. As described in Section III.A.5, the inpatient hospital choice model incorporates detailed data on patients and hospitals to examine the actual choices patients made for hospital care to determine those factors that, on average, lead particular types of patients to choose particular hospitals. Utilizing this simulation model, we increased the overall attractiveness of BILH hospitals by enough to increase the expected volume at the merged system in line with the parties' expectations. We then used the simulation to compare the expected patient utilization patterns of the brand-enhanced BILH to the actual patient utilization patterns in order to measure which hospitals would be expected to lose volume as BILH gained volume. Overall, our model projects that approximately 56% of new commercial inpatient discharges due to brand enhancement would come from the Partners system, 13.5% would come from the Wellforce system, and 9.7% would come from the Steward system and the remainder from other area hospitals.[191].

On balance, more patients would be expected to shift to BILH hospitals from higher-priced hospitals than lower-priced hospitals, thus these volume shifts would likely be cost-saving at current price levels. If the parties achieve their projected volume increases from an enhanced brand, and do not increase current prices relative to the market, we expect that shifts in inpatient and outpatient care to the parties could save approximately $1.8 million to $3.5 million in commercial spending annually. If the parties obtain the price increases projected by the WTP analyses, the savings would decline to $973,000 to $2.3 million in commercial spending annually.[192,193] However, as described in Section III.A.6, it is likely that any increased volume

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on this percentage and the number of additional discharges we estimated would come from patient retention, we then calculated how many additional discharges BILH might gain from consumer awareness.

[191] The hospital choice model predicts which hospitals a patient would choose based on various characteristics including: patient zip code, diagnosis/severity, demographic characteristics, hospital location, and "hospital fixed effects" that reflect the brand and other characteristics unique to a given hospital, including services offered. We used this model to predict, if the fixed effects for BILH hospitals were changed to make these hospitals a more appealing choice generally, which patients they would most likely attract, and from which competing hospitals.

[192] For inpatient services, we found that commercial spending would be reduced by approximately $970,000 to $1.8 million annually if the parties do not increase their prices relative to the market. However, if the parties obtain 5% to 6.7% inpatient price increases, the cost-savings would decline to $594,000 to $1.3 million annually. We used a patient choice model to estimate where the additional discharges from brand enhancement would come from and which BILH hospitals would receive them. We then applied relative price differentials (using the methodology described in *supra* note 187) to the revenue shifting to BILH hospitals in order to estimate a spending impact. We modeled this two ways: assuming that the shifting volume would have the same case mix index as the hospital from which the volume moved, and assuming that the shifting volume would have the same case mix as the BILH hospital to which the volume moved. We then averaged the resulting price differentials.

[193]For outpatient services, we found that commercial spending would be reduced by approximately $870,000 to $1.7 million annually if the parties did not increase their prices relative to the market. However, with the outpatient price increases projected by the WTP analyses, the outpatient savings would decline to less than $380,000 to $1 million annually. To model an outpatient spending impact from brand enhancement, we assumed that inpatient and outpatient care would shift due to brand enhancements in proportions similar to those modeled in the patient retention scenario. We calculated the ratio of the outpatient to inpatient estimated spending impacts from patient retention, and applied this ratio to the estimated inpatient spending impact from brand enhancement to yield an estimated outpatient spending impact from brand enhancement. We estimated an outpatient spending impact with price increases by calculating the ratio of the outpatient patient retention spending impact with price increases to the impact without price increases, and applied this ratio to the estimated outpatient brand enhancement impact at current prices.

from enhanced brand at BILH would also increase its bargaining leverage and ability to increase prices (beyond the increases captured in the WTP analysis), further reducing any annual savings.

c. Recruitment of new primary care patients (or physicians)

The parties also anticipate that more patients will choose BILH PCPs, in part driven by brand enhancement, and in part driven by physician recruitment to BILH. In order to estimate the impact of patients transitioning to BILH PCPs from other physician groups, the HPC compared HSA TME for BIDCO, LCPN, and MACIPA patients with HSA TME of their competitors.[194] We estimate that, *at current price and utilization levels*, each commercial patient that switches to a BILH PCP from other local physician groups would result in a savings, on average, of approximately $32 per member per month.[195,196] In order to achieve a savings equivalent to the projected price increases for inpatient, outpatient, and adult primary care services through primary care patient recruitment alone, the parties would therefore need 350,000 to 500,000 new commercially insured primary care patients, which is approximately the size of their current HMO/POS patient population for the three largest commercial payers.[197]

d. Redirecting care within BILH

The parties state that in addition to attracting care to BILH from non-BILH providers, they will also be able to reduce spending by shifting care from BIDMC and Lahey HMC to lower-priced BILH hospitals, especially Mt. Auburn and Anna Jaques. We modeled the impact of the parties' predicted volume shifts on commercial spending, and found that these shifts could save $2.1 million to $3.1 million annually at current prices, or $1.8 million to $2.8 million annually with projected price increases.[198]

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[194] The HPC applied the patient attribution model detailed in 2017 HPC COST TRENDS REPORT, *supra* note 120, at 29-30 to identify the proportions of BCBS, HPHC, and THP primary care patients attributed to other physician groups within the BIDCO, Lahey, and MACIPA primary care PSAs. The HPC then used these proportions in developing a weighted average HSA TME differential between each of BIDCO, Lahey, and MACIPA and the other physician groups serving primary care patients in these regions.

[195] Based on an analysis of commercial full-claims HSA TME data for BCBS, HPHC, and THP members. The $32 figure is derived from the payer for which there is the largest potential savings from patient shifts, and assumes the patients shifting have the same health status as the average for the provider groups to which they are currently attributed. If the parties' TME position changes relative to their competitors after the transaction due to price increases or other factors, the potential for savings would be reduced.

[196] These savings overlap with those identified in the consumer awareness scenario; both include shifts to BILH hospitals for patients who do not currently have BILH PCPs. For that reason, this figure may over-estimate the savings potential.

[197] However, if the parties significantly increase their prices, their HSA TME would also likely rise relative to competitors, further diminishing any savings that might be able to obtain by recruiting new PCPs to their system.

[198] The HPC modeled this by calculating, by payer, the difference in average in price per case-mix-adjusted discharge at each combination of hospitals to and from which are would be shifting. Using the parties' assumptions about the number of discharges shifting internally, we estimated how much case-mix-adjusted spending would change by shifting care from BIDMC and Lahey HMC to Mt. Auburn and Anna Jaques. We then multiplied case-mix-adjusted spending by the receiving hospital's case mix index to estimate this impact in non-case-mix-adjusted dollars. To estimate the potential savings with price increases, we inflated each hospital's original price per case-mix-adjusted discharge by its estimated price increase before calculating the estimated savings amount as described above.

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In summary, shifts in care to BILH from other providers and to lower-priced settings within BILH through the each of the mechanisms detailed above could result in cost savings. However, if BILH succeed in redirecting care in accordance with its own projections for leakage recapture, brand enhancement, and internal shifts of patients within BILH to lower-cost settings, the savings would be approximately $8.7 million to $13.6 million in commercial spending annually at current price levels. If BILH obtains the price increases projected above, the savings would likely be approximately $5.2 million to $9.5 million in commercial spending annually, offsetting 3% to 7% of the $138.3 to $191.3 million annual commercial spending increase from projected price increases. It is also highly unlikely that the parties would be able to recruit new primary care providers (or primary care patients) to offset the remaining spending impact due to price increases.[199]

9. <u>The parties intend to work with payers to develop new, innovative insurance products, but it is unclear how these products would increase market competition or reduce spending, particularly if the parties do not offer lower prices in such products.</u>

One of the ways in which the parties hope to attract more patients to BILH is through new, innovative insurance products developed with payers. The parties anticipate that the geographic reach of their new system would be sufficiently broad to appeal to both small and large self-insured employers that need to ensure access for employees living throughout eastern Massachusetts.

The three largest commercial payers currently offer limited network products that include BIDCO and Lahey and exclude Partners. That is, the set of providers that would make up the proposed new product is already available in several products.[200] Therefore, in order for the parties to recruit more members to an additional new product that also excludes Partners, they would need to make their network substantially more attractive than current such offerings, for example, by enhancing their brand. As noted above, we modeled the effects of brand enhancement for BILH, and found that it would yield relatively small savings since an enhanced BILH would attract additional volume from both higher-priced and lower-priced providers.[201] However, increased volume due to brand enhancement would allow BILH to increase its prices

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[199] As described in *supra* note 181, these estimates are generous because they assume the parties would achieve all of their care redirection goals, but we are not able to determine the probability that they will do so. In addition, while our modeling indicates that most competitor hospitals would likely lose no more than three percent of their commercial discharges if BILH were to achieve its goals of increased volume, we would expect these competitors to make efforts to retain patients. Finally, any increases in volume to the BILH system will enable it to further increase prices, reducing the savings from care redirection to a greater extent than described in this section.

[200] The following limited network plans include BIDCO and Lahey general acute care hospitals and exclude most or all Partners general acute care hospitals: HMO Blue Select (BCBS), Focus Network - MA (HPHC), and Select HMO, EPO, and Advantage HMO Select (THP). *See* Find a Doctor and Estimate Costs, BLUE CROSS AND BLUE SHIELD OF MASS., https://myfindadoctor.bluecrossma.com/ (last visited July 11, 2018); Find a Doctor or Care Provider, HARVARD PILGRIM HEALTH CARE, https://www.providerlookuponline.com/harvardpilgrim/po7/Search.aspx (last visited July 11, 2018); Find a Doctor, TUFTS HEALTH PLAN, http://tuftshealthplan.prismisp.com/ (last visited July 11, 2018).

[201] As described in Section III.A.8.b, such savings are anticipated to be $1.8 million to $3.5 million annually at current prices, or $973,000 to $2.3 million annually with projected price increases.

beyond those projected by the WTP analyses based on current volume (*see* Section III.A.6), further decreasing any savings.

Alternatively, the parties could make a limited network more attractive by lowering prices sufficiently to reduce the product's premium by enough to draw substantial numbers of new members. Theoretically, the merger could make it more likely that the parties could reduce prices this way.[202] If the premium for a new limited network product were substantially lower than premiums in existing limited network products, the parties could potentially inject more competition into the market, leading other providers to offer lower prices to compete with the new product. However, absent plans to offer prices that are *lower* than their current rates in innovative insurance products, it is unclear how BILH's involvement in innovative insurance products would increase market competition or decrease spending.

10. <u>It is also unclear how BILH would reduce spending by more effectively competing with other providers.</u>

The parties also claim that BILH would generally be a more effective competitor to the higher-priced Partners system, thereby reducing spending. To determine whether the creation of BILH could foster a more competitive market, the HPC (1) reviewed evidence from economic literature and past mergers to determine whether there is theoretical or empirical evidence that a merger of multiple competing providers into a second largest system would constrain the prices of the largest system and reduce overall spending, and (2) analyzed results from econometric models projecting the impact on spending if Partners were to lose volume (and thus bargaining leverage) to BILH.

Economic literature does not provide definitive guidance on the circumstances in which the merger of multiple competing providers into a second system nearly equal in size to the largest system could constrain the prices of the largest system.[203] The core question is as follows: *If BILH becomes more attractive to payers and consumers, would BILH become a true alternative to Partners in payer networks and thereby constrain Partners' "must-have" status, or would the result instead be a second "must-have" system*?

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[202] Current limited network products that include the parties but not Partners are not widely purchased. One possible explanation is that the providers in those limited products have not reduced their prices by enough (if at all) to facilitate a lower premium sufficient to induce many customers to purchase the limited network product. This could be a result of a "free rider" problem. As separate entities in a limited network product, each provider has an incentive to not lower price in an attempt to "free ride" on (i.e., benefit without bearing a cost) price reductions by other providers. This is because individually small providers in a limited network product would bear *all of the costs* (i.e., lost revenue) of reducing their prices but realize only *a fraction of the benefits* (i.e., greater volume). In other words, if one provider's price cut increases membership for the product, the additional revenue will be shared by the various providers that participate in the limited network product. If all providers act on this incentive to free ride, a limited network product is unlikely to succeed. As a merged entity that, hypothetically, accounts for a large proportion of medical services provided to enrollees, the incentive for the parties to free ride in this way could be much lower. Reduced scope for free riding could give the merged entity a stronger incentive to lower prices within a limited network product.

[203] Following a literature review and discussions with multiple leading health economists, we were unable to identify any literature that squarely addresses this question.

If enough consumers (patients or employers) would have a strong preference for a plan that includes both systems, BILH could become a second "must-have" system in the Commonwealth. In this scenario, it would be difficult for payers to exclude BILH from their broad networks, just as it is currently difficult for payers to exclude Partners. BILH would have significant bargaining leverage as a result, and that would allow it to negotiate higher prices than each party can negotiate at present, even as Partners would continue to receive its own high prices. Some of the commercial payers with whom we have discussed the transaction have indicated that, at least in the short term, they do not anticipate that Partners would become any less important in their networks, lending some credence to the notion that the transaction could simply create two "must-have" systems in the Commonwealth, both with substantial bargaining leverage.

If, on the other hand, a combined BILH system were viewed as a true alternative for Partners, payers would have an increased ability to build a viable network without Partners, which would constrain Partners' bargaining leverage and reduce the price increases it would otherwise be able to negotiate.[204] However, since Massachusetts payers already can (and do) construct provider networks that include each of the components of BILH individually, the combined BILH system would presumably have to make significant investments (e.g., in new or expanded services, improved quality, or brand recognition) [205] or lower its prices (e.g., in new

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[204] In our review of past mergers in other markets, we found only one instance in which the merger of smaller competitors into a second largest system may have reduced the market leader's bargaining leverage. In Peoria, Illinois, OSF HealthCare's Saint Francis Medical Center (SFMC) has long been the market leader and was included in nearly all major commercial insurance networks. Its rival, Methodist Medical Center (MMC) was included in fewer networks, in part because SFMC insisted on a higher price within networks that included MMC. In 2013 and 2017, MMC acquired two smaller hospitals, leaving the region with only two hospital systems. MMC also joined a larger regional system, UnityPoint Health. In late 2017, for the first time, a major commercial insurer in the area, Blue Cross and Blue Shield of Illinois, terminated its contract with the market leader, SFMC; simultaneously, it added MMC to its network for the first time in 30 years. Nick Vlahos & Pam Adams, *Blue Cross Blue Shield Drop OSF Hospitals, Adds Methodist*, PEORIA JOURNAL STAR, Oct. 10, 2017, *available at* http://www.pjstar.com/news/20171010/blue-cross-blue-shield-drops-osf-hospitals-adds-methodist (last visited July 6, 2018). *See also* OSF HealthCare, *Blue Cross and Blue Shield of Illinois FAQs* (Nov. 1, 2017), *available at* https://www.osfhealthcare.org/media/filer_public/87/91/87918498-948b-4438-8518-e523fcd1ed4c/bcbs-faq-110117.pdf (last visited July 6, 2018). SFMC eventually came back to the bargaining table and reached an agreement, presumably at prices lower than those that had led the termination of its contract, while MMC also remained in-network for the insurer. Chris Kaergard, *OSF HealthCare Reaches Agreement to Keep Blue Cross Blue Shield Insurance*, PEORIA JOURNAL STAR, Nov. 22, 2017, *available at* http://www.pjstar.com/news/20171122/osf-healthcare-reaches-agreement-to-keep-blue-cross-blue-shield-insurance (last visited July 6, 2018). Although definitive evidence is not available, it is possible that the enhancement of SFMC's rival contributed to Blue Cross's bargaining leverage in negotiations with SFMC. At the same time, it is possible that MMC not only gained the leverage to be included in more payer networks, but also to raise prices. Importantly, there are key distinctions between the market conditions in Peoria and in eastern Massachusetts. For example, the HPC has not reviewed evidence that Partners has used its bargaining leverage to encourage payers not to contract with the hospitals that will be joining BILH; indeed, most insurance products in Massachusetts include the Partners hospitals and the proposed BILH hospitals.

[205] In general, competition among health care providers is associated with higher quality. *See* Martin Gaynor, Katherine Ho & Robert J. Town, *The Industrial Organization of Health-Care Markets*, 53 J. OF ECON. LITERATURE (2015). However, where the fixed costs of quality investments do not decline rapidly with the number of competing providers, larger providers can spread these fixed costs over a larger volume of consumers, making it more feasible to make investments. Rajiv D. Banker, Inder Khosla & Kingshuk K. Sinha, *Quality and Competition*, 44 MANAGEMENT SCIENCE 1179 (1998). In addition, marketing dollars may be more effectively deployed for a merged

narrow networks described in Section III.A.9 above) in order to enhance its attractiveness to patients and employers.

As discussed in Section III.A.8 above, we modeled how an enhanced brand or otherwise increased consumer preference for BILH would impact where patients would seek care and commercial health spending. We used the same model here to determine if BILH could increase its brand such that Partners' bargaining leverage would be diminished, and if so, the impact of such brand increase on BILH, Partners, and other providers. As expected, we found that as BILH increases its brand or attractiveness, patients would increasingly choose to receive care at BILH rather than at Partners or other providers. As Partners (and other providers) see fewer patients, it would become somewhat less valuable to payers to include these providers in their networks, and these providers would potentially have diminished bargaining leverage (and reduced price increases over time) as a result.[206]

However, even in the scenario in which BILH enhances its attractiveness to patients and becomes a true alternative to Partners, we found no meaningful overall health care spending reductions. As Partners loses volume and its bargaining leverage decreases, BILH's volume and bargaining leverage would increase, enhancing its ability to obtain higher prices.[207] Absent a commitment by BILH not to increase prices in excess of market-wide trends, the spending impacts of reduced prices for Partners and other providers would largely be canceled out by the additional price increases for BILH as its volume grew.

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In summary, we find that while the parties have had low to moderate prices and moderate spending levels compared to other Massachusetts providers to date, the proposed transaction would create a second-largest system with market share nearly equivalent to Partners and significantly enhanced bargaining leverage, which would enable the parties to substantially increase commercial prices.

We conservatively estimate that the parties' increased bargaining leverage would enable them to obtain one-time commercial price increases of 5% to 12.2%, leading to annual spending impacts detailed below.

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system, as a marketing effort by one party would likely improve the brand of all hospitals, compared to only improving the brand of the party making the investment.

[206] In addition, it is possible that higher-priced providers—Partners in particular—would lose some of their ability to "recapture" patients whose insurance carriers drop Partners from the network. Currently, payers know that if they were to drop Partners from their network, some patients would switch to a payer that had kept Partners in-network—so that Partners "recaptures" some patients whose carriers drop Partners. To the extent that BILH becomes a more attractive alternative to Partners, fewer patients might be expected to make such a choice, which would reduce Partners' negotiating leverage. If the parties' brand enhancement were sufficiently strong, however, this same recapture effect could give BILH leverage to increase its prices beyond the levels modeled in this report.

[207] Presumably, Partners would also take active steps to mitigate its volume loss, and might attract new patients or physicians not from BILH but from smaller, often lower-priced providers, which would increase spending.

Annual Commercial Spending Impact of Projected BILH Price Increases

	Lower Estimate	Higher Estimate
Hospital inpatient services	$38.3M	$51.4M
Hospital outpatient services	$88.4M	$128.4M
Adult primary care services	$11.5M	$11.5M
Total spending impact of projected price increases	**$138.3M**	**$191.3M**

Note: These figures do not include price increases for services other than inpatient, outpatient, and adult primary care. However, the parties could likely obtain price increases across other services as well. If the parties obtain price increases for specialty physician services that are in line with projected price increases across inpatient, outpatient, and adult primary care services, spending for these services would increase by an additional **$29.8 million to $59.7 million** annually.

The parties could obtain these price increases, significantly increasing health care spending, and remain lower-priced than Partners. They have not committed to limiting future price increases, despite the fact that their own financial projections indicate that they would be profitable without significant price increases.

Finally, while the parties may be able to achieve some savings by reducing leakage of their current patients, attracting new patients, or redirecting care within BILH to lower-priced settings, there is no reasonable scenario in which these site-of-care shifts could offset the spending impact if the parties were to obtain the projected price increases. If the parties achieve all of their care redirection goals, including retaining current patients, enhancing consumer awareness to attract new patients, and redirecting care within BILH, they could save approximately **$8.7 million to $13.6 million** annually at current price levels, or approximately **$5.2 million to $9.5 million** annually with the projected price increases.[208] This would offset approximately **3% to 7%** of the annual spending impact of the projected price increases.

B. Quality and Care Delivery

To assess the quality of care delivered by the parties, the HPC considered the parties' performance on widely accepted clinical performance measures; documentation provided by the parties on their quality and care delivery priorities, strategies, and structures; their historic participation in alternative payment models; and an assessment of their participation and performance in care delivery transformation efforts, including HPC care delivery grant initiatives. We also reviewed the parties' plans and goals for the proposed transaction in both public and confidentially provided documents in order to assess the potential impacts of the transaction on clinical quality. The HPC's findings are summarized below.

[208] As described in Section III.A.8 above, the savings at current prices are composed of approximately $4.8 million to $6.9 million from care retention, $1.8 million to $3.5 million from enhanced consumer preference, and $2.1 million to $3.1 million from shifts within BILH from higher-priced to lower-priced hospitals. The savings with price increases are composed of approximately $2.4 million to $4.5 million from care retention, $973,000 to $2.3 million from enhanced consumer preference, and $1.8 million to $2.8 million from shifts within BILH from higher-priced to lower-priced hospitals.

- Historically, the parties have generally performed comparably to statewide average performance on hospital and ambulatory measures of clinical quality, with some variation among the party hospitals and physician networks on specific measures.

- The parties have identified some quality metrics for ongoing measurement post-transaction, but have not yet identified baseline data or transaction-specific quality improvement goals.

- The parties currently have systems in place to promote and improve the delivery of high-quality health care and are considering potential structures for integrating their distinct quality oversight and management systems.

- The parties are engaged in a variety of care delivery initiatives, but have not yet developed detailed plans for the expansion or integration of these efforts moving forward.

- The parties have each participated in various government and commercial payer alternative payment methodology (APM) contracts and ACOs, although participation in individual payment models varies by party. The parties are considering plans for coordinating their APM structures, but it is unclear to what extent they will focus on expanding their participation in risk-based contracting.

The remainder of this section discusses these findings in greater depth.

1. Historically, the parties have generally performed comparably to statewide average performance on hospital and ambulatory measures of clinical quality, with some variation among the party hospitals and physician networks on specific measures.

In our evaluation of clinical quality, we reviewed the parties' performance on over 100 widely accepted measures applicable to acute care hospitals and physician groups. We assessed a broad spectrum of measures in the domains of clinical processes, clinical outcomes, and patient experience, with a focus on certain measures most relevant to the proposed transaction. Applicable measures were drawn in part from the 2018 Massachusetts Standard Quality Measure Set.[209, 210]

[209] *See Standard Quality Measure Set (SQMS)*, CTR. FOR HEALTH INFO & ANALYSIS, http://www.chiamass.gov/sqms/ (last visited July 13, 2018).

[210] The majority of the measures we considered were hospital-based process measures, as these measures are easier to collect through administrative data and are therefore more readily available through public data sources. Outcomes measures and measures that evaluate the quality of care across the health care continuum are critically important, but are also more resource-intensive to develop, collect, and risk-adjust, and fewer of these measures have been endorsed by the National Quality Forum or integrated into existing datasets. *See* MASS. HEALTH POLICY COMM'N, HPC DATAPOINTS: QUALITY MEASUREMENT MISALIGNMENT IN MASSACHUSETTS (January 10, 2018), https://www.mass.gov/files/documents/2018/01/09/Datapoints_Quality%20Measurement.pdf (last visited July 13, 2018).

a. *Hospital quality measures*

We examined the party hospitals' performance on 53 quality measures over time. On process measures,[211] we found that the party hospitals tended to perform comparably to the state average on a majority of measures, and most performed significantly better than average on at least a few measures.[212] Mt. Auburn's performance was notably strong: it performed significantly better than average on eight of the 29 process measures we examined and was not significantly below average on any measure.[213] The party hospitals also performed well on certain process measures related to inpatient psychiatric care: every party hospital with an inpatient psychiatric unit performed better than the state average on measures of physical restraint use and hours of seclusion, and Northeast and Mt. Auburn performed above average on metrics for following up with patients after hospitalizations for mental illness.[214]

On outcome measures, the party hospitals tended to perform comparably to the statewide average.[215] Few of the party hospitals performed significantly above or below average on more

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[211] The HPC obtained data for process measures related to the provision of timely and effective care, the use of appropriate medical imaging, and the provision of appropriate inpatient psychiatric care from *Hospital Compare Datasets*, CTRS. FOR MEDICARE & MEDICAID SERVICES, [hereinafter *Hospital Compare Datasets*], https://data.medicare.gov/data/hospital-compare (last visited July 13, 2018) and data for measures related to early elective deliveries, care processes designed to avoid harm, and appropriate use of antibiotics from *Hospital Choices*, THE LEAPFROG GROUP, [hereinafter *Hospital Choices*], http://www.leapfroggroup.org/hospital-choice (last visited July 13, 2018). The most recent full year of performance data for Hospital Compare measures varied by measure but was most often 2017. The years of historical data available also varied by measure, but the earliest year of data examined was typically between 2010 and 2015. Leapfrog Group data reflect 2017 survey results.

[212] Statistical significance was determined using chi-square tests and t-tests at the $p \leq 0.05$ level. Some measures were not applicable to all party hospitals, such as those that do not have a psychiatric unit or those that do not perform cardiac surgery. Only three of the 29 process measures we examined were applicable to NE Baptist because of its specialized service offerings.

[213] BID-Needham, BID-Plymouth, and Lahey HMC each performed better than average on three measures and none performed below average on any measure. CHA, which is a BIDCO contracting affiliate and expected to become a BILH contracting affiliate, also performed better than average on eight of the 29 measures we examined.

[214] Physical restraint use and hours of seclusion use are measured by CMS Hospital Compare performance measures HBIPS-2 and HBIPS-3, respectively. Outpatient follow-up for patients after hospitalization for mental illness is measured by CMS Hospital Compare performance measure FUH. These measures are reported by facilities and hospitals that are reimbursed under the Inpatient Psychiatric Facility Prospective Payment Systems and the data reflects rates for all patients within the psychiatric facility or unit, including non-Medicare patients. For measure specifications and reporting requirements, see *Inpatient Psychiatric Facility Quality Reporting Program Manual, Version 4.0*, CTRS. FOR MEDICARE & MEDICAID SERVICES, (May 20, 2018), https://www.qualityreportingcenter.com/wp-content/uploads/2018/05/IPF_ProgramManual_Version4.0_20180507_vFINAL.508.pdf (last visited July 13, 2018).

[215] The HPC obtained data on 16 outcome measures related to unplanned hospital visits and complications and deaths from *Hospital Compare Datasets*, *supra* note 211. The most recent full year of performance data for these measures was 2017. We obtained data for four measures related C-sections and episiotomies from *Hospital Choices*, *supra* note 211; results reflect 2017 survey results. We also examined the party hospitals' performance on three composite measures that evaluate risk-adjusted inpatient mortality for certain procedures and conditions (IQI 90 and IQI 91, respectively) and observed-to-expected ratios for 11 measures of patient safety and adverse events (PSI 90). Measure results were calculated based on the 2016 hospital discharge dataset. For more detail on IQI measures, see *Inpatient Quality Indicators Overview*, AGENCY FOR HEALTH CARE RESEARCH & QUALITY, http://www.qualityindicators.ahrq.gov/modules/iqi_resources.aspx (last visited July 13, 2018); for full measure specifications, see AGENCY FOR HEALTH CARE RESEARCH & QUALITY, MORTALITY FOR SELECTED PROCEDURES, INPATIENT QUALITY INDICATORS #90 (IQI #90) (Mar. 2017), *available at* https://www.qualityindicators.ahrq.gov/Downloads/Modules/IQI/V60/TechSpecs/IQI_90_Mortality_for_Selected_P

than a couple measures, although Lahey HMC and BIDMC performed below average on three and four measures, respectively, and NE Baptist performed better than average on four measures, including measures related to complications and readmissions following hip and knee replacements.[216] While many of the party hospitals' performance on select outcome measures has improved over time, this improvement was generally in line with statewide improvements on these measures during the same time period, although in a few cases the party hospitals' performance trend was better or worse than the state average.[217]

On patient experience, as measured by patients' overall ratings of the hospitals and their willingness to recommend the hospitals,[218] the party hospitals generally demonstrated strong performance. Several of the party hospitals performed significantly better than the statewide average on both measures, with NE Baptist ranking as one of the top three hospitals in the state on each measure and Mt. Auburn ranking in the top ten. No party hospital performed

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rocedures.pdf (last visited July 13, 2018) and AGENCY FOR HEALTH CARE RESEARCH & QUALITY, MORTALITY FOR SELECTED CONDITIONS, INPATIENT QUALITY INDICATOR #91 (IQI #91) (Mar. 2017), *available at* https://www.qualityindicators.ahrq.gov/Downloads/Modules/IQI/V60/TechSpecs/IQI_91_Mortality_for_Selected_Conditions.pdf (last visited July 13, 2018). For more detail on the PSI 90 measure, see *Patient Safety Indicators Overview*, AGENCY FOR HEALTH CARE RESEARCH & QUALITY, http://www.qualityindicators.ahrq.gov/modules/psi_resources.aspx (last visited July 13, 2018).

[216] Lahey HMC performed below average on Complication Rate Following Elective Primary Total Hip Arthroplasty and/or Total Knee Arthroplasty, and BIDMC performed below average on 30-Day Readmission Rate Following Elective Primary Total Hip Arthroplasty and/or Total Knee Arthroplasty; NE Baptist performed above the statewide average on both of these measures. The parties have provided internal data suggesting that the existing joint venture between NE Baptist and BIDMC has resulted in decreased rates of referral to post-acute care facilities, decreases in length of stay, and reductions in primary related readmissions. In addition to hip and knee related measures, both Lahey HMC and BIDMC performed below average on 30-Day Hospital-Wide All-Cause Unplanned Readmission Rate. CMS risk adjusts this measure and certain other outcome measures to account for patient complexity, although several Massachusetts AMCs and teaching hospitals performed worse than the statewide average performance on all-cause readmissions. *See Unplanned hospital visits*, CTRS. FOR MEDICARE AND MEDICAID SERVS., https://www.medicare.gov/hospitalcompare/Data/Hospital-returns.html (last visited July 13, 2018) ("To accurately compare hospital performance, the unplanned hospital visit measures adjust for patient characteristics that may make returning to the hospital more likely. These characteristics include the patient's age, past medical history, and other diseases or conditions (comorbidities) the patient had when they were admitted that are known to increase the patient's chance of returning to the hospital").

[217] We examined the change in the party hospitals' performance from 2010 to 2017 compared to the change in statewide average performance during the same time period on AHRQ's PSI 90, IQI 90, and IQI 91 composite measures and CMS' 30-Day Hospital-Wide All-Cause Unplanned Readmission Rate measure. For the PSI 90 composite, performance at Anna Jaques, BID-Plymouth, and NE Baptist declined over these years while the statewide average improved. Performance at Lawrence General, a BIDCO contracting affiliate, also declined during this period. While all four hospitals' 2010 performance on this measure was better than the state average, each had fallen below average by 2016. Lahey HMC's performance on the IQI 90 composite and Lawrence General's performance on the IQI 91 composite both improved more than the state average. BID-Milton's performance on 30-day all-cause readmissions improved more than the state average.

[218] The HPC obtained performance data from CMS, see *Hospital Compare Datasets*, *supra* note 211, for two global measures of patient experience: Overall Rating of Hospital and Willingness to Recommend Hospital. We analyzed "top-box" response rates for each measure. The "top-box" score indicates how often patients selected the most positive response category when asked about their hospital experience. Responses of either "9" or "10" are considered top-box for the Overall Rating of Hospital measure; a response of "Definitely yes" is considered top-box for the Willingness to Recommend Hospital measure. For more information, see *HCAHPS Tables on HCAHPS On-Line,* HOSPITAL CONSUMER ASSESSMENT OF HEALTHCARE PROVIDERS AND SYSTEMS, http://www.hcahpsonline.org/en/summary-analyses/#NoteAboutBoxes (last visited July 13, 2018).

significantly below average on both measures examined.[219] We also examined changes in the party hospitals' performance on these two measures from 2010 to 2017 and found their performance generally consistent with small statewide average improvement on these measures during this time period.

