Competitive effects analysis of Lifespan's proposed acquisition of Care New England

KEVIN PFLUM, PH.D.

February 13, 2022

Table of contents

List of figures

I. Executive summary

(1)   Lifespan is Rhode Island's largest health system and largest private employer. It has 1,165 combined licensed beds across four hospital facilities, including the largest hospital in the state, Rhode Island Hospital (RIH). In 2020, Lifespan reported total operating revenues of $2.5 billion.

(2)   Care New England (CNE) is Rhode Island's second-largest health system and third-largest private employer. It has 696 combined staffed beds across three hospital facilities, including the second largest hospital in the state, Kent Hospital (Kent). In 2020, CNE reported total operating revenues of $1.1 billion.

(3)   Through their hospitals, Lifespan and CNE (the Parties) each offer a broad, overlapping, set of inpatient general acute care (GAC) services; ambulatory services such as outpatient surgery services, radiological services, and laboratory services; and inpatient behavioral health services. They also both own employed medical groups and own and/or control accountable care organizations (ACOs).

(4)   Lifespan and CNE submitted a Hospital Conversions Act application on April 26, 2021 and a revised application on October 1 to the Rhode Island Department of Health (RIDOH) and the Rhode Island Attorney General (RI AG). I have been asked by the RI AG to conduct an economic analysis of the proposed merger. I have conducted multiple analyses based on data provided by the Parties, discharge data and all payor claims data supplied by the Rhode Island Department of Health (RIDOH), and discharge data supplied by the Massachusetts Center for Health Information and Analysis (CHIA). I also reviewed numerous course of business documents from CNE, Lifespan, and other market participants, as well as testimony from Lifespan and CNE leadership and personnel.

(5)   Based on my analyses and the available evidence, I conclude that the proposed merger will substantially lessen competition for adult inpatient general acute care (GAC) in Rhode Island. It will result in lower-valued health care in Rhode Island through higher costs and/or lower quality as well as reduced innovation with respect to health care delivery and payment models. The proposed merger also raises significant concerns in the market for outpatient surgery services, inpatient behavioral health services, and the labor market for nurses.

(6)   I set forth the basis for my conclusions in the body of this report. The following subsections provide a high-level description of the findings that lead to me these conclusions.

I.A. The proposed merger of Lifespan and CNE is likely to substantially lessen competition for adult inpatient GAC services in Rhode Island

■ The set of adult inpatient GAC services offered by both Lifespan and CNE that are sold to commercial health insurers and provided to their adult members by Rhode Island hospitals is a relevant market in which to analyze the likely competitive effects of the proposed merger between Lifespan and CNE.

    □ Lifespan has a 41 percent share of these inpatient GAC services and CNE has a 39 percent share. A combined Lifespan-CNE system would have an 80 percent share of overlapping inpatient GAC services sold to commercial insurers and provided to their adult members. Furthermore, a combined Lifespan-CNE system would have an 82 percent share of *all* commercial GAC discharges.

    □ The proposed merger is presumptively anticompetitive per the federal antitrust enforcement agencies' Horizontal Merger Guidelines.[1] Even before the merger, the market is *highly concentrated* with an HHI of 3,315. The merger would increase the HHI by 3,184 points to 6,499. This increase is nearly 16 times greater than the 200-point threshold set forth in the *Merger Guidelines* and is a greater increase than that of every hospital merger the Federal Trade Commission (FTC) has challenged in the last 18 years.

    □ The Parties' shares and market concentration are robust to multiple alternatives including an expansion to include neighboring Massachusetts towns and alternative methods of calculating shares.

---

[1] U.S. Department of Justice and the Federal Trade Commission, "Horizontal Merger Guidelines," 2010. https://www.justice.gov/atr/horizontal-merger-guidelines-08192010. [hereinafter, "*Merger Guidelines"*]

The Proposed Transaction will substantially increase concentration for adult inpatient GAC services in an already concentrated market

80% combined share

Pre-merger HHI: 3,315
Increase in HHI: 3,184
Post-merger HHI: 6,499

■ CNE ■ Lifespan ▪ All other
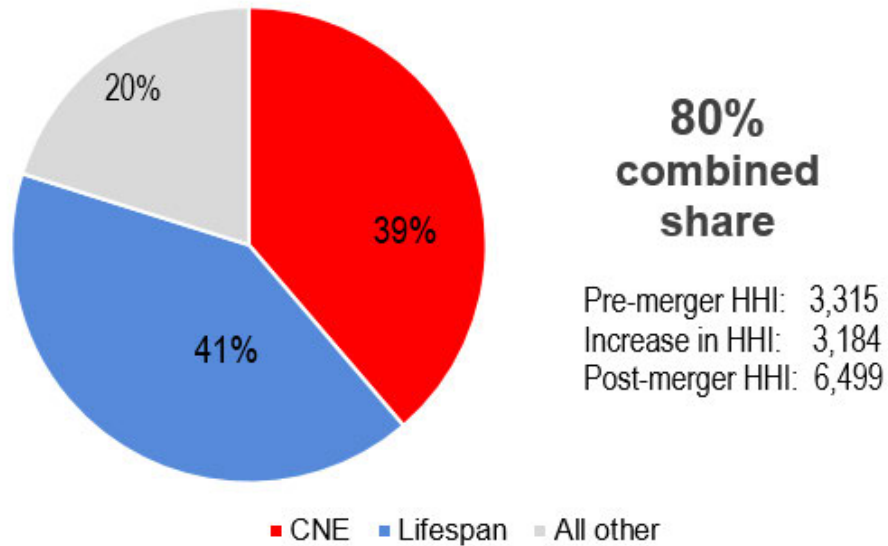
Source: RI and MA discharge data, 2017-2019.
Notes: Shares are for all commercially insured adult patients at Rhode Island hospitals for the set of services provided by both Lifespan and CNE. Shares among all commercially insured Rhode Island patients are similar. *See* Section V.B for details.

The Proposed Transaction will increase the HHI by more than the estimated increase in all hospital mergers challenged in the last 18 years
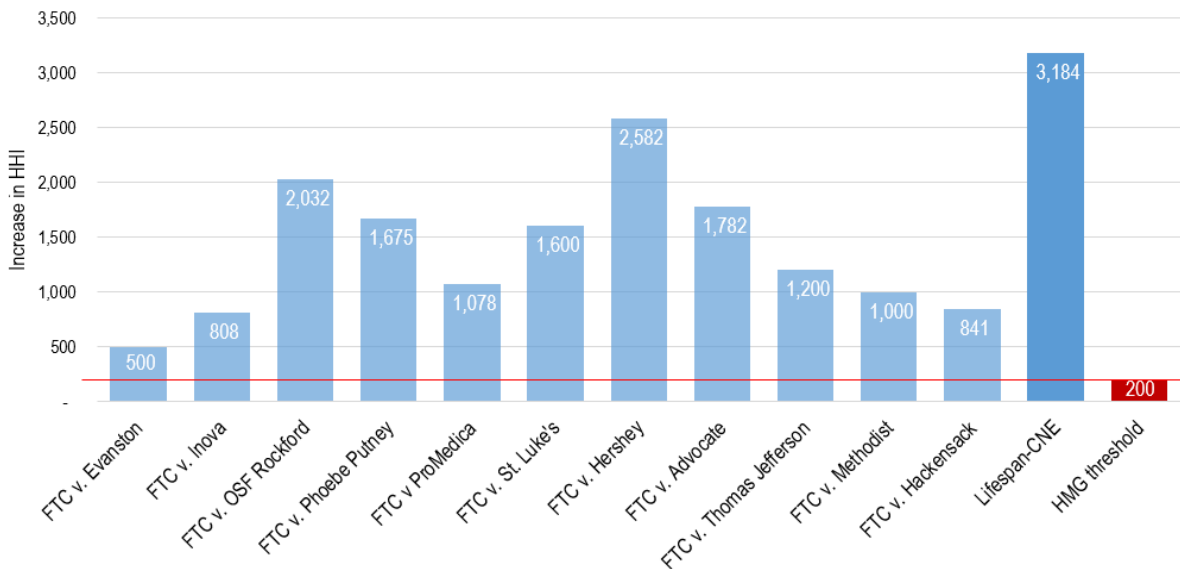
Notes: *See* Figure 14 for sources and details.

- The set of inpatient GAC services offered by both Lifespan and CNE that are provided to Medicare beneficiaries by Rhode Island hospitals is another relevant market in which to analyze the likely competitive effects of the proposed merger between Lifespan and CNE.

  - Lifespan has a 54.8 percent share of these inpatient GAC services and CNE has a 14.9 percent share. A combined Lifespan-CNE system would have a 69.7 percent share of inpatient GAC services provided to Medicare members.

  - The merger would increase the HHI by 1,631 points from 3,502 to 5,132, making it presumptively anticompetitive per the thresholds set forth in the *Merger Guidelines*.

- Analysis of inpatient discharge data in and around Rhode Island together with significant evidence from course of business documents and testimony by Party executives confirm what the shares and concentration indices indicate: there exists substantial head-to-head competition between Lifespan and CNE for patients in Rhode Island. This competition benefits patients by increasing the value of health care services delivered in Rhode Island; the merger would eliminate this competition.

  - On a volume-basis, 93 percent of Lifespan's GAC discharges are for services that CNE hospitals offer and 98 percent of CNE's GAC discharges are for services that Lifespan hospitals also offer.

  - For commercially insured patients, CNE hospitals are the *closest* substitute to Lifespan's Rhode Island Hospital and Newport hospital, and the *second closest* substitute for Miriam. Lifespan's hospitals are by far the *closest* substitute for CNE's Kent Hospital for both commercial and Medicare patients.

  - The choice patterns of patients in the highly populated regions between RIH and Kent, which include Cranston, South Providence, and Warwick confirm that patients view these two hospitals as closely substitutable. And course of business documents, including from Rhode Island health insurers, confirm that Lifespan's and CNE's hospitals are close substitutes.

  - The merger is predicted to increase the willingness-to-pay (WTP) of the combined system—a measure of the value-add to an insurer's network—by 16.2 percent. The economics literature has consistently found that an increase of this magnitude is associated with substantial price increases. Based on prices at Rhode Island hospitals, a 16.2 percent increases in WTP is associated with an 8.9 percent increase in Lifespan and CNE's price. Such a large increase in the value-add of the system to an insurer's network provides further evidence that Lifespan and CNE are close substitutes across many service lines, which account for the bulk of the care delivered by the hospitals. Analysis of the price-WTP relationship in Rhode Island confirms that higher WTP in associated with higher prices in Rhode Island.

  - Consistent with the empirical evidence, the Parties' course of business documents are replete with examples of ways in which they compete for patients. The examples in their documents

also illustrate how Rhode Islanders have benefited from this competition. Lifespan and CNE have developed and expanded service lines, invested in quality improvements, and taken action to improve patient access and convenience in response to the competitive pressures each system imposes on the other.

☐ The proposed merger will also eliminate potential competition in those service lines in which Lifespan and CNE currently do not significantly compete. ███████████████████ ██ ██ ██ ██████████████████████

■ The reduction in competition that would result from the merger will harm residents of Rhode Island in multiple ways. It would leave health insurers with next to no alternatives to which they can steer members to create downward pricing pressure on Lifespan and CNE as they do now. This would strengthen the Parties' bargaining leverage and increase the overall costs of care in Rhode Island. The reduced competition would also weaken Lifespan's and CNE's incentives to invest in quality improvements and innovate in other ways to attract patients to maintain and/or take market share away from each other.

■ Potential mitigating factors such as entry, expansion, and repositioning by current and potential competitors are unlikely to offset the lessening of competition that will result from the proposed merger. There are significant barriers to entry, both in terms of the time required to plan, receive state approval, and construct new facilities or expand existing facilities, and in terms of the capital cost of such construction.

■ I evaluated whether the Affordability Standards promulgated by the Office of the Health Insurance Commissioner (OHIC) are sufficient to prevent the likely harms created by the lessening of competition and conclude that they would not prevent the likely harms.

☐ OHIC's Affordability Standards require approval for hospital rate increases that exceed a threshold pegged to a measure of inflation. █████████████████████████████ ██ ██ ███ ██ ██ ████████████████████████████████████

☐ The Affordability Standards require that at least 50 percent of a hospital's rate increase be tied to quality metrics, but do not directly regulate quality outcomes. OHIC also does not regulate innovation or non-clinical dimensions of quality, including service amenities and the scope and type of services that hospitals offer. No expansion of the regulations is likely to

fully replicate the benefits of competition that would be lost by the proposed merger. There are many challenges associated with the design and enforcement of regulation that limit what can be realistically accomplished and controlled through top-down regulatory control. Furthermore, regulations can be costly to the regulator and regulated alike. It can also be difficult to properly design regulation to avoid unintended consequences or to prevent loopholes that allow firms to circumvent a regulation's intent, especially in a highly dynamic market such as health care where technologies and standards of care are rapidly evolving.

☐ The Affordability Standards can be weakened or removed at any point in the future. As the largest employer in the state by far, the merged health system could exert significant pressure to have the Affordability Standards altered to its benefit at some point in the future while the reduction of competition is effectively permanent. OHIC itself cautioned that there is no assurance that the Affordability Standards will exist as a permanent feature of the regulatory landscape.

▪ ███
███
███
███
███
███
██
███████████████████

☐ Because Lifespan and CNE each have certain unique services, enrollees may strongly prefer health plans that have both systems in network. ████████████████████████████
███
███
████████████████████████ The Parties' acknowledge in their HCA application that "At least some large health insurers already use standard techniques that enable them to extract minimal provider price increases by influencing patient choice, including tiering, patient steering, patient rewards, and discounts." ███████████████████████████████
███████████████████████████████████
█████████████████████████ The proposed merger forecloses insurers' ability to steer patients at the service-level through "tiering, patient steering, patient rewards, and discounts" to incentivize the Parties to reduce costs.

☐ ███
███
███
██

▪ ██
██
██████████████████

☐ ██
██
██
██
██████████████████████████████ .

I.B. The proposed merger of Lifespan and CNE raises significant competitive concerns in markets for outpatient surgical services in several service lines

▪ Outpatient surgery services sold to commercial health insurers and provided to plan enrollees by Rhode Island hospitals and surgery centers are additional relevant markets in which to analyze the likely competitive effects of the proposed merger between Lifespan and CNE.

▪ Lifespan and CNE provide a full array of outpatient surgery services at their hospital locations, meaning they offer surgery services across the broad spectrum of specialties. In addition, CNE has recently received certificate of need approval for an ambulatory surgery center that will include six operating rooms once completed in the mid to late 2020s.

▪ The proposed merger would increase concentration in the market for outpatient surgery services for several service lines to levels well above the thresholds outlined in the *Merger Guidelines*; i.e., structural analysis shows that the proposed merger is likely to substantially lessen competition in the market for these services.

▪ Direct analysis shows that there is significant head-to-head competition between Lifespan and CNE, within several specialties. For example, over nearly 50 percent of RIH's and Miriam's patients would switch to a CNE hospital for a surgery related to hemic & lymphatic and integumentary systems. And over 80 percent of RIH's and Miriam's patients would switch to a CNE hospital for surgeries related to the female reproductive system. Diversions from CNE to Lifespan hospitals are similarly high. The merger is predicted to increase the WTP of the combined system by 19.4 percent, further demonstrating the Parties' significant overlap.

▪ Course of business documents and testimony confirm the significant head-to-head competition indicated by the estimated diversion ratios and WTP.

I.C. The Proposed Transaction raises significant competitive concerns in the market for inpatient behavioral health services

- There are only two inpatient psychiatric hospitals in Rhode Island: CNE's Butler Hospital and Lifespan's Bradley Hospital. In addition, CNE's Kent Hospital and Lifespan's RIH each have behavioral health units that service about 500 admissions for psychiatric conditions each year.

- Lifespan and CNE offer the same set of behavioral health care services. Although Bradley Hospital is a pediatric and adolescent hospital, RIH offers adult behavioral health care for the same or similar conditions that Butler treats, and Butler also treats a large number of adolescents.

- The proposed merger would increase concentration in the market for inpatient behavioral health services to levels well above the thresholds above which a merger is likely to enhance the Parties' market power as outlined in the *Merger Guidelines*.

I.D. By lessening competition for health care services across the spectrum of care, the proposed merger is likely to lessen the effectiveness and benefits of accountable care in Rhode Island

- An ACO is a network of providers—hospitals, doctors, and other medical providers—that share responsibility for providing care to patients. The objective of an ACO is to reduce the cost of care by coordinating providing along the care continuum in a way that allows for more efficient care delivery while maintaining high quality. This is achieved through the coordination of ACO members to ensure that patients get the right care at the appropriate time and place and by avoiding unnecessary duplication of services (e.g., duplicative diagnostic testing). When an ACO succeeds at this objective, it will share in the savings.

- There are seven commercial ACOs in Rhode Island. CNE owns the Integra ACO and Lifespan is a joint owner of the Lifespan Health Alliance (LHA) ACO and, because of its recent acquisition of Coastal Physician Group, Lifespan also controls the Coastal Medical ACO. These three ACOs are the three largest ACOs in Rhode Island as measured by attributed lives. Indeed, about 81 percent of all commercial medical spend that flows through an ACO in Rhode Island is through the Parties' ACOs, accounting for about half of *all* commercial medical spend in Rhode Island.

- Course of business documents and testimony show that CNE's and Lifespan's ACOs have taken a number of actions to reduce leakage to one another that have benefited patients through more convenient access and increased quality of care. However, when over 80 percent of attributed patients are under the control of one entity, there is less market share for participating providers to gain through better care coordination and improved quality more generally. In short, competition to attract and retain patients is diminished. There is less incentive for the ACO and its participating providers to invest the time and resources into efforts that benefit patients,

generating an additional way in which the lessening of competition caused by the Proposed Transaction will harm residents of Rhode Island. With one entity controlling such a high proportion of covered lives, it also has less incentive to work with insurers on innovative payment methodologies due to a lack of incentive created by the prospect of gaining share.

I.E. The proposed merger raises concerns about an increase in hospital monopsony power that would decrease the wages and compensation for nurses

- Lifespan and CNE are already the first and third largest private employers in Rhode Island; together, they would become the largest employer in the state overall.

  ☐ A combined Lifespan-CNE would employ 67 percent of all full-time registered nurses (RNs) that are employed by hospitals. Based on hospital-employment shares, the Proposed Transaction is projected to increase the HHI for the share of full-time RNs at Rhode Island hospitals by 1,825 points, resulting in a post-merger HHI of 4,768 points. For nurses at hospitals in Rhode Island and neighboring Massachusetts towns, the Proposed Transaction is projected to increase the HHI by 1,077 points, resulting in a post-merger HHI of 3,024 points. Regardless of the geography used, the predicted changes in HHI far exceed the 200-point increase and 2,500-point post-merger HHI thresholds set forth by the *Merger Guidelines*.

- The economics literature has found that hospitals in markets as concentrated as Rhode Island (and the surrounding region) have monopsony power; these observations raise concerns that a combined Lifespan-CNE will have the buyer power to decrease the wages and compensation for nurses and/or increase their workload from competitive levels.

II. Scope of report and qualifications

II.A. Scope of report

(7)   Lifespan and CNE submitted a Hospital Conversions Act application on April 26, 2021 and a revised application on October 1 to the Rhode Island Department of Health (RIDOH) and the Rhode Island Attorney General (RI AG). I have been retained by the Rhode Island Office of the Attorney General (RIAG) to provide an economic analysis of the likely competitive effects of the proposed merger of Lifespan and CNE (the "Parties"). I was asked to evaluate the proposed merger under the standard set forth by the Clayton Act, §7, which prohibits mergers and acquisitions where the effect "may be substantially to lessen competition, or to tend to create a monopoly."[2]

II.B. Qualifications

(8)   I am a Principal in the Antitrust and Healthcare Practices at Bates White, LLC, a professional services firm that conducts economic and statistical analyses in a variety of industries and forums. I hold a Ph.D. in economics from Ohio State University, an M.A. in economics from New York University, and a B.S. in mathematics from the University of Victoria. I specialize in performing economic and statistical analyses of competition, market definition, and market power in antitrust cases, and have over ten years of experience analyzing competition in healthcare markets.

(9)   More specifically, I have significant experience analyzing the competitive effects of consolidation, market monopolization, and monopsonization in physician, hospital, and health insurer markets. Most recently, I have been involved in the most recent two hospital system merger cases: I worked in support of the Federal Trade Commission (FTC) in its action to enjoin Hackensack Meridian Health's proposed acquisition of Englewood Health and I supported Jefferson Health and Albert Einstein Healthcare in litigation by the FTC to enjoin their proposed merger.

(10)   I have conducted numerous analyses on behalf of merging parties, including hospital systems, and have presented the findings of these analyses to the U.S. Department of Justice and the FTC, as well as to various state agencies.

(11)   I have published several articles on hospital and provider competition and their effects on healthcare prices and quality in economic journals, including the RAND Journal of Economics, the American Economic Journal: Policy, and the Journal of Economics and Management Strategy. I also regularly referee articles for the Journal of Health Economics and Health Economics.

---

[2]   15 U.S.C. § 18.

(12)   Prior to joining Bates White, I was an assistant professor of economics at the University of Alabama, where I taught graduate courses in industrial organization and managerial economics as well as undergraduate courses in principles of microeconomics. In these courses, I covered topics such as the organization of firms and industries, market power, and the economics of horizontal mergers and vertical integration.

(13)   A more detailed description of my background and credentials, including a list of my publications, is contained in the attached copy of my curriculum vitae in Appendix A.

