



MASSACHUSETTS HEALTH POLICY COMMISSION 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)**

About the Health Policy Commission

The Health Policy Commission (HPC) is an independent state agency established through Chapter 224 of the Acts of 2012, the Commonwealth's landmark cost-containment law. The HPC, led by an 11-member board with diverse experience in health care, is charged with developing health policy to reduce overall cost growth while improving the quality of care and monitoring the health care delivery and payment systems in Massachusetts. The HPC's mission is to advance a more transparent, accountable, and innovative health care system through independent policy leadership and investment programs. The HPC's goal is better health and better care at a lower cost across the Commonwealth.

INTRODUCTION

Among the Massachusetts Health Policy Commission's (HPC) key responsibilities are fostering innovative health care delivery and payment models as well as monitoring and reviewing the impact of changes within the health care marketplace.¹ These dual values of **innovation** and **accountability** are at the core of the HPC's mission, and both are necessary to advance the goal of a more affordable and effective health care system.

One of the ways in which the HPC promotes these values is through monitoring and evidence-based reporting on the evolving structure and composition of the provider market. 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.

Through the filing of notices of material change by provider organizations,² the HPC now tracks the frequency, type, and nature of changes in our health care market.³ 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.⁴ 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 a period of dynamic change among provider organizations, including accelerating consolidation, new contractual and clinical alignments, and the increased presence of alternative payment models focused on promoting accountable

¹ MASS. GEN. LAWS ch. 6D, § 5.

² In this report, we use the terms provider organization, defined in MASS. GEN. LAWS ch. 6D, § 1, and provider system interchangeably.

³ 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 958 Code Mass. Regs §§ 7.00. (2015), Notices of Material Change and Cost and Market Impact Reviews, available at <http://www.mass.gov/courts/docs/lawlib/900-999cmr/958cmr7.pdf>.

⁴ For example, MASS. GEN. LAWS ch. 6D, §13(f) requires referral of the CMIR report to the state Attorney General's Office if the HPC finds that a provider under review (1) has a dominant market share in its service area, (2) charges prices that are materially higher than the median prices in its service area for the same services, and (3) has a health status adjusted total medical expense that is materially higher than the median in its service area.

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.

This document is the HPC's fourth CMIR report, examining two proposed contracting affiliations: one between the Beth Israel Deaconess Care Organization (BIDCO) and New England Baptist Hospital and its affiliates, and the second between BIDCO and MetroWest Medical Center. This report also examines the related clinical affiliation between MetroWest Medical Center and Beth Israel Deaconess Medical Center (BIDMC) and its physicians, Harvard Medical Faculty Physicians at BIDMC. Based on criteria articulated in Chapter 224 and informed by the facts of these transactions, we analyzed the likely impact of these new alignments, relying on the best available data and information. Our work included review of the parties' stated goals for the transactions and the information they provided in support of how and when these alignments would result in efficiencies and care delivery improvements.

Consistent with Chapter 224 and the mission of the HPC, we now release this report to contribute important and evidence-based information to the public dialogue as providers, payers, government, consumers and other stakeholders strive to develop a more affordable, effective, and accountable health care system.

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ACRONYMS AND ABBREVIATIONS

AGO	Massachusetts Attorney General's Office
AHRQ	Agency for Healthcare Research and Quality
AMC	Academic Medical Center
APCD	All-Payer Claims Database
Chapter 224	Chapter 224 of the Acts of 2012
CHIA	Massachusetts Center for Health Information and Analysis
CHIP	Children's Health Insurance Program
CMIR	Cost and Market Impact Review
CMS	Centers for Medicare and Medicaid Services
DOJ	United States Department of Justice
DRG	Diagnosis-Related Group
EHR	Electronic Health Records
FTC	Federal Trade Commission
GPSR	Gross Patient Service Revenue
HEDIS	Healthcare Effectiveness Data and Information Set
HHI	Herfindahl-Hirschman Index
HMO	Health Maintenance Organization
HPC	Health Policy Commission
HSN	Health Safety Net
IPA	Independent Practice Association
IQI	Inpatient Quality Indicator
MHQP	Massachusetts Health Quality Partners
NPSR	Net Patient Service Revenue
OB/GYN	Obstetrics / Gynecology
PCP	Primary Care Physician
PHO	Physician Hospital Organization
POS	Point of Service
PPO	Preferred Provider Organization
PSA	Primary Service Area
PSI	Patient Safety Indicator
RPO	Registration of Provider Organizations
SNF	Skilled Nursing Facility
TME	Total Medical Expenses

NAMING CONVENTIONS

Parties and Related Organizations	
APG	Affiliated Physicians Group
Anna Jaques	Anna Jaques Hospital
BIDCO	Beth Israel Deaconess Care Organization
BIDMC	Beth Israel Deaconess Medical Center
BIDPO	Beth Israel Deaconess Physician Organization
BID-Milton	Beth Israel Deaconess Hospital - Milton
BID-Needham	Beth Israel Deaconess Hospital - Needham
BID-Plymouth	Beth Israel Deaconess Hospital - Plymouth
CHA	Cambridge Health Alliance
CRMA	Charles River Medical Associates
HMFP	Harvard Medical Faculty Physicians at Beth Israel Deaconess Medical Center
Hospital LLC	BIDCO Hospital LLC
Lawrence General	Lawrence General Hospital
MWAHO	MetroWest Accountable Health Care Organization
MetroWest	VHS Acquisition Subsidiary Number 9, Inc., d/b/a MetroWest Medical Center
MWPS	MetroWest Physician Services
NEBCIO	New England Baptist Clinical Integration Organization
NEBH	New England Baptist Hospital
Physician LLC	BIDCO Physician LLC
Tenet	Tenet Healthcare Corporation
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
BWH	Brigham and Women's Hospital
Children's Hospital	Boston Children's Hospital
Hallmark	Hallmark Health System
Lahey	Lahey Health System
Mt. Auburn	Mount Auburn Hospital
NEQCA	New England Quality Care Alliance
Newton-Wellesley	Newton-Wellesley Hospital
Partners	Partners HealthCare System
Signature Brockton	Signature Healthcare Brockton Hospital
Steward	Steward Health Care System
Tufts MC	Tufts Medical Center
UMass	UMass Memorial Health Care

EXECUTIVE SUMMARY

The Beth Israel Deaconess Care Organization (BIDCO) began operating in 2013 as a joint contracting entity for Beth Israel Deaconess Medical Center (BIDMC) and its corporately affiliated hospitals and affiliated physicians, including Harvard Medical Faculty Physicians at BIDMC (HMFP). In the past three and a half years, an additional four hospitals and four large physician groups have become members of, and have started contracting through, BIDCO. BIDCO is now the second largest hospital contracting network⁵ in the state, among the largest physician networks, and one of Massachusetts' largest accountable care organizations (ACOs). In the fall of 2015, BIDCO proposed adding two additional hospitals and certain affiliated physicians to its ACO and contracting network.

In September 2015, BIDCO and New England Baptist Hospital (NEBH), the Commonwealth's only orthopedic specialty hospital, executed affiliation agreements under which NEBH and its owned physician group, New England Baptist Clinical Integration Organization (NEBCIO), would become members of BIDCO.⁶ In October 2015, BIDCO entered into a similar agreement with MetroWest Medical Center (MetroWest),⁷ a community hospital owned by Tenet Healthcare Corporation, with campuses located in Framingham and Natick. As BIDCO members, NEBH, NEBCIO, and MetroWest would participate in BIDCO's clinical integration programs, and BIDCO would establish payer contracts on their behalf. In connection with joining BIDCO, MetroWest also entered into a clinical affiliation agreement in January 2016 with BIDMC and HMFP,⁸ which co-chair BIDCO's board of directors. Under

⁵ BIDCO does not own its members. Rather, the BIDCO member hospitals and physician groups govern BIDCO and pay membership fees, and BIDCO establishes payer contracts on their behalf.

⁶ BETH ISRAEL DEACONESS CARE ORGANIZATION (BIDCO), NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (Oct. 2, 2015), AS REQUIRED UNDER MASS. GEN. LAWS ch. 6D § 13, *available at* <http://www.mass.gov/anf/docs/hpc/material-change-notices/20151002-bidco-nebh-nebcio.pdf>; New England Baptist Hospital (NEBH), NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (Oct. 2, 2015), AS REQUIRED UNDER MASS. GEN. LAWS ch. 6D § 13, *available at* <http://www.mass.gov/anf/docs/hpc/material-change-notices/20151002-nebh-bidco-nebcio.pdf>; New England Baptist Clinical Integration Organization (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* <http://www.mass.gov/anf/docs/hpc/material-change-notices/20151002-nebcio-nebh-bidco.pdf> (collectively BIDCO-NEBH-NEBCIO NOTICE OF MATERIAL CHANGE).

⁷ BETH ISRAEL DEACONESS CARE ORGANIZATION (BIDCO), NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (Oct. 30, 2015), AS REQUIRED UNDER MASS. GEN. LAWS ch. 6D § 13, *available at* <http://www.mass.gov/anf/docs/hpc/material-change-notices/20151030-notice-of-material-change-bidco-mwmc.pdf>; VHS SUBSIDIARY NUMBER 9, INC. D/B/A METROWEST MEDICAL CENTER, NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (Oct. 30, 2015), AS REQUIRED UNDER MASS. GEN. LAWS ch. 6D § 13, *available at* <http://www.mass.gov/anf/docs/hpc/material-change-notices/20151030-mwmc-notice-of-material-change.pdf> (collectively BIDCO-METROWEST NOTICE OF MATERIAL CHANGE).

⁸ 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* <http://www.mass.gov/anf/docs/hpc/material-change-notices/20160114-bidmc-mw-hmfp.pdf>; HARVARD MEDICAL FACULTY PHYSICIANS (HMFP), NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (Oct. 2, 2015), AS REQUIRED UNDER MASS. GEN. LAWS ch. 6D § 13, *available at* <http://www.mass.gov/anf/docs/hpc/material-change-notices/20160115-hmfp-bidmc-mwmc-2.pdf>; VHS SUBSIDIARY NUMBER 9, INC. D/B/A METROWEST MEDICAL CENTER, NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (Oct. 2, 2015), AS REQUIRED UNDER MASS. GEN. LAWS ch. 6D § 13, *available at* <http://www.mass.gov/anf/docs/hpc/material-change-notices/20160115-hmfp-bidmc-mwmc-2.pdf>.

the clinical affiliation, the parties would collaborate on certain clinical programs and MetroWest would designate BIDMC and HMFP as its preferred referral partner for most tertiary and quaternary services.⁹

Following 30-day initial reviews, the HPC determined that these transactions and the resulting continued growth of the BIDCO network were likely to have a significant impact on costs and market functioning in Massachusetts and warranted further review.¹⁰ Due to the interrelated questions posed by the transactions, the similar timelines of our reviews, and a desire to minimize administrative burden, the HPC has elected to present its reviews of the transactions together. This Preliminary Report presents our analysis and the key findings from our reviews. Following a 30-day opportunity for the parties to respond to these findings, the HPC will issue a Final Report.

This report is organized into five parts. Part I outlines our analytic approach and the data we utilized. Part II describes the parties to these CMIRs and their goals and plans for undertaking the transactions. Parts III and IV then present our findings. Part III reports on the parties' baseline performance leading up to the transactions, and Part IV reports on the projected impact of the proposed transactions on that baseline. We conclude in Part V. Below is a summary of the findings presented in Parts III and IV:

1. **Cost and Market Baseline Performance:** BIDCO has significant market share both statewide and in its local service areas, and it has grown rapidly in recent years. BIDCO is now the second largest hospital network in the state, although its commercial inpatient market share statewide is only slightly over one-third (36%) that of the largest provider network, Partners HealthCare System (Partners). NEBH has very large market share for orthopedic and musculoskeletal services, with its inpatient share of these services rivaling that of Partners. While MetroWest continues to be an important local provider, it has lost significant commercial volume in recent years. In the most recent available data, BIDCO, MetroWest, and NEBH/NEBCIO had low to mid-range hospital and physician prices and comparatively efficient medical spending. However, these data may not yet fully reflect the recent growth of the BIDCO network, and it will be important to continue to monitor the parties' prices and spending levels going forward.

[notices/20160114-metrowest-bidmc-hmfp-mcn.pdf](#) (collectively BIDMC-HMFP-METROWEST NOTICE OF MATERIAL CHANGE).

⁹ Tufts Medical Center would remain MetroWest's preferred tertiary referral partner for pediatric medicine.

¹⁰ See MASS. HEALTH POLICY COMM'N, MINUTES OF THE HEALTH POLICY COMM'N (Dec. 16, 2015), *available at* <http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/public-meetings/board-meetings/20160120-commission-document-board-minutes-for-december-16-2015.pdf> (approving continuation of the Cost and Market Impact Reviews of the BIDCO-NEBH-NEBCIO contracting affiliation and BIDCO-MetroWest contracting affiliation); MASS. HEALTH POLICY COMM'N, MINUTES OF THE HEALTH POLICY COMM'N (Mar. 2, 2016), *available at* <http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/public-meetings/board-meetings/20160302-board-minutes.pdf> (approving continuation of the Cost and Market Impact Review of the BIDMC-HMFP-MetroWest clinical affiliation).

2. **Care Delivery and Quality Baseline Performance:** All of the parties have sought to develop structures to support care delivery and quality improvement initiatives, although their approaches vary significantly, with BIDCO focused on supporting members' risk contract performance, NEBH focused on optimizing patient care processes, and MetroWest implementing targeted quality improvement programs using data analytics provided by its parent corporation. On most standard quality measures, both BIDCO hospitals and physician groups tend to be at or above the state's average performance, but performance across BIDCO hospitals and physician groups on individual measures varies significantly. NEBH performs exceptionally well on measures most relevant to its core orthopedic and musculoskeletal services, both compared to state averages and to the BIDCO hospitals. MetroWest generally performs close to the state average, with some strengths and weaknesses relative to BIDCO hospitals and local comparators.
3. **Access Baseline Performance:** The BIDCO community hospitals and MetroWest are important safety net providers for their communities, providing greater shares of services to Medicaid and Medicare patients than many other local community hospitals. In contrast, both BIDMC and NEBH serve lower proportions of government payer patients, and NEBH provides a very low percentage of orthopedic and musculoskeletal services to Medicaid patients based on the most recent available data. MetroWest and some of the BIDCO community hospitals (e.g., Cambridge Health Alliance and Anna Jaques Hospital) are also significant providers of behavioral health services to their communities.
4. **Cost and Market Impact:** These transactions would increase market concentration and solidify BIDCO's position as the Commonwealth's second largest hospital network. The NEBH transaction would make BIDCO the state's largest provider network for certain inpatient orthopedic and musculoskeletal services, and the MetroWest transactions would expand BIDCO's service area westward. These changes could strengthen BIDCO's ability to leverage higher prices and other favorable contract terms in negotiations with commercial payers. As NEBCIO physicians join BIDCO contracts, we anticipate small to moderate increases to health care spending of up to \$4.5 million annually for the three largest commercial payers combined; changes in MetroWest physician prices are not anticipated to significantly impact spending. To the extent that BIDCO both retains its historically low to mid-range prices and is successful in redirecting volume from higher-priced systems to BIDCO hospitals and physician groups, there is the potential to reduce health care spending. However, BIDCO has had limited success to date in significantly redirecting commercially insured patients from higher-priced systems.
5. **Care Delivery and Quality Impact:** BIDCO's focus on supporting its members' risk contract performance has resulted in a set of targeted care delivery reform programs, but uniform quality improvement across BIDCO providers is not evident in the most recent available data. It is therefore not yet clear that joining BIDCO will result in measurable quality improvement for MetroWest, NEBH, or NEBCIO. NEBH's strong quality performance for orthopedic and musculoskeletal care suggests that BIDCO hospitals could benefit from adopting NEBH's care delivery systems, but the parties

have not yet developed details of their plans for collaboration. While MetroWest's performance on most quality measures is already comparable to that of many BIDCO community hospitals, MetroWest's clinical affiliation with BIDMC and HMFP has the potential to improve patient experience and clinical quality for specific services that the parties have committed to enhance.

6. **Access Impact:** It is unclear to what extent the NEBH transaction will increase access to NEBH's high-quality orthopedic and musculoskeletal care for Medicaid patients. The service enhancements contemplated in the MetroWest transactions may increase access to certain needed services in MetroWest's service area. The parties have not proposed any plans that would change MetroWest's status as an important provider of behavioral health services to the communities it serves.

In summary, we find that these transactions are anticipated to increase market concentration, solidify BIDCO's position as the second largest hospital network in the state, and could strengthen BIDCO's ability to leverage higher prices and other favorable contract terms. However, BIDCO's market share will remain far smaller than the dominant system in the state for most services. We also anticipate a small to moderate increase in spending (up to \$4.5 million annually) from changes to physician prices as the NEBCIO physicians shift to BIDCO rates.

To the extent that BIDCO retains its position as a low- to mid-priced provider network and is successful in redirecting care from higher-priced systems, there is some potential for savings. However, BIDCO has had limited success to date in significantly redirecting commercially insured patients from higher-priced systems. We also find that the MetroWest transactions may increase access to certain services, and that there is some potential for quality and care delivery improvement for both the NEBH and MetroWest transactions. The likelihood of such quality improvement will largely depend on the extent to which the parties capitalize on their respective strengths and make sufficient resource commitments to execute on their stated plans.

We invite the parties to address the issues raised in this report in their written responses, including how they would provide information to the public as they continue to develop their care delivery and quality improvement plans and how they would demonstrate any commitments to mitigate concerns about spending increases and market consolidation. Following the period for written response, we look forward to publishing our Final Report, including any potential referral to the Massachusetts Attorney General's Office.

I. ANALYTIC APPROACH AND DATA SOURCES

A. ANALYTIC APPROACH TO CMIRS

In structuring a CMIR, we take the following steps. First, we identify the primary areas of impact for the HPC to study. MASS. GEN. LAWS ch. 6D, § 13 tasks the HPC with examining impact in three interrelated areas:¹¹

1. **Costs and market functioning.** The statute directs the HPC to examine 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.** The statute directs the HPC to examine the quality of services provided, including patient experience.
3. **Access.** The statute directs the HPC to examine the availability and accessibility of services provided; the provider's role in serving at-risk, underserved, and government payer patient populations; and the provider's role in providing low or negative margin services.

After identifying the primary areas for the HPC's review, we then gather detailed information in each of these areas. 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 sections of this report are divided into two parts that mirror this framework: Part III addresses baseline performance and Part IV addresses impact analysis.

Within this general framework for CMIRs, the specific facts of a transaction, the availability of accurate data, and time constraints affect the particular analyses included in our review of any given material change. We also seek to focus our work on analyses that complement, rather than duplicate, the work of other agencies. Future CMIRs 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, like an expanded All-Payer Claims Database (APCD).¹²

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, and their own description of the transaction as presented in their material change notices. To further inform our review, the HPC utilized

¹¹ The HPC may also examine consumer concerns and any other factors it determines to be in the public interest. MASS. GEN. LAWS ch. 6D, § 13(d)(xi)-(xii).

¹² *All-Payer Claims Database*, CTR. FOR HEALTH INFO. & ANALYSIS, <http://www.chiamass.gov/ma-apcd/> (last visited July 26, 2016) (The APCD is comprised of medical, pharmacy, and dental claims, as well as information about member eligibility, benefit design, and providers for all payers covering Massachusetts residents).

information from the Registration of Provider Organizations program (RPO)¹³ and obtained data and documents from a number of other sources. These include 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-level data, hospital discharge data, and claims-level data from the APCD; federal agencies such as the Agency for Healthcare Research and Quality (AHRQ) and the Centers for Medicare and Medicaid Services (CMS); private organizations that collect health care data such as Massachusetts Health Quality Partners (MHQP); payers such as Blue Cross Blue Shield of Massachusetts (BCBS), Harvard Pilgrim Health Care (HPHC), and Tufts Health Plan (THP); and health care providers operating in the same areas of the state as the parties. The HPC appreciates the cooperation of all entities that provided information in support of this review.

Where our analyses rely on nonpublic information produced by the parties or other market participants, MASS. GEN. LAWS ch. 6D, § 13 prohibits 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.”¹⁴ Consistent with this statutory requirement, this Preliminary Report contains 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.

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

For each analysis, the HPC utilized the most recent, 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 generally reflects 2014 data and sometimes 2015 or 2013. This delay in data availability is noteworthy for the current CMIRs because some of the most recent available data predates more recent provider affiliations, particularly the more recent hospital and physician contracting affiliations with BIDCO. Thus we note throughout this report that it will be necessary to continue monitoring trends as new data become available. 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

¹³ MASS. GEN. LAWS ch. 6D, § 11 (requiring provider organizations to register biennially with the HPC and provide information on organizational structure and affiliations, and other requested information); *see also* 958 Code Mass. Regs §§ 6.00 (2014); *and* MASS. HEALTH POLICY COMM’N, REGISTRATION OF PROVIDER ORGANIZATIONS DATA SUBMISSION MANUAL (Jun. 2015), *available at* <http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/registration-of-provider-organizations/initial-registration-part-2/data-submission-manual-hpc-rpo-2015-01.pdf>.

¹⁴ MASS. GEN. LAWS ch. 6D, § 13(c), *amended by* 2013 Mass. Acts 38, § 20.

collected to the extent possible, but also relied in large part on the producing party for the quality of the information provided.

Finally, several of our analyses focus on the anticipated cost 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, both with regard to price and other material terms that impact health care costs and market functioning.¹⁵ Within the commercial market, we focused our review on the three largest Massachusetts payers (BCBS, HPHC, THP), which together account for approximately three-quarters of the commercial market.¹⁶ For future reports, we hope to have access to more extensive data on the entire health care market through the APCD, RPO program, and other resources.

C. COMPARATORS

Some of our analyses compare BIDCO's existing hospitals and MetroWest to other hospitals operating in the same areas. These comparator hospitals, shown below, were identified based on geography, service offerings, and patient flow patterns, and are intended to reflect a set of hospitals that a local patient could reasonably choose as a substitute for the focal hospital:

- **Beth Israel Deaconess Hospital-Milton (BID-Milton) and Beth Israel Deaconess-Hospital-Plymouth (BID-Plymouth):** Brigham and Women's Faulkner Hospital, South Shore Hospital, Southcoast Hospitals Group, Steward Carney Hospital;
- **Beth Israel Deaconess Hospital-Needham (BID-Needham):** MetroWest, Mount Auburn Hospital (Mt. Auburn), Newton-Wellesley Hospital (Newton-Wellesley), Steward Norwood;
- **MetroWest Medical Center (Framingham Union Hospital and Leonard Morse Hospital)¹⁷:** BID-Needham, Marlborough Hospital, Milford Regional Medical Center, Newton-Wellesley;

¹⁵ 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 40-43 (Mar. 16, 2010), available at <http://www.mass.gov/ago/docs/healthcare/2010-hcctd-full.pdf>; 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>.

¹⁶ See CTR. FOR HEALTH INFO. & ANALYSIS, ANNUAL REPORT ON THE MASSACHUSETTS HEALTH CARE MARKET (Sept. 2015), at 20, available at <http://www.chiamass.gov/assets/2015-annual-report/2015-Annual-Report.pdf> (noting that in 2014 BCBS, HPHC, and THP accounted for 73% of commercial membership in Massachusetts). This report relies primarily on data from BCBS, HPHC, and THP, whom we commonly refer to as the "three largest payers."

¹⁷ The two MetroWest campuses operate under a single hospital license, and as a result most of the data that we present on MetroWest are aggregated data for both campuses.

- **Anna Jaques Hospital (Anna Jaques), Cambridge Health Alliance (CHA), and Lawrence General Hospital (Lawrence General):** Hallmark Health System (Lawrence Memorial Hospital and Melrose-Wakefield Hospital), Lahey Hospital and Medical Center, North Shore Medical Center, Northeast Hospital System (Beverly Hospital and Addison Gilbert Hospital), Steward Holy Family Hospital, Winchester Hospital;
- **Beth Israel Deaconess Medical Center (BIDMC):** Boston Medical Center (BMC), Brigham and Women's Hospital (BWH), Massachusetts General Hospital (MGH), and Tufts Medical Center (Tufts MC).

II. OVERVIEW OF THE PARTIES AND THE TRANSACTIONS

In September 2015, Beth Israel Deaconess Care Organization (BIDCO) entered into agreements with New England Baptist Hospital (NEBH), a specialty orthopedic hospital located in Boston, and New England Baptist Clinical Integration Organization (NEBCIO), NEBH's affiliated physician organization. Under the agreements, NEBH and NEBCIO would become members of BIDCO, BIDCO would establish most payer contracts on behalf of NEBH and NEBCIO, and NEBH and NEBCIO would participate in BIDCO's clinical integration programs. Among the stated purposes of the transaction are the alignment of risk among the parties' hospital and physician providers, the implementation of shared orthopedic and musculoskeletal care management programs, shared data warehousing, and improved patient care quality and efficiency.¹⁸

In October 2015, BIDCO entered into a similar agreement with MetroWest Medical Center (MetroWest), a two-campus hospital located in Framingham and Natick. Under the agreement, MetroWest would become a member of BIDCO, BIDCO would establish payer contracts on behalf of MetroWest, and MetroWest would participate in BIDCO's clinical integration programs. As with the NEBH transaction, the stated purpose of the BIDCO-MetroWest agreement is to align risk among the parties, implement shared care management programs and data warehousing, and improve patient quality and efficiency.¹⁹

In connection with the BIDCO-MetroWest affiliation, Beth Israel Deaconess Medical Center (BIDMC), the Boston academic medical center that serves as the tertiary anchor hospital for BIDCO, and Harvard Medical Faculty Physicians at Beth Israel Deaconess Medical Center (HMFP) entered into a clinical affiliation agreement with MetroWest in January 2016.²⁰ BIDMC and HMFP are both founding members of BIDCO, and their CEOs co-chair BIDCO's board of directors.²¹ Under the agreement, BIDMC and HMFP would collaborate with MetroWest to expand and staff certain clinical programs at MetroWest, and MetroWest would designate BIDMC and HMFP as its preferred providers for most tertiary and quaternary services.²² The stated purpose of the clinical affiliation is to improve the care for patients in the MetroWest community through the expansion of primary care, the expansion of surgical services, new joint clinical programs in OB/GYN and cancer care, and the co-recruitment of physicians.²³ The parties also state that they "intend to be further integrated and linked through [MetroWest's] participation in [BIDCO]," describing this as "an important component of the organizations' overall relationship."²⁴ Because of the close relationship between the contracting affiliation and clinical affiliation, we refer to these transactions jointly at some points in this report as the MetroWest transactions.

¹⁸ BIDCO-NEBH-NEBCIO NOTICE OF MATERIAL CHANGE, *supra* note 6.

¹⁹ BIDCO-METROWEST NOTICE OF MATERIAL CHANGE, *supra* note 7.

²⁰ BIDMC-HMFP-METROWEST NOTICE OF MATERIAL CHANGE, *supra* note 8.

²¹ *Beth Israel Deaconess Care Organization: 2016 Board of Managers*, BETH ISRAEL DEACONESS CARE ORGANIZATION, <http://www.bidco.org/aboutus/2016%20BIDCO%20BOM%203.pdf> (last visited July 26, 2016).

²² Tufts Medical Center would remain MetroWest's preferred tertiary provider for pediatric medicine.

²³ BIDMC-HMFP-METROWEST NOTICE OF MATERIAL CHANGE, *supra* note 8.

²⁴ *See id.*

The remainder of this section describes each of the parties and the transactions in greater detail in order to provide background information for our analyses of the potential impacts of the transactions.

A. BETH ISRAEL DEACONESS CARE ORGANIZATION

BIDCO is an integrated provider organization that operates clinical integration programs and contracts on behalf of its members. BIDCO describes itself as “a value-based physician and hospital network and an Accountable Care Organization” and its stated goal is to offer “physician groups and hospitals the structure to contract, share risk, and build care management systems together” to allow them to provide high quality care in a cost-efficient manner.²⁵

What Are ACOs?

Accountable care organizations (ACOs) are groups of providers who have agreed to be accountable for the overall cost and quality of care for a specific patient population. Accountability is achieved through contracts with payers under which the ACO can earn payments by meeting or exceeding performance benchmarks. For example, an ACO and a payer may agree to a budget intended to cover the total cost of care for the payer’s members cared for by the ACO’s primary care providers. If the ACO can keep total spending below this level, the resulting “surplus” may be shared between the payer and the ACO. Conversely, if total spending exceeds the budgeted level, the ACO may owe a deficit payment to the payer. ACOs and payers generally also agree to a set of quality performance standards that impact their shared surplus or deficit. The terms under which ACOs may receive a surplus or owe a deficit payment vary considerably across different contracts with different payers.

Nationally, the concept of ACOs gained significant traction in 2010, when the Affordable Care Act established a new program for ACOs to care for Medicare beneficiaries. Under the newly created Center for Medicare and Medicaid Innovation, the Medicare program began developing new payment models for ACOs, as well as standards that providers were required to meet in order to participate in these new models. Currently, providers may participate in one of several payment models, including the Medicare Shared Savings Program,²⁶ the Pioneer ACO Model,²⁷ and the Next Generation ACO Model.²⁸ Massachusetts providers have had a strong presence in the Medicare ACO models. As of 2016, 13

²⁵ See *About Us*, BETH ISRAEL DEACONESS CARE ORGANIZATION, <http://www.bidpo.org/aboutus/index.html> (last visited July 26, 2016).

²⁶ *Shared Savings Program*, CTRS. FOR MEDICARE & MEDICAID SERVS., <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/index.html?redirect=/sharedsavingsprogram/> (last visited July 21, 2016).

²⁷ *Pioneer ACO Model*, CTRS. FOR MEDICARE & MEDICAID SERVS., <https://innovation.cms.gov/initiatives/Pioneer-ACO-Model/index.html> (last visited July 26, 2016).

²⁸ *Next Generation ACO Model*, CTRS. FOR MEDICARE & MEDICAID SERVS., <https://innovation.cms.gov/initiatives/Next-Generation-ACO-Model/index.html> (last visited July 26, 2016).

Massachusetts ACOs were participating in one of the three Medicare ACO models.²⁹ ACOs have also formed to participate in contracts with state Medicaid programs and commercial payers; approximately 744 ACOs formed across the country from 2011 to 2015, covering 23.5 million lives, of which 7.8 million were covered through Medicare ACO programs.³⁰ In 2016, an additional 121 organizations began participating in Medicare ACOs.³¹ The United States Department of Health and Human Services has set a goal of tying 50% of Medicare fee-for-service payments to ACOs and other value-driven payment models by 2018.³²

Massachusetts providers and commercial payers were early adopters of the ACO model, due in part to the 2009 development of the BCBS Alternative Quality Contract, which employs a global budget under which providers can share in savings and are responsible for a portion of any deficit.³³ As of 2014, approximately 38% of commercially insured individuals in the Commonwealth were covered by plans that employed global budget arrangements, an increase from approximately 33% in 2012.³⁴ Importantly, ACO contracts with commercial payers are negotiated, and, like contracts for fee-for-service payment, are subject to market forces including the relative negotiating leverage of the payer and ACO.