In summary, the party hospitals generally performed comparably to the state average on the examined quality measures, with some notably strong performance in the process and patient experience domains and more mixed performance on certain outcome measures. Mt. Auburn and NE Baptist performed well on applicable measures across all three domains.

b. *Ambulatory quality measures*

In addition to evaluating hospital quality, we reviewed the performance of the parties' physician groups on select ambulatory process, outcome, and patient experience measures.[220]

We examined the performance of BIDCO, LCPN, and MACIPA on select HEDIS process and outcome measures compared to the national 75th and 90th percentile benchmarks identified by the National Committee for Quality Assurance for each measure.[221] We found that each of these groups met or exceeded the 75th percentile for at least three quarters of the measures and met or exceeded the 90th percentile for at least half of the measures, with MACIPA outperforming each benchmark more consistently. We found that some other large physician organizations in eastern MA exceeded the 75th and 90th percentiles for a similar or greater number of measures than either BIDCO or LCPN; few other groups met these benchmarks as consistently as MACIPA.

We also reviewed four adult ambulatory composite measures of patient experience in the following domains: ability to get timely appointments, care, and information; integration of care; patient-provider communication; and overall willingness to recommend the doctor. [222] LCPN and MACIPA performed comparably to the state average on these measures. BIDCO's performance was also average on all but one measure, Organizational Access, for which it was below average. The parties' performance was in line with that of other large physician networks in eastern Massachusetts. On pediatric patient experience composite measures in the same domains, we examined performance for Northeast physicians, Winchester physicians, MACIPA, and

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[219] Lawrence General and CHA, BIDCO contracting affiliate hospitals that are expected to become BILH contracting affiliates, performed below average on these measures of patient experience.

[220] The HPC obtained 2016 ambulatory performance measure data on select HEDIS measures from quality settlement reports for risk-based contracts provided confidentially by payers and the parties.

[221] We assessed performance on HEDIS measures based on confidential, payer-generated quality reports from the parties' largest commercial risk contracts. For more information on the HEDIS physician measures, see *HEDIS ® and Quality Compass ®,* NAT'L COMM. FOR QUALITY ASSURANCE, http://www.ncqa.org/HEDISQualityMeasurement/WhatisHEDIS.aspx (last visited July 13, 2018).

[222] The HPC obtained ambulatory performance measure data for 2016 on select CG-CAHPS measures from CTR. FOR HEALTH INFO. & ANALYSIS, *A FOCUS ON PROVIDER QUALITY DATABOOK (APRIL 2018)*, *available at* http://www.chiamass.gov/quality-of-care-in-the-commonwealth/ (last visited July 17, 2018), focusing on Organizational Access, Integration of Care, Communication, and Willingness to Recommend. We anticipate that CHIA will publish 2017 data for these measures during the summer of 2018, and we will review and include these newer data in our Final Report if available.

BIDCO.[223] MACIPA performed below average on one measure and Winchester PHO performed below average on three measures.[224] Except for Winchester PHO, the party physician groups generally performed comparably to other large physician networks in eastern Massachusetts.

We also considered the rates at which the patients attributed to the parties' physicians used the ED, used the ED when the visit was potentially avoidable, and received low-value care.[225] We found that patients of all three party physician groups had risk-adjusted rates of ED utilization below the state average, but had higher-than-average rates of potentially avoidable ED visits.[226] In addition to ED utilization, use of low-value care is an important quality and care delivery consideration, as many low-value services are prone to overuse, and may result in higher health care costs and unnecessary patient exposure to potential risks such as radiation, false positives, and follow-up on benign issues.[227] The frequency of low value care may also indicate whether efficient standards of care are used across physician networks. The HPC examined the frequency with which patients attributed to the 14 largest physician networks in the Commonwealth received certain types of low-value imaging, pre-operative care, procedures, and screenings.[228] As shown below, LCPN and BIDCO had the highest and second highest percentage of members who received some form of low-value care, while MACIPA patients were slightly less likely than average to have received a low-value service; as with other physician groups, screenings constituted the majority of low-value care received by the parties' patients.

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[223] We reviewed medical group level data for Northeast physicians and Winchester physicians because these are the only groups within Lahey that provide pediatric primary care services, and Lahey therefore does not report CG-CAHPS data at the network level.

[224] MACIPA performed below average on Willingness to Recommend. Winchester PHO performed below average on the pediatric patient experience measures examined except for the communication composite, on which it performed comparably to the statewide average.

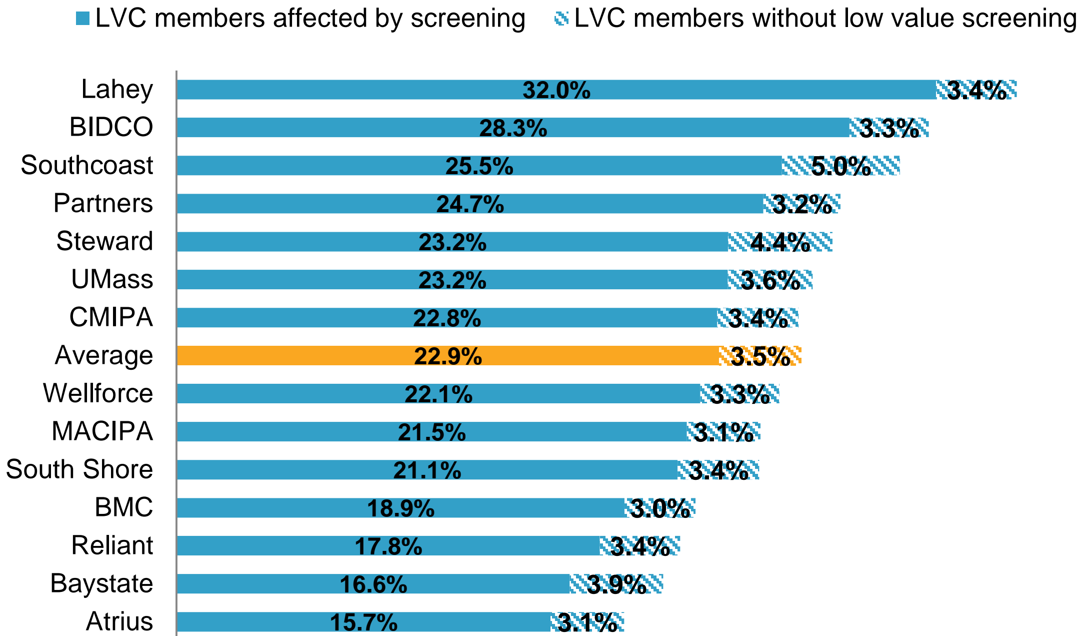
[225] These analyses compare provider organizations by averaging APCD spending and utilization across BCBS, THP, and HPHC commercially insured patients whose PCPs are affiliated with, or owned by, a given organization. These analyses control for patient health status, demographics, and insurance characteristics. All spending and utilization across all sites of care for these patients is attributed to the PCP and its affiliated provider organization, regardless of whether the care was actually delivered by that provider organization. ED utilization and avoidable ED utilization data are based on 2015 claims; low-value care measures are based on October 2013 through October 2015 claims. For a full description of the attribution methodology, see 2017 HPC COST TRENDS REPORT, *supra* note 120, at 29-30.

[226] Based on HPC analysis of the 2015 APCD. This analysis controlled for differences in patient health status, demographics, and insurance type. For complete results and an explanation of methodology, see 2017 HPC COST TRENDS REPORT, *supra* note 120.

[227] *See* HEALTH POLICY COMM'N, HPC DATAPOINTS: VARIATION IN IMAGING SPENDING (May 4, 2018), https://www.mass.gov/service-details/hpc-datapoints-issue-7-variation-in-imaging-spending (last visited July 13, 2018).

[228] MASS. HEALTH POLICY COMM'N, MEETING OF THE MARKET OVERSIGHT AND TRANSPARENCY COMMITTEE at 30 (June 13, 2018) [hereinafter JUNE MOAT COMMITTEE PRESENTATION], *available at* https://www.mass.gov/files/documents/2018/06/13/20180613%20-%20MOAT%20-%20Presentation%20Posting.pdf (last visited July 13, 2018) (showing original published data; as noted on slide 25, estimates of low-value service usage were created to be conservative and exclude from consideration all claims for members with any diagnosis for which a particular service may be of value).

Percentage of Attributed Primary Care Patients Exposed to Any Low-Value Service (Oct. 2013 - Oct. 2015)



Note: "LVC members" are any patients attributed to the physician group that received some form of low-value care. BIDCO figures include patients attributed to physicians that are part of groups affiliated with CHA and Lawrence General.
Source: HPC analysis of 2014 and 2015 APCD Claims Data; see JUNE MOAT COMMITTEE PRESENTATION, *supra* note 228.

2. The parties have identified some quality metrics for ongoing measurement post-transaction, but have not yet identified baseline data or transaction-specific quality improvement goals.

The parties have committed to monitor and report publicly on certain quality measures post-transaction as evidence of the proposed transaction's impact on the quality of care.[229] However, baseline performance, targets, and timelines for improvement on these measures have not yet been identified. The parties would be required to submit this information to the DoN Program in their first mandated report six months after the close of the transaction.[230] All of the proposed measures of clinical quality are either required components of MassHealth ACOs contracts or measures identified by Lahey for the purpose of measuring MassHealth ACO

[229] The measures on which the parties would report are identified at DoN STAFF REPORT, *supra* note 179, at Attachment 4. A few of the identified measures align with measures for which the HPC examined the parties' current performance, including hospital-wide readmissions, avoidable ED utilization, timely access to urgent care, primary care patient experience, and control of high blood pressure and HbA1c levels for primary care patients. In the data that the HPC examined, none of the parties performed consistently better than the others on the ambulatory measures; on hospital readmissions, Lahey HMC and BIDMC both performed below the state average, NE Baptist performed better than average, and all of the other party hospitals performed comparably to the average.

[230] MASS. DEPT. OF PUBLIC HEALTH, NOTICE OF FINAL ACTION DoN APPLICATION NO. NEWCO 17082413-TO CAREGROUP INC., LAHEY HEALTH SYSTEM INC., AND SEACOAST REGIONAL HEALTH SYSTEMS, *available at* https://www.mass.gov/files/documents/2018/04/17/newco-decision-letter.pdf (last visited July 13, 2018).

performance.[231] As further described below, both BIDCO and Lahey are currently participating in the MassHealth ACO program and will therefore monitor and report on these measures even in the absence of the transaction, and their shared savings or shared losses will be partially tied to these measures. If the parties identify any differences between their current targets for improvement and those they aim to achieve as a combined system — and explain how the transaction would enable them to achieve these goals — the public would be better able to assess the potential impacts of the proposed transaction on these measures.

In addition to the measures the parties have committed to monitor and report publicly, the parties are in the process of discussing potential programs and structures for quality improvement as a combined system, as detailed in the next sections. As discussed in Section II.A, these plans are still in development, and BILH would consider whether and how to further develop them post-transaction. It is therefore not yet clear to what extent BILH would develop a robust performance management framework with measurable targets for improvement (including for vulnerable populations) and a plan for achieving those targets[232] that would allow the public to evaluate any post-transaction quality improvements.

3. The parties currently have systems in place to promote and improve the delivery of high-quality health care and are considering potential structures for integrating their distinct quality oversight and management systems.

In addition to the clinical quality measures discussed above, we evaluated the parties' performance on nationally recognized measures of structures that support quality and patient safety, descriptions of their internal systems and structures to track and promote quality, and whether they have implemented structures to provide accountable, patient-centered care as assessed by the HPC's ACO Certification Program. We also assessed the parties' plans for integrating these structures and capabilities across the BILH system.

a. *Structural quality measures*

We examined seven measures related to structures designed to promote health care quality[233] and found that the parties typically have fully or partially implemented most of these systems, although many of the party hospitals lacked a strong bar code medication administration

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[231] *See*, *e.g.*, MASS. EXEC. OFFICE OF HEALTH AND HUMAN SERVS., MCO-ADMINISTERED ACO CONTRACT, APPENDIX B - EOHHS ACCOUNTABLE CARE ORGANIZATION QUALITY INDEX 4-9 (July 2017), *available at* https://www.mass.gov/files/documents/2017/11/17/mco-admin-aco-appendix-b-eohhs-accoutable-care-organization-quality-appendix.pdf (last visited July 13, 2018). We understand that MassHealth is still in the process of updating and refining the measures to be used for ACO quality measurement.

[232] The HPC's Accountable Care Organization (ACO) Certification Program Application Requirements and Platform User Guide Assessment Criteria 3 is one example of a format in which the parties could report information about their future quality improvement planning and performance.

[233] The HPC evaluated hospitals' use of intensivists for ICU care, the use of computer medication order systems, and safe medication administration using Leapfrog Group survey results. *See Survey Content*, LEAPFROG GROUP, http://www.leapfroggroup.org/ratings-reports/survey-content (last visited July 13, 2018). The HPC also examined Hospital Compare measures of health care personnel flu vaccination, use of safe surgery checklists, tracking clinical results between visits, and the integration of laboratory results into providers' electronic health record (EHR) systems. *See Hospital Compare Datasets*, *supra* note 211.

program.[234] The parties regularly track and share information on the quality of care at multiple levels within their organizations, although their methods and models for these efforts vary. Many of the parties track performance reports from multiple payers and incorporate data from public datasets, payers, accrediting agencies, and claims systems in their internal performance dashboards. Many also compare their current performance to their past performance, analyze their results against peer benchmarks, and have established internal improvement targets.[235] Reports on these efforts are typically reviewed by each party's board of directors and senior leadership. In many cases the results are transmitted to local patient safety committees and frontline providers. Some of the parties also publish their results and plans for improvement on their websites.[236]

The HPC's ACO Certification Program assesses whether an applicant has established the structures and processes necessary to provide high-value, patient-centered care to a defined population.[237] To achieve ACO Certification, applicants must demonstrate specific capabilities and structures in the design of their governance structure, participation in quality-based risk contracts, population health management programs, and provision of cross-continuum care. Both Lahey and BIDCO, along with 15 other health care provider organizations, received ACO Certification in 2017;[238] MACIPA submitted a notice of intent to seek HPC ACO certification in July 2018.

As described in Section II.A, the parties are engaging in an extensive integration planning process that includes numerous integration planning teams focusing on specific content areas. The parties have a team dedicated to system-wide quality management, and several of the other teams developing proposals related to clinical programs have incorporated quality considerations into their planning. Although the parties' future plans for quality and care delivery improvement are still largely in development, they have stated an intention to develop "[a] NewCo system quality and governance structure that promotes quality and safety at the highest levels of the organization, and engages leaders and clinicians at each local organization[.]"[239] The HPC recognizes that a governance structure in which leadership regularly assesses and sets strategic

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[234] Performance on Leapfrog Group measures is reported in four tiers: Fully Meets the Standard, Substantial Progress, Some Progress, and Willing to Report. Anna Jaques received a "Willing to Report" rating on two of the three structural Leapfrog Group measures that we assessed and a "Substantial Progress" rating on the third. Anna Jaques performed more favorably on the Hospital Compare structural measures we reviewed.

[235] Some of the parties, particularly the larger organizations with greater access to technical resources, have developed more robust internal quality measurement and reporting systems than others.

[236] *See*, *e.g.*, *Quality Data*, NEW ENGLAND BAPTIST HOSPITAL, https://www.nebh.org/about-nebh/patient-safety/annual-quality-data/ (last visited July 13, 2018); *Specific Clinical Service Measures and Volumes*, BETH ISRAEL DEACONESS MEDICAL CENTER, https://www.bidmc.org/about-bidmc/quality-and-safety/specific-clinical-service-measures-and-volumes (last visited July 13, 2018); *Quality Measures & Reports*, MOUNT AUBURN HOSPITAL, https://www.mountauburnhospital.org/quality-safety/measures-reports/ (last visited July 13, 2018).

[237] *See* MASS. HEALTH POLICY COMM'N, FINAL ACCOUNTABLE CARE ORGANIZATION (ACO) CERTIFICATION STANDARDS FOR CERTIFICATION YEAR 1 (April 2016), https://www.mass.gov/files/documents/2016/07/qz/aco-certification-final-criteria-and-requirements.pdf (last visited July 13, 2018).

[238] Press Release, Mass. Health Policy Comm'n, Health Policy Commission Certifies 17 Health Care Organizations Through New ACO Program (Jan. 4, 2018), *available at* http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/hpc-certifies-17-organizations-through-new-aco-program.html (last visited July 17, 2018).

[239] DON NARRATIVE, *supra* note 28, at 39.

performance improvement goals is an integral part of an effective ACO structure,[240] and the parties are considering several proposals for governance structures that could support decision making and oversight of quality improvement initiatives. They have also been developing plans related to system-wide quality measurement, patient safety reviews, staff training, and quality research. While this planning process seems to reflect a commitment to building strong quality structures in the BILH system, the preliminary nature of the plans limits the HPC's ability to assess their potential impacts. The quality integration planning team's recommendations are focused on the parties' need to integrate their many distinct existing programs and policies into a single system, which would be a necessary first step for the system toward building transformative quality improvement programs.

b. *Information technology systems that may support quality*

All of the party hospitals currently use an electronic health record (EHR) system that allows providers to record and share patient records in electronic format. EHRs can promote patient safety and quality improvement by standardizing and consolidating patient records and incorporating features such as medication reconciliation, clinician decision support tools, and patient safety checklists.[241] The party hospitals currently use several different EHR systems, with some variation even within a given provider organization. The parties' affiliated physicians also generally use EHR systems, although they have not mandated that all physicians in their networks use the same systems.[242] To date, the parties have prioritized achieving interoperability between different platforms, allowing providers with shared patients to view the patients' records, even if the providers do not use the same EHR system.[243] However, integrating systems across a much larger combined organization presents challenges as well as opportunities. The parties have not indicated that they plan to migrate all of their hospitals or physician practices onto a single platform,[244] and they note their successes integrating some EHR functions within their individual systems.[245] While the parties have identified the development of interoperability across these systems as a priority for shared investment,[246] their integration planning groups are

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[240] Assessment of governance structures and their role in supporting performance improvement activities are key components of the HPC ACO Certification Program. *The HPC Accountable Care Organization (ACO) Certification Program*, MASS. HEALTH POLICY COMM'N, https://www.mass.gov/service-details/the-hpc-accountable-care-organization-aco-certification-program (last visited July 13, 2018).

[241] Sharon Silow-Carroll et al., THE COMMONWEALTH FUND, USING ELECTRONIC HEALTH RECORDS TO IMPROVE QUALITY AND EFFICIENCY: THE EXPERIENCES OF LEADING HOSPITALS (July 2012), *available at* https://pdfs.semanticscholar.org/0e75/8272eab4ba74933ed4fdf860362f2365f3d3.pdf (last visited July 13, 2018).

[242] *See*, *e.g.*, 2016 BID CMIR FINAL REPORT, *supra* note 25, at 45 ("BIDCO does not require all members to use a single EHR platform, and the HPC understands that members use a range of different platforms. New BIDCO members (e.g., hospitals or physician practices) are generally required to adopt one of two specific EHR platforms if they are not already using one of six approved alternatives").

[243] *Id*.

[244] *See* DON NARRATIVE, *supra* note 28, at 38-39 (The parties state that an affiliation will expand on existing BIDCO systems that allow real-time visibility of patient records between providers using different EHR systems).

[245] *Id*. at 38-39.

[246] Investment in technology systems, especially EHRs, has represented a major expense for provider organizations, with Mt. Auburn and Lahey notably investing $110 million and $160 million respectively to implement the Epic EHR system in their organizations in recent years. Jessica Bartlett, *Mount Auburn Details Hefty Tab to Adopt New Record System*, BOSTON BUSINESS JOURNAL, May 24, 2016, *available at* https://www.bizjournals.com/boston/blog/health-care/2016/05/mount-auburn-details-hefty-tab-to-adopt-new-record.html (last visited July 13, 2018); Jessica Bartlett, *Lahey Hospital's Operating Loss Widens as IT, Drug Costs*

still developing specific plans for achieving this goal, and based on the information currently available, the HPC is not able to evaluate to what extent or how quickly the parties may achieve interoperability. We are also not able to effectively assess the parties' plans to ensure that their systems facilitate transfers of care to other providers when appropriate[247] and ensure that legacy systems are effectively able to work together.[248]

In addition to EHR systems, the parties also use a variety of clinical data repositories, population health management platforms, and notification tools. The parties have stated that the proposed transaction would allow them to "jointly invest in scaling data management and analytic systems that work to improve coordination among all member hospitals, physicians, and patients" and allow the smaller parties to "access technology, analytics, and staff that would not be feasible to obtain and maintain as standalone organizations[.]"[249] They expect that these supports would enable integrated population health strategies across the combined system and improve their risk contract performance. While such integration could positively impact both care quality and operational efficiencies for the BILH system, the parties' plans are not yet sufficiently detailed for us to evaluate the extent or timeline of these potential benefits.

4. The parties are engaged in a variety of care delivery initiatives, but have not yet developed detailed plans for the expansion or integration of these efforts moving forward.

The parties' submissions to the HPC and the DoN program describe a number of the individual parties' past care delivery initiatives and achievements. For example, the parties note their successful participation in the Medicare Pioneer ACO Program, including achieving high quality composite scores.[250] The parties have also undertaken some behavioral health integration initiatives, including embedding behavioral health clinicians with primary care providers, incorporating tele-behavioral health, and embedding behavioral health case managers in their EDs.[251] Many of the parties have also undertaken strategies to improve patient health outcomes by developing chronic disease management programs, providing more specialized services at affiliated community hospitals, and establishing patient-centered post-acute programs that utilize

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Mount, BOSTON BUSINESS JOURNAL, Mar. 1, 2016, *available at* https://www.bizjournals.com/boston/blog/health-care/2016/03/lahey-hospitals-operating-loss-widens-as-it-drug.html (last visited July 13, 2018).

[247] The implementation of health information technology can facilitate as well as raise challenges for care coordination and health care competition. Tools that facilitate interoperability, both within a provider organization and between different provider organizations, can enhance coordinated, effective care delivery. Tools that lack interoperability can create silos, with challenges both for care coordination and access to competitors. *See* Katherine Baicker & Helen Levy, *Coordination versus Competition in Health Care Reform*, 369 NEW ENGL. J. MED. 789 (2013), *available at* http://www.nejm.org/doi/pdf/10.1056/NEJMp1306268 (last visited July 13, 2018). The HPC understands that, in the Massachusetts market, new systems have in some cases made it more difficult for system-affiliated providers to refer patients to other providers, including independent providers.

[248] *See* Thomas Payne et al., *Use of more than one electronic medical record system within a single health care organization*, 356 APPLIED CLINICAL INFORMATICS 462, 465-466 (Dec. 12, 2012) ("Some of the features of [EHRs] that are cited as making care safer, such as improving communication, providing access to patient information, and stopping mistakes at the ordering process may be more difficult to achieve if more than one [EHR] is used without appropriate integration. A secondary but significant risk encompasses increased practitioner time requirement for both patient care and for training which results in loss of income and in provider dissatisfaction with the [EHR]").

[249] DON NARRATIVE, *supra* note 28, at 39.

[250] *Id.* at 23 (noting that BIDCO earned the highest quality score of all Pioneer ACOs in 2015).

[251] *Id.* at 23, 28.

preferred nursing facilities, incorporate hospice and palliative care when appropriate, and establish parameters for patient transitions between settings.[252]

Many of the parties have also participated in health care transformation initiatives funded through the HPC's two investment programs: the Community Hospital Revitalization, Acceleration, and Transformation (CHART) Program and the Health Care Innovation and Investment Program (HCII). CHART Phase 2 awards provided funding to eligible community hospitals' efforts to maximize appropriate hospital use, enhance behavioral health care, and improve processes to reduce waste and improve quality and safety.[253] Anna Jaques, BID-Milton, BID-Plymouth, Northeast, and Winchester each received CHART Phase 2 grants, and Northeast and Winchester also received a joint grant with Lowell General Hospital.[254] The HCII Program's first round of investments was divided among three pathways: targeted cost challenge investments that support innovative delivery and payment models, telemedicine pilots, and neonatal abstinence syndrome investment opportunities.[255] Lahey is implementing a two-year neonatal abstinence syndrome investment award, while BIDCO participated in the targeted cost challenge investment pathway through its partnership with awardee Brookline Community Mental Health Center.[256]

In addition to their plans to integrate their systems' quality oversight structures as described in Section III.B.3, the parties have indicated that they intend to expand some of their care delivery initiatives. They have stated a general intent to "leverage existing expertise across sites to further improve outcomes and patient experience in the future" as a combined system[257] and to maintain and expand these commitments after the proposed transaction.[258] For the most part the parties have not yet identified which of these existing initiatives, which differ in approach, size, and scope, would be expanded as a result of the proposed transaction, or identified where or when such expansions would take place or what resources would be committed to supporting them, although some proposals are more detailed than others. The parties have identified the promulgation of NE Baptist's "standardized care and managed protocols" as an example, stating that "[BILH] can implement [NE Baptist's] model of care, where appropriate."[259] In their ongoing planning process, the parties are developing more detailed proposals for expanding the NE Baptist model of care and other care delivery initiatives

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[252] *Id.* at 20-21, 24-25, 29.

[253] *See* MASS. HEALTH POLICY COMM'N, CHART PHASE 2 SUMMARY, http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/investment-programs/chart/phase-2/chart-phase-2-summary.pdf (last visited July 13, 2018).

[254] These hospitals' programs focused on activities designed to both improve the quality of patient care and reduce costs, including reducing readmissions, managing care across the continuum, reducing ED utilization and decreasing ED boarding, and better integrating behavioral health care services. CHART awarded Phase 2 grants separately to the Northeast hospitals, Beverly and Addison Gilbert. *CHART Phase 2 Awards*, MASS. HEALTH POLICY COMM'N, http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/investment-programs/chart/phase-2/ (last visited July 5, 2018).

[255] *See HPC Innovation Investments,* MASS. HEALTH POLICY COMM'N, https://www.mass.gov/service-details/hpc-innovation-investments (last visited July 13, 2018).

[256] BIDCO and Brookline Community Mental Health Center worked to provide high-touch care management to eligible patients with a serious chronic medical condition and behavioral health comorbidity.

[257] DON NARRATIVE, *supra* note 28, at 27.

[258] *Id*. at 23-29.

[259] *Id.* at 27.

that could ultimately be beneficial if adopted.[260] However, the parties have emphasized that they cannot develop more detailed plans before the transaction is finalized, and it is therefore unclear based on current information to what extent the parties' plans would have a positive impact on quality.[261]

The proposed transaction would provide the parties access to a larger shared pool of capital, patients, and knowledge that might provide greater opportunities for the development of quality and care delivery improvement initiatives. However, the merger alone is unlikely to result in quality improvement without well-developed plans for realizing those opportunities.[262] While the parties have begun a planning process that may result in specific quality improvement and care delivery plans, as described in Section II.A, those plans are not yet available for the public to evaluate or sufficiently developed for the HPC to assess the extent to which they might result in specific improvements.

5. <u>The parties have each participated in various government and commercial payer alternative payment methodology (APM) contracts and ACOs, although participation in individual payment models varies by party. The parties are considering plans for coordinating their APM structures, but it is unclear to what extent they will focus on expanding their participation in risk-based contracting.</u>

Over the last several years, initiatives at both the state and national level have sought to increase provider accountability for delivering high-quality, cost-effective, patient-centered care, including through supporting the adoption of APMs and incentivizing provider participation in

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[260] As discussed in *supra* note 216, the parties have provided internal data suggesting that adoption of key elements of the NE Baptist care model at BIDMC, pursuant to their existing joint venture, has led to improvements in select indicators of hip and knee care quality. While we have not verified these data using independent sources, they suggest that NE Baptist clinical collaborations could result in some improvements in orthopedic care at other BILH hospitals if BILH were to commit resources to supporting these efforts.

[261] For example, the relatively robust proposals for expanding NE Baptist's orthopedic and musculoskeletal care practices, which include a proposed timeline and some potential locations for integration, contains elements to be determined, including additional locations for first-round integration that have yet to be identified, as well as personnel and resource commitments that would be necessary to implement these integration activities.

[262] Some scholarly research suggests that mergers that reduce competition can in fact reduce quality. Martin Gaynor & Robert Town, THE IMPACT OF HOSPITAL CONSOLIDATION - UPDATE, ROBERT WOOD JOHNSON FOUNDATION, SYNTHESIS PROJECT POLICY BRIEF, no. 9 (2012), *available at* https://www.rwjf.org/content/dam/farm/reports/issue_briefs/2012/rwjf73261 (last visited July 13, 2018). In addition, even where differences in quality performance suggest the potential for quality improvement, as with NE Baptist's superior performance on measures related to its core services, quality improvement may be possible through clinical affiliations and other arrangements that have fewer implications for market functioning than a corporate merger. *See, e.g.*, 2016 BID CMIR FINAL REPORT, *supra* note 25, at 78 (discussing the plans among BIDMC and NE Baptist to extend NE Baptist's model of care to BIDMC community sites under existing clinical affiliation and joint venture agreements); FED. TRADE COMM., STATEMENT OF THE FEDERAL TRADE COMMISSION IN THE MATTER OF CABELL HUNTINGTON HOSPITAL, INC., DOCKET NO. 9366 at 2 (July 6, 2016), *available at* https://www.ftc.gov/system/files/documents/public_statements/969783/160706cabellcommstmt.pdf (last visited July 13, 2018) ("We understand that coordination of care has the potential to further key goals of healthcare reform and consider those benefits when evaluating a provider merger…Claimed benefits, however, are only cognizable if they are merger-specific. Many of the purported benefits of hospital mergers—including coordination of patient care, sharing information through electronic medical records, population health management, risk-based contracting, standardizing care, and joint purchasing—can often be achieved through alternative means that do not impair competition").

ACOs. When providers participate in these initiatives, they accept responsibility for managing the health of their attributed patients and meeting risk-adjusted spending targets. We evaluated the parties' history of participating in commercial, Medicare, and MassHealth APMs and ACOs.

CMS launched its first ACO demonstration program, the Pioneer ACO model, in 2012. Both BIDCO and MACIPA were among the original 32 participants. BIDCO remained in the Pioneer ACO model for four-and-a-half years of the five year program, while MACIPA participated for three years.[263] In 2015, BIDCO earned a quality score of 98.38%, the highest score of all Pioneer ACOs that year, and MACIPA earned a total quality score of 91.36% in its last year of participation, which was among the top 5 best scores that year.[264]

CMS also began its Medicare Shared Savings Program (MSSP) in 2012, which offers providers a chance to participate in an ACO model without taking on the same level of risk required of Pioneer and Next Generation ACOs. Lahey has participated in Track 1 of the MSSP Program since 2013, under which it is able to earn shared savings but is not responsible for shared losses.[265] Lahey met CMS's quality performance standard in 2016, the most recent year for which performance results are available, but had the lowest quality score among Massachusetts MSSP ACOs in that year.[266] BIDCO and MACIPA entered the MSSP Program after leaving the Pioneer ACO model; both were participating in Track 3 as of 2018, under which they can share in both savings and losses based on performance.

At the state level, MassHealth launched its ACO program for Medicaid beneficiaries in March 2018.[267] BIDCO has partnered with Tufts Health Plan to form an Accountable Care

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[263] *See* L&M POLICY RESEARCH, EVALUATION OF CMMI ACCOUNTABLE CARE ORGANIZATION INITIATIVES (December 2, 2016), *available at* https://innovation.cms.gov/Files/reports/pioneeraco-finalevalrpt.pdf (last visited July 13, 2018).

[264] CENTERS FOR MEDICAID AND MEDICARE SERVICES, MEDICARE PIONEER ACCOUNTABLE CARE ORGANIZATION MODEL PERFORMANCE YEAR 4 (2015) RESULTS, https://innovation.cms.gov/Files/x/pioneeraco-fncl-py4.pdf (last visited July 14, 2018); CENTERS FOR MEDICAID AND MEDICARE SERVICES, MEDICARE PIONEER ACCOUNTABLE CARE ORGANIZATION MODEL PERFORMANCE YEAR 3 (2014) RESULTS, https://innovation.cms.gov/Files/x/pioneeraco-fncl-py3.pdf (last visited July 14, 2018).

[265] Some research suggests that Track 1 MSSP ACOs overall have resulted in net losses for Medicare, compared to other MSSP ACOs, which have generated some savings. Press Release, Avalere Health, Medicare Accountable Care Organizations Have Increased Federal Spending Contrary to Projections that They Would Produce Net Savings (Mar. 29, 2018), *available at* http://avalere.com/expertise/managed-care/insights/medicare-accountable-care-organizations-have-increased-federal-spending-con (last visited July 17, 2018). Lahey achieved savings in the MSSP program compared to its benchmark in performance years 2014 and 2015, but exceeded benchmark spending in performance years 2013 and 2016. *See Shared Savings Program Accountable Care Organizations (ACO) PUF*, CTRS. FOR MEDICARE AND MEDICAID SERVS., https://www.cms.gov/Research-Statistics-Data-and-Systems/Downloadable-Public-Use-Files/SSPACO/index.html (last visited July 5, 2018) (public use files for MSSP data, which can be searched for Lahey's MSSP performance).