III. Factual background

III.A. Lifespan

(14)   Lifespan is a not-for-profit health system[3] founded in 1994,[4] based in Providence.[5] It is Rhode Island's largest health system, with 1,165 combined licensed beds[6] across its four hospital facilities: two inpatient general acute care (GAC) hospital campuses (Rhode Island Hospital and The Miriam Hospital), one behavioral health hospital (Emma Pendleton Bradley Hospital), and one community GAC hospital (Newport Hospital).[7] In 2020, Lifespan reported total operating revenues of $2.5 billion.[8]

III.A.1. Hospitals

(15)   Rhode Island Hospital (RIH), located in Providence,[9] was founded in 1863.[10] With 719 licensed beds, it is the largest hospital in the state.[11] It is also the principal teaching hospital of The Warren Alpert Medical School of Brown University.[12] RIH provides a full range of diagnostic and therapeutic services to patients, with particular expertise in cardiology, diabetes, emergency medicine and

---

3   Lifespan, "About Lifespan," https://www.lifespan.org/about-lifespan/overview (accessed November 15, 2021).

4   LIFESPAN00786235 at 2.

5   Office of the Health Insurance Commissioner, "The Care New England and Lifespan Proposed Merger: Policy Considerations Related to the State of Rhode Island Office of the Health Insurance Commissioner's Statutory Purpose," June 2021. http://www.ohic.ri.gov/documents/2021/June/OHIC%20CNE-Lifespan%20Proposed%20Merger%20Policy%20Considerations%20Working%20Paper%206-29-21%20Final.pdf (accessed January 6, 2022) at FTC-CNE-00953441.

6   LIFESPAN00908165.

7   Lifespan, "About Lifespan," https://www.lifespan.org/about-lifespan/overview (accessed November 15, 2021).

8   Lifespan Corporation and Affiliates Consolidated Financial Statements 2020 and 2019 (Lifespan001578).

9   Lifespan, "Rhode Island Hospital Maps and Directions," https://www.lifespan.org/locations/rhode-island-hospital/patients-visitors/maps-and-directions (accessed November 24, 2021).

10   LIFESPAN06323142 at pg 5; draft approved at LIFESPAN02338651.

11   LIFESPAN00908165; LIFESPAN00550078; ███████████████████████████████ ██████████████████████████████.

12   LIFESPAN00908165.

trauma, neurosciences, oncology/radiation oncology,[13] orthopedics, pediatrics, and surgery.[14] It employs 7,979 people, including 1,829 affiliated physicians.[15] RIH is the only Level I trauma center in Rhode Island.[16]

(16)   Hasbro Children's Hospital (Hasbro), built in 1994,[17] operates within RIH and provides advanced pediatric specialty care and outpatient services. Hasbro has 87 licensed beds and is Rhode Island's only children's hospital.[18] Hasbro likewise houses the state's only pediatric emergency department, imaging center, and intensive care unit.[19]

(17)   The Miriam Hospital (Miriam), located in Providence, was founded in 1926.[20] It has 247 licensed beds.[21] Miriam houses the state's only Women's Cardiac Center, Joint Commission on Accreditation of Hospitals and Healthcare certified Primary Stroke Center, and robotic surgery program.[22] Miriam has particular expertise in cardiology, oncology, orthopedics, gastroenterology, urology, immunology, and infectious diseases, and it also provides pathology, radiology, and psychiatric services.[23] It employs 3,245 people, including 1,265 affiliated physicians.[24] It is also a teaching affiliate of The Warren Alpert Medical School of Brown University.[25]

---

[13]   RIH and its cancer program, the Lifespan Cancer Institute, recently filed a Certificate of Need application to develop an adult autologous stem cell transplant program. A public meeting regarding this application was held on December 9, 2021. *See* Rhode Island Department of Health, "Notice of a Public Meeting Regarding the Certificate of Need Application For Rhode Island Hospital to Establish an Adult Autologous Stem Cell Transplant Program in Providence, RI," December 9, 2021. Available at https://health ri.gov/systems/about/requests/ (last accessed January 22, 2022).

[14]   LIFESPAN06323142 at 5; draft approved at LIFESPAN02338651.

[15]   Lifespan, "Annual Report 2020," at 5. https://issuu.com/lifespanmc/docs/ls-annual-report-2020-210527?fr=sYjZhOTM3NDAwMDA.

[16]   LIFESPAN00908165; Brown Alpert Medical School, "Department of Emergency Medicine, Clinical Sites". https://www.brown.edu/academics/medical/about/departments/emergency-medicine/clinical-sites (accessed November 24, 2021). Trauma centers are equipped to treat life-threatening severe, and disabling injuries. Level I is the most advanced level for a trauma center. For a description of the differences between trauma levels, *see* American Trauma Society, "Trauma Center Levels Explained". https://www.amtrauma.org/page/traumalevels (accessed December 13, 2021).

[17]   Lifespan, "About Lifespan," https://www.lifespan.org/about-lifespan/overview (accessed November 15, 2021).

[18]   LIFESPAN00908165.

[19]   LIFESPAN00550078.

[20]   LIFESPAN06323142 at pg 5; draft approved at LIFESPAN02338651.

[21]   LIFESPAN00908165; ███████████████████████████████████████

██████████████████████████

[22]   LIFESPAN00550078.

[23]   LIFESPAN06323142 at pg 5-6; draft approved at LIFESPAN02338651.

[24]   Lifespan, "Annual Report 2020," at 5. https://issuu.com/lifespanmc/docs/ls-annual-report-2020-210527?fr=sYjZhOTM3NDAwMDA.

[25]   LIFESPAN00908165.

(18)   Emma Pendleton Bradley Hospital (Bradley), located in Providence,[26] was founded in 1931.[27] Bradley is a behavioral health hospital for children and adolescents with 70 licensed beds.[28] It employs 820 people, including 133 affiliated physicians.[29] It is also a teaching affiliate of The Warren Alpert Medical School of Brown University.[30]

(19)   Newport Hospital (Newport), located in Newport, was founded in 1873.[31] It is a community hospital with 129 licensed beds.[32] Newport offers a range of medical services including diagnostic imaging, a birthing center, and acute inpatient and outpatient rehabilitation.[33] It employs 790 people, including 462 affiliated physicians.[34]

III.A.2. Other Lifespan Facilities

(20)   Gateway Healthcare, established in 1995,[35] is a community-based[36] behavioral health organization that provides outpatient counseling for individuals and families,[37] for both adults and children.[38] It has over 50 locations[39] and employs 456 people.[40]

(21)   Lifespan has ambulatory care centers in East Greenwich and East Providence. These centers provide services that include the following: adult and pediatric rehabilitation, laboratory services, medical

---

[26]   Lifespan, "Bradley Hospital Locations". https://www.lifespan.org/locations/bradley-hospital (accessed November 24, 2021).

[27]   LIFESPAN06323142 at pg 6; draft approved at LIFESPAN02338651.

[28]   LIFESPAN00908165; ███ ██████████████████████████████████

[29]   Lifespan, "Annual Report 2020," at 5, https://issuu.com/lifespanmc/docs/ls-annual-report-2020-210527?fr=sYjZhOTM3NDAwMDA.

[30]   Lifespan, "Welcome to Bradley Hospital". https://www.lifespan.org/locations/bradley-hospital (accessed November 24, 2021).

[31]   LIFESPAN00913893.

[32]   LIFESPAN00908165; ██ ██████████████████████████████████

[33]   LIFESPAN00550078.

[34]   Lifespan, "Annual Report 2020," at 5, https://issuu.com/lifespanmc/docs/ls-annual-report-2020-210527?fr=sYjZhOTM3NDAwMDA.

[35]   LIFESPAN06323142 at pg 7; draft approved at LIFESPAN02338651.

[36]   LIFESPAN00786235 at 2.

[37]   LIFESPAN00908165.

[38]   LIFESPAN06323142 at pg 7; draft approved at LIFESPAN02338651.

[39]   *Id.*

[40]   Lifespan, "Annual Report 2020," at 5, https://issuu.com/lifespanmc/docs/ls-annual-report-2020-210527?fr=sYjZhOTM3NDAwMDA.

imaging, cancer care, outpatient dialysis, wound care, pediatric specialties care, and cardiovascular care.[41]

(22) Lifespan provides laboratory testing at more than 46 sites across Rhode Island and southeastern Massachusetts.[42]

III.A.3. Lifespan Physician Groups and Lifespan Health Alliance

(23) The Lifespan Physician Group (LPG), created in 2012,[43] is the largest multispecialty physician practice group in the state.[44] LPG's membership is made up of 840 healthcare providers, including MDs, PhDs, DOs, and advanced practice providers (APPs).[45] Represented service lines include neurosurgery, cardiology, anesthesiology, pediatrics, primary care, psychiatry, gastroenterology, and ophthalmology.[46]

(24) In April 2021, Lifespan acquired Coastal Medical, a primary-care-driven physician group.[47] Coastal Medical employs over 125 physicians serving 122,000 patients at 20 medical offices located across Rhode Island.[48] In addition to primary care, Coastal Medical offers cardiology, pulmonology, behavioral health, and musculoskeletal health services. It also provides laboratory and imaging services.[49]

(25) Lifespan also operates Lifespan Health Alliance, an Accountable Care Organization (ACO).[50] Lifespan Health Alliance is a ▮▮▮▮▮▮▮▮▮▮ between Lifespan and Community Physicians Partners, Inc., an Independent Physician Association.[51] Lifespan Health Alliance participates in the

---

[41] Lifespan, "About Lifespan: Lifespan Ambulatory Care Centers". https://www.lifespan.org/about-lifespan/overview (accessed November 15, 2021).

[42] Lifespan, "Lifespan Ambulatory Care Centers," https://www.lifespan.org/centers-services/lifespan-laboratories (accessed December 6, 2021).

[43] LIFESPAN06323142 at 12; draft approved at LIFESPAN02338651.

[44] LIFESPAN00786235.

[45] Lifespan, "Lifespan Physician Group". https://www.lifespan.org/centers-services/lifespan-physician-group. (accessed February 10, 2022).

[46] LIFESPAN00908165.

[47] Lifespan, "Annual Report 2020," at 5. https://issuu.com/lifespanmc/docs/ls-annual-report-2020-210527?fr=sYjZhOTM3NDAwMDA.; FTC-CNE-00953450; CNE-LS-000001 at -0079.

[48] Lifespan, "About Coastal Medical". https://www.lifespan.org/locations/coastal-medical/about (accessed November 15, 2021); CNE-LS-000001 at -0079.

[49] Lifespan, "About Coastal Medical". https://www.lifespan.org/locations/coastal-medical/about (accessed November 15, 2021).

[50] An ACO is a network of primary care physicians and other providers who assume clinical and financial accountability for their attributed patients and manage within budget targets with opportunities for earning shared savings or incurring shared losses.

[51] LIFESPAN00277873 outlines the Lifespan and CPC ACO structure, governance and risk sharing arrangement allocation. *See also,* CNE-LS-000001 at -0079.

Medicare Shared Savings Program.[52] It currently has approximately ████████████████████.[53] ███

██████████████████████████████████████
██████████████████████████████████████
██████████████████████████████████████
███████████████████████████.[54]

III.B. Care New England

(26)   Care New England (CNE) is a non-profit corporation formed in 1995.[55] It is the second-largest health system in Rhode Island.[56] CNE operates three inpatient hospital campuses: one general acute care hospital (Kent County Memorial Hospital), one specialty women's hospital (Women & Infants Hospital of Rhode Island), and one behavioral health hospital (Butler Hospital).[57] CNE employs approximately 8,200 people,[58] around 1,300 of whom are active medical staff.[59] In 2020, CNE reported total operating revenues of $1.1 billion.[60]

III.B.1. Hospitals

(27)   Kent Hospital (Kent), founded in 1946,[61] is a 359-bed[62] GAC hospital[63] located in Warwick.[64] Kent is the second-largest hospital in Rhode Island and the state's largest community hospital.[65] Kent provides inpatient services including: cardiology and extended coronary care, infectious disease, primary care, oncology, orthopedics, obstetrics and gynecology, rehabilitation, and general surgery.[66] It provides outpatient services including cardiac catheterization, chemotherapy, diagnostic imaging,

---

[52]   *Id.*

[53]   *Id.*

[54]   *Id.*

[55]   Care New England Health System and Affiliates Consolidated Financial Statements 2021 and 2020 (C-R-CNE-LS-0256412, at 0256420).

[56]   LIFESPAN00550133.

[57]   Care New England, "Who We Are," https://www.carenewengland.org/about (accessed November 5, 2021).

[58]   LIFESPAN00550133.

[59]   FTC-RECON-00000033.

[60]   C-R-CNE-LS-0256412, at 0256417.

[61]   Kent Hospital, "About Us – Our History," https://www.kentri.org/about-us (accessed November 4, 2021).

[62]   FTC-CNE-00719271, slide 4; AHA, 2019.

[63]   FTC-CNE-00000364.

[64]   HCA Application, CNE-LS-000001 at -0022.

[65]   LIFESPAN00550078.

[66]   Kent Hospital, "About Us – Our History". https://www.kentri.org/about-us (accessed November 4, 2021).

and surgery.[67] The hospital houses an Ambulatory Surgery Center,[68] Women's Diagnostic Imaging Center, and a Wound Recovery Center.[69] Kent also provides laboratory and primary care services at various sites in the Warwick community.[70] Kent employs 238 active medical staff, 854 total medical staff, 138 residents, and 5 fellows.[71] It is a teaching affiliate with the University of New England College of Medicine (UNECOM).[72]

(28)   Butler Hospital (Butler), founded in 1844, is a 143-bed[73] behavioral health teaching and research hospital[74] located in Providence.[75] It specializes in the assessment and treatment of adults, seniors, and adolescents[76] for all major psychiatric illnesses and substance abuse, including acute psychiatric and substance abuse treatment, including: major depression, obsessive compulsive disorder, Alzheimer's disease and other memory disorders, Parkinson's disease, anxiety, substance abuse and family violence, smoking cessation, and perinatal mood disorders.[77] Butler is a teaching and research facility affiliated with the Warren Alpert Medical School of Brown University Department of Psychiatry and Human Behavior.[78] It employs 84 active medical staff, 144 total medical staff, and 46 residents.[79]

(29)   Women & Infants Hospital (W&I), founded in 1884 as the Providence Lying-In Hospital,[80] is a 247-bed hospital serving women and infants[81] located in Providence.[82] W&I is the eighth-largest stand-alone obstetrical service in the country, performing approximately 8,500 deliveries per year.[83] In addition to deliveries, W&I cares for 1,200 newborns in its Special Care Nursery, which is the only

---

[67]   Kent Hospital, "About Us – Our History," https://www.kentri.org/about-us (accessed November 4, 2021).

[68]   ██

[69]   Kent Hospital, "About Us – Our History," https://www.kentri.org/about-us (accessed November 4, 2021).

[70]   *Id.*

[71]   FTC-CNE-00719271, at slide 4.

[72]   FTC-CNE-00000364.

[73]   FTC-CNE-00719271, at slide 5

[74]   FTC-CNE-00000364.

[75]   HCA Application, CNE-LS-000001 at -0022.

[76]   Butler Hospital, "Adolescent Treatment Unit". https://www.butler.org/services/inpatient/adolescent (accessed November 30, 2021).

[77]   Butler Hospital, "About Butler Hospital". https://www.butler.org/about (accessed November 4, 2021).

[78]   *Id.*

[79]   FTC-CNE-00719271, at slide 5.

[80]   Women & Infants Hospital, "About Women & Infants Hospital". https://www.womenandinfants.org/about/ (accessed November 4, 2021).

[81]   FTC-CNE-00000365.

[82]   HCA Application, CNE-LS-000001 at -0022.

[83]   FTC-CNE-00832150.

newborn intensive care in southeastern New England.[84] W&I also provides women's health services, performing more than 7,500 gynecological and general surgical procedures per year.[85] Services offered at W&I include: infertility treatment, breast care, gynecologic cancer, urinary incontinence, prenatal diagnosis, low and high-risk obstetrics, gynecology care, women's gastrointestinal health, behavioral health, and primary care.[86] It also provides preventative health care through its Obstetrics and Gynecology Care Center and outreach sites in East Greenwich, South Kingstown, and Woonsocket.[87] W&I is a teaching affiliate of the Warren Alpert Medical School of Brown University for obstetrics, gynecology, and newborn pediatrics.[88]

(30)   CNE's W&I is located on the same campus as Lifespan's RIH and is connected to RIH by a tunnel.[89] In 1983, RIH and W&I entered into a ground lease agreement as landlord and tenant, respectively; the lease term runs to December 2085, with the option to renew for an additional 99 years.[90] The ground lease contains a covenant limiting the services W&I may provide on the leased property to "maternity, obstetric, gynecological and infant patients and ancillary and supplementary services that are consistent with these major activities."[91]

(31)   Memorial Hospital, located in Pawtucket, was acquired by CNE in 2013 and closed effective January 1, 2018.[92] CNE made the decision to close Memorial following substantial drops in inpatient volume and operating losses averaging $2 million per month.[93] While Memorial's inpatient units and Emergency Department are now closed, the Memorial campus still houses outpatient services and physician practices,[94] including primary care and other ambulatory services, under the license of Kent Hospital.[95]

---

84   Women & Infants Hospital, "About Women & Infants Hospital". https://www.womenandinfants.org/about/ (accessed November 4, 2021).

85   *Id.*

86   *Id.*

87   *Id.*

88   FTC-CNE-00832150.

89   ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮

90   FTC-CNE-00000304 [Section 3]; FTC-CNE-00000309 [Section 7.2].

91   FTC-CNE-00000304 [Section 3].

92   ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮; FTC-CNE-00832152.

93   Care New England, *Memorial Hospital: A Care News Update*, https://www.carenewengland.org/memorial; RI Dep't of Health, *Press Releases: RIDOH Issues Decision on Closure Application for Memorial Hospital's Emergency Department* (Dec. 28, 2017), https://www.ri.gov/press/view/31951.

94   Haffey Jan. 4, 2022 Tr. 27:5-17; Dacey Nov. 8, 2021 Tr. 84:4-86:24.

95 FTC-CNE-00832152.

III.B.2. Other CNE facilities

(32)   CNE operates an outpatient behavioral health center (The Providence Center), a home care/hospice center (the VNA of Care New England), and a wellness center (CNE Wellness Center).

(33)   The Providence Center, founded in 1969, is the largest community-based behavioral healthcare organization in Rhode Island, providing a continuum of counseling and supportive services to meet community mental health and substance use disorder needs.[96] It serves more than 18,000 Rhode Islanders each year, offering over 60 programs at 24 locations including food and housing, job training, legal services, primary health care and wellness activities.[97]

(34)   The VNA of Care New England (also referred to as the "Agency"),[98] founded in 1908 and located in Warwick, is a non-profit visiting nurse, home health care, and hospice agency.[99] It offers a comprehensive line of cardiac, rehabilitation, palliative care, and hospice services[100] to patients in Rhode Island and nearby Massachusetts.[101]

(35)   The CNE Wellness Center, located in Warwick, provides wellness, fitness, and educational programs, including nutrition counselling and supervised fitness plans.[102]

(36)   CNE provides laboratory testing at sites in thirteen cities and towns across Rhode Island.[103]

(37)   CNE operates HealthTouch, Inc., a private duty nursing service.[104]

(38)   CNE operates an Express Care Center in Pawtucket.[105]

---

[96]   FTC-CNE-00000365.

[97]   The Providence Center, "About Us". https://www.providencecenter.org/about (accessed November 5, 2021); *see also* FTC-RECON-00000033; FTC-CNE-00719271, slide 6.

[98]   FTC-CNE-00000364.

[99]   VNA Care New England, "About Us". https://www.vnacarenewengland.org/about (accessed November 5, 2021).

[100] VNA Care New England, "About Us". https://www.vnacarenewengland.org/about (accessed November 5, 2021).

[101] FTC-CNE-00000365.

[102] Care New England, "Locations". https://www.carenewengland.org/locations (accessed November 5, 2021).

[103] Care New England, "Care New England Laboratories". https://www.carenewengland.org/laboratory/ (accessed November 5, 2021).

[104] LIFESPAN00550078.

[105] ███████████████████████████

(39) On July 13, 2020, CNE submitted a Certificate of Need (CON) proposing to establish an Ambulatory Surgery Center (ASC) to be located in Providence.[106] The ASC is estimated to cost $40 million[107] and will include six operating rooms capable of providing outpatient surgical care across several specialties, including: general surgery, plastic surgery, vascular surgery, and urology.[108] CNE's application was granted on August 5, 2021.[109]

III.B.3. Care New England Physician Group and Integra

(40) The Care New England Medical Group (CNEMG), a subsidiary of Kent Hospital,[110] was formed in January 2016. CNEMG provides primary care and specialty services including behavioral health, women's health, and cardiovascular services[111] at fifteen locations across Rhode Island.[112] It sees about ████████████████████ and has an ███████████████████████.[113] CNEMG has over 900 employees, over 500 of whom are physicians[114] formerly employed by Affinity Physicians LLC at Kent, Healthcare Alliance at W&I, and Memorial and Butler Hospitals.[115]

(41) CNE also owns and operates Integra, an ACO created in 2014.[116] ██████████████████████
██
████████████[117] ██,[118] ██

---

[106] FTC-CNE-00000427: Care New England Health System, *Certificate of Need Application Form* (June 10, 2020, as resubmitted July 13, 2020).

[107] FTC-CNE-00000427 at -0432 (CNE ASC CON Application ████████████████
███████████████

[108] ██, *Report of the Health Services Council on the Application of Care New England Health System for a Certificate of Need to Establish a Freestanding Ambulatory Surgery Center in Providence* at 1 (Aug. 3, 2021).

[109] Letter from Nicole Alexander Scott, Director, Rhode Island Department of Health, to James E. Fanale, President and CEO, Care New England, *Re: Care New England Heath System's Application for a Certificate of Need to Establish a Freestanding Ambulatory Service Center in Providence* (Aug. 5, 2021).