There is significant variation in the configuration and design of ACOs. For example, an ACO may be a physician organization, a physician-hospital organization, or an integrated delivery system.³⁵ Participating providers may be corporately integrated or remain corporately distinct while jointly negotiating contracts with payers to take on cost and quality management

²⁹ Eight Massachusetts ACOs are currently participating in the Medicare Shared Savings Program (MSSP) run by CMS. See *2016 Medicare Shared Savings Program Accountable Care Organizations – Map*, CTRS. FOR MEDICARE & MEDICAID SERVS., <https://data.cms.gov/ACO/2016-Medicare-Shared-Savings-Program-Accountable-C/i683-k66m> (last visited July 26, 2016). Three Massachusetts ACOs are participating in the Pioneer model and two are participating in the Next Generation model, both of which are run by Center for Medicare and Medicaid Innovation (CMMI). See *Pioneer ACO Model*, CTRS. FOR MEDICARE & MEDICAID SERVS., <https://innovation.cms.gov/initiatives/Pioneer-ACO-Model/> and *Next Generation ACO Model*, CTRS. FOR MEDICARE & MEDICAID SERVS., <https://innovation.cms.gov/initiatives/Next-Generation-ACO-Model/> (both last visited July 26, 2016).

³⁰ David Muhlestein, *Growth and Dispersion of Accountable Care Organizations in 2015*, HEALTH AFFAIRS BLOG, <http://healthaffairs.org/blog/2015/03/31/growth-and-dispersion-of-accountable-care-organizations-in-2015-2/> (March 31, 2015).

³¹ *New hospitals and health care providers join successful, cutting-edge federal initiative that cuts costs and puts patients at the center of their care*, CTRS. FOR MEDICARE & MEDICAID SERVS. (Jan. 11, 2016), <http://www.hhs.gov/about/news/2016/01/11/new-hospitals-and-health-care-providers-join-successful-cutting-edge-federal-initiative.html> (counting “A total of 477 ACOs across SSP, Pioneer ACO Model, Next Generation ACO Model, and Comprehensive ESRD Care Model,” serving nearly 8.9 million Medicare beneficiaries).

³² *Better, Smarter, Healthier: In historic announcement, HHS sets clear goals and timeline for shifting Medicare reimbursements from volume to value*, U.S. DEP’T. OF HEALTH AND HUMAN SERVS. (Jan. 26, 2016), <http://www.hhs.gov/about/news/2015/01/26/better-smarter-healthier-in-historic-announcement-hhs-sets-clear-goals-and-timeline-for-shifting-medicare-reimbursements-from-volume-to-value.html>.

³³ Song, et al., *Changes in Health Care Spending and Quality 4 Years into Global Payment*, 371 N. ENG. J. MED. 1704, 1705 (2014).

³⁴ CTR. FOR HEALTH INFO. & ANALYSIS, *ALTERNATIVE PAYMENT METHODS*, <http://www.chiamass.gov/alternative-payment-methods-2/> (last visited July 26, 2016).

³⁵ See generally Stephen M. Shortell, et al., *A Taxonomy of Accountable Care Organizations for Policy and Practice*, 49 HEALTH SERVS. RESEARCH 1883 (Sept. 2014), <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4254130/> (last visited July 26, 2016).

responsibility together. Regardless of structure, however, ACOs need certain characteristics and capabilities in order to manage cost and quality effectively, such as caring for a sufficiently large patient population and employing tools to track and report on participating providers' quality and efficiency.³⁶ As the number and variety of ACOs proliferate, independent research and policy organizations,³⁷ public payers (such as Medicare), and other government agencies³⁸ are developing standards to identify and define these necessary capabilities.

BIDCO is not a corporately integrated system: rather than owning its members, BIDCO is owned and governed by its member hospitals and physicians through two corporate organizations, BIDCO Hospital, LLC (Hospital LLC) and BIDCO Physician, LLC (Physician LLC).³⁹ BIDCO's hospital members appoint representatives to Hospital LLC and its physician group members appoint representatives to Physician LLC. The LLCs in turn appoint members to BIDCO's board of directors, and have an equal vote on matters before the board. Members of BIDCO pay membership fees to fund the organization.

BIDCO was formed in 2012 and began operating in 2013 as a joint contracting entity for BIDMC and its owned community hospitals, Beth Israel Deaconess Hospital-Milton (BID-Milton) and Beth Israel Deaconess Hospital-Needham (BID-Needham), and for Beth Israel Deaconess Physician Organization (BIDPO), including HMFP, and a number of other physician groups.⁴⁰ Since then, four hospitals and four physician groups have joined BIDCO. These include Cambridge Health Alliance (CHA) and its affiliated physician group the Cambridge Health Alliance Physician Organization (joined in 2013); Jordan Hospital, now Beth Israel Deaconess Hospital-Plymouth (BID-Plymouth), and its affiliated physician group Jordan Physician Associates (joined in 2013); Anna Jaques Hospital (Anna Jaques) in Newburyport and its affiliated physician group Whittier IPA (joined in 2014); PMG Physician

³⁶ BROOKINGS INSTITUTION: ACCOUNTABLE CARE ORGANIZATION LEARNING NETWORK, ACO TOOLKIT at 9 (2011), available at <https://xteam.brookings.edu/bdacoln/Documents/ACO%20Toolkit%20January%202011.pdf>.

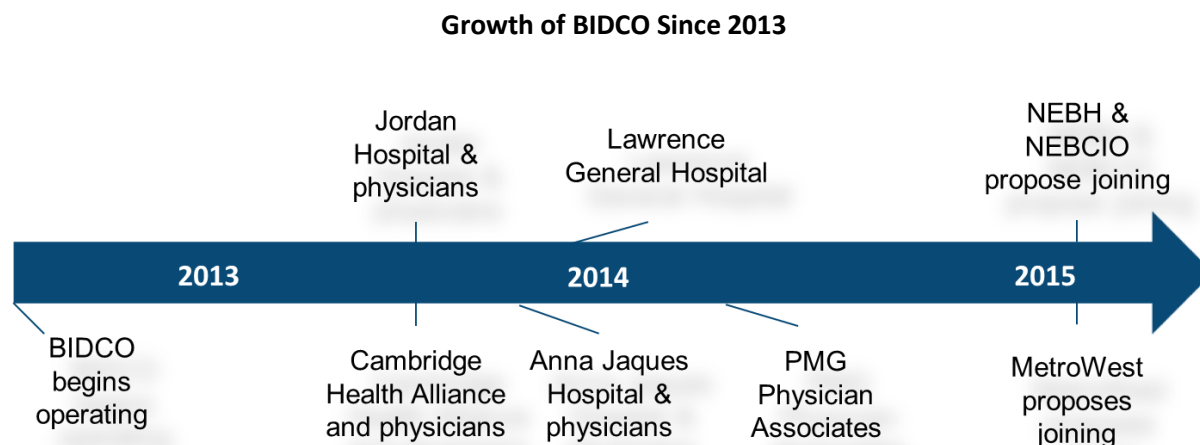
³⁷ See, e.g., Amanda J. Forster, et al., *Accountable Care Strategies: Lessons from the Premier Health Care Alliance's Accountable Care Collaborative*, THE COMMONWEALTH FUND (August 2012), available at http://www.commonwealthfund.org/~media/files/publications/fund-report/2012/aug/1618_forster_accountable_care_strategies_premier.pdf.

³⁸ Pursuant to Chapter 224, the Health Policy Commission has designed an ACO certification program that identifies capabilities required of all ACOs. See MASS. HEALTH POLICY COMM'N, FINAL ACCOUNTABLE CARE ORGANIZATION (ACO) CERTIFICATION STANDARDS FOR CERTIFICATION YEAR 1 (April 2016), available at <http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/certification-programs/aco-certification-final-criteria-and-requirements.pdf>.

³⁹ BETH ISRAEL DEACONESS CARE ORGANIZATION, *Overview of Beth Israel Deaconess Care Organization*, presentation to the Boston Bar Association (Jan. 7, 2016).

⁴⁰ See BETH ISRAEL DEACONESS CARE ORGANIZATION, Pre-Filed Written Testimony of Beth Israel Deaconess Care Org., Response to Exh. B, available at <http://www.mass.gov/anf/docs/hpc/bidco-written-testimony-response-exhibit-b-9-27-13.pdf>; Callum Borchers, *Beth Israel Shifts to accountable care system*, BOSTON GLOBE, (Jan. 9, 2013), available at <https://www.bostonglobe.com/business/2013/01/09/beth-israel-launches-accountable-care-organization/FQI3kaJB0dOmYSb3WVGaBJ/story.html>; see also LAWRENCE GENERAL HOSPITAL, NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (May 6, 2014), AS REQUIRED UNDER MASS. GEN. LAWS. 6D § 13, available at <http://www.mass.gov/anf/docs/hpc/material-change-notice/lgh-notice-of-material-change.pdf> (indicating that Lawrence General IPA had been participating in BIDPO for "a number of years" in 2014).

Associates (joined 2014); and Lawrence General Hospital (Lawrence General) (joined in 2014).⁴¹



BIDCO now includes seven hospitals and more than 2,500 physicians.⁴² As described in more detail in Section III.A.1, BIDCO hospitals now account for the second largest share of commercial discharges in the Commonwealth, slightly more than one-third of the share of Partners hospitals, and its physicians account for the fourth largest share of primary care services in the state.

⁴¹ 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. 6D § 13, *available at* <http://www.mass.gov/anf/docs/hpc/material-change-notices/bidco-cha-notice-of-material-change-bidco.pdf>; 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. 6D § 13, *available at* <http://www.mass.gov/anf/docs/hpc/material-change-notices/bidco-jordan-mcn.pdf>; 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. 6D § 13, *available at* <http://www.mass.gov/anf/docs/hpc/material-change-notices/bidco-hpc-notice-02-28-2014.pdf>; 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. 6D § 13, *available at* <http://www.mass.gov/anf/docs/hpc/material-change-notices/bidco-lgh-hcp-notice-5-6-14.pdf>; 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. 6D § 13, *available at* <http://www.mass.gov/anf/docs/hpc/material-change-notices/beth-israel-deaconess-care-organization-mcn.pdf>; BIDCO-NEBH-NEBCIO NOTICE OF MATERIAL CHANGE, *supra* note 6; BIDCO-METROWEST NOTICE OF MATERIAL CHANGE, *supra* note 7.

⁴² *See About Us*, BETH ISRAEL DEACONESS CARE ORGANIZATION, <http://www.bidco.org/aboutus/index.html> (last visited July 21, 2016) (updated June 3, 2016, stating that BIDCO included more than 2,500 physicians).

Current BIDCO Hospital and Physician Members

BIDCO Hospital Members	City/Town	CHIA Hospital Cohort	# Staffed Beds
Beth Israel Deaconess Medical Center (BIDMC)	Boston	AMC	703
Cambridge Health Alliance (CHA)	Cambridge, Somerville, and Everett	Teaching ⁴³	230
Lawrence General Hospital	Lawrence	Community DSH	230
Beth Israel Deaconess Hospital-Plymouth (BID–Plymouth)	Plymouth	Community	172
Anna Jaques Hospital	Newburyport	Community	140
Beth Israel Deaconess Hospital-Milton (BID–Milton)	Milton	Community	58
Beth Israel Deaconess Hospital-Needham (BID–Needham)	Needham	Community	31

BIDCO Physician Group Members	# Physicians
Harvard Medical Faculty Physicians at BIDMC (HMFP)	1202
Affiliated Physicians Inc.	342
Cambridge Health Alliance Physician Organization	400
Lawrence General IPA (d/b/a Choice Plus PHO)	137
Whittier IPA	94
Jordan Physician Associates	56
Joslin Clinic Physicians	53
Milton Physician Organization	47
PMG Physician Associates	22
Charles River Medical Associates (Pioneer ACO participant only)	50

Sources: *Who Participates in BIDCO?*, BETH ISRAEL DEACONESS CARE ORGANIZATION, <http://www.bidpo.org/aboutus/whoparticipates.asp> (last visited July 12, 2016); bed counts from CHIA HOSPITAL PROFILES DATABOOK, *infra* note 123; physician counts based on information provided by BIDCO to the HPC’s RPO program

⁴³ 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 (Mar. 2016) at 3, n. 3, available at <http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/publications/community-hospitals-at-a-crossroads.pdf>. 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.

BIDCO establishes contracts on behalf of its members with both government and commercial payers.⁴⁴ For Medicare business, BIDCO is one of nine national participants in CMS's Pioneer ACO Program.⁴⁵ For commercial business, BIDCO establishes both risk and non-risk contracts on behalf of its members, including with the three largest commercial payers in the Commonwealth. For commercial risk contracts, BIDCO negotiates on behalf of its hospital and physician members; BIDCO physician members receive a uniform rate while hospital rates vary across the organization. BIDCO groups hospitals and primary care providers into "Risk Units" that share in surpluses or deficits based on cost and quality performance in order to incentivize improved performance.⁴⁶ BIDCO provides 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.⁴⁷

For non-risk contracts, BIDCO employs a "messenger model" of negotiation on behalf of its hospital members. Under messenger model contracting, a single agent (in this case BIDCO) negotiates with payers on behalf of each member individually for that member's non-risk contracts. The agent then forwards the resulting payer offers to participating members and the members have the option to accept or reject the offer. If a member rejects an offer, it may negotiate directly with the payer.⁴⁸

⁴⁴ See *Information for Patients*, BETH ISRAEL DEACONESS CARE ORGANIZATION, <https://bidpo.org/infoforpatients/index.asp> (last visited July 21, 2016) ("Network-wide contracts with public and private payers promote our ability to work as an integrated delivery system"). BIDCO also establishes some contracts with managed Medicaid plans.

⁴⁵ See *Pioneer ACO Model*, CTRS. FOR MEDICARE & MEDICAID SERVS., <https://innovation.cms.gov/initiatives/Pioneer-aco-model/> (explaining the Pioneer ACO Model for Medicare risk sharing) (last visited July 21, 2016). BIDCO is one of three Pioneer ACOs in Massachusetts, along with Atrius and Partners HealthCare. In 2014, the most recent year for which data are available, BIDCO had 34,631 Medicare beneficiaries attributed to its Pioneer program; Atrius had 31,222; and Partners had 69,751. BIDCO first became a participant in the Pioneer ACO program in 2011. *Pioneer ACO Model FAQs*, CTRS. FOR MEDICARE & MEDICAID SERVS., <https://innovation.cms.gov/initiatives/Pioneer-ACO-Model/Pioneer-ACO-FAQs.html> (last visited July 26, 2016); *Selected Participants in the Pioneer ACO Model*, CTRS. FOR MEDICARE & MEDICAID SERVS. (May 24, 2012), available at <https://innovation.cms.gov/Files/x/Pioneer-ACO-Model-Selectee-Descriptions-document.pdf>.

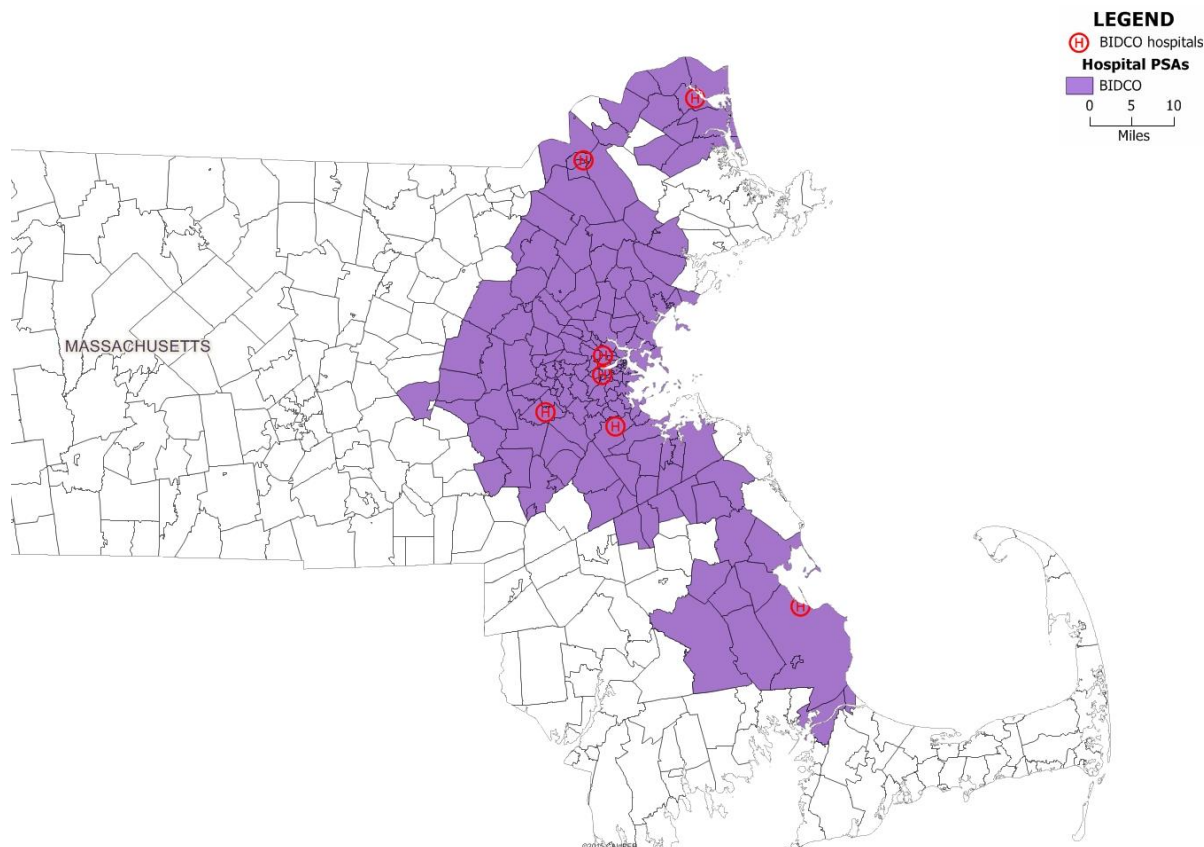
⁴⁶ MASS. HEALTH POLICY COMM'N, Annual Cost Trends Hearing (2015), Pre-Filed Written Testimony of Beth Israel Deaconess Care Org., Response to Exh. B, Q.1.b (Sept. 11, 2015) [hereinafter BIDCO 2015 Cost Trends Testimony], available at <http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/annual-cost-trends-hearing/2015/2015-pre-filed-testimony-bidco.pdf>.

⁴⁷ See Section III.B.1 for a more detailed summary of BIDCO's care delivery structures.

⁴⁸ BIDCO is not unique in using the "messenger model" of negotiation; the HPC understands that a number of major contracting networks in Massachusetts also use this model. The FTC and DOJ describe the messenger model as the use of "an agent or third party to convey to purchasers information obtained individually from the providers about the prices or price-related terms that the providers are willing to accept" designed "to facilitate contracting between providers and payers and avoid price-fixing agreements among competing network providers. Arrangements that are designed simply to minimize the costs associated with the contracting process, and that do not result in a collective determination by the competing network providers on prices or price-related terms, are not per se illegal price fixing." U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, STATEMENTS OF ANTITRUST ENFORCEMENT POLICY IN HEALTH CARE, STATEMENT 9.C (1996), <https://www.justice.gov/atr/statements-antitrust-enforcement-policy-health-care> (last visited Jul. 26, 2016). There is a difference of opinion among legal scholars about the market implications of messenger model contracting.

The map below shows the location and combined inpatient primary service areas (PSAs)⁴⁹ of the acute care hospitals that are part of BIDCO (BIDCO hospitals).

BIDCO Hospitals and Inpatient Service Areas



B. BETH ISRAEL DEACONESS MEDICAL CENTER

Founded in 1996 by the merger of Beth Israel Hospital and Deaconess Hospital, BIDMC is a large non-profit academic medical center (AMC) located in Boston.⁵⁰ BIDMC has 703 staffed beds, making it the fifth largest acute care hospital in Massachusetts.⁵¹ BIDMC also owns three community hospitals:

⁴⁹ The HPC generally defines an inpatient hospital PSA to be the contiguous area closest to a hospital from which the hospital draws 75% of its commercial discharges. *See infra* note 101.

⁵⁰ *The History of BIDMC: Merger*, BETH ISRAEL DEACONESS MEDICAL CENTER, <http://www.bidmc.org/About-BIDMC/The-History-of-BIDMC.aspx> (last visited July 14, 2016); CTR. FOR HEALTH INFO. AND ANALYSIS, HOSPITAL PROFILE: BETH ISRAEL DEACONESS MEDICAL CENTER (Nov. 2015) [hereinafter BIDMC HOSPITAL PROFILE], available at <http://www.chiamass.gov/assets/docs/r/hospital-profiles/2014/bi-deac.pdf>.

⁵¹ BIDMC HOSPITAL PROFILE, *supra* note 50.

- BID-Needham, a 31-bed hospital acquired in 2002⁵²
- BID-Milton, a 58-bed hospital acquired in 2012⁵³
- BID-Plymouth, a 172-bed hospital acquired in 2014⁵⁴

In total, BIDMC owns 964 staffed beds across eastern Massachusetts. BIDMC also owns two physician practices: Jordan Physicians Associates (75 physicians) and Affiliated Physicians Group (APG) (342 physicians).⁵⁵ APG operates primary care practices in BIDMC's community hospital service areas.

BIDMC is the fifth largest provider system in Massachusetts by total net patient service revenue (NPSR) across all of its owned entities,⁵⁶ and its financial performance compares favorably to other major provider systems in Massachusetts.⁵⁷ BIDMC is also a member of CareGroup, along with Mt. Auburn and NEBH.⁵⁸ CareGroup is a corporate entity under which its affiliates jointly borrow funds and purchase services, but do not jointly contract with payers or share centralized operations.⁵⁹

As one of the Commonwealth's major academic medical centers, BIDMC has clinical affiliations with many providers throughout the state. BIDMC is the preferred referral partner for tertiary and quaternary services for all of BIDCO's community hospitals and provides

⁵² *About Beth Israel Deaconess Hospital-Needham*, BETH ISRAEL DEACONESS HOSPITAL-NEEDHAM, <http://www.bidneedham.org/about> (last visited July 26, 2016); *Massachusetts Hospitals: Closures, Mergers, Acquisitions and Affiliations*, MASS. HOSP. ASSOC., <http://www.mhalink.org/Content/NavigationMenu/AboutMHA/HospitalDirectory/HospitalClosuresMergersAcquisitionsandAffiliations/default.htm> (last visited July 26, 2016).

⁵³ CTR. FOR HEALTH INFO. AND ANALYSIS, HOSPITAL PROFILE: BETH ISRAEL DEACONESS MILTON (Nov. 2015), available at <http://www.chiamass.gov/assets/docs/r/hospital-profiles/2014/bid-milton.pdf>.

⁵⁴ BETH ISRAEL DEACONESS CENTER (BIDMC), NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (Jul. 29, 2013), AS REQUIRED UNDER MASS. GEN. LAWS. 6D § 13 [hereinafter BIDMC-Jordan Notice of Material Change], available at <http://www.mass.gov/anf/docs/hpc/material-change-notices/beth-israel-deaconess-jordan-hospital.pdf>.

⁵⁵ Information provided by BIDCO to the HPC's RPO program.

⁵⁶ The HPC reviewed audited financial statements from 2012 through 2014 for six of the seven largest provider systems in Massachusetts, measured by NPSR in 2014. These were, in descending order, Partners, Atrius Health, the UMass Memorial Health Care, Inc. (UMass), Steward Health Care System LLC (Steward), BIDMC, Lahey Health System, Inc. (Lahey), and Tufts Medical Center Parent, Inc. (now part of Wellforce). 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 21, 2016). Audited financial statements were not available from Steward; the HPC therefore reviewed financial information on Steward published by the Office of the Attorney General as part of its assessment and monitoring efforts. 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>.

⁵⁷ BIDMC's operating margin for fiscal years 2012 through 2014 averaged 1.9%, second only to that of Lahey. BIDMC's NPSR has increased substantially (\$1.52 million to \$1.76 million between 2013 and 2014), and it has a healthy reserve of cash and short-term investments and a current ratio generally stronger than that of the other major Massachusetts provider systems. See KPMG LLP, Consolidated Financial Statements and Other Financial Information: Beth Israel Deaconess Medical Center, Inc. and Affiliates (Dec. 17, 2014).

⁵⁸ See *CareGroup: Parent Company*, BETH ISRAEL DEACONESS MEDICAL CENTER, <http://www.bidmc.org/About-BIDMC/Affiliates-and-Partnerships/CareGroup.aspx> (last visited July 26, 2016).

⁵⁹ *Id.*

clinical support across many of their specialty service lines. BIDMC also collaborates clinically with Signature Healthcare Brockton Hospital on select specialty services and residency programs,⁶⁰ and has a close relationship with Atrius Health (Atrius), the state's largest independent physician group. BIDMC and Atrius have been affiliated since 2010, and currently share patient records electronically, develop and refine joint quality improvement and care coordination initiatives, and operate a joint venture urgent care center in Norwood staffed by HMFP physicians; BIDMC is also one of Atrius' preferred referral partners for tertiary and quaternary services.⁶¹

NEBH, BIDMC, and HMFP have been clinically affiliated since 2014, when they began developing a joint musculoskeletal care delivery system, anchored by a joint venture.⁶² The goals of the affiliation included creating a broader network of NEBH-branded musculoskeletal care, integrating HMFP into NEBH's medical staff, and future development of a new NEBH hospital facility, co-located with or near the BIDMC campus, staffed by both parties.⁶³ Thus far, the parties have developed an operational redesign plan for musculoskeletal services at BIDMC focused on implementing key elements of the NEBH model of care, and have adopted common quality goals, performance measurement systems, and shared clinical protocols.

C. HARVARD MEDICAL FACULTY PHYSICIANS AT BIDMC

HMFP is a physician group that employs physicians at BIDMC and its affiliates.⁶⁴ HMFP consists of approximately 1202 physicians, including approximately 100 primary care physicians.⁶⁵ HMFP has an exclusive affiliation agreement with BIDMC for patient care,

⁶⁰ See *Signature Healthcare and Beth Israel Deaconess Medical Center Sign Clinical Affiliation Agreement*, SIGNATURE HEALTHCARE, http://www.signature-healthcare.org/News/News/Signature_Healthcare_and_Beth_Israel_Deaconess_Med_95.aspx (last visited July 21, 2016).

⁶¹ See *Hospital and Physician Practice Affiliations*, BETH ISRAEL DEACONESS MEDICAL CENTER, <http://www.bidmc.org/about-bidmc/affiliates-and-partnerships/hospital-and-physician-practice-affiliations.aspx> (last visited July 26, 2016); *"Advanced" Urgent Care Center Opens in Norwood*, BETH ISRAEL DEACONESS MEDICAL CENTER, <http://www.bidmc.org/News/PRLandingPage/2014/February/DMAUrgentCare.aspx> (last visited July 26, 2016); *Our Affiliated Hospitals*, ATRIUS HEALTH, <http://www.atriushealth.org/about-us/our-care-network/our-affiliated-hospitals> (last visited July 26, 2016).

⁶² 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>; 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>; 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>.

⁶³ *Id.*

⁶⁴ BIDMC-HMFP-METROWEST NOTICE OF MATERIAL CHANGE, *supra* note 8. Many of HMFP's physicians are also faculty members at Harvard Medical School.

⁶⁵ Counts of physicians in HMFP are based on information provided by BIDCO to the HPC's RPO program. HMFP stated on its MCN form that it includes approximately 800 physicians who are medical staff at BIDMC

research and teaching services, and comprises the majority of medical staff at BIDMC.⁶⁶ HMFP also employs the physicians who staff APG's primary care practices, and provides some specialty services to BIDMC's clinical affiliates.

D. NEW ENGLAND BAPTIST HOSPITAL AND NEW ENGLAND BAPTIST CLINICAL INTEGRATION ORGANIZATION

NEBH is a non-profit specialty hospital located in Boston.⁶⁷ It has 95 beds and specializes in the treatment of orthopedic and musculoskeletal conditions; it is the only orthopedic specialty hospital in Massachusetts.⁶⁸ It is a teaching affiliate of Tufts University School of Medicine, Harvard School of Public Health, and the Harvard School of Medicine.⁶⁹ In addition to its main hospital, NEBH 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.⁷⁰ NEBH also has a number of clinical affiliations, including with Atrius, BIDMC, and Joslin Diabetes Center.⁷¹

NEBCIO was created in 2015 to establish contracts on behalf of NEBH-affiliated physicians.⁷² NEBCIO contracts with the largest commercial payers in Massachusetts, and most NEBCIO physicians began participating in BIDCO's Pioneer ACO as of January 2016.⁷³ NEBH is the sole corporate member of NEBCIO.⁷⁴ NEBCIO consists of 106 physicians, including approximately 14 primary care physicians and 92 specialists; 25 of the NEBCIO physicians are directly employed.⁷⁵

NEBH is in a relatively strong financial position. Its NPSR grew between 2013 and 2014 at a rate of 6.6%; this substantial increase indicates that NEBH was providing more patient care, although similarly large increases in operating expenses narrowed its operating

and faculty at Harvard Medical School. BIDMC-HMFP-METROWEST NOTICE OF MATERIAL CHANGE, *supra* note 8.

⁶⁶ BIDMC-Jordan Notice of Material Change, *supra* note 54.

⁶⁷ CTR. FOR HEALTH INFO. AND ANALYSIS, HOSPITAL PROFILE: NEW ENGLAND BAPTIST HOSPITAL (Nov. 2015) [hereinafter NEBH Hospital Profile], available at <http://www.chiamass.gov/assets/docs/r/hospital-profiles/2014/ne-bapti.pdf>.

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ Information provided by NEBH to the HPC's RPO program.

⁷¹ *Id.*

⁷² *Id.*

⁷³ Provider affiliations for the sole purpose of Medicare contracting do not require review under the HPC's material change notice process. Accordingly, while we consider NEBH's participation in BIDCO's Pioneer ACO program as part of the context for the proposed transaction, it is not under review in these proposed transactions.