[266] *See* CENTERS FOR MEDICAID AND MEDICARE SERVICES, 2016 SHARED SAVINGS PROGRAM (SSP) ACCOUNTABLE CARE ORGANIZATIONS (ACO) PUF, (March 22, 2018), https://data.cms.gov/Special-Programs-Initiatives-Medicare-Shared-Savin/2016-Shared-Savings-Program-SSP-Accountable-Care-O/3jk5-q6dr, (last visited July 13, 2018) (Lahey's quality score in 2016 was 90%).

[267] Press Release, Mass. Exec. Office of Health and Human Servs., MassHealth Launches Restructuring To Improve Health Outcomes for 1.2 Million Members (Mar. 1, 2018), [hereinafter MassHealth Launches Restructuring], *available at* https://www.mass.gov/news/masshealth-launches-restructuring-to-improve-health-outcomes-for-12-million-members (last visited July 5, 2018). The launch of the MassHealth ACO program was preceded by a pilot one-year program. *See* Press Release, Mass. Exec. Office of Health and Human Servs., MassHealth Partners with

Partnership Plan (Model A) ACO, though not all BIDCO PCPs are participating in this ACO; both CHA and Lawrence General have formed their own MassHealth ACOs.[268] Model A MassHealth ACOs require providers to take on the highest level of risk for insured patients. Lahey has formed an MCO-Administered (Model C) ACO, under which it bears some downside risk although risk sharing is lower for Model C ACOs than for Model A ACOs.[269] In addition, LHBS is participating in the MassHealth Behavioral Health Community Partner program, under which it will support MassHealth's commitment to expand substance misuse disorder treatment.[270] MACIPA is not participating in the MassHealth ACO program.

Commercial payers have also been expanding APM contracts in recent years, with varying levels of shared risk and quality incentives depending on negotiations between payers and provider organizations. BIDCO, MACIPA, and Lahey all participated in APM contracts with BCBS, HPHC, and THP for their HMO populations in 2016.[271] In addition, Lahey and MACIPA participated in APM contracts with BCBS for their PPO population; BIDCO did not participate in APMs for this population.[272]

The table below summarizes the parties' participation in the commercial and government-payer APM arrangements discussed above.

Six Health Care Organizations to Improve Member Care (Nov. 29, 2016), *available at* http://www.mass.gov/eohhs/gov/newsroom/press-releases/eohhs/masshealth-partners-with-six-health-care-organizations.html (last visited July 17, 2018).

[268] *See* MASS. EXEC. OFFICE OF HEALTH & HUMAN SERVS., MASSHEALTH ENROLLMENT GUIDE 17, 22 (2018), *available at* https://www.masshealthchoices.com/sites/default/files/Documents/EH-MH%20(Rev.%2010-17)%20Entire%20Guide%20(2)_WEB_110317.pdf (last visited July 14, 2018) (discussing Merrimack Valley ACO, which includes Lawrence General, and Tufts Health Together with CHA).

[269] The base capitation rates in Appendix D of the Model A ACO model contract require ACOs to assume 100% risk for savings or losses less than or equal to 3% of medical spending (excluding high-cost drugs), and 50% risk for savings or losses above 3%, while the maximum risk sharing under Section 2.7(C) of the Model C ACO model contract is 70% of savings or losses below 3% of medical spending (excluding high-cost drugs) and 35% of savings or losses over 3%. *See* MASS. EXEC. OFFICE OF HEALTH AND HUMAN SERVS., APPENDIX D: BASE CAPITATION RATES, Exh. 2 (2017), *available at* https://www.mass.gov/files/documents/2017/11/17/acpp-appendix-d-base-capitation-rates.pdf (last visited July 14, 2018); MASS. EXEC. OFFICE OF HEALTH AND HUMAN SERVS., MCO ADMINISTERED ACO MODEL CONTRACT at Section 2.7(C) (2017), *available at* https://www.mass.gov/files/documents/2017/11/17/mco-administered-aco-model-contract.pdf (last visited July 14, 2018).

[270] MassHealth Launches Restructuring, *supra* note 267.

[271] *See* CTR. FOR HEALTH INFO & ANALYSIS, PERFORMANCE OF THE MASSACHUSETTS HEALTH CARE SYSTEM: ALTERNATIVE PAYMENT METHODS DATABOOK (2017), *available at* http://www.chiamass.gov/annual-report (last visited July 14, 2018).

[272] *Id*. In addition to Lahey and MACIPA, Partners, Steward, and Lowell General PHO all participated in the BCBS PPO APM contract in 2016.

Party Participation in Commercial, Medicare, and Medicaid APMs

Party	2016 Commercial Global Payment Participation		2018 Medicare ACO Status	2018 MassHealth ACO Status
	HMO (BCBS, HPHC, THP)	PPO (BCBS)		
BIDCO	Yes	No	MSSP - Track 3	Model A
Lahey	Yes	Yes	MSSP - Track 1	Model C
MACIPA	Yes	Yes	MSSP - Track 3	No

Notes: We limited our examination of commercial global payment participation to HMO products offered by BCBS, HPHC, and THP and PPO products offered by BCBS. The parties may participate in additional commercial global payment arrangements not identified here. Orange shading represents instances in which the party physician group has elected not to participate in an available downside risk arrangement.

In order to participate in these myriad APM arrangements, the parties currently have multiple commercial, Medicare, and MassHealth ACO governance and management structures across their institutions. The parties' planning process includes discussion of the development of a unified approach to claims data integration, data management and analytics, and system-wide risk coding and care management practices. These plans may help to integrate and improve care management systems across BILH's various entities and contracts, but the proposed plans are not finalized and do not yet include details such as timelines and necessary resource commitments. It is also unclear whether the parties will focus primarily on improving performance in current APM contracts or seek to expand their participation in APMs that include significant risk sharing based on quality performance.

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In summary, we find that, historically, the parties have generally performed comparably to statewide average performance on applicable and available nationally-endorsed measures of clinical quality. They have identified some quality metrics for ongoing measurement post-transaction, but have not yet identified baseline data or transaction-specific quality improvement goals. They are also engaged in a variety of targeted care delivery initiatives, but have not developed definitive plans about expansion or integration of these efforts moving forward. The parties currently have systems in place to promote and improve the delivery of high-quality health care and are considering potential structures for quality oversight and management in the BILH system, and they have each participated in various government and commercial payer APMs and ACOs, although participation in individual payment models varies by party. While the parties' ongoing planning process may result in initiatives that could improve patient care, based on the information currently available regarding he parties' plans, it is unclear whether, to what extent, and on what time frame there may be any specific improvements to quality or care

delivery as a result of the transaction.[273] In order to allow the public to better evaluate any potential benefits of the transaction on quality or care delivery, the parties would need to provide additional detail on what specific quality improvements they hope to achieve as a combined system that they would not be able to achieve as independent systems, and how the proposed transaction would enable them to achieve these goals.

C. Access to Care

The HPC monitors a variety of factors relating to health care access in its review of provider material changes, including the "availability and accessibility of services," "the role of the provider in serving at-risk, underserved, and government payer patient populations, including those with behavioral, substance use disorder and mental health conditions," and "[the provision of] low margin or negative margin services[.]"[274] We examined the parties' current roles in these areas and assessed the potential impacts of the proposed transaction on patient access and whether the parties' plans address specifically identified community needs. The HPC's findings are summarized below:

Payer Mix and Patient Demographics

- The proposed BILH-owned hospitals generally have lower Medicaid payer mix compared to the mix of patients in their service areas and to competitors, although some have higher Medicare payer mix. The hospitals that are anticipated to be BILH contracting affiliates generally have higher Medicaid mix.

- The proposed BILH-owned hospitals generally provide lower proportions of inpatient and ED care to non-white patients and Hispanic patients compared to their service areas and to competitor systems, and their patients come from relatively affluent communities on average. The hospitals that are anticipated to be BILH contracting affiliates generally have a higher proportion of non-white patients and Hispanic patients, and patients from less affluent areas.

- When initially formed, the BILH-owned system would serve the lowest mix of Medicaid discharges of the major systems in eastern Massachusetts, a generally lower proportion of non-white and Hispanic inpatient and ED care, and patients who, on average, come from relatively affluent communities. It is not yet clear whether or how BILH's patient mix would change as a result of the proposed transaction, although the parties do not expect significant changes to their current payer mix.

[273] As discussed in Section II.A, the parties have stated that, in many cases, they are legally restricted from sharing certain information and further developing their plans while they remain separate corporate entities.
[274] Mass. Gen. Laws ch. 6D, § 13(d)(vi, ix-xii).

Behavioral Health Services

- The proposed BILH-owned hospitals have significant shares of inpatient psychiatric beds in eastern Massachusetts; the hospitals that are anticipated to be BILH contracting affiliates also have substantial numbers of psychiatric beds.

- The parties provide a variety of outpatient behavioral health services, with LHBS being a particularly important provider north of Boston.

- The parties' integration planning process includes proposals for enhancing behavioral health services, but the degree to which these services will be expanded or improved is not yet clear.

Access to Other Services

- The parties have assessed the health needs of their communities and are developing plans to expand certain services, but the potential impacts of these plans on access to care cannot be assessed at this time.

The remainder of this section discusses these findings in greater depth.

1. Payer Mix and Patient Demographics

We examined the payer mix of the party hospitals to identify whether they attract a larger or smaller share of one type of patient compared to the population of their primary service areas (PSAs) and compared to other nearby providers. Providers serving high proportions of patients on government insurance, in particular Medicaid, provide important points of access for patients who often face barriers to accessing care. In addition, a provider's payer mix may impact its financial and quality performance due to lower payments by government payers relative to commercial payers and socioeconomic factors that disproportionately impact the complexity and health outcomes of government payer patients. These factors can incentivize providers to try to attract more commercial patients rather than Medicaid patients. We also examined certain demographic information for the parties' patient populations, including to what extent they serve racial and ethnic minorities and whether their patients come from communities with lower average income levels and high rates of socioeconomic challenges that can create access barriers.

a. *The proposed BILH-owned hospitals generally have lower Medicaid payer mix than their service areas and competitors, although some have higher Medicare payer mix. The hospitals that are anticipated to be BILH contracting affiliates have higher Medicaid payer mix.*

We examined the historical payer mix of the parties' hospitals compared to the mix of patients living in their PSAs[275] as well as to competitor hospitals.[276] We also examined changes in payer mix over time.

We found that the hospitals proposing to join the BILH-owned system generally have lower inpatient Medicaid payer mix as compared to the payer mix of their PSAs. As shown below, all of the party hospitals have a smaller proportion of Medicaid discharges from their PSAs than the overall proportion of Medicaid discharges for patients living in their PSAs (at all hospitals).[277] However, a number of the BILH hospitals serve a larger proportion of Medicare patients. We found similar patterns when we compared the party hospitals' payer mix to comparator hospitals using inpatient and outpatient charge data.[278]

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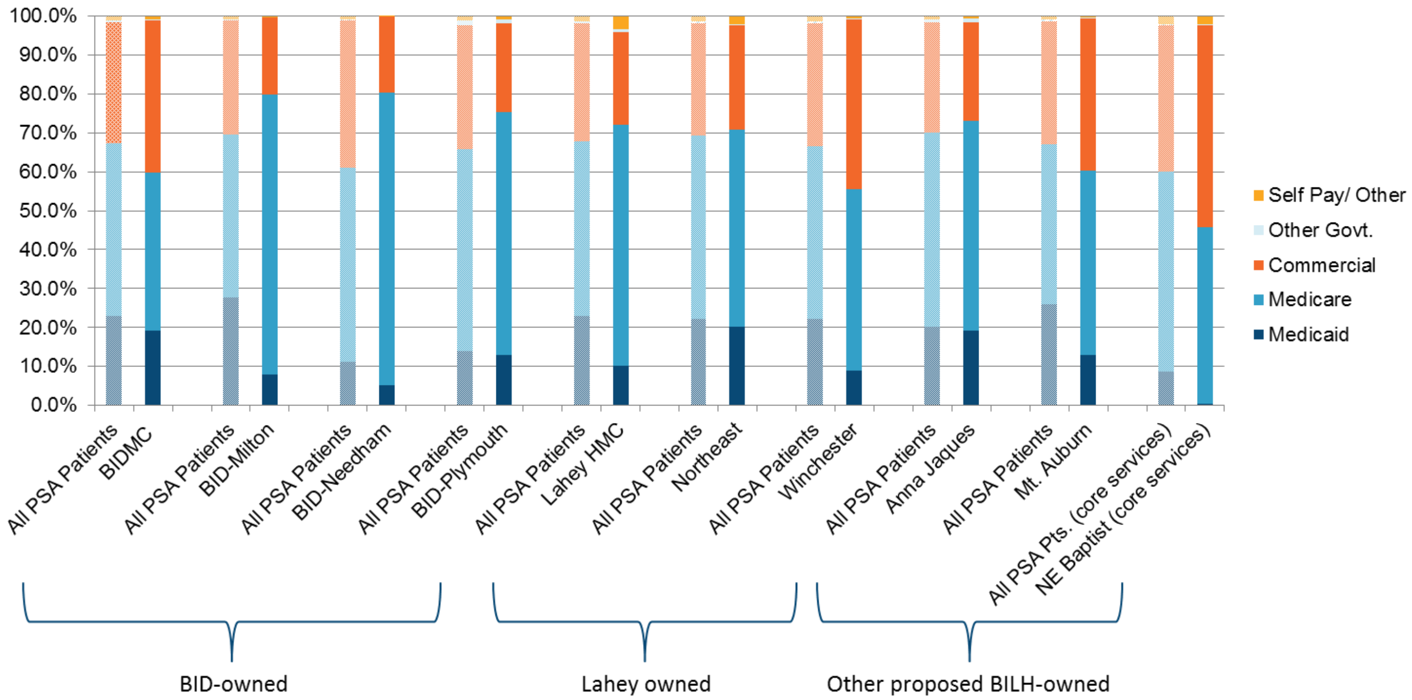
[275] Based on HPC analysis of CHIA hospital discharge data for 2010 through 2016. These data include patient zip code data, which allow us to determine the extent to which the party hospitals' inpatient payer mix reflects the mix of patients living in their service areas.

[276] We compared the party hospitals' payer mix to that of competitors using total inpatient and outpatient charge data (gross patient service revenue or (GPSR)) gathered by CHIA for 2009 through 2016. CHIA HOSPITAL PROFILES DATABOOK, *supra* note 134. Because charges do not generally vary based on the insurance type of the patient, calculating payer mix based on GPSR data allows us to understand the volume of services being provided to patients with different insurance types, and GPSR data is available for both inpatient and outpatient services. Calculating payer mix based on revenue received (NPSR) would tend to inflate commercial mix relative to public payers as commercial rates are generally higher than those of public payers.

[277] Anna Jaques and Northeast have Medicaid payer mix relatively close to that of their PSAs. The HPC did not receive 2017 hospital discharge data in time to fully incorporate these new data into our analyses, but preliminary payer mix analysis suggests that Northeast's Medicaid payer mix in 2017 may have been comparable to, or even slightly higher than, that of its PSA.

[278] Based on HPC analysis of gross patient service revenue (GPSR) data from CHIA Hospital Cost Reports for 2009 through 2016. CHIA HOSPITAL PROFILES DATABOOK, *supra* note 134. See the Data Appendix, Figures 8A through 8E, for graphs showing the parties' inpatient and outpatient payer mix by GPSR. The proposed BILH-owned hospitals generally have lower Medicaid payer mix than comparator hospitals, although their Medicaid mix is higher than most Partners hospitals except for North Shore Medical Center. Northeast has a higher Medicaid payer mix than the MelroseWakefield Healthcare hospital campuses, Newton-Wellesley Hospital, and Emerson, and BID-Plymouth has a higher Medicaid mix relative to South Shore Hospital, Brigham and Women's Faulkner Hospital, and Newton-Wellesley. Some party hospitals have also seen larger increases in Medicaid payer mix than some comparator hospitals in recent years. The hospitals serving high proportions of Medicare discharges relative to their PSAs also usually have a higher Medicare mix by GPSR. As discussed in our prior CMIR reports on NE Baptist joining the BIDCO contracting network, NE Baptist's Medicaid mix is small and has been growing slowly over time, although NE Baptist has stated its intention to increase its Medicaid payer mix and has opened a specialty clinic focused on serving Medicaid patients. 2016 BID CMIR FINAL REPORT, *supra* note 25, at 57-58. Preliminary analysis of CHIA 2017 hospital discharge data indicates that NE Baptist's inpatient Medicaid payer mix for its core services in its PSA increased from 2016 to 2017, but remained below 1% in 2017. Because GPSR-based payer mix data for 2017 is not yet available, we cannot determine whether NE Baptist's outpatient Medicaid payer mix also increased from 2016 to 2017.

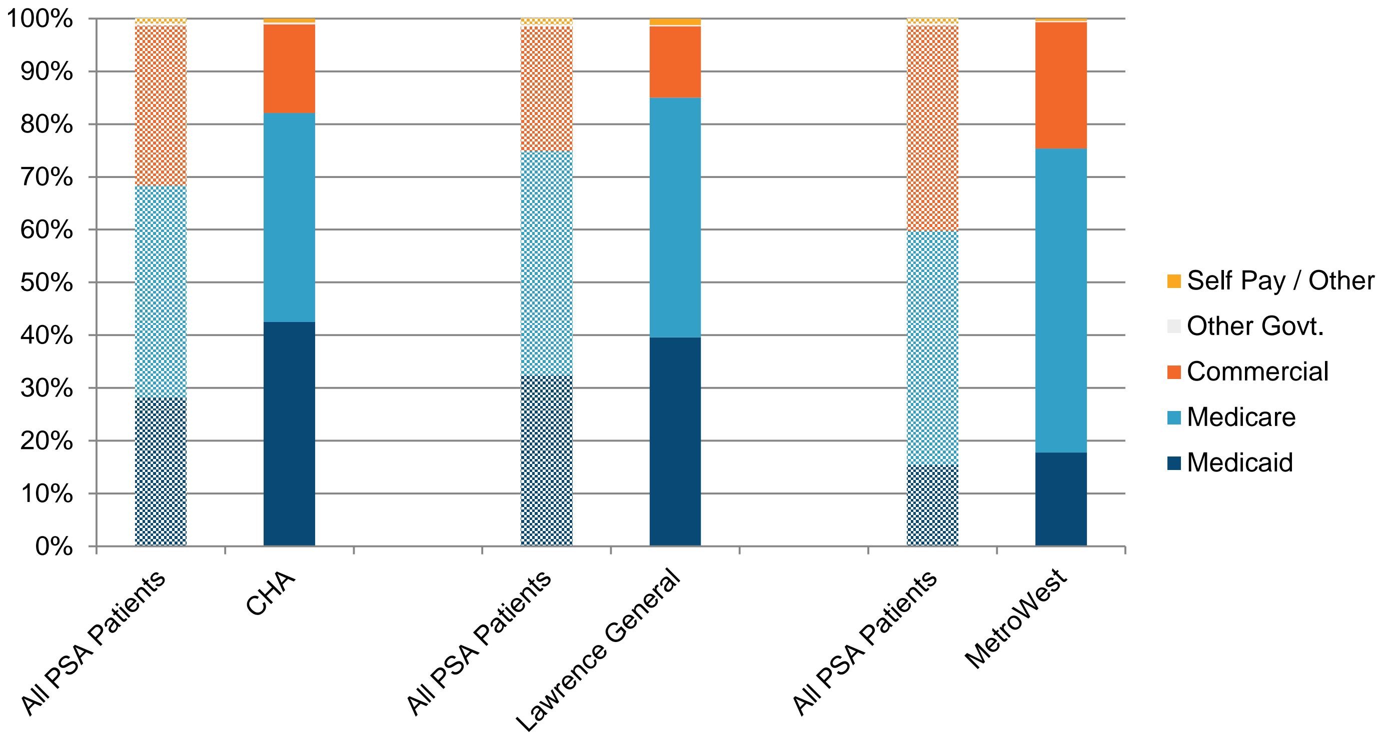
Inpatient Payer Mix in Proposed BILH-owned Hospital PSAs (2016)



Source: CHIA Hospital Discharge Data, 2016.
Note: Payer mix for NEBH and its PSA are for core orthopedic and musculoskeletal discharges only; see note 140 for a description of NE Baptist's core services.

Conversely, the BIDCO contracting affiliate hospitals have a higher mix of local Medicaid discharges than that of patients living in their PSAs.

Inpatient Payer Mix in Anticipated BILH Contracting Affiliate Hospital PSAs (2016)



Source: CHIA Hospital Discharge Data, 2016.

b. *The proposed BILH-owned hospitals generally provide lower proportions of inpatient and ED care to non-white patients and Hispanic patients, and their patients come from relatively affluent communities, on average. The BIDCO contracting affiliate hospitals that are anticipated to be BILH contracting affiliates have a higher proportion of non-white patients and Hispanic patients, and patients from less affluent areas.*

We examined data on the racial and ethnic demographics of the party hospitals as compared to the patient mix of their PSAs and their competitors, as well as the socioeconomic characteristics of the parties' patients. With regard to racial demographics, we found that the proposed BILH hospitals generally have lower proportions of local discharges for non-white patients as compared to the mix of patient discharges in their PSAs.[279,280] The proposed BILH-

[279] HPC analysis of 2016 CHIA hospital discharge data for patients living in the party hospitals' inpatient PSAs, based on patients' primary racial identification. Data on patient race and ethnicity in the hospital discharge data is not independently verified by CHIA, and hospitals' methods of identifying patients may vary. In accordance with racial and ethnicity categorization used by the US Census, we assessed Hispanic ethnicity independently from racial identity. *Hispanic Origin*, U.S. CENSUS BUREAU, https://www.census.gov/topics/population/hispanic-origin.html (last visited July 14, 2018). Thus, for example, in our analysis of patient race, discharges where race was categorized as white include both white Hispanic patients as well as white non-Hispanic. See the Data Appendix, Figure 10A, for more detail on our findings. The parties provided an analysis to the DoN program of the racial and ethnic demographics of the patients seen at their hospitals. NEWCO DON APPLICANTS, PATIENT PANEL SUMMARY, NEWCO FY2015 - FY2017 (Jan. 2018), *available at* https://www.mass.gov/files/documents/2018/02/12/don-patient-panel-newco.pdf (last visited July 14, 2018). This analysis includes self-reported data from all facilities on a party hospital

owned hospitals also have smaller proportions of discharges of Hispanic patients compared to the mix of patients in their PSAs.[281] Conversely, the BIDCO contracting affiliate hospitals that are expected to become BILH contracting affiliates have higher proportions of non-white discharges and Hispanic discharges than the mix of patients in their PSAs.[282] Examining the racial and ethnic demographics of ED patients for large eastern Massachusetts hospital systems, we found that all of the hospital systems have larger proportions of ED visits for non-white patients and Hispanic patients than for inpatient care, but the proposed BILH-owned hospitals have the lowest proportions of non-white and Hispanic ED patients among the hospital systems we examined.[283]

To examine the socioeconomic status of the parties' patients, we reviewed the average household income and area deprivation index of the communities where the patients live.[284] We found that patients who received inpatient or ED care at the parties' hospitals tended to come from communities with higher average incomes and lower deprivation index scores (indicating less deprivation).[285] We found similar socioeconomic patterns for commercially insured patients attributable to BIDCO, LCPN and MACIPA PCPs.[286]

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license. The party analysis varies from the HPC analysis in that it counts unique patients that visited each hospital, but it includes non-ED outpatient care in addition to inpatient and ED visits. Thus, the party analysis describes the demographics of the *patients* who have been seen at least once in a given year for care at the party hospitals, while our analysis assesses the proportion of inpatient and ED *services* provided to patients of different racial and ethnic backgrounds, including services provided to patients who had more than one visit to a hospital in a given year. The parties' analysis indicates that 74.6% of their patient population was white in fiscal year 2017. No comparable data are available for other systems.

[280] Each of the proposed BILH-owned hospitals has a lower mix of non-white discharges than the mix of discharges in its PSA with the exception of BIDMC. *See* Data Appendix, Figure 10A.

[281] HPC analysis of 2016 CHIA hospital discharge data, based on patients' identification as Hispanic or non-Hispanic. Hispanic identification in patient records may not fully capture all patients who may have language or cultural barriers to accessing care. *See* Data Appendix, Figure 10B.

[282] *See* Data Appendix, Figures 10A and 10B.

[283] *See* Data Appendix, Figures 9B and 9D.

[284] The area deprivation index is a proxy for socioeconomic deprivation in a community that combines a number of measures including home values and amenities, employment, poverty, and education levels. It is measured by U.S. Census block at the 9-digit-zip code level and collapsed to 5 digits in the data we used. Values in Massachusetts range from 120 (greatest deprivation) in parts of Boston and Springfield to -12 (least deprivation) in Weston. 2017 HPC COST TRENDS REPORT, *supra* note 120, at 31.

[285] Based on HPC analysis of 2016 CHIA hospital discharge and ED visit data and U.S. Census Bureau American Community Survey data. *See* Data Appendix, Figure 11A.

[286] HPC analysis of the 2015 APCD and U.S. Census Bureau American Community Survey data. See Data Appendix, Figure 11B; *see also* 2017 HPC COST TRENDS REPORT, *supra* note 120 at 31 (the HPC's patient attribution methodology is described at pages 29-30). The statistics for BIDCO published in the Cost Trends Report and the Data Appendix include some patients attributed to physicians that are part of groups affiliated with the proposed BILH contracting affiliate hospitals; excluding the patients attributed to CHA and Lawrence General physicians, the zip-code income of BIDCO patients would be approximately $2,000 higher than the published statistics for BIDCO, and BIDCO's average deprivation index would be one point lower.

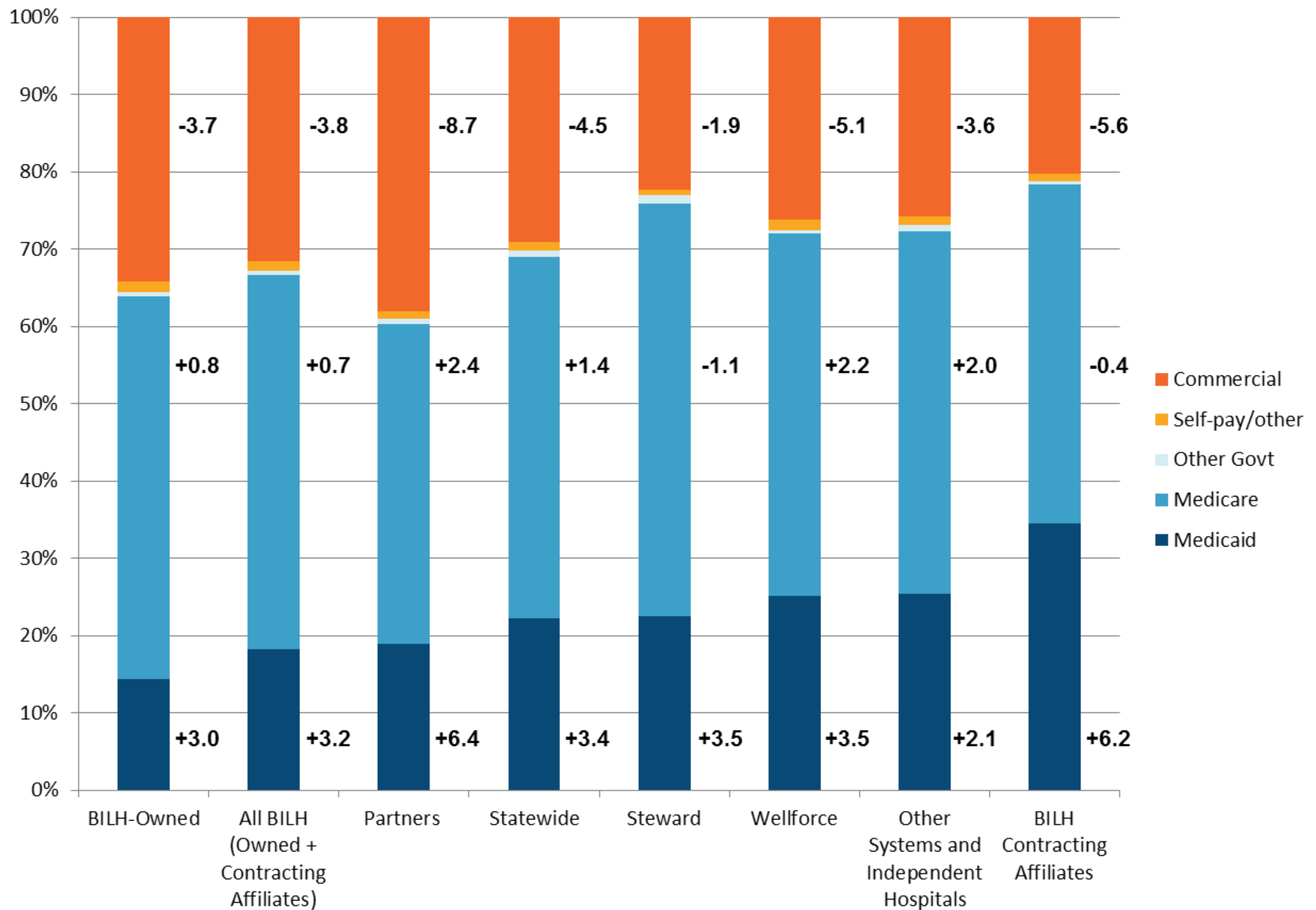
c. *When initially formed, the BILH owned system would serve the lowest mix of Medicaid discharges of the major systems in eastern Massachusetts, a generally lower proportion of non-white and Hispanic inpatient and ED care, and patients who come from relatively affluent communities. It is not yet clear whether or how BILH's patient mix would change as a result of the proposed transaction, although the parties do not expect significant changes to their current payer mix.*

When initially formed, the BILH-owned system hospitals would have the lowest combined mix of Medicaid discharges of any of the major hospital systems in eastern Massachusetts, and BILH's mix of commercially-insured discharges would be second only to that of Partners, as shown in the graph below.[287,288]

[287] Boston Medical Center, not shown in the graph because it has only one hospital, has approximately 53% Medicaid payer mix and approximately 13% commercial payer mix, and its Medicaid mix has grown by 7.3 percentage points since 2010. Based on HPC analysis of CHIA hospital discharge data, 2010-2016.

[288] Preliminary analysis of 2017 CHIA hospital discharge data indicates that most hospital systems' inpatient payer mix did not change substantially from 2016 to 2017. The proposed BILH hospitals, including both owned and anticipated contracting affiliates, had a decline in commercial payer mix of approximately 1.5 percentage points and small increases in Medicare and Medicaid mix. For example, the mix of Medicaid discharges at BILH-owned hospitals increased from 14.3% in 2016 to 14.7% in 2017, for BILH-affiliated hospitals, Medicaid mix decreased from 34.5% to 34.4%, and for BILH owned and affiliated combined, Medicaid mix increased from 18.2% to 18.4%. Steward and Wellforce also saw small shifts from commercial to government payers, while Partners' payer mix stayed relatively stable, with changes of less than half a percentage point in any payer category.

Inpatient Payer Mix of BILH and Comparator Systems (2016 with change since 2010)



Source: HPC analysis of CHIA Hospital Discharge Data, 2010-2016.
Notes: System payer mix and BILH Contracting Affiliates category payer mix are based on the sum of discharges at component hospitals by payer category. Partners' payer mix includes contracting affiliate Emerson Hospital. BILH-Owned includes Lahey hospitals, BID-owned hospitals, NE Baptist, Mt. Auburn, and Anna Jaques; BILH Contracting Affiliates includes CHA, Lawrence General, and MetroWest.

BILH-owned hospitals would also provide the lowest proportion of ED care to non-white patients and the lowest proportion of ED care to Hispanic patients compared to other large eastern Massachusetts hospital systems.[289] BILH-owned hospital patients would also predominantly come from comparatively affluent areas, as shown below.

[289] BILH-owned hospitals would provide a proportion of inpatient care to non-white patients similar to that of Steward, and the lowest proportion of inpatient care to Hispanic patients compared to other large eastern Massachusetts hospital systems. *See* Data Appendix, Figures 9A and 9C.