[110] FTC-CNE-00908079.

[111] Care New England, "Care New England Medical Group (CNEMG)". https://www.carenewengland.org/cnemg

[112] Care New England, "Care New England Medical Group Primary Care". https://www.carenewengland.org/services/primary-care/locations/ (accessed November 5, 2021).

[113] FTC-CNE-00719271, slide 8.

[114] FTC-CNE-00719271, slide 8; Care New England, "Care New England Medical Group (CNEMG)". https://www.carenewengland.org/cnemg.

[115] FTC-CNE-00719271, slide 8.

[116] FTC-CNE-00000365; FTC-CNE-00002941: ████████████████████████
███████████

[117] FTC-CNE-00000365; FTC-CNE-00002941: ████████████████████████
███████████

[118] CNE-LS-000001 at -0079.

███; [119] ████████████

██

██. [120] Integra also contracts with Neighborhood Health Plan of Rhode Island. [121] The principal participating providers in Integra are CNEMG, [122] South County Health, Rhode Island Primary Care Physicians Corporation (RIPC), [123] and CNE's Women and Infants Health Faculty Physicians. In total, over 1,500 CNE-employed or -affiliated physicians are under the Integra umbrella. [124]

III.C. The Transaction

(42)   The affiliation agreement between Lifespan and CNE was signed in February 2021. [125] Through the affiliation, the Parties desire to create a non-profit academic health system to, primarily, strengthen their financial health and improve care through the integration of their complementary services and specialties.

---

[119] *Id.*

[120] *Id.*

[121] ██

████████████████████████████████████

[122] CNEMG offers primary care and specialty services in offices throughout Southern New England. [FTC-CNE-00007859]. ██

████████████████████████ CNEMG providers are participants in Integra. *Id.*

[123] FTC-CNE-00000365.

[124] *Id.*

[125] HCA Application, Ex. 16, CNE-LS16-000689.

III.D. Other providers serving Rhode Island residents

Figure 1. Rhode Island and surroundings
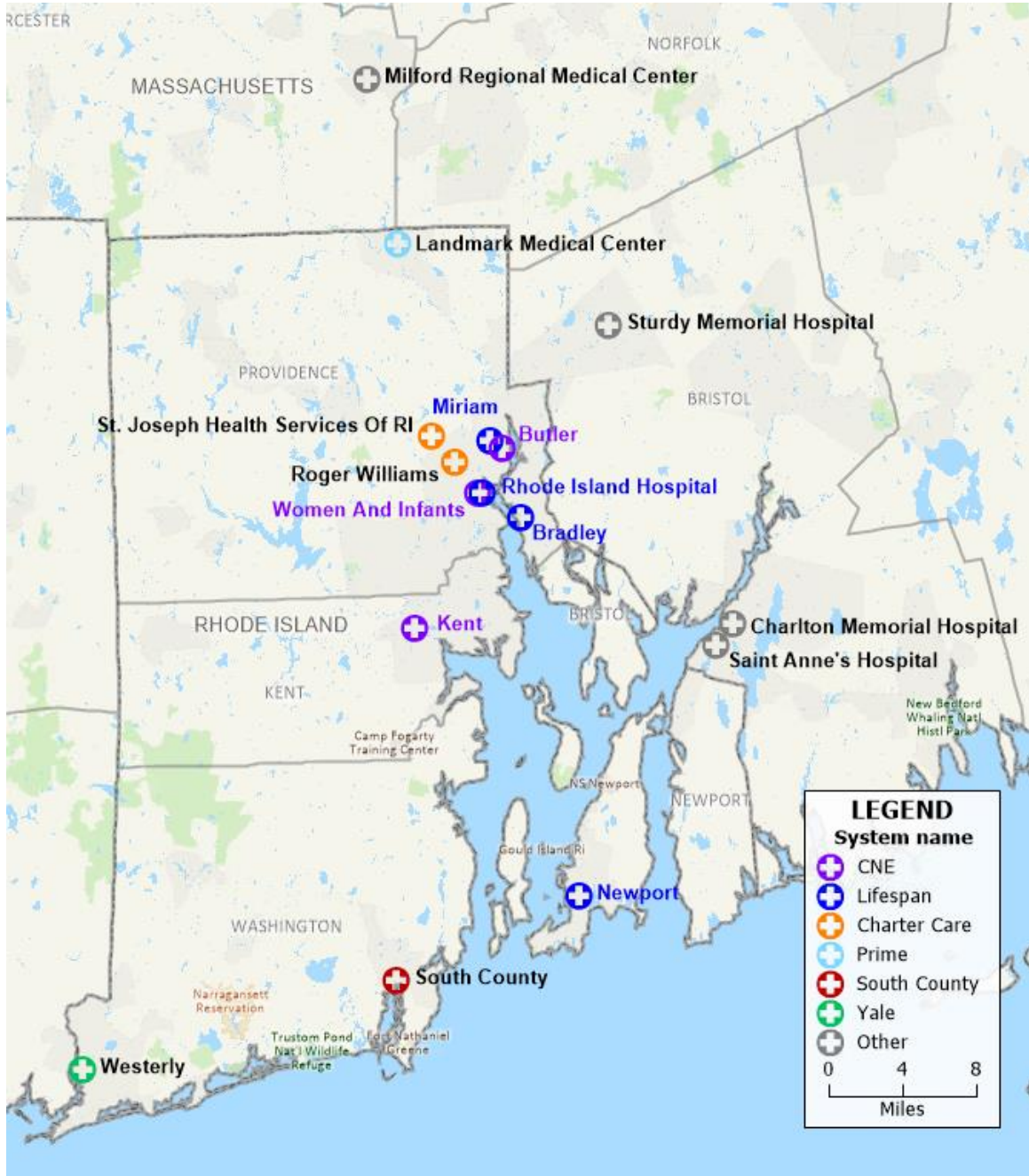
Source: AHA, 2019.

Figure 2. General acute care hospital landscape in Rhode Island, 2017–2019

System	Hospital	County	Staffed beds	Inpatient discharges	Outpatient visits
Lifespan	Rhode Island Hospital	Providence	682	94,244	770,381
	Miriam	Providence	247	50,255	1,318,780
	Newport	Newport	104	12,056	182,018
CNE	Kent	Kent	306	34,174	476,114
	Women & Infants	Providence	247	56,200	546,820
	Memorial*	Providence	-	2,309	79,529
Prime	Landmark Medical Center	Providence	140	16,050	157,819
Charter Care	Our Lady of Fatima	Providence	125	11,407	342,852
Yale	Westerly	Washington	93	7,285	123,829
South County	South County	Washington	91	17,799	371,292
Charter Care	Roger Williams	Providence	86	16,016	214,878

Sources: RI and MA hospital discharge data, 2017–2019. RI APCD, 2017–2019. AHA, 2019.
Notes: *CNE acquired Memorial hospital in 2013, and subsequently closed it January 1, 2018. Staffed beds are defined in the AHA data as total facility beds set up and staffed at the end of the reporting period.

III.D.1. Brown Physicians, Inc.

(43) Brown Physicians, Inc. (BPI) is a multi-specialty practice group founded and led by faculty affiliated with The Warren Alpert Medical School of Brown University.[126] BPI is affiliated with 609 physicians, 473 of whom are MDs/DOs and 149 of whom are APPs.[127] BPI is composed of six foundations: Brown Dermatology (with 24 affiliate physicians), Brown Emergency Medicine (with 208 affiliate physicians), Brown Medicine (with 230 affiliate physicians), Brown Neurology (with 32 affiliate physicians), Brown Urology (with 37 affiliate physicians), and University Surgical Associates (with 91 affiliate physicians).[128]

III.D.2. CharterCARE

(44) CharterCARE Health Partners (CharterCARE), owned by Prospect Medical Holdings, Inc.,[129] operates through two general acute care hospitals: the Roger Williams Medical Center (Roger Williams), located in Providence, and Our Lady of Fatima Hospital (Fatima), located in North Providence.[130] It is the only statewide hospital system other than Lifespan and CNE.[131] Roger

---

[126] Brown Physicians, Inc., "About Brown Physicians, Inc.". https://brownphysicians.org/ (accessed November 30, 2021).

[127] ███████████████████████████

[128] Brown Physicians, Inc., "About Brown Physicians, Inc.". https://brownphysicians.org/ (accessed November 30, 2021);
███████████████████████████

[129] CharterCARE, "Welcome to CharterCARE Health Partners". https://www.chartercare.org/ (accessed November 30, 2021).

[130] ████████████████████████████████████

[131] ██████████████████████████

Williams is best regarded for its cancer care, elder care, and gastroenterology services.[132] Fatima provides critical care, inpatient and outpatient surgery, an endoscopy center, adult and geriatric psychiatry, and other specialty services.[133] Fatima is also home to the Southern New England Rehabilitation Center.[134] CharterCARE also owns the St. Joseph Health Center, based in Providence, which provides comprehensive care to children, adults, and families through a network of primary care and specialty clinics.[135]

III.D.3. Prime Healthcare

(45)   Prime Healthcare operates 45 hospitals in 14 states,[136] including Landmark Medical Center (Landmark) located in Woonsocket and the Rehabilitation Hospital of Rhode Island (RHRI) located in North Smithfield.[137] Landmark provides emergency, diagnostic, cardiac, oncologic, medical, surgical, pain management, pediatric, obstetric, and rehabilitative care.[138] RHRI provides inpatient rehabilitation for people who have experienced an acute injury, impairment, or illness such as a stroke, brain injury, spinal cord injury, orthopedic injury, cardiovascular or pulmonary issue, neurological conditions, amputation, and trauma.[139]

III.D.4. South County

(46)   South County Health encompasses four healthcare entities: South County Hospital, South County Home Health, South County Medical Group, and South County Surgical Supply.[140] South County Hospital is a non-profit general acute care hospital located in Wakefield.[141] It has a staff of 399

---

[132] CharterCARE, "About RWMC". https://www.chartercare.org/locations/RWMC/about-rwmc/ (accessed February 9, 2022).

[133] Hospital Ass'n of R.I., "Member Hospitals". http://www hari.org/member-hospitals.html (accessed February 9, 2022).

[134] Hospital Ass'n of R.I., "Member Hospitals". http://www hari.org/member-hospitals.html (accessed February 9, 2022).

[135] CharterCARE, "Welcome to St. Joseph Health Center". https://www.chartercare.org/locations/stjoseph-health-center/ (accessed November 30, 2021).

[136] Landmark Medical Center, "About Prime Healthcare". https://www.landmarkmedical.org/about-us/about-prime-healthcare/ (accessed November 30, 2021).

[137] Landmark Medical Center, "History". https://www.landmarkmedical.org/about-us/history/ (accessed November 30, 2021); Rehabilitation Hospital of Rhode Island, "Home Page". https://www rehabhospitalri.com/ (accessed November 30, 2021).

[138] Landmark Medical Center, "History". https://www.landmarkmedical.org/about-us/history/ (accessed November 30, 2021).

[139] Rehabilitation Hospital of Rhode Island, "Types of Care". https://www rehabhospitalri.com/types-of-care (accessed November 30, 2021).

[140] South County Health, "About South County Health". https://www.southcountyhealth.org/about-south-county-health (accessed November 30, 2021).

[141] Hospital Ass'n of R.I., "Member Hospitals". http://www hari.org/member-hospitals.html (accessed February

---

physicians and mid-level providers, and mainly provides the following services: cardiology, women's health (obstetrics and gynecology), express care, general surgery, hospitalists, infectious disease, nephrology and hypertension, oncology and hematology, primary care/family & internal medicine, urology, and wound care.[142] The South County Medical Group is a network of 57 physicians and 41 mid-level providers.[143]

III.D.5. Yale New Haven Health

(47)   Westerly Hospital is a community hospital located in Westerly that is owned by the Yale New Haven Health System.[144] Westerly is a general acute care hospital that provides emergency, medical, surgical, radiology, laboratory, and rehabilitative services.[145] In addition, the hospital offers heart and vascular care, interventional pain management, wound care, pulmonary rehabilitation services, inpatient geriatric psychiatric care, and comprehensive cancer care.[146]

III.D.6. Other providers serving Rhode Island residents

III.D.6.a. Southcoast Health System

(48)   Southcoast Health System is comprised of four hospitals located in Massachusetts. The first three, Charlton Memorial Hospital in Fall River, Saint Luke's Hospital in New Bedford, and Tobey Hospital in Wareham, together form the Southcoast Hospitals Group with a total of 815 beds.[147] Southcoast Health also includes Southcoast Behavioral Health, a 144-bed[148] psychiatric hospital located in Dartmouth.[149] Additionally, Southcoast has over 55 service locations across the south coast of Massachusetts and Rhode Island, including over 40 physician practices, urgent care centers, a

---

9, 2022).

[142] South County Health, "Annual Report 2020," at 15. https://d11mkob3ld6ys.cloudfront net/documents/annual-report/SCH-Annual-Report-2020.pdf.

[143] South County Health, "Annual Report 2020". https://d11mkob3ld6ys.cloudfront net/documents/annual-report/SCH-Annual-Report-2020.pdf.

[144] Yale New Haven Health Westerly Hospital, "About Westerly Hospital". https://www.westerlyhospital.org/about (accessed November 30, 2021).

[145] *Id.*

[146] Hospital Ass'n of R.I., "Member Hospitals". http://www hari.org/member-hospitals.html (accessed February 9, 2022).

[147] Southcoast Health, "About Southcoast Health". https://www.southcoast.org/about-southcoast-health/ (accessed November 30, 2021).

[148] Southcoast Behavioral Health, "About Us". https://www.southcoastbehavioral.com/about/ (accessed December 9, 2021).

[149] Southcoast Health, "Southcoast Behavioral Health". https://www.southcoast.org/locations/southcoast-behavioral-health/ (accessed November 30, 2021).

visiting nurse association, the Southcoast Health Cancer Centers, outpatient surgery centers, and ancillary facilities.[150]

III.D.6.b. Steward Health Care

(49)   Saint Anne's Hospital, a 211-bed full-service acute care hospital located in Fall River, MA, is owned by Steward Health Care.[151] It provides comprehensive diagnostic, medical, surgical, and emergency services, in addition to specialty services provided at its satellite locations.[152] St. Anne's satellite locations are in Massachusetts and include: a Regional Cancer Center, Ambulatory Surgery Center, and Sleep Center in North Dartmouth; a Diagnostic Imaging Center and the Fernandes Center for Children & Families in Fall River; a Geriatric Psychiatry Program at New England Sinai Hospital in Stoughton; a Pain Management Center in Swansea; the Southern New England Surgery Center in Attleboro; and the SFC Doctors Express Urgent Care in New Bedford.[153]

III.E. Rhode Island demographics

(50)   Providence County has the largest overall population, as well as the largest commercially insured population, among Rhode Island counties. (*See* Figure 4 and Figure 5.) Providence County and Rhode Island overall have experienced growth in the number of commercially insured lives between 2016 and 2019 while the other four counties in Rhode Island have seen a decrease.

---

[150] Southcoast Health, "About Southcoast Health". https://www.southcoast.org/about-southcoast-health/ (accessed November 30, 2021).

[151] Saint Anne's Hospital, "About Us". https://www.saintanneshospital.org/about-us (accessed November 30, 2021).

[152] *Id.*

[153] *Id.*

Figure 3. Rhode Island population, 2017
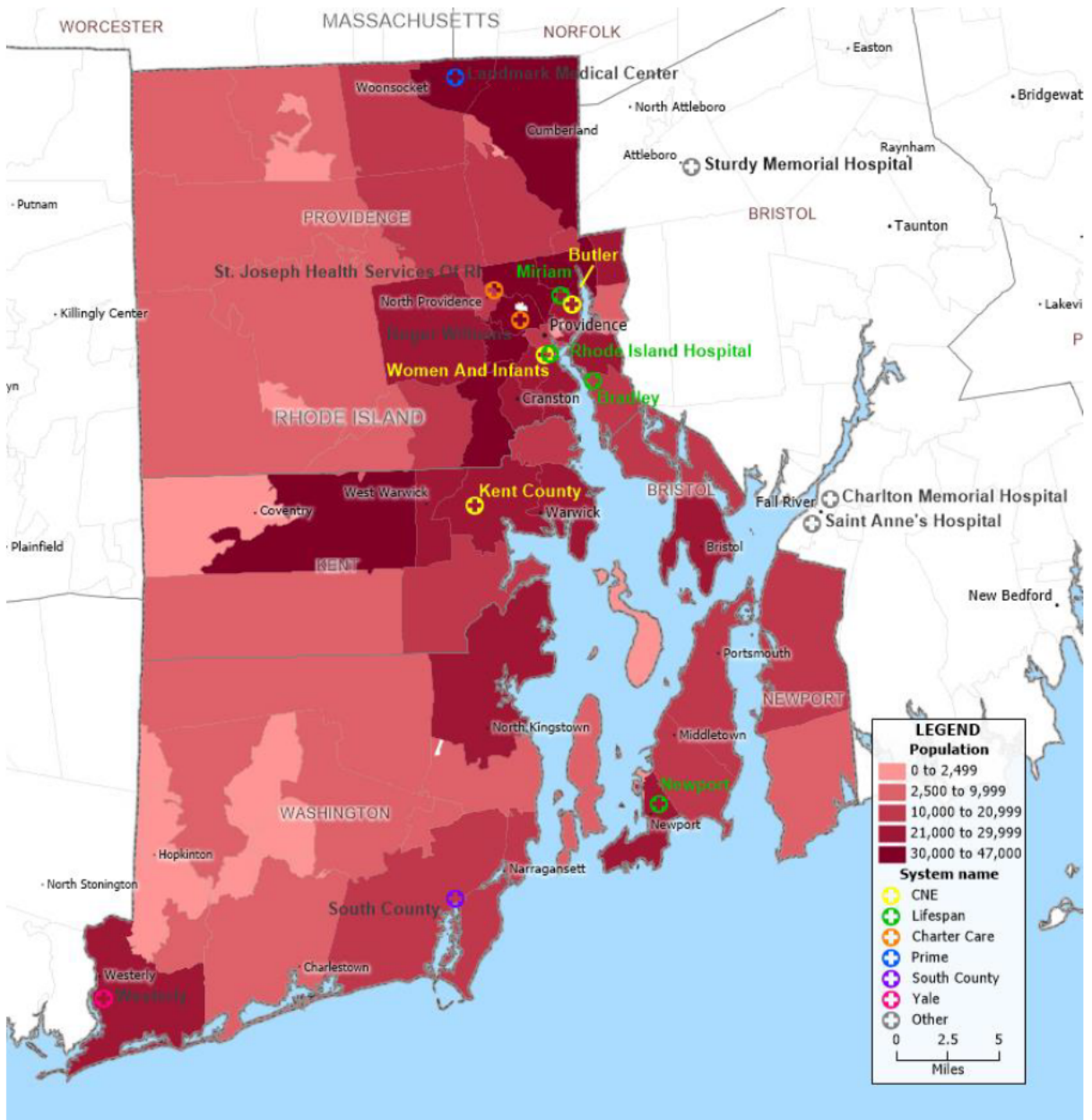
Sources: US Census data, 2017. Google API

(51) Washington County has the highest median household income among Rhode Island counties while Providence County has the lowest. (*See* Figure 3.) Providence County in Rhode Island and Bristol County in Massachusetts had the highest rates of median income growth between 2016 and 2019

Figure 4. Commercially insured population growth in Rhode Island area, 2016-2019

Geography	Number of commercially insured lives				Percentage change 2016 – 2019	Share of total population, 2019
	2016	2017	2018	2019		
Rhode Island	573,425	575,781	578,394	583,438	1.7%	56.0%
Providence County	319,023	322,362	325,394	331,503	3.9%	52.9%
Kent County	99,130	98,517	97,772	97,983	-1.2%	60.2%
Washington County	79,584	79,974	79,561	79,017	-0.7%	63.2%
Newport County	44,817	44,284	44,885	44,171	-1.4%	55.7%
Bristol County	30,871	30,644	30,782	30,764	-0.3%	63.9%
Bristol County, MA	299,615	300,754	297,693	295,805	-1.3%	53.3%

Source: US Census data, 2016–2019.

Figure 5. Median household income growth in Rhode Island area, 2016-2019

Geography	Population (2019)	Median household income				Percentage Change 2016 – 2019
		2016	2017	2018	2019	
Rhode Island	1,041,575	$ 58,486	$ 60,951	$ 63,335	$ 67,110	14.7%
Washington County	125,053	$ 74,302	$ 77,862	$ 81,301	$ 85,531	15.1%
Bristol County	48,153	$ 73,096	$ 74,630	$ 75,578	$ 83,092	13.7%
Newport County	79,313	$ 71,347	$ 75,463	$ 77,237	$ 79,454	11.4%
Kent County	162,760	$ 65,592	$ 69,047	$ 70,223	$ 73,521	12.1%
Providence County	626,296	$ 50,637	$ 52,530	$ 55,233	$ 58,974	16.5%
Bristol County, MA	555,111	$ 59,343	$ 62,514	$ 66,157	$ 69,095	16.4%

Source: US Census data, 2016–2019.

III.F. Health insurance

III.F.1. Commercial

(52)   Several commercial health insurers market health plans to residents, employers, and other plan sponsors in Rhode Island. In this section, I provide a brief overview of commercial health insurance plans and insurers that market plans in Rhode Island.