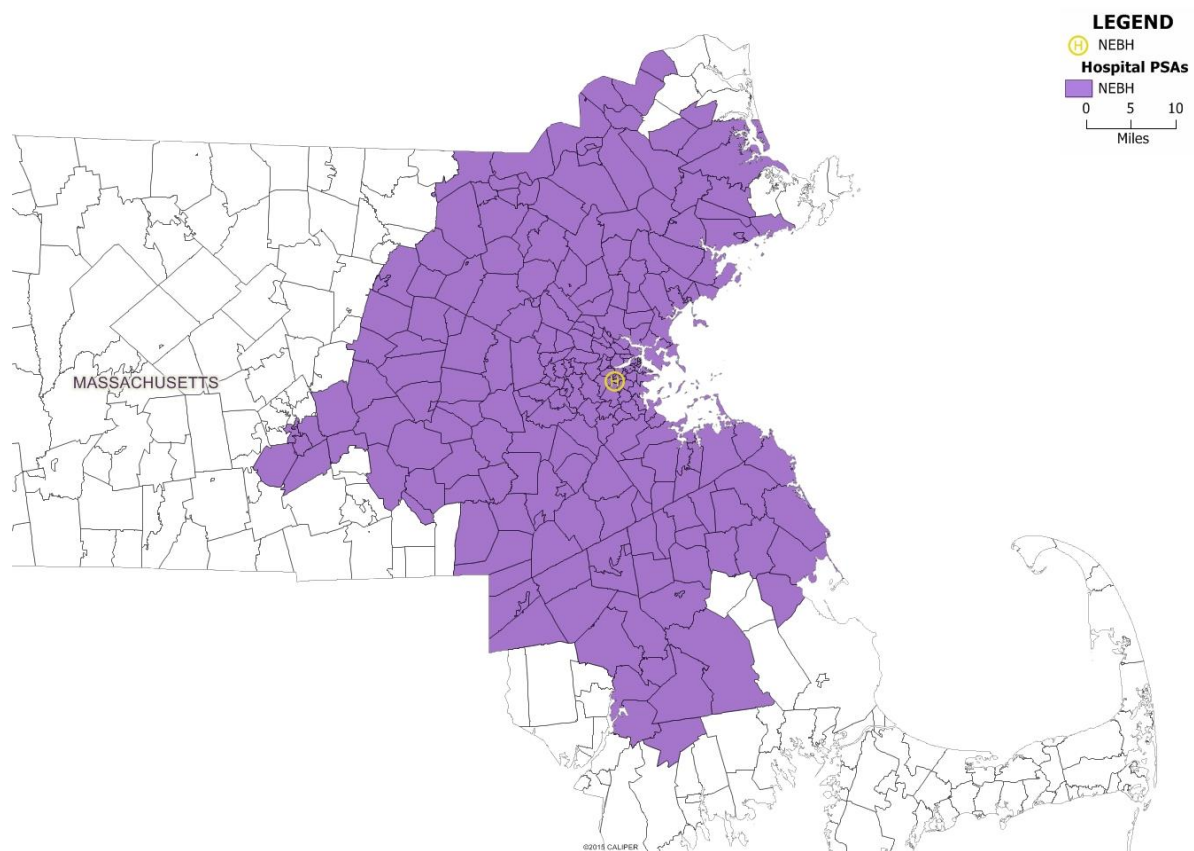
⁷⁴ NEW ENGLAND BAPTIST CLINICAL INTEGRATION ORGANIZATION (NEBCIO), NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (OCT. 2, 2015), AS REQUIRED UNDER MASS. GEN. LAWS ch. 6D § 13, available at <http://www.mass.gov/anf/docs/hpc/material-change-notices/20151002-nebcio-nebh-bidco.pdf>.

⁷⁵ Information provided by NEBH to the HPC's RPO program.

margin over this time period.⁷⁶ Both NEBH's current ratio and days cash on hand ratio are strong.

The map below shows the location of NEBH and its inpatient PSA for its core orthopedic and musculoskeletal services.⁷⁷

NEBH and its Inpatient Orthopedic and Musculoskeletal Service Area



E. METROWEST MEDICAL CENTER

MetroWest is a community hospital consisting of two campuses: Framingham Union Hospital, in Framingham, and Leonard Morse Hospital, in Natick, together representing 284 staffed beds.⁷⁸ MetroWest is a subsidiary of Tenet Healthcare Corporation (Tenet), a multi-

⁷⁶ KPMG LLP, Consolidated Financial Statements and Other Financial Information: New England Baptist Hospital and Affiliate (Dec. 12, 2014).

⁷⁷ As discussed in Section III.A.2, we define NEBH's inpatient service area to be the contiguous area closest to the hospital from which it draws over 75% of its core commercial orthopedic and musculoskeletal discharges. See *infra* note 101.

⁷⁸ CTR. FOR HEALTH INFO. AND ANALYSIS, HOSPITAL PROFILE: METROWEST MEDICAL CENTER (Nov. 2015), available at <http://www.chiamass.gov/assets/docs/r/hospital-profiles/2014/metrowest.pdf>.

national for-profit health care services corporation headquartered in Texas.⁷⁹ Tenet currently establishes most hospital contracts on behalf of MetroWest. In 2015, MetroWest entered into an arrangement with BIDCO under which it serves as the risk unit partner for Charles River Medical Associates (CRMA) for the purposes of caring for patients under BIDCO's Pioneer ACO contract.⁸⁰

MetroWest owns MetroWest Physician Services (MWPS), a physician practice of 29 employed physicians.⁸¹ Along with a number of independent physicians, MWPS physicians participate in MetroWest Accountable Health Care Organization (MWAHO), a 233-physician practice with 49 primary care physicians (PCPs).⁸² MetroWest owns a 50% ownership share in MWAHO. Currently, New England Quality Care Alliance (NEQCA), an affiliate of Tufts MC, establishes contracts on behalf of MWAHO, including MWPS.⁸³

MetroWest has a clinical affiliation with Tufts MC for tertiary and quaternary services for both adult and pediatric care, and Tufts MC also staffs a number of service lines at MetroWest.⁸⁴ MetroWest also has a number of other clinical affiliations, including with Laboratory Corporations of America Holdings, which manages and operates MetroWest's lab locations, MetroWest Emergency Physicians, Inc., an independent physician group that staffs the emergency departments at MetroWest's two campuses, and the physician groups that are part of MWAHO.⁸⁵

MetroWest's financial performance was relatively weak from 2012 through 2014.⁸⁶ During this period, MetroWest's NPSR decreased by 4.4%, while the NPSR of other local hospitals grew. MetroWest also had a relatively low aggregate 3-year operating margin during this time.⁸⁷ However, a review of MetroWest's 2015 financial information indicates some

⁷⁹ The Legal Name for MetroWest is VHS Acquisition Subsidiary Number 9, Inc. CTR. FOR HEALTH INFO. & ANALYSIS, HOSPITAL PROFILE: METROWEST MEDICAL CENTER (Nov. 2015), *available at* <http://www.chiamass.gov/assets/docs/r/hospital-profiles/2014/metrowest.pdf>. Tenet previously owned MetroWest from 1999 until 2005, when Vanguard Health Systems, Inc. purchased both MetroWest and St. Vincent Hospital in Worcester. Vanguard sold both hospitals back to Tenet in 2013. METROWEST MEDICAL CENTER, NOTICE OF MATERIAL CHANGE TO THE HEALTH POLICY COMM'N (Aug. 7, 2014), AS REQUIRED UNDER MASS. GEN. LAWS ch. 6D § 13, *available at* <http://www.mass.gov/anf/docs/hpc/material-change-notices/tenet-vanguard-notice-of-material-change-metrowest.pdf>.

⁸⁰ CRMA became a member of BIDCO's Pioneer ACO network in January 2015. Although CRMA physicians participate in the Pioneer ACO program through BIDCO, they contract through Partners for commercial business.

⁸¹ Information provided by MetroWest to the HPC's RPO program.

⁸² *Id.*

⁸³ See *The NEQCA Network*, NEW ENGLAND QUALITY CARE ALLIANCE, <http://www.neqca.org/ABOUT-NEQCA/The-NEQCA-Network.aspx> (last visited July 26, 2016).

⁸⁴ *MetroWest Medical Center*, TUFTS MEDICAL CENTER, <https://www.tuftsmedicalcenter.org/About-Us/Clinical-Affiliates/MetroWest-Medical-Center.aspx> (last visited July 21, 2016).

⁸⁵ Information provided by MetroWest to the HPC's RPO program.

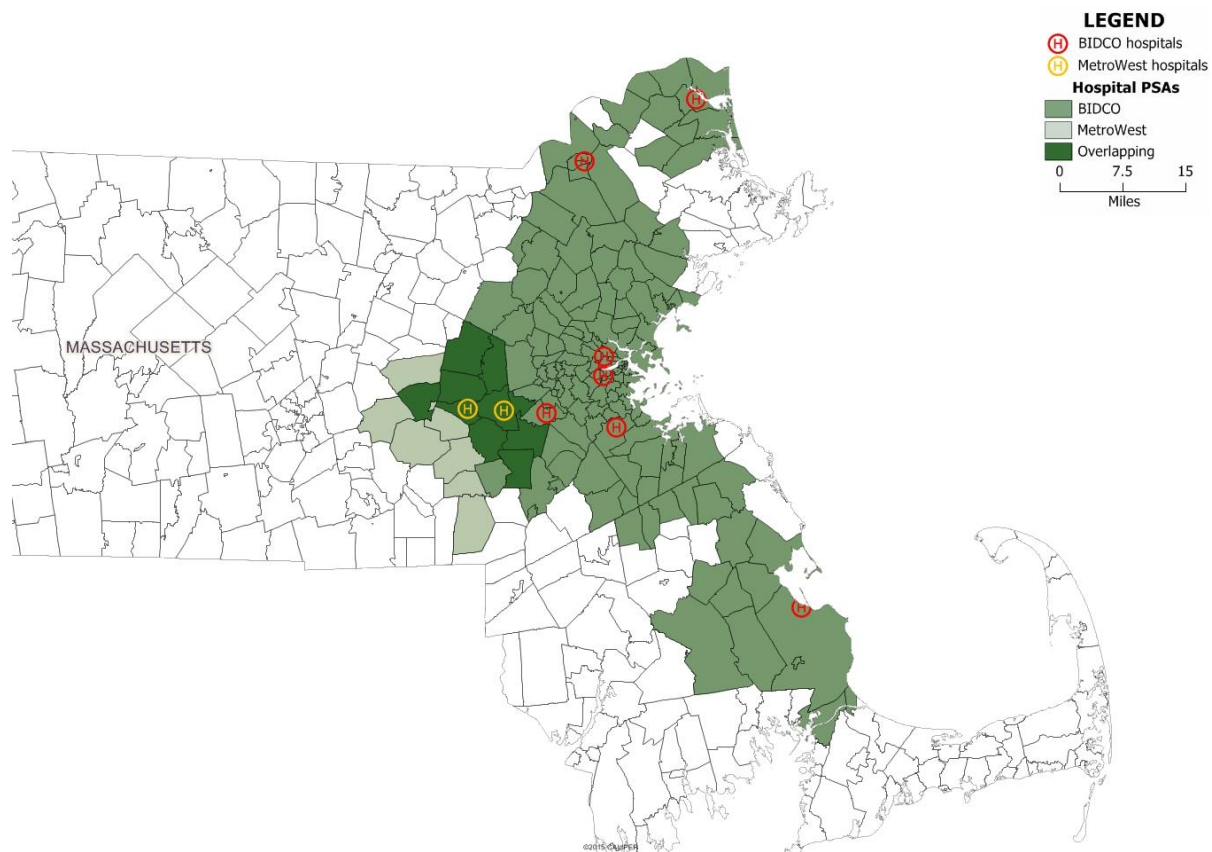
⁸⁶ We compared MetroWest's financial performance to that of Newton-Wellesley and Milford Regional Medical Center, as well as to BIDCO community hospitals. As described in Section I, the HPC selected comparators for MetroWest based on geography, patient flow patterns, and community hospital status.

⁸⁷ This poor operating performance may have been due in part to the expense of maintaining unused bed capacity, as MetroWest's bed occupancy rate was only just above 50% in 2014. CTR. FOR HEALTH INFO. & ANALYSIS, HOSPITAL PROFILE: METROWEST MEDICAL CENTER (Nov. 2015), *available at* <http://www.chiamass.gov/assets/docs/r/hospital-profiles/2014/metrowest.pdf>.

recent improvement in MetroWest’s financial performance, likely due in part to its 2013 acquisition by Tenet, and the parties have indicated that the proposed MetroWest transactions are not motivated by any immediate financial distress on MetroWest’s part.

The map below shows the location and inpatient PSAs of both the BIDCO general acute care hospitals (medium green) and MetroWest (light green). As shown below, MetroWest’s service area somewhat overlaps with that of BIDCO (dark green), but MetroWest’s service area extends further west than the current BIDCO inpatient service area.

MetroWest and BIDCO Hospitals and Inpatient Service Areas



F. THE PROPOSED TRANSACTIONS

1. Contracting Affiliation between BIDCO and NEBH/NEBCIO

Under the proposed BIDCO-NEBH-NEBCIO contracting affiliation NEBH and NEBCIO would join BIDCO—NEBH would become a member of Hospital LLC, and NEBCIO would become a member of Physician LLC.⁸⁸ BIDCO would begin establishing risk

⁸⁸ Although NEBH and NEBCIO would join Hospital LLC and Physician LLC, the transaction would not include the integration of NEBH or NEBCIO’s finances or administrative structures with those of other BIDCO members.

and non-risk contracts on behalf of NEBH and NEBCIO as described in Section II.A.⁸⁹ The majority of NEBCIO specialist physicians would join BIDCO contracts immediately, while NEBCIO's primary care physicians and certain specialists would be expected to join BIDCO at a later time. BIDCO would be the only physician contracting organization to which NEBCIO primary care physicians could belong, and only those specialist physicians who designate BIDCO at their primary contracting organization would be entitled to receive BIDCO rates. BIDCO would establish new hospital rate contracts for NEBH as its current contracts expire,⁹⁰ and BIDCO would be the only accountable care organization to which NEBH could belong.⁹¹ NEBH and NEBCIO would participate in BIDCO clinical integration programs, including expanded electronic sharing of patient data, and the parties would discuss the possibility of integrating NEBH and NEBCIO providers and quality improvement processes at other BIDCO hospitals and outpatient sites. NEBCIO would also work with BIDCO to design and develop bundled payment programs for both inpatient and outpatient musculoskeletal care, including exploring the possibility of developing a model for orthopedic care that would reward NEBCIO physicians for managing orthopedic episodes within BIDCO.⁹²

2. Contracting Affiliation between BIDCO and MetroWest

Under the proposed BIDCO-MetroWest transaction, MetroWest would join BIDCO, becoming a member of Hospital LLC.⁹³ BIDCO would begin establishing contracts on behalf of MetroWest with Massachusetts payers as MetroWest's contracts come up for renewal,⁹⁴ and Tenet would continue to establish national payer contracts on behalf of MetroWest. MetroWest would continue to participate in BIDCO's Pioneer ACO as the risk sharing hospital of CRMA. MetroWest would enter BIDCO without an affiliated BIDCO physician group for commercial business, but the parties intend to recruit or develop such a physician group in the future.⁹⁵ Under the parties' affiliation agreements, MetroWest would participate in BIDCO clinical integration programs supporting BIDCO risk contracts, including electronic patient information sharing with BIDMC and population health management programs for Medicare risk patients.

3. Clinical Affiliation between BIDMC, HMFP, and MetroWest

Under the proposed BIDMC-HMFP-MetroWest clinical affiliation, the parties plan to engage in clinical collaborations that would complement the BIDCO-MetroWest contracting

⁸⁹ See BIDCO-NEBH-NEBCIO NOTICE OF MATERIAL CHANGE, *supra* note 6.

⁹⁰ *Id.*

⁹¹ The parties have stated that this exclusivity would apply only to contracting, and that NEBH would continue to accept patients from outside of the BIDCO network.

⁹² See BIDCO-NEBH-NEBCIO NOTICE OF MATERIAL CHANGE, *supra* note 6.

⁹³ Although MetroWest would join Hospital LLC, the transaction would not include the integration of MetroWest's finances or administrative structures with those of other BIDCO members.

⁹⁴ BIDCO-METROWEST NOTICE OF MATERIAL CHANGE, *supra* note 7.

⁹⁵ As discussed above, MWPS and MWAHO physicians currently contract through NEQCA. When their contracts through NEQCA expire, it is likely that MWPS will join BIDCO contracts since it is owned and controlled by MetroWest. As discussed in the next section, provisions of the BIDMC-HMFP-MetroWest affiliation agreement also make it likely that other MWAHO physicians will join BIDCO in the future.

affiliation.⁹⁶ The parties' plans include co-recruitment of physicians, expanded clinical cooperation in specific service lines, new capital improvements and renovations at MetroWest, and alignment of MetroWest physicians with BIDCO in the future. The parties' stated goals include improving care quality and access to specialty services at MetroWest and enhancing MetroWest's ability to attract local patients.⁹⁷

The parties' plans include the co-recruitment of a number of new primary care physicians to practice in MetroWest's service area. In addition, the parties would recruit specialists in certain service lines at MetroWest. The parties also plan to expand surgery at MetroWest, collaborate on obstetrics/gynecology, develop a joint cancer program, and discuss clinical collaborations in other services in the future.⁹⁸ In addition to service-line specific collaborations, MetroWest would designate BIDMC and HMFP its exclusive tertiary and quaternary affiliate, replacing Tufts MC for all services except pediatrics. Finally, the parties plan to implement a system to share electronic medical record information.

In conjunction with its affiliation with BIDMC and HMFP, MetroWest would commit to making certain infrastructure investments, funded by Tenet, including facility renovations and upgrades of certain designated equipment. MetroWest would also be required to incorporate its employed physician group, MWPS, as a member of BIDCO; other contractual terms make it likely that additional MWAHO physicians would join BIDCO in the future.⁹⁹

III. ANALYSIS OF PARTIES' BASELINE PERFORMANCE (2010-2015)

To analyze the impact of a proposed transaction, it is important to first understand the parties' baseline performance, prior to the transactions. Part III examines the parties' recent performance and trends across costs and market functioning, care delivery and quality, and access. The analyses detailed in this section are based on the most recent available data, which primarily dates from 2013 to 2015. As a result, some of the findings in this section may not yet fully reflect the impact of recent growth of the BIDCO network as newer members have joined in 2014 and 2015; it will therefore be important to continue to monitor the parties' performance in these areas as newer data become available.

A. COST AND MARKET BASELINE PERFORMANCE

The law governing cost and market impact reviews directs the HPC to examine different measures of the parties' cost and market position, including their size, prices, health status adjusted total medical expenses (TME), and market share. The HPC examined these measures over time and compared to other providers to establish the parties' baseline

⁹⁶ BIDMC, HMFP, and MetroWest describe the BIDCO-MetroWest affiliation as "an important component of the organizations' overall relationship." BIDMC-HMFP-METROWEST NOTICE OF MATERIAL CHANGE, *supra* note 8.

⁹⁷ BIDMC-HMFP-MetroWest MCN, *supra* note 8.

⁹⁸ See BIDMC-HMFP-METROWEST NOTICE OF MATERIAL CHANGE, *supra* note 8.

⁹⁹ As noted above, MetroWest currently holds a 50% ownership interest in MWAHO.

performance leading up to the proposed transactions. In Section IV, we will combine the parties' current performance with details of the transactions and the parties' goals and plans to project the likely impacts of the transactions.

Comparisons of providers' market shares in their service areas show their relative importance to patients in those areas and the payers that cover those patients. Comparisons of relative prices (the relative amounts that payers pay providers for comparable services), spending for specific procedures and episodes of care, and provider health status adjusted TME show differences in provider efficiency and costs, which impact total health care spending. In examining these elements of the parties' cost and market profile, the HPC found:

- BIDCO has significant market share both statewide and locally. It has the largest inpatient market share in certain local areas surrounding its community hospitals and is the second largest hospital contracting network statewide. However, its statewide market share is far smaller than the dominant provider (Partners).
- NEBH has very large market share for orthopedic and musculoskeletal services. Its inpatient market share for these services in its service area is only slightly less than that of the dominant provider (Partners), and is nearly four times that of BIDCO. It also has smaller but still substantial market share for outpatient orthopedic surgeries.
- While MetroWest continues to be an important provider in its service area, its commercial inpatient market share in its service area has dropped 35% in the last five years. The dominant provider in its service area (Partners) has more than 2.5 times the commercial market share of MetroWest.
- As of 2014, the prices of the BIDCO hospitals, MetroWest, and NEBH were low to mid-range relative to comparators.
- As of 2013, BIDCO physician prices were also low to mid-range among major physician groups; NEBH's were lower and MetroWest's (through NEQCA) were higher.
- NEBH has consistently delivered commercial inpatient orthopedic and musculoskeletal care less expensively than AMCs, including BIDMC.
- As of 2014, BIDCO's health status adjusted TME was comparable to or lower than that of other major physician networks, indicating that it is a relatively efficient provider network; NEQCA, the current contracting partner for MetroWest, had generally comparable TME to BIDCO.

1. BIDCO has significant market share both statewide and locally.

A provider's market share is its share of patient volume in a particular market or region. We examined the parties' commercial market share¹⁰⁰ statewide and in their PSAs¹⁰¹ for both inpatient general acute care services¹⁰² and primary care services.¹⁰³

¹⁰⁰ Because hospitals primarily negotiate with commercial, not government, payers for prices, commercial market share is more relevant for assessing the competitive impact of a transaction. *See infra* Section IV.A.1.

¹⁰¹ The HPC describes market shares and market concentration in providers' PSAs, generally described as the area from which an entity draws 75% of its commercial patients. *See* MASS. GEN. LAWS ch. 6D, § 13(d)(i) (listing factors to be considered in a CMIR, including a provider organization's "size and market share within its primary

As discussed in Section II.A we found that BIDCO has grown rapidly in recent years. As shown in the table below, BIDCO hospitals now account for the second largest share of commercial discharges in the Commonwealth, nearly 40% more than the next largest system. However, Partners hospitals still have more than 2.5 times as many discharges as BIDCO.¹⁰⁴

Statewide Commercial Inpatient Market Share

Hospital System	Share of Discharges (2010)	Share of Discharges (2013)	Share of Discharges (2015)
Partners	27.8%	29.8%	28.6%
BIDCO	6.8%	7.4%	10.5%
Lahey	2.3%	4.7%	7.6%

service areas by major service category... the provider or provider organization's impact on competing options for the delivery of health care services within its primary service areas... [and] the role of the provider or provider organization in serving at-risk, underserved and government payer patient populations, including those with behavioral, substance use disorder and mental health conditions, within its primary service areas...."); 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), *available at* <http://www.mass.gov/anf/docs/hpc/regs-and-notices/technical-bulletin-circ.pdf> (describing the HPC's method for calculating a PSA). The HPC's definitions of PSAs reflect certain key concepts that would be considered in analyses of "relevant geographic markets," which are often central to antitrust litigation, but are also more data- and time-intensive. For example, in defining PSAs, the HPC considered both whether the geographic area is important to the hospital (e.g., the area represents a significant proportion of the hospital's discharges) and whether the hospital is an important provider for the geographic area (e.g., the hospital is a short drive from the zip codes in question, and discharges from the hospital exceed a minimum proportion of the zip code's total discharges). While a PSA may not align precisely with a "relevant geographic market" defined in a law enforcement investigation, it is one of the best available measures to provide the type of rapid, focused analysis that the General Court intended in limiting CMIRs to a small fraction of the time that antitrust reviews can take.

¹⁰² Specifically, we examined hospital discharges 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.

¹⁰³ For the purposes of this report, 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. Due to data constraints, our primary care share analyses are based on data for the three largest commercial payers for 2013. As the APCD is expanded and refined, we look forward to further developing our APCD-based analyses. Although our market share and PSA analyses use 2013 data, they reflect the current affiliations of physicians and physician groups, based on information provided to the HPC by the parties and other provider groups as part of this CMIR and through the RPO program.

¹⁰⁴ For systems and contracting networks with non-owned contracting affiliate hospitals (including Partners and BIDCO), we include the shares of hospitals that contract through those networks in the shares in order to show the relative patient population that each network represents when it negotiates rates with commercial payers. *See* MASS. HEALTH POLICY COMM'N, REVIEW OF PARTNERS HEALTHCARE SYSTEM'S PROPOSED ACQUISITION OF HALLMARK HEALTH CORPORATION (HPC-CMIR-2013-4), PURSUANT TO M.G.L. C. 6D § 13, FINAL REPORT at 22, note 77 (Sept. 3, 2014) [hereinafter PARTNERS-HALLMARK CMIR FINAL REPORT], *available at* <http://www.mass.gov/anf/docs/hpc/material-change-notices/phs-hallmark-final-report-final.pdf>.

UMass	7.0%	6.7%	6.8%
Steward	5.3%	6.6%	6.1%
Baystate Health	4.3%	4.5%	5.2%
Wellforce	2.8% (Tufts MC); 1.9% (Lowell)	3.0% (Tufts MC); 2.7% (Lowell + Saints)	5.0%
All Other Combined	41.9%	34.6%	30.2%

Note: System shares reflect hospital affiliations in each year.¹⁰⁵

Source: HPC analysis of 2010, 2013, and 2015 CHIA hospital discharge data

When we examined inpatient utilization in the inpatient PSA of each BIDCO hospital,¹⁰⁶ we found that BIDCO has either the largest or second largest share of commercial discharges in each of its inpatient PSAs.¹⁰⁷

BIDCO has also significantly expanded the number of physicians in its network since its creation. When we examined the parties' shares of adult primary care services, we found

¹⁰⁵ For 2010, Partners' share included Brigham and Women's Hospital, Brigham and Women's Faulkner Hospital, CHA, Martha's Vineyard Hospital, Mass. General Hospital, Nantucket Cottage Hospital, Newton-Wellesley, and North Shore Medical Center; BIDCO's share included BIDMC and BID-Needham only; Lahey's share was only that of Lahey Hospital and Medical Center; UMass's share was that of HealthAlliance Hospital, Marlborough Hospital, UMass Memorial Medical Center, and Wing Memorial Medical Center; Steward's share was the combined shares of the hospitals that were part of its predecessor organization, Caritas Christi Health Care; Baystate's share was that of Baystate Medical Center, Baystate Franklin Medical Center, and Baystate Mary Lane; and Lowell General and Tufts MC's shares were treated separately. For 2013, Partners' share added Cooley Dickinson; BIDCO's share added BID-Milton; Lahey's share added the Northeast hospitals; and Steward's share added Merrimack Valley Hospital, Morton Hospital, Nashoba Valley Medical Center, and Quincy Medical Center. For 2015, Partners' share no longer included CHA; BIDCO's share added Anna Jaques, Lawrence General, and BID-Plymouth; Lahey's share added Winchester hospital; UMass' share no longer included Wing; Baystate's share added Noble Hospital and Wing; and the shares of Tufts, Lowell General, and Saints were combined for Wellforce.

¹⁰⁶ The HPC applied its general method for defining a hospital PSA, which focuses on the contiguous zip codes closest to the hospital from which the hospital draws 75% of its commercial discharges. For more information on the HPC's PSA methodology, *see supra* note 101. Although MetroWest includes two campuses, its PSA was calculated using drive times to the larger Framingham Union campus. Although a PSA may not align precisely with a "geographic market," the Department of Justice (DOJ) and the Federal Trade Commission (FTC) use market shares and HHIs within PSAs as "a useful screen for evaluating potential competitive effects." U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, STATEMENT OF ANTITRUST ENFORCEMENT POLICY REGARDING ACCOUNTABLE CARE ORGANIZATIONS PARTICIPATING IN THE MEDICARE SHARED SAVINGS PROGRAM 7 (2011), available at <https://www.justice.gov/sites/default/files/atr/legacy/2011/10/20/276458.pdf> [hereinafter FTC/DOJ ACO GUIDANCE]; *see also* 76 FED. REG. 67026, 67028 (Oct. 28, 2011), available at <http://www.gpo.gov/fdsys/pkg/FR-2011-10-28/pdf/2011-27944.pdf>.

¹⁰⁷ BIDCO has the largest share of discharges in the inpatient PSAs of Lawrence General (30.8%, followed by Steward at 22.3% and Partners at 16.9%), Anna Jaques (45.1%, followed by Partners at 18.0% and Lahey at 17.3%), and BID-Plymouth (31.5%, followed by South Shore Hospital at 23.8% and Partners at 14.7%). BIDCO's market share is substantially lower than Partners' share in the inpatient PSAs of BIDCO's other hospitals, including BIDMC (14.5%, second to Partners at 41.0%), BID-Milton (20.2%, second to Partners at 31.7%), BID-Needham (16.2%, second to Partners at 54.2%), and CHA (19.7%, second to Partners at 42.5%).

that BIDCO physicians have the fourth largest share of visits and the third largest share of primary care revenue in the state.^{108, 109}

Statewide Commercial Adult Primary Care Physician Market Share

System	Share of Primary Care Visits	Share of Primary Care Revenue
Partners	17.3%	22.1%
Atrius	14.8%	12.8%
Steward	12.1%	11.1%
BIDCO	10.4%	11.1%
NEQCA	8.7%	8.6%
Lahey	5.3%	5.3%
UMass	4.9%	5.2%
Other networks, multiple networks, or independent	26.5%	23.8%

Source: HPC analysis using current physician affiliations based on information from provider organizations and utilization and revenue data from the 2013 APCD; *see supra* note 103.

2. NEBH has very large market share for orthopedic and musculoskeletal services.

NEBH provides a substantial share of inpatient orthopedic and musculoskeletal services in the Commonwealth. In order to assess NEBH's share of the services for which it competes,¹¹⁰ we examined hospital commercial market shares for the set of inpatient orthopedic and musculoskeletal services most commonly provided by NEBH.¹¹¹ We refer to

¹⁰⁸ BIDCO's share of primary care revenue is 11.149%, slightly larger than Steward's at 11.053%, although both round to 11.1%.

¹⁰⁹ When a provider's share of revenue is higher than its share of visits, that provider's revenue per visit is above average relative to other providers. Higher average revenue per visit reflects a combination of higher prices, higher patient acuity, higher utilization, and/or provision of more expensive services.

¹¹⁰ Our analyses of NEBH's market share in this section focus on the set of orthopedic and musculoskeletal services NEBH actually provides. However, even given the relatively expansive inpatient PSA for NEBH shown in the map in Section II.D, and the limited specialized services that it provides, NEBH still has a market share of *all* general acute care discharges in its PSA of 2.2%.