Average Income and Area Deprivation Index of Hospital Patients of BILH and Comparator Systems (2016)

Inpatient Care		
System	Zip-code income	Average area deprivation index
BILH-Owned	$82,291	80
All BILH (owned + contracting affiliates)	$79,821	82
Partners	$79,177	81
Wellforce	$70,283	90
BILH contracting affiliates	$69,749	88
Steward	$67,886	91

ED Visits		
System	Zip-code income	Average area deprivation index
BILH-Owned	$81,745	80
Partners	$75,165	81
All BILH (owned + contracting affiliates)	$73,989	84
Wellforce	$65,276	92
BILH contracting affiliates	$63,274	91
Steward	$61,229	94

Sources: HPC analysis of 2016 CHIA hospital discharge; CHIA ED visit data; U.S. Census Bureau, American Community Survey data.

Similarly, patients attributed to BILH PCPs would similarly come from more affluent areas, as shown below.

Average Income and Area Deprivation Index of Commercially Insured Population Attributed to Provider Organizations (2015)

	Zip-code income	Average area deprivation index
Partners	$88,340	76.8
All BILH (BIDCO + LCPN + MACIPA)	$86,507	76.2
Atrius	$86,091	77.0
South Shore	$85,507	82.5
Wellforce	$82,086	84.9
Reliant Medical Group	$80,265	89.9
UMass	$74,609	93.7
Steward	$71,796	90.3
CMIPA	$70,164	95.9
Boston Medical Center	$65,518	88.5
Baystate	$62,560	99.1
Southcoast	$61,679	97.6

Sources: HPC analysis of 2015 APCD claims data; MA-RPO, 2016; SK&A, 2015; U.S. Census Bureau, American Community Survey; *see* 2017 HPC COST TRENDS REPORT, *supra* note 120, at 31. Note: See *supra* note 284 for a description of the area deprivation index. Statistics for All BILH are an average of the component physician networks, weighted by number of attributed patients. BILH figures include patients attributed to physicians affiliated with contracting affiliate hospitals CHA and Lawrence General.

It is unclear how, if at all, the parties' payer mix and patient demographics might change as a result of the proposed transaction. The parties have stated that they do not expect the

proposed transaction to result in significant changes in payer mix.[290] The parties have also stated intentions to improve care for MassHealth members, and have identified improving health care access for low income individuals and racial and ethnic minorities in their service areas as priorities in their Community Health Needs Assessments (CHNAs) and community health implementation plans.[291] The parties' statements regarding how they might better serve these patients as a result of the proposed transaction have primarily referenced BIDCO's and Lahey's current participation in the MassHealth ACO program and other current efforts, but the parties have not yet detailed what new steps BILH might take to enhance patient access.[292] As discussed in Section III.A.8, retaining and attracting new patients are key components of the parties' plans. BILH's advertising, branding, and marketing activities may influence which patients are attracted to the system, as would BILH's decisions about where to invest in developing services across a broad geographic region with varying patient demographics.[293] Given the parties' expectation that BILH will expand its patient population, it is important for them to articulate how they will enhance access for underserved patient populations as part of the proposed transaction.

Additionally, while the parties have focused on the possibility that additional BILH patients would be drawn away from relatively large and expensive competitors, at least some of BILH's additional patients would likely be drawn from smaller competitors.[294] Shifts of commercial patients away from competitors with already high Medicaid payer mix may financially stress these hospitals.[295] It is also unclear whether contracting affiliates like Lawrence General and CHA would be impacted by shifts in commercial volume to BILH-owned hospitals. Although these hospitals would remain contractually affiliated with BIDCO, the parties have emphasized the need for full corporate integration in order to achieve the reputational and financial benefits they are seeking, and so it is unclear whether contracting affiliate hospitals like Lawrence General and CHA would share in these benefits, or whether they might face greater challenges given their continued corporate independence.

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[290] The parties' projections for BILH assume only that their payer mix will follow broader demographic trends, and that they will see a higher proportion of Medicare patients as the general population ages. BDO REPORT, supra note 31, at 10.

[291] *See, e.g.*, BETH ISRAEL DEACONESS MEDICAL CTR., COMMUNITY HEALTH IMPLEMENTATION PLAN (Sept. 20, 2016), *available at* https://www.bidmc.org/-/media/files/beth-israel-org/community-benefits/community-health-implementation-plan.ashx?la=en&hash=34ABD4FEC2D8FBB7D060A94A74351C9EFE4F0699 (last visited July 14, 2018) (identifying racially and ethnically diverse and low-income populations as targets for community health improvement efforts).

[292] DON NARRATIVE, *supra* note 28, at 33.

[293] Some research suggests that individuals who are relatively educated, high-income, healthy, young, and able to travel may be more likely to actively choose their PCP or hospital, suggesting that commercially insured patients may be more likely to change providers based on changes in provider affiliation and brand. Aafke Victoor et al., *Determinants of patient choice of healthcare providers: a scoping review, 12* BMC HEALTH SERV RES 272 (2012), *available at* https://bmchealthservres.biomedcentral.com/track/pdf/10.1186/1472-6963-12-272 (last visited July 14, 2018).

[294] As discussed in Section III.A.8, approximately 45% of BILH's new commercial inpatient volume obtained through brand enhancement would likely be drawn from non-Partners hospitals.

[295] As discussed in Community Hospitals at a Crossroads, shifts in commercial patient volume from community hospitals with high public payer mix can be part of a self-perpetuating cycle of challenges. In particular, hospitals that serve more patients covered by government insurance programs, including the elderly, poor, and/or disabled, generally have both the lowest commercial relative prices and depend more on lower public payer reimbursements. CROSSROADS REPORT, *supra* note 63, at 50.

2. Behavioral Health Services

Patients seeking behavioral health care have historically experienced barriers to access due to relatively low reimbursement rates and a lack of provider capacity for both inpatient and outpatient services. Patients who are able to obtain care often experience long wait times for inpatient, outpatient, and ambulatory services, and patients with a behavioral health diagnosis are significantly more likely to spend 12 or more hours in an ED awaiting services ("ED boarding") than patients without a behavioral health diagnosis.[296] The parties have identified a particular need for behavioral health services in the communities that they serve.[297] In this section, we examine the party hospitals' inpatient psychiatric bed capacity and their role in providing outpatient behavioral health services, as well as their proposed plans related to behavioral health services.

a. The proposed BILH-owned hospitals have significant shares of inpatient psychiatric beds in eastern Massachusetts; the hospitals anticipated to be BILH contracting affiliates also have substantial numbers of psychiatric beds.

As shown below, several of the party hospitals have inpatient psychiatric bed capacity. Northeast Hospital, which includes the BayRidge psychiatric campus, is particularly notable, with approximately 3.3% of all licensed eastern Massachusetts psychiatric beds.[298] CHA and MetroWest, which would be BILH contracting affiliates, also have large inpatient psychiatric capacity, including 16.2% of child and adolescent beds in Eastern Massachusetts.[299] In total, including both owned and contracting affiliate hospitals, BILH would account for 13.8% of licensed beds in eastern Massachusetts, second only to Partners, as shown below.

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[296] MASS. HEALTH POLICY COMM'N, BEHAVIORAL HEALTH-RELATED EMERGENCY DEPARTMENT BOARDING IN MASSACHUSETTS 14-21 (Nov. 17, 2017), *available at* http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/publications/20171113-hpc-ed-boarding-chart-pack.pdf (last visited July 14, 2018) (Although patients with a behavioral health diagnosis only accounted for 14% of ED visits in 2015, they accounted for 71% of all ED visits that "boarded" in an ED for an extended period and waited on average twice as long as other patients. ED boarding is particularly common for younger patients, Medicaid members, homeless patients, and people from lower-income communities).

[297] *See, e.g.*, BETH ISRAEL DEACONESS MEDICAL CENTER, COMMUNITY HEALTH NEEDS ASSESSMENT FINAL REPORT 4-5 (Sept. 20, 2016), [hereinafter BIDMC CHNA], *available at* https://www.bidmc.org/-/media/files/beth-israel-org/community-benefits/bidmc-2016-chna-community-health-needs-assessment.ashx?la=en&hash=250FB0AF225C6F2255CB73C6066A9A82FD054D7F (last visited July 14, 2018) (finding that community members who are low income, on Medicaid, or uninsured face barriers to accessing behavioral health providers, and that substance use and mental health issues are a major concern in the community).

[298] HPC analysis of MASS. DEPT. OF MENTAL HEALTH, DMH LICENSED HOSPITALS HOSPITAL LISTING (June 18, 2018), *available at* https://www.mass.gov/files/documents/2018/06/01/dmh-licensed-hospitals-list-june-18.pdf (last visited July 14, 2018).

[299] *Id.*

Count of DMH-Licensed Psychiatric Beds in Eastern MA by Bed Type, with Percent of Total Eastern MA Psychiatric Beds by System (2017)

Hospital	Psychiatric Bed Type			
	Adult (% of Total)	Child/Adolescent* (% of Total)	Geriatric (% of Total)	Total (% of Total)
BID-owned system	**25 (1.4%)**	**0 (0%)**	**19 (4.5%)**	**44 (1.8%)**
BID-Milton	-	-	-	-
BID-Needham	-	-	-	-
BID-Plymouth	-	-	19 (4.5%)	19 (0.8%)
BIDMC	25 (1.4%)	-	-	25 (1.0%)
Lahey system	**80 (4.6%)**	**0 (0%)**	**-**	**80 (3.3%)**
Lahey HMC	-	-	-	-
Northeast (Incl. BayRidge)	80 (4.6%)	-	-	80 (3.3%)
Winchester	-	-	-	-
Other Party Hospitals	**20 (1.1%)**	**0 (0%)**	**15 (3.5%)**	**35 (1.4%)**
Anna Jaques	20 (1.1%)	-	-	20 (0.8%)
Mt. Auburn	-	-	15 (3.5%)	15 (0.6%)
NE Baptist	-	-	-	-
Contracting affiliate hospitals	**88 (5.0%)**	**41 (16.2%)**	**46 (10.8%)**	**175 (7.2%)**
CHA	40 (2.3%)	27 (10.7%)	22 (5.2%)	89 (3.7%)
Lawrence General	-	-	-	-
MetroWest	48 (2.7%)	14 (5.5%)	24 (5.6%)	86 (3.5%)
BILH Total (Corporate + Contracting Affiliates)	**213 (12.2%)**	**41 (16.2%)**	**80 (18.8%)**	**334 (13.8%)**
Partners	**331 (18.9%)**	**20 (7.9%)**	**69 (16.2%)**	**420 (17.3%)**
Steward	**166 (9.5%)**	**14 (5.5%)**	**155 (36.4%)**	**335 (13.8%)**
Wellforce	**42 (2.4%)**	**0 (0%)**	**18 (4.2%)**	**60 (2.5%)**
All Other	**996 (57.0%)**	**178 (70.4%)**	**104 (24.4%)**	**1,278 (52.7%)**

Source: MASS. DEPT. OF MENTAL HEALTH, DMH LICENSED HOSPITAL LISTING (June 18, 2018), *available at* https://www.mass.gov/files/documents/2018/06/01/dmh-licensed-hospitals-list-june-18.pdf.
Notes: For the purpose of this analysis, eastern Massachusetts includes all HPC static regions east of Worcester County except for the Cape and Islands. Psychiatric bed total for Partners includes 31 staffed beds at Emerson Hospital, a Partners contracting affiliate, but does not include beds at Cooley Dickinson which is outside of the eastern Massachusetts geographic region. The Child/Adolescent bed category includes child psychiatric beds, adolescent psychiatric beds, and child/adolescent psychiatric beds.

b. The parties provide a variety of outpatient behavioral health services, with LHBS being a particularly important provider north of Boston.

In addition to inpatient services, the parties provide a variety of outpatient behavioral health services. These include hospital-based psychiatric clinics and partial hospitalization programs at some of the party hospitals,[300] as well as collaborations with local behavioral health

[300] *Psychiatry Clinics*, BETH ISRAEL DEACONESS MEDICAL CENTER, https://www.bidmc.org/centers-and-departments/psychiatry/ambulatory-service (last visited July 14, 2018); *Psychiatry and Behavioral Medicine*, LAHEY HEALTH SYSTEM, https://www.lahey.org/Psychiatry/ (last visited July 14, 2018); *Behavioral Health*, MOUNT AUBURN HOSPITAL, https://www.mountauburnhospital.org/care-treatment/behavioral-health/ (last visited July 14, 2018).

care providers.[301] Lahey's BayRidge Hospital provides outpatient psychiatric and substance use disorder treatment,[302] and as noted in Section II.F, Lahey Health Behavioral Services (LHBS) is a component of the Lahey system focused on outpatient behavioral health services.[303] LHBS provides services including addiction treatment, outpatient counseling, children's behavioral health services, psychiatric emergency services, and youth residential programs[304] in a number of locations across the North Shore and Merrimack Valley.[305] It also began participating in the MassHealth ACO program as a behavioral health community partner in January 2018, supporting MassHealth's commitment to expand substance misuse disorder treatment.[306]

We also found, based on a review of physician rosters submitted to the HPC, that the parties collectively contract on behalf of approximately 14% of all physicians with a behavioral health specialty in our data.[307] As these data do not include non-physician providers, this percentage likely does not reflect the parties' share of all behavioral health clinicians,[308] yet still suggests that they have a sizeable behavioral health workforce. The parties and other providers in Massachusetts have cited difficulties finding qualified behavioral health clinicians as one of the barriers to expanding these services.[309]

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[301] *Integrated Healthcare & Substance Use Collaborative*, BETH ISRAEL DEACONESS HOSPITAL PLYMOUTH, https://www.beverlyhospital.org/locations--services/locations/bayridge-hospital/overview-of-services (last visited July 14, 2018).

[302] *BayRidge Hospital Overview of Services*, LAHEY HEALTH SYSTEM, https://www.beverlyhospital.org/locations--services/locations/bayridge-hospital/overview-of-services (last visited July 14, 2018).

[303] DON NARRATIVE, *supra* note 28, at 22-23; *Lahey Health Behavioral Health Services,* LAHEY HEALTH SYSTEM http://www.nebhealth.org/ (last visited July 5, 2018).

[304] *Lahey Health Behavioral Health Services, Description of Services,* LAHEY HEALTH SYSTEM, http://www.nebhealth.org/about-lhbs/services-described/ (last visited July 14, 2018).

[305] *Lahey Health Behavioral Health Services, Services and Locations,* LAHEY HEALTH SYSTEM, http://www.nebhealth.org/services-locations/ (last visited July 14, 2018).

[306] *Lahey MassHealth ACO,* LAHEY HEALTH SYSTEM, http://www.laheyhealth.org/what-we-offer/lahey-masshealth-aco (last visited July 14, 2018); DON NARRATIVE, *supra* note 28, at 33; Press Release, Mass. Exec. Office of Health and Human Servs, MassHealth Partners with 18 Health Care Organizations to Improve Health Care Outcomes for Members (June 8, 2017), *available at* https://www.mass.gov/news/masshealth-partners-with-18-health-care-organizations-to-improve-health-care-outcomes-for (last visited July 17, 2018); Press Release, Mass. Exec. Office of Health and Human Servs, MassHealth Selects 26 Community Partners to Help Improve Health Care for 60,000 Members (Aug. 28, 2017), *available at* http://www.mass.gov/eohhs/gov/newsroom/press-releases/eohhs/masshealth-selects-26-community-partners.html (last visited July 17, 2018).

[307] Based on physician rosters provided to the MA-RPO program. Counts were limited to physicians with one of 40 behavioral health related primary or secondary specialties. Of the 1,304 physicians with one of these behavioral health specialties identified in MA-RPO data, BIDCO listed 135 physicians, MACIPA listed 32 physicians, and Lahey listed 17 physicians.

[308] We also analyzed another clinician database, SK&A, which includes some allied health professionals, nurse practitioners, and other non-physician providers. Of the 2,356 behavioral health physician and non-physician clinicians we identified in the 2015 data, 50 were associated with Lahey hospitals, 45 with BIDMC hospitals, 11 with Mt. Auburn, and 3 with NE Baptist. 39 additional behavioral health clinicians were associated with BIDCO hospital members that are anticipated to be BILH contracting affiliates.

[309] *See, e.g.*, *Testimony to the Health Policy Commission Re: Health Care Cost Growth Benchmark*, MASSACHUSETTS ASSOCIATION OF BEHAVIORAL HEALTH SYSTEMS (Mar. 29, 2018), *available at* https://www.mass.gov/files/documents/2018/04/03/TestimonyHealthPolicyCommissionMarch2018finalpdf_0.pdf (last visited July 14, 2018) (citing difficulties recruiting psychiatrists, particularly for inpatient psychiatric units).

c. The parties' integration planning process includes proposals for enhancing behavioral health services, but the degree to which these services will be expanded or improved is not yet clear.

Recognizing the parties' important role in providing behavioral health services, as described above, it is critical that the parties maintain and, ideally, expand and enhance these services. The parties have stated that BILH would undertake a number of activities to increase the accessibility of care within the BILH service area, including by enhancing their behavioral health care offerings.[310] As discussed in Section II.A, the parties are engaged in an ongoing integration planning process that includes behavioral health service planning. Proposals being developed address staffing models, patient flow models, and other operational plans for integrating behavioral health services into BILH PCP offices, as well as a proposed centralized system for behavioral health triage and admissions for the party hospitals. Additionally, the parties have developed some projections for the financial sustainability of these services in a system through risk sharing incentives. If BILH were to commit to further development of these plans, making necessary initial investments, and operationalizing them in a financially sustainable manner, such plans could result in increased access to behavioral health services.[311] However, the parties have indicated that even these relatively well-developed proposals have not been finalized, and the information currently available does not include projected resource commitments, specific locations, or timelines for implementation. The parties have also identified potential challenges in recruiting qualified clinicians and support staff. It is therefore unclear to what extent the potential for improvement in access to behavioral health care as a result of the proposed transaction would be realized.

3. Access to Other Services

The parties have emphasized their work to date in addressing the needs of patients in their communities. The parties have assessed community need through CHNAs conducted by their hospitals, as well as through studies of population health data. In general, the parties' CHNAs indicate that mental health, substance use disorders, and chronic conditions are among the most pressing health issues facing their communities. In addition, community members often mentioned that Medicaid, behavioral health, and substance use disorder patients frequently had difficulty accessing PCP, specialist, and behavioral health services.[312] The assessments found that social determinants such as economic instability, low levels of educational attainment, high rates of violence, and limited transportation options are important factors that limit the ability of community members to care for their own health.[313]

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[310] DoN NARRATIVE, *supra* note 28, at 13, 22-23.

[311] Such investments may also improve overall medical spending for patients with behavioral health diagnoses. *See supra* note 254.

[312] *See*, *e.g.*, BIDMC CHNA, *supra* note 297, at 4-5 (finding that community members who are low income, on Medicaid, or uninsured face barriers to accessing PCPs, specialists, oral care providers, and behavioral health providers, and that substance use and mental health issues are a major concern in the community).

[313] *See*, *e.g.*, LAHEY HOSPITAL & MEDICAL CENTER, COMMUNITY HEALTH NEEDS ASSESSMENT 4-6 (2016), *available at* https://www.lahey.org/uploadedfiles/Content/About_Lahey/In_the_Community/LHMC%20Master%20Report%20and%20Appendices.pdf (last visited July 14, 2018) (stating that a dominant theme of interviews with community members was the impact of social determinants, particularly on vulnerable community members).

The parties have stated that BILH would undertake a number of activities to increase the accessibility of care within the BILH service area, including enhancing the parties' primary care and urgent care offerings, expanding musculoskeletal and other specialty services at community hospitals, streamlining patient scheduling and referrals, and working with local community partners and patient-centered medical homes.[314] They have also noted that, as a corporately integrated system, they would be better able to pool and allocate resources for such investments.

The parties' ongoing planning process includes planning teams developing some proposals related to these potential service expansions. In some areas, such as primary care development, the parties' proposals, if further developed and enacted, might lead to improvements in access to care that align with identified community needs. The parties have noted their prior work to expand such services within their existing systems.[315] The parties have also proposed centralized scheduling and referral services that may improve the ease with which patients can make appointments and arrange to transfer records between BILH providers. However, in other areas it is not clear whether the plans would duplicate already available services; in some cases the parties' plans have focused on how service expansions would contribute to patient retention, rather than whether they would provide access to services not otherwise available.[316]

Because the parties' planning process is ongoing, their plans do not yet include key details that would help the public assess the potential impacts of the transaction on access to care. These include specific locations where expansions would occur, assessments of current provider capacity for the relevant services, the number and type of clinicians needed to support new services, other resource commitments necessary to support any expansions, and timelines for expansion.[317]

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In summary, we find that the party hospitals generally have relatively low Medicaid payer mix, that they generally provide lower proportions of inpatient and ED care to non-white patients and Hispanic patients than other large eastern Massachusetts hospital systems, and that their patients come from relatively affluent areas on average. The parties have stated that they do not expect significant changes to their current payer mix. However, it is important for the parties to articulate how they will enhance access for underserved patient populations as part of the

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[314] DoN Narrative, *supra* note 28, at 5, 13, 15, 21, 40.

[315] For example, BIDMC has recruited PCPs to practice in the service areas of Anna Jaques and BID-owned community hospitals, and Lahey has made investments in expanding behavioral health services, including building behavioral health focused space into Lahey HMC's newly renovated ED. Press Release, Lahey Health, Emergency Department Unveiled in Burlington (Jan. 25, 2017), *available at* http://www.laheyhealth.org/media-room/press-releases/2017/new-emergency-department-unveiled-in-burlington (last visited July 17, 2018).

[316] The parties have highlighted their past investments in specialty services at community hospitals, including surgical services and cancer care. DoN Narrative, *supra* note 28, at 20-21. As the parties state, these investments may provide financial benefits to community hospitals and may reduce health care spending if they attract patients who would otherwise seek these services at higher-priced hospitals. It is not clear, however, to what extent these investments have filled gaps in care not otherwise available to patients.

[317] As discussed in Section II.A, the parties have stated that, in many cases, they are legally restricted from sharing certain information and further developing their plans while they remain separate corporate entities.

proposed transaction. The parties are important providers of behavioral health services in eastern Massachusetts. The parties' integration planning process includes proposals for enhancing behavioral health services that could result in some improved access to these services, but the degree to which these services will be enhanced is not yet clear. In addition, the parties are developing plans to expand certain other services, but these plans do not yet include key details that would help the public assess the potential impacts of the transaction on access to care.

IV. CONCLUSION

As described in Section III, the HPC found:

1. **Cost and Market:** The parties have historically had low to moderate prices and moderate spending levels compared to other Massachusetts providers. However, after the transaction, BILH's market share would nearly equal that of Partners, market concentration would increase substantially, and BILH would have significantly enhanced bargaining leverage with commercial payers. BILH's enhanced bargaining leverage would enable it to substantially increase commercial prices, increasing total health care spending by an estimated $138.3 to $191.3 million annually for inpatient, outpatient, and adult primary care services. Additional spending impacts would be likely for other services; for example, spending for specialty physician services would increase by an additional $29.8 million to $59.7 million annually if the parties obtain similar price increases for these services. These would be *in addition* to the price increases the parties would have otherwise received. These figures are likely to be conservative. The parties could obtain the projected price increases, significantly increasing health care spending, while remaining lower-priced than Partners.

   While plans to shift care to BILH from other providers and to lower-cost settings within the BILH system would generally be cost-reducing, there is no reasonable scenario in which such savings would offset spending increases if BILH obtains the projected price increases. Achieving all of the parties' care redirection goals could save approximately $8.7 million to $13.6 million annually at current price levels, or $5.2 million to $9.5 million annually with price increases, offsetting approximately 3% to 7% of the $138.3 to $191.3 million spending increase from projected price increases.

2. **Quality and Care Delivery:** Historically, the parties have generally performed comparably to statewide average performance on hospital and ambulatory measures of clinical quality. While they have identified some quality metrics for ongoing measurement post-transaction, they have not yet identified baseline data or transaction-specific quality improvement goals. They are considering plans for integrating their unique quality oversight and management structures, and have stated an intention to expand or integrate current care delivery initiatives, but have not yet developed detailed plans for these efforts. While the parties' ongoing planning process may result in initiatives that could improve patient care, it is unclear whether, to what extent, and on what time frame such initiatives may be adopted or what specific impacts any such initiatives might have.

3. **Access to Care:** Based on the current patient mix of the proposed BILH-owned hospitals, the BILH-owned system would have the lowest mix of Medicaid discharges and among the lowest proportion of discharges and ED visits for non-white patients and Hispanic patients compared to other large eastern Massachusetts hospital systems. BILH's patients, on average, would also come from more affluent communities. It is not yet clear whether or how BILH's patient mix would change as a result of the proposed transaction, although the parties do not expect significant changes to their current payer mix. While

the parties are important providers of behavioral health services in eastern Massachusetts, their plans for how they might expand behavioral health services and other clinical services are still under development. Thus, it is not yet clear to what extent the transaction would enhance patient access to needed services.

In summary, while the BILH parties have historically been low-priced to mid-priced and have not increased their prices relative to the market as they have grown through smaller transactions to date, the BILH transaction is likely to enable the parties to obtain significantly higher commercial prices across inpatient, outpatient, and physician services. To the extent that they obtain price increases in line with their enhanced bargaining leverage, there is no reasonable scenario in which shifting patients to BILH or from higher-cost to lower-cost settings within BILH will offset such price increases. To date, the parties have not committed to constraining future price increases, despite the fact that their own financial projections indicate that they would be profitable without significant price increases.

The parties have also claimed that the transaction will result in improvements in the quality of patient care and access to services and are developing plans in these areas. Since their plans are still under development, it is not possible at this time to assess the likelihood or degree to which the transaction would result in improvements to health care quality or access, particularly for underserved and vulnerable patient populations such as lower-income patients and patients with behavioral health needs.

We invite the parties to address these and other concerns documented throughout this report in their written response, including any commitments. Following the period for written response, we look forward to publishing our Final Report, including any referrals or recommendations to other state agencies.

DATA APPENDIX

I. FINANCIAL STATISTICS FOR THE SIX LARGEST HEALTH SYSTEMS AND OTHER TRANSACTION PARTIES

Figure 1: Financial Statistics

Dollar amounts in 000s	Six largest systems in Massachusetts by NPSR							Other proposed BILH-owned systems			Proposed BILH contracting affiliates	
	Partners	UMass	**BIDMC**	Steward*	**Lahey**	Atrius	Wellforce**	**NE Baptist**	**Mount Auburn**	**Seacoast (Anna Jaques)**	CHA	Lawrence General
Net patient service revenue												
FY 2014	$7,042,558	$2,108,098	$1,764,648	$1,845,908	$1,554,462	$1,714,464	$1,428,770	$228,518	$361,516	$123,961	$290,982	$206,599
FY 2015	$7,317,918	$2,124,982	$1,967,055	$1,894,451	$1,840,043	$1,738,793	$1,455,443	$234,409	$370,789	$127,873	$308,946	$205,988
FY 2016	$7,571,548	$2,266,426	$2,102,816		$1,924,982	$1,851,120	$1,511,927	$232,982	$397,008	$138,456	$302,602	$220,110
Operating margin												
FY 2014	(0.2%)	1.3%	1.2%	(3.5%)	3.3%	1.3%	0.1%	0.4%	1.7%	0.3%	(4.8%)	2.9%
FY 2015	0.9%	2.6%	1.3%	6.0%	(1.8%)	(2.8%)	(1.1%)	1.2%	2.0%	(0.3%)	(0.4%)	(2.9%)
FY 2016	(0.9%)	1.7%	0.4%		0.4%	(1.7%)	(1.5%)	1.1%	1.3%	(0.6%)	(5.4%)	(1.3%)
Total margin												
FY 2014	1.1%	2.7%	6.3%	(3.7%)	15.5%	1.6%	2.6%	1.6%	4.4%	0.3%	(3.3%)	3.5%
FY 2015	(0.8%)	2.1%	0.5%	5.4%	3.6%	(2.3%)	(0.7%)	1.2%	1.8%	0.1%	4.8%	(3.0%)
FY 2016	(2.0%)	2.8%	1.5%		1.7%	(1.6%)	0.1%	1.2%	0.9%	(0.8%)	0.3%	(0.4%)
Total net assets												
FY 2014	$6,943,487	$878,784	$1,292,150	($185,399)	$1,143,038	$400,621	$607,861	$126,879	$285,096	$44,914	$305,841	$127,007
FY 2015	$6,052,802	$867,710	$1,223,295	$131,010	$1,028,146	$291,127	$543,751	$123,613	$291,099	$36,830	$307,585	$120,585
FY 2016	$5,474,357	$845,756	$1,257,137		$945,137	$261,549	$529,275	$125,964	$296,119	$31,948	$307,759	$116,091
Readily available cash/investments												
FY 2014	$6,941,692	$165,315	$1,082,879	$13,046	$355,756	$146,080	$750,378	$58,989	$154,096	$32,965	$262,919	$59,803
FY 2015	$6,368,483	$202,948	$1,100,978	$11,206	$326,234	$121,616	$721,893	$68,537	$209,449	$41,860	$149,564	$37,081
FY 2016	$6,519,987	$272,698	$1,078,583		$324,581	$77,167	$756,832	$73,234	$180,068	$37,505	$245,746	$53,384
Days cash on hand												
FY 2014	242	29	198	2	87	31	173	94	158	96	182	100
FY 2015	210	36	180	2	64	25	162	108	208	118	99	59
FY 2016	198	45	165		62	15	162	116	168	97	155	80
Current ratio												
FY 2014	2.66	1.76	3.15	0.79	1.56	1.25	1.89	3.58	4.70	3.28	2.86	3.00
FY 2015	2.26	1.52	3.04	0.79	1.33	1.01	1.92	3.44	4.67	2.73	3.67	2.17
FY 2016	2.00	1.38	3.06		1.42	0.88	1.94	3.82	4.52	2.57	3.45	1.78
Debt to capitalization												
FY 2014	0.36	0.31	0.27	1.81	0.31	0.27	0.49	0.41	0.27	0.34	0.27	0.32

FY 2015	0.42	0.33	0.27	0.78	0.33	0.32	0.52	0.40	0.34	0.41	0.03	0.38
FY 2016	0.48	0.34	0.25		0.37	0.39	0.53	0.33	0.34	0.44	0.02	0.45
Equity to assets												
FY 2014	0.47	0.42	0.55	(0.15)	0.48	0.38	0.35	0.52	0.62	0.42	0.63	0.58
FY 2015	0.40	0.39	0.52	0.11	0.44	0.38	0.32	0.51	0.56	0.34	0.61	0.51
FY 2016	0.34	0.37	0.53		0.39	0.35	0.31	0.56	0.57	0.29	0.60	0.45
Average age of plant												
FY 2014	7.4	10.9	18.3	N/A	11.7	9.0	12.0	11.7	16.8	15.5	11.3	10.3
FY 2015	7.6	10.6	18.0	N/A	9.3	10.3	12.6	11.8	17.6	16.6	13.6	10.3
FY 2016	7.4	10.0	18.6		9.3	11.3	13.6	13.4	18.3	18.0	16.4	10.5

Sources: HPC analysis of audited financial statements provided by *Non-Profits & Charities Document Search*, OFFICE OF ATT'Y. GEN. MAURA HEALEY, http://www.charities.ago.state.ma.us/ (last visited July 6, 2018). Full audited financial statements were not available for Steward; the HPC therefore reviewed financial information on Steward published by the AGO as part of its assessment and monitoring efforts, as well as redacted financial information provided to the MA-RPO program. *See* OFFICE OF ATT'Y. GEN. MAURA HEALEY, REPORTS ON STEWARD HEALTH CARE SYSTEM PURSUANT TO 2010 AND 2011 ASSESSMENT & MONITORING AGREEMENTS 33-38 (Dec. 30, 2015), *available at* http://www.mass.gov/ago/docs/healthcare/shcs-report-123015.pdf.

Notes:

(*) No fiscal year 2016 data are available for Steward. Because of its status as a for-profit subsidiary of a private equity firm, Steward's balance sheet assets differ significantly from those of nonprofit health care systems; some details of Steward's debt structure are discussed in the AGO's monitoring report, referenced above.

(**) Wellforce did not have consolidated audited financial statements for these fiscal years. The above information was calculated by HPC by combining the amounts from audited financial statements of Tufts Medical Center, Hallmark Health, and Circle Health, the three provider organizations that are part of Wellforce.

(1) Net patient service revenue (NPSR) is the provider's total revenue from inpatient, outpatient and other patient care services, after deductions for charity care charges, bad debts, and contractual adjustments.

(2) Operating margin is a measure of financial performance and represents the system's income or loss from patient care services and other operations.

(3) Total margin is another measure of financial performance and represents the system's overall gain or loss from all operating and non-operating activities.

(4) Total net assets are the system's total assets minus its liabilities.