(53)   Most commercial health insurance plans offered in Rhode Island are a type of plan called a "managed care" plan, which feature a provider network—a defined set of hospitals, physicians, pharmacies, and other service providers—that enrollees are incentivized to utilize for their health care needs. As I discuss in IV, insurers typically engage with health care providers such as hospitals in a process of selective contracting to assemble their provider networks. The set of providers that contract with a

given health plan are deemed "in-network." Not all providers will necessarily contract with an insurer and those that do not are excluded from a plan's network and are referred to as being "out-of-network." Because health plans offer their members preferential financial terms for utilizing in-network providers, providers can expect to attract a greater share of the services delivered to health plan members if they are in-network.

(54)   The most common types of managed care plans in Rhode Island are Health Maintenance Organizations (HMOs), Exclusive Provider Organizations (EPOs), and Preferred Provider Organizations (PPOs). Each of these plan types gives patients financial incentives to select in-network providers; however, they differ somewhat in the form and strength of the incentives offered. HMOs typically have limited provider networks compared to PPOs, and often require referrals from a primary care physician (PCP) for specialty care, so as to better manage utilization and negotiate lower rates with providers. EPOs offer similar provider networks to HMOs and may or may not require PCP referrals. HMOs and EPOs also may not offer benefits for nonemergency care at out-of-network providers, whereas PPOs usually offer out-of-network coverage at a reduced level of benefits.

(55)   Some insurers offer "provider tiering" for certain plans. Under provider tiering, a plan member typically incurs a lower out-of-pocket cost for choosing providers within a preferred tier. For example, the out-of-pocket cost associated with receiving care from a "Tier 1" provider under Blue Cross Blue Shield RI's VantageBlue product is lower than the out-of-pocket cost associated with receiving that care from a provider in "Tier 2."[154] Tiered networks may also be paired with different plan types, e.g. HMO or EPO. So-called "narrow networks" may also be paired with different plan types. Typically, narrow networks include a limited choice of providers, who agree to lower negotiated prices because of an expected increase in patient volume. In turn, members typically pay lower premiums for narrow-network plans.

(56)   Individuals and households typically obtain health insurance coverage through an employer or another large group such as a union. A commercial group insurance plan can be fully-insured or self-insured. In a fully-insured plan, the insurer bears the financial risk for covered medical expenses. In a self-insured plan, also called "administrative services only" (ASO) plans, the plan sponsor bears the financial risk for medical expenditures—possibly with some stop-loss insurance—and the insurer or a third-party administrator (TPA) provides the administrative services, such as provider contracting, claims processing, and benefits management. Plans offered to small groups (2–50 employees) are typically fully-insured. Plans for larger groups may be fully or self-insured, with the latter

---

[154]   In BCBSRI's VantageBlue 1000/2000 plan, members are responsible for a $10 copay when they seek care from a primary care provider that is in-network, but are responsible for a 20 percent coinsurance payment for care from an out-of-network primary care provider. While members have no additional out-of-pocket costs for inpatient services with an in-network provider once they have met their annual deductible, they are responsible for a 20 percent coinsurance payment for out-of-network inpatient care after meeting the deductible, which is double that of the deductible for in-network care. Blue Cross & Blue Shield of Rhode Island, "Subscriber Agreement: VantageBlue $1,000$2,000 100/80". https://www.bcbsri.com/sitefiles/sites/sitefiles/files/2020/11/VantageBlue%201000.2000%20100.80%20-%202021.pdf

increasingly common as group size grows. Larger groups, with their greater number of enrollees, can better spread the financial risk of healthcare utilization, and there are other advantages to self-insuring. Lastly, individuals can directly purchase a commercial insurance plan (which must be fully-insured) through the state-run HealthSourceRI health insurance marketplace.[155]

(57)   When constructing their provider networks for fully-funded plans, insurers must also comply with certain state regulations regarding network breadth set by the Office of the Health Insurance Commissioner (OHIC). The Health Care Accessibility and Quality Assurance Act provides that, for each network plan, a health care entity must ensure that it "[m]aintain[s] access to professional, facility, and other providers sufficient to provide coverage in a timely manner of the benefits covered in the network plan and in a manner to assure that all covered services will be accessible without unreasonable delay."[156] Furthermore, the regulations promulgated by OHIC pursuant to the Act similarly require a health care entity to ensure that "its provider network for each of its network plans are sufficient in scope and volume to assure[,] address and monitor its population needs that all covered services for beneficiaries . . . are accessible in a timely manner without unreasonable delay."[157] The Centers for Medicare & Medicaid Services (CMS) regulations governing most Medicare Advantage plans also require a network of providers that is sufficient to provide adequate access to covered services. Unlike the Rhode Island accessibility rules that broadly define adequate access as the ability to obtain services in a timely manner without unreasonable delay, the CMS regulations define adequate access by reference to, among other things, maximum time and distance standards.[158]

(58)   Although state regulations regarding network adequacy apply only to fully-funded plans, insurers also focus on offering broad networks that are attractive to potential enrollees in self-insured plans.

III.F.2. Medicare

(59)   The Medicare program consists of four parts: Parts A through D. Parts A and B constitute what is often referred to as "Traditional Medicare" or "Original Medicare". Under Traditional Medicare, a beneficiary receives inpatient acute care coverage under Medicare Part A and coverage for physician and outpatient services under Part B. The reimbursement rates paid to physicians and hospitals under Traditional Medicare are set administratively by CMS.

(60)   Physicians may choose to sign a participating (PAR) agreement and accept Medicare's allowed charge as payment in full for services rendered to Medicare patients. Physicians may instead elect to

---

[155] *See* HealthSourceRI, "Home". https://healthsourceri.com/.

[156] Gen. Laws, § 27-18.8-3, subd. (c)(1).

[157] 230-20-30 Rhode Island Code of Regulations available at https://rules.sos ri.gov/Organizations/SubChapter/230-20-30 [hereinafter R.I. Code R] § 9.7.

[158] 42 C.F.R. 422.116.

be non-PAR, and make an assignment decision on a case-by-case basis, which allows them to bill Medicare patients for more than the Medicare allowance for unassigned claims. Physicians may also be a private contracting physician and agree to bill Medicare patients directly and forego any payments from Medicare.

(61)   Medicare Part C was created as an alternative to the Traditional Medicare program. Medicare's managed care program, Part C, was formally created through The Balanced Budget Act of 1997. It was initially called "Medicare+Choice," before the Medicare Modernization Act (MMA) of 2003 made a number of reforms to the program and renamed it "Medicare Advantage."[159] Medicare Advantage (MA) plans are offered by private insurers—Medicare Advantage Organizations (MAOs)—and are regulated by the CMS. MA plans cover all services covered by the Traditional Medicare program.[160] They also commonly feature lower cost-sharing and may provide additional, non-mandated benefits.[161] However, in contrast to Traditional Medicare, MA plans typically feature provider networks and care management that limit enrollees' choice similar to commercial managed care. As with commercial managed care, health care providers negotiate with MAOs over payment and other terms of participation to be a part of the MAO's provider network.

(62)   The 2003 MMA established Medicare Part D. This program allows Medicare eligibles to obtain prescription drug coverage by either enrolling in Traditional Medicare and purchasing a Part D prescription drug plan (PDP), or by enrolling in a Medicare Advantage Part C plan that includes prescription drug benefits (most enrollees in MA plans are in MA-PD plans with drug coverage).

III.F.3. RIteCare/Medicaid

(63)   Medicaid s a health insurance program enacted in 1965 under Title XIX of the Social Security Act. The program is jointly funded by federal and state governments and is designed primarily for people with low income. Within national guidelines, each state establishes its own eligibility standards;

---

[159] Kaiser Family Foundation, "Medicare Advantage," June 2019. http://kff.org/medicare/fact-sheet/medicare-advantage-fact-sheet/.

[160] Medicare Part A covers hospital expenses, including hospital stays, skilled nursing care, hospice, and home health-care services. *See* Medicare.gov, "What Part A covers". https://www medicare.gov/what-medicare-covers/part-a/what-part-a-covers html (accessed March 17, 2021). Medicare Part B covers medically necessary services such as doctor's office visits, lab work, x-rays, and outpatient surgeries, and preventive services such as cancer screenings and flu shots. Part B also covers medically necessary durable medical equipment such as wheelchairs and walkers to treat a disease or condition. *See* Medicare.gov, "What Part B covers". https://www medicare.gov/what-medicare-covers/part-b/what-medicare-part-b-covers.html (accessed March 17, 2021).

[161] An enrollee of Traditional Medicare pays a premium for Part B that starts at $148.50 per month and increases with income, deductibles that differ for Part A and Part B, and a 20 percent coinsurance for Part B. For an additional cost, an enrollee to Traditional Medicare can additionally enroll in a private Medicare Supplement Plan for a small monthly premium that covers the 20 percent Part B coinsurance. In contrast, MA plans may have a premium, but many are so-called "$0 premium" plans that generally only have copays but do not have coinsurance. MA plans will have deductibles that are typically higher than those for Traditional Medicare. CMS's plan finder website reports the expected total annual out-of-pocket costs for all of the plans available. *See* Medicare.gov, "Medicare costs at a glance". https://www medicare.gov/your-medicare-costs/medicare-costs-at-a-glance (accessed March 17, 2021).

determines the type, amount, duration, and scope of services; sets the rate of payment (i.e., capitation rates) for services from the state to Managed Care Organizations (MCOs); sets a fee schedule to govern payments from MCOs to providers; and administers its own program with federal oversight through CMS. Traditionally, eligible Medicaid beneficiaries received care from health care providers that contracted with the state Medicaid agency and were reimbursed directly by the state based on a fee-for-service-schedule (FFS). Starting in the 1990s, states began to contract with MCOs such as Aetna and Horizon to manage their Medicaid programs. Under this Managed Medicaid model, states generally pay the selected MCOs a fixed or "capitated" rate for each beneficiary. The MCO manages the provision of health care to the beneficiaries under supervision of the state.

(64)   Rhode Island's Medicaid managed care program is called RIte Care. Three health plans have contracts with the state to offer RIte Care plans: Neighborhood Health Plan of Rhode Island, Tufts Health Plan, and UnitedHealthcare Community Plan.

III.F.4. Rhode Island health insurers

(65)   Figure 6 presents the Rhode Island enrollment shares for fully-insured plans. The figure shows that Blue Cross & Blue Shield of Rhode Island (BCBSRI) is by far the largest health insurer in Rhode Island overall and within the fully-insured large group (firms with 50 or more employees) and small group (firms with 50 or fewer employees) segments. UnitedHealthcare (United) is a very distant second within these segments. ███████████████████████████████████████
███████████████████████[162]███████████████████████████████████████
███████████████████████████████.[163] BCBSRI alone accounts for approximately 70 percent of commercially insured lives in Rhode Island. Together, BCBSRI and United account for over 75 percent of commercially insured lives in Rhode Island. In this section I provide a brief overview of each of these insurers.

---

[162] ███
██████ BCBSRI has another 85 thousand lives in Medicare Advantage products. Centers for Medicare and Medicaid Services, "Monthly Enrollment by Plan," July 2020. https://www.cms.gov/research-statistics-data-and-systemsstatistics-trends-and-reportsmcradvpartdenroldatamonthly/monthly-enrollment-plan-2020-07

[163] ███████████████████████████████████

Figure 6. Rhode Island fully-insured commercial membership shares, 2021

Commercial segment	BCBSRI	United	Tufts	Cigna	NHP
Large group (FI)	75.3%	16.9%	7.2%	0.7%	0.0%
Small group (FI)	84.0%	6.5%	5.9%	0.0%	3.6%
Individual	41.1%	0.0%	0.0%	0.0%	58.9%

Source: OHIC rate review filings for 2022 requested rates: 2022 Individual Rate Review Detailed Summary.pdf; 2022 Small Employer Rate Review Detailed Summary; 2022 Large Group Rate Review Detailed Summary.

III.F.4.a. Blue Cross & Blue Shield of Rhode Island

(66)   BCBSRI was founded in 1939 and is the largest commercial health insurer in Rhode Island.[164] ███.[165] It also offers Medicare Advantage, Medicare Supplemental, and Medicare Prescription Drug plans. BCBSRI participates in Rhode Island's health insurance exchange but does not contract with the state of Rhode Island to offer RIte Care plans. BCBSRI offers individual PPO, small group PPO and HMO, and large group PPO and HMO plans. It enrolls approximately 17,000 individuals; 40,000 small group members; and 69,000 large group members.[166]

III.F.4.b. UnitedHealthcare

(67)   United has three divisions serving Rhode Island. UnitedHealthcare Employer & Individual serves employers ranging from sole proprietorships to large, multi-site and national employers, public sector employers and individual consumers.[167] It enrolls approximately 3,000 small group members and 15,000 large group members.[168] UnitedHealthcare Medicare & Retirement delivers health and well-being benefits for Medicare beneficiaries and retirees. UnitedHealthcare Community & State manages health care benefit programs on behalf of state Medicaid and community programs and their participants.[169]

---

[164] BCBSRI, "Our history". https://www.bcbsri.com/about/history (accessed Oct. 28, 2021).

[165] ████████████████████████████

[166] OHIC, "State of Rhode Island Office of the Health Insurance Commissioner Requested and Approved Summary for 2022 Rates in the Individual, Small Group, and Large Group Markets" (Sept 2021). http://www.ohic ri.gov/documents/2021/September/Final%202022%20Rate%20Review%20All%20Market %20Requested%20and%20Approved%20Summary%202021.pdf

[167] 69% of United's Rhode Island enrollees are self-insured. *See* OHIC Enrollment Data, received by email on Dec. 20, 2016.

[168] OHIC, "State of Rhode Island Office of the Health Insurance Commissioner Requested and Approved Summary for 2022 Rates in the Individual, Small Group, and Large Group Markets" (Sept 2021). http://www.ohic ri.gov/documents/2021/September/Final%202022%20Rate%20Review%20All%20Market %20Requested%20and%20Approved%20Summary%202021.pdf

[169] United also participates in RIte Care and Rhody Health Partners and offers Medicare Advantage plans in Rhode Island. UnitedHealthcare, "UnitedHealthcare RIte Care". http://www.uhccommunityplan.com/ri/chip/rite-care.html (accessed October 25, 2016); UnitedHealthcare,

III.F.4.c. Tufts Health Plan

(68) Tufts Health Plan (THP) is a non-profit insurer that serves members in Massachusetts, Connecticut, and Rhode Island.[170] ███[171] THP offers commercial (HMO and PPO) and Medicaid products in Rhode Island.[172] It enrolls approximately 3,000 small group members, and 6,500 large group members.[173]

III.F.4.d. Cigna

(69) ██,[174] ███████████████ ███████████████████████.[175] Cigna offers one broad network in Rhode Island; it also has a strategic alliance with THP to offer CareLink, an Open Access Plan.[176] CareLink members have access to the THP provider network in Massachusetts and Rhode Island and the Cigna network in all other states.[177] As of 2017, ███ ███[178]

III.F.4.e. Neighborhood Health Plan of Rhode Island

(70) Neighborhood Health Plan of Rhode Island (NHP) is a non-profit HMO founded in 1993.[179] NHP covers approximately 195,000 lives in Rhode Island,[180] which translates to one in five Rhode

---

"UnitedHealthcare Rhody Health Partners". http://www.uhccommunityplan.com/ri/medicaid/rhody-health-partners html (accessed March 7, 2017); UnitedHealthcare, "Medicare Advantage Plans". https://www.uhcmedicaresolutions.com/shop/medicare-advantage-plans html (accessed January 25, 2022).

[170] Tufts Health Plan, "About Tufts Health Plan". https://tuftshealthplan.com/visitor/about-us/about-us (visited Feb. 9, 2022).

[171] ███████████

[172] OHIC, "State of Rhode Island Office of the Health Insurance Commissioner Requested and Approved Summary for 2022 Rates in the Individual, Small Group, and Large Group Markets" (Sept 2021). http://www.ohic ri.gov/documents/2021/September/Final%202022%20Rate%20Review%20All%20Market%20Requested%20and%20Approved%20Summary%202021.pdf

[173] *Id.*

[174] ███████████████████.

[175] ███████████████████.

[176] Tufts Health Plan, "Tufts Health Plan". https://tuftshealthplan.com/THP/media/PdfDocuments/carelink.pdf.

[177] *Id.*

[178] ███████████████████

[179] Neighborhood Health Plan of Rhode Island, "Company Profile". https://www nhpri.org/about-us/company-profile/ (accessed November 24, 2021).

[180] Neighborhood Health Plan of Rhode Island, "Company Profile". https://www nhpri.org/about-us/company-profile/ (accessed November 24, 2021).

Islanders.[181] Approximately 80% of its members are Medicaid eligible.[182] Approximately 10% of NHP's members enroll in the "INTEGRITY Medicare-Medicaid Plan, and the remaining 10% enroll in commercial plans available through the RI health exchange.[183]

III.F.4.f. Aetna Life Insurance

(71)   Aetna Life Insurance Company (Aetna) is an insurance company that offers traditional and consumer directed health care insurance and related services across the United States, including Rhode Island.[184] It is a subsidiary of CVS Health Corporation.[185]

---

[181] Neighborhood Health Plan of Rhode Island, "Company Profile". https://www.nhpri.org/about-us/company-profile/ (accessed November 24, 2021).

[182] Neighborhood Health Plan of Rhode Island, "Company Profile". https://www.nhpri.org/about-us/company-profile/ (accessed November 24, 2021).

[183] Neighborhood Health Plan of Rhode Island, "Company Profile". https://www.nhpri.org/about-us/company-profile/ (accessed November 24, 2021).

[184] AETNA, "Aetna Facts". https://www.aetna.com/about-us/aetna-facts-and-subsidiaries/aetna-facts.html (accessed November 23, 2021).

[185] AETNA, "Our corporate profile". https://www.aetna.com/about-us.html (accessed November 23, 2021).

IV. Two-stage model of health care provider competition

(72)   In this section, I describe the framework typically used by economists to analyze hospital competition. In Section V, I use this framework to evaluate the likely effects of the Proposed Transaction.

(73)   Payment rates and other terms of network inclusion such as quality targets and network tier placement (when applicable) are established through negotiations between commercial health insurers and hospital systems. In markets for hospital services, as well as other medical services covered by health insurers, the primary payors of the service are the insurers and self-funded plan sponsors, collectively referred to as "payors." Patients are typically responsible for some fraction of their health care spending through co-pays, co-insurance, and deductibles; however, as patients' out-of-pocket costs typically do not vary across in-network hospitals and, when applicable, hospitals within the same tier, patients primarily select among in-network hospitals based on non-price terms such as geographic convenience, quality, and reputation. These institutional features create two distinct stages of hospital competition.[186]

- **Stage One.** Hospital systems negotiate contracts with insurers over terms of network inclusion, including prices or "reimbursement" for hospital services in insurers' provider networks and the network tier (for tiered provider networks).

- **Stage Two.** Hospital systems engage in non-price competition for patient volume among in-network hospitals.

(74)   Stage one reflects competition among hospital systems for insurer network inclusion and favorable terms of inclusion (e.g., the network tier the hospital is on), while stage two reflects competition among hospital systems for patients. The two stages of hospital competition are not independent. For example, a hospital system that is more attractive to patients—i.e., is in a stronger position in stage two competition—will also have more leverage in stage one negotiations with insurers over price and network inclusion because an insurer's exclusion of a favorable hospital would result in a greater reduction in the value of the insurer's provider network. Accordingly, economic research has found that hospitals and systems that are more attractive to patients can negotiate higher prices with health plans.

(75)   This "two-stage" model of provider competition has been used extensively in economic research on hospital price-setting and accepted by multiple courts of law including the United States Courts of

---

[186]   Although hospital competition is typically distinguished by these two stages of competition, the economics literature has modeled other relevant stages. For example, Katherine Ho uses five stages to describe the contractual process, and Katherine Ho and Robin Lee use four stages, in which our first stage is divided into two subparts, to similarly model the process. Katherine Ho, "Insurer-Provider Networks in the Medical Care Market," *American Economic Review* 99, no. 1 (2009): 393–430; Kate Ho and Robin S. Lee, "Insurer Competition in Health Care Markets," *Econometrica* 85, no. 2 (2017): 379–417.

Appeals for the Seventh and Third Circuits.[187] A merger between hospital systems can reduce competition for commercially insured patients in either or both stages of competition.[188] Competition for patients in government programs such as the federal Medicare program takes place in only one stage corresponding with stage two as discussed below.

IV.A. Stage one: hospital-insurer contracting

(76)   In stage one, commercial insurers construct provider networks for their health plans by contracting with providers of health services—such as hospitals, outpatient surgery centers, physicians and physician groups, and ACOs—over terms of inclusion in the insurers' provider network. The process of building a provider network is often referred to in the economics literature as "selective contracting" because insurers may selectively seek to exclude certain providers from their network and, even if an insurer seeks to include a particular provider in its network, insurers will not always be able to reach terms that it and the provider agree to.