¹¹¹ We used 2012 CHIA hospital discharge data to identify the inpatient services NEBH most commonly provides, based on the most common DRGs for NEBH patients and including all levels of acuity. We found that three services (all DRGs for major joint replacements of the lower extremity, spinal fusions, and revisions of hip or knee replacements) account for over 80% of NEBH's commercial discharges. Our core services definition also includes relatively uncommon services for which NEBH provides a substantial share of all commercial discharges among hospitals in its PSA (these were major joint procedures of the upper extremity, knee procedures related to infections, and arthroscopies). In total, our method of defining NEBH's core services accounts for 86% of NEBH's commercial discharges. The 26 MS-DRGs included in our definition of NEBH's core services are 453-462, 466-473, 483-489, and 509.

these services as NEBH’s “core services.”¹¹² We found that NEBH has the second largest share of these core orthopedic and musculoskeletal inpatient services statewide and in its own PSA,¹¹³ as shown in the table below, slightly smaller than that of the dominant provider (Partners) and nearly four times that of BIDCO.¹¹⁴ NEBH’s total commercial volume and statewide market share for these services grew between 2010 and 2015.¹¹⁵

Commercial Inpatient Orthopedic and Musculoskeletal Market Share in NEBH’s PSA

Hospital System	Share of Orthopedic & Musculoskeletal Discharges (2010)	Share of Orthopedic & Musculoskeletal Discharges (2015)
Partners	32.5%	30.5%
NEBH	25.6%	27.9%
Lahey	3.7%	9.5%
BIDCO	5.4%	7.3%
Wellforce	1.8% (Tufts); 1.9% (Lowell)	6.2%
Steward	4.2%	5.8%
All Other Combined	24.9%	12.7%

Note: System shares reflect hospital affiliations in each year; *see supra* note 105.

Source: HPC analysis of 2010 and 2015 CHIA hospital discharge data

¹¹² In response to HPC inquiries, the parties provided their own definition of inpatient orthopedic and musculoskeletal services, which included numerous services that NEBH rarely provides to commercial inpatients; utilizing such a definition for NEBH’s services would have provided a smaller market share for NEBH. However, to understand the competitive market for those services that NEBH regularly provides, we excluded those services that NEBH provides infrequently to obtain the list of NEBH’s core services. *See supra* note 111.

¹¹³ Because NEBH is a specialty hospital, the HPC defined NEBH’s inpatient PSA as the contiguous zip codes closest to the hospital from which the hospital draws 75% of its commercial discharges in its core services. *See supra* notes 101 and 111.

¹¹⁴ NEBH’s share of its core orthopedic and musculoskeletal services ranges from 19.4% to 39.6% in the parties’ PSAs. It has the largest share in two of these PSAs (BID-Plymouth and BID-Milton), the second largest share in six of these PSAs (BIDMC, BID-Needham, CHA, Lawrence General, MetroWest, and NEBH), and the third largest share in Anna Jaques’s PSA. Partners has the largest share in six of the parties’ PSAs (Anna Jaques, BIDMC, BID-Needham, CHA, and MetroWest, in addition to NEBH) and Steward has the largest share in the Lawrence General PSA.

¹¹⁵ NEBH’s statewide share of its core services grew from 22.2% in 2010 (2,844 discharges) to 24.6% in 2015 (3,539 discharges); during this same time, Partners’ share dropped from 25.8% to 25.0%, although it remained the largest provider statewide. In information provided to the HPC, NEBH stated that some provider networks are referring less orthopedic and musculoskeletal care outside of their own systems, resulting in declining referral volume over time, particularly for health maintenance organization (HMO) and point-of-service (POS) patients. HPC analysis of referral data for inpatient orthopedic and musculoskeletal services from 2010 to 2014 provided by the three largest payers indicates that some provider groups have sent a smaller proportion of care to NEBH over time, while others have sent a larger proportion. From 2010 to 2014, NEBH’s share of total referrals decreased from NEQCA (from 25.4% to 18.1%), Atrius (from 49.5% to 45%), and Steward (from 18.8% to 15%), while its share of referrals increased from Lahey (from 7.7% to 10%) and UMass (from 20.9% to 28.5%). NEBH’s share of referrals was relatively unchanged from Partners (19.1% in 2012, 19.7% in 2014) and BIDCO (25.7% in 2012, 24.4% in 2014).

We also examined the market for outpatient orthopedic surgical services, which can be provided not only at hospital outpatient departments but also at outpatient satellite facilities and ambulatory surgery centers. The market for these outpatient surgical services is particularly important to examine, given that more orthopedic care is shifting toward being provided on an outpatient basis.¹¹⁶ For these outpatient orthopedic surgical services, we found that NEBH provides a significant, but smaller share of services.¹¹⁷ We found that in 2013, NEBH had the second largest share of commercial outpatient orthopedic surgical visits in its service area, but that Partners' share of these services was nearly three times larger.^{118, 119}

Commercial Outpatient Orthopedic Surgery Market Share in NEBH's Outpatient Service Area

System/Hospital	Share of Outpatient Orthopedic Surgery Visits
Partners	34.7%
NEBH	12.1%
BIDCO	11.5%
Lahey	8.1%
South Shore Hospital	5.4%
Steward	5.1%
Children's Hospital	5.1%
All Other Combined	18.0%

Source: HPC analysis of 2013 APCD data

¹¹⁶ See, e.g., Harris Meyer, *Replacing joints faster, cheaper and better?*, MODERN HEALTHCARE (June 4, 2016) available at <http://www.modernhealthcare.com/article/20160604/MAGAZINE/306049986>. Despite the trend toward an increasing amount of orthopedic care being provided in outpatient settings, a large share of NEBH's revenue is still driven by inpatient care. In 2014, NEBH received 60% of its patient service revenue from inpatient care and 40% from outpatient care. See NEBH Hospital Profile, *supra* note 67.

¹¹⁷ For the purposes of this analysis, we defined outpatient orthopedic surgical services as those claims with a current procedural terminology (CPT) code in the category of procedures related to the musculoskeletal system (codes 20005 through 29999), and that meet the "narrow" surgery flag definition from the Healthcare Cost and Utilization Project, defined as "[a]n invasive therapeutic surgical procedure involving incision, excision, manipulation, or suturing of tissue that penetrates or breaks the skin; typically requires use of an operating room; and also requires regional anesthesia, general anesthesia, or sedation to control pain." See *Surgery Flag Software*, HEALTHCARE COST AND UTILIZATION PROJECT, available at <https://www.hcup-us.ahrq.gov/toolssoftware/surgflags/surgeryflags.jsp> (last visited July 26, 2016). We used 2013 APCD claims data for BCBS, HPHC, and THP to identify outpatient orthopedic surgeries provided by hospital outpatient departments, outpatient satellite facilities, and 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. We calculated shares within an outpatient orthopedic surgical service area (hereinafter "outpatient service area") for NEBH based on the zip codes from which it draws 75% of its patients for these services using the 2013 APCD.

¹¹⁸ Examining statewide shares of outpatient orthopedic surgery visits in 2013, Partners' share was 25.4%, BIDCO's was 9.4%, Lahey's was 8.7%, Steward's was 7%, and NEBH's was 6.5%.

¹¹⁹ The parties also provided an assessment of outpatient orthopedic market shares that indicated NEBH and BIDCO shares were smaller than those of other major provider organizations, based on utilization by patients in all of Eastern Massachusetts.

3. While MetroWest continues to be an important provider in its service area, its inpatient market share has dropped substantially in recent years.

When we examined inpatient utilization in MetroWest's inpatient PSA, we found that Tenet, which contracts on behalf of both MetroWest and St. Vincent, has the second largest share of commercial discharges in MetroWest's PSA; however, Partners has more than 2.5 times Tenet's commercial market share. Tenet's market share also decreased substantially, by 35%, between 2010 and 2015. At the same time, Partners' share in this area grew, particularly at Newton-Wellesley Hospital (Newton-Wellesley).

Commercial Inpatient Market Share in MetroWest's PSA

System/Hospital	Share of Discharges (2010)	Share of Discharges (2015)
Partners	37.6%	41.6%
Newton-Wellesley	18.0%	21.5%
Partners AMCs	16.6%	17.4%
Other Partners hospitals	3.1%	2.7%
Tenet	23.6%	15.3%
MetroWest	22.9%	14.1%
St. Vincent	0.7%	1.2%
UMass	9.6%	11.8%
BIDCO	8.7%	8.1%
Other hospitals	20.5%	23.2%

Note: System shares reflect hospital affiliations in each year; for 2010, BIDCO's share is the combined share of BIDMC and BID-Needham, and Tenet's share is the combined share of MetroWest and St. Vincent, which were then both owned by Vanguard Health Systems.

Source: HPC analysis of 2010 and 2015 CHIA hospital discharge data

In terms of commercial primary care services, MWAHO physicians have approximately 9.1% of visits and 8.0% of revenue in their primary care PSA, constituting the fourth largest and third largest share, respectively.¹²⁰

¹²⁰ In contrast, Partners, which is the dominant provider in this area, receives 42.4% of primary care visits and 50.3% of primary care revenue in this area; approximately a third of Partners' share is from CRMA, which contracts through Partners for commercial business but is part of BIDCO's Pioneer ACO. BIDCO has the sixth largest primary care share, at 5.8% of visits and 6.0% of revenue.

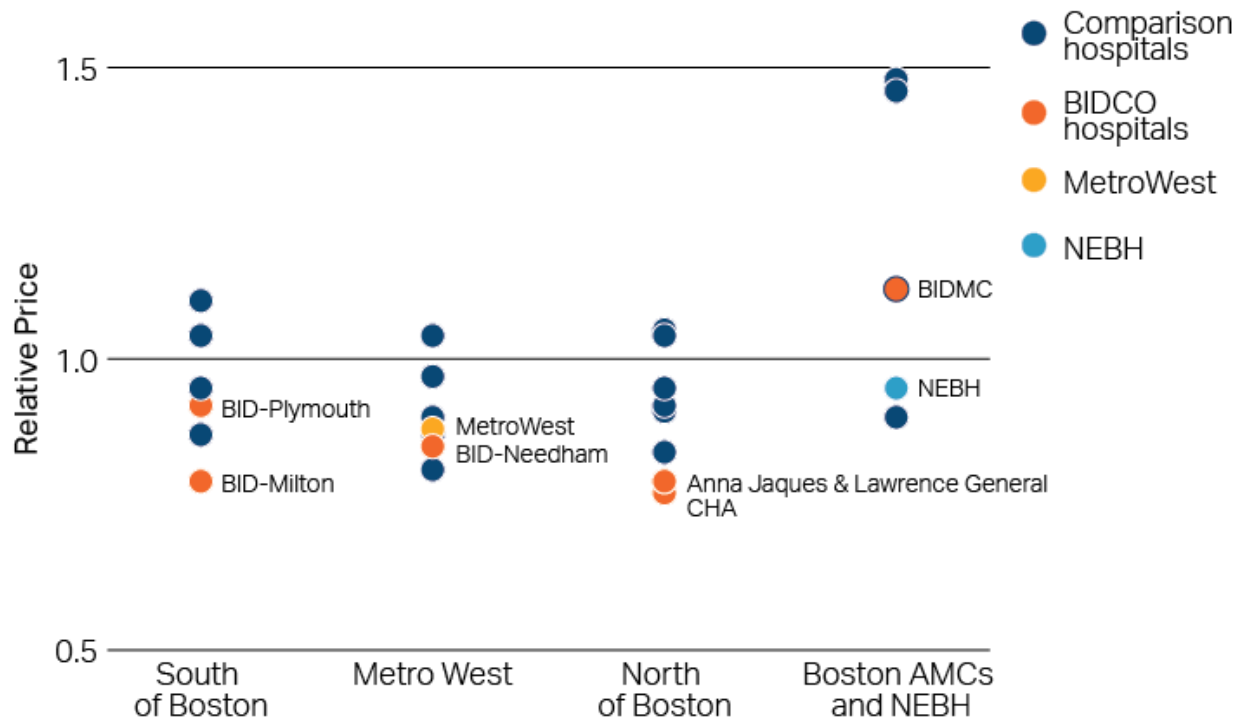
4. As of 2014, the prices of the BIDCO hospitals, MetroWest, and NEBH were low to mid-range relative to comparators.

The HPC examined hospital relative price¹²¹ data for the parties from 2010 to 2014, and found consistent trends for all three major commercial payers. Compared to other Boston AMCs during that time period, BIDMC's prices were mid-range, whereas BIDCO community hospitals had consistently low prices relative to most other community hospitals in their areas. MetroWest's prices were also low to mid-range among hospitals in its region, although they were slightly higher than those of nearby BID-Needham. NEBH's prices were low compared to most Boston AMCs, but higher than some community hospitals. The following chart is an example of these patterns, showing relative prices for inpatient and outpatient services for one major payer.¹²²

¹²¹ 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. When discussing hospital relative prices, we are referring to CHIA's blended hospital relative price metric, which combines the hospital inpatient and hospital outpatient relative price metrics. *See* 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>.

¹²² These patterns are generally consistent across all three largest payers in 2014; for the other two largest payers, certain Steward hospitals had lower relative prices than BIDCO community hospitals and MetroWest, and Marlborough Hospital's prices were consistently the lowest among comparator hospitals for MetroWest. *See* CTR. FOR HEALTH INFO. & ANALYSIS, PROVIDER PRICE VARIATION IN THE MASSACHUSETTS HEALTH CARE MARKET (CALENDAR YEAR 2014 DATA) (Feb. 2016) [hereinafter CHIA 2014 RELATIVE PRICE DATABOOK], available at <http://www.chiamass.gov/assets/docs/r/pubs/16/relative-price-databook-2014.xlsx>.

Blended Inpatient and Outpatient Relative Prices of Party Hospitals and Comparators - BCBS



Area hospitals: **South of Boston** (Brigham & Women's Faulkner Hospital, South Shore Hospital, Southcoast Hospital System, Steward Carney); **Metro West** (Mt. Auburn , Marlborough Hospital, Milford Regional Medical Center, Newton-Wellesley, Steward Norwood); **North of Boston** (Hallmark Health, Lahey Hospital and Medical Center, North Shore Medical Center, Northeast Hospital (Beverly Hospital and Addison Gilbert Hospital), Steward Holy Family, Winchester Hospital); **Boston AMCs** (BMC, Tufts MC, BWH, MGH)

Notes: The bubble for Tufts MC is represented behind BIDMC, as it had the same relative price as BIDMC for BCBS in 2014.

Source: HPC analysis of 2014 relative price data in CHIA 2014 RELATIVE PRICE DATABOOK, *supra* footnote 122.

The relative prices of most of these hospitals did not change significantly during the time frame examined. CHA received substantial increases in relative price between 2010 and 2014; nonetheless, CHA remained one of the lowest-priced hospitals in the state in 2014.¹²³

¹²³ The fact that hospitals do not experience changes in relative price indicate only that their prices *relative to the market* have remained stable over time, not that there have been no changes in each hospital's prices; each of the BIDCO hospitals likely received some price increases each year, in line with general price increases across the market. Aside from CHA, BIDCO hospitals' price changes from 2010 to 2014 were within 4% of the changes in the average relative prices for hospitals in the networks of each of the three major insurers. CHA's relative prices increased by 5% for BCBS, 25% for HPHC, and 18% for THP, but its composite relative price percentile (which characterizes the rank of a provider's relative price compared to other hospitals across all commercial payers) was still one of the lowest in the state in 2014 (percentile rank of 15.7). We calculated changes in blended relative price from CHIA's relative price databooks. See CHIA 2014 RELATIVE PRICE DATABOOK, *supra* note 122; CTR. FOR HEALTH INFO. & ANALYSIS, HEALTH CARE PROVIDER PRICE VARIATION IN THE MASSACHUSETTS COMMERCIAL MARKET BASELINE REPORT: APPENDIX DATA (Nov. 2012), available at <http://www.chiamass.gov/assets/docs/cost-trend-docs/cost-trends-docs-2012/price-variation-appendix-data-web-10222012.xls>; see also CTR. FOR HEALTH INFO. & ANALYSIS MASSACHUSETTS HOSPITAL PROFILES: ACUTE

Notably, as discussed in Section II.A, several hospitals have become BIDCO members relatively recently, and have yet to join all BIDCO contracts; because of this, and because the most recent hospital relative price data are from 2014, the relative prices of these hospitals may not yet reflect the impact of their affiliation with BIDCO.

5. As of 2013, BIDCO physician prices were low to mid-range among major physician groups; NEBCIO's were lower and MetroWest's (through NEQCA) were higher.

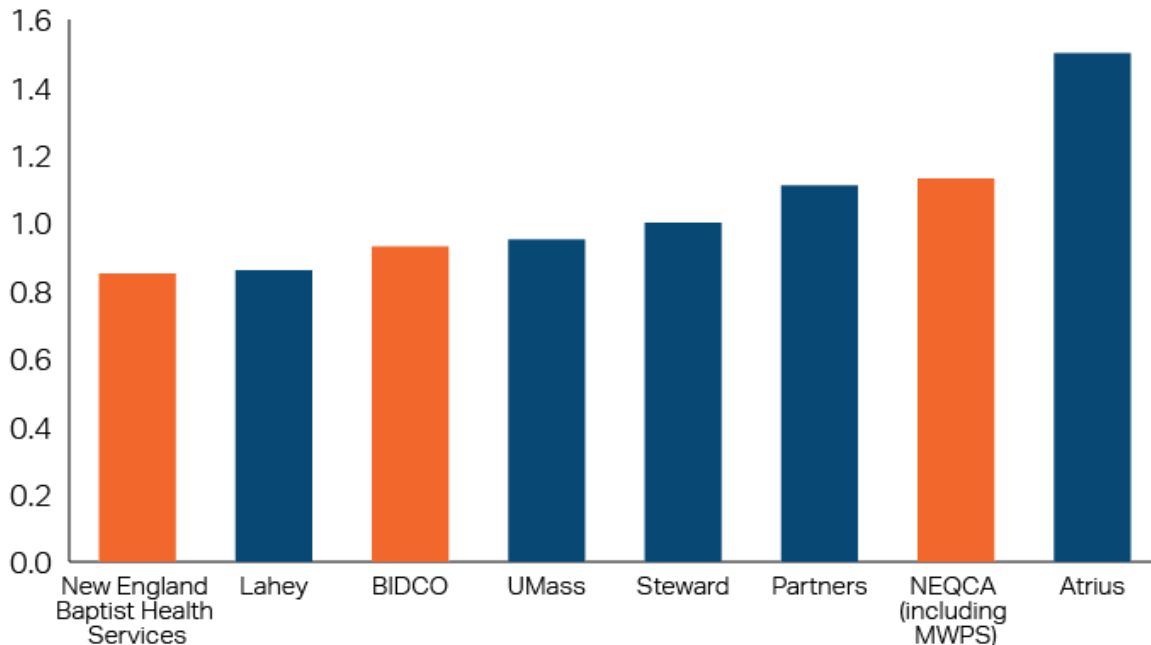
The HPC also examined physician relative price data from 2009 to 2013 for the three largest payers.¹²⁴ Over this period, BIDCO received low to mid-range prices compared to other major physician groups in Eastern Massachusetts. NEBCIO physicians generally received low relative prices compared to other major physician groups. NEQCA, the current network through which the MetroWest physicians contract, received higher physician prices than BIDCO from BCBS, but slightly lower prices than BIDCO from HPHC and THP.¹²⁵ Section IV.A.1 will discuss how total medical spending may be impacted if NEBCIO or MetroWest physicians were to join BIDCO contracts and receive BIDCO rates.

HOSPITAL DATA APPENDIX (Nov. 2015) [hereinafter CHIA HOSPITAL PROFILES DATABOOK], *available at* <http://www.chiamass.gov/assets/docs/r/hospital-profiles/2014/Final-FY14-Acute-Hospital-Databook.xlsx> (showing that CHA's blended composite relative price percentile rank).

¹²⁴ 2014 physician relative price data will likely be available from CHIA in late 2016.

¹²⁵ We characterize NEQCA's physician prices as higher than BIDCO's because the differences in their rates for BCBS (21% higher) are greater than for HPHC (6% lower) or THP (9% lower), and because BCBS accounts for a larger share of NEQCA's revenue. NEBCIO's prices are lower than BIDCO's across all three payers.

Relative Prices of Major Physician Groups in Eastern Massachusetts - BCBS



Source: HPC analysis of 2013 relative price data in CHIA 2014 RELATIVE PRICE DATABOOK, *supra* note 122.

6. NEBH has consistently delivered commercial inpatient orthopedic and musculoskeletal care less expensively than AMCs, including BIDMC.

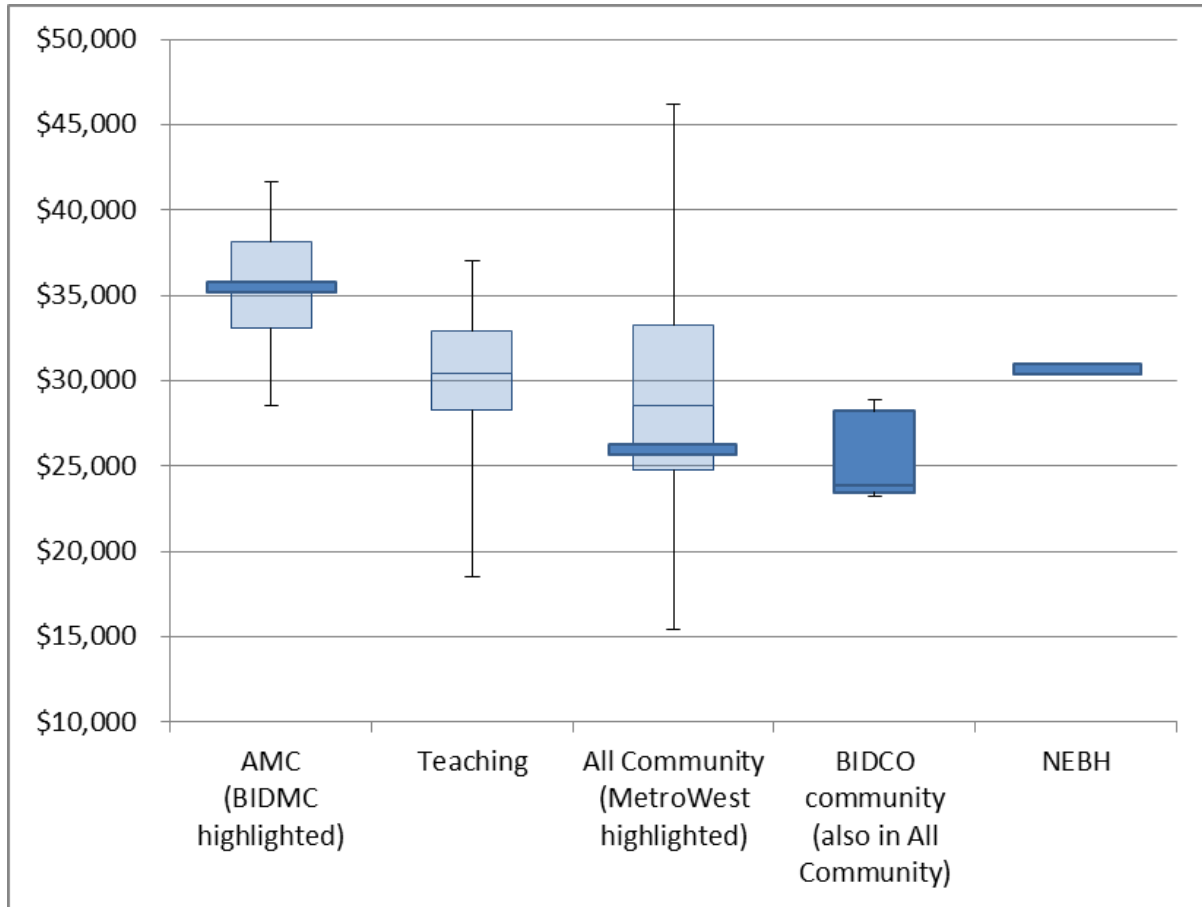
In its 2014 HPC Cost Trends Report, the HPC examined variations in average commercial spending on episodes of orthopedic and musculoskeletal care that included hip or knee replacement in a hospital.¹²⁶ That analysis indicated that spending for low-acuity joint replacement episodes for commercial patients treated at NEBH was lower than at most AMCs, and was also lower than at some community hospitals.¹²⁷

The charts below show the parties' spending per episode for hip and knee replacements as well as the range of spending for other Massachusetts providers.

¹²⁶ MASS. HEALTH POLICY COMM'N, 2014 COST TRENDS REPORT 22-24 (Jan. 2015) [hereinafter 2014 HPC Cost Trends Report], available at <http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/2014-cost-trends-report.pdf>.

¹²⁷ This analysis included only low-acuity adult inpatient claims in order to ensure a comparable case mix across hospitals and included only full episodes of care during 2012. MASS. HEALTH POLICY COMM'N, ADDENDUM TO 2014 COST TRENDS REPORT, TECHNICAL APPENDIX B3: HOSPITAL-LEVEL VARIATION IN SPENDING PER EPISODE OF CARE (Jan. 2015), available at <http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/b3-episode-jan-20-2015.pdf>.

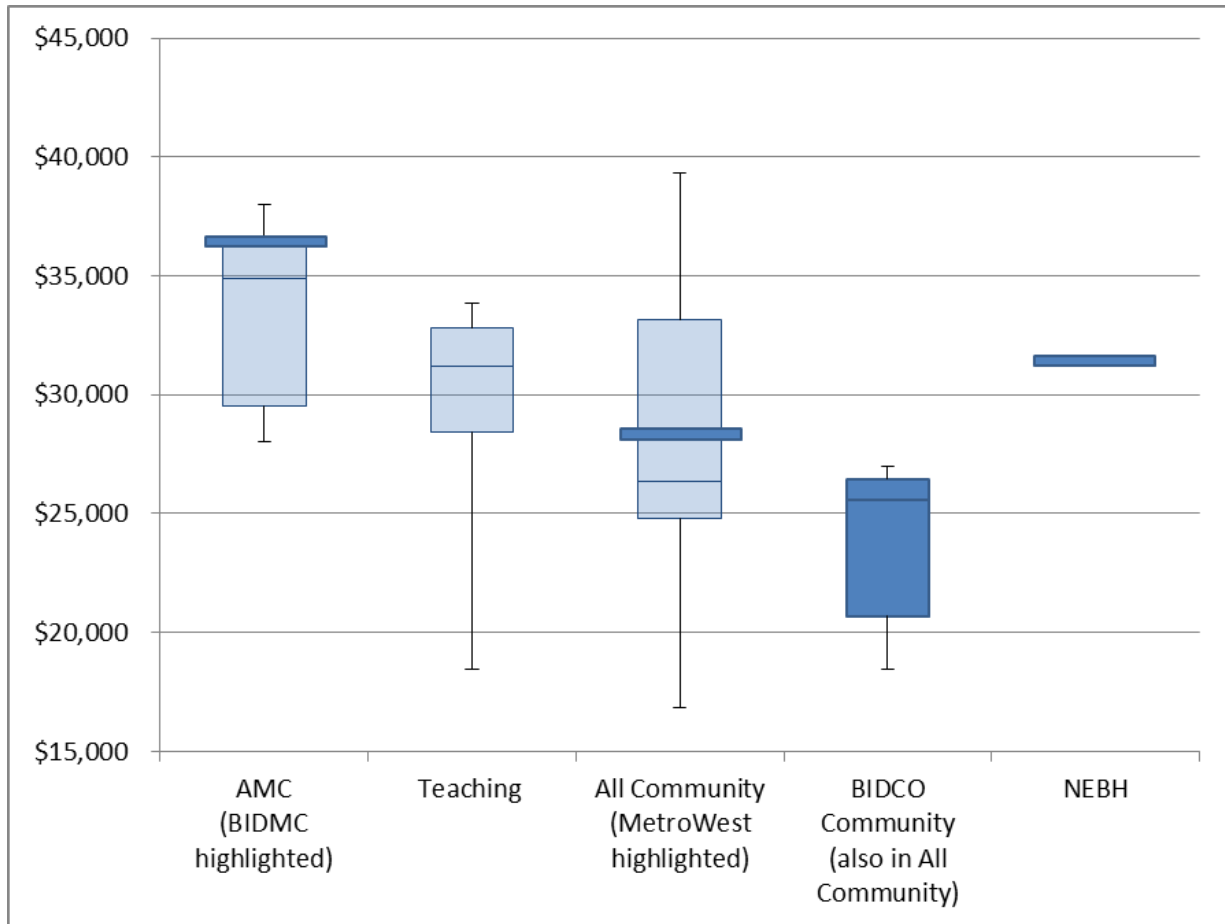
Average Spending for Hip Replacement Episodes by Hospital Type and For Party Hospitals



Note: Hospital classifications are based on CHIA's hospital cohorts; see *Massachusetts Acute Hospital Cohorts*, CTR. FOR HEALTH INFO. & ANALYSIS, <http://www.chiamass.gov/massachusetts-acute-hospital-cohort-profiles/> (last visited July 25, 2016). CHA and BIDCO community hospitals are also included in the Teaching and All Community categories, respectively.

Source: HPC analysis of 2012 APCD data; see 2014 HPC Cost Trends Report *supra* note 126.

Average Spending for Knee Replacement Episodes by Hospital Type and For Party Hospitals



Note: CHA and BIDCO community hospitals are also included in the Teaching and All Community categories, respectively.

Source: HPC analysis of 2012 APCD data; see 2014 HPC Cost Trends Report, *supra* note 126.

While episode spending at some community hospitals, including MetroWest and BIDCO community hospitals, tended to be lower than at NEBH, it is important to note that these spending differences do not account for the relative quality of care provided. As discussed in our prior report, the HPC found that NEBH not only had relatively efficient episode spending, but also statistically significantly better readmission and complication rates for these procedures than other hospitals examined.¹²⁸ We discuss NEBH's superior performance on these and other quality measures in more detail in Section III.B.

¹²⁸ See 2014 HPC Cost Trends Report, *supra* note 126, at 24-25.

7. As of 2014, BIDCO's health status adjusted TME was comparable to or lower than that of other major physician networks; NEQCA, the current contracting partner for MetroWest, generally had TME comparable to BIDCO.