(5) Readily available cash/investments refer to cash and investments that may be readily converted to cash, whose use is not restricted, limited contractually, or limited by an external party. Variations in providers' methods of reporting their assets may affect these figures.

(6) Days cash on hand is a measure of liquidity and represents the number of days of operating expenses that the system could pay with its readily available cash/investments.

(7) Current ratio measures the system's ability to meet its current liabilities with its current assets; a ratio of 1.0 or higher indicates that all current liabilities could be covered by the system's existing current assets.

(8) Debt to capitalization is the ratio of the system's long-term debt to its total net assets, a measure of how much of the system's assets are financed by borrowing.

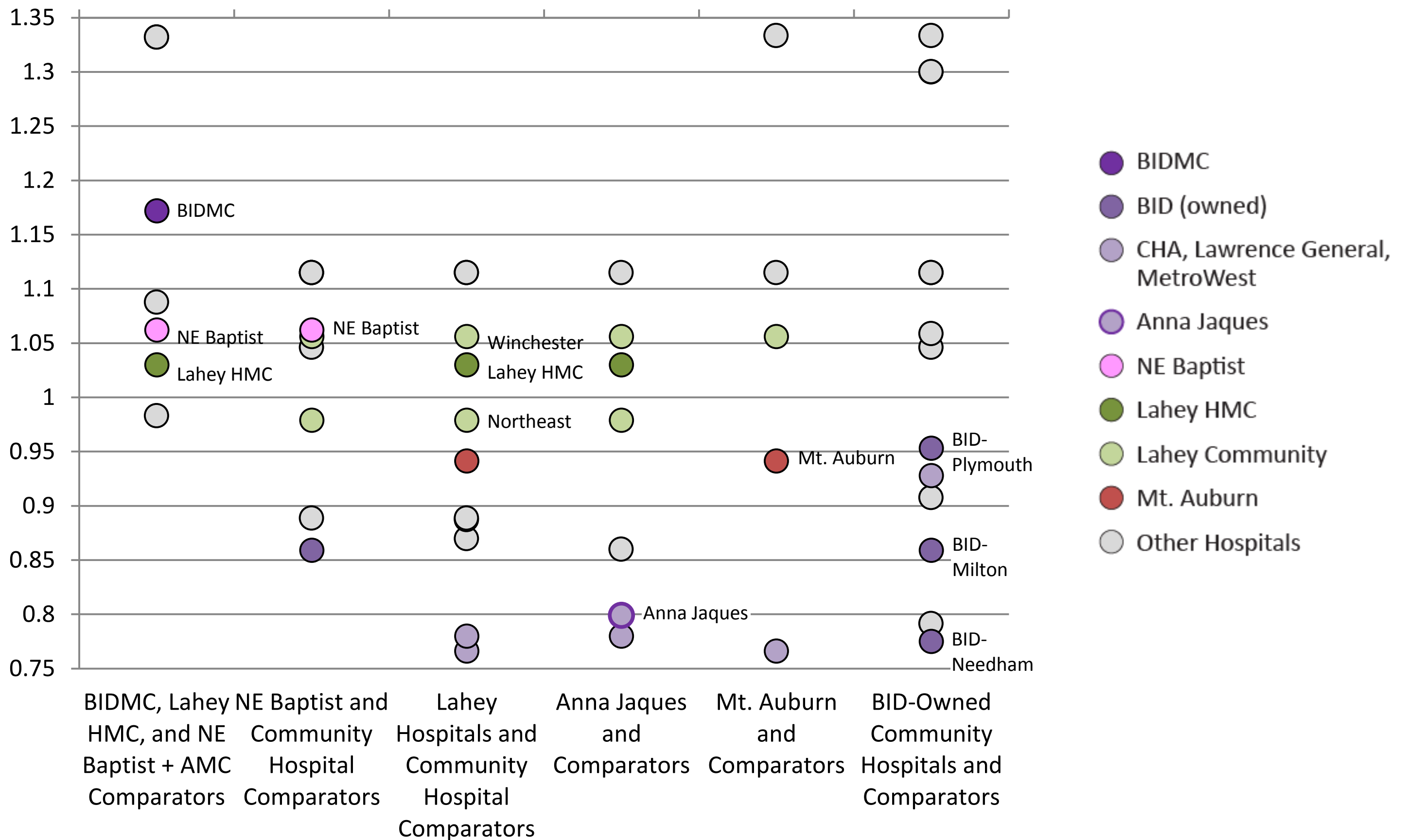
(9) Equity to assets is the ratio of the system's total net assets to its total assets, a comparison of the system's assets to its debts.

(10) Average age of plant is intended to measure the average age of the system's facilities, including capital improvements and major equipment purchases. Steward's age of plant is not included because comparable data were not available.

II. RELATIVE PRICE CHARTS

A. INPATIENT RELATIVE PRICE[1]

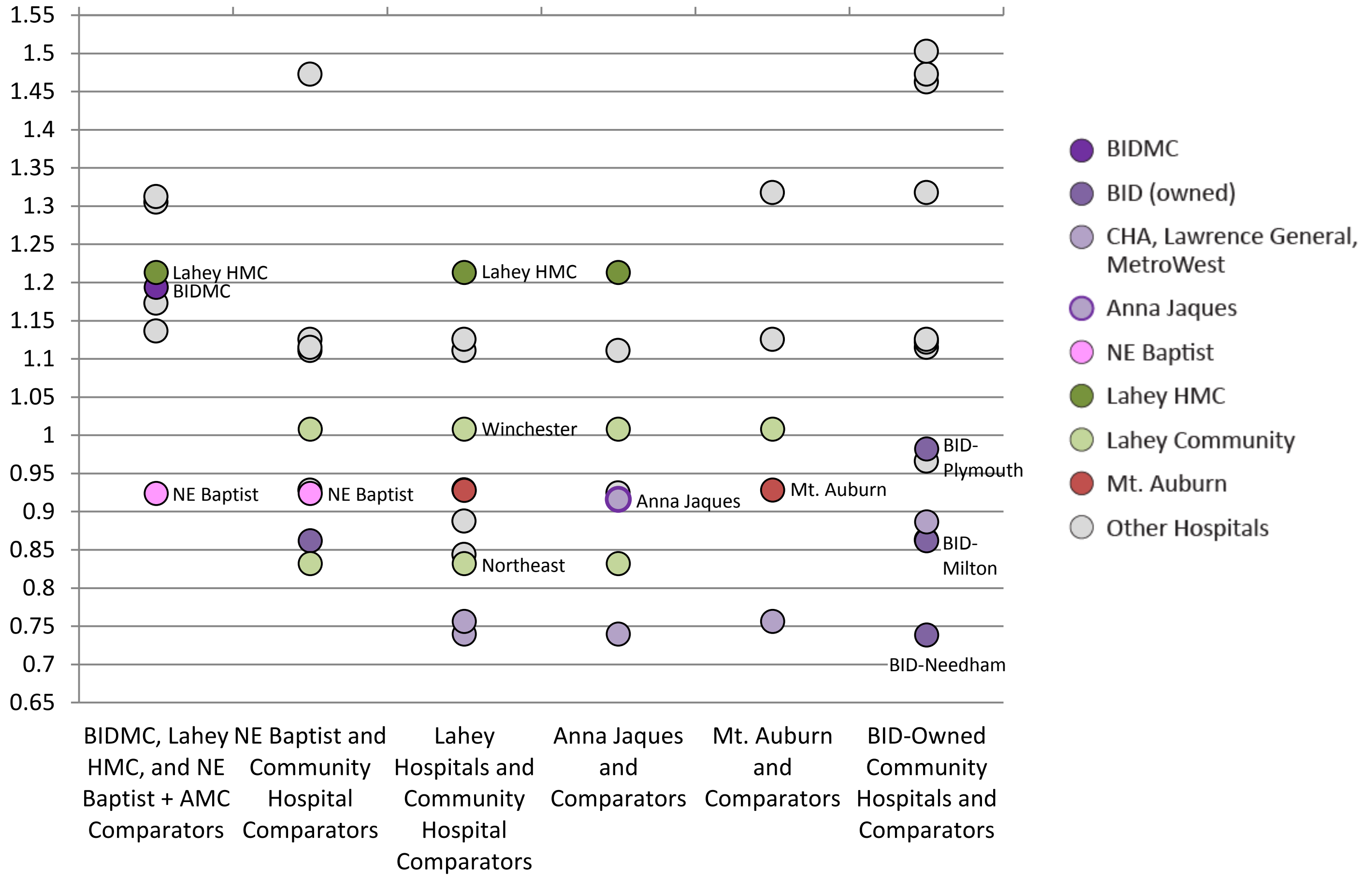
Figure 2A: Inpatient Relative Price (BCBS 2016)



Source: HPC analysis of CTR. FOR HEALTH INFO. & ANALYSIS, PROVIDER PRICE VARIATION IN THE MASSACHUSETTS HEALTH CARE MARKET (CALENDAR YEAR 2016 DATA) (APRIL 2018), *available at* http://www.chiamass.gov/assets/docs/r/pubs/18/Relative-Price-Databook-2018.xlsx (last visited July 3, 2018).
Note: Comparators listed from top to bottom. BIDMC, Lahey HMC, and NE Baptist AMC Comparators: Brigham & Women's Hospital, Massachusetts General Hospital, Tufts Medical Center, Boston Medical Center; NE Baptist Community Hospital Comparators: Newton-Wellesley Hospital, North Shore Medical Center, Brigham & Women's Hospital Faulkner, Winchester, South Shore, Northeast, Lowell General, BID-Milton; Lahey Hospitals Community Hospital Comparators: Newton-Wellesley Hospital, North Shore Medical Center, Winchester, Mt. Auburn, Lowell General, Emerson Hospital, MelroseWakefield Healthcare, Lawrence General, CHA; Anna Jaques Comparators: North Shore Medical Center, Lahey HMC, Northeast, Holy Family Hospital, Lawrence General; Mt. Auburn Comparators: St. Elizabeth's Medical Center, Newton-Wellesley Hospital, Winchester, CHA; BID-Owned Community Hospital Comparators: St. Elizabeth's Medical Center, Cape Cod Hospital, Falmouth Hospital, Brigham & Women's Hospital Faulkner, Newton-Wellesley Hospital, Good Samaritan Hospital, South Shore Hospital, MetroWest, Carney Hospital, Signature Brockton Medical Center.

[1] We treat the Boston AMCs as the comparators for BIDMC, Lahey HMC, and NE Baptist because they provide similar services and are able to care for similarly complex patients. For other hospitals, we defined comparators as all non-AMC hospitals with inpatient market share above 2% in each party hospital's inpatient PSA. We define NE Baptist's community hospital comparators as those community hospitals with at least 2% share of NEBH's inpatient core services in the NEBH core services PSA. We apply the same comparators to the outpatient relative price analyses below.

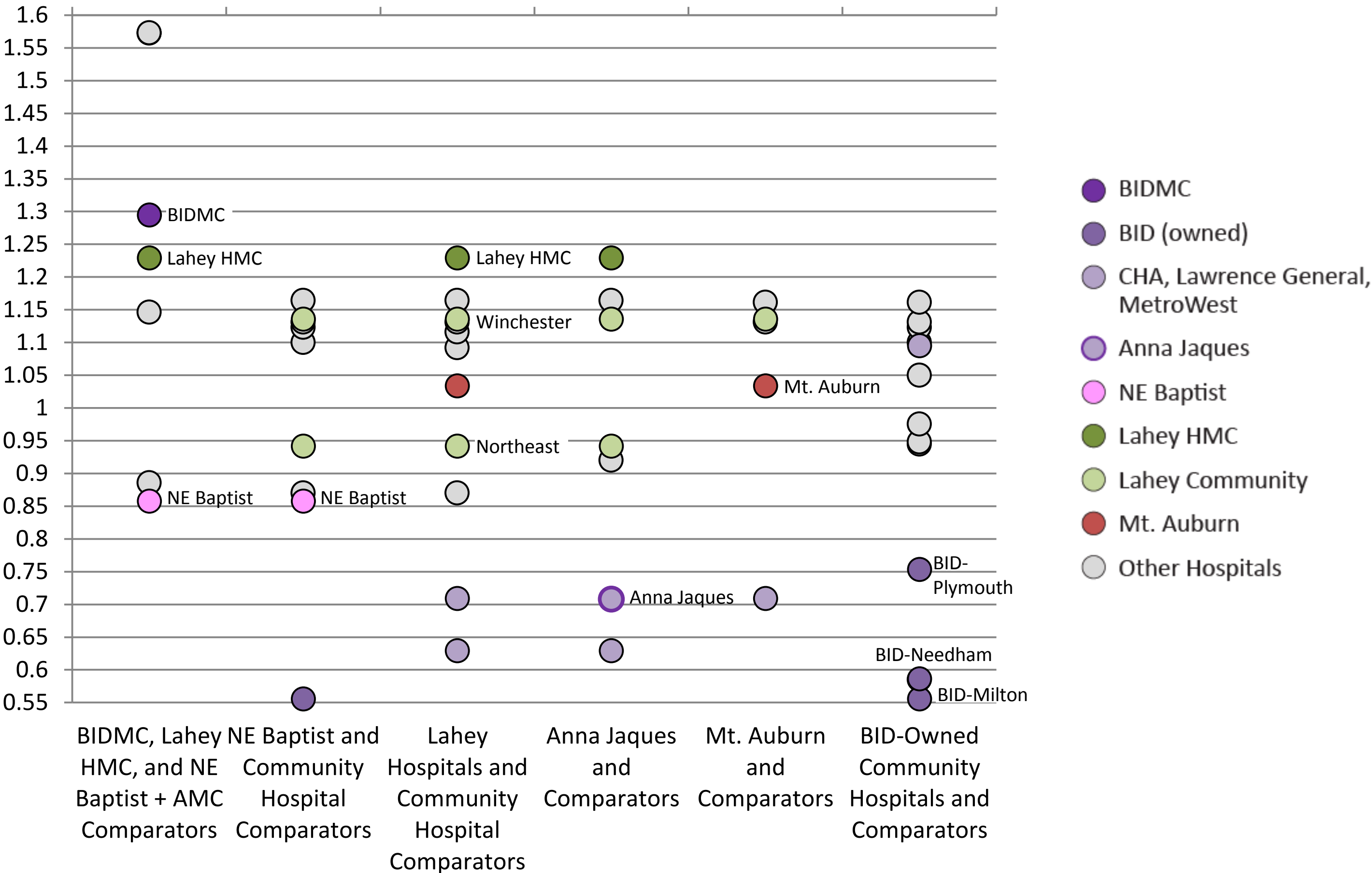
Figure 2B: Inpatient Relative Price (HPHC 2016)



See Figure 2A for source.

Note: Comparators listed from top to bottom. BIDMC, Lahey HMC, and NE Baptist AMC Comparators: Massachusetts General Hospital, Brigham & Women's Hospital, Tufts Medical Center, Boston Medical Center; NE Baptist Community Hospital Comparators: South Shore, Newton-Wellesley Hospital, Brigham & Women's Hospital Faulkner, North Shore Medical Center, Winchester, Lowell General, BID-Milton, Northeast; Lahey Hospitals Community Hospital Comparators: Newton-Wellesley Hospital, North Shore Medical Center, Mt. Auburn, Lowell General, MelroseWakefield Healthcare, Emerson Hospital, CHA, Lawrence General; Anna Jaques Comparators: Lahey HMC, North Shore Medical Center, Winchester, Holy Family Hospital, Northeast, Lawrence General; Mt. Auburn Comparators: St. Elizabeth's Medical Center, Newton-Wellesley Hospital, Winchester, CHA; BID-Owned Community Hospital Comparators: Cape Cod Hospital, South Shore Hospital, Falmouth Hospital, St. Elizabeth's Medical Center, Newton-Wellesley Hospital, Carney Hospital, Brigham & Women's Hospital Faulkner, Good Samaritan Hospital, MetroWest, Signature Brockton Medical Center.

Figure 2C: Inpatient Relative Price (THP 2016)

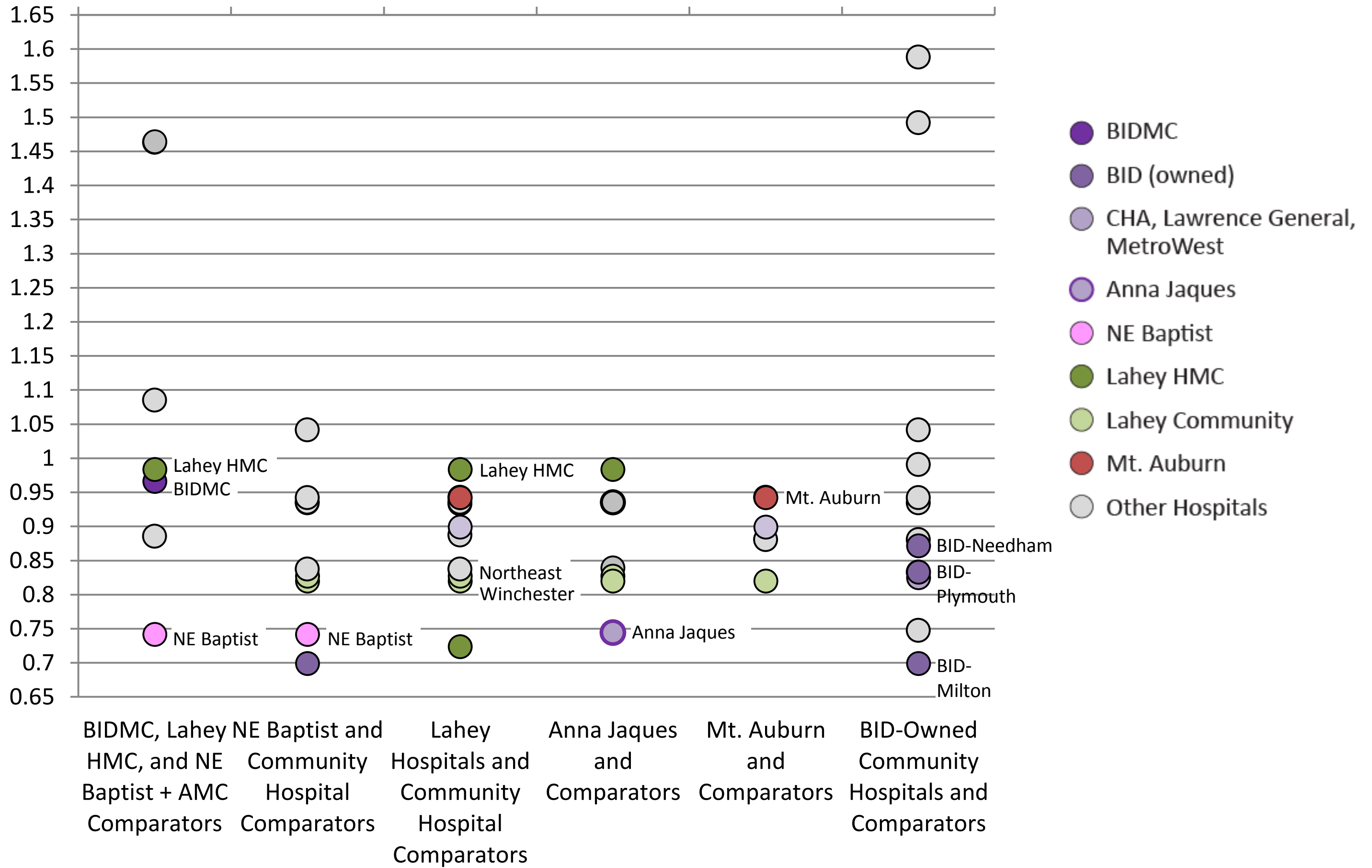


See Figure 2A for source.

Note: Comparators listed from top to bottom. BIDMC, Lahey HMC, and NE Baptist AMC Comparators: Massachusetts General Hospital, Brigham & Women's Hospital, Tufts Medical Center, Boston Medical Center; NE Baptist Community Hospital Comparators: North Shore Medical Center, Winchester, Newton-Wellesley Hospital, Brigham & Women's Hospital Faulkner, South Shore, Northeast, Lowell General, BID-Milton; Lahey Hospitals Community Hospital Comparators: North Shore Medical Center, Newton-Wellesley Hospital, MelroseWakefield Healthcare, Emerson Hospital, Mt. Auburn, Lowell General, CHA, Lawrence General; Anna Jaques Comparators: Lahey HMC, North Shore Medical Center, Winchester, Northeast, Holy Family Hospital, Lawrence General; Mt. Auburn Comparators: St. Elizabeth's Medical Center, Winchester, Newton-Wellesley Hospital, CHA; BID-Owned Community Hospital Comparators: St. Elizabeth's Medical Center, Newton-Wellesley Hospital, Brigham & Women's Hospital Faulkner, South Shore Hospital, MetroWest, Carney Hospital, Good Samaritan Hospital, Falmouth Hospital, Cape Cod Hospital, Signature Brockton Medical Center.

B. Outpatient Relative Price

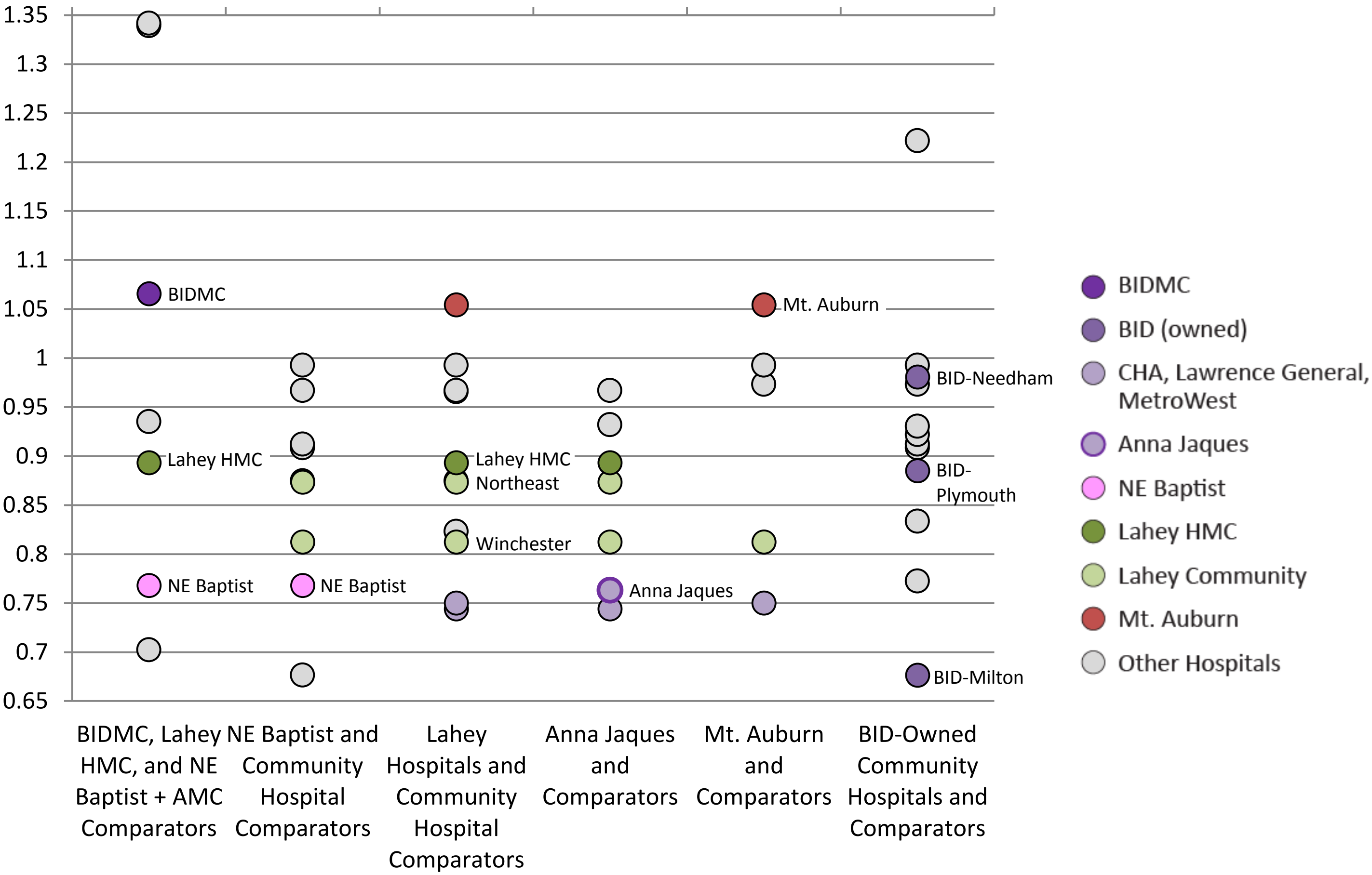
Figure 2D: Outpatient Relative Price (BCBS 2016)



See Figure 2A for source.

Note: Comparators listed from top to bottom. BIDMC, Lahey HMC, and NE Baptist AMC Comparators: Brigham & Women's Hospital, Massachusetts General Hospital, Tufts Medical Center, Boston Medical Center; NE Baptist Community Hospital Comparators: South Shore, Newton-Wellesley Hospital, North Shore Medical Center, Brigham & Women's Hospital Faulkner, Lowell General, Northeast, Winchester, BID-Milton; Lahey Hospitals Community Hospital Comparators: Mt. Auburn, Newton-Wellesley Hospital, North Shore Medical Center, MelroseWakefield Healthcare, CHA, Emerson Hospital, Lowell General, Lawrence General; Anna Jaques Comparators: Lahey HMC, North Shore Medical Center, Holy Family Hospital, Northeast, Winchester, Lawrence General; Mt. Auburn Comparators: Newton-Wellesley Hospital, CHA, St. Elizabeth's Medical Center, Winchester; BID-Owned Community Hospital Comparators: Falmouth Hospital, Cape Cod Hospital, South Shore Hospital, Carney Hospital, Newton-Wellesley Hospital, Brigham & Women's Hospital Faulkner, St. Elizabeth's Medical Center, Good Samaritan Hospital, MetroWest, Signature Brockton Medical Center.

Figure 2E: Outpatient Relative Price (THP 2016)



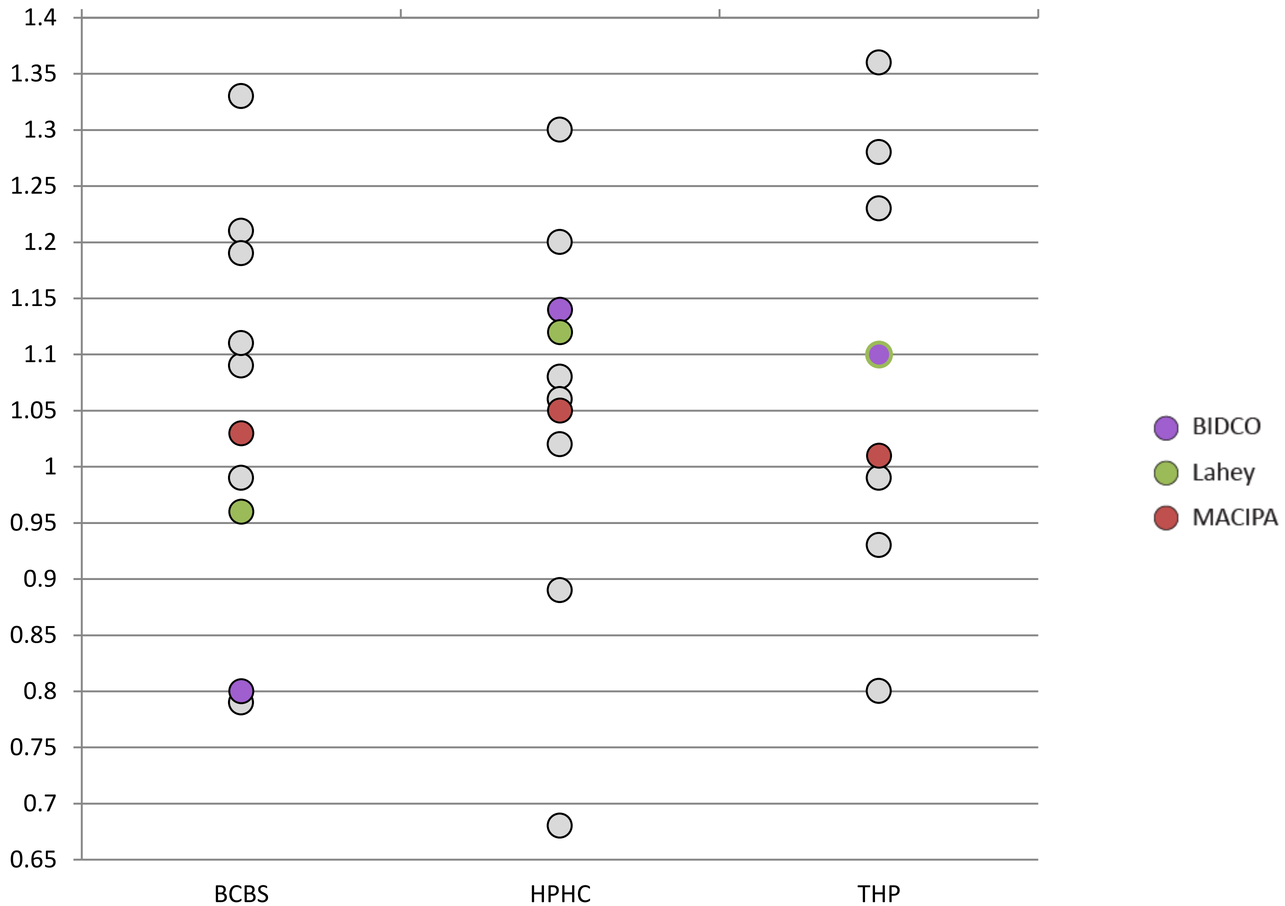
See Figure 2A for source.

Notes: Comparators listed from top to bottom. BIDMC, Lahey HMC, and NE Baptist AMC Comparators: Massachusetts General Hospital, Brigham & Women's Hospital, Tufts Medical Center, Boston Medical Center; NE Baptist Community Hospital Comparators: Newton-Wellesley Hospital, North Shore Medical Center, South Shore, Brigham & Women's Hospital Faulkner, Lowell General, Northeast, Winchester, BID-Milton; Lahey Hospitals Community Hospital Comparators: Mt. Auburn, Newton-Wellesley Hospital, North Shore Medical Center, MelroseWakefield Healthcare, Lowell General, Emerson Hospital, CHA, Lawrence General; Anna Jaques Comparators: North Shore Medical Center, Holy Family Hospital, Lahey HMC, Northeast, Winchester, Lawrence General; Mt. Auburn Comparators: Newton-Wellesley Hospital, St. Elizabeth's Medical Center, Winchester, CHA; BID-Owned Community Hospital Comparators: Falmouth Hospital, Cape Cod Hospital, Newton-Wellesley Hospital, St. Elizabeth's Medical Center, Good Samaritan Hospital, Carney Hospital, South Shore Hospital, Brigham & Women's Hospital Faulkner, Signature Brockton Medical Center, MetroWest.

HPHC outpatient data is omitted as HPHC submitted updated outpatient relative price data after the publication of CHIA's most recent relative price databook.

C. PHYSICIAN RELATIVE PRICE

Figure 2F: Physician Relative Price (2015)



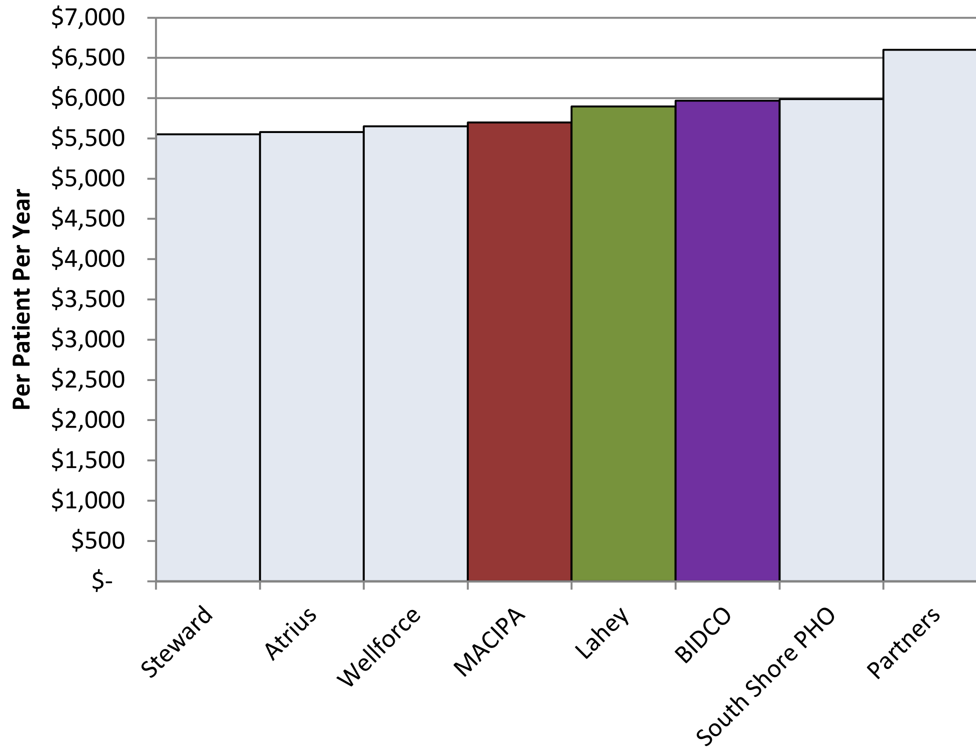
Comparators: Atrius, Lowell Physician Hospital Organization, New England Quality Care Alliance (NEQCA), Partners, South Shore Physician Hospital Organization, Steward, Signature Brockton.