(77)   An insurer and hospital system negotiate the terms of participation in the insurers' network(s), including the prices that the hospital or hospital system and its participating affiliates will receive when they render services to the insurer's enrollees.[189] Economist refer to this type of bargaining process as "bilateral bargaining" because it involves only two parties. In bilateral bargaining, the outcome of the negotiation is typically dependent on each party's "best alternative to a negotiated

---

[187] With regard to economic literature, *see* Gregory Vistnes, "Hospitals, Mergers, and Two-Stage Competition," *Antitrust Law Journal* 67, no. 3 (2000): 671–692. [hereinafter Vistnes (2000)]; Robert Town and Gregory Vistnes. "Hospital Competition in HMO Networks." *Journal of Health Economics* 20, no. 5, (2001): 733−753 [hereinafter Town & Vistnes (2001)]; Cory Capps, David Dranove, and Mark Satterthwaite. "Competition and Market Power in Option Demand Markets." *The RAND Journal of Economics* 34, no. 4 (2003): 737−763. [hereinafter Capps et al. (2003)]; Matthew S. Lewis & Kevin E. Pflum, "Diagnosing Hospital System Bargaining Power in Managed Care Networks," *American Economic Journal: Economic Policy* 7, no. 1 (2015): 243–274 [hereinafter Lewis & Pflum (2015)]; Gautam Gowrisankaran, Aviv Nevo, and Robert Town, "Mergers When Prices Are Negotiated: Evidence from the Hospital Industry." *American Economic Review* 105, no. 1 (2015): 172–203. [hereinafter Gowrisankaran et al. (2015)]. With regard to court acceptance, *see* (1) FTC v. Advocate Health Care Network, 841 F.3d 460, 465 (7th Cir. 2016); (2) FTC et al. v. Penn State Hershey Med. Ctr. 838 F.3d 327, 342 (3d Cir. 2016); (3) Initial Decision, In the Matter of Evanston Nw. Healthcare Corp., 2005 WL 2845790 (Oct. 20, 2005); (4) St. Alphonsus Med. Ctr.-Nampa Inc. v. St. Luke's Health Sys., Ltd., 778 F.3d 775, 784 n.10 (9th Cir. 2015).

[188] ███ C-R-CNE-LS64-0078002 at -8007. █████████████████████████████████ ███ ███ ███ The federal agencies responsible for antitrust enforcement, the U.S. Department of Justice and Federal Trade Commission, outline their enforcement policy for mergers of potential or actual competitors in the Horizontal Merger Guidelines. In these Guidelines the Agencies acknowledge the importance and relevance of the effects of market power on non-price competition thusly: "Enhanced market power can also be manifested in non-price terms and conditions that adversely affect customers, including reduced product quality, reduced product variety, reduced service, or diminished innovation." *Merger Guidelines.*

[189] ███ ███

agreement" (BATNA), which represents the benefits that each party can achieve via other means if they were not able to come to an agreement with one another. The BATNA is also often referred to as the negotiating parties' "outside option." Each party to a negotiation will expect to achieve an outcome at least as favorable as its BATNA or outside option, otherwise it will walk away from the negotiation because any agreement would leave it in a worse position. As a result, a party has more *bargaining leverage* when it has a more attractive BATNA.[190] A key implication that is particularly relevant to a hospital system merger is that one party's bargaining leverage will increase in response to events that decrease the counterparty's BATNA.

(78)   Providers are incentivized to participate in an insurer's networks because insurers provide financial incentives to their health plan members to seek care at in-network providers through more favorable co-payments, co-insurance, and deductibles.[191] For example, in BCBSRI's VantageBlue 1000/2000 plan, members are responsible for a $10 copay when they seek care from a primary care provider that is in-network, but are responsible for a 20 percent coinsurance payment for care from an out-of-network primary care provider.[192] While members have no additional out-of-pocket costs for inpatient services with an in-network provider once they have met their annual deductible, they are responsible for a 20 percent coinsurance payment for out-of-network inpatient care after meeting the deductible, which is double that of the deductible for in-network care.[193] Plans provided by ▮▮▮▮▮▮▮▮▮▮ insurers exhibit similar out-of-pocket differences for in-network and out-of-network care.[194]

(79)   A provider will therefore not expect to receive as much patient volume from an insurer's health plan members when it does not participate in that insurer's network as compared to when it is a participating provider.[195] A provider will also not expect to receive as much patient volume from a health plan's members if those members incur lower out-of-pocket costs from receiving care from other providers. Thus, a key contributor to an insurer's bargaining leverage comes from its ability to

---

[190]   This framing is not affected by the ownership status of the negotiating party; i.e. the framing applies regardless of whether the hospital system, insurer, or both are for-profit or not-for-profit. When they negotiate over terms, each considers the implications of not coming to an agreement.

[191]   *See e.g.*, FTC-CNE-02191260 ▮▮

[192]   Blue Cross & Blue Shield of Rhode Island, "Subscriber Agreement: VantageBlue $1,000$2,000 100/80". https://www.bcbsri.com/sitefiles/sites/sitefiles/files/2020/11/VantageBlue%201000.2000%20100.80%20-%202021.pdf

[193]   *Id.*

[194]   ▮▮

[195]   ▮▮▮).

steer its members to healthcare providers for care. An insurer that can steer more patient volume to a hospital system will generally be able to negotiate a lower price with the system than another insurer that cannot steer as much patient volume, all things equal. ██████████████████████████

██:[196]

██

███

██████████████████████████████████

████████

████████████████████████

██

███

████████████

████████████████████████

██

████████████

(80) A key contributor to a hospital system's bargaining leverage comes from the value that it adds to an insurer's provider network. An insurer is incentivized to include in-network access to providers highly valued by its current and prospective health plan members and plan sponsors because doing so will enable it to either charge a higher premium for its product and/or generate greater demand for its health plan. A provider that is highly desired by patients, and for which competing hospitals are viewed as poor substitutes, would add significant value to an insurer's network and would, as a result, have significant bargaining leverage. Healthcare providers compete with one another for inclusion in an insurer's network based on price as well as on non-price dimensions such as their quality of care or reputation.

(81) Key factors that affect the attractiveness of a hospital or medical provider to patients (and therefore insurers) broadly include location, reputation, clinical quality, patient satisfaction, availability of unique services, and amenities. ███

███

██████████████████████████████████.[197] █████████████████████████████

███[198] In contrast, if there

---

[196] ██
██
██
████████████

[197] ██████████████████████████

[198] ██
██
████████████

are other close substitutes to a hospital from the perspective of patients, then a network that excludes that hospital will not be less valuable to the insurer and its enrollees and the hospital's negotiating leverage will be lower than if it was particularly unique or accessible in its provision of services. ███

██

█████████████████████.[199] Merging hospitals gain leverage because their merger removes an available substitute for an insurer to credibly turn to. This source of leverage is confirmed by the largest health insurer in Rhode Island, BCBSRI, whose Senior Vice President of Network Management and Pharmacy testified that consolidation between Lifespan and CNE will increase the merged system's negotiation leverage over BCBSRI, resulting in higher rates given the lack of alternatives in the state to constrain the bargaining power of a merged Lifespan-CNE.[200]

IV.B. Stage two: non-price competition among health systems for patient volume

(82)   In stage two, in-network hospitals compete with one another to attract patients. Stage two is generally described within the context of hospitals that are in-network for a commercial insurer's health plan, but also applies to competition for patients by hospitals that participate in government programs such as the federal Medicare program. In stage two, hospitals compete for patients primarily based on non-price factors like waiting times, private rooms, and other amenities, as well as on many dimensions of clinical quality such as lower rates of mortality, readmission, and hospital-acquired infections.[201] Non-price factors of competition that influence patients' provider choices also include marketing and community outreach efforts, the development of physician and referral networks, physician-patient relationships, and other administrative elements of the care experience, such as office hours. I will generically refer to these non-price factors of competition as "quality" competition or stage two competition throughout this report.

(83)   The intensity of competition for patients faced by a hospital system affects its incentive to invest in the various dimensions of quality that influence patients' choice of hospital. At one extreme, if a provider does not compete with any other providers that patients view as close substitutes, there is

---

[199]   FTC-CNE-00242650, at -2651 ██
██. *See also* BCBSRI Declaration, 3 ("Kent's expansion of its orthopedics services has allowed BCBSRI to minimize Lifespan's rate increases for orthopedic services.")

[200]   BCBSRI Declaration.

[201]   ██
██
██
██
██
██
████████ ████████████████████████████████

little patient volume to gain, and therefore little return on any time and capital-intensive investments made on quality improvements to the hospital system. In contrast, when a hospital system is in head-to-head competition with others, it has the potential to gain patient volume from its rivals, and hence achieve returns on investments in enhancements to quality. It also has the potential to lose patient volume if it does not keep up with quality improvements its rivals may be making. More intense competition creates a stronger financial incentive for a hospital to invest in those non-price dimensions that attract patients.

(84)   Competition for hip and knee replacement in Rhode Island is illustrative of stage two competition. As these are high margin services with a sizable amount of demand in Rhode Island, providers have strong incentives to compete with one another to attract patients and increase their service volume.

[REDACTED] [202]

[REDACTED] [203]

[REDACTED] [204]

[REDACTED]

(85)   Although stage one and stage two competition have their own unique properties, they are connected. For example, if investments in quality increase the attractiveness of a hospital system to patients, allowing it to gain more patient volume, then the quality investments have also strengthened the hospital system's positioning vis-à-vis insurers in stage one negotiations. BCBSRI's experience with Lifespan illustrates the relationship between stage one and stage two. After Kent Hospital expanded its orthopedics program and recruited new surgeons in response to Lifespan's dominance in attracting orthopedic patient volumes at above-market rates, BCBSRI was able to negotiate lower rates with Lifespan due to the increased competitive landscape for orthopedics from Kent's new service line, using market price data that reflected CNE's rates.[205] This is just one example among the many ways in which the Parties compete in both stages of competition with one another and its impact on insurer negotiations in Rhode Island.

---

[202] [REDACTED]

[203] [REDACTED]

[204] [REDACTED]

[205] BSBSRI Declaration, 2-3.

V. The Proposed Transaction is likely to substantially lessen competition for adult inpatient general acute care services in Rhode Island

(86)   In this section, I analyze the effects of the Proposed Transaction on the cluster of adult inpatient general acute care (GAC) services provided in Rhode Island. I separately consider the markets for inpatient GAC services sold to commercial health insurers and provided to their adult members and inpatient GAC services provided to Medicare beneficiaries. I limit the cluster to the overlapping services that both Lifespan and CNE offer since competition for non-overlapping services will be unaffected.[206] Based on my empirical analyses, the testimony, and documents of the Parties and other market participants that I present herein, I conclude that the Proposed Transaction is likely to substantially lessen competition in Rhode Island for the set of inpatient GAC services provided by both Lifespan and CNE. I develop the analyses and arguments in this section as follows:

- In Section V.A, I summarize the approach used to define a market for the purpose of analyzing the likely competitive effects of a merger. I discuss the basis and evidence I used to arrive at the set of overlapping inpatient GAC services sold to health plans and provided to their adult members in Rhode Island and inpatient GAC services provided to Medicare beneficiaries as markets in which to evaluate the Proposed Transaction. My analysis incorporates the institutional characteristics of hospital services, insurer-hospital contracting, and insurance markets, as well as the guidance provided in the *Merger Guidelines* jointly issued by the U.S. Department of Justice and the Federal Trade Commission (hereinafter, "the Agencies").[207]

- In Section V.B, I present estimates of market shares and the pre- and post-merger concentration of inpatient GAC services. The analysis of market shares and concentration levels—often referred to as a structural analysis—can be useful for the purpose of evaluating the likely the effects of a merger on competition. Hospitals and hospital systems with greater market share are more desired by patients and, hence, more valuable to insurers. When hospitals that serve the same patients merge, they gain bargaining leverage *vis-à-vis* insurers. As explained in Section IV, a hospital system with more leverage will be able to obtain a higher price in negotiations with insurers. Moreover, when hospitals that serve the same patients merge, this reduces their incentive to invest in the many dimensions of quality that attract patients in order to maintain or gain market share, resulting in lower value care.[208]

---

[206] The set of non-overlapping services is limited as 98% of CNE's discharges for Rhode Island patients are for services provided at Lifespan hospitals and 93% of Lifespan's discharges for Rhode Island patients are for services provided at CNE hospitals. I further limit the market to adults since Lifespan has the only pediatric hospital in Rhode Island. Lifespan consequently treats over 80% of Rhode Island children (excluding newborns) while CNE treats less than 1.3%.

[207] *Merger Guidelines.*

[208] *See*, e.g., *Merger Guidelines*, §1 ("Enhanced market power can also be manifested in non-price terms and conditions that adversely affect customers, including reduced product quality, reduced product variety, reduced service, or

- In Section V.C, I utilize economic theory and econometric methods to directly analyze the likely competitive effects of the Proposed Transaction (in contrast to inferring the effects from the structural measures of market shares and concentration).[209] I present two econometric analyses that quantify (1) the closeness of competition between Lifespan and CNE and (2) the degree of competition between the Parties and other hospitals. Consistent with the findings of the structural analysis, these analyses show that Lifespan and CNE compete head-to-head for patients. Indeed, the Parties are often each other's closest competitor, depending on which hospital is considered. Again, the elimination of this competition is likely to significantly enhance the Parties' bargaining leverage *vis-à-vis* insurers, which would likely to lead to higher prices and/or lower quality.

- In Section V.D, I present examples from the Parties' course of business documents and testimony that show that ███████████████████████████████████ ███████████████████████████████████ ███████████████████████████████████ ███████████████████████████████████ ███████████████

- In Section V.E, I consider the likelihood of entry, expansion, and repositioning in response to the merger. The ability of current or potential rivals to enter or expand inpatient GAC services in a timely fashion and "compete away" any increase in bargaining leverage or reductions in quality otherwise caused by the Proposed Transaction is impeded by regulatory challenges and the lengthy lead time required to plan, design, and build facilities.

- In Section V.F, I address the concern raised by the elimination of potential competition for obstetrical services. ███████████████████████ ███████████████████████████████████ ███████████████████████████████████ ███████████████████████████████████ ███████████████

V.A. Market definition

(87) The purpose of market definition in a merger analysis is to identify the line of commerce and section of the country in which the merger may lessen competition.[210] The Agencies outline the approach

---

diminished innovation. Such non-price effects may coexist with price effects, or can arise in their absence.")

[209] *Merger Guidelines*, §6.1 ("The extent of direct competition between the products sold by the merging parties is central to the evaluation of unilateral price effects. Unilateral price effects are greater, the more the buyers of products sold by one merging firm consider products sold by the other merging firm to be their next choice.")

[210] The meaning of "market" in merger analysis, and accordingly the boundaries of the market, can differ from that used by market participants in the ordinary course. For example, a hospital system may use the term market when referring to the area from which it draws a given proportion of patients, which is also often referred to as its service area. An

they use to identify relevant markets in the *Horizontal Merger Guidelines.* Their approach is based on sound economic principles and has been adopted by economists more broadly and accepted by the courts in numerous merger cases.[211]

(88)   Market definition includes a product and geographic component. The product market definition focuses on what is being sold. It addresses what set of products—goods or services—are reasonably substitutable and therefore constrain prices (and promote quality) within the market. The geographic market definition focuses on which suppliers serve which customers. As the *Merger Guidelines* note, markets "need not have precise metes and bounds," but the market definition should nonetheless identify the sellers that are closely substitutable, or reasonably interchangeable from the perspective of buyers.[212]

(89)   After identifying a candidate market, it must be confirmed that the proposed market is not overly narrow; the market should include all products and sellers that constrain prices (and promote quality) within the market. If the market is too narrowly defined, then some products or sellers that impose a competitive constraint on the market may be excluded and the shares and concentration within the too-narrowly defined market are not reliable indicators of the likely competitive effects of a proposed merger.

(90)   The primary analytic tool used by economists to verify that a market is not overly narrow is the hypothetical monopolist test (HMT), which is also often called the "SSNIP test" where SSNIP stands for small but significant and non-transitory increase in price.[213] The HMT asks whether a *hypothetical monopolist* of all sellers in a candidate market could profitably impose a SSNIP (usually a five percent price increase for one year).[214] If a hypothetical monopolist could not increase its price in the proposed market, holding all else equal, then the market is overly narrow because it excludes some substitutes that constrain the prices of the included products. In this instance, the market boundaries— product and/or geographic—must be expanded. Once the candidate market has been expanded to the point that a hypothetical monopolist would find a SSNIP profitable, an antitrust relevant market is

---

antitrust-relevant market should identify the products or services that by virtue of being viewed as reasonably close substitutes in the eyes of buyers exert a competitive constraint on one another. *See*, *Merger Guidelines*, §4.

[211] *See*, e.g., FTC v. Thomas Jefferson University, No. 20-01113, at 25–26 (E.D. PA., Dec. 8, 2020) ("Using the HMT, a proposed market is properly defined if a hypothetical monopolist could impose a small but significant and non-transitory increase in price ('SSNIP'), typically an increase of five percent or more, within its proposed boundaries."); FTC v. Advocate Health Care Network, 841 F.3d 460, 465 (7th Cir. 2016): (finding that the district court erred in its understanding of the hypothetical monopolist test: "The district court seems to have mistaken those iterations for circularity."); FTC et al. v. Penn State Hershey Med. Ctr. 838 F.3d 327, 342 (3d Cir. 2016) (finding that the district court misapplied the hypothetical monopolist test: "But the District Court's application of the hypothetical monopolist test was incomplete and, in many respects, more closely mirrors an economic test that the FTC has abandoned because the test 'misperceived a practice's competitive consequences.'")

[212] *Merger Guidelines*, §4.

[213] *Merger Guidelines, §4.1.1*.

[214] The Merger Guidelines state that "the Agencies most often use a SSNIP of five percent of the price paid by customers for the products or services to which the merging firms contribute value." *Merger Guidelines, §4.1.2*.

identified.[215] Thus, by requiring that a price increase be profitable, the HMT ensures that a candidate market includes the set of products that act as significant competitive constraints to one another.

(91) The following examples illustrate how the HMT may be applied to determine if product or geographic market are defined too narrowly.

- **Product.** Suppose all manufacturers of polyethylene, a type of plastic used for plastic bags and bottles, were to raise their prices by a small but significant amount (i.e., to impose a SSNIP). If enough firms that used polyethylene were able to turn to other alternatives such that the price increase is unprofitable, then the product market would need to be expanded to include other types of plastic. If the price increase were profitable, however, then the other plastics are insufficiently close substitutes to constrain prices and polyethylene would constitute a relevant product market *even if* other types of plastic can be used to manufacture bags and bottles.

- **Geographic.** Suppose all drug stores located within a few minutes walking distance in a city were to impose a SSNIP. If buyers switch to other drug stores outside of this area in sufficient numbers to cause the price increase to be unprofitable, then the area is an overly narrow geographic market and must be expanded. On the other hand, if too few buyers switch to other drug stores because, for example, most walk to the store from their residence and other drug stores are too distant, and the price increase is profitable, then the geographic market is not overly narrow.

(92) I now define the product and geographic boundaries for an antitrust-relevant market for assessing the Proposed Transaction. I confirm that the market I propose, inpatient GAC services sold by Rhode Island hospitals, satisfies the HMT and conclude it is an antitrust relevant market.

V.A.1. The cluster of inpatient GAC services sold to commercial health insurers and provided to their members is a relevant product market in which to evaluate the Proposed Transaction

(93) I define the cluster of inpatient GAC services sold by both Lifespan and CNE to commercial insurers and provided to their adult members as one of the relevant product markets in which to analyze the effects of the Proposed Transaction. As explained in the *Merger Guidelines*, relevant antitrust markets are defined by "focusing solely on consumer substitution patterns," meaning the focus of market definition analysis is on buyers' ability and willingness to substitute away from one product (or seller) to another in response to a price increase or a non-price change such as a degradation in quality. A market definition analysis will identify those suppliers—hospital systems in the case at hand—that are competitors to the merging parties, Lifespan and CNE. Because health insurers negotiate with

---

[215] *See* Gaynor and Pflum (2017) for additional detail on how the HMT is applied to define hospital markets. Martin Gaynor and Kevin Pflum, "Getting Market Definition Right: Hospital Merger Cases and Beyond," *CPI Antitrust Chronicle* 1, no. 1 (2017).

hospital systems to establish the terms under which their members receive health services from those systems, I identify the relevant market based on the perspective of health insurers.

(94)   To establish that this cluster of inpatient GAC services is a relevant market, I address whether the product market should be more narrowly defined such that individual service lines each constitute relevant product markets and whether the product market should be more broadly defined to include, for example, outpatient or other services. Later, when defining the geographic market, I establish when insurers could substitute to hospitals outside of Rhode Island.

(95)   Inpatient GAC services encompass a wide range of medical and surgical services that require hospital admission.[216] Some common examples of inpatient GAC services include services related to labor and delivery and complex surgeries such as thoracic surgery. These services may be elective or emergency in nature. ███ ███.[217]

(96)   As inpatient GAC services include a broad range of services, one service is generally not substitutable for another (e.g., labor and delivery and heart surgery). However, it is economically appropriate and expedient to analyze such services together when the competitive conditions are generally similar across services, giving insurers the ability to turn to a similar set of hospitals for each inpatient service, and patient preferences for each service can be modeled using a common framework, rather than analyze each service separately. Such aggregation is referred to as a "cluster market" and is common practice among economists to analyze hospital competition. The use of a "cluster market" for services provided by merging hospitals has also been widely accepted by courts deciding hospital merger challenges as well as in other market settings.[218]

(97)   I define the relevant product market to be the cluster of inpatient GAC services offered by both Lifespan and CNE. I limit the cluster to the overlapping services as the Proposed Transaction does not directly affect the competitive conditions for non-overlapping services. Using data on discharges, I define the services offered by a hospital by the "Diagnosis-Related Group," or DRG, assigned to its

---

[216] *See*, e.g., NPIdb, "General Acute Care Hospital - 282N00000X". https://npidb.org/organizations/hospitals/general-acute-care-hospital_282n00000x/.

[217] ███ ███ ███ ███████████████████

[218] *See* FTC v. Advocate Health Care Network, 841 F.3d 460 (7th Cir. 2016); ProMedica Health Sys., Inc. v. FTC, 749 F.3d 559, 565-69 (6th Cir. 2014); Cluster markets have also been used and accepted by the courts in merger challenges in other product markets besides hospital services. *See, e.g.,* FTC v. Wilh. Wilhelmsen Holding *ASA*, 341 F. Supp. 3d 27, 49–51 (D.D.C. 2018) (concluding that the FTC had "appropriately clustered BWT and CWT products and services into one antitrust market for analytical convenience"); FTC v. Staples, Inc., 190 F. Supp. 3d 100, 117–27 (D.D.C. 2016) (concluding that the FTC's alleged market of consumable office supplies (a cluster market) sold and distributed by Defendants to large B-to-B customers (a targeted market) was a relevant market for antitrust purposes).

discharges.[219] Hospitals with at least three discharges in a given DRG over a three-year period are categorized as offering that service.[220] The set of non-overlapping services is limited as 98 percent of CNE's discharges for Rhode Island patients are for services provided at Lifespan hospitals and 93 percent of Lifespan's discharges for Rhode Island patients are for services provided at CNE hospitals.