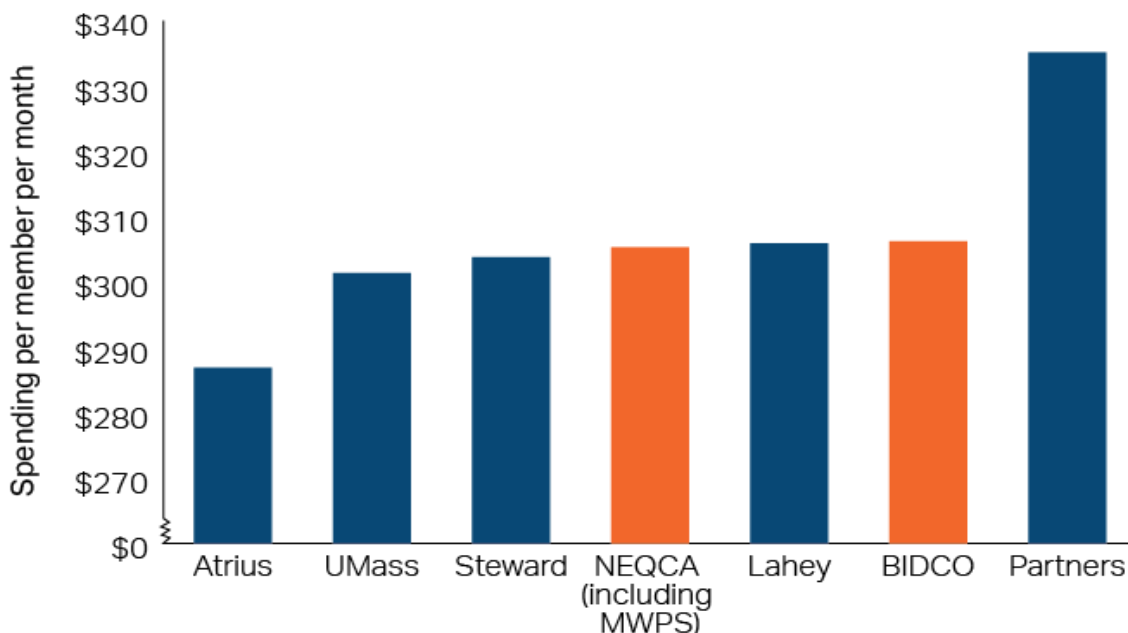
The HPC also reviewed the parties' TME from 2010 to 2014, adjusted according to the health status of the provider's patient population, to examine the total cost of health care services for patients cared for by the parties.¹²⁹ We reviewed TME for BIDCO and for NEQCA, which contracts on behalf of MetroWest physicians as described above.¹³⁰ In 2014, BIDCO's TME in was low to mid-range compared to other major physician groups in Eastern Massachusetts for all three of the largest payers. NEQCA's TME for BCBS patients was slightly higher than most major physician groups, including BIDCO,¹³¹ but was relatively low, and comparable to BIDCO, for both HPHC and THP.

¹²⁹ 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 system for patients who have explicitly selected a PCP with the provider system (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 a provider caring for a sicker population will not appear to have higher spending solely for that reason. TME reflects both utilization and price; high TME can reflect high utilization of services, and it can also reflect high prices of the hospitals or physicians that patients use. Since each payer calculates health status scores for its network according to its own methodology, TME should not be compared across payers.

¹³⁰ See CTR. FOR HEALTH INFO. & ANALYSIS, ANNUAL REPORT ON THE PERFORMANCE OF THE MASSACHUSETTS HEALTH CARE SYSTEM: [Databook 2: Total Medical Expenses by Payer and Physician Group](http://www.chiamass.gov/assets/docs/r/pubs/14/chia-annual-report-2014-appendix-2-tme-and-hsa-by-tme-and-payer.xlsx) (Sept. 2014) [hereinafter CHIA TME DATABOOK], available at <http://www.chiamass.gov/assets/docs/r/pubs/14/chia-annual-report-2014-appendix-2-tme-and-hsa-by-tme-and-payer.xlsx>. More detailed information on MWPS or MWAHO TME separate from NEQCA was not available from payers. TME data were not available for the few NEBCIO primary care physicians.

¹³¹ NEQCA's health status adjusted TME for patients in BCBS's network was \$25.30 higher per member per month (approximately 8%) than BIDCO's in 2014. We characterize NEQCA's overall TME as generally comparable to that of BIDCO's because it was only 8% higher for this one payer.

Health Status Adjusted TME of Major Physician Groups in Eastern Massachusetts - HPHC



Source: HPC analysis of 2014 TME data in CHIA TME DATABOOK; *see supra* note 130.

In sum, BIDCO has significant market share both statewide and locally, and NEBH has very large market share for inpatient orthopedic and musculoskeletal services, and a smaller but still substantial share of outpatient orthopedic surgical services. While MetroWest is an important provider in its service area, its commercial inpatient market share has dropped substantially in recent years. The most recent available price data indicate that the parties' hospital and physician prices were low to mid-range relative to comparators, and NEBCIO's prices were lower than BIDCO's. NEBH has consistently delivered commercial inpatient orthopedic and musculoskeletal care less expensively than AMCs. BIDCO's health status adjusted TME was comparable to or lower than that of most other major physician networks, and NEQCA, the current contracting entity for the MetroWest physicians, generally has comparable TME to BIDCO, though it is slightly higher for BCBS. These measures of the parties' market share and cost performance to-date will form the basis for our projections of the impacts of the proposed transactions on total health care spending and market functioning in Section IV.A.

B. CARE DELIVERY AND QUALITY BASELINE PERFORMANCE

To understand the parties' baseline performance in delivering high-quality patient care, the HPC examined the parties' core programs and policies that support the delivery of high-quality care as well as the performance of the parties' hospitals and physician groups on standard quality measures. Examining performance on quality measures highlights current areas of strength and challenges, while examining the parties' care delivery programs and policies can indicate their capacity to support quality improvement initiatives.

1. The Parties' Care Delivery Structures

In determining how to evaluate the parties' care delivery structures, the HPC looked to research literature as well as examples of successful care delivery models in the Massachusetts market and elsewhere. Evidence is limited as to which specific features of care delivery systems lead to successful outcomes,¹³² and the HPC supports continued experimentation and development of new care delivery models. However, we identified and analyzed certain broad components of successful care delivery models to better understand the parties' current care delivery structures as detailed below.

Generally, we found that each of the provider organizations under review has developed certain systems and procedures designed to support effective care delivery, although their approaches vary significantly.

a. BIDCO Care Delivery Capabilities

BIDCO is an ACO, structured to negotiate and manage risk contracts with payers on behalf of its members. ACOs are generally designed to support individual providers (e.g., hospitals, physician groups, and others) in enhancing care delivery, and BIDCO's care delivery support systems are designed to particularly support members in improving their performance under risk contracts, with many systems applicable only to members' risk patient populations.

For ACOs like BIDCO, the HPC has identified certain structures as likely to drive care delivery improvement in the standards for ACOs set forth in the HPC's ACO certification program.¹³³ Consistent with these standards, we focused on the following set of structures and characteristics that support the delivery of high-quality, high-value care in order to assess the care delivery profile of BIDCO.^{134, 135}

¹³² See, e.g., Stephen M. Shortell et al., *Accountable Care Organizations: The National Landscape*, 40 J. OF HEALTH POLITICS, POLICY, AND LAW 652, 658 (2015), available at <http://jhpl.dukejournals.org/content/early/2015/06/09/03616878-3149976.full.pdf>; Carrie H. Colla et al., *First National Survey of ACOs Finds That Physicians Are Playing Strong Leadership and Ownership Roles*, 33 HEALTH AFFAIRS 964 (2014), available at <http://content.healthaffairs.org/content/33/6/964.full>.

¹³³ For a description of the ACO certification program, see MASS. HEALTH POLICY COMM'N, HEALTH POLICY COMMISSION BOARD MEETING, APRIL 27, 2016, available at <http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/public-meetings/board-meetings/20160427-commission-presentation.pdf>

¹³⁴ We note that this CMIR is not intended to serve as an evaluation of any party's qualifications to be certified as an ACO under the HPC's ACO certification program. Rather, this review is intended to highlight BIDCO's care delivery capacities in order to identify structures that currently support care delivery improvement and which could drive improvement as a result of the transactions.

¹³⁵ See generally The Dartmouth Institute, *ACO Toolkit* (2011), available at <https://xteam.brookings.edu/bdacoln/Documents/ACO%20Toolkit%20January%202011.pdf>; Catalyst for Payment Reform and Pacific Business Group on Health, *CPR-PBGH Toolkit for Purchasers on Accountable Care Organizations* (2014), available at http://www.pbgh.org/storage/documents/ACO_Toolkit_Presentation_10515.pdf; American Medical Group Association, *Accountable Care Organization Readiness Assessment* (2010), available at <https://www.amga.org/wcm/PI/Collabs/ACO/assessTool.pdf>; Health Research and Educational Trust, *Hospital*

- *A governance structure that can facilitate engagement across participating providers and with consumers and families.* While ACOs can have a range of different governance structures, they should generally have governance structures that provide for meaningful participation by all ACO participants as well as patients and families.
- *Strategies for population health management.* ACOs should have processes to stratify the risk of their patient population and to implement and refine programs to improve outcomes for specific patient subpopulations.
- *Coordination of care across the continuum.* ACOs should support participating providers in managing patients throughout the health care system, including developing processes to track tests and referrals provided within the ACO and processes to coordinate patient transitions to and from providers outside of the ACO.
- *Use of advanced health information technology across the organization.* ACOs should have the infrastructure necessary to support electronic communication between providers within the ACO, robust data management systems, and connection to the Mass HIway. Such capacities can be implemented through a range of different electronic health record (EHR) systems and approaches to sharing information from such systems between providers.
- *Capacity to analyze data and set targets for quality and cost performance.* ACOs should be able to collect and analyze data from various sources (e.g., claims, EHRs) to identify areas for quality and efficiency improvement and implement activities targeting those areas. ACOs should also generally have governance-level dashboard review in place to monitor their performance on measures of efficiency, quality outcomes, access, and patient experience and to allow them to set performance targets (for the ACO overall and for specific participating providers), as well as to set consistent guidelines for care within the ACO.
- *A system to distribute savings among participating providers.* Effective ACOs have mechanisms to encourage participating providers to meet standards and goals for efficiency and quality.
- *Mechanisms to measure and address the particular needs and preferences of the ACO's patient population.* ACOs should regularly assess the needs of their patient populations, including assessing the needs of vulnerable populations and any racial or ethnic disparities in care, and develop programs to address those needs.

We examine each of these characteristics in turn.

Governance: BIDCO's governance structure is designed to engage hospital and physician group members in the leadership of the ACO. Notably, as described in Section II.A, ownership and voting shares in BIDCO are divided equally between Hospital LLC and Physician LLC, which includes both primary care and specialist representation. This means that BIDCO's hospitals and physician groups must collaborate on decision-making. In addition to these governance structures, BIDCO maintains committees of member representatives that

Readiness for Population-Based Accountable Care (2012), available at http://www.hpoe.org/Reports-HPOE/hospital_readiness_population_based_accountable_care.pdf.

work on specific topic areas, including quality improvement.¹³⁶ Through this system, it appears that BIDCO has ensured all participants can be meaningfully engaged in governance, although we note that there appears to be a strong role granted to BIDMC and HMFP.

Population Health Management: BIDCO has a number of specific population health management programs designed to enhance performance on risk contracts. These programs, most of which are focused on Pioneer ACO patients, include programs to provide in-home care to high-risk patients, a congestive heart failure disease management program, and other initiatives to reduce unnecessary care. In addition, patients identified as being at high risk for hospitalization or readmission and who are covered under commercial risk contracts or the Medicare Pioneer program are eligible for individualized care management services from nurse care managers.¹³⁷ We understand that these programs are voluntary for BIDCO members, and that in some cases BIDCO may roll out the programs as pilots before making them broadly available. For these reasons, not all BIDCO members participate in all programs. Further, the programs are focused on patients covered under some risk contracts and are not universally available to any patient with a BIDCO PCP. Due at least in part to the relatively short time that these programs have existed, data on the impacts of these programs are not yet available; however, the HPC credits the potential of such efforts to improve quality and care delivery and understands that BIDCO is tracking program outcomes, suggesting that information on the impacts of these programs on quality and care delivery may be available in the future.

Cross-Continuum Care: BIDCO's focus on cross-continuum care appears to be primarily related to managing care within the BIDCO network. Several of BIDCO's population health programs promote management of care transitions and collaboration across BIDCO specialists. For example, for patients in the Pioneer ACO program, BIDCO has a 3-day stay waiver allowing BIDCO providers to directly admit appropriate patients to a skilled nursing facility (SNF) and bypass the standard 3-day inpatient stay at a hospital. As part of this program, BIDCO has developed a network of preferred SNFs that are allowed to receive patients directly under the waiver and who abide by the hand-off, communication, quality, and efficiency standards as set by BIDCO.¹³⁸ This program enables BIDCO providers to actively manage patients while in SNF care. To the extent that the waiver program and other population health management programs described above are operating as intended, their existence suggests BIDCO is developing the capacity to effectively manage cross-continuum care between hospitals, SNFs, and primary and specialty care.

Health Information Technology: BIDCO does not require all members to use a single EHR system, and the HPC understands that members use a range of different systems. BIDCO itself hosts two EHR platforms, and new members (e.g., hospitals or physician practices) are generally required to adopt one of these two systems if they are not already using one of several alternatives. Most BIDCO providers, including all of its member hospitals, participate

¹³⁶ See 2016 BIDCO Committees, BETH ISRAEL DEACONESS CARE ORGANIZATION, <http://www.bidpo.org/aboutus/2016%20BIDCO%20Committees%202.pdf> (last visited July 26, 2016).

¹³⁷ See Medical Management Programs, BETH ISRAEL DEACONESS CARE ORGANIZATION, <http://www.bidpo.org/medicalmanagement/communitycase.html> (last visited July 26, 2016).

¹³⁸ See BIDCO 2015 Cost Trends Testimony, Response to Exh. B, Q.6, *supra* note 46.

in the Mass HIway,¹³⁹ and the HPC understands that BIDCO's primary approach to interoperability across different systems is to use web-based tools that allow a user of one EHR system to see (but not edit) a patient's record in another system. This capability is still being developed between BIDMC and community providers, and has also been extended to some non-BIDCO clinical affiliates of BIDMC, including Atrius.

Data Analytics: BIDCO has a robust infrastructure to support data analytics. BIDCO collects data from most member EHR systems, then combines the data with claims data from payers to produce reports for physician groups and risk units identifying performance on metrics relevant to risk contract performance.¹⁴⁰ We understand that BIDCO has invested significant effort in enhancing reports for risk units. The timely data in these reports may support BIDCO members in identifying and developing improvement initiatives, although the effectiveness with which risk units utilize the data likely varies.

Incentivizing Participants: BIDCO also has a well-developed model for transmitting risk contract incentives throughout the ACO, focused on measuring risk unit spending relative to historic benchmarks. Generally, risk units that generate savings share in the resulting surplus, while those that spend above their benchmark forfeit withheld funds even if BIDCO as a whole has achieved savings. As a result, each risk unit is individually incentivized to achieve savings relative to its own past spending.

Addressing Patient Needs: BIDCO members vary considerably with respect to their core patient populations, with some serving more low-income patients and/or patients with diverse linguistic and cultural needs. While BIDCO itself has not primarily focused on enhancing the capacities of BIDCO members to provide linguistically and culturally competent care to date, some BIDCO members have prioritized providing appropriate care for patients with diverse socioeconomic, linguistic and cultural needs.¹⁴¹ To the extent that new risk contract models, in particular those being developed for Medicaid patients in Massachusetts, include incentives for such initiatives, we would anticipate that BIDCO might offer additional support to its members in this area in the future.

b. BIDMC and HMFP Care Delivery Capabilities

Information provided by the parties indicates that BIDMC and HMFP collaborate on internal quality and care delivery initiatives using evidence-based guidelines, EHR support, and quality metric scorecards to measure performance over time. The HPC has found that BIDMC and HMFP clinical affiliations are typically understood as complementary to BIDCO

¹³⁹ See *Mass HIway Participant List*, MASSACHUSETTS HEALTH INFORMATION HIGHWAY, <http://www.masshiway.net/HPP/Resources/ParticipantList/index.htm> (last visited July 7, 2016).

¹⁴⁰ BIDCO 2015 Cost Trends Testimony, Responses to Exh. B, Q.6 and 7(c), *supra* note 46.

¹⁴¹ For example, BID-Milton Hospital recently used CHART investment funds to enhance its capability to work with non-English-speaking patients from its community by hiring an on-staff Vietnamese-speaking patient navigator and creating patient materials in Vietnamese, Spanish, and Haitian Creole. MASS. HEALTH POLICY COMM'N, CHART PHASE 1 — FOUNDATIONAL INVESTMENTS FOR TRANSFORMATION (July 13, 2015), *available at* <http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/chart/chart-report-final.pdf>.

membership; as noted above, all BIDCO hospitals are BIDMC clinical affiliates. For that reason, we focus here on the care delivery capabilities that BIDMC and HMFP generally bring to clinical affiliations, such as the proposed affiliation with MetroWest.

The HPC understands that BIDMC generally works with hospital affiliates to communicate best practices related to quality and care improvement through a variety of regular and semi-regular meetings, and BIDMC and HMFP state that they often focus their work with affiliates on improving particular service lines and clinical programs. One common feature of these clinical affiliations that can support reform initiatives is the placement of BIDMC/HMFP physicians and joint recruitment of medical leadership in community hospitals and recruitment and placement of primary care physicians in their communities.

BIDMC also uses health information technology to support cross-continuum care. BIDMC affiliates generally have access to the BIDMC EHR through a web-based tool, which can be helpful in coordinating care for patients seen at BIDMC and later at an affiliate hospital. BIDCO is also working with affiliates to provide real-time alerts when patients are admitted to a BID hospital or seen at a BID hospital's emergency department, and BIDMC, in particular, is working to expand and enhance this capability.

c. NEBH Care Delivery Capabilities

As a specialty hospital, NEBH has focused its care delivery efforts primarily on optimizing patient care processes for orthopedic and musculoskeletal care as detailed below.

NEBH has well-developed clinical pathways to implement evidence-based guidelines for different types of orthopedic and musculoskeletal care. In particular, NEBH's Musculoskeletal Surgical Care Pathway is a robust effort to track patients across the spectrum of services required throughout a joint replacement process. Beginning with a preoperative assessment and case management and ending with a focus on appropriate use of post-acute care, this system is well-defined and has been subject to continuous improvement over time.

NEBH also has a well-defined process for coordinating care for patients transferred to post-acute care facilities. The process relies on NEBH relationships with "preferred providers," who agree to implement NEBH protocols and physician orders for NEBH patients. Further, post-acute providers have access to NEBH's EHR system, which facilitates care coordination.

NEBH's EHR system includes clinical registries used to track patient care processes and outcomes. NEBH states that it uses the data in the registries to examine relationships between clinical decisions (e.g., use of particular techniques) and outcomes, so as to further refine care models.

NEBH has also developed a set of quality metrics and dashboards as well as an event reporting system. The dashboards track current performance and trends as well as identify goals for the future. NEBH states that physicians and staff are actively engaged in reviewing these metrics and outcomes and using results for future action planning.

d. MetroWest Care Delivery Capabilities

In contrast to BIDCO and NEBH, MetroWest appears to be primarily implementing targeted care delivery and quality improvement programs using data analytics provided by its parent corporation.

MetroWest has a range of quality improvement structures established through Tenet, focused on improving performance on hospital-specific quality measures. MetroWest and Tenet produce robust quality reports and scorecards that regularly describe performance for all patients seen at the hospital. However, MetroWest has identified the need to enhance its data analytic capabilities to better leverage the patient data it collects. MetroWest also utilizes committees to identify steps to improve performance, and operates a variety of local quality initiatives, including initiatives to improve patient experience. MetroWest has also adopted Lean Daily Management strategies.¹⁴²

2. The Parties' Performance on Standard Quality Measures

In addition to examining the parties' current care delivery capabilities, the HPC also examined the parties' quality performance¹⁴³ in recent years to establish a baseline from which to assess whether differences in the parties' performance could be expected to drive beneficial clinical impacts following the transactions.¹⁴⁴ We note that, given the limited focus and recent creation of some of the care delivery systems and programs detailed above, as well as the fact that many of the quality measures examined reflect performance in 2013 and 2014, the measures detailed below are unlikely to reflect the full impact of the care delivery systems and procedures outlined above at this point in time.

¹⁴² Lean is a management strategy focused on “designing, performing, and continuously improving the work delivered by teams of people...” John S. Toussaint & Leonard L. Berry, *The Promise of Lean in Health Care* 88 MAYO CLINIC PROCEEDINGS 74 (2013), available at <http://www.mayoclinicproceedings.org/article/S0025-6196%2812%2900938-X/fulltext>. Adoption of Lean strategies does not guarantee improved quality or efficiency, but evidence suggests that these approaches have potential to enhance hospital operations to achieve these goals. See, e.g., INSTIT. FOR HEALTHCARE IMPROVEMENT, GOING LEAN IN HEALTH CARE (2005), available at <https://www.entnet.org/sites/default/files/GoingLeaninHealthCareWhitePaper-3.pdf>.

¹⁴³ Our analysis is based on the best available, nationally accepted measures on quality and care delivery performance. As additional measures of quality performance are developed, we look forward to incorporating them into our future work. We used the most recently available data across all measures examined; however, because data updates for some measures have lagged behind recent changes in the parties' clinical and contracting affiliations, those measures do not necessarily reflect the impacts of these more recent affiliations. We have indicated for each measure the time frame for the data we examined.

¹⁴⁴ An important factor that may increase the likelihood of a beneficial quality impact from a transaction is substantial pre-affiliation clinical superiority of one party, though differences in quality by themselves do not guarantee a transaction will result in quality improvements. See Patrick Romano & David Balan, *A Retrospective Analysis of the Clinical Quality Effects of the Acquisition of Highland Park Hospital by Evanston Northwestern Healthcare*, 18 INT. J. ECON. BUS. 45 (2011) (“[P]re-merger quality differences suggest one hospital has something of value to impart to the other.”).

In our examination, we focused on three core domains of quality: clinical processes, clinical outcomes, and patient experience of care. After examining 76 valid and nationally endorsed measures across these domains,^{145, 146} we found that:

- BIDCO hospitals and physician groups tended to be at or above the state's average performance on most standard quality measures, but performance on individual measures varied significantly between different BIDCO members. BIDMC performed comparably to its AMC peers.
- Currently available data do not yet show discernable impacts of BIDCO affiliation on affiliate hospitals' quality measure performance. However, clinical affiliation with BIDMC, for which there is more historic data than for affiliation with BIDCO, is correlated with improved performance on hospital affiliates' patient experience and process measures.
- NEBH performed exceptionally well on measures most relevant to its core orthopedic and musculoskeletal services, both compared to state averages and to the BIDCO hospitals. NEBCIO physician performance was not consistently better or worse than that of BIDCO groups.
- MetroWest¹⁴⁷ performed close to the state average on most measures, with some strengths and weaknesses relative to BIDCO hospitals and local comparators.

a. Clinical Process Measures

Clinical processes are the elements of workflow in a clinical environment, such as adherence to guidelines or the timely provision of certain accepted services. We examined the following clinical process measures and found the following:

- *Process measures of timely and effective care for acute myocardial infarction, heart failure, and pneumonia; and Surgical Care Improvement Project measures.*¹⁴⁸

¹⁴⁵ We assessed a broad spectrum of measures capturing different segments of care, with a focus on certain measures most relevant to the proposed transactions. Where possible, measures were drawn from the Massachusetts Standard Quality Measure Set. See CTR. FOR HEALTH INFO & ANALYSIS, STANDARD QUALITY MEASURE SET (SQMS), <http://www.chiamass.gov/sqms/> (last visited July 7, 2016).

¹⁴⁶ As discussed below, we primarily relied on hospital- and physician-group specific quality measures to assess performance of the providers under review. In addition, we examined the performance of BIDCO as a whole in its Medicare Pioneer ACO contracts, as reported by CMS, which includes data across the categories of clinical process, clinical outcomes, and patient experience. In 2013, BIDCO's performance on Pioneer measures was above the national average for all ACOs for all CMS measure domains (Patient/Caregiver Experience, Care Coordination/Patient Safety, Preventive Health, and At-Risk Population). For measures in Patient/Caregiver Experience, BIDCO's performance was near or above the 90th percentile for several metrics. In 2014, BIDCO performance improved on more measures than those that declined, and in particular showed notable improvement in the rate of depression screenings. BIDCO's overall position relative to other ACOs remained above average nationwide and did not appear to change appreciably from 2013 to 2014. See *Pioneer ACO Model*, CTRS. FOR MEDICARE & MEDICAID SERVS., <https://innovation.cms.gov/initiatives/Pioneer-aco-model/> (last visited July 21, 2016) (including documents showing performance results for ACOs in 2012, 2013, and 2014).

¹⁴⁷ Sources of inpatient quality data generally aggregate MetroWest's two campuses, Leonard Morse Hospital and Framingham-Union Hospital.

¹⁴⁸ In addition to examining these measures separately, the HPC used CMS Hospital Compare data to create a singular weighted composite process measure of the parties' performance for each year 2011 through 2015. The

Performance on these measures for nearly all Massachusetts hospitals was good and gradually improving; the state average for most measures in 2015 was a nearly perfect score (e.g., above 98% rate of compliance with desired process), having improved from strong scores since 2010 (e.g., 93% compliance rates). BIDCO hospital performance ranged from slightly below to slightly above average on all measures, and BIDMC was slightly above average. Available data suggest that clinical affiliation with BIDMC may be correlated with some improvement in affiliate hospitals' scores on these measures.¹⁴⁹ NEBH performed at the state average for applicable measures and MetroWest performed at or above average on all measures.

- *Ambulatory Care (HEDIS) Process Measures.*¹⁵⁰ The HPC analyzed 19 measures of primary care performance on preventative care services, including screenings for cancer and sexually transmitted infections; management of depression, diabetes, and cardiovascular conditions; and medication follow-up and reconciliation. While some measures do not apply to NEBCIO physicians, on applicable measures NEBCIO tended to perform at or close to the state average. As a network, BIDCO's performance tended to be at or slightly above the state average.¹⁵¹ Within BIDCO, member groups exhibited a range of performance, with some above and others below the state average for different measures. Statewide average performance generally improved slightly over the most recent years for which data are available, with the parties' physician groups generally following this trend of improvement.

Overall, NEBH, BIDCO hospitals, and MetroWest all tended to perform close to the state average on hospital clinical process measures. There was more variation in the

weighted process measure was composed of hospital process composites for acute myocardial infarction (AMI), pneumonia, heart failure, and surgical care improvement project (SCIP) measures. *See Measures Displayed on Hospital Compare*, CTRS. FOR MEDICARE & MEDICAID SERVS.,

<http://www.medicare.gov/hospitalcompare/Data/Measures-Displayed.html> (last visited July 26, 2016) (hospital process measures in "Timely and Effective Care – Hospital" link). The HPC obtained data on these process measures at *Hospital Compare datasets*, CTRS. FOR MEDICARE & MEDICAID SERVS., <https://data.medicare.gov/data/hospital-compare> (last visited July 21, 2016).

¹⁴⁹ To assess whether clinical affiliation with BIDMC or contracting affiliation with BIDCO were correlated with quality improvement at affiliated hospitals, we examined affiliating hospitals' performance using several methods, including raw scores pre- and post-affiliation, scores averaged over post-affiliation years, and difference in rates of improvement relative to state average over time. We analyzed the correlation of affiliation with changes in performance across all of the hospital quality measures we examined. Based on these assessments, we found that affiliation with BIDMC appeared to be correlated with improved performance across all affiliate hospitals on hospital process measures and patient experience measures. Affiliation with BIDCO was not correlated with improved performance across all affiliates in any category of quality measures.

¹⁵⁰ *HEDIS*® and *Quality Compass*®, NAT'L COMM. FOR QUALITY ASSURANCE, <http://www.ncqa.org/HEDISQualityMeasurement/WhatIsHEDIS.aspx> (last visited July 21, 2016). The HPC obtained 2010 data on HEDIS measures from Massachusetts Health Quality Partners (MHQP) and 2012 data from CTR. FOR HEALTH INFO. & ANALYSIS, 2014 PERFORMANCE SERIES, <http://www.chiamass.gov/assets/docs/r/pubs/14/2014-performance-series.zip> (last visited July 21, 2016).

¹⁵¹ Analysis of ambulatory HEDIS performance is based on 2010 and 2012 data, due to constraints in data availability. However, in reviewing additional confidential material, the HPC has not seen evidence indicating that BIDCO has generally changed its position relative to comparator providers or to overall state performance since that time.

performance of the parties' physician groups, but no group stood out as consistently performing above or below state average scores.

b. *Clinical Outcome Measures*

We examined a wide range of hospital clinical outcome measures, including composite measures of complication and mortality rates and readmission rates, as well as measures specific to hip and knee replacements and obstetrics.¹⁵²

- *Overall hospital rates of complications and mortality (AHRQ measures).* We examined the frequency that patients experienced complications as a result of hospital care using the AHRQ composite Patient Safety Indicator (PSI) 90.¹⁵³ In 2014, BIDCO hospitals, including BIDMC, performed at or near the state average. The same was true for NEBH and MetroWest.¹⁵⁴ We also examined hospital patient mortality rates using the AHRQ composites Inpatient Quality Indicator (IQI) 90 and IQI-91.¹⁵⁵ In 2014, BIDCO hospitals, NEBH, and MetroWest performed at or near the state average on both measures.¹⁵⁶

¹⁵² We also examined healthcare-associated infection rates (HAIs). Based on the available data, we did not find that any of the parties scored notably better or worse than the state average. We also did not identify any trends in the parties' performance over time. *Hospital Compare: Healthcare Associated Infection*, CTRS. FOR MEDICARE & MEDICAID SERVS. <https://www.medicare.gov/hospitalcompare/Data/Healthcare-Associated-Infections.html> (last visited July 26, 2015). The HPC obtained data on HAI measures at *Hospital Compare datasets*, CTRS. FOR MEDICARE & MEDICAID SERVS., <https://data.medicare.gov/data/hospital-compare> (last visited July 21, 2016).

¹⁵³ PSI-90 data are available at CTR. FOR HEALTH INFO. & ANALYSIS, PATIENT SAFETY, <http://www.chiamass.gov/patient-safety/> (see the "Patient Safety" tab in the "Databook (Excel)" link). For more detail on PSI measures, see *Patient Safety Indicators Overview*, AGENCY FOR HEALTHCARE RESEARCH & QUALITY http://www.qualityindicators.ahrq.gov/modules/psi_resources.aspx (last visited July 21, 2016) (discussing the use of PSIs to measure the frequency of a variety of adverse outcomes and preventable harm); *Patient Safety for Selected Indicators, Technical Specifications, Patient Safety Indicators #90*, AGENCY FOR HEALTH CARE RESEARCH & QUALITY (2015), available at http://www.qualityindicators.ahrq.gov/Downloads/Modules/PSI/V50/TechSpecs/PSI_90_Patient_Safety_for_Selected_Indicators.pdf (showing the measures that are part of the PSI-90 health status adjusted composite) (last visited July 26, 2016).

¹⁵⁴ Between 2010 and 2014, state average performance on this measure improved modestly; BID-Milton showed improved performance during this period, while the performance of most other BIDCO hospitals and NEBH were relatively stable. MetroWest, Lawrence General Hospital, BIDMC, and BID-Plymouth demonstrated slight declines in performance during this period. However, in 2014, none of these hospitals' performance was statistically different from the state average.