Source: HPC analysis of CTR. FOR HEALTH INFO. & ANALYSIS, PROVIDER PRICE VARIATION IN THE MASSACHUSETTS HEALTH CARE MARKET (CALENDAR YEAR 2016 DATA) (APRIL 2018), *available at* http://www.chiamass.gov/assets/docs/r/pubs/18/Relative-Price-Databook-2018.xlsx (last visited July 13, 2018).

Notes: For THP, BIDCO and Lahey's relative price is the same, represented here by a purple dot with a green border. Because relative price is calculated individually by payer, the price level associated with each payer's network average relative price (1.0) is not the same for different payers. Therefore, relative price should not be compared across payers. In some cases, we understand that the gap between the parties may have narrowed in the years following this 2015 data.

III. RISK-ADJUSTED AND NORMALIZED CLAIMS-BASED SPENDING BY PROVIDER GROUP

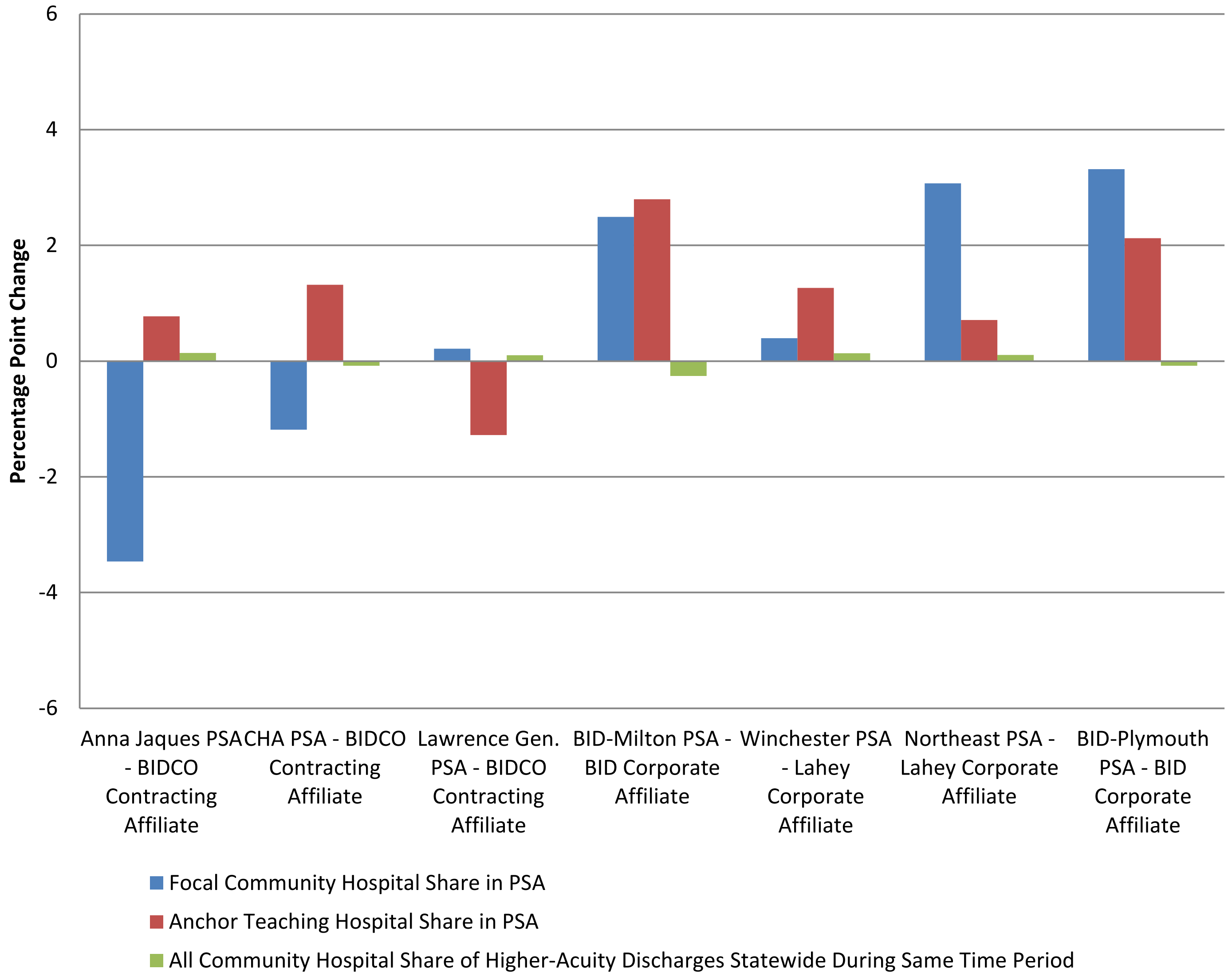
Figure 3: Risk-Adjusted and Normalized Claims-Based Spending By Provider Group (BCBS, HPHC, THP)



Source: MASS. HEALTH POLICY COMM'N, 2017 COST TRENDS REPORT 30 (March 2018), *available at* https://www.mass.gov/files/documents/2018/03/28/Cost%20Trends%20Report%202017.pdf (last visited July 3, 2018).

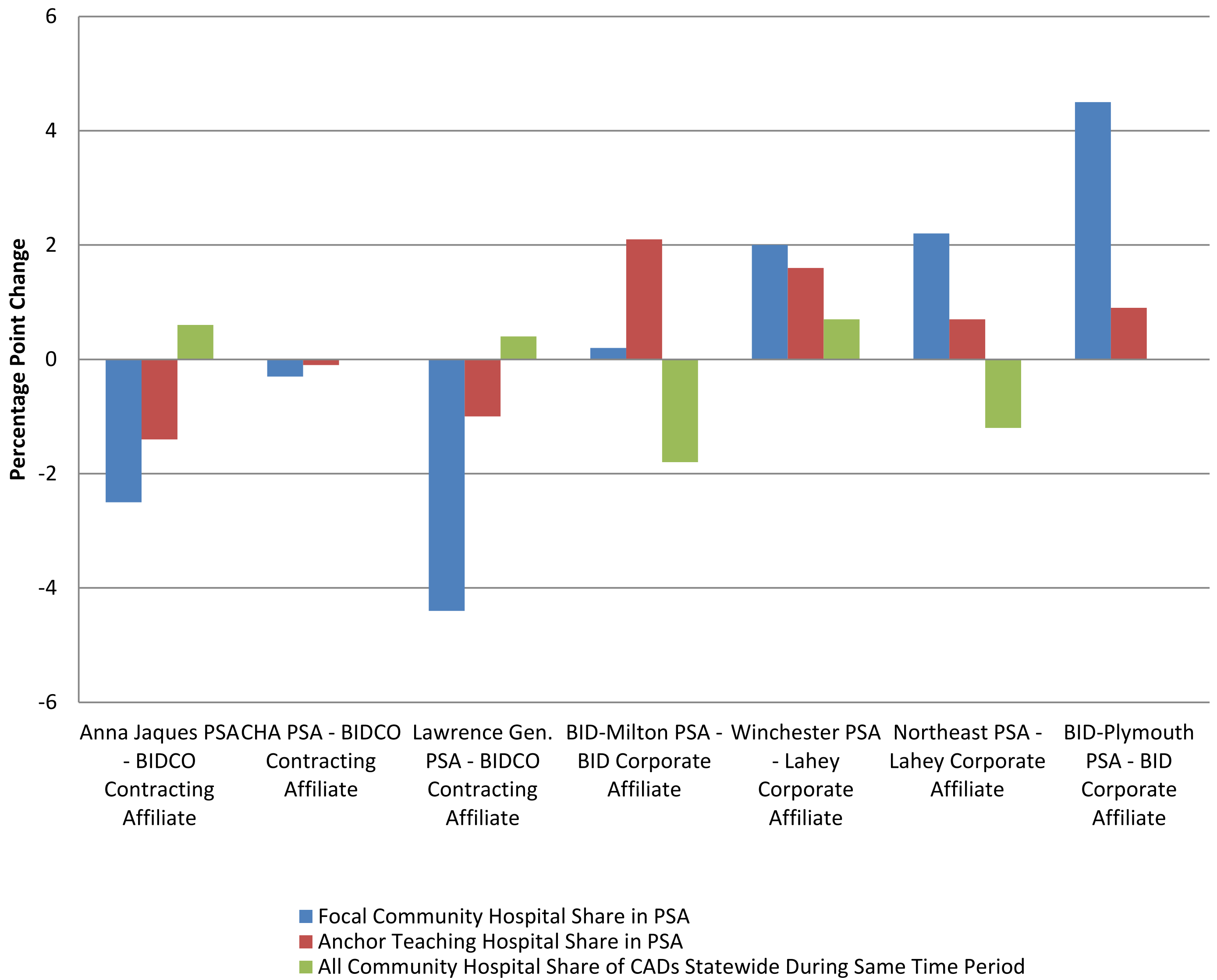
IV. Community Hospital and Teaching Hospital Shares of Local Discharges

Figure 4A: Difference between pre- and post-transaction shares of higher-acuity local discharges (All Payers)



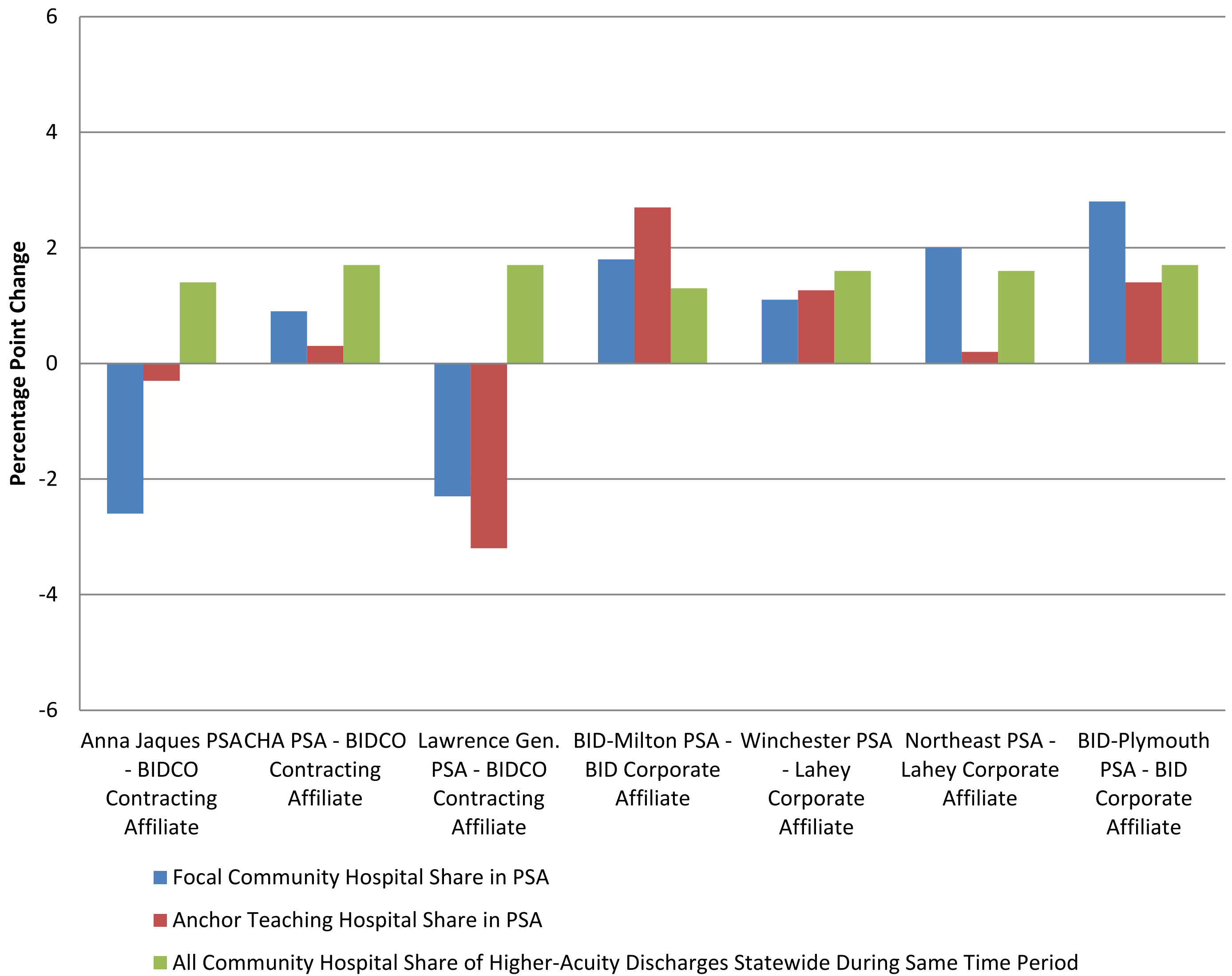
Source: HPC analysis of 2009 to 2016 CHIA hospital discharge data.

Figure 4B: Difference between pre-transaction and post-transaction shares of local community-appropriate discharges (Commercial Payers Only)



Source: HPC analysis of 2009 to 2016 CHIA hospital discharge data.

Figure 4C: Difference between pre-transaction and post-transaction shares of higher-acuity local discharges (Commercial Payers Only)



Source: HPC analysis of 2009 to 2016 CHIA hospital discharge data.

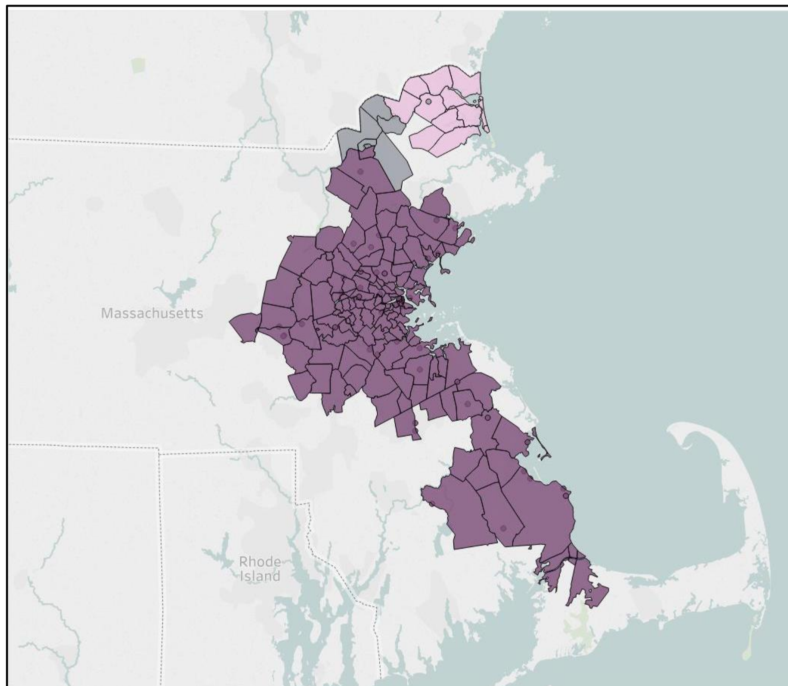
V. INPATIENT PRIMARY SERVICE AREA MAPS

The HPC defines a hospital's inpatient and outpatient primary service areas or PSAs as the areas from which a hospital draws 75% of its inpatient and outpatient commercial patients, respectively. For details regarding the HPC's methodology for defining an inpatient PSA, see MASS. HEALTH POLICY COMM'N, TECHNICAL BULLETIN FOR 958 CMR 7.00: NOTICES OF MATERIAL CHANGE AND COST AND MARKET IMPACT REVIEWS (Aug. 6, 2014) [hereinafter TECHNICAL BULLETIN], *available at* http://www.mass.gov/anf/docs/hpc/regs-and-notices/technical-bulletin-circ.pdf (last visited July 3, 2018).

A. BIDCO

The inpatient PSAs of BIDCO's hospitals include much of eastern Massachusetts. The map below shows the primary service areas (PSAs) of the BIDMC-owned hospitals in dark purple, the Anna Jaques PSA in light purple, and the portions of the PSA of contracting affiliate Lawrence General that does not overlap with BIDMC-owned hospitals in grey. CHA's PSA overlaps completely with those of BIDMC-owned hospitals.

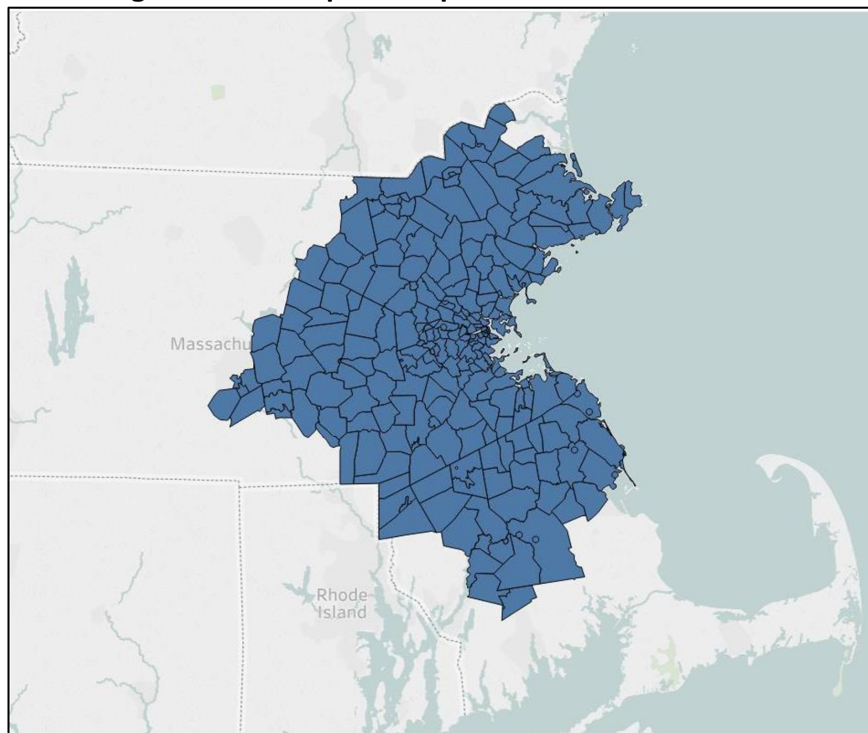
Figure 5A: BIDCO Hospitals' Inpatient PSAs



B. NE BAPTIST

NE Baptist's inpatient core services PSA, shown below, spans the majority of eastern Massachusetts. We defined NE Baptist's service area based on the orthopedic and musculoskeletal services it most commonly provides.

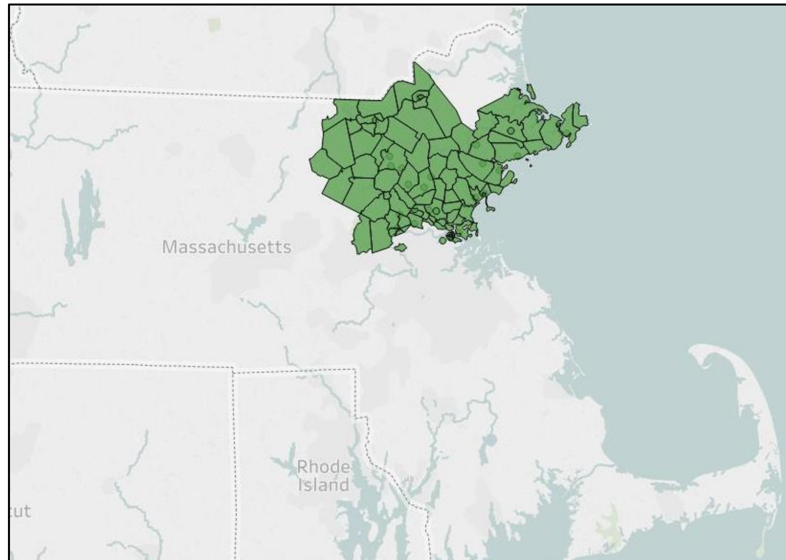
Figure 5B: NE Baptist's Inpatient Core Services PSA



C. LAHEY

Lahey's inpatient PSAs are concentrated north of Boston. The map below shows the PSAs for Lahey HMC, Northeast, and Winchester. The HPC identified a joint PSA for Northeast's two acute hospital campuses, Beverly and Addison Gilbert.

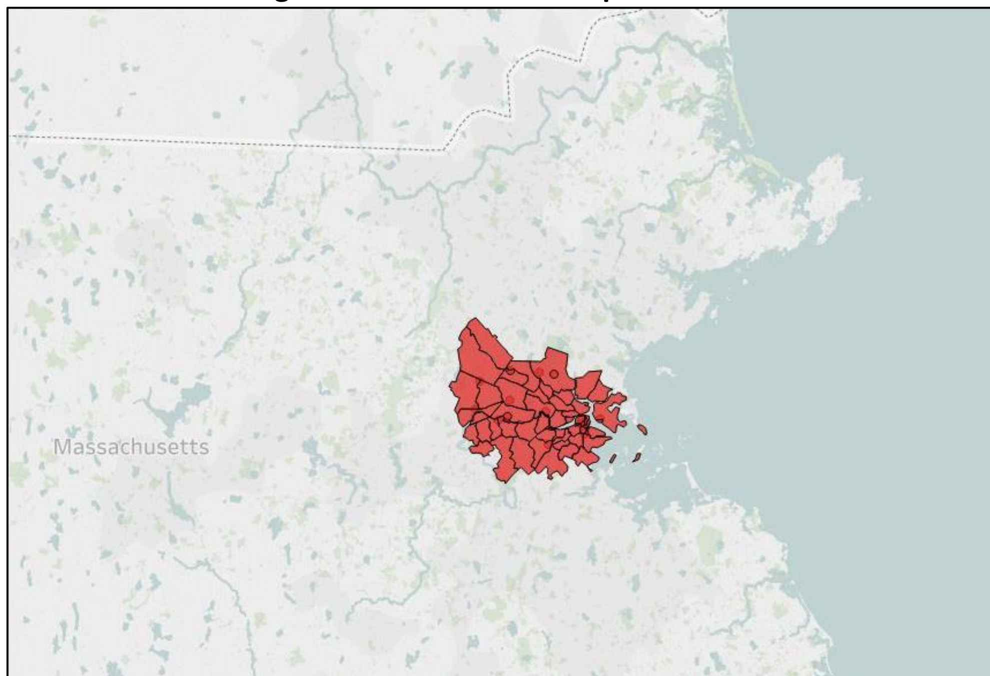
Figure 5C: Lahey Hospitals' Inpatient PSAs



D. MT. AUBURN

Mt. Auburn's PSA is concentrated in Boston and the area immediately northwest of Boston.

Figure 5D: Mt. Auburn's Inpatient PSA



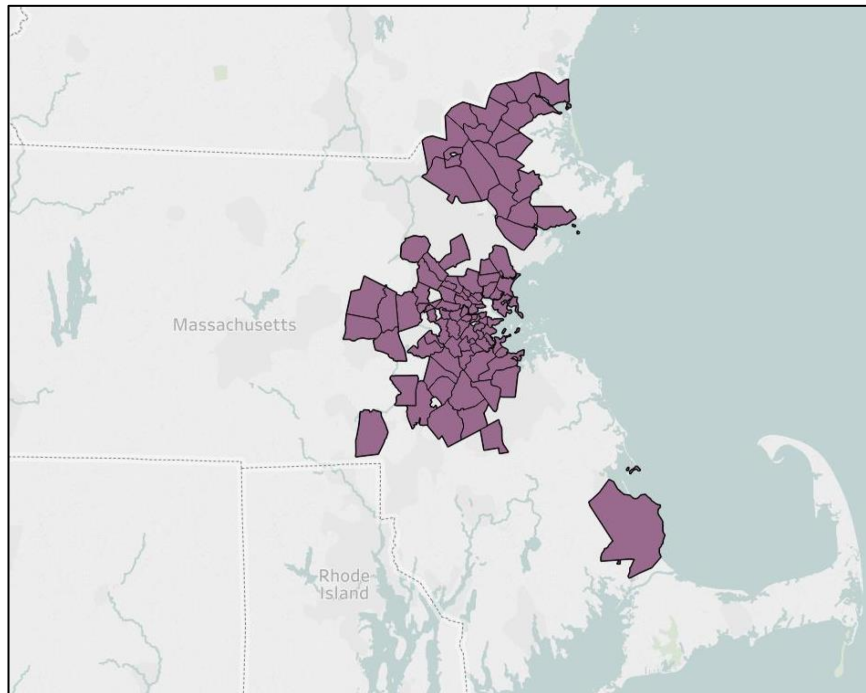
VI. Adult Primary Care Primary Service Area Maps

We define primary care services as services delivered by physicians with a primary care specialty who derive the majority of their revenue from adult primary care visits. We define a primary care PSA to be the area from which a physician group's PCPs collectively draw 75% of their commercial primary care visits. Our analyses are based on 2015 APCD claims data for BCBS, HPHC, and THP.

A. BIDCO

BIDCO's adult primary care PSA spans the areas west of Boston, as well as areas of northeastern and southeastern Massachusetts.

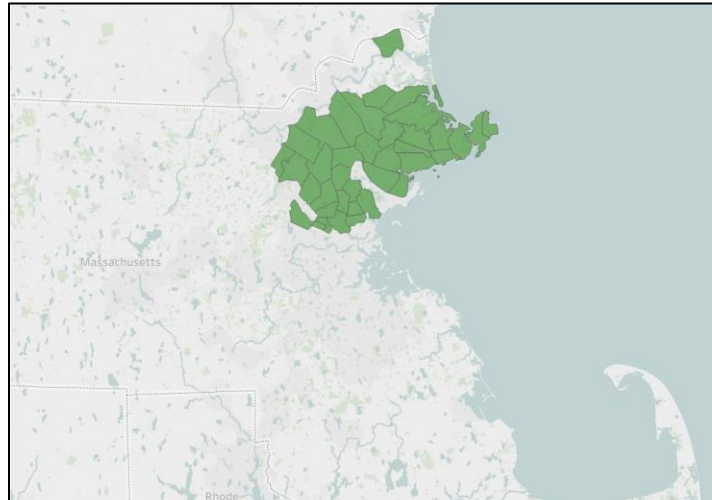
Figure 6A: BIDCO's Adult Primary Care PSA



B. LAHEY

Lahey's adult primary care PSA, shown below, is also focused in the area north of Boston.

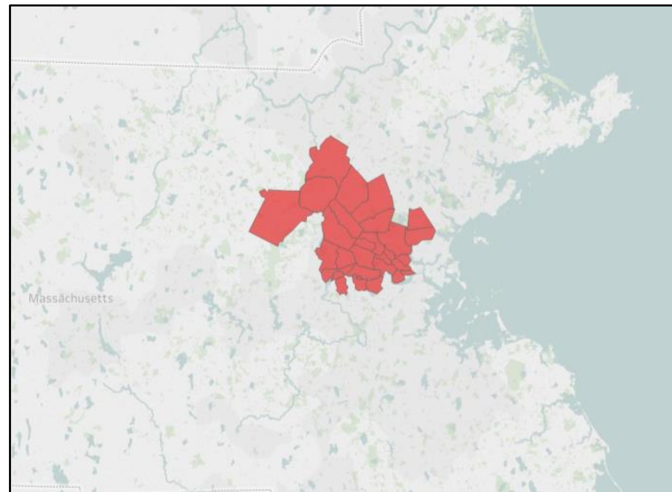
Figure 6B: Lahey's Adult Primary Care PSA



C. MACIPA

MACIPA's adult primary care PSA is concentrated in the area northwest of Boston.

Figure 6C: MACIPA's Adult Primary Care PSA



VII. BILH MARKET SHARES

Figure 7A: Commercial Inpatient Hospital Market Shares and HHIs

Hospital	Shares in PSA of:												Statewide
	Lahey HMC	Winchester	Northeast	BIDMC	BID-Milton	BID-Needham	BID-Plymouth	Anna Jaques	CHA	Lawrence General	NE Baptist	Mt. Auburn	
Lahey	**24.8%**	**25.2%**	**38.1%**	**10.8%**	**0.5%**	**0.7%**	**0.3%**	**16.9%**	**6.5%**	**15.4%**	**10.8%**	**4.7%**	**8.1%**
Lahey HMC	8.0%	7.5%	7.2%	3.3%	0.3%	0.6%	0.3%	6.0%	1.8%	5.3%	3.5%	2.0%	2.7%
Winchester	10.1%	13.4%	3.2%	5.2%	0.2%	0.0%	-	1.8%	4.3%	8.4%	3.9%	2.6%	2.8%
Northeast	6.7%	4.3%	27.8%	2.3%	0.1%	0.0%	-	9.2%	0.4%	1.7%	3.5%	0.2%	2.6%
BIDCO	**11.8%**	**13.4%**	**6.1%**	**17.3%**	**24.5%**	**20.2%**	**38.6%**	**46.2%**	**20.8%**	**31.6%**	**15.2%**	**22.0%**	**13.1%**
BIDMC	6.0%	8.0%	3.7%	11.5%	15.8%	13.3%	8.1%	6.9%	12.8%	4.5%	8.9%	16.1%	6.9%
BID-Milton	0.1%	0.1%	0.1%	1.2%	5.8%	0.6%	0.4%	0.2%	0.2%	0.1%	0.9%	0.3%	0.6%
BID-Needham	0.1%	0.1%	0.0%	0.5%	0.2%	2.9%	0.1%	-	0.1%	-	0.4%	0.2%	0.3%
BID-Plymouth	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	27.7%	0.0%	0.0%	-	0.5%	0.0%	1.2%
Anna Jaques	0.2%	0.1%	0.3%	0.0%	0.0%	0.0%	-	32.4%	0.0%	3.0%	0.4%	0.0%	0.7%
CHA	1.5%	3.0%	0.3%	1.4%	0.3%	0.1%	0.0%	0.1%	6.0%	0.1%	0.9%	3.2%	0.7%
Lawrence General	2.3%	0.5%	0.1%	0.4%	0.0%	0.0%	-	5.1%	0.0%	22.8%	1.1%	0.0%	0.8%
NE Baptist	1.6%	1.7%	1.6%	2.1%	2.4%	3.2%	2.2%	1.6%	1.7%	1.1%	2.1%	2.2%	1.9%
Mt. Auburn	**4.9%**	**7.3%**	**0.7%**	**5.5%**	**0.9%**	**1.4%**	**0.2%**	**0.2%**	**18.0%**	**0.7%**	**3.6%**	**14.1%**	**2.7%**
BILH System Total	**41.5%**	**45.9%**	**44.9%**	**33.6%**	**26.0%**	**22.3%**	**39.1%**	**63.4%**	**45.3%**	**47.6%**	**30.8%**	**40.8%**	**23.8%**
Partners	34.1%	36.3%	44.3%	37.9%	28.4%	54.6%	12.7%	18.4%	36.5%	16.9%	32.1%	41.4%	27.0%
Steward	3.0%	1.2%	0.4%	4.8%	7.8%	9.4%	4.7%	9.6%	1.5%	22.0%	6.9%	3.0%	5.9%
Wellforce System	16.0%	10.7%	6.4%	6.4%	6.5%	2.3%	2.5%	3.9%	8.7%	7.9%	8.0%	5.4%	6.2%
Children's Hospital Boston	3.4%	3.3%	2.8%	4.0%	4.5%	5.4%	4.1%	3.5%	3.8%	3.7%	3.8%	4.2%	3.3%
BMC	1.1%	1.8%	0.6%	3.0%	8.2%	1.1%	1.0%	0.5%	3.0%	1.0%	2.2%	4.1%	1.7%
South Shore Hospital	0.1%	0.1%	0.1%	7.4%	17.3%	1.0%	25.6%	0.0%	0.1%	0.0%	7.4%	0.2%	5.6%
All other hospitals	0.9%	0.7%	0.5%	2.8%	1.3%	3.9%	10.5%	0.7%	0.9%	0.7%	10.0%	1.0%	26.5%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Pre-affiliation system-level HHI	2,217	2,316	3,504	2,030	1,902	3,522	2,384	2,886	2,239	2,082	1,598	2,490	1,190
Post-affiliation system-level HHI	3,164	3,556	4,031	2,711	1,976	3,608	2,422	4,482	3,493	3,118	2,115	3,450	1,514
Delta HHI	**947**	**1,240**	**527**	**681**	**73**	**86**	**38**	**1,597**	**1,254**	**1,036**	**518**	**960**	**324**

Source: CHIA Hospital Discharge Data (2016).