(98)   Now I consider whether additional services such as outpatient services should be included in the product market. Outpatient services that do not require admission to a hospital are not generally interchangeable with inpatient care.[221] Furthermore, outpatient services may be rendered in a variety of clinical settings including physician offices, medical clinics, ambulatory surgery centers, and hospitals. Importantly, the decision to treat a given condition on an inpatient or outpatient basis is almost always based on clinical considerations and not on considerations of price or patient preference,[222] meaning insurers and patients typically cannot substitute toward outpatient services in response to an increase in the price of inpatient GAC services.[223] Moreover, a provider network that did not offer in-network access to GAC inpatient services would have next to no value for most enrollees and would likely be unmarketable regardless of how broad the insurer's network of outpatient service providers may be.

(99)   In addition, the competitive conditions—including the number of suppliers and barriers to entry and expansion—for outpatient services as well as for services commonly provided by specialty hospitals such as long-term inpatient care, behavioral health care, rehabilitation services, and admissions for substance abuse are also substantially different from those of inpatient GAC care. Although some of these services, such as inpatient behavioral health care, may be provided by GAC hospitals, because

---

[219]   DRGs are a classification system for inpatient discharges initially developed by the Centers for Medicare and Medicaid Services (CMS) under Section 1886(d) of the Social Security Act. Each inpatient case is assigned a DRG based on the patient's diagnosis, treatment, and length of hospital stay.

[220]   *See* Appendix F for additional details and alternative methods for defining overlap, all of which yield substantially similar results.

[221]   Advances in surgery, anesthesia, analgesia, and clinical practice have enabled more treatments to be performed on an outpatient basis over time. Carlo Castoro, Luigi Bertinato, Ugo Baccaglini, Christina.A. Drace, and Martin McKee, "Day surgery: making it happen," World Health Organization on behalf of the European Observatory on health Systems and Policies (2007): 1-28. Available at https://apps.who.int/iris/bitstream/handle/10665/107831/WHO-EURO-2007-866-40602-54591-eng.pdf?sequence=4. ███

[222]   *See*, Centers for Medicare and Medicaid Services, "Article A52985, Billing and Coding: Acute Care: Inpatient, Observation and Treatment Room Services". https://www.cms.gov/medicare-coverage-database/view/article.aspx?articleId=52985&LCDId=38807&name=331*1&UpdatePeriod=924 (inpatient admission "is a complex medical decision based on your doctor's judgment and your need for medically necessary hospital care"); ("The general rule is that the physician should order an inpatient admission for patients who are expected to need hospital care to extend through two midnights or longer and treat other patients on an outpatient basis."); S*ee also,* Centers for Medicare and Medicaid Services, "Inpatient or outpatient hospital status affects your costs". https://www.medicare.gov/what-medicare-covers/what-part-a-covers/inpatient-or-outpatient-hospital-status ("The decision for inpatient hospital admission is a complex medical decision based on your doctor's judgment and your need for medically necessary hospital care."). ████████████████████

[223]   I consider the likely effects of the Proposed Transaction on competition in a market defined as outpatient surgeries in Section VIII.A.

they are often provided by specialty hospitals, the competitive conditions can differ substantially from conditions characterizing other inpatient GAC services.[224] For example, Lifespan's Bradley and CNE's Butler are inpatient behavioral health hospitals that face few rivals.[225] For these reasons, the product market should not be more broadly defined beyond the relevant cluster of inpatient general acute care services sold to commercial health plans.

V.A.2. Inpatient GAC services provided to Medicare beneficiaries is a relevant product market in which to evaluate the Proposed Transaction

(100)   Many dimensions of quality affect demand for patients broadly. For example, investment in amenities that patients find attractive will increase demand from those patients regardless of whether they are commercially insured or covered through a government program. Furthermore, a lessening of competition for a targeted customer such as commercial insurers and their members that reduces quality will harm all patients regardless of their insurance coverage.[226] However, some dimensions of quality may be targeted at different populations when they have unique needs or preferences. For example, CNE saw an unmet market need and opened an Acute Care for Elders (ACE) unit, which is a model of care designed focus on the unique needs of geriatric (i.e., predominantly Medicare) patients, at Kent.[227] Similarly certain investments in specialty services such as oncology, orthopedics, and cardiology among others may disproportionately attract an older population by virtue of the illness profiles of an older population as compared to a younger population. I therefore consider the competitive effects of the Proposed Transaction on inpatient GAC services provide to Medicare beneficiaries.

(101)   The most significant difference between commercial insurance and the federal Medicare program is the absence of a selective contracting process for Medicare. Instead, a hospital must only meet certain requirements to participate in the Medicare program.[228] A participating hospital is then reimbursed by the Centers for Medicare and Medicaid Services (CMS) for services rendered to Medicare beneficiaries based on an administratively set payment rate. There is no competitive process involved with Medicare participation, but that does not mean that there is no competition for these patients.

---

[224]   ███████████████████████ .

[225]   I address these in Section VIII.

[226]   A targeted customer is a customer for which differential competitive effects are possible because sellers can discriminate, e.g., by profitably raising price to certain targeted customers but not to others. Commercial health plans and their members represent a targeted customer. *See*, *Merger Guidelines*, § 3.

[227]   Palmer, Robert M, "The Acute Care for Elders Unit Model of Care," *Geriatrics* 3, no. 59 (2018); Investigational Hearing of Shannon Sullivan, Federal Trade Commission 199–201 (December 8, 2021) (Shannon Sullivan, President and Chief Operating Officer of Women and Infants Hospital) [hereinafter "Sullivan Transcript"].

[228]   Sections 1861(e)(1) through (8) of the Social Security Act (the Act) provide that a hospital participating in the Medicare program must meet certain specified requirements. Section 1861(e)(9) of the Act specifies that a hospital also must meet additional requirements that the Secretary for the Department of Health and Human Services finds necessary. Under this authority, the Secretary has established regulatory requirements that a hospital must meet to participate in Medicare at 42 CFR part 482, CoPs for Hospitals. See, Federal Register, Vol. 76, No. 205, 65982

Like with commercial insurance, participating hospitals compete against one another for patient volume primarily based on non-price factors related to service capabilities, quality, convenience, amenities, and the like.[229] The locus of competition for Medicare patients is through non-price competition for patient volume.

(102) I define the overlapping cluster of inpatient GAC services provided by Lifespan and CNE to Medicare beneficiaries as a relevant product market in which to analyze the effects of the Proposed Transaction.[230] As discussed above, market definition focuses on demand substitution factors. As such, additional services such as outpatient services are properly excluded from the product market for Medicare beneficiaries for the same reason they are properly excluded from the market for commercial insurers: outpatient services that do not require admission to a hospital are not generally interchangeable with inpatient care and the decision to treat a given condition on an inpatient or outpatient basis is almost always based on clinical considerations. Medicare beneficiaries would not be able to substitute to outpatient care if the quality of all inpatient care were to decrease or their costs to inpatient care were to increase.

(103) In addition, the competitive conditions—including the number of suppliers and barriers to entry and expansion—for outpatient services as well as for services commonly provided by specialty hospitals such as long-term inpatient care, behavioral health care, rehabilitation services, and admissions for substance abuse are also substantially different from those of inpatient GAC services. For these reasons, the product market should not be more broadly defined beyond the relevant cluster of inpatient general acute care services provided to Medicare beneficiaries.

V.A.3. Rhode Island is a relevant geographic market in which to evaluate the likely competitive effects of the Proposed Transaction

(104) I define the state of Rhode Island as a relevant geographic market in which to analyze the effects of the Proposed Transaction. All of Lifespan's and CNE's hospitals and their primary competitors are located in Rhode Island, and a great majority of their patients—both commercial and Medicare—reside in Rhode Island. This section proceeds as follows:

- In Section V.A.3.a, I summarize the empirical and record evidence showing that Rhode Island residents strongly prefer local hospitals in most circumstances. Because health insurers consider patient preferences when negotiating with hospitals, patient preferences for hospitals and their services are highly informative of insurers' preferences. Patient preference is a key reason why a

---

[229] Medicare part A covers inpatient hospital services and beneficiaries are responsible for paying annual deductibles and per diems that do not vary depending on the hospital the beneficiary goes to for care. See "Medicare costs at a glance," Medicare.gov, https://www.medicare.gov/your-medicare-costs/medicare-costs-at-a-glance.

[230] I focus on patients enrolled with traditional Medicare, however, Medicare beneficiaries that are enrolled in a Medicare Advantage plan are similarly affected by a lessening of competition for Medicare beneficiaries.

commercial insurer would not be able to successfully market a health plan in Rhode Island that excluded all Rhode Island hospitals.

- In Section V.A.3.b, I test whether Rhode Island is too narrow of a geographic market using the HMT and empirically confirm that Rhode Island satisfies the test. That is, insurers would choose to pay a SSNIP rather than try to market a plan that is unattractive to Rhode Island residents.

V.A.3.a. Rhode Island residents strongly prefer to receive care from nearby hospitals

(105)   Most patients, including Rhode Island residents, visit hospitals that are relatively close to where they live. This is true both for elective and emergency care alike. This preference is driven by factors such as the convenience to patients as well as to their family and friends of going to a nearby hospital, patients' familiarity with local hospitals, and patients' familiarity with nearby physicians that are likely to refer to nearby hospitals.[231]

(106)   The preference for nearby hospitals is evident in the hospital choices of Rhode Island residents. Figure 7 depicts the distribution of drive times by Rhode Island patients for inpatient GAC care. The top panel depicts the drive times for commercially insured patients while the bottom panel depicts the drive time distribution for Medicare beneficiaries. It shows that 71 percent of those seeking elective care select a hospital within 30 minutes of their residential zip code. It also shows that 81 percent of commercially insured patients requiring emergency care and 87 percent of Medicare patients requiring emergency care select a hospital within 30 minutes of their residential zip code. ██████████

██
██,,[232] ███████████████████████
███
███.[233] ████████████████
███ ██████████████
████████████████,██████████████████████████████████████.[234]

---
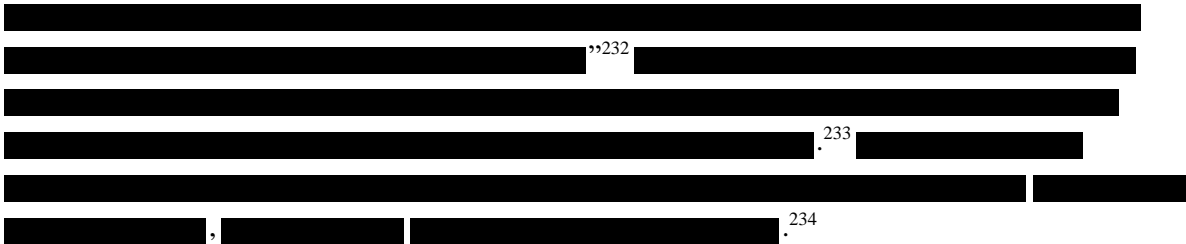
[231] ██
███
████████████████████

[232] ██
███
████████████████ ██████████████████████

[233] ██
█████████████████████████

[234] ████████████████████.███
█████████████████████████████

Figure 7. Most Rhode Island residents travel 30 minutes or less to their chosen hospital

Commercially insured patients

Traditional Medicare patients
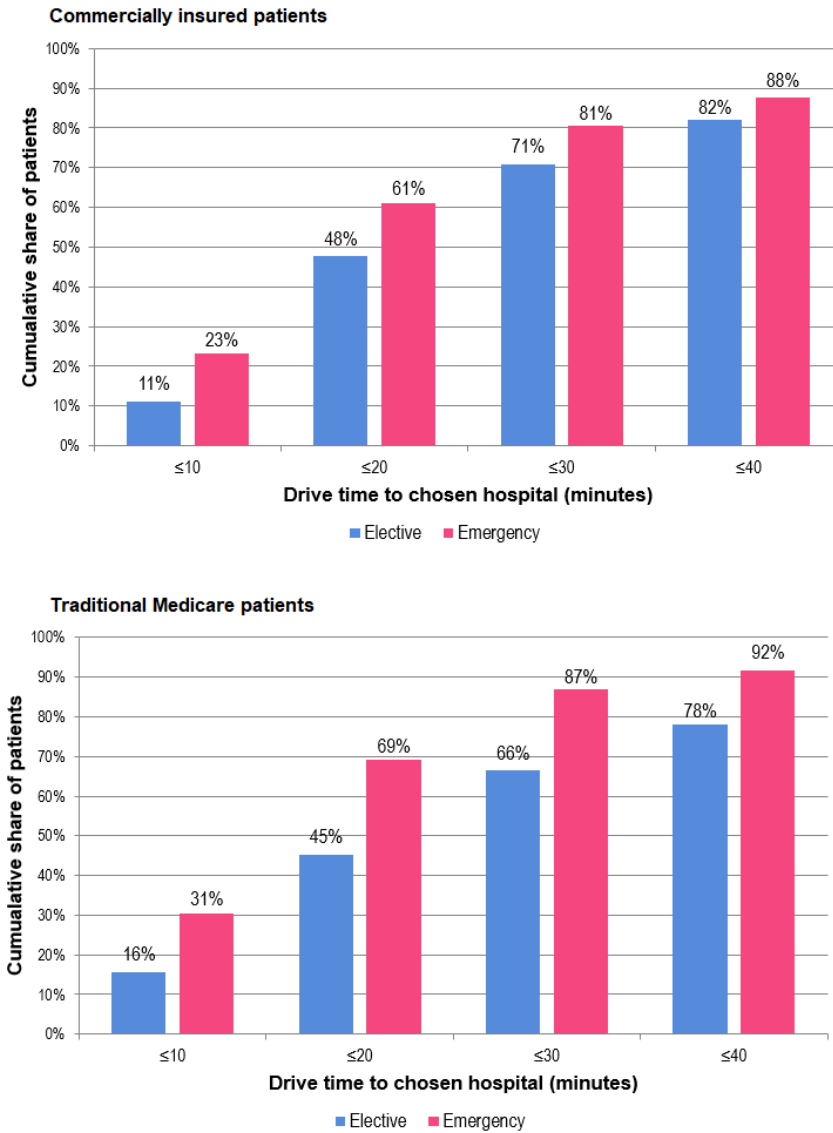
Source: RI and MA hospital discharge data, 2017–2019.
Note: [1] Limited to commercial (top panel) and traditional Medicare (bottom panel) Rhode Island patients. [2] See Appendix C.4 for the full list of patient restrictions.

(107)   Patients that do travel further usually do so for more specialized care.[235] ████████████ ██ ████████████████.[236] Consistent with this testimony, Rhode Island residents who go to Boston hospitals for inpatient GAC care tend to have more complex conditions as evidenced by the case-

---

[235] ████████████████████████; ████████████ ████████████████████████████
[236] ████████████████

weight—a measure of service complexity and/or intensity[237]—associated with the services these patients receive. Specifically, the average case-weight for commercially insured Rhode Island residents that receive care at Boston hospitals 2.57, which is significantly higher than the 1.43 average for Rhode Island residents receiving care at Rhode Island hospitals.[238]

(108)   Rhode Island patients' preference for nearby care results in a vast majority of Rhode Island residents choosing to receive care at Rhode Island hospitals. Figure 8 depicts the percentage Rhode Island residents that seek inpatient GAC services (unadjusted and case-weighted) at Rhode Island hospitals versus Massachusetts hospitals. Over 87 percent of discharges for commercially insured patients and over 82 percent of these discharges on a case-weighted basis are at Rhode Island hospitals. The figure shows that Medicare beneficiaries are even less likely to seek care at Massachusetts hospitals. Over 94 percent of these discharges and over 92 percent on a case-weighted basis are at Rhode Island hospitals. The very low percentage of care that leaves Rhode Island provides strong evidence that Rhode Island residents place significant value on having access to in-state hospitals.

---

[237]   Every inpatient episode of care, a "discharge," is assigned a diagnosis related group (DRG). CMS defines case weights for each DRG that reflect "the average resources required to care for cases in that particular DRG, relative to the average resources used to treat cases in all DRGs." Centers for Medicare and Medicaid Services, "MS-DRG Classifications and Software," December 2020. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/MS-DRG-Classifications-and-Software. For example, a DRG with a case weight of 4.0 is four times as costly to treat, on average, as a patient with a DRG case weight of 1.0.

[238]   The figures are based on commercially-insured patients. A much smaller proportion of Medicare patients travel to Massachusetts hospitals for care. These means are statistically different. A two-sample t-test of means rejects the null hypothesis of no difference at $p<.0001$. Similarly, the median case-weight for Rhode Island patients receiving treatment at Boston hospitals is 1.77, while the median at Rhode Island hospitals is 1.04. In addition, almost 30 percent of the discharges for Rhode Island patients at Boston hospitals are in the highest case weight quartile while less than 10 percent of the discharges for Rhode Island patients at Rhode Island hospitals are in the highest case weight quartile.

Figure 8. A large majority of commercially insured Rhode Island patients go to Rhode Island hospitals

Commercially insured patients

Traditional Medicare patients

■ All RI hospitals   ■ All MA hospitals
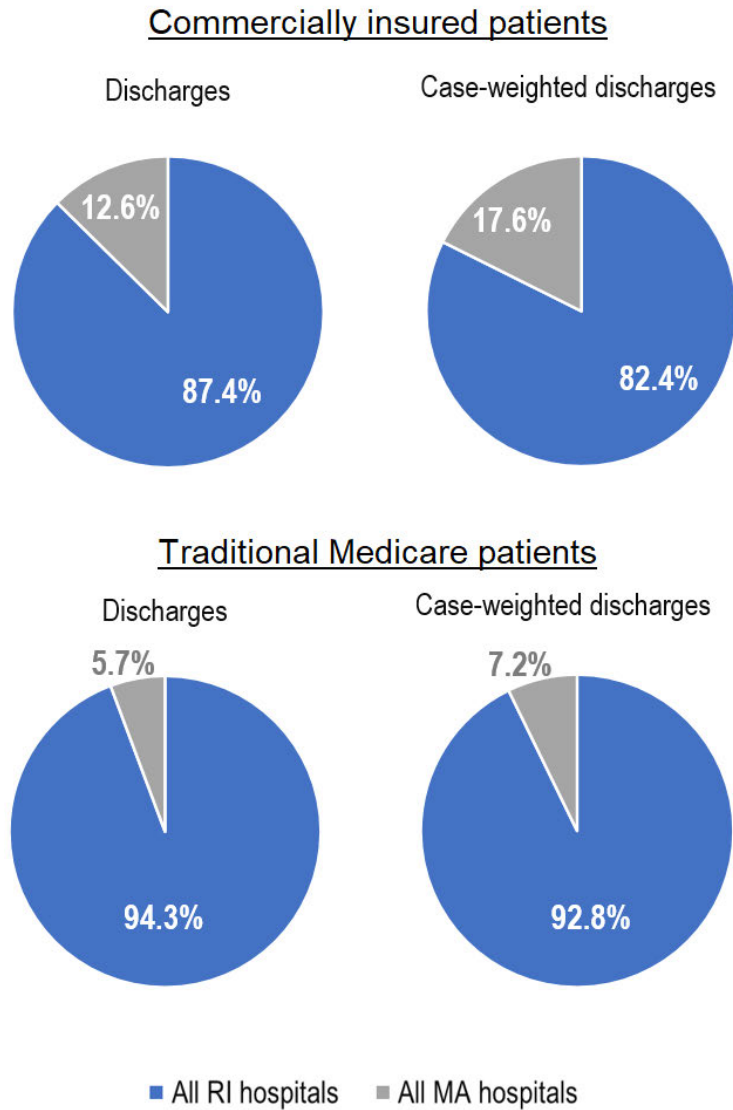
Source: RI and MA hospital discharge data, 2017–2019.
Note: [1] Rhode Island residents. [2] Commercially insured patients exclude newborns, patients 65 and over, and transfers. [3] Traditional Medicare patients excludes newborns and transfers. [4] See Appendix C.4 for the full list of patient restrictions.

V.A.3.b. The proposed geographic market satisfies the Hypothetical Monopolist Test

(109)   Commercial insurers would not be able to successfully market a health plan to Rhode Island residents if their plans did not include *any* Rhode Island inpatient GAC hospitals. First, such a product would not satisfy the State's network adequacy requirements.[239] Second, holding network adequacy aside,

---

[239]   *See* BCBSRI Declaration, 1-2 (BCBSRI's SVP of Network Pharmacy and Management confirms that BCBSRI would not be able to market a health plan to RI-based employers and residents that did not include any RI hospitals, and such a

BCBSRI testified that it would not be able to successfully market a plan to employers and residents of Rhode Island if they excluded all Rhode Island hospitals.[240] The data are consistent with and support this testimony; roughly seven out of every eight discharges for a commercially insured Rhode Island patient, or 88 percent, occur at a Rhode Island hospital.[241] Moreover, the aggregate diversion ratio from each Rhode Island hospital to any other Rhode Island hospital—i.e., the fraction of a hospital's patients whose second-best choice is another Rhode Island hospital—exceeds 65 percent for all Rhode Island hospitals. These aggregate diversion ratios show that other Rhode Island hospitals are much closer substitutes to one another than Massachusetts hospitals.