¹⁵⁵ The HPC computed IQI composites from CHIA hospital discharge data for 2010 through 2014 using code available from AHRQ. *Mortality for Selected Procedures: Technical Specifications, Inpatient Quality Indicators #90*, AGENCY FOR HEALTH CARE RESEARCH & QUALITY, (2015) available at http://www.qualityindicators.ahrq.gov/Downloads/Modules/IQI/V50/TechSpecs/IQI_90_Mortality_for_Selected_Procedures.pdf (2015); *Mortality for Selected Conditions: Technical Specifications, Inpatient Quality Indicators #91*, available at AGENCY FOR HEALTH CARE RESEARCH & QUALITY (2015), http://www.qualityindicators.ahrq.gov/Downloads/Modules/IQI/V50/TechSpecs/IQI_91_Mortality_for_Selected_Conditions.pdf.

¹⁵⁶ State average performance did not change significantly from 2011 to 2014 for IQI-90, and no party hospital showed significant change in this period. State average performance improved slightly for the IQI-91 between 2011 and 2014, while the performance of all parties' hospitals varied throughout this period without showing a consistent trend.

- *Readmission rates.*¹⁵⁷ In 2015, NEBH had overall hospital readmission rates that were significantly better than state averages and better than all BIDCO hospitals. BIDCO hospitals generally performed near the state average, with BIDMC slightly below average, while MetroWest performed slightly better than the state average. In general, performance on readmissions has improved across the state, and NEBH, MetroWest, and most BIDCO hospitals have followed this trend of gradual improvement over time.
- *Hip and Knee Replacement Measures.*¹⁵⁸ On measures of the frequency of complications and readmissions after hip or knee replacement, NEBH significantly outperformed the state average, as well as all BIDCO hospitals and MetroWest. This pattern was consistent over time. NEBH's performance on hip and knee replacement readmission rates likely contributed to its success in keeping overall readmission rates low, because these procedures are a large part of the hospital's total inpatient volume. BIDCO hospitals, including BIDMC, had below average performance on hip and knee complication and readmission rates (though these differences were not statistically significant), while MetroWest's performance improved over time on both measures, and was at or near the state averages in 2015.
- *Obstetric Measures.*¹⁵⁹ On measures of rates of early elective deliveries, caesarian sections (c-sections), and episiotomies, BIDCO hospitals tended to perform better than average, while MetroWest's performance was mixed. MetroWest performance was below the state average for episiotomy rates, close to the average for c-section rates, and better than average for early elective deliveries.

Overall during the time periods we examined, NEBH had excellent performance on applicable patient outcomes measures, BIDCO hospitals showed a great deal of variation but tended to be at or above average on most measures, and MetroWest tended to perform in the same range as BIDCO hospitals. On some measures, MetroWest showed particular improvement over time, including on overall readmission rates and hip and knee replacement readmission and complication rates.

¹⁵⁷ CTR. FOR HEALTH INFO. & ANALYSIS, ANNUAL REPORT ON THE PERFORMANCE OF THE MASSACHUSETTS HEALTH CARE SYSTEM, TECHNICAL Appendix 5 (Nov. 2015), available at <http://www.chiamass.gov/assets/docs/r/pubs/15/2015-Focus-on-Provider-Quality-Technical-Appendix.pdf>.

¹⁵⁸ *Hospital Compare: Complication Rate for Hip/Knee Replacement Patients*, CTRS. FOR MEDICARE & MEDICAID SERVS. <https://www.medicare.gov/hospitalcompare/Data/Surgical-Complications-Hip-Knee.html> (last visited July 21, 2016); *Hospital Compare: Surgical Complications – AHRQ Patient Safety Indicators*, CTRS. FOR MEDICARE & MEDICAID SERVS. <https://www.medicare.gov/hospitalcompare/Data/Serious-Complications.html> (last visited July 21, 2016). The HPC obtained data on hip and knee replacement measures at *Hospital Compare datasets*, CTRS. FOR MEDICARE & MEDICAID SERVS., <https://data.medicare.gov/data/hospital-compare> (last visited July 21, 2016).

¹⁵⁹ Obstetric data are available at CTR. FOR HEALTH INFO. & ANALYSIS, ANNUAL REPORT ON THE PERFORMANCE OF THE MASSACHUSETTS HEALTH CARE SYSTEM, DATA APPENDIX: A FOCUS ON PROVIDER QUALITY (Nov. 2015) [hereinafter CHIA QUALITY DATABOOK], <http://www.chiamass.gov/assets/Uploads/2015-Focus-on-Provider-Quality-Databook-UpdatedDec2015.xlsx>. For more detail on these measures, see *Maternity Care*, LEAPFROG GROUP, <http://www.leapfroggroup.org/ratings-reports/maternity-care> (last visited July 21, 2016).

c. Patient Experience

We examined a range of patient experience measures for hospitals.¹⁶⁰ We found that overall, NEBH performed exceptionally well compared to the state average, BIDCO hospitals tended to perform at or near the state averages, and MetroWest tended to score slightly below average, although higher than a few BIDCO hospitals. BIDMC performed about average, similarly to other AMCs. Available data suggest that clinical affiliation with BIDMC may be correlated with some improvement in affiliate hospitals' scores on these measures.¹⁶¹ Examining performance since 2010, patient experience scores for some BIDCO hospitals improved faster than the state average, while MetroWest performance declined over this period.

We also examined primary care patient experience scores for adult populations.¹⁶² We found that in 2014, BIDCO physician groups generally performed at the state average, although across different measures, some BIDCO groups were significantly below or above the state average. Neither BIDCO as a network nor individual physician groups demonstrated notable improvement from 2011-2014, which is consistent with trends across the state as a whole. In 2014, NEBCIO performed slightly better than average; however, earlier data was not available for comparison.

In sum, all of the parties have sought to develop structures to support care delivery and quality improvement initiatives, although their approaches vary significantly. As an ACO, BIDCO is particularly focused on supporting members' risk contract performance. To date, BIDCO member quality scores have remained generally near or slightly above the state average, and data to date do not show that BIDCO's focused care delivery approach has had a significant impact on the overall quality scores of its members. However, this impact may become visible in later years of data, and BIDCO may continue to expand and enhance its quality improvement programs through greater resource commitments, increased provider participation, and extending its improvement programs to additional patient populations. NEBH has been focused on optimizing patient care processes, and NEBH performs exceptionally well on measures most relevant to its core orthopedic and musculoskeletal services, both compared to state averages and to BIDCO hospitals. MetroWest has focused on implementing targeted quality improvement programs using data analytics provided by its parent corporation. To date, MetroWest has generally performed close to the state average on

¹⁶⁰ *Hospital Quality Initiative: HCAHPS – Patients' Perspectives of Care Survey*, CTRS. FOR MEDICARE & MEDICAID SERVS., <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-instruments/HospitalQualityInits/HospitalHCAHPS.html> (last visited July 21, 2016). The HPC obtained Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) data at *Hospital Compare datasets*, CTRS. FOR MEDICARE & MEDICAID SERVS., <https://data.medicare.gov/data/hospital-compare> (last visited July 21, 2016).

¹⁶¹ See *supra* note 149.

¹⁶² The HPC obtained and analyzed Adult and Pediatric Ambulatory Care Patient Experience Surveys for 2011 from MHQP. Data from 2013 is available at CHIA QUALITY DATABOOK, *supra* note 159 ("Primary Care Patient Experience" tab). Data from 2014 is available at CTR. FOR HEALTH INFO. & ANALYSIS, 2014 PERFORMANCE SERIES, available at <http://www.chiamass.gov/assets/docs/r/pubs/14/2014-performance-series.zip>. For more detail on this measure, see *Read About the Clinician and Group Survey (CG-CAHPS)*, AGENCY FOR HEALTH CARE RESEARCH & QUALITY, <http://www.ahrq.gov/cahps/surveys-guidance/cg/about/index.html> (last visited July 21, 2016).

quality measures, with some strengths and weaknesses relative to BIDCO hospitals and local comparators. These measures of the parties' care delivery structures and quality performance to-date will form the basis for our projections of the impacts of the proposed transactions on quality and care delivery in Section IV.B.

C. ACCESS BASELINE PERFORMANCE

In order to understand the parties' current role in providing access to needed care, the HPC monitors a variety of factors relating to health care access in its review of provider material changes (e.g., "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," "[the provision of] low margin or negative margin services," and "consumer concerns").¹⁶³ Examining the parties' current role in these areas allows us to assess the potential impacts of the proposed transactions on patient access and whether the parties' plans address identifiable community needs. We evaluated the following measures of access in our review of these transactions:

1. **Payer mix:** We examined the proportion of care delivered to patients covered by different forms of insurance, including government payer patients.
2. **Service mix and community need:** We examined the proportion of care providers deliver in different service lines, including lower margin service lines.

Examining a provider's payer mix can indicate whether it attracts a larger or smaller share of one type of patient compared to other nearby providers and compared to the population living in its service area. 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 in turn incentivize providers to try to attract more commercial patients rather than Medicaid patients.¹⁶⁴ We examined the payer mix of BIDCO member hospitals, MetroWest, and NEBH, as measured by both share of gross patient service revenue (GPSR) and discharges.¹⁶⁵ From these analyses we found:

¹⁶³ MASS. GEN. LAWS ch. 6D, § 13(d)(vi, ix-xii).

¹⁶⁴ See, e.g., INSTITUTE OF MEDICINE, ACCESS TO HEALTH CARE IN AMERICA at 40 (Michael Millman ed., 1993) ("[M]ost structural barriers to access have their roots in the way health care is financed. Despite a greatly enlarged physician force and the existence of some 600 community health centers, many of today's poor still find it difficult to identify physicians who will accept Medicaid. A major reason for this dilemma is Medicaid's low reimbursement rates").

¹⁶⁵ The HPC examined the payer mix at acute care hospitals using (1) data gathered by CHIA on inpatient and outpatient GPSR by payer for 2014 (the most recent year of data available) and (2) CHIA hospital discharge data by payer for 2012 to 2015. Because GPSR represents payer mix of both inpatient and outpatient services, comparing a hospitals' payer mix using these two methods indicates whether hospital is seeing more patients of each insurance type on an inpatient or outpatient basis. GPSR data are from CHIA HOSPITAL PROFILES DATABOOK, *supra* note 123.

- BIDCO community hospitals tend to have relatively high government payer mix, and several are important safety net providers with particularly high Medicaid payer mix. Similarly, MetroWest serves a high mix of government payer patients, including a particularly high mix of Medicaid patients compared to other area hospitals.
- In contrast, both BIDMC and NEBH serve relatively low proportions of government payer patients according to the most recent available data. NEBH currently provides a very low share of orthopedic and musculoskeletal services to Medicaid patients.

We also reviewed the mix of services by major service category (medical, surgical, behavioral health, and deliveries) provided at BIDMC, BIDCO community hospitals, MetroWest, and NEBH.¹⁶⁶ Examining a hospital's service mix can indicate whether the hospital is providing a set of services that is well aligned with the needs of the patients in its PSA, whether it is providing greater access to services that may not be otherwise available, and whether it is providing a disproportionate share of services for which revenue margins tend to be low (like behavioral health) or which are likely to generate revenue in the long term (like obstetrics).¹⁶⁷

From this analysis we found that MetroWest is an important provider of behavioral health services in its service area; among BIDCO hospitals, CHA and Anna Jaques also deliver large shares of inpatient behavioral health services.

These findings are detailed below.

1. BIDCO community hospitals tend to have relatively high government payer mix, and several have particularly high Medicaid payer mix.

We examined the payer mix of BIDCO community hospitals compared to the payer mix of all patients from their PSAs who utilized inpatient care to determine, relative to the residents of the geographic area each hospital serves, the proportion of government payer patients cared for by that hospital.

We found that BIDCO community hospitals uniformly have high government payer mix compared to their PSAs.¹⁶⁸ Lawrence General and CHA also serve a large proportion of

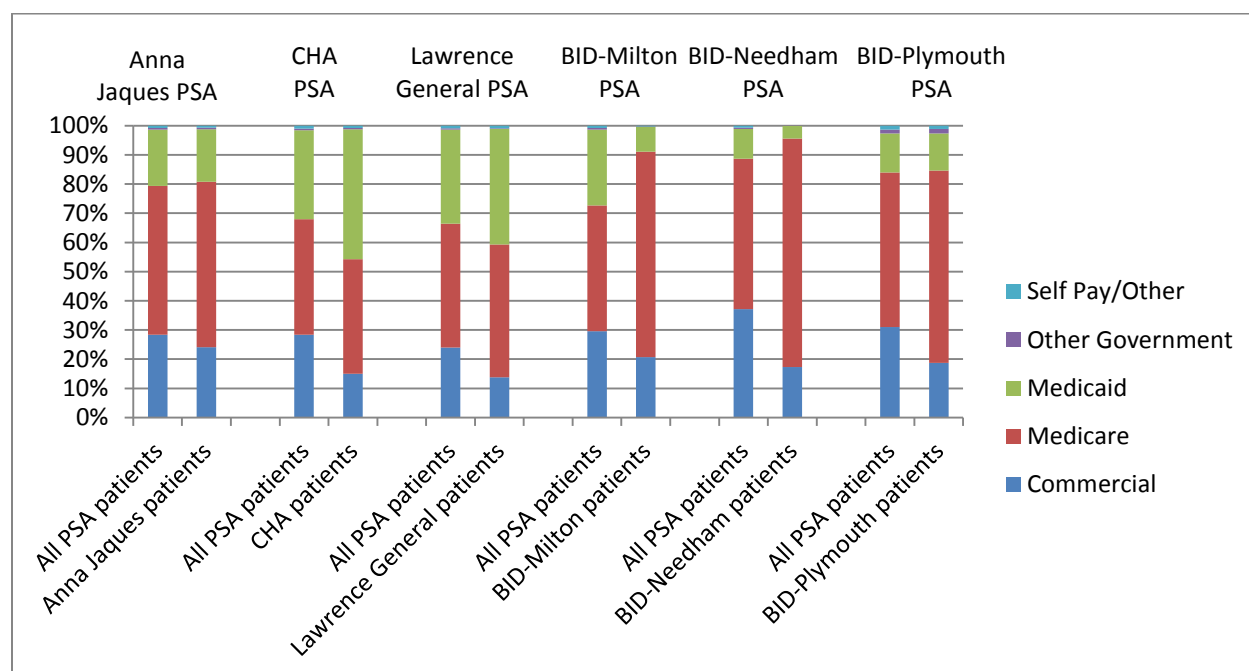
¹⁶⁶ We examined payer mix at acute care hospitals using CHIA discharge data for 2012 through 2015.

¹⁶⁷ Obstetrics can be a desirable service line because women drive many of the health care decisions for their families; a good labor and delivery experience can make it more likely that the entire family will return to the hospital in the future. *See generally* Rhoda Nussbaum, *Studies of Women's Health Care: Selected Results*, 4 THE PERMANENTE JOURNAL 62 (2000); Dagmara Scalise, *Defining and Refining Women's Health*, HOSP. & HEALTH NETWORKS MAGAZINE (Oct. 2003).

¹⁶⁸ As mentioned previously, the HPC generally defines a hospital PSA to be the contiguous area closest to a hospital from which the hospital draws 75% of its commercial discharges. *See supra* note 101. A review of payer mix by PSA is instructive because it focuses on a fixed population (the residents of a hospital's PSA). Within that fixed population, we examine the cross-section each hospital serves, and the payer mix of that cross-section. For example, in BID-Needham's PSA, residents "used" or "needed" 48,386 discharges in 2014. We then analyze the payer mix of the share (or cross-section) of those total PSA discharges provided by different categories of hospitals that serve residents of the PSA.

Medicaid patients compared to the payer mix of patients in their PSAs. BID-Milton, BID-Needham and, to a lesser degree, BID-Plymouth serve comparatively smaller shares of Medicaid patients; however, they all serve high shares of Medicare patients.¹⁶⁹ These patterns are shown in the graph below.

Inpatient Payer Mix in BIDCO Community Hospital PSAs



Source: 2015 CHIA hospital discharge data

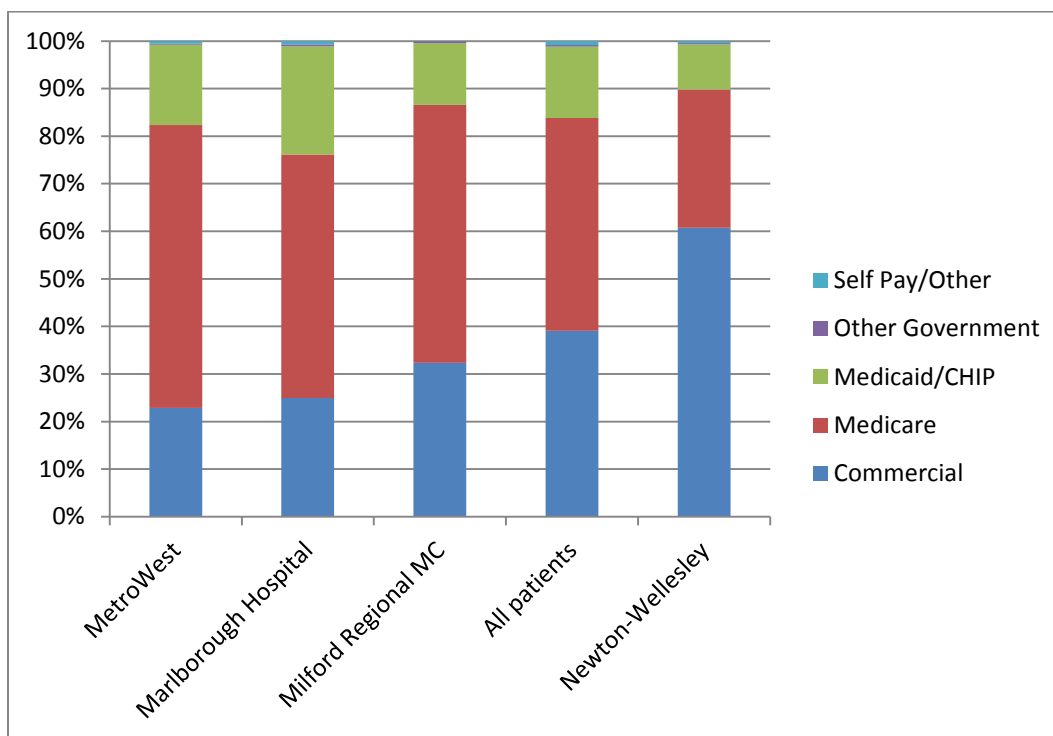
2. MetroWest also serves more government payer patients, including a larger share of Medicaid patients than most other area hospitals.

Similar to several of the BIDCO hospitals, MetroWest's government payer mix in its PSA is high and its Medicaid mix is particularly high compared to other local hospitals and to the payer mix of patients in its PSA.¹⁷⁰ In MetroWest's PSA, MetroWest serves the greatest share of public payer patients while Newton-Wellesley receives a disproportionate share of commercial discharges. These patterns are shown in the graph below.

¹⁶⁹ Comparing the hospitals' payer mix by GPSR to their payer mix by discharges, we found that BIDCO community hospitals tended to provide a lower mix of Medicare and higher mix of commercial care on an outpatient basis; Lawrence General and Anna Jaques provided a slightly lower mix of outpatient Medicaid care, while the other BIDCO hospitals provided slightly higher mix of Medicaid care.

¹⁷⁰ MetroWest's had a slightly larger Medicaid mix (18.4%) and commercial mix (36.7%) by GPSR in 2014, indicating that it provided a larger share of services to these patients on an outpatient basis.

Inpatient Payer Mix in MetroWest's PSA



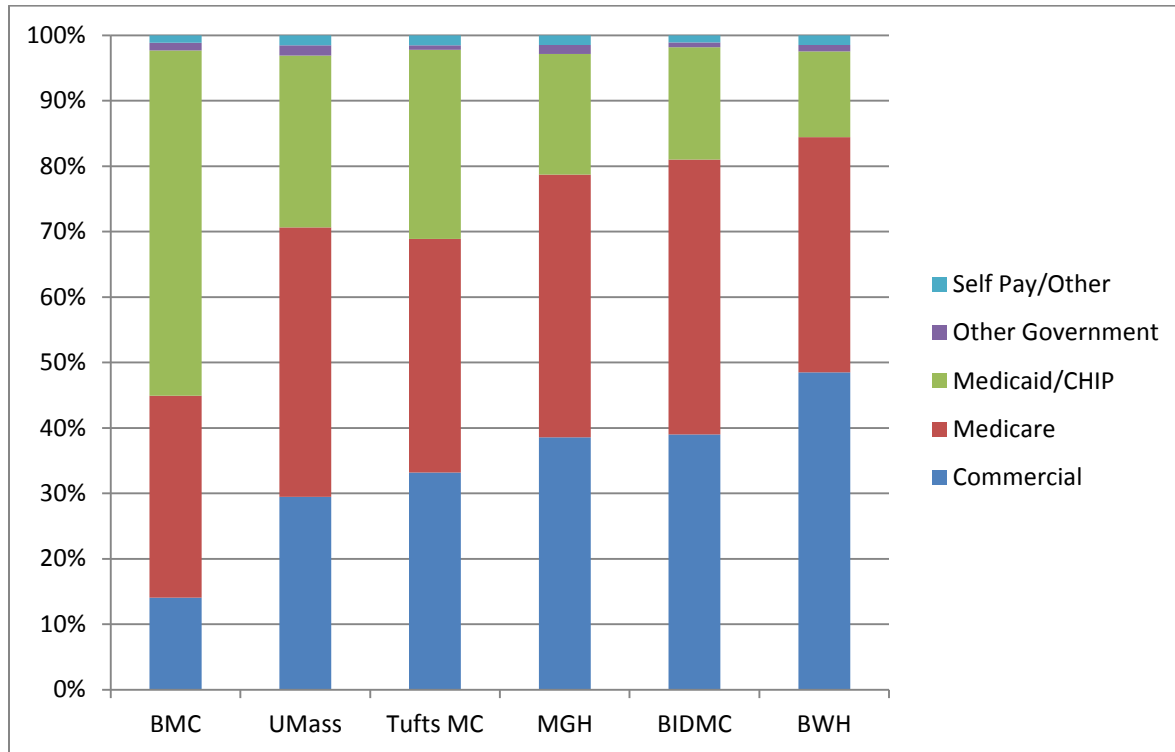
Source: 2015 CHIA hospital discharge data

3. In contrast, both BIDMC and NEBH serve relatively low proportions of government payer patients; NEBH currently provides a very low share of orthopedic and musculoskeletal services to Medicaid patients.

We also compared BIDMC's payer mix to that of other AMCs. Compared to other AMCs, BIDMC's share of government payer patients is lower than most, including its share of Medicaid patients, as shown in the graph below.¹⁷¹

¹⁷¹ When measured by GPSR, the order of AMCs shown in the graph below does not change.

Inpatient Payer Mix at AMCs Statewide



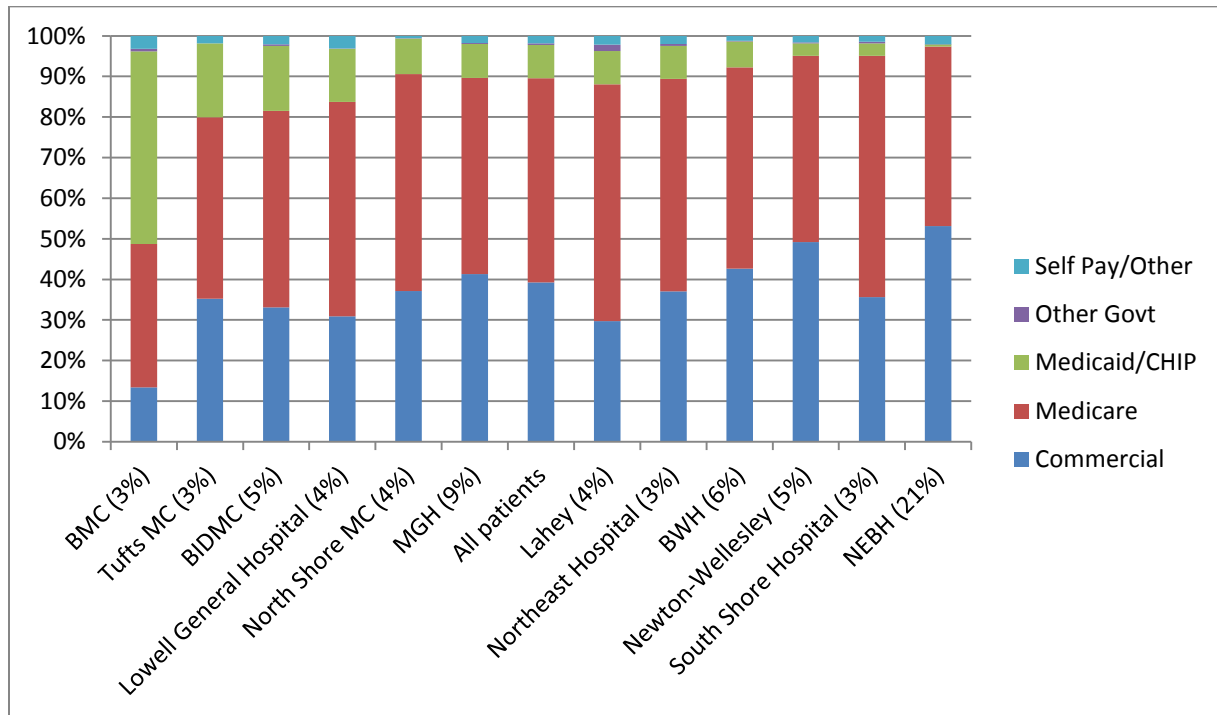
Source: 2015 CHIA hospital discharge data

NEBH's payer mix was even more heavily weighted toward commercial business in 2015: commercially insured patients made up 53.2% of its core orthopedic and musculoskeletal discharges for patients in its PSA. Medicare patients made up an additional 44.2% of discharges, while Medicaid patients made up less than 1% of its discharges.¹⁷² This pattern does not hold true for the payer mix of orthopedic and musculoskeletal patients seen at other hospitals providing these services. The chart below focuses on the core inpatient orthopedic and musculoskeletal services NEBH provides, showing the payer mix of the top 12 providers of these services to patients residing in NEBH's inpatient PSA.¹⁷³ As shown below, Boston Medical Center (BMC) had the highest mix of government payer patients (35.4% Medicare, 47.5% Medicaid) for these orthopedic and musculoskeletal services in 2015, while BIDMC had the fourth highest share (48.4% Medicare, 16% Medicaid).

¹⁷² NEBH's payer mix for all inpatient services and its payer mix by GPSR were nearly identical to its payer mix for inpatient orthopedic and musculoskeletal services.

¹⁷³ Together these hospitals account for approximately 70% of all discharges for these services for patients residing in NEBH's inpatient PSA. Based on 2015 CHIA hospital discharge data for NEBH's PSA in NEBH core services DRGs. See *supra* note 111.

Inpatient Payer Mix for Orthopedic and Musculoskeletal Services in NEBH's PSA



Source: 2015 CHIA hospital discharge data

Notes: Hospitals are shown with the percent share of inpatient orthopedic and musculoskeletal services they provide to patients of NEBH's PSA.

Pursuant to its clinical affiliation with BIDMC and HMFP, NEBH has taken some steps to expand access for Medicaid patients, including opening a specialty clinic within NEBH in October 2014 focused on serving Medicaid patients. NEBH has also recently seen an increase in revenue from managed Medicaid plans,¹⁷⁴ and has stated that it is committed to increasing the share of government payer patients it serves. While this commitment may result in increases in NEBH's Medicaid payer mix over time, we do not yet have data that show a substantial change in access to NEBH for Medicaid patients.

4. MetroWest provides a significant share of behavioral health discharges in its service area; some BIDCO community hospitals also have high shares of behavioral health services.

We found that MetroWest is a key provider of inpatient behavioral health services in its PSA. With 86 psychiatric beds,¹⁷⁵ MetroWest provides over 40% of behavioral health

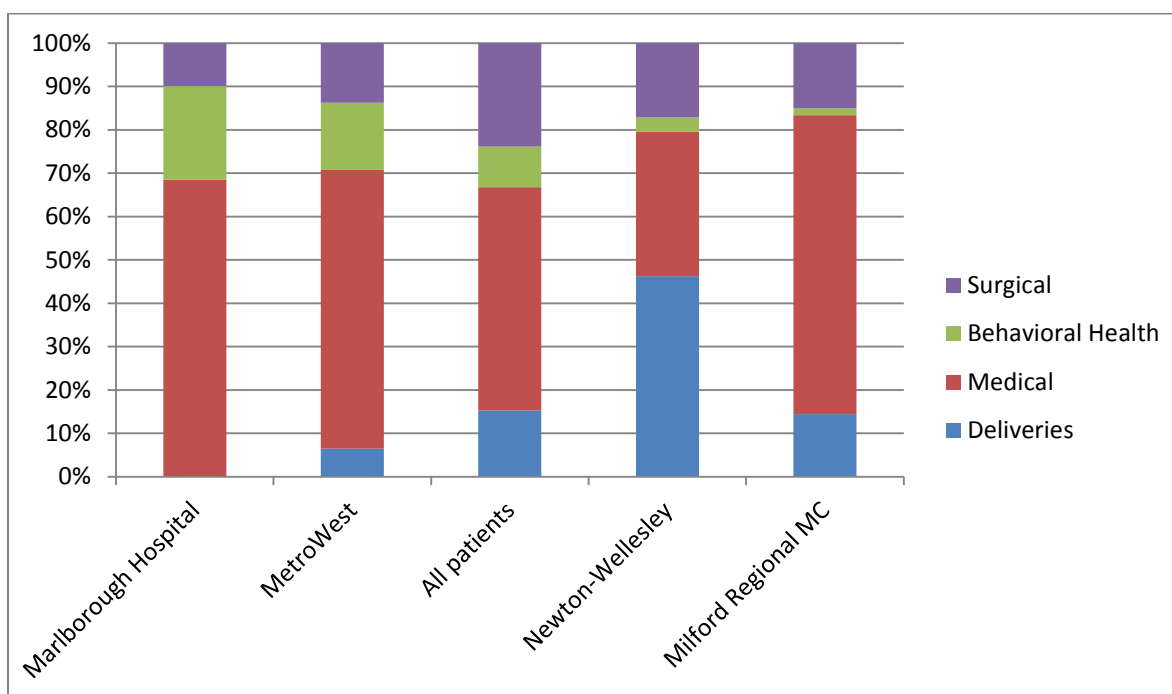
¹⁷⁴ According to CHIA Hospital Profiles data, NEBH began receiving patient service revenue from managed Medicaid plans in 2013, and received \$144,290 in GPSR from managed Medicaid plans in 2014. CHIA HOSPITAL PROFILES DATABOOK, *supra* note 123. See also *Insurances Accepted*, NEW ENGLAND BAPTIST HOSPITAL, <http://www.nebh.org/becoming-a-patient/insurances-accepted/> (last visited July 21, 2016) (including managed Medicaid plans from Fallon Community Health Plan, Neighborhood Health Plan, and THP).