Figure 7B: Commercial Outpatient Facility Market Shares

Hospital	Shares in PSA of:												Statewide
	Lahey HMC	Winchester	Northeast	BIDMC	BID-Milton	BID-Needham	BID-Plymouth	Anna Jaques	CHA	Lawrence General	NE Baptist	Mt. Auburn	
Lahey	**36.3%**	**44.9%**	**48.4%**	**10.1%**	**0.5%**	**1.3%**	**0.5%**	**19.5%**	**8.5%**	**23.5%**	**9.7%**	**19.0%**	**10.2%**
Lahey HMC	15.0%	16.0%	17.3%	4.5%	0.3%	1.0%	0.4%	12.3%	3.3%	10.1%	3.8%	9.2%	4.6%
Winchester	14.0%	28.1%	1.4%	5.0%	0.1%	0.2%	0.1%	2.7%	4.8%	11.5%	4.6%	9.6%	3.6%
Northeast	7.3%	0.9%	29.7%	0.6%	0.0%	0.0%	0.0%	4.5%	0.5%	1.8%	1.3%	0.2%	2.1%
BIDCO	**9.3%**	**8.0%**	**4.5%**	**19.1%**	**18.9%**	**16.6%**	**39.7%**	**44.4%**	**22.7%**	**23.8%**	**16.3%**	**16.8%**	**12.3%**
BIDMC	4.1%	4.1%	2.1%	11.1%	11.6%	9.8%	2.9%	2.6%	8.6%	3.2%	8.8%	8.6%	6.1%
BID-Milton	0.0%	0.0%	0.0%	0.8%	4.6%	0.4%	0.4%	0.0%	0.0%	0.0%	0.7%	0.0%	0.4%
BID-Needham	0.2%	0.1%	0.1%	1.6%	0.9%	4.8%	0.2%	0.1%	0.1%	0.1%	1.5%	0.4%	0.9%
BID-Plymouth	0.0%	0.0%	0.0%	1.4%	0.2%	0.0%	35.3%	0.0%	0.0%	0.0%	1.5%	0.0%	1.3%
Anna Jaques	2.1%	0.1%	1.7%	0.0%	0.0%	0.0%	0.0%	36.9%	0.0%	2.1%	0.1%	0.0%	0.9%
CHA	1.2%	1.7%	0.3%	3.3%	0.5%	0.3%	0.1%	0.2%	13.4%	0.4%	2.4%	7.2%	1.6%
Lawrence General	1.3%	1.6%	0.1%	0.2%	0.0%	0.0%	0.0%	4.4%	0.0%	17.5%	0.5%	0.0%	0.6%
NE Baptist	0.3%	0.3%	0.3%	0.8%	1.1%	1.3%	0.7%	0.3%	0.4%	0.3%	0.8%	0.5%	0.6%
Mt. Auburn	**3.3%**	**3.0%**	**0.3%**	**4.9%**	**0.7%**	**3.1%**	**0.2%**	**0.4%**	**10.5%**	**0.6%**	**3.9%**	**11.7%**	**2.4%**
BILH System Total	**48.8%**	**55.9%**	**53.3%**	**34.1%**	**20.0%**	**21.0%**	**40.3%**	**64.3%**	**41.6%**	**47.9%**	**29.8%**	**47.4%**	**24.9%**
Partners	25.2%	16.3%	34.1%	34.1%	24.6%	44.6%	10.4%	13.3%	29.7%	15.3%	31.8%	27.3%	26.9%
Steward	1.9%	1.2%	0.4%	3.6%	9.5%	6.4%	4.6%	9.7%	0.8%	16.1%	5.2%	2.0%	4.6%
Wellforce System	13.4%	15.8%	2.8%	8.0%	7.6%	2.3%	2.4%	3.3%	14.5%	8.4%	6.9%	9.7%	6.8%
South Shore Hospital	0.0%	0.0%	0.0%	0.9%	7.4%	0.3%	9.7%	0.0%	0.0%	0.0%	2.3%	0.0%	1.5%
Boston Medical Center	0.5%	0.6%	0.3%	3.8%	7.7%	1.7%	0.8%	0.3%	2.3%	0.6%	2.8%	1.5%	1.8%
Children's Hospital Boston	2.9%	3.0%	2.2%	3.9%	4.4%	4.4%	2.3%	2.3%	2.3%	3.7%	3.6%	3.4%	2.7%
All other hospitals	2.4%	2.7%	1.7%	6.4%	10.4%	14.2%	20.9%	2.1%	3.3%	2.7%	12.0%	3.4%	25.0%
Non-hospital facilities	4.7%	4.5%	5.2%	5.4%	8.3%	5.1%	8.5%	4.7%	5.3%	5.2%	5.6%	5.2%	5.8%
Total share	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: CHIA All-Payer Claims Database (2015).

Figure 7C: Commercial Inpatient Hospital Market Shares for NE Baptist's Core Orthopedic and Musculoskeletal Services

Hospital	Shares in PSA of:												Statewide
	Lahey HMC	Winchester	Northeast	BIDMC	BID-Milton	BID-Needham	BID-Plymouth	Anna Jaques	CHA	Lawrence General	NE Baptist	Mt. Auburn	
Lahey	**21.0%**	**21.8%**	**31.9%**	**9.8%**	**0.6%**	**0.5%**	**-**	**16.9%**	**7.1%**	**14.1%**	**9.2%**	**5.5%**	**7.3%**
Lahey HMC	8.2%	7.5%	5.9%	3.5%	0.4%	0.5%	-	8.3%	2.2%	5.9%	3.6%	2.7%	2.9%
Winchester	6.2%	8.8%	1.0%	3.5%	0.1%	-	-	0.3%	3.6%	4.9%	2.5%	2.2%	1.7%
Northeast	6.6%	5.5%	25.0%	2.8%	0.1%	-	-	8.3%	1.2%	3.3%	3.0%	0.6%	2.7%
BIDCO	**26.6%**	**29.7%**	**21.9%**	**40.5%**	**58.2%**	**48.0%**	**60.2%**	**50.3%**	**41.2%**	**31.5%**	**36.9%**	**47.5%**	**32.0%**
BIDMC	3.0%	4.1%	2.3%	5.8%	7.1%	6.6%	3.6%	6.6%	6.9%	2.6%	4.7%	7.9%	3.5%
BID-Milton	1.3%	1.4%	1.0%	3.7%	14.3%	1.7%	0.9%	1.3%	2.0%	1.2%	2.8%	3.1%	2.0%
BID-Needham	0.0%	-	-	0.3%	-	1.3%	0.4%	-	-	-	0.3%	0.1%	0.2%
BID-Plymouth	-	-	-	0.3%	0.4%	0.2%	32.0%	-	-	-	0.9%	-	1.8%
Anna Jaques	0.4%	0.4%	0.9%	0.2%	-	-	-	26.2%	0.1%	2.6%	0.4%	-	0.8%
CHA	0.4%	0.8%	0.1%	0.4%	0.1%	-	-	-	1.6%	-	0.2%	1.0%	0.2%
Lawrence General	1.2%	0.1%	0.1%	0.1%	-	-	-	0.7%	-	12.0%	0.6%	-	0.4%
NE Baptist	20.3%	22.8%	17.4%	29.8%	36.2%	38.2%	23.3%	15.6%	30.7%	13.1%	27.0%	35.5%	23.3%
Mt. Auburn	**2.6%**	**3.9%**	**0.3%**	**2.9%**	**0.4%**	**1.1%**	**0.6%**	**-**	**9.7%**	**0.5%**	**1.9%**	**7.4%**	**1.3%**
BILH System Total	**50.2%**	**55.4%**	**54.0%**	**53.2%**	**59.2%**	**49.7%**	**60.7%**	**67.2%**	**58.0%**	**46.0%**	**47.9%**	**60.4%**	**40.6%**
Partners	31.3%	32.9%	41.6%	31.2%	21.0%	38.8%	12.0%	18.9%	30.2%	18.5%	27.6%	29.8%	23.2%
Steward	3.2%	2.1%	0.1%	3.4%	3.7%	4.4%	5.1%	7.3%	1.6%	23.2%	5.8%	2.5%	5.3%
Wellforce System	13.5%	8.1%	3.2%	5.0%	5.3%	2.2%	3.0%	5.0%	8.2%	9.2%	6.6%	4.6%	5.2%
South Shore Hospital	-	-	-	3.4%	5.6%	0.3%	7.9%	-	-	-	3.5%	0.2%	2.4%
Boston Medical Center	0.6%	0.6%	0.6%	1.2%	3.9%	0.3%	0.4%	0.3%	1.1%	1.9%	0.9%	1.2%	0.7%
All Other Hospitals	1.3%	0.8%	0.5%	2.6%	1.3%	4.4%	10.9%	1.3%	0.9%	1.2%	7.6%	1.2%	22.6%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: CHIA Hospital Discharge Data (2016).

Figure 7D: Outpatient Orthopedic Surgery Shares in NE Baptist's Outpatient Orthopedic Surgery PSA

Hospital	Share of visits
BILH Total	**34.9%**
BIDCO	25.8%
Lahey	5.3%
Mt. Auburn	3.7%
Partners	28.3%
Steward	7.3%
Boston Children's Hospital	5.7%
South Shore Hospital	5.7%
Wellforce	4.4%
All other hospitals	6.9%
Non-hospital facilities	6.8%
Total	**100.0%**

Source: CHIA All-Payer Claims Database (2015).

Figure 7E: Commercial Inpatient Hospital Market Shares for Maternity Services

Hospital	Shares in PSA of:												Statewide
	Lahey HMC	Winchester	Northeast	BIDMC	BID-Milton	BID-Needham	BID-Plymouth	Anna Jaques	CHA	Lawrence General	NE Baptist	Mt. Auburn	
Lahey	**24.0%**	**24.3%**	**44.8%**	**9.9%**	**0.3%**	**0.0%**	**-**	**22.8%**	**5.0%**	**22.3%**	**9.4%**	**2.8%**	**7.8%**
Lahey HMC	0.0%	0.0%	0.0%	0.0%	-	-	-	0.2%	-	-	0.0%	-	0.0%
Winchester	15.4%	17.6%	6.4%	6.8%	0.2%	0.0%	-	4.2%	4.6%	19.3%	5.8%	2.6%	4.5%
Northeast	8.6%	6.6%	38.4%	3.1%	0.1%	-	-	18.5%	0.5%	3.0%	3.6%	0.1%	3.2%
BIDCO	**12.5%**	**15.3%**	**7.7%**	**18.0%**	**22.1%**	**18.4%**	**32.7%**	**54.5%**	**21.4%**	**30.3%**	**15.6%**	**24.1%**	**13.3%**
BIDMC	8.8%	11.9%	6.7%	15.8%	21.3%	18.2%	4.8%	4.9%	15.8%	4.7%	12.5%	20.9%	9.6%
BID-Milton	-	-	-	-	-	-	-	-	-	-	0.0%	-	0.0%
BID-Needham	-	-	-	-	-	-	-	-	-	-	-	-	-
BID-Plymouth	0.0%	0.0%	0.0%	0.1%	0.2%	-	27.8%	-	-	-	0.5%	0.0%	1.3%
Anna Jaques	0.3%	0.1%	0.3%	0.1%	-	-	-	44.4%	-	6.6%	0.6%	-	0.9%
CHA	1.6%	3.0%	0.5%	1.7%	0.6%	0.2%	0.1%	-	5.5%	0.2%	1.2%	3.2%	1.0%
Lawrence General	1.8%	0.3%	0.1%	0.3%	-	0.0%	-	5.2%	0.0%	18.8%	0.8%	0.0%	0.7%
NE Baptist	-	-	-	-	-	-	-	-	-	-	-	-	-
Mt. Auburn	**9.3%**	**12.5%**	**1.5%**	**9.3%**	**2.1%**	**2.4%**	**0.3%**	**0.3%**	**25.9%**	**1.4%**	**6.8%**	**19.8%**	**5.2%**
BILH System Total	**45.9%**	**52.0%**	**54.0%**	**37.1%**	**24.5%**	**20.8%**	**33.0%**	**77.7%**	**52.4%**	**54.0%**	**31.9%**	**46.7%**	**26.3%**
Partners	32.9%	34.0%	35.3%	41.2%	34.4%	68.5%	7.5%	13.9%	35.4%	11.6%	37.0%	43.9%	30.8%
Steward	3.9%	1.7%	0.7%	3.4%	3.0%	6.1%	2.7%	6.3%	2.1%	25.0%	4.9%	3.0%	3.8%
Wellforce System	16.1%	10.3%	9.3%	5.8%	6.6%	1.1%	1.5%	2.1%	7.2%	8.8%	7.1%	3.4%	6.0%
Boston Medical Center	0.9%	1.7%	0.3%	2.2%	5.6%	0.6%	0.3%	-	2.8%	0.4%	1.6%	2.7%	1.2%
South Shore Hospital	0.1%	0.1%	0.2%	8.7%	25.0%	1.6%	47.6%	-	0.0%	-	9.5%	0.2%	7.8%
All Other Hospitals	0.3%	0.2%	0.1%	1.6%	0.9%	1.4%	7.5%	0.0%	0.1%	0.2%	8.0%	0.2%	24.2%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

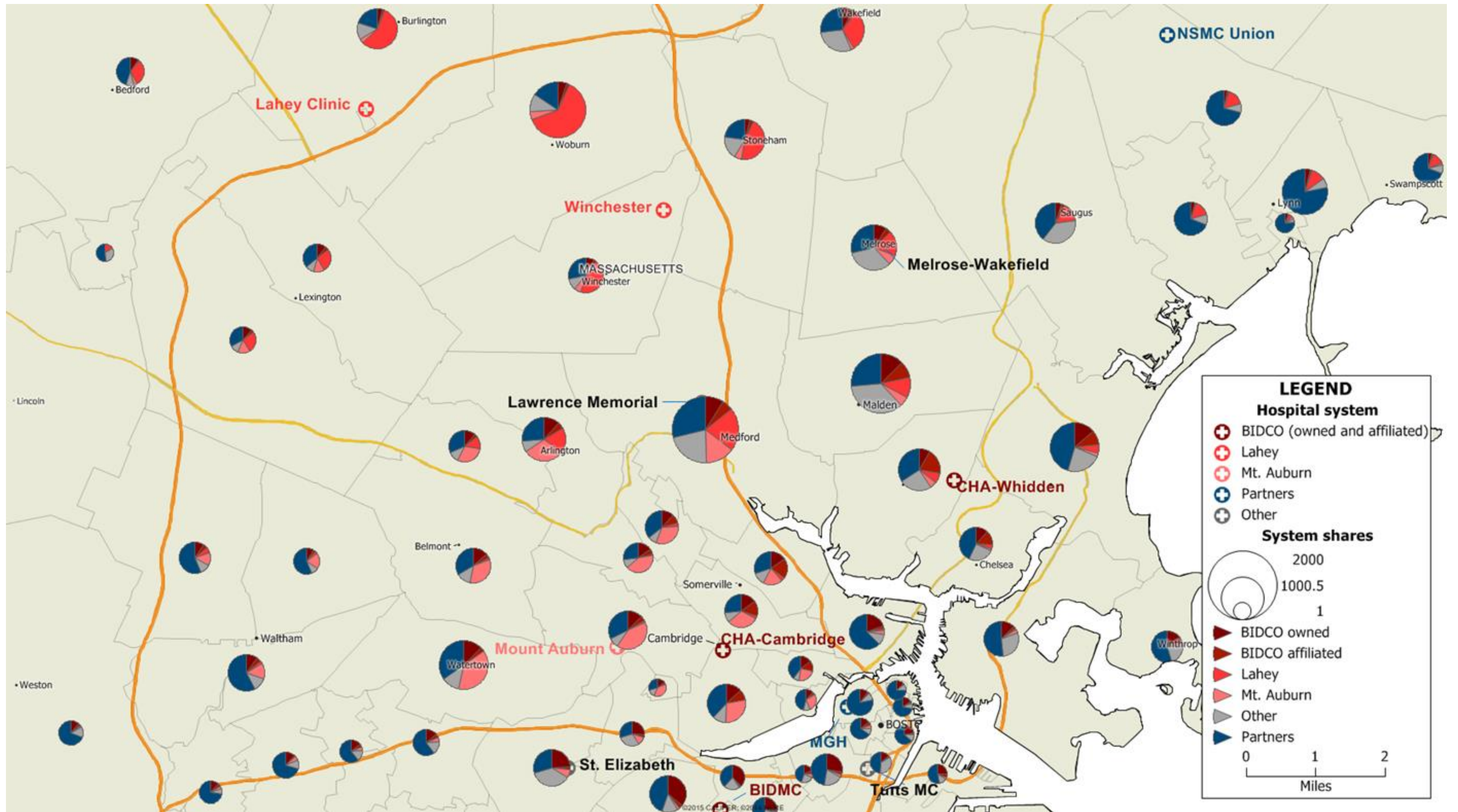
Source: CHIA Hospital Discharge Data (2016).

Figure 7F: Commercial Adult Primary Care Visit Shares

Network	Share of Primary Care Visits in PSA of:			Statewide
	BIDCO	Lahey	MACIPA	
BILH Total	30.2%	42.5%	42.4%	17.7%
BIDCO	18.8%	11.9%	15.6%	9.6%
Lahey	6.2%	26.3%	12.1%	5.6%
MACIPA	4.8%	3.9%	13.5%	2.3%
Multiple BILH Networks	0.4%	0.5%	1.2%	0.2%
Atrius	21.0%	14.4%	22.0%	13.2%
Partners	16.3%	13.2%	12.9%	14.1%
Steward	6.8%	4.0%	2.5%	12.6%
Wellforce	6.4%	12.4%	7.4%	7.3%
BMC	3.4%	0.5%	1.5%	1.6%
Other	15.9%	13.0%	11.4%	33.5%
Total	100.0%	100.0%	100.0%	100.0%

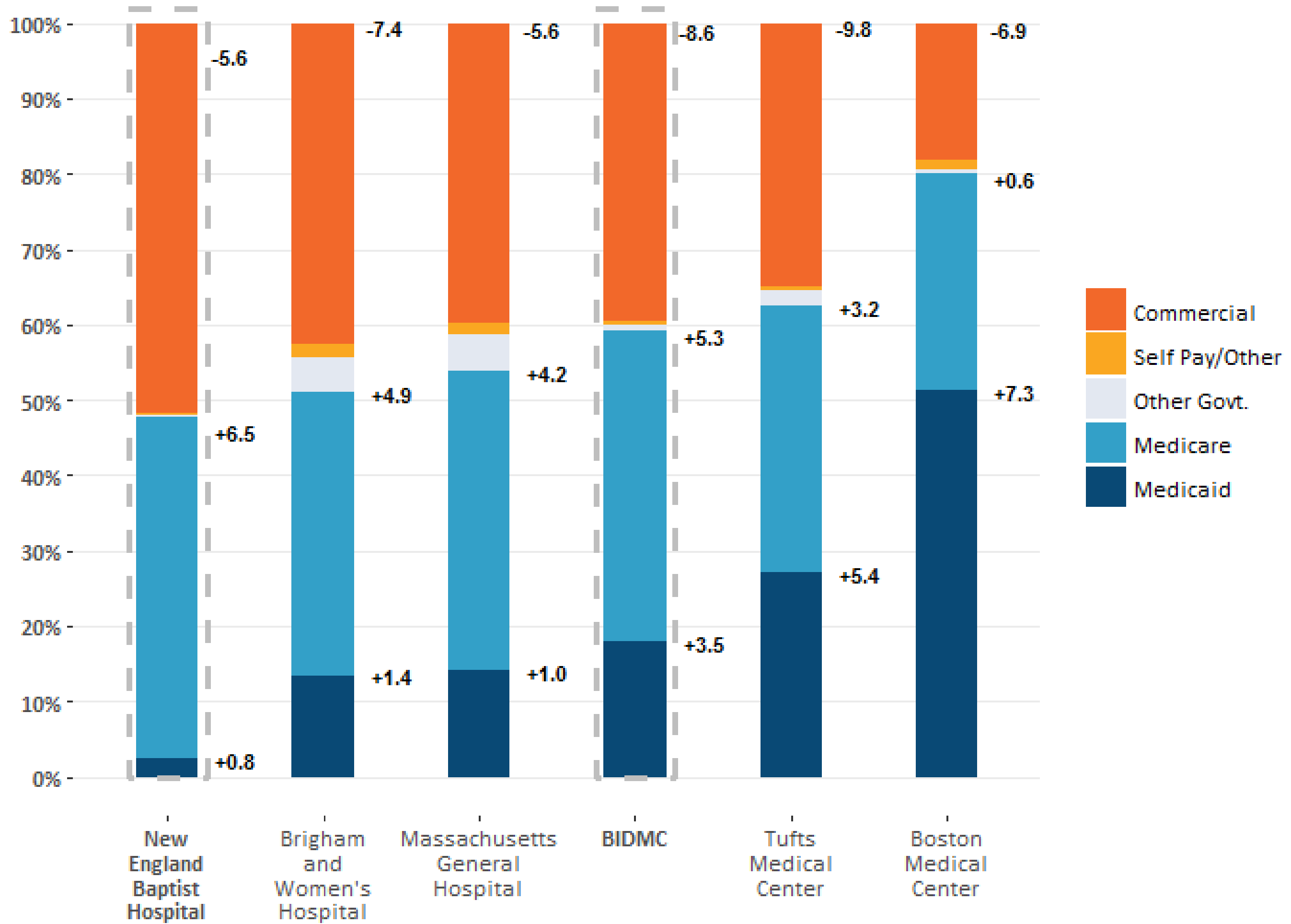
Source: CHIA All-Payer Claims Database (2015).

Figure 7G: Commercial Inpatient Shares by Zip Code



VIII. PARTY HOSPITAL PAYER MIX BY GPSR

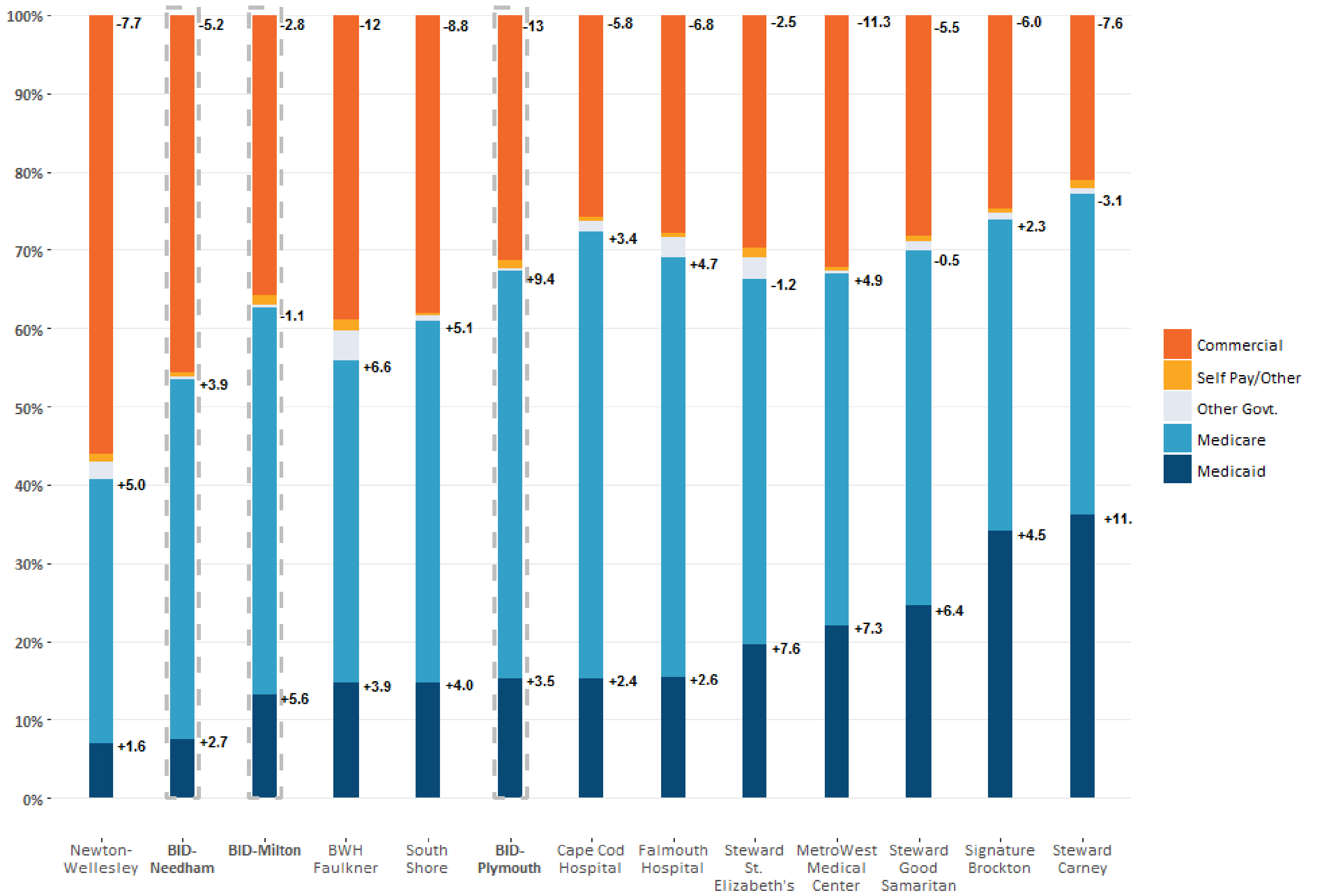
Figure 8A: Combined Inpatient and Outpatient Payer Mix of Boston-Area AMCs and NE Baptist (2016 with change since 2009)



Source: HPC analysis of gross patient service revenue (GPSR) data from CHIA Hospital Cost Reports for 2009 through 2016. CTR. FOR HEALTH INFO. & ANALYSIS, MASSACHUSETTS HOSPITAL PROFILES ACUTE DATABOOK DATA THROUGH FISCAL YEAR 2016 (Jan. 2018), *available at* http://www.chiamass.gov/assets/docs/r/hospital-profiles/2016/Acute-Care-Massachusetts-Hospitals-Databook-FY16-1-23-18-v2.xlsx.

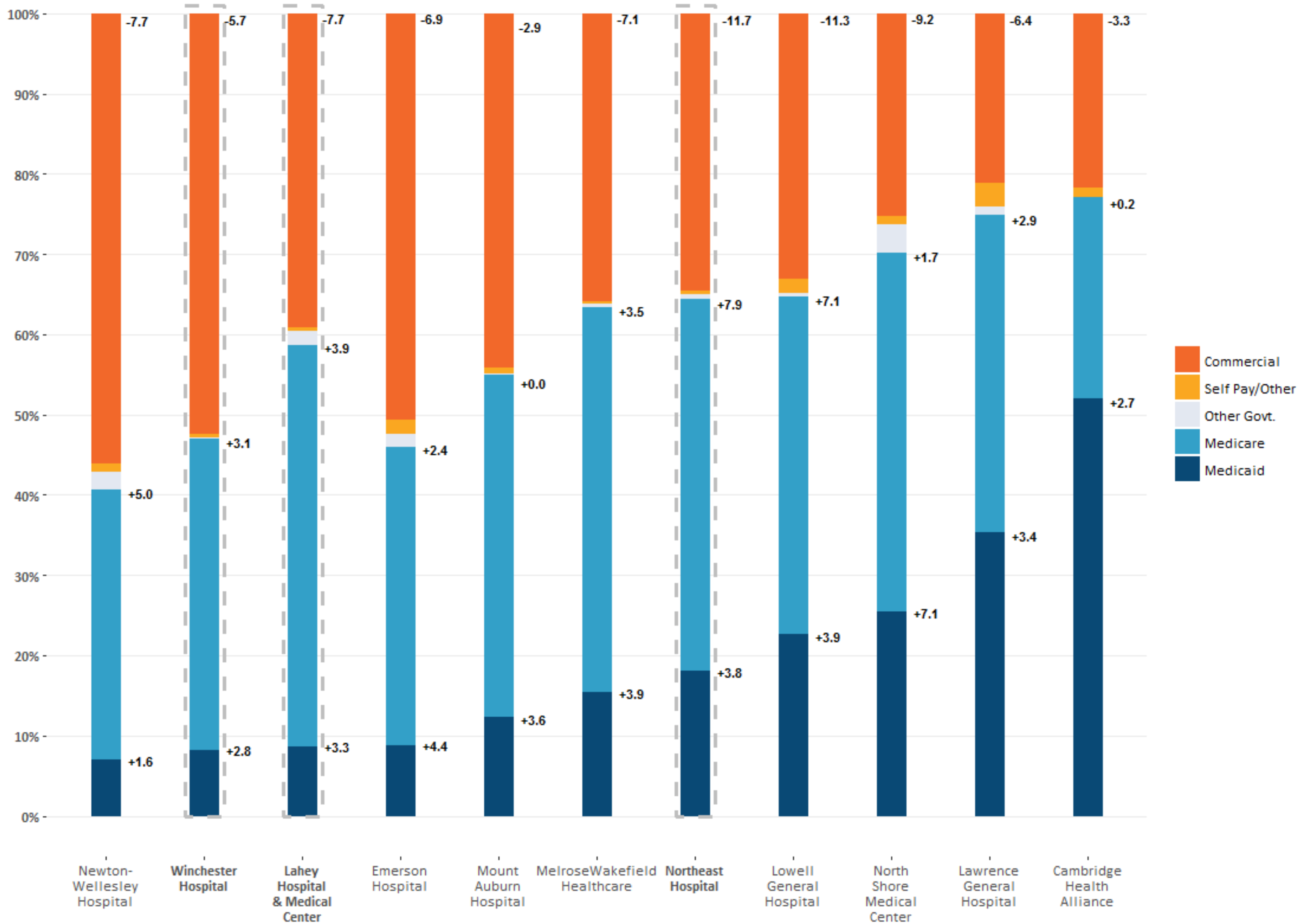
Notes: Medicaid category includes managed and non-managed Medicaid, ConnectorCare, and Health Safety Net GPSR.