(110)   To confirm that the set of Rhode Island hospitals satisfies the HMT for commercial insurers and their members, I analyze the negotiating leverage that a hypothetical monopolist of all Rhode Island hospitals would have vis-à-vis commercial health insurers. If such a monopolist would have enough leverage to profitably impose a SSNIP, then the proposed market is not overly narrow. Willingness to pay or "WTP" analysis is a well-established empirical methodology used to estimate the increased bargaining leverage created by a possible merger.[242] The difference between the WTP of the proposed or hypothetical merged hospital system—the set of all Rhode Island hospitals in this hypothetical— and the aggregated, individual WTP of the separate Rhode Island hospital systems captures the leverage created by the hypothetical monopolist.

(111)   Figure 9 presents the results of this WTP analysis for commercial insurance. The top panel reports the WTP for each Rhode Island hospital system and the bottom panel reports the WTP of the hypothetical monopolist of all Rhode Island hospitals. The analysis shows that the WTP for a hypothetical monopolist of Rhode Island hospitals is 43.1 percent higher than for the Rhode Island hospitals when each system can be independently excluded. Academic research shows that a WTP difference of this magnitude is associated with large price increases, implying that a hypothetical monopolist of all Rhode Island hospitals could profitably impose a SSNIP on commercial insurers for the cluster of inpatient GAC services.[243, 244] In Section V.C.2.b, I estimate a price/WTP elasticity of 0.55, meaning a 43.1 percent increase in WTP is associated with a 23.7 percent price increase.

---

product would violate state network adequacy regulations).

[240] *Id.*

[241] From 2017 to 2019, 51,440 out of 58,860 discharges by commercially insured Rhode Island patients (excluding newborns, transfers, and patients 65 or older) were at a Rhode Island hospital.

[242] WTP analysis is commonly used to evaluate hospital mergers—*see* Section V.C.2.a for more background on WTP analysis.

[243] Garmon (2017) similarly estimates a price/WTP elasticity of 0.57, meaning a 43.1% increase in WTP is associated with a 24.6% increase in price.

[244] For the purposes of assessing the competitive constraint created by Massachusetts hospitals, I ignore OHIC's rate cap regulation (230-20-30 R.I. Code R. § 4.10(D)(6)(e)(1)), which could impede the hypothetical monopolist's ability to exercise all of its bargaining leverage to increase prices. This approach is appropriate because as a hypothetical test, the purpose of the analysis is to assess whether Massachusetts hospitals themselves exert sufficient competitive pressure to prevent the hypothetical monopolist from gaining market power and are therefore not in the relevant market. The *Merger Guidelines* explain that "the [hypothetical monopolist] test requires that a hypothetical profit-maximizing firm,

Figure 9. WTP for a hypothetical monopolist of all Rhode Island hospitals

		Hospitals	WTP per patient
Rhode Island hospital systems	[1]	Care New England	0.72
	[2]	CharterCARE	0.08
	[3]	Landmark/Prime	0.05
	[4]	Lifespan	0.68
	[5]	South County	0.08
	[6]	Westerly/Yale	0.01
	[7]=[1]+[2]+[3]+[4]+[5]+[6]	**Sum of each system's WTP**	1.63
Hypothetical monopolist of all Rhode Island hospitals	[8]	Hypothetical monopolist	2.78
	[9] = [8] - [7]	**Increase in WTP**	0.70
	[10] = [9] ÷ [7] × 100%	**% Increase in WTP**	**43.1%**

Source: RI and MA discharge data, 2017–2019.
Notes: Based on commercially insured patients. *See* Appendix C.4 for full list of patient restrictions. WTP is measured in utils and estimated using the semi-parametric patient hospital choice model descr bed in 0.

(112)   The large increase in WTP shows that Rhode Island hospitals are collectively reasonably interchangeable and, additionally, that Massachusetts hospitals are not comparably close substitutes. For this reason, along with the consistent qualitative evidence that a health plan product with no Rhode Island hospitals would not be marketable, a hypothetical monopolist of all hospitals in Rhode Island could profitably implement a SSNIP. For all the preceding reasons, Rhode Island is an appropriate relevant geographic market in which to evaluate the Proposed Transaction for commercial health insurers and their members.

(113)   The aversion that Medicare beneficiaries have to traveling outside of Rhode Island for their care provides evidence that a hypothetical monopolist of all Rhode Island hospitals would be able to profitably impose a SSNIP or, more appropriately since Medicare beneficiaries choose hospitals based on quality differences and not price differences, a significant non-transitory decrease in quality (SSNDQ).[245] If they did, then too few Medicare beneficiaries would be expected to substitute to a Massachusetts hospital to render the SSNIP/SSNDQ unprofitable.[246]

---

not subject to price regulation, that was the only present and future seller of those products ('hypothetical monopolist') likely would impose at least a small but significant and non-transitory increase in price ('SSNIP') on at least one product in the market, including at least one product sold by one of the merging firm." (Emphasis added.) *Merger Guidelines*, §4.1.1. I discuss OHIC's Affordability Standards and their implications for the proposed merger in Section VI.C.

[245] The purpose of the hypothetical monopolist test is to identify a set of products that are reasonably interchangeable with a product sold by one of the merging firms. A SSNDQ can replace the function of a SSNIP in the present setting for this purpose because the government mandates the price for the service, but beneficiaries choose among hospitals based on quality differences (e.g., service breadth, amenities, innovation, service quality, and care quality). In support of a focus on quality to measure the interchangeability of hospitals, the economics literature has found clear evidence that competition affects hospital quality, especially in settings where hospital prices are not subject to competitive forces. *See* Section VI.A.2.

[246] To formalize the argument, which is a critical loss argument, consider the effect of a decrement in quality at a Rhode Island hospital. In response to a quality decrease, some Medicare patients who would have gone to that hospital will

(114) To quantify the incentives for a hypothetical monopolist of Rhode Island hospitals to decrease quality, consider the UPP model developed in Farrell and Shapiro (2010).[247] In their paper, Farrell and Shapiro derive an indicator of whether a proposed merger between rivals in a differentiated product industry such as hospital services is likely to raise prices through unilateral effects. Their indicator calibrates "upward pricing pressure" (UPP) resulting from the merger based on the price/cost margins of the merging firms' products and the extent of direct substitution between them. Although they characterize their diagnostic as representing upward pricing pressure, their model is more general in that UPP is a measure of the externality merging firms impose on one another through any activity that cannibalizes one another's demand (e.g., through lower prices *or* enhanced quality).[248] As a result, UPP also provides insight into the strength of the incentive merging firms to decrease quality in a setting where they cannot adjust the price of their service. Following Farrell and Shapiro (2010), I estimate the UPP for each Rhode Island hospital as if it was under the control of hypothetical monopolist of all Rhode Island hospitals.

(115) Figure 10 presents "UPP" estimates for each Rhode Island hospital if all Rhode Island hospitals were under the control of a hypothetical monopolist. The figure first shows the aggregate diversion ratio from the listed hospital to all other Rhode Island hospitals. That is, the diversion ratio is the percentage of patients that would choose another Rhode Island hospital if they were to switch away from the named hospital because, e.g., the hospital's quality was to decline. The diversion ratio exceeds 90 percent for all hospitals except for Newport, which has a diversion ratio of 65.4 percent to all Rhode Island hospitals.

(116) ██
██.[249] The figure shows that with margins in this range (and any higher margin) there would be significant UPP (pressure to reduce quality) if all Rhode Island hospitals were owned by a common hypothetical monopolist. For all of the preceding reasons, Rhode Island is an appropriate relevant geographic market in which to evaluate the Proposed Transaction for Medicare beneficiaries.

---

now choose to go to another hospital. Given Medicare patients' preferences for receiving care nearby, most will choose another Rhode Island hospital. If all Rhode Island hospitals belong to a single, hypothetical monopolist, then that monopolist will recapture most patients. For a decrease in quality to be profitable, it must be the case that the cost savings exceed the loss in profit from patient switching; but, if most patients would simply go to a different Rhode Island hospital, the hypothetical monopolist would not lose much revenue and the decrease in quality would be profitable.

[247] Joseph Farrell and Carl Shapiro, "Antitrust evaluation of horizontal mergers: an economic alternative to market definition*," The B.E. Journal of Theoretical Economics* 10, no. 1 (2010).

[248] *See* Appendix H for more details.

[249] ██
██
██

Figure 10. UPP estimates for a hypothetical monopolist of Rhode Island hospitals show that Rhode Island is a proper geographic market for Medicare beneficiaries

Hospital	Diversions to all other RI hospitals	UPP (downward pressure on quality)	
		With a 20% Medicare margin	With a 30% Medicare margin
Our Lady of Fatima	97.6%	19.5%	29.3%
Roger Williams	97.2%	19.4%	29.1%
Kent	96.8%	19.4%	29.0%
Miriam	94.0%	18.8%	28.2%
Westerly	93.9%	18.8%	28.2%
Women And Infants	93.2%	18.6%	28.0%
Rhode Island Hospital	92.4%	18.5%	27.7%
South County	92.3%	18.5%	27.7%
Landmark Medical Center	90.3%	18.1%	27.1%
Newport	65.4%	13.1%	19.6%

Source: RI and MA discharge data, 2017-2019
Notes: Limited to traditional Medicare Rhode Island patients, excluding transfers and newborns.

V.B. Structural analysis of market shares and market concentration show that the Proposed Transaction will substantially increase concentration in an already *highly concentrated* market

(117) In this section, I perform a structural analysis of the likely competitive effects of the Proposed Transaction in the markets for inpatient GAC services. Specifically, I estimate the shares and the pre- and post-merger concentration among commercially insured patients and, separately, Medicare patients. These structural analyses provide a useful approximation of the effects of the merger in these markets. In Section V.C, I perform additional direct analyses of the likely competitive effects that confirm what the structural analyses indicate: Lifespan and CNE have significant service overlap and are viewed as close substitutes by patients in Rhode Island. ██████████████████████████ ██ ████████████████████████████. The Proposed Transaction would eliminate this competition.

(118) A hospital system's market share is an indicator of its desirability. Greater market shares indicate that a hospital system is more desired by patients and, in the case of commercial insurance, more important to insurers. When hospitals in the same market merge, they gain bargaining leverage vis-à-vis commercial insurers *and* have less incentive to compete to attract patients with any type of insurance; i.e., the combination of hospital systems in the same market reduces both stage one and stage two competition.

(119)   Market concentration is a measure of the number and distribution of competitors within a market, and the Herfindahl-Hirschman Index (HHI) is a commonly used measure of concentration. The HHI is calculated as the sum of the squared market shares of the participants in the relevant market.[250] The *Merger Guidelines* explain that the Agencies classify a market based on the degree of concentration as follows: [251]

HHI	Classification
< 1,500	Unconcentrated
1,500 to 2,500	Moderately Concentrated
> 2,500	Highly Concentrated

(120)   When firms merge and their market shares are combined, market concentration and, hence, the HHI, increases. If a merger is predicted to substantially increase the HHI and produce a high post-merger HHI, all else equal, it is likely to enhance the market power of the merging parties and to diminish competition. As explained in the *Merger Guidelines*, a merger that would increase the HHI by more than 200 points and result in a *Highly Concentrated* market (HHI > 2,500) is presumed to be likely to enhance market power.[252]

(121)   The *Merger Guidelines* prescribe two ways to compute market shares depending on how the geographic market is defined. First, if the geographic market is defined around the location of suppliers, the *Merger Guidelines* prescribe computing shares for those suppliers based on their sales, regardless of whether the buyers are in the market or not.[253] This means that if the market is defined around the location of hospitals as it is here—i.e., the market is all hospitals in Rhode Island—then the market shares should be computed as the shares among Rhode Island hospitals only based on these hospitals' discharges regardless of whether the patient resides in the market—Rhode Island—or traveled from out of state.

(122)   If markets are defined around the location of consumers rather than suppliers, then the *Merger Guidelines* prescribe computing the shares based on all sellers that supply those consumers. This means that if the market is defined around the locations of patients—Rhode Island residents—then shares should be computed for all hospitals that Rhode Island residents go to for treatment, regardless

---

[250]   For example, if there are four firms in a market with shares of 40%, 25%, 25%, and 10%, the HHI is computed as $40^2 + 25^2 + 25^2 + 10^2 = 2,950$. The HHI ranges from 10,000 with a pure monopoly to a number approaching zero as market shares approach zero. HHIs are more informative than a simpler statistic such as a count of the firms in the relevant market or the combined market share of the four largest firms, because squaring gives more weight to firms with higher market shares (e.g., $20^2 = 400$, which is more than twice as large as $10^2 = 100$). *See, Merger Guidelines*, §5.3.

[251]   *Merger Guidelines*, §5.3.

[252]   *Merger Guidelines*, §5.3.

[253]   *Merger Guidelines*, §4.2.1. ("When the geographic market is defined based on supplier locations, sales made by suppliers located in the geographic market are counted, regardless of the location of the customer making the purchase.")

of whether that hospital is in Rhode Island.[254] Regardless of how computed, I show below that the shares and concentration consistently show that the market for inpatient GAC services in Rhode Island is highly concentrated today and the Proposed Transaction will substantially increase that concentration.

V.B.1. Inpatient GAC services sold to commercial insurers and provided to their members

(123)   Figure 11 reports the estimated commercial inpatient GAC market shares and the corresponding HHI based on Rhode Island hospitals, regardless of whether the patient resides in Rhode Island. The shares are based on adult discharges for services offered by both Lifespan and CNE during the 2017 to 2019 period.[255] The figure shows that a combined Lifespan and CNE system would have a post-merger share of 79.8 percent. The Proposed Transaction is projected to increase the HHI by 3,184 points, from a starting HHI of 3,315 to a post-merger HHI of 6,499 points. The market is already classified as *Highly Concentrated* before the merger,[256] and the increase in HHI predicted to result from the Proposed Transaction is nearly 16-times greater than the 200-point increase threshold over which the merger is "presumed to be likely to enhance market power."[257]

---

[254] *Merger Guidelines*, §4.2.2 ("When the geographic market is defined based on customer locations, sales made to those customers are counted, regardless of the location of the supplier making those sales.")

[255] I use a three-year period to smooth out small year-to-year fluctuations that may occur in the ordinary course. Lifespan and CNE's combined share ranges from 81.4% to 82.3% during this period. Because of the Covid pandemic, shares and the distribution of inpatient services rendered in 2020 and 2021 are not likely to be as indicative of future competition as are the data just prior to the pandemic.

[256] *Merger Guidelines*, §5.3. ("Highly Concentrated Markets: HHI above 2500")

[257] As the *Merger Guidelines* explain, the presumption may be rebutted by persuasive evidence showing that the merger is unlikely to enhance market power." *Merger Guidelines*, §5.3.

Figure 11. Inpatient GAC shares for commercially insured adults at Rhode Island hospitals, 2017–2019

System	Hospital	Share	Discharges
CNE	Women & Infants	26.8%	14,102
CNE	Kent	11.9%	6,277
Lifespan	Rhode Island Hospital	22.1%	11,610
Lifespan	Miriam	16.0%	8,398
Lifespan	Newport	3.1%	1,630
Lifespan + CNE		79.8%	42,017
South County	South County	6.6%	3,448
Charter Care	Roger Williams	4.8%	2,548
Prime	Landmark Medical Center	4.5%	2,364
Charter Care	Our Lady of Fatima	2.9%	1,520
Yale	Westerly	1.4%	730
All other Rhode Island hospitals		20.2%	10,610
Total		100.0%	52,627
Pre-merger HHI		3,315	
Delta-HHI		3,184	
Post-merger HHI		6,499	

Source: RI discharge data, MA discharge data, 2017–2019.
Notes: Limited to commercial patients and services provided by both Lifespan and CNE. Excludes newborns, patients under 18, patients 65 and over, and transfers.

(124)   Figure 12 reports the estimated inpatient GAC market shares and the corresponding HHI based on commercially insured Rhode Island adult patients regardless of whether the hospital they went to for care is in Rhode Island or in Massachusetts.[258] The figure shows that a combined Lifespan-CNE would have a post-merger share of 70.0 percent. Reflecting the change in the way shares are computed and the addition of Massachusetts hospitals,[259] the pre-merger HHI is lower at 2,588 points than when shares are computed based only on the hospitals that are in the market. However, even this reduced value exceeds the 2,500-point threshold and the commercially insured adult inpatient GAC market in Rhode Island continues to be classified as *Highly Concentrated* even before the merger.[260] The Proposed Transaction is projected to increase the HHI by 2,449 points, resulting in a post-merger HHI of 5,038 points. The change in HHI predicted to result from the Proposed Transaction is still substantially greater than 200 points. Therefore, even when shares are computed based on the residents of Rhode Island, regardless of what hospital they travel to for care, the Proposed

---

[258] LIFESPAN04381592,

[259] About 20% of Rhode Islanders who go to a Massachusetts hospital go to hospitals in neighboring Massachusetts towns such as St. Anne's Hospital, Charlton Memorial Hospital, and Sturdy Memorial Hospital. Most of the rest go to Boston-area hospitals with most of these going to Brigham and Women's Hospital or Massachusetts General Hospital. The commercially-insured Rhode Islanders who go to these hospitals for care are generally more severely ill. Cardiac care and oncology are the two largest services Rhode Islanders are getting from these two hospitals. *See* Appendix D.

[260] *Merger Guidelines*, §5.3.

Transaction exceeds the *Merger Guidelines* thresholds above which the merger is presumed likely to enhance market power.

Figure 12. Inpatient GAC shares for commercially insured adult Rhode Island patients, 2017–2019

System	Hospital	Share	Discharges
CNE	Women & Infants (W&I)	22.9%	11,858
CNE	Kent	11.7%	6,034
Lifespan	Rhode Island Hospital (RIH)	18.0%	9,316
Lifespan	Miriam	14.5%	7,486
Lifespan	Newport	2.9%	1,512
Lifespan + CNE		*70.0%*	*36,206*
South County	South County	6.3%	3,269
Charter Care	Roger Williams	4.6%	2,356
Prime	Landmark Medical Center	4.1%	2,131
Charter Care	Our Lady of Fatima	2.8%	1,434
Yale	Westerly	1.0%	504
All other Rhode Island hospitals		**18.7%**	**9,694**
Partners Healthcare System	Brigham And Women's Hospital	2.7%	1,374
Partners Healthcare System	Massachusetts General Hospital	1.3%	648
Steward Health Care System	Saint Anne's Hospital	1.1%	556
Other MA hospitals	Other MA hospitals	6.3%	3,247
MA hospital total		*11.3%*	*5,825*
Total		**100.0%**	**51,725**
Pre-merger HHI		2,588	
Delta-HHI		2,449	
Post-merger HHI		5,038	

Source: RI discharge data, MA discharge data, 2017–2019.
Notes: Limited to commercial RI patients and services provided by both Lifespan and CNE. Excludes newborns, patients under 18, patients 65 and over, and transfers.

(125)   Because CNE's W&I hospital provides the vast majority of the services related to Pregnancy, Childbirth, and Puerperium (obstetrics) in Rhode Island (W&I has a 73.4 percent share of obstetrics[261]) and Lifespan's RIH and Miriam do not offer these services,[262] the competitive conditions for these services differ somewhat from those of other inpatient GAC services.[263] I

---

[261] Share represents W&I's share of discharges for services related to Pregnancy, Childbirth, and Puerperium (MDC 14) and services that are provided by both Lifespan and CNE. Limited to commercial RI patients, excluding transfers, newborns, patients under 18, and patients age 65 and above. Limited to services provided by both Lifespan and CNE.

[262] ██████████ ██████████. *See also* LIFESPAN_ORIG000196 at -0216. In a CON application for an expanded obstetrics unit at Rhode Island Hospital, RIH notes that CNE treats 87% of RI's inpatient pregnancies and cites the closure of Memorial Hospital as increasing W&I's market share in particular to from 75% to 79%. They also note that because of this "consolidation, women in Rhode Island have very few alternatives when it comes to where they will deliver their babies" indicating that they previously viewed increased competition as beneficial between Lifespan and CNE in expanding access to obstetric care to RI residents.

[263] ██

therefore consider as a sensitivity a narrower relevant product market that excludes obstetrics to verify that W&I's high share is not generating potentially misleading market concentration values.[264] However, even if the product market is limited to exclude obstetrics, the Proposed Transaction substantially increases concentration and continues to exceed by a large margin the thresholds over which a merger is presumed to be likely to enhance market power.

(126)   Figure 13 reports the estimated inpatient GAC market shares and the corresponding HHI based on commercially insured adult Rhode Island patients when obstetrics diagnoses are removed from the cluster product market. The figure shows that a combined Lifespan-CNE would have a post-merger share of 63.7 percent. The Proposed Transaction is projected to increase the HHI by 1,498 points, from a pre-merger HHI of 2,769 to a post-merger HHI of 4,267 points. This increase remains far above the 200-point increase and 2,500-point post-merger HHI thresholds. Thus, regardless of whether obstetrics are included in the cluster product market, the Proposed Transaction substantially exceeds the *Merger Guidelines* thresholds above which the merger is presumed to be likely to enhance market power.

---

[264] To be clear, I continue to define the relevant product market as consisting of the entire cluster of overlapping inpatient GAC services and am only excluding obstetrics for the purposes of testing the sensitivity of the share and concentration metrics to their inclusion and W&I's high share of obstetrics.