¹⁷⁵ MetroWest's psychiatric beds include 14 adolescent beds, 24 geriatric beds, and 48 adult beds.

discharges to patients living in its inpatient PSA, and mental health discharges represent a large proportion of its discharges compared to most other local hospitals.¹⁷⁶ MetroWest's volume of outpatient behavioral health visits has also grown substantially in recent years.¹⁷⁷

In contrast, MetroWest provided a low share of deliveries in 2015, generally considered to be a service line which can generate significant revenue in the long term.¹⁷⁸ Newton-Wellesley provided a disproportionately large share of deliveries from MetroWest's PSA. However, information provided by MetroWest indicates that its volume of deliveries has been increasing recently as a result of affiliations with local physician groups.

Inpatient Service Mix in MetroWest's PSA



Source: 2015 CHIA hospital discharge data

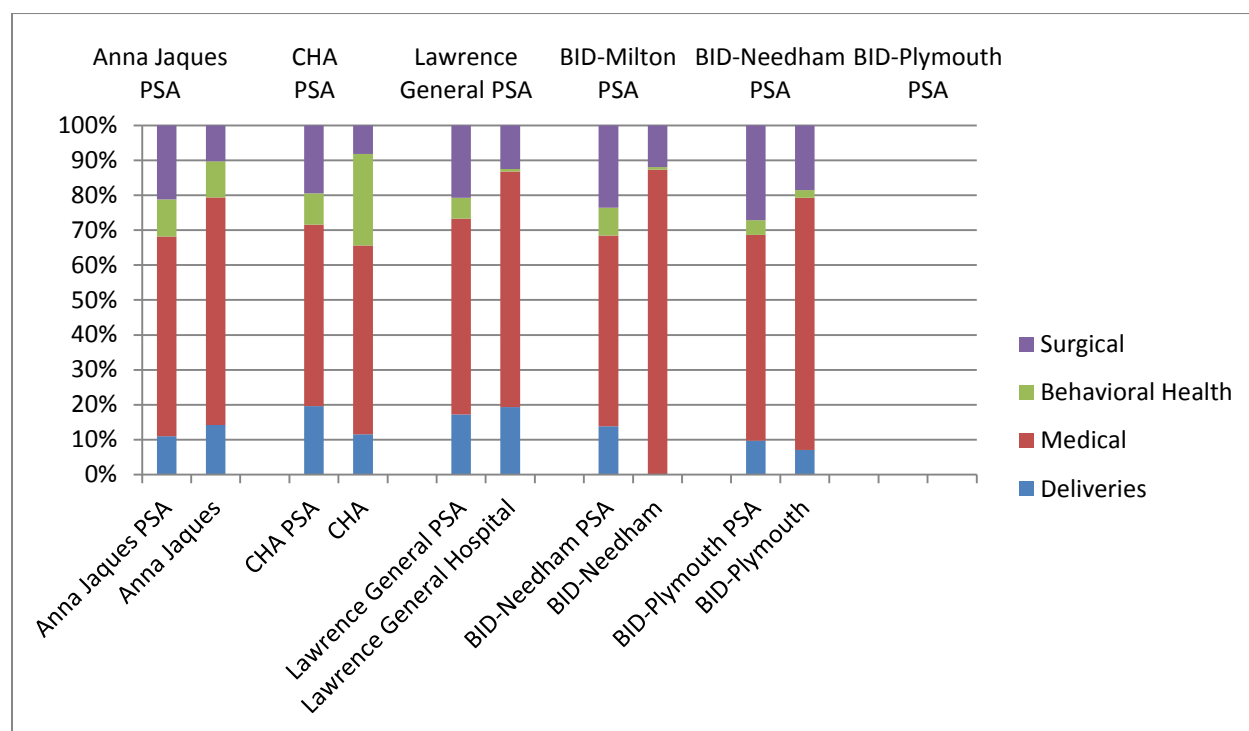
¹⁷⁶ Based on analysis of 2010 and 2015 discharge data, MetroWest's share of commercial inpatient behavioral health volume in its PSA has grown slightly since 2010, while the share of Newton-Wellesley has declined slightly.

¹⁷⁷ A recent community needs assessment commissioned privately by MetroWest indicated a need for additional behavioral health providers in MetroWest's service area. The assessment also identified shortages of primary care providers and some other specialist providers in MetroWest's service area, including surgical subspecialists, obstetricians/gynecologists, and anesthesiologists.

¹⁷⁸ See *supra* note 167.

Two of BIDCO's community hospitals, CHA and, to a lesser extent, Anna Jaques, also provide high levels of inpatient behavioral health care to their communities. Several other BIDCO community hospitals provide important outpatient behavioral health services.¹⁷⁹ In contrast, BIDMC provides a much lower share of behavioral health services as compared to its PSA, and a higher share of deliveries.

Inpatient Service Mix in BIDCO Community Hospital PSAs



Source: 2015 CHIA hospital discharge data

In sum, based on available data, the BIDCO community hospitals uniformly serve high proportions of government payer patients compared to the payer mix in their service areas, and several serve quite high proportions of Medicaid patients. Some also provide significant behavioral health services to their communities. Similarly, MetroWest is an important safety net provider for its community, with higher government payer mix, including higher Medicaid mix, than most other local providers, as well as a higher share of behavioral health services. In contrast, both BIDMC and NEBH serve relatively low shares of government payer patients. In the most recent available data, NEBH provided a very low share of orthopedic and musculoskeletal services to Medicaid patients, although it has stated that it is committed to increasing the share of government payer patients it serves.

¹⁷⁹ These include programs at BID-Milton and BID-Plymouth supported by funding from the HPC's CHART Investment Program. The programs focus on the integration of behavioral health services in emergency departments, as well as behavioral health provider integration and hospital collaboration with community providers and other stakeholders.

IV. IMPACT PROJECTIONS (2017 ONWARD)

Building on the baseline performance and trends described above, and consistent with the HPC's charge under Chapter 224 to enhance the transparency of significant changes to the health care market that may impact health care spending and market functioning, the HPC examined the ways in which the proposed transactions may impact the competitive market, total health care spending, the quality of care the parties provide, and patient access to needed services.

A. COST AND MARKET IMPACT

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 224.¹⁸⁰ Health care spending consists of two broad factors: price (each provider's individual rates as well as the providers to which patients are referred) and utilization (total number of services as well as the specific services that patients receive). Provider consolidations and alignments can affect both of these mechanisms, resulting in:

- Changes in prices as consolidations or alignments change the affiliations of provider organizations;
- Changes to bargaining leverage, which may allow hospitals and physicians to negotiate higher commercial prices and other favorable contract terms with commercial payers; and
- Changes in utilization or referrals as physicians shift care patterns in response to consolidations or alignments.

We examined each of these mechanisms and found that the proposed transactions could have the following impacts on total health care spending and market functioning:¹⁸¹

- The transactions would increase market concentration and solidify BIDCO's position as the second largest hospital network in the Commonwealth. Specifically, the NEBH transaction would make BIDCO the largest commercial provider of certain inpatient orthopedic and musculoskeletal services statewide and in most BIDCO hospital service areas, and the MetroWest transactions would expand BIDCO's service area westward. While the resulting BIDCO network will remain far smaller than the dominant system in the state, and while the proposed transactions represent contracting affiliations rather than corporate acquisitions, they could nonetheless strengthen BIDCO's ability to leverage higher prices and other favorable contract terms in negotiations with commercial payers.

¹⁸⁰ 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).

¹⁸¹ Our spending impact analysis is based primarily on data from the three largest payers, which together account for approximately three-quarters of the commercial market. *See supra* note 16. As such, our cost projections tend to underestimate the total dollar impact to commercial spending.

- As NEBCIO physicians join BIDCO contracts, small to moderate increases to health care spending are likely. Changes in physician prices as MetroWest’s employed physicians join BIDCO contracts are anticipated to have little impact on total medical spending.
- The parties have remained low to mid-priced in recent years. To the extent that BIDCO *both* retains this pricing position and is successful in redirecting volume from higher priced systems to BIDCO physicians and hospitals, there is a potential for savings. However, BIDCO has had limited success to date in significantly redirecting commercially insured patients from higher-priced systems.

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

1. The transactions would solidify BIDCO’s position as the second largest hospital network in Massachusetts, which could strengthen its ability to negotiate price increases and other favorable contract terms.

Commercial prices for health care services are established through contract negotiations between payers and providers.¹⁸² The results of these negotiations – prices that payers will pay for services as well as other contract terms¹⁸³ – are influenced by the bargaining leverage of the negotiating parties. As noted in Section II, BIDCO negotiates contracts with commercial payers in Massachusetts for its member hospitals and physicians under risk contracts, and also establishes non-risk contracts on their behalf.¹⁸⁴ Although BIDCO does not directly receive revenue under these contracts, it nonetheless has strong incentives to obtain the most favorable contract terms for all of its members.¹⁸⁵ Thus, increases in BIDCO’s market leverage that may result from the proposed transactions raise the potential for increased spending.¹⁸⁶

¹⁸² See PARTNERS-HALLMARK CMIR FINAL REPORT, *supra* note 104, at 46.

¹⁸³ Contract terms include physician and hospital rates, target budgets under risk contracts, risk sharing terms, and quality incentives, all of which can impact health care spending.

¹⁸⁴ BIDCO has a limited right of first opportunity to contract on behalf of members, meaning that in most cases payers must negotiate contracts with BIDCO members through BIDCO.

¹⁸⁵ These bargaining incentives for BIDCO, which exclusively represents non-owned entities in contracting, may differ somewhat from those of corporately integrated provider systems that negotiate both on behalf of corporate affiliates and on behalf of non-integrated contracting affiliates, such as the arrangement between Partners and Hallmark discussed in a prior CMIR report. See PARTNERS-HALLMARK CMIR FINAL REPORT, *supra* note 104, at 46. As described in that report, Partners and Hallmark did not share common financial ownership (e.g., Partners did not own Hallmark’s revenue, and as such did not directly profit if Hallmark’s margins or volume increase), and Hallmark negotiated with some commercial payers separately from Partners, suggesting that their financial interests were not entirely aligned. By contrast, BIDCO is governed by all of the members for whom it establishes contracts, is directly supported by dues from all of its members, has a right to negotiate most payer contracts on behalf of its members, and exists in large part for the purpose of negotiating contracts on its members’ behalf. These factors suggest that BIDCO has strong and consistent incentives to negotiate the best possible rates on behalf of all of its members.

¹⁸⁶ The principle that a non-corporately integrated contracting network and ACO could exercise bargaining leverage is also supported by Federal Trade Commission (FTC) and U.S. Department of Justice (DOJ) guidance regarding accountable care organizations (many of which are not corporately integrated) that notes that “under certain conditions ACOs could reduce competition and harm consumers through higher prices or lower quality of care.” FTC/DOJ ACO GUIDANCE, *supra* note 106, at 2-3; see also U.S. DEP’T OF JUSTICE & FED. TRADE COMM’N,

The HPC examined whether the proposed transactions will strengthen the parties' ability to increase prices or negotiate other favorable contract terms that could ultimately increase medical spending. To examine this impact, we analyzed anticipated changes to the parties' market shares and anticipated changes in market concentration.¹⁸⁷

a. Market Shares

As discussed in Section III.A.1, BIDCO hospitals now account for the second largest share of commercial discharges in the Commonwealth. Combined, the proposed transactions would solidify BIDCO's position as the second largest hospital network in Massachusetts, more than 75% larger than the next largest system, as shown in the chart below. However, Partners hospitals would still receive more than twice as many discharges as BIDCO.

Statewide Commercial Inpatient Market Share

Hospital System	Share of Discharges (2010)	Share of Discharges (2013)	Share of Discharges (2015)	Share of Discharges After Affiliations
Partners	27.8%	29.8%	28.6%	28.6%
BIDCO	6.8%	7.4%	10.5%	13.4%
Lahey	2.3%	4.7%	7.6%	7.6%
UMass	7.0%	6.7%	6.8%	6.8%
Steward	5.3%	6.6%	6.1%	6.1%
Baystate Health	4.3%	4.5%	5.2%	5.2%
Wellforce	2.8% (Tufts MC); 1.9% (Lowell)	3.0% (Tufts MC); 2.7% (Lowell + Saints)	5.0%	5.0%
All Other Combined	41.9%	34.6%	30.2%	27.3%

Note: System shares reflect hospital affiliations in each year; *see supra* note 105.

Source: HPC analysis of 2010, 2013, and 2015 CHIA hospital discharge data

STATEMENTS OF ANTITRUST ENFORCEMENT POLICY IN HEALTH CARE, STATEMENT 8 (Aug. 1996), <https://www.justice.gov/atr/statements-antitrust-enforcement-policy-health-care> (last visited Jul. 26, 2016).

¹⁸⁷ To provide a public analysis of the likely nature of a transaction's competitive effects, our analysis mirrors many of the initial steps that would likely be included in an antitrust investigation, without repeating all of the econometric modeling of changes in competition (e.g., "willingness-to-pay" analysis) that might be pursued in a law enforcement context.

In addition to examining these overall changes in statewide market share, we also examined market shares in specific, relevant markets¹⁸⁸.

Product market: For these transactions, the HPC analyzed the potential competitive effects on inpatient orthopedic/musculoskeletal services, outpatient orthopedic surgery services, inpatient general acute care services, and adult primary care services.

Geographic market: Our analysis focuses on the likely impacts of the proposed transactions on consumers living in the inpatient PSAs of NEBH and MetroWest using information on patient-based market shares.¹⁸⁹ This information shows the hospitals that patients in each of the PSAs choose for certain general acute inpatient hospital care. In addition, we studied market shares in the outpatient orthopedic surgery service area of NEBH and the primary care service area of MetroWest.¹⁹⁰

We found that the BIDCO-NEBH-NEBCIO transaction would give BIDCO the largest commercial market share for inpatient orthopedic and musculoskeletal services in most BIDCO hospital service areas, while also strengthening its market share for outpatient orthopedic surgical services.¹⁹¹ The MetroWest transactions would expand BIDCO's service area westward and give it the second largest share of commercial inpatient care in MetroWest's service area. For primary care services, we do not expect the proposed transactions to significantly impact the parties' market shares. These findings are detailed below.

For NEBH's inpatient core orthopedic and musculoskeletal services,¹⁹² we found that once NEBH begins contracting through BIDCO, BIDCO would have the largest commercial share of these services in NEBH's PSA (most of eastern Massachusetts), as well as the PSA of

¹⁸⁸ A relevant market includes the narrowest set of products (or hospitals) and the narrowest geography in which a hypothetical monopolist over all hospitals could sustain a small but significant non-transitory increase in price, or "SSNIP."

¹⁸⁹ The HPC applied its general method for defining an inpatient hospital PSA, which focuses on the contiguous zip codes closest to the hospital from which the hospital draws 75% of its commercial discharges. For more information on the HPC's inpatient PSA methodology, *see supra* note 101. Due to NEBH's status as a specialty hospital, we defined its PSA based on its commercial patient discharges for core services. *See supra* note 111 for the HPC's definition of NEBH's inpatient core services. Although a PSA may not align precisely with a "geographic market," the DOJ and FTC use market shares and HHIs within PSAs as "a useful screen for evaluating potential competitive effects." FTC/DOJ ACO GUIDANCE, *supra* note 106, at 7.

¹⁹⁰ *See supra* note 101 for a discussion of the HPC's primary care PSA methodology and *supra* note 117 for a description of NEBH's outpatient orthopedic surgical service area.

¹⁹¹ FTC/DOJ guidance regarding ACOs suggests that a specialty provider joining an ACO on an exclusive basis may pose particular market concerns if it has a dominant market share in a specialty service line. *See* FTC/DOJ ACO GUIDANCE, *supra* note 189, at 9 (stating that a provider with greater than 50% share in its PSA in any service that no other ACO participant provides may be subject to scrutiny if it contracts exclusively through one ACO). However, NEBH's affiliation with BIDCO does not appear to pose the sorts of concerns contemplated in the guidance with respect to specialty providers, in particular because many other providers in NEBH's PSA provide the same types of orthopedic and musculoskeletal care as NEBH and, based on our calculations, NEBH provides under 30% of the discharges for its core orthopedic and musculoskeletal services in its PSA as described in Section III.

¹⁹² Due to NEBH's status as a specialty hospital, we defined its PSA based on its commercial patient discharges in its core orthopedic and musculoskeletal services, the most common services that NEBH provides to commercial patients. *See supra* note 111.

every party hospital except for CHA.¹⁹³ In some BIDCO community hospital PSAs, BIDCO's share of these services would be more than double that of Partners.¹⁹⁴

Post-Affiliation Commercial Inpatient Orthopedic and Musculoskeletal Market Share in NEBH's PSA

Hospital System	Share of Orthopedic & Musculoskeletal Discharges After BIDCO-NEBH Affiliation
BIDCO + NEBH	35.3% (7.3% + 27.9%)
Partners	30.5%
Lahey	9.5%
Wellforce	6.2%
Steward	5.8%
All Other Combined	12.7%

Source: HPC analysis of 2015 CHIA hospital discharge data

For outpatient orthopedic surgical care,¹⁹⁵ we also found that the NEBH transaction would result in a substantial increase in BIDCO's share of these services. Based on the most recent available data, NEBH and BIDCO would together have the second largest share of outpatient orthopedic surgery visits in NEBH's outpatient orthopedic surgery service area. While this share would still be smaller than that of Partners, it would be nearly triple the market share of Lahey, the next largest system.

¹⁹³ In CHA's PSA, BIDCO and NEBH would have a combined share of 35.4% of orthopedic and musculoskeletal discharges, while Partners has 39.2%.

¹⁹⁴ For example, the combined inpatient orthopedic and musculoskeletal shares of BIDCO and NEBH would be 55.4% in BID-Plymouth's PSA (compared to Partners' 15.9%), 54.6% in BID-Milton's PSA (compared to Partners' 22.7%), and 35.2% in Lawrence General's PSA (compared to Partners' 15.5%).

¹⁹⁵ As discussed above, we used 2013 APCD claims data to identify shares of outpatient orthopedic surgeries, defined as the share of commercial patient visits at each provider. We constructed an outpatient service area for NEBH based on the zip codes from which it draws 75% of its patients for these services. *See supra* note 117.

**Post-Affiliation Commercial Outpatient Orthopedic Surgery Market Share
in NEBH's Outpatient Service Area**

System/Hospital	Share of Outpatient Orthopedic Surgery Visits After BIDCO-NEBH Affiliation
Partners	34.7%
BIDCO + NEBH	23.6% (11.5% + 12.1%)
Lahey	8.1%
South Shore Hospital	5.4%
Steward	5.1%
Children's Hospital	5.1%
All Other Combined	18.0%

Source: HPC analysis of 2013 APCD data

For the MetroWest transactions, we found that MetroWest joining BIDCO would expand the BIDCO network into new areas to the west of Boston, allowing BIDCO to reach additional patients. Combined, MetroWest and BIDCO would have 22.2% of commercial discharges, the second largest market share of general acute care services in MetroWest's inpatient hospital PSA. While the combined parties would still rank second to Partners hospitals, which provide 41.6% of commercial discharges in this area, they would have almost double the share of UMass, the third largest system in the area at 11.8%.¹⁹⁶

Post-Affiliation Commercial Inpatient Market Share in MetroWest's PSA

System/Hospital	Share of Discharges After BIDCO-MetroWest Affiliation
Partners	41.6%
BIDCO + MetroWest	22.2% (8.1% + 14.1%)
UMass	11.8%
Milford Regional Medical Center	5.9%
Children's Hospital	4.2%
Other systems and hospitals	14.2%

Source: HPC analysis of 2015 CHIA hospital discharge data

Because the proposed transactions involve only a small number of PCPs (approximately 30 in total) joining BIDCO, we found that these transactions are not likely to

¹⁹⁶ NEBH receives only 2.2% of all commercial general acute care discharges in its PSA, primarily due to the large size of its PSA. Thus, NEBH joining the BIDCO network would not have a significant impact on BIDCO's share of all general acute care services in NEBH's PSA. However, by total volume of discharges, NEBH would be the second largest hospital in BIDCO after BIDMC.

result in significant changes in BIDCO's share of primary care services. However, to the extent that other MetroWest-affiliated PCPs join the BIDCO network, which is not currently part of the transaction under review, there could be a more significant impact on BIDCO's primary care market share in the future.

b. Market Concentration

The change in market concentration associated with a transaction can also be indicative of the likely impact of the transaction on market leverage and the ability of the parties to negotiate higher prices.¹⁹⁷ As described in more detail below, we find that the proposed transactions would result in a substantial overall increase in market concentration for inpatient orthopedic and musculoskeletal services, as well as smaller, but still significant, increases for inpatient general acute care services and outpatient orthopedic services. We do not anticipate that the transactions would significantly impact market concentration for primary care services, given the small number of PCPs involved.

We calculated market concentration before and after the proposed transactions in the parties' inpatient and outpatient PSAs^{198, 199} using the Herfindahl–Hirschman Index (HHI). The HHI is a commonly used measure of market concentration and an indicator of the amount of competition among systems,²⁰⁰ and the DOJ and FTC use changes in HHIs as initial screens for determining whether a given transaction raises competitive concerns and warrants further scrutiny.²⁰¹

¹⁹⁷ For example, the FTC and DOJ 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>.

¹⁹⁸ As discussed in note 106, *supra*, the DOJ and the FTC use market shares and HHIs within PSAs as “a useful screen for evaluating potential competitive effects.”

¹⁹⁹ We did not include a similar calculation of market concentration for primary care due to data limitations. However, given the small number of PCPs involved in these transactions, we would not anticipate a significant increase in market concentration for these services.

²⁰⁰ 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> [hereinafter FTC/DOJ HORIZONTAL MERGER GUIDELINES]. 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 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.

²⁰¹ *Id.*

DOJ/FTC Horizontal Merger Guideline HHI Thresholds²⁰²

Post-Merger Market	HHI	Δ in HHI	Presumption
Moderately Concentrated	1,500 to 2,500	>100	Potentially raises significant competitive concerns and often warrants scrutiny
Highly Concentrated	> 2,500	100 to 200	Potentially raises significant competitive concerns and often warrants scrutiny
		> 200	Presumed to be likely to enhance market power

While HHIs are typically used in the context of corporate mergers, they may nonetheless give some indication of the scope of potential competitive effects of the proposed transactions, as BIDCO’s incentives to negotiate higher prices and other favorable contract terms on behalf of its members are similar to the incentives of corporately integrated systems.^{203, 204}

i. Changes in market concentration due to the NEBH transaction

Pre-affiliation and post-affiliation HHIs for NEBH inpatient core orthopedic and musculoskeletal services in the parties’ PSAs indicate that the proposed BIDCO-NEBH-NEBCIO transaction may strengthen the ability of the resulting contracting network to leverage higher reimbursement and other favorable contract terms. The transaction would result in nearly every party hospital’s inpatient PSA being highly concentrated for these services, and HHI increases in each PSA would be “presumed likely to enhance market power” under the FTC/DOJ guidelines as shown above.

²⁰² See *id* at 19.

²⁰³ See *supra* note 185. The FTC and DOJ have also issued guidance acknowledging that non-corporately affiliated systems can impact market competition. See FTC/DOJ ACO GUIDANCE, *supra* note 106, at 2-3 (stating that “under certain conditions ACOs could reduce competition and harm consumers through higher prices or lower quality of care.”).

²⁰⁴ While HHIs may be a relevant screen for potential competitive effects outside of a corporate merger, other aspects of contracting affiliations suggest that they may raise somewhat lesser competitive concerns than a corporate merger. For example, the parties to a contracting affiliation may have less difficulty changing or unwinding their affiliation as compared to a corporate merger, and thus joint contracting may be less likely to result in a permanent restraint of competition. On the other hand, joint contracting arrangements that do not include shared infrastructure may also result in fewer efficiencies that could offset competitive concerns.

HHI Calculations for NEBH Inpatient Core Services in NEBH, MetroWest, and BIDCO Hospital PSAs

BIDCO-NEBH Transaction			
Hospital PSA	Pre-Affiliation HHI	Post-Affiliation HHI	Δ HHI
MetroWest	2,655	2,936	+281
NEBH	1,948	2,357	+409
BIDMC	2,314	2,803	+489
BID-Plymouth	1,927	3,459	+1,532
BID-Milton	2,357	3,611	+1,255
BID-Needham	3,365	3,981	+615
CHA	2,554	2,987	+433
Anna Jaques	1,985	2,876	+891
Lawrence General	1,771	2,307	+537

Source: HPC analysis of 2015 CHIA hospital discharge data

While these figures represent only a subset of inpatient orthopedic and musculoskeletal services, these HHI changes nonetheless indicate that NEBH joining the BIDCO network would result in a substantial consolidation of the market for those services, which could strengthen the parties' ability to leverage higher rates and other favorable contract terms.^{205, 206, 207}

²⁰⁵ While BIDMC and NEBH are already affiliated through their clinical affiliation and joint venture, our HHI calculations reflect market concentration vis-à-vis negotiations with payers. Currently, NEBH and BIDMC do not jointly negotiate with payers or establish any contracts on behalf of one another. Thus payers may treat them as competitors in negotiations in a way that they will not be able to do after they begin jointly contracting; therefore, HHI figures are appropriate as a means to summarize changes in market leverage that will result from the new joint contracting relationship.

²⁰⁶ BIDCO and NEBH have provided an alternate definition of the relevant product market for inpatient orthopedic and musculoskeletal services. As discussed in note 112, *supra*, the parties' definition includes many services NEBH only infrequently provides to commercial patients. Using BIDCO and NEBH's broader product market definition, the changes in HHI in every party hospital's PSA still exceed 200, and the post-affiliation HHI in each inpatient PSA except for NEBH and Lawrence General exceeds 2,500; the post-affiliation HHI in these PSAs would be 2,129 and 2,374, respectively.

²⁰⁷ The potential competitive impact of the BIDCO-NEBH transaction is reinforced by results from our "diversion" analysis. Diversions provide another way to measure the potential for anticompetitive effects from a hospital merger. Applied to hospitals, diversion analyses predict where patients would go for inpatient care if a given hospital were no longer an option for its patients; a high rate of diversion from one hospital to another identifies them as close substitutes. This analysis can be probative of competitive effects because mergers between close substitutes effectively remove from the marketplace a close competitor that could otherwise have acted as a constraint on price increases. We conducted a diversion analysis to determine the extent to which NEBH and BIDCO are close substitutes, focusing only on orthopedic and musculoskeletal patients. Consistent with our HHI results, we found that BIDCO and NEBH are each other's second closest substitutes, indicating that they are competitors for these services. However, Partners is both NEBH's and BIDCO's closest substitute for orthopedic and musculoskeletal care, indicating that Partners is the parties' primary competitor for these services. See FTC/DOJ HORIZONTAL MERGER GUIDELINES, *supra* note 200, at § 6.1 (discussing the use of diversion ratios by the DOJ and FTC as a measure of competition).

Analysis of the outpatient orthopedic surgery market indicates that the market for these services is less concentrated and that it would remain only moderately concentrated after the BIDCO-NEBH affiliation. However, the shifts in HHIs indicate that there may still be some potential for competitive concerns in the market for these services.

HHI Calculations for Outpatient Orthopedic Surgery Services in NEBH Outpatient Service Area

BIDCO-NEBH Transaction			
Outpatient Service Area	Pre-Affiliation HHI	Post-Affiliation HHI	Δ HHI
NEBH	1,667	1,945	+278

Note: HHIs based on number of outpatient orthopedic surgery visits

Source: HPC analysis of 2013 APCD data

ii. Changes in market concentration due to the MetroWest transactions

As discussed above, the primary effect of the MetroWest transactions would be to expand BIDCO's geographic market reach west of Boston. The inpatient PSA of MetroWest is already moderately concentrated, and the PSA of nearby BID-Needham is highly concentrated. The MetroWest transactions would increase market concentration enough to raise the possibility of competitive concerns, and if NEBH were also to join BIDCO, the combined increase in market concentration from the transactions in both the MetroWest and the BID-Needham PSA would cross the threshold under FTC/DOJ guidelines for being "presumed to be likely to enhance market power," as shown below.²⁰⁸

HHI Calculations for Inpatient General Acute Care Services in MetroWest and BID-Needham PSAs

BIDCO - MetroWest Transaction				Combined Impact of Both BIDCO Transactions		
Hospital PSA	Pre-Affiliation HHI	Post-Affiliation HHI	Change in HHI	Pre-Affiliations HHI	Post-Affiliations HHI	Change in HHI
MetroWest	2,256	2,486	+229	2,256	2,592	+335
BID-Needham	3,370	3,454	+84	3,370	3,584	+214

Source: HPC analysis of 2015 CHIA hospital discharge data

These increases in market concentration in the PSAs of MetroWest and BID-Needham also indicate that the proposed MetroWest transactions may increase the ability of the resulting

²⁰⁸ Because Tenet will continue to negotiate contracts with national payers on behalf of MetroWest, while BIDCO negotiates contracts with Massachusetts payers, the impacts of any enhanced market leverage as a result of the transaction would be limited to Massachusetts contracts.

contracting network to obtain higher reimbursement rates or other favorable contract terms, particularly if both the MetroWest and NEBH transactions move forward.²⁰⁹

In sum, our market share and market concentration analyses indicate that the transactions have the potential to increase BIDCO's market leverage, but that BIDCO would still face substantial competition from Partners, which would remain the dominant provider in most service areas and service lines. We do not yet have sufficient data to assess whether and in what ways BIDCO has used any gains in market leverage to-date.²¹⁰ Thus, while we anticipate that these transactions could strengthen BIDCO's ability to negotiate higher prices and other favorable contract terms, the extent to which BIDCO would utilize any increased leverage as a result of these transactions to negotiate higher prices, and thus the potential impact on health care spending, is not yet clear.²¹¹ It will therefore be critical to continue to monitor the growth of the BIDCO network, and any resulting price or spending increases.

2. Changes in physician prices as NEBH physicians join BIDCO contracts are anticipated to result in a small to moderate increase to total medical spending.