Figure 8B: Combined Inpatient and Outpatient Payer Mix of BID-Owned Community Hospitals and Community Comparators (2016 with change since 2009)



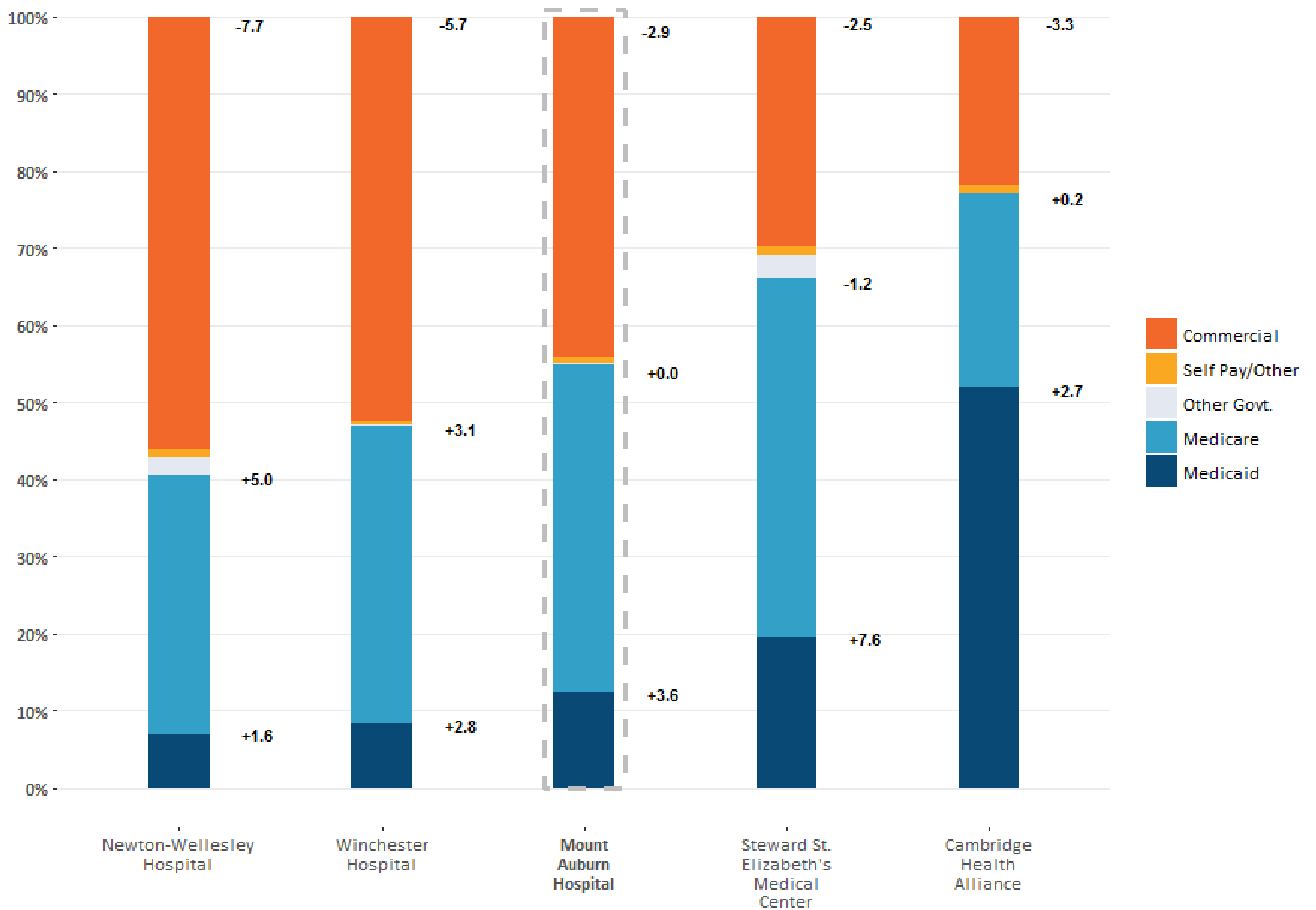
See Figure 8A for source and note.

Figure 8C: Combined Inpatient and Outpatient Payer Mix of Lahey Hospitals and Community Comparators (2016 with change since 2009)



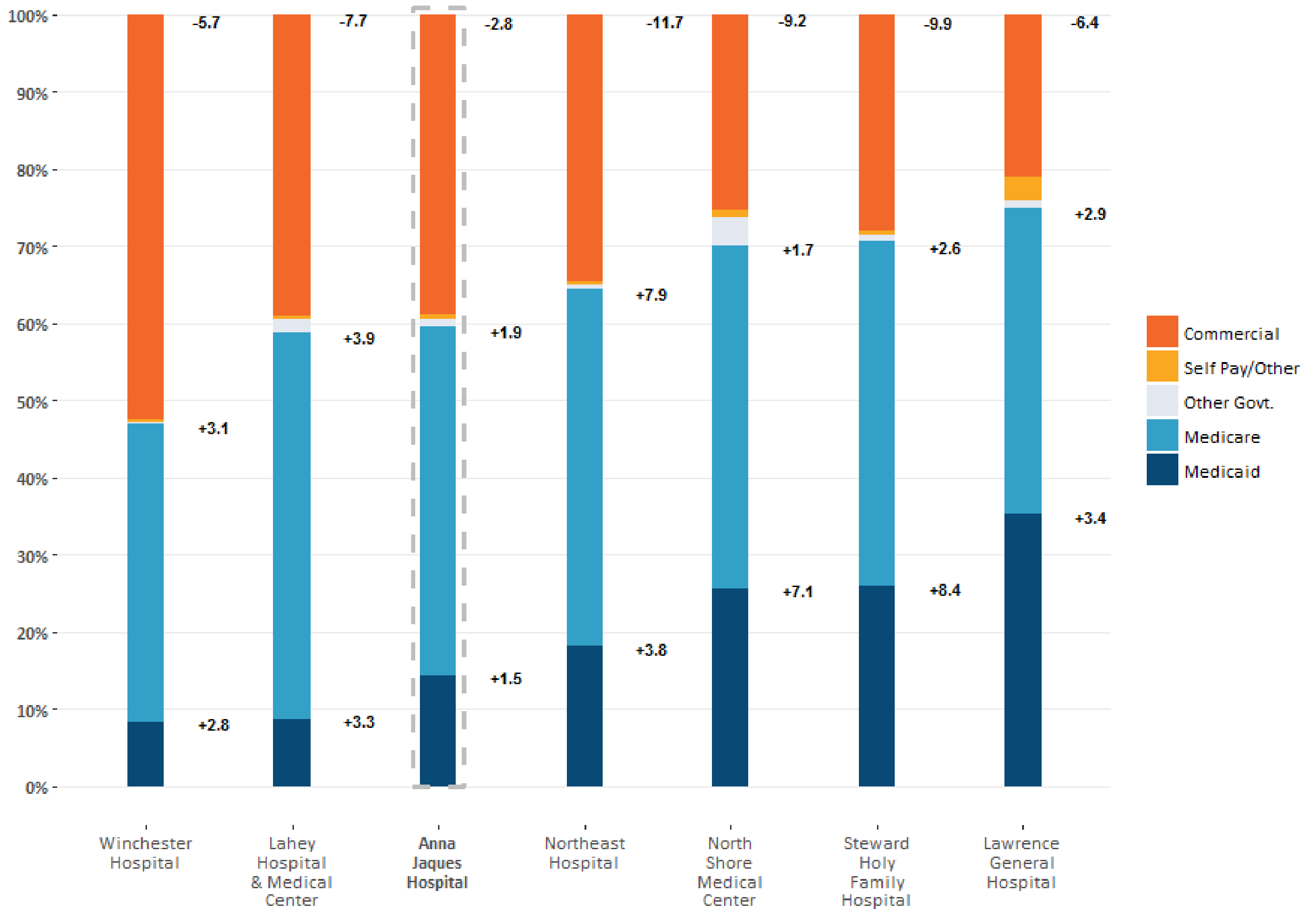
See Figure 8A for source and note.

Figure 8D: Combined Inpatient and Outpatient Payer Mix of Mt. Auburn and Community Comparators (2016 with change since 2009)



See Figure 8A for source and note.

Figure 8E: Combined Inpatient and Outpatient Payer Mix of Anna Jaques and Comparators (2016 with change since 2009)

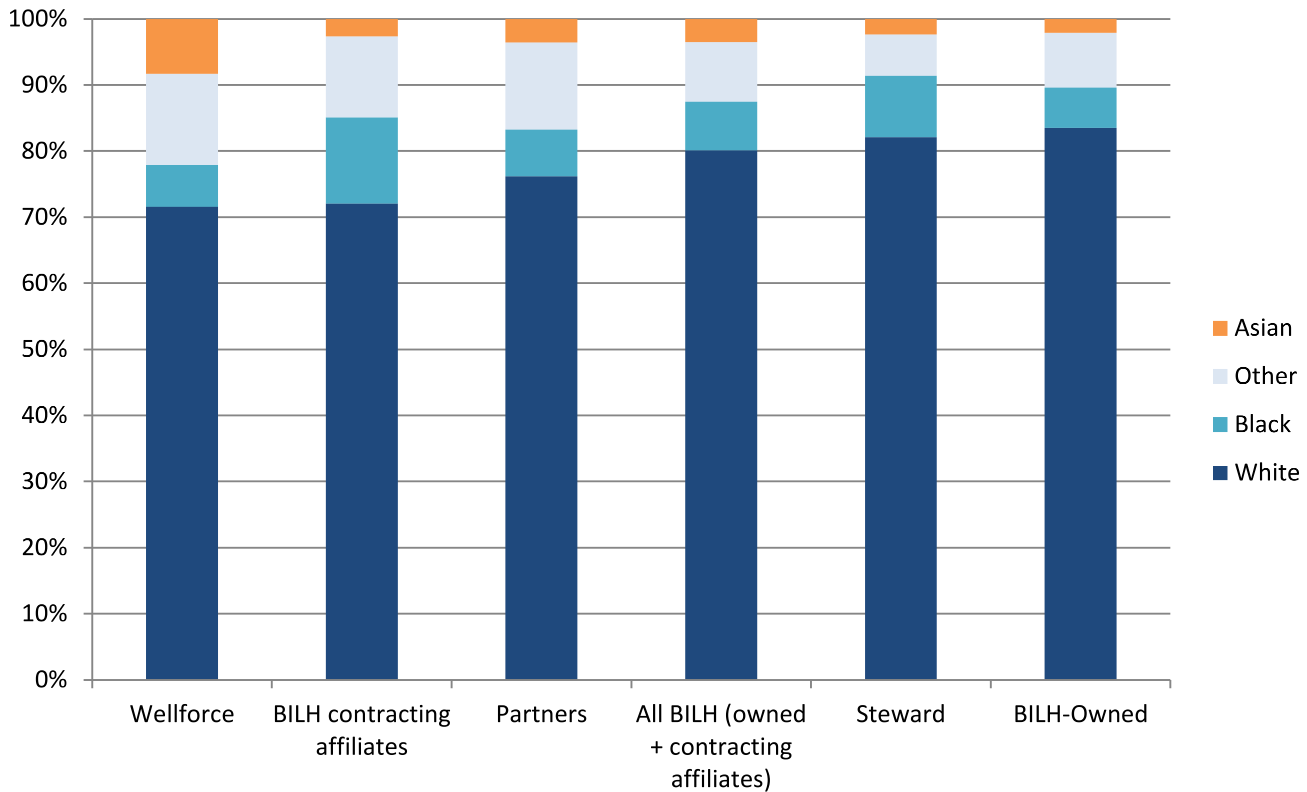


See Figure 8A for source and note.

IX. Racial and Ethnic Demographics of Proposed BILH Hospitals and Comparator Systems

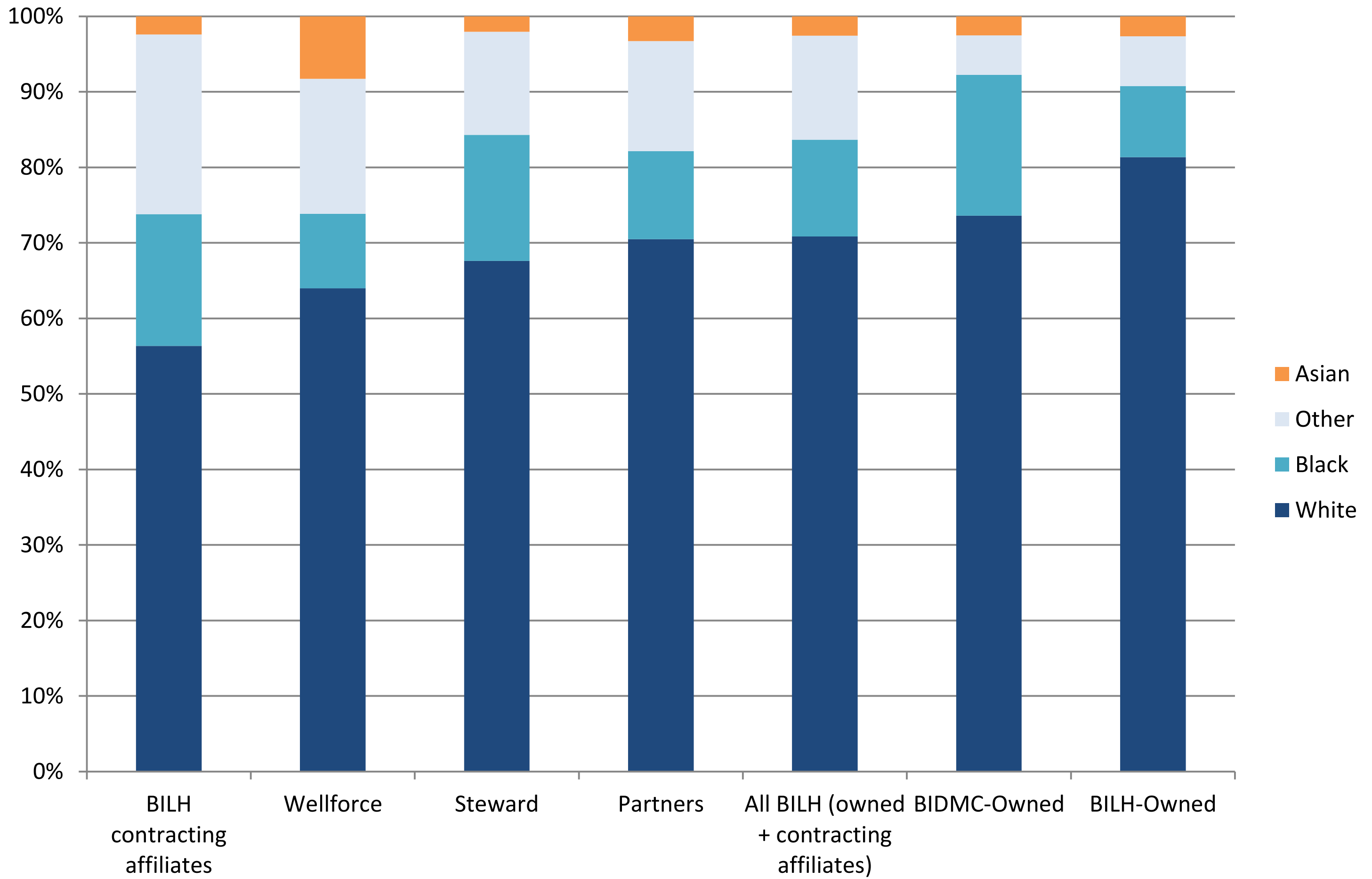
To compare patient demographics among the largest eastern Massachusetts hospital systems to the proposed BILH hospitals, we calculated average patient mix by system for inpatient and emergency department (ED) care, weighted by discharges or ED visits (respectively) at each of the system's hospitals. Partners' figures include services provided at Emerson Hospital, which is a Partners contracting affiliate.

Figure 9A: Racial Demographics of Hospital Discharges by System (2016)



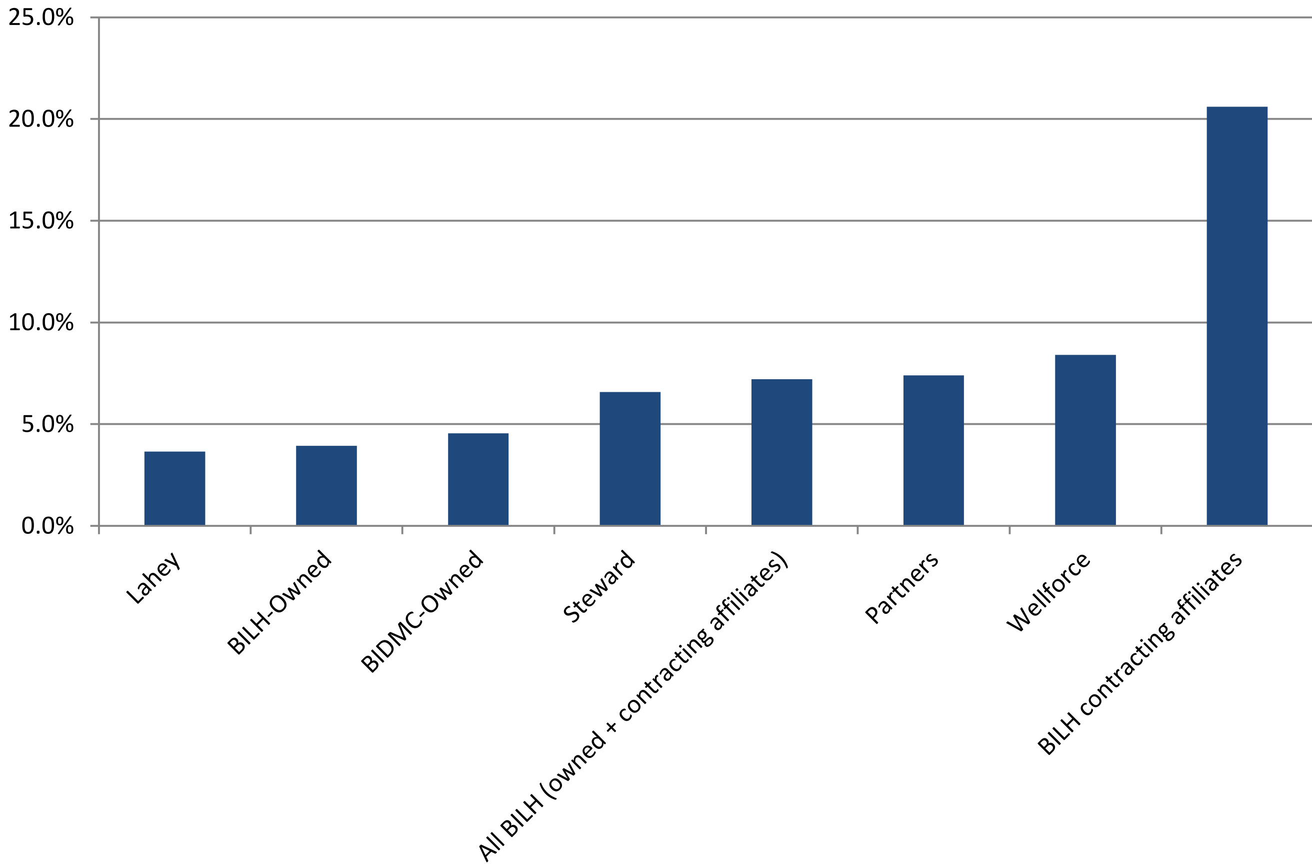
Source: HPC analysis of CHIA 2016 hospital discharge data.
Note: Data on patient race in the hospital discharge data is not independently verified by CHIA, and hospitals' methods of identifying patients may vary. In accordance with racial and ethnicity categorization used by the US Census, we assessed Hispanic ethnicity independently from racial identity. *Hispanic Origin*, U.S. Census Bureau, https://www.census.gov/topics/population/hispanic-origin.html (last visited July 1, 2018). Thus, for example, discharges where race was categorized as white include both white Hispanic patients as well as white non-Hispanic.

Figure 9B: Racial Demographics of ED Visits by System (2016)



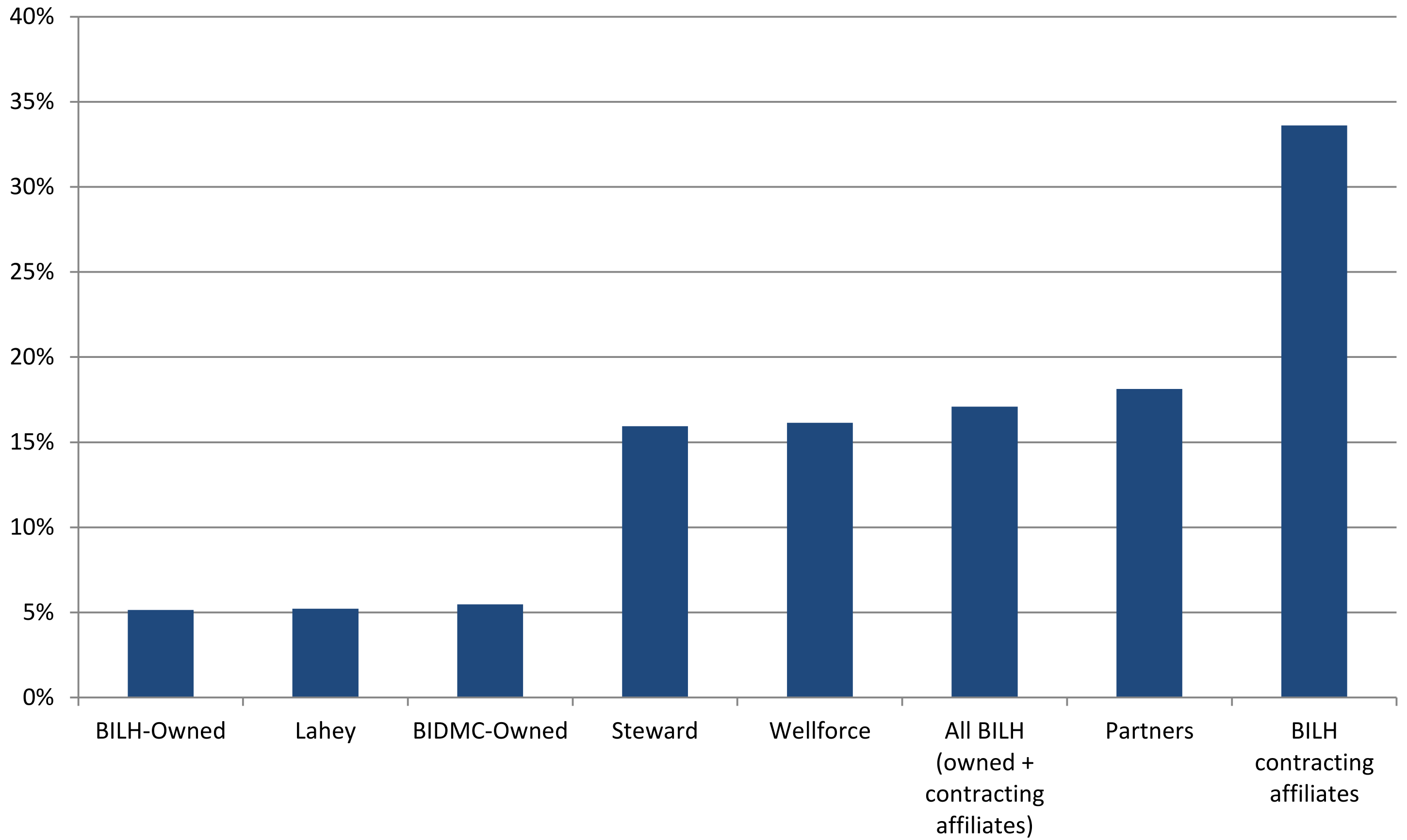
Source: HPC analysis of CHIA 2016 hospital emergency visit data.
See Figure 9A for notes.

Figure 9C: Discharges of Hispanic Patients by System (2016)



See Figure 9A for source.
Note: Data on patient ethnicity in the hospital discharge data is not independently verified by CHIA, and hospitals' methods of identifying patients may vary. In accordance with racial and ethnicity categorization used by the US Census, we assessed Hispanic ethnicity independently from racial identity. *Hispanic Origin*, U.S. Census Bureau, https://www.census.gov/topics/population/hispanic-origin.html (last visited July 1, 2018). Thus, discharges identified as Hispanic include Hispanic patients regardless of racial identification.

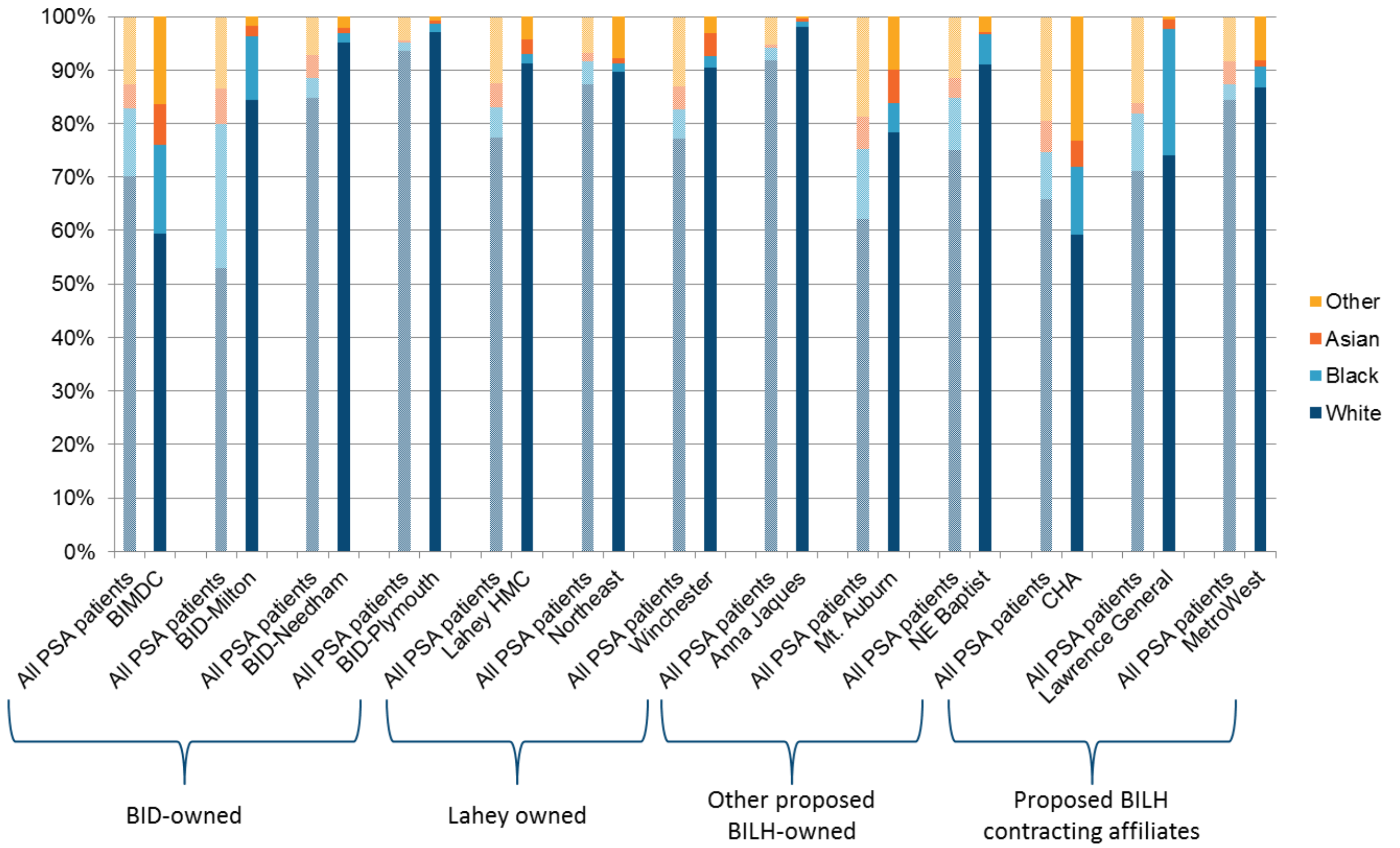
Figure 9D: ED Visits by Hispanic Patients by System (2016)



See Figure 9B for source and notes.

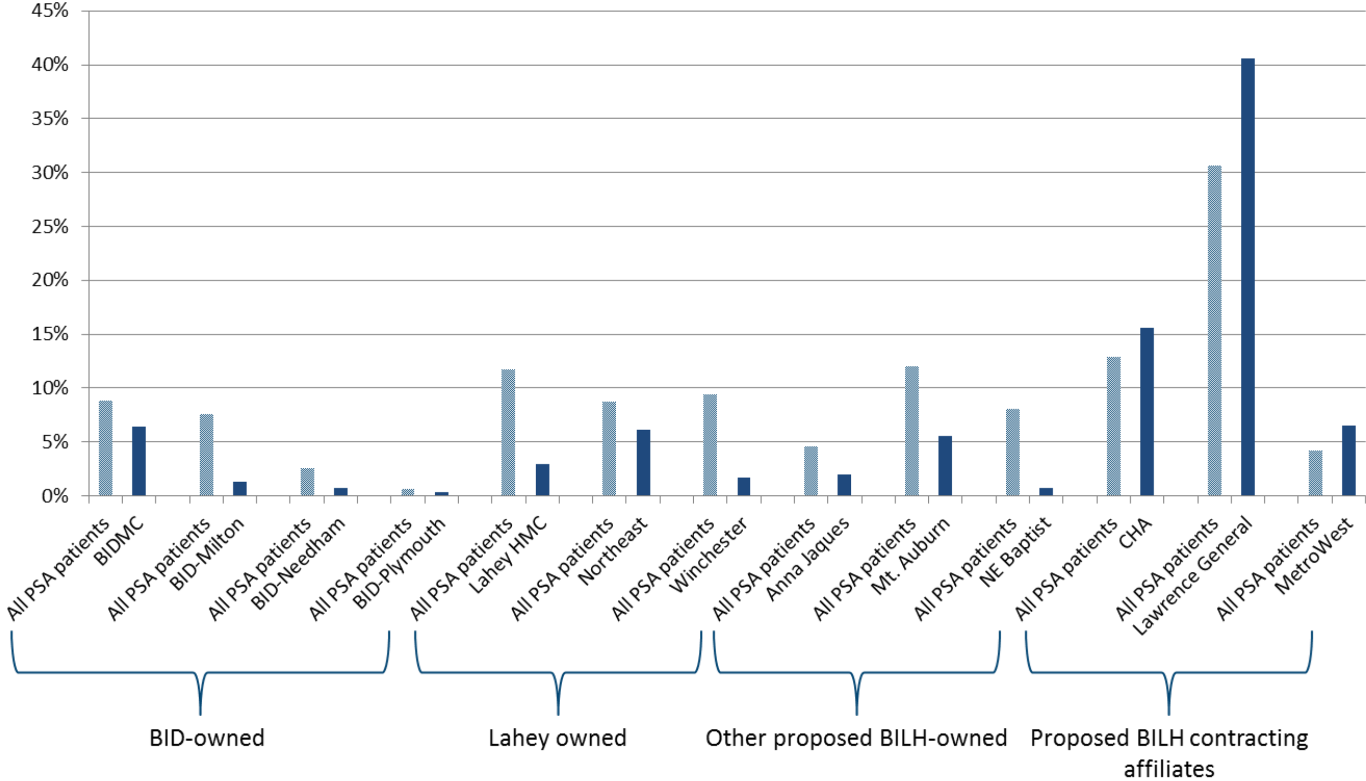
X. Racial and Ethnic Demographics of Party Hospitals and BIDCO Affiliate Hospitals compared to PSA Demographics

Figure 10A: Racial Demographics of PSA Discharges from Party Hospital PSAs (2016)



See Figure 9A for source and notes.

Figure 10B: Proportion of PSA Discharges of Hispanic Patients from Party Hospital PSAs (2016)



See Figure 9C for source and notes.

XI. Average Household Income and Area Deprivation Index

Figure 11A: Average Income and Area Deprivation Index of Hospital Patients (2016)

Inpatient Care		
System	Zip-code income	Average area deprivation index
Mt. Auburn	$86,069	70
NE Baptist	$85,064	80
Lahey	$84,505	80
Anna Jaques	$79,448	85
BID-Owned	$79,212	82
Partners	$77,558	82
Wellforce	$70,283	90
Other BIDCO affiliates	$69,749	88
Steward	$67,886	91

ED Visits		
System	Zip-code income	Average area deprivation index
Mt. Auburn	$85,200	67
NE Baptist	-	-
Lahey	$83,784	80
Anna Jaques	$80,503	85
BID-Owned	$78,690	84
Partners	$71,660	82
Wellforce	$65,276	92
Other BIDCO affiliates	$63,274	91
Steward	$61,229	94

Source: HPC analysis of 2016 CHIA hospital discharge and ED visit data; U.S. Census Bureau, American Community Survey.

Notes: NE Baptist does not have an emergency department. The area deprivation index is a proxy for socioeconomic deprivation in a community that combines a number of measures including home values and amenities, employment, poverty, and education levels. Values in Massachusetts range from 120 (greatest deprivation) in parts of Boston and Springfield to -12 (least deprivation) in Weston.

Figure 11B: Average Income and Area Deprivation Index of Commercially Insured Population Attributed to a Provider Organization (2015)

	Zip code income	Average area deprivation index
MACIPA	$89,359	69.8
Lahey	$88,455	77.8
Partners	$88,340	76.8
Atrius	$86,091	77
South Shore	$85,507	82.5
BIDCO	$84,690	76.6
Wellforce	$82,086	84.9
Reliant	$80,265	89.9
CMIPA	$70,164	95.9
BMC	$65,518	88.5
Baystate	$62,560	99.1
Southcoast	$61,679	97.6

Sources: HPC analysis of 2015 APCD claims data; MA-RPO, 2016; SK&A, 2015; U.S. Census Bureau, American Community Survey.

Note: See Figure 11A for a description of the area deprivation index. For a full description of the patient attribution methodology, see MASS. HEALTH POLICY COMM'N, 2017 ANNUAL HEALTH CARE COST TRENDS REPORT 29-30 (March 2018), https://www.mass.gov/files/documents/2018/03/28/Cost%20Trends%20Report%202017.pdf. BIDCO figures include data for patients attributed to physicians affiliated with CHA and Lawrence General, which are expected to be BILH contracting affiliates; BIDCO's zip code income would be approximately $2,000 higher and its average area deprivation index would be one point lower if these patients were not included.

Acknowledgements

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