Figure 13. Inpatient GAC shares for commercially insured adult Rhode Island patients (excluding MDC 14 and 15), 2017–2019

System	Hospital	Share	Discharges
CNE	Kent	13.0%	4,806
CNE	Women and Infants	2.5%	927
Lifespan	Rhode Island Hospital	25.1%	9,251
Lifespan	Miriam	20.3%	7,483
Lifespan	Newport	2.7%	998
Lifespan + CNE		*63.7%*	*23,465*
Charter Care	Roger Williams	6.4%	2,351
South County	South County	6.1%	2,243
Prime	Landmark Medical Center	4.7%	1,743
Charter Care	Our Lady of Fatima	3.9%	1,433
Yale	Westerly	1.4%	502
All other Rhode Island hospitals		*22.5%*	*8,272*
Partners Healthcare System	Brigham And Women's Hospital	3.4%	1,256
Partners Healthcare System	Massachusetts General Hospital	1.7%	625
Steward Health Care System	Saint Anne's Hospital	1.5%	556
Other MA hospitals	Other MA hospitals	7.2%	2,667
MA hospital total		*13.9%*	*5,104*
Total		100.0%	36,841
Pre-merger HHI		2,769	
Delta-HHI		1,498	
Post-merger HHI		4,267	

Source: RI discharge data, MA discharge data, 2017-2019.
Notes: Limited to commercial Rhode Island patients and services that are provided by both Lifespan and CNE. Excludes newborns, patients under 18, patients 65 and over, and transfers.

(127) To provide context for how greatly market concentration is increased by the Proposed Transaction, Figure 14 Depicts the increase in HHI (Delta-HHI) and post-merger HHI (Post-HHI) associated with every hospital-merger for which the FTC has filed a complaint to block since the FTC's 2004 retrospective challenge to Evanston Northwestern Healthcare Corporation's acquisition of Highland Park Hospital. The last bar depicts the 200-point threshold, over which a merger is presumed likely to enhance market power as outlined in the *Merger Guidelines*.[265] The figure shows that the proposed Lifespan-CNE merger is predicted to produce the *largest* increase in HHI among the 12 challenged mergers. Even if using the lower shares based on Rhode Island residents, the change in HHI for the Proposed Transaction is higher than all but one prior transaction (*see* Figure 15). Indeed, the change in HHI is over 500 points higher than nine of the other mergers when so computed.

---

[265] *Merger Guidelines*, §5.3.

Figure 14. The Proposed Transaction will increase the HHI by more than the estimated increase in all challenged hospital mergers in the last 18 years
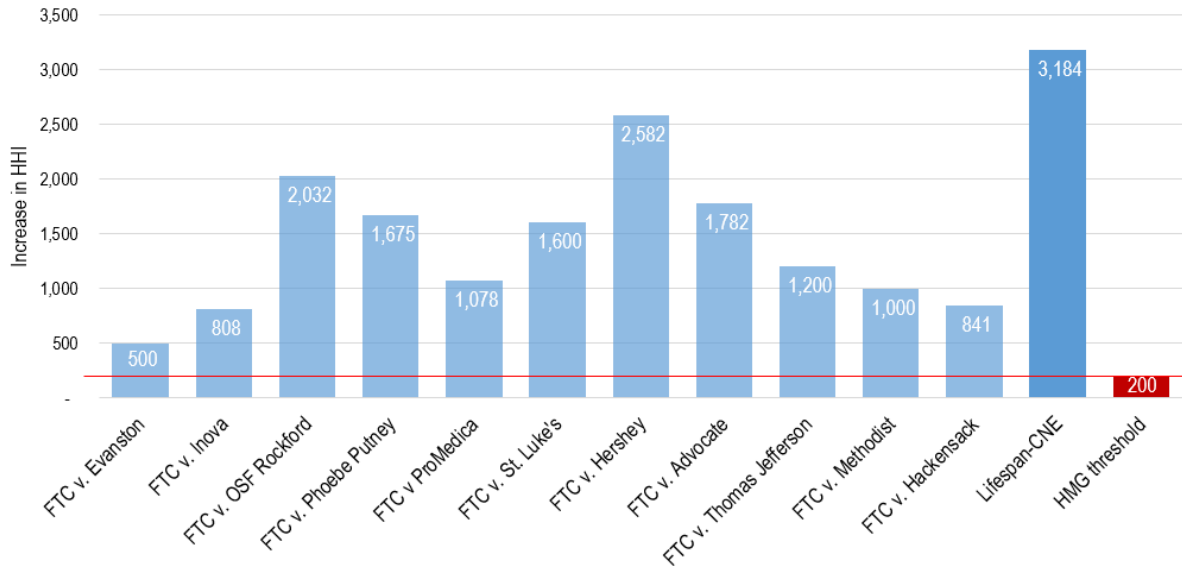
Sources: RI and MA discharge data, 2017-2019. Limited to commercial patients, excluding patients under 18 and patient age 65 and over. Limited to RI hospitals Limited to services provided by both Lifespan and CNE. Capps, Kmitch, Zabinksi, and Zayats, "Continuing Saga of Hospital Merger Enforcement." Complaint, FTC v. Evanston Northwestern Healthcare Corporation and ENH Medical Group, Inc. Complaint, FTC v. Inova Health System Foundation and Prince William Health System. Complaint, FTC v. OSF Healthcare System and Rockford Health System. Complaint, FTC v. Phoebe Putney Health System, Inc. and Palmyra Park Hospital, Inc. Complaint, FTC v. Thomas Jefferson University and A bert Einstein Healthcare Network. Complaint, FTC v. Methodist Le Bonheur Healthcare and Tenet Healthcare Corporation. Complaint, FTC v. Hackensack Meridian Health, Inc. and Englewood Healthcare Foundation.

Notes: The merging parties either abandoned the deal or the FTC prevailed in litigation to enjoin the merger in each case except for FTC v. Thomas Jefferson where the District Court denied the FTC's request finding that the FTC did not correctly define the geographic market. The District Court granted the FTC's request to preliminary enjoin the merger in FTC v. Hackensack; however, the case is currently in appeal.

Figure 15. The Proposed Transaction will have a post-merger HHI among the highest of those predicted in recently attempted hospital mergers
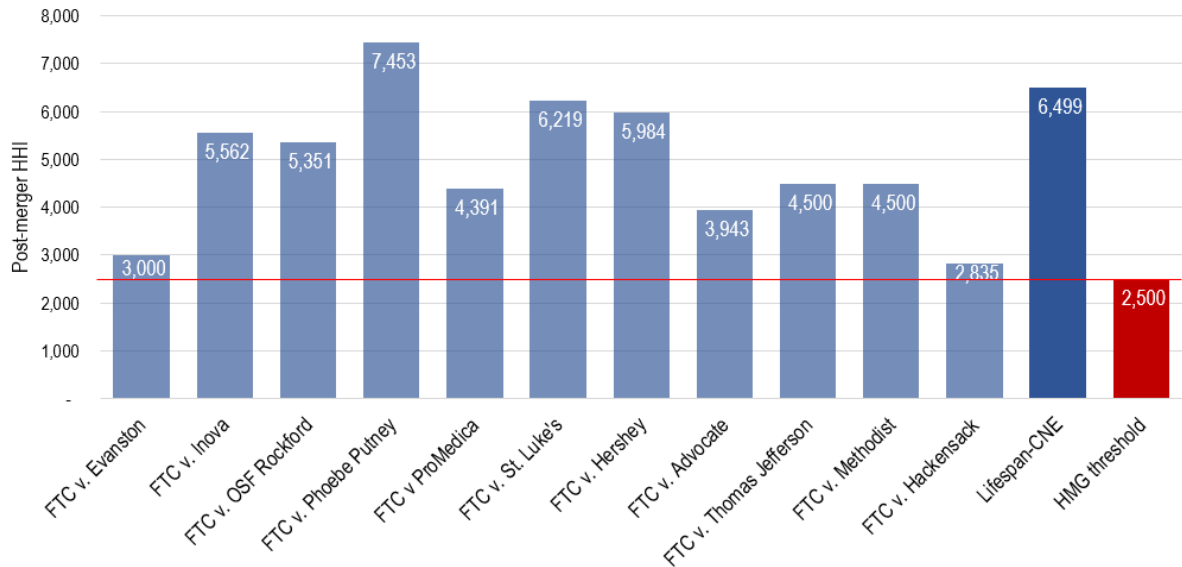
Sources: RI and MA discharge data, 2017-2019. Limited to commercial patients, excluding patients under 18 and patients 65 and over. Limited to RI hospitals. Limited to services provided by both Lifespan and CNE. Capps, Kmitch, Zabinksi, and Zayats, "Continuing Saga of Hospital Merger Enforcement." Complaint, FTC v. Evanston Northwestern Healthcare Corporation and ENH Medical Group, Inc. Complaint, FTC v. Inova Health System Foundation and Prince William Health System. Complaint, FTC v. OSF Healthcare System and Rockford Health System. Complaint, FTC v. Phoebe Putney Health System, Inc. and Palmyra Park Hospital, Inc. Complaint, FTC v. Thomas Jefferson University and Albert Einstein Healthcare Network. Complaint, FTC v. Methodist Le Bonheur Healthcare and Tenet Healthcare Corporation. Complaint, FTC v. Hackensack Meridian Health, Inc. and Englewood Healthcare Foundation.

Notes: The merging parties either abandoned the deal or the FTC prevailed in litigation to enjoin the merger in each case except for FTC v. Thomas Jefferson where the District Court denied the FTC's request finding that the FTC did not correctly define the geographic market. The District Court granted the FTC's request to preliminary enjoin the merger in FTC v. Hackensack; however, the case is currently in appeal.

(128) I also analyzed a broader market ████████████████████████ ████████████████████████ the "MARI" region.[266] This area consists of Rhode Island and 31 zip codes that are adjacent to Rhode Island in Massachusetts.[267] (*See* Figure 44 in Appendix A.) Figure 16 Shows inpatient GAC market shares and the corresponding HHI based on commercially insured MARI patients, regardless of whether the hospital they went to for care is in MARI or elsewhere in Massachusetts.[268] The figure shows that a combined Lifespan-CNE would still have a post-merger share of 52.4 percent in this broader region. The Proposed Transaction is projected to increase the HHI by 1,372 points, from 1,610 to 2,981 points.

---

[266] ████████████████████████

[267] LIFESPAN_ORIG005179 at -005180.

[268] I also computed market shares and concentration based on all discharges for commercially-insured adult patients at all GAC hospitals in MARI. CNE's and Lifespan's combined share and the HHIs are reported in Figure 17.

Figure 16. Inpatient GAC shares for commercially insured adult MARI patients, 2017–2019

System	Hospital	Share	Discharges
CNE	Women and Infants	17.7%	13,454
CNE	Kent	8.0%	6,112
Lifespan	Rhode Island Hospital	14.0%	10,663
Lifespan	Miriam	10.7%	8,155
Lifespan	Newport	2.0%	1,544
Lifespan + CNE		*52.4%*	*39,928*
South County	South County	4.3%	3,304
Charter Care	Roger Williams	3.2%	2,466
Prime	Landmark Medical Center	3.0%	2,300
Charter Care	Our Lady of Fatima	1.9%	1,480
Yale	Westerly	0.7%	505
All other Rhode Island hospitals		*13.2%*	*10,055*
Partners Healthcare System	Brigham And Women's Hospital	4.2%	3,233
Steward Health Care System	Saint Anne's Hospital	3.8%	2,904
Sturdy Memorial Hospital	Sturdy Memorial Hospital	3.7%	2,843
Milford Regional Medical Center	Milford Regional Medical Center	3.5%	2,669
Southcoast Health System	Charlton Memorial Hospital	3.3%	2,504
Southcoast Health System	St. Luke's Hospital	2.5%	1,877
Partners Healthcare System	Massachusetts General Hospital	2.0%	1,508
Steward Health Care System	Norwood Hospital	1.4%	1,056
Partners Healthcare System	Newton-Wellesley Hospital	1.3%	1,018
Beth Israel Lahey Health	Beth Israel Deaconess Medical Center	1.3%	953
UMass Memorial Health Care	UMass Memorial - University Campus	1.1%	857
Other MA hospitals	Other MA hospitals	6.3%	4,812
MA hospital total		*34.4%*	*26,234*
Pre-merger HHI		1,610	
Delta-HHI		1,372	
Post-merger HHI		2,981	

Source: RI discharge data, MA discharge data, 2017–2019.
Notes: Limited to commercial MARI patients and services that are provided by both Lifespan and CNE. Excludes newborns, patients under 18, patients 65 and over, and transfers.

(129) Figure 17 summarizes the shares and HHIs for commercially insured adult patients computed based on alternative approaches computing shares as well as the product and geographic market sensitivities. *In all cases*, shares, and the concentration measures based on those shares, indicate that the Proposed Transaction is likely to substantially lessen competition for inpatient GAC services in Rhode Island. The measures are consistently far higher than the thresholds over which the *Merger Guidelines* indicate a merger is presumed to be likely to enhance the merged firm's market power.

Figure 17. Change in HHI using alternative methodologies in different geographic and product markets
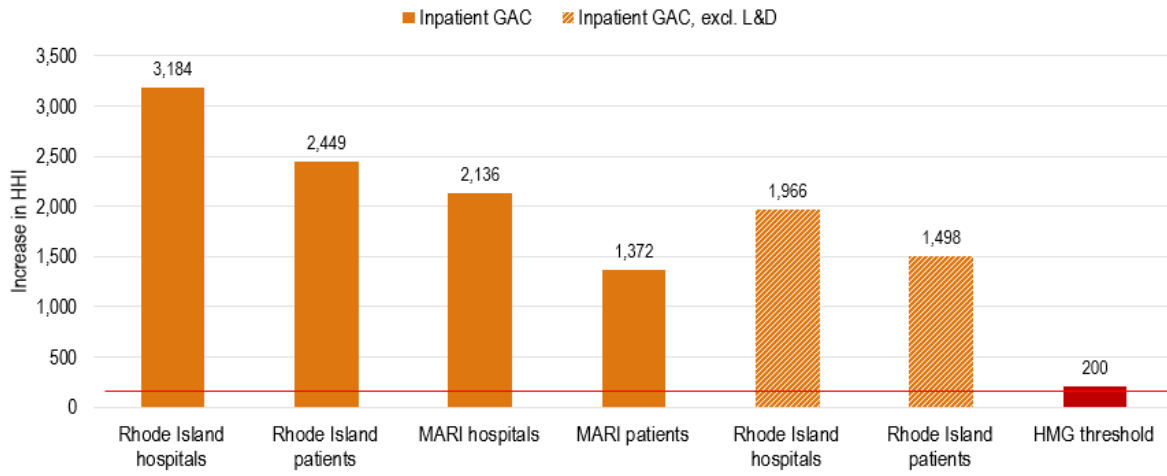
(130)   Source: RI discharge data, MA discharge data, 2017–2019.

Notes: Patient-based estimates are limited to commercial RI or MARI patients. Limited to services provided by both Lifespan and CNE. Excludes newborns, patients under 18, patients 65 and over, and transfers.

Figure 18. Post-merger HHI using alternative methodologies in different geographic and product markets
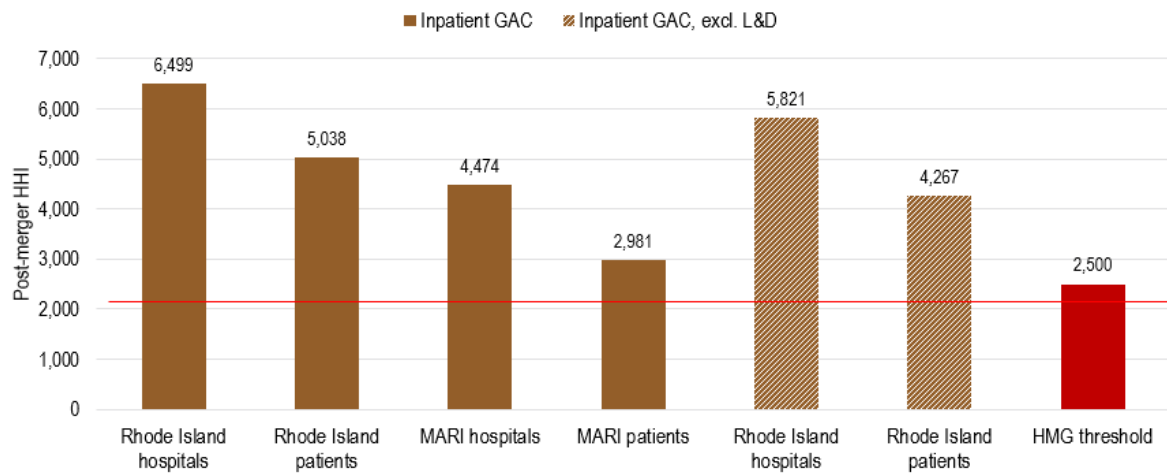
Source: RI discharge data, MA discharge data, 2017-2019.
Notes: Patient-based estimates are limited to commercial RI or MARI patients. Limited to services provided by both Lifespan and CNE. Excludes newborns, patients under 18, patients 65 and over, and transfers.

V.B.2. Inpatient GAC services provided to Medicare beneficiaries

(131)   Figure 19 reports the estimated inpatient GAC market shares for Medicare patients and the corresponding HHI based on Rhode Island hospitals, regardless of whether the patient resides in

Rhode Island. The figure shows that a combined Lifespan-CNE would have a post-merger share of 69.7 percent. The Proposed Transaction is projected to increase the HHI by 1,631 points, from a starting HHI of 3,502 to a post-merger HHI of 5,132 points. As in the market based on commercially insured adult patients, the market based on Medicare patients is already classified as *Highly Concentrated* before the merger,[269] and the change in HHI predicted to result from the Proposed Transaction is over 8-times greater than the 200-point increase threshold, over which the merger is "presumed to be likely to enhance market power."[270]

Figure 19. Inpatient GAC shares for Medicare patients at Rhode Island hospitals, 2017–2019

System	Hospital	Share	Discharges
CNE	Kent	14.3%	17,091
CNE	Women & Infants	0.5%	652
Lifespan	Rhode Island Hospital	28.6%	34,146
Lifespan	Miriam	21.7%	25,910
Lifespan	Newport	4.5%	5,364
Lifespan + CNE		*69.7%*	*83,163*
Charter Care	Roger Williams	7.0%	8,316
South County	South County	6.8%	8,105
Prime	Landmark Medical Center	6.6%	7,925
Charter Care	Our Lady of Fatima	6.1%	7,236
Yale	Westerly	3.8%	4,577
All other Rhode Island hospitals		*30.3%*	*36,159*
Total		100.0%	119,322
Pre-merger HHI		3,502	
Delta-HHI		1,631	
Post-merger HHI		5,132	

Source: RI discharge data, MA discharge data, 2017–2019.
Notes: Limited to traditional Medicare patients and services provided by both Lifespan and CNE. Excludes patients under 18, newborns and transfers.

(132)   Figure 20 reports the estimated inpatient GAC market shares and the corresponding HHI based on Rhode Island Medicare patients regardless of whether the hospital they went to for care is in Rhode Island or in Massachusetts. The figure shows that a combined Lifespan-CNE would have a post-merger share of 65.7 percent. The Proposed Transaction is projected to increase the HHI by 1,515 points, resulting in a post-merger HHI of 4,596 points.

---

[269]   *Merger Guidelines*, §5.3. ("Highly Concentrated Markets: HHI above 2500")

[270]   As the Merger Guidelines explain, the presumption may be rebutted by persuasive evidence showing that the merger is unlikely to enhance market power." *Merger Guidelines*, §5.3.

Figure 20. Inpatient GAC shares for Rhode Island Medicare patients, 2017–2019

System	Hospital	Share	Discharges
CNE	Kent	14.5%	16,798
CNE	Women And Infants	0.4%	472
Lifespan	Rhode Island Hospital	25.6%	29,622
Lifespan	Miriam	20.8%	24,093
Lifespan	Newport	4.5%	5,210
Lifespan + CNE		*65.7%*	*76,195*
Charter Care	Roger Williams	7.0%	8,144
South County	South County	6.8%	7,924
Prime	Landmark Medical Center	6.4%	7,376
Charter Care	Our Lady of Fatima	6.1%	7,121
Yale	Westerly	2.6%	2,963
All other Rhode Island hospitals		**28.9%**	**33,528**
Southcoast Health System	Charlton Memorial Hospital	1.8%	2,063
Other MA hospitals	Other MA hospitals	3.5%	4,112
MA hospital total		*5.3%*	*6,175*
Total		100.0%	115,898
Pre-merger HHI		3,081	
Delta-HHI		1,515	
Post-merger HHI		4,596	

Source: RI discharge data, MA discharge data, 2017–2019.
Notes: Limited to traditional Medicare RI patients and services provided by Lifespan and CNE. Excludes patients under 18, newborns and transfers.

(133) In each case, shares and the concentration measures based on those shares, indicate that the Proposed Transaction is likely to substantially lessen competition for inpatient GAC services for Medicare patients in Rhode Island. The findings are consistently far higher than the thresholds over which the *Merger Guidelines* indicate a merger is presumed to be likely to enhance the merged firm's market power, and thus support the presumption that the Proposed Transaction is likely to enhance the market power of a consolidated Lifespan and CNE health system. This presumption is further supported by my direct analyses of competitive effects in the following section as well as by numerous course-of-business documents and testimony provided by the Parties as outlined in Section V.D.

V.C. Direct analysis of the Proposed Transaction further shows that it is likely to enhance market power and substantially lessen competition for inpatient GAC services

(134) In this section, I analyze the degree of head-to-head competition between Lifespan and CNE. I utilize economic theory and econometric analysis, which is supported by significant testimonial and documentary evidence, to evaluate the likely competitive effects of the Proposed Transaction. I conclude that the Proposed Transaction is likely to enhance the combined system's bargaining leverage *vis-à-vis* insurers and substantially reduce competition to attract and serve Rhode Island patients—commercial, Medicare, and other. In this section, I set aside the OHIC Affordability Standards that establish a cap on hospital rate increases and focus on post-acquisition bargaining leverage and incentives to