As described in Section II.A, BIDCO establishes both risk and non-risk commercial contracts on behalf of its physician members. To date, each of BIDCO's payer contracts has provided a uniform rate for all BIDCO physicians, but the precise timing and terms of how physicians who join BIDCO can receive BIDCO rates are governed by varied contractual provisions that are subject to renegotiation.²¹²

²⁰⁹ Similar to the NEBH transaction we conducted a diversion analysis (see *supra* note 207) to determine the extent to which MetroWest and BIDCO are close substitutes. In examining where MetroWest's discharges would shift if MetroWest were no longer an option for consumers, we found that BIDCO is MetroWest's third closest substitute, indicating that BIDCO and MetroWest are competitors; however, Partners is MetroWest's closest substitute, and thus its primary competitor.

²¹⁰ Because hospitals that join the BIDCO network must wait until the renegotiation of their payer contracts to join BIDCO contracts, not all BIDCO hospitals have joined BIDCO contracts to date. For this reason, and because the most current relative price data predate the entry of some new members into BIDCO, we are unable to evaluate the extent to which BIDCO has sought to use its increased bargaining leverage in the past to seek higher prices and other favorable contract terms for its members. However, some of the payers interviewed by the HPC expressed concern regarding additional hospitals joining BIDCO, and indicated that BIDCO has recently sought significant price increases for newly affiliated hospitals.

²¹¹ We have not conducted all of the econometric modeling of changes in competition (e.g., "willingness-to-pay" analysis) that might be pursued in a law enforcement context to assess the magnitude of the price increase that could be sought by the parties as result of increased bargaining leverage. Rather, our assessment of potential changes in market leverage is intended to provide additional context for the other spending impacts projected in this section, which are based on well-established revenue, referral pattern, and relative price data, as well as the parties' stated plans.

²¹² Based on information provided by BIDCO and by the three largest commercial payers, the HPC understands that physician groups that join BIDCO do not generally need to wait for the renegotiation of payer contracts to begin billing under BIDCO contracts and receiving BIDCO rates. However, if physician groups affiliating with BIDCO have contracts with payers established through other contracting organizations, they may be obligated to complete those contracts.

Under the BIDCO-NEBH-NEBCIO affiliation, all NEBCIO physicians are expected to join BIDCO, either immediately or in the near future.²¹³ We therefore modeled the potential impact on spending as a result of all NEBCIO physicians joining BIDCO contracts, based on the most recent available data regarding the rates NEBCIO physicians receive relative to BIDCO physicians and confidential information provided by the parties. In total, we found that the shift in NEBCIO physician prices to BIDCO physician prices would likely result in a small to moderate increase in total health care spending for the three largest commercial payers of up to \$4.5 million each year, representing up to a 0.04% increase in total health care spending in NEBH's service area.²¹⁴ These figures do not reflect the possibility that BIDCO's increased market share may enable it to negotiate higher prices or other favorable contract terms in future contracts.

3. When MetroWest physicians join BIDCO contracts, changes in physician prices are anticipated to have little impact on total medical spending.

As described in Section II.E, MetroWest physicians, including both MWPS and the rest of MWAHO, currently contract with commercial payers through NEQCA. Under the BIDMC-HMFP-MetroWest transaction, MWPS physicians are expected to join BIDCO when their current contracts established through NEQCA expire; although not part of the current transactions, other MWAHO physicians may also join BIDCO subsequently.²¹⁵ Based on the most recent available physician relative price data, we found that MWPS physicians joining BIDCO would be unlikely to result in a significant change in health care spending due to the similarity of NEQCA and BIDCO prices and the low volume of commercial care provided by MWPS. However, the impact may be greater if BIDCO's physician prices have increased in recent years relative to NEQCA's, or if BIDCO negotiates higher prices or other favorable contract terms in future contracts. The impact may also be greater if more MWAHO physicians in addition to MWPS join BIDCO.²¹⁶

²¹³ See Section II.F.1.

²¹⁴ Based on 2013 relative price data from the three major commercial payers, this shift would constitute a 9% increase in BCBS rates, an 18% increase in HPHC rates, and a 13% increase in THP rates. See CHIA 2014 RELATIVE PRICE DATABOOK; CTR. FOR HEALTH INFO. & ANALYSIS, HEALTH CARE PROVIDER PRICE VARIATION IN THE MASSACHUSETTS COMMERCIAL MARKET BASELINE REPORT: APPENDIX DATA (Feb. 2016), available at <http://www.chiamass.gov/assets/docs/r/pubs/16/relative-price-databook-2014.xlsx>. Because our projections are based on the most recently available physician relative price data from 2013, they may not fully reflect changes in the relative prices of the parties, including any changes due to physicians joining the BIDCO network more recently. We also reviewed confidential analyses from the parties that suggest the increase in spending as NEBCIO physicians join BIDCO contracts may be smaller based on rates currently in effect. However, available data do not allow us to substantiate this analysis.

²¹⁵ As noted in Section II.F.3, certain provisions of the BIDMC-HMFP-MetroWest transaction increase the likelihood that additional MWAHO physicians will join BIDCO in future.

²¹⁶ Our analysis based on 2013 relative price data for the three major commercial payers suggests a very small decrease in spending if all MWAHO physicians were to join BIDCO. However, other material we reviewed suggests the potential for a small increase in spending. BIDCO has affirmed that it would file a new notice of material change in the event that MWAHO were to join BIDCO, and we therefore expect to further evaluate the potential impact of this change if MWAHO seeks to affiliate with BIDCO in the future.

4. To the extent that BIDCO both retains its historic low to mid-range prices and is successful in redirecting volume from higher priced systems to BIDCO physicians and hospitals, there is a potential for savings. Yet, BIDCO has had limited success to date in significantly redirecting commercially insured patients from higher-priced systems.

In addition to changes in rates of reimbursement, changes in utilization patterns and use of differently priced providers also impact total medical spending. This section examines the parties' stated plans and projections, as well as other changes that appear likely as a result of the transactions based on available information, to determine whether the transactions are likely to result in changes in utilization or use of differently priced providers that may impact spending. As described in more detail below, we find that there is a potential for reduced spending if BIDCO both retains its historically low to mid-range prices and successfully redirects volume from higher priced systems, or if BIDCO hospitals adopt more efficient care delivery practices. However, based on the parties' plans and historic data on BIDCO's performance in driving such changes, we do not find a likelihood that the transactions will result in substantial savings.²¹⁷

a. NEBH

- i. If BIDCO referral patterns for orthopedic and musculoskeletal care were to shift from AMCs to NEBH, total spending could decrease; however, it is unclear how the proposed NEBH transaction would drive such shifts in ways that the clinical affiliation between NEBH, BIDMC, and HMFP has not*

One way in which the parties claim the BIDCO-NEBH-NEBCIO affiliation will result in lower spending is the potential for BIDCO to refer more orthopedic and musculoskeletal patients to NEBH rather than to more expensive AMCs. BIDCO currently refers a substantial amount of orthopedic and musculoskeletal care to NEBH, but many of BIDCO's referrals for these services go to BIDMC, and approximately 11% of BIDCO commercially insured referrals for these services go to a Partners AMC.²¹⁸

We agree that BIDCO and NEBH could reduce total spending by directing more orthopedic and musculoskeletal care to NEBH rather than to higher-priced hospitals, including Partners hospitals. The parties suggest that BIDCO's incentives to make such a shift include its interest in referring risk patients to the most efficient providers and policies that encourage the use of BIDCO providers whenever appropriate. However, BIDCO providers are already significantly incentivized by risk contracts to refer risk patients to efficient providers such as NEBH,²¹⁹ and BIDMC and HMFP already enjoy a close clinical affiliation with NEBH. It is not clear how NEBH's new contracting affiliation with BIDCO will drive significantly more

²¹⁷ Because these analyses are based on current prices, any increases in BIDCO's prices as a result of increased market leverage over time could cancel out or even exceed any potential cost savings.

²¹⁸ This figure is based on HPC analysis of 2014 site of care data provided by the three largest commercial payers for NEBH inpatient core orthopedic and musculoskeletal services.

²¹⁹ See Section III.A.6 for a discussion of NEBH's relative efficiency in providing episodes of orthopedic and musculoskeletal care.

orthopedic and musculoskeletal volume to NEBH in ways that the existing incentives and relationships have not.

- ii. *If care management practices used by NEBH were adopted across the BIDCO network, total spending could decrease; however, plans for such initiatives are still in development*

The BIDCO-NEBH-NEBCIO affiliation could also result in lower total spending if NEBH's efficient utilization and referral practices influence utilization across BIDCO's provider network. NEBH's patient management programs, particularly its efficient use of post-acute care and success limiting unnecessary readmissions, make it a lower-cost, high-quality provider.²²⁰ BIDCO and NEBH have described a goal of incorporating NEBH's best practices into BIDCO to better manage orthopedic care across the BIDCO network, and have preliminarily modeled some savings estimates if they were to succeed. However, the parties are still at the planning stages of this effort, and have not yet developed certain key components, such as timelines for implementation and resource commitments, that would allow us to assess the extent to which the parties are likely to succeed.

b. *MetroWest*

- i. *Shifting MetroWest's preferred tertiary provider from Tufts MC to BIDMC is unlikely to significantly impact total health care spending*

As discussed in Section II, under the BIDMC-HMFP-MetroWest transaction, MetroWest would switch its designated referral partner for adult tertiary services from Tufts MC to BIDMC. We modeled the potential impact of this change based on the differences in relative price between BIDMC and Tufts MC and the number of patients currently referred to Tufts MC by MWAHO physicians for inpatient and outpatient care.²²¹ Despite MetroWest's current relationship with Tufts MC, there currently appears to be a very small volume of commercial referrals from MWAHO to Tufts MC. Thus, despite the fact that BIDMC's relative prices are consistently higher than those of Tufts MC, shifting this low volume of referrals to BIDMC is not anticipated to significantly impact total health care spending.

- ii. *Physicians the parties seek to recruit may shift referrals toward less expensive providers, potentially resulting in a small decrease in health care spending*

As discussed in Section II.F.3, the BIDMC-HMFP-MetroWest transaction includes plans to recruit a number of new primary care physicians in MetroWest's service area. We expect that a number of patients currently receiving care from other local providers will become patients of these new PCPs. Based on information on physician staffing by HMFP in the service areas of other community hospitals owned by or affiliated with BIDMC, and HMFP's other clinical affiliations with community hospitals, we expect the care referral

²²⁰ See Sections III.A and III.B.

²²¹ We used site of care data from the three largest commercial payers for this analysis; two payers provided 2015 data, while the other payer provided 2014 data.

patterns of these new PCPs to be in line with the referral practices of local physician groups, particularly MWAHO. Comparing the average price of hospital services for patients of MWAHO compared to the patients of other large area physician groups, we found that MWAHO doctors refer their patients to a slightly less expensive mix of hospitals for inpatient and outpatient care.²²² Although health care spending could decrease if the physicians recruited by the parties draw patients from physician groups with more expensive referral patterns, we do not anticipate a significant impact on spending due to this shift.²²³

- iii. *If MetroWest attracts more commercial patients currently using higher-priced community hospitals or AMCs, health care spending may decrease; however, if BIDMC receives additional referrals from MetroWest's service area, spending may increase*

One of the parties' stated goals of the MetroWest transactions is to enhance MetroWest's ability to attract local patients. If the parties' plans succeed in attracting commercial patients from MetroWest's service area who would otherwise use more expensive community hospitals, such as Newton-Wellesley, or AMCs, the shift in provider mix would result in lower health care spending.²²⁴ Attracting more patients would also likely improve MetroWest's financial performance.²²⁵ However, focusing on MetroWest physicians, who are the most likely to increase referrals to MetroWest over competing hospitals as a result of expanded services, co-branding, and other changes planned as part of the proposed transactions, the scope of savings is relatively small.²²⁶

In an effort to further quantify the likelihood that MetroWest would gain additional commercial volume as a result of the proposed transactions, we also examined the impact of prior community hospitals joining BIDCO or clinically affiliating with BIDMC on their shares

²²² For example, for one major commercial payer, the average relative price of hospitals to which MWAHO referred patients for inpatient services was 1.02, and the average price of hospitals for outpatient services was 0.83. These were lower average prices than the mix of hospitals used by two other area physician groups, which had average inpatient relative prices of 1.06 and 1.03, and average outpatient relative prices of 0.92 and 0.87.

²²³ Our projections suggest that savings would be less than \$200,000 each year across two of the three major payers if the new physicians were recruited from two of the higher-priced physician groups in MetroWest's area.

²²⁴ The relative prices of Newton-Wellesley versus MetroWest, for example, indicate that, for the state's largest commercial payer, Newton-Wellesley is approximately 27% more expensive for inpatient care, and 12% more expensive for outpatient care. See CHIA 2014 RELATIVE PRICE DATABOOK, *supra* note 122 (based on comparison of inpatient relative price and outpatient relative price for commercial all product types combined for BCBS). Savings would also occur if MetroWest were to attract more commercial patients who currently seek care at higher-priced AMCs.

²²⁵ See Section II.E.

²²⁶ Based on HPC analysis of 2014 site of care data provided by the three largest commercial payers, MWAHO physicians already refer patients to MetroWest at a rate comparable to, and in many cases higher than, BIDCO physician groups refer to their affiliated community hospitals. Thus, our modeling indicates that, based on current relative prices, shifting all of MWAHO's inpatient and outpatient commercial referrals from Newton-Wellesley to MetroWest would result in savings of less than \$500,000 each year; yet, even a shift of this magnitude is likely improbable. Similarly, MWAHO currently refers patients to AMCs at a lower rate than BIDCO physician groups. Thus, we have not seen an indication that affiliation with BIDMC, BIDCO, or HMFP is likely to substantially reduce the frequency with which MWAHO refers care to AMCs in favor of referring such care to MetroWest.

of commercial discharges.^{227, 228} Our analyses indicated that, across all services, joining BIDCO has not had a clear impact on a community hospital's ability to attract more commercial patients.

We further examined the effects of affiliation on hospital choices for patients of different complexity levels. While we did not find that joining BIDCO increased overall commercial volume for BIDCO community hospitals, we did find some evidence suggesting that patients chose more appropriate sites of care after such affiliation. After a community hospital joins BIDCO, we found that patients from the hospital's PSA are less likely to go to BIDMC for lower-intensity services and more likely to go to BIDMC for higher-intensity services. However, when community hospitals have only clinically affiliated with BIDMC without joining BIDCO, we found that commercial patients from the community hospital's PSA were more likely to choose BIDMC for all types of care and less likely to stay at the community hospital for care.

Overall, these findings raise some concerns about the parties' assertions that affiliations with BIDCO and BIDMC will enhance MetroWest's ability to attract more local care, particularly in the absence of more specific plans that suggest that BIDCO will be more effective in increasing commercial volume at MetroWest than it has been with other BIDCO-affiliated community hospitals to date; if the affiliations instead fuel more referrals to BIDMC, this may in fact increase total health care spending.

In summary, we find that the proposed transactions would increase market concentration and solidify BIDCO's position as the second largest hospital network in the Commonwealth. The NEBH transaction would make BIDCO the largest provider network for certain inpatient orthopedic and musculoskeletal services in Massachusetts, and the MetroWest transactions would expand BIDCO's service area westward. While the resulting BIDCO

²²⁷ Anna Jaques Hospital clinically affiliated with BIDMC in 2010 and joined the BIDCO contracting network in mid-2014; Lawrence General Hospital clinically affiliated with BIDMC in 2011 and joined the BIDCO contracting network in mid-2014; Cambridge Health Alliance hospitals clinically affiliated with BIDMC and joined the BIDCO contracting network as of January 2014; Signature Healthcare Brockton Hospital clinically affiliated with BIDMC in June 2013. Although NEBH clinically affiliated with BIDMC in February 2014, we did not use it to estimate the effects on community hospitals of affiliating with BIDMC.

²²⁸ To estimate the effect of affiliations with BIDCO and BIDMC, we applied a difference-in-differences approach to a multinomial logit hospital choice model. In each year, the hospital choice model generates estimates of each patient's probability of choosing each hospital in the choice set as a function of patient characteristics (e.g., age, diagnosis, gender, and zip code of residence), hospital characteristics (e.g., staffing levels, service offerings, and location), and the hospital's affiliation status with BIDMC or BIDCO. Interactions between these characteristics capture how they affect the probability of a patient selecting a given hospital. These interactions allow, for example, an expectant mother to place greater value on hospitals that offer labor and delivery services, or patients to be more or less willing to travel for different types of care. We use hospital-fixed effects to control for any unobserved hospital characteristics (such as, for example, reputation or the quality of inpatient care) that are not captured by other hospital characteristics in our model. The effect of an affiliation with BIDCO or BIDMC is computed as the post-affiliation change in the probability that a hospital is chosen relative to the probability implied by hospital fixed effects and other control variables.

network will remain far smaller than the dominant system in the state, and while the proposed transactions represent contracting affiliations rather than corporate acquisitions, these transactions could nonetheless strengthen BIDCO's ability to leverage higher prices and other favorable contract terms in negotiations with commercial payers.

For the proposed transaction between BIDCO and NEBH/NEBCIO, we also find a likelihood of a small to moderate increase in total health care spending of up to \$4.5 million annually for the three largest payers as NEBCIO physicians join BIDCO contracts. If the parties succeed in shifting BIDCO orthopedic and musculoskeletal referrals from more expensive providers to NEBH, or if NEBH utilization and care management practices are adopted across the BIDCO network, these changes could result in decreased spending; however, the parties' plans are not yet sufficiently developed to enable us to assess whether and to what extent such potential may be realized.

Finally, for the proposed MetroWest transactions, we found that changes in MWPS physician prices when they join BIDCO are unlikely to significantly impact total spending. Similarly, while newly recruited PCPs to MetroWest's service area could refer patients in the area to a slightly lower-priced mix of hospitals, we do not anticipate a significant impact on spending as a result of these shifts. If the parties succeed at increasing commercial volume at MetroWest by redirecting commercial care from higher-priced providers to MetroWest, we recognize that the parties could realize decreases in commercial spending; however, the historic experience of other providers joining BIDCO and the current referral patterns of MWAHO physicians suggest that such changes to patient referral patterns are unlikely to significantly impact total spending.

B. CARE DELIVERY AND QUALITY IMPACT

The parties have generally stated that each of the proposed transactions has the potential to improve the quality of patient care, although they have not claimed that specific quality gains are likely as direct results of the transactions. To determine the impact that these transactions might have on care delivery and the quality of care, we built off of the analyses of the parties' baseline care delivery and quality performance summarized in Section III.B to examine whether the parties' historic performance on quality measures suggests areas in which one party has knowledge and experience that could drive improvements by the other. We then analyzed whether the parties' plans and their structures to support improvement initiatives are likely to facilitate this exchange of best practices.

As noted in Section III.B, quality performance varies considerably across the BIDCO network hospitals and physician groups and across different measures. In our review of the performance of BIDCO member hospitals before and after affiliation with BIDCO, we did not yet find evidence in the most recent available data to suggest that joining BIDCO leads to hospital improvement on any specific quality measures. This finding is likely due in part to the fact that there are limited quality performance data available for years since BIDCO's formation and since certain member providers have joined BIDCO. However, this finding may also reflect that BIDCO's population-specific efforts may be less likely to measurably affect quality performance across the full population cared for by a hospital or that BIDCO has not

yet developed effective systems to disseminate care delivery practices of higher-performing members across its network. It is therefore not clear, based on available data regarding past BIDCO affiliations, that MetroWest or NEBH's affiliation with BIDCO alone is likely to drive quality improvement. However, we discuss potential opportunities for specific quality improvements related to each transaction below.

1. Quality Impact of the BIDCO-NEBH-NEBCIO Transaction

NEBH's strong performance on key measures of quality for orthopedic and musculoskeletal services relative to BIDCO hospitals as described in Section III.B.2 suggests that there is potential for NEBH to support BIDCO hospitals in improving their performance in this area.

Through its existing clinical affiliation with NEBH, BIDMC has already worked to import NEBH's Surgical Care Pathway, supported by significant resource commitments, including staffing and a robust training process.²²⁹ Due to the short time since the NEBH-BIDMC affiliation began, there is not yet evidence to indicate whether that affiliation will yield improved quality performance at BIDMC. However, the significant investment of planning and resources into the collaboration suggests a likelihood of positive results. The existing clinical affiliation between NEBH and BIDMC could also allow similar work at other BID-owned hospitals, and it is our understanding that the parties intend to explore the possibility of such collaborations in the future.

It is our understanding that, through the proposed BIDCO-NEBH-NEBCIO affiliation, BIDCO could also facilitate other member hospitals' engagement with NEBH.²³⁰ However, while there is real potential for NEBH and BIDCO to work together to transmit NEBH care delivery mechanisms to BIDCO hospitals, it is not possible to evaluate the likelihood of such transformations and resulting quality improvement at this time. The parties have not yet defined the terms and timelines for collaboration between NEBH and other BIDCO hospitals, including any resource commitments which, based on the NEBH-BIDMC collaboration, may need to be substantial.

2. Quality Impact of the MetroWest Transactions

As described in Section III.B, MetroWest's quality performance varies across different measures. For many measures, MetroWest's performance falls within the middle range of BIDCO hospitals' performance, and in some cases MetroWest performance exceeds that of all BIDCO hospitals based on the most recent available data. However, MetroWest does have lower performance than most BIDCO hospitals on a handful of measures, including on certain measures related to obstetric quality and on patient experience ratings, suggesting that there

²²⁹ For example, as part of the opening phases of care delivery reform work under the clinical affiliation, BIDMC is dedicating staff to implement preoperative assessment, perioperative processes, discharge and rehabilitation planning, and care management and patient education.

²³⁰ Based on past practice, the HPC expects that member hospitals would have discretion as to whether and to what extent they participate in these programs.

may be a potential for quality improvement in these areas. Given that clinical affiliation with BIDMC appears to be correlated with improvements in community hospital performance on patient experience measures,²³¹ we note a particular opportunity to improve certain patient experience measures where MetroWest generally has lower performance than most BIDCO hospitals.

Although data analytics is one of BIDCO's areas of strength, we note that MetroWest already has fairly robust quality measurement in place through Tenet. It is not clear to what extent the BIDCO approach would be better than MetroWest's existing structure for supporting quality and care delivery improvement. It is likely, however, that the BIDCO analytics would be more focused on measures relevant to risk contracts, which could support MetroWest in participating in such contracts. MetroWest may also benefit from being able to participate in additional BIDCO population health management initiatives for risk patients. We understand that MetroWest has already engaged with the SNF Waiver Program as part of BIDCO's Pioneer ACO, and has found it to be valuable. Further development of these programs and evidence on their efficacy may indicate that their expansion can benefit MetroWest patients.

We understand that the primary focus of the clinical affiliation with BIDMC is on enhancing access to certain services in the MetroWest area and at the hospitals. There is a potential for the quality of certain services to improve with the planned co-recruitment of additional physicians to MetroWest, particularly in specialty services. Deployment of BIDMC/HMFP care pathways also has the potential to improve care delivery at MetroWest, and we also note the potential for electronic information sharing between BIDMC and MetroWest to facilitate better care transitions, avoid duplication of tests, and generally enhance care delivery and patient experience. Finally, the HPC understands that, pursuant to its agreement with BIDMC, MetroWest will undertake a substantial capital investment to enhance its physical plant, some of which may serve to improve patient experience. While MetroWest could make these investments independent of the clinical affiliation, the HPC understands that the affiliation has provided a particular impetus to do so.

In sum, we find that there is a potential for quality improvement at MetroWest in a few identifiable areas as a result of the proposed transactions, and some of the parties' plans and care delivery infrastructure suggest that this potential could be realized. However, as MetroWest performance is comparable to that of most BIDCO hospitals across most quality metrics, it is unclear whether there would be a significant change in MetroWest's quality overall.

C. ACCESS IMPACT

As discussed in Section II.F, the proposed NEBH transaction does not include plans for substantial changes in services at NEBH, while the MetroWest transactions would expand or enhance certain services at MetroWest or in its service area. We evaluated the parties' plans to improve access to certain services, as well as the potential impact of these plans on the vulnerable populations that the parties serve. We found:

²³¹ See Section III.B.2.

- It is unclear whether the NEBH transaction will improve access to quality orthopedic and musculoskeletal care for Medicaid patients.
- The MetroWest transactions may improve access to certain services in MetroWest's service area.

1. It is unclear how the NEBH transaction will improve access to quality orthopedic and musculoskeletal care for Medicaid patients.

The contracting affiliation between NEBH and BIDCO does not include any specific proposed changes in the services available at NEBH or at BIDCO hospitals. However, the proposed NEBH transaction could provide an opportunity to expand access for Medicaid patients to quality orthopedic and musculoskeletal care given the low proportion of such patients currently served by NEBH.²³² For example, NEBH could receive more Medicaid patient referrals from BIDCO physicians, or BIDCO hospitals with high Medicaid patient populations could work with NEBH to adopt systems of care that improve the quality of orthopedic and musculoskeletal services for these patients. While the parties have stated that they are committed to expanding Medicaid access at NEBH, they have not provided information about how NEBH and NEBCIO's affiliation with BIDCO, specifically, will advance this commitment.²³³ We expect to continue to monitor NEBH's payer mix in future, and invite the parties to address this point in their written response.

2. The MetroWest transactions may improve access to certain services in MetroWest's service area.

As described in Section II.F, the proposed clinical affiliation between BIDMC and MetroWest would include collaboration in several specialty areas, including surgery, oncology, and obstetrics/gynecology; recruitment of specialists to staff or support specialty service lines; recruitment of new PCPs to MetroWest's service area; and discussion of potential future clinical collaborations. MetroWest has provided analysis suggesting that there is some community need for additional specialists in its service area in the services identified for expansion,²³⁴ and the MetroWest transactions therefore have the potential to add capacity in services in line with community need. The PCPs the parties plan to recruit may also enhance access to primary care services in the region so long as they are not recruited from among physicians already practicing in the region.

²³² See Section III.C.3.

²³³ As discussed in Section III.C.3, NEBH's existing clinical affiliation with BIDMC involves certain efforts to expand access to NEBH for Medicaid patients, which are expected to continue regardless of the outcome of NEBH's proposed contracting affiliation with BIDCO. See Section IV.B.1 for a discussion of the parties' plans to promulgate NEBH care delivery models across the BIDCO network.

²³⁴ The needs assessment provided by MetroWest was based on local population trends, utilization, and the number of physicians of each specialty serving MetroWest's region. While the HPC has not conducted its own assessment of community needs in MetroWest's service areas, we find the methodology used in the provided materials generally credible.

As discussed in Section III.C.4, MetroWest is an important behavioral health provider in its service area, and has recently expanded its behavioral health capacity. The proposed transactions would not restrict access to these services, nor do they currently include plans to enhance access to these services. Given the importance of this service line to MetroWest and to the Commonwealth, and given the fact that certain other BIDCO community hospitals provide substantial behavioral health services, the proposed transactions could represent an opportunity for collaboration if the parties make it a priority in the future, particularly if behavioral health services were integrated with any new primary care practices the parties establish.

MetroWest also serves a large share of patients covered by government payers, including a relatively large share of Medicaid patients in its PSA. One of the goals articulated in the parties' planning documents is to increase MetroWest's ability to retain additional local patient volume. Although attracting more local commercially insured patients would result in government payer patients accounting for a smaller share of MetroWest's revenue and discharges, the hospital has sufficient capacity to serve additional commercial patients without limiting access for current patients.²³⁵ Therefore, although the transactions may result in a decrease in MetroWest's government payer mix, we find it unlikely that the transactions will restrict access to care for government payer patients.

V. CONCLUSION

As described in Section IV, the HPC found:

1. **Cost and Market Impact:** These transactions would increase market concentration and solidify BIDCO's position as the Commonwealth's second largest hospital network. The NEBH transaction would make BIDCO the state's largest provider network for certain inpatient orthopedic and musculoskeletal services, and the MetroWest transactions would expand BIDCO's service area westward. These changes could strengthen BIDCO's ability to leverage higher prices and other favorable contract terms in negotiations with commercial payers. As NEBCIO physicians join BIDCO contracts, we anticipate small to moderate increases to health care spending of up to \$4.5 million annually for the three largest commercial payers combined; changes in MetroWest physician prices are not anticipated to significantly impact spending. To the extent that BIDCO both retains its historically low to mid-range prices and is successful in redirecting volume from higher-priced systems to BIDCO hospitals and physician groups, there is the potential to reduce health care spending. However, BIDCO has had limited success to date in significantly redirecting commercially insured patients from higher-priced systems.
2. **Care Delivery and Quality Impact:** BIDCO's focus on supporting its members' risk contract performance has resulted in a set of targeted care delivery reform programs, but uniform quality improvement across BIDCO providers is not evident in the most recent available data. It is therefore not yet clear that joining BIDCO will result in

²³⁵ MetroWest's inpatient occupancy rate in 2014 was only just over 50%. *See supra* note 87.

measurable quality improvement for MetroWest, NEBH, or NEBCIO. NEBH's strong quality performance for orthopedic and musculoskeletal care suggests that BIDCO hospitals could benefit from adopting NEBH's care delivery systems, but the parties have not yet developed details of their plans for collaboration. While MetroWest's performance on most quality measures is already comparable to that of many BIDCO community hospitals, MetroWest's clinical affiliation with BIDMC and HMFP has the potential to improve patient experience and clinical quality for specific services that the parties have committed to enhance.

3. **Access Impact:** It is unclear to what extent the NEBH transaction will increase access to NEBH's high-quality orthopedic and musculoskeletal care for Medicaid patients. The service enhancements contemplated in the MetroWest transactions may increase access to certain needed services in MetroWest's service area. The parties have not proposed any plans that would change MetroWest's status as an important provider of behavioral health services to the communities it serves.

In summary, we find that these transactions are anticipated to increase market concentration, solidify BIDCO's position as the second largest hospital network in the state, and could strengthen BIDCO's ability to leverage higher prices and other favorable contract terms. However, BIDCO's market share will remain far smaller than the dominant system in the state for most services. We also anticipate a small to moderate increase in spending (up to \$4.5 million annually) from changes to physician prices as the NEBCIO physicians shift to BIDCO rates.

To the extent that BIDCO retains its position as a low- to mid-priced provider network and is successful in redirecting care from higher-priced systems, there is some potential for savings. However, BIDCO has had limited success to date in significantly redirecting commercially insured patients from higher-priced systems. We also find that the MetroWest transactions may increase access to certain services, and that there is some potential for quality and care delivery improvement for both the NEBH and MetroWest transactions. The likelihood of such quality improvement will largely depend on the extent to which the parties capitalize on their respective strengths and make sufficient resource commitments to execute on their stated plans.

We invite the parties to address the issues raised in this report in their written responses, including how they would provide information to the public as they continue to develop their care delivery and quality improvement plans and how they would demonstrate any commitments to mitigate concerns about spending increases and market consolidation. Following the period for written response, we look forward to publishing our Final Report, including any potential referral to the Massachusetts Attorney General's Office.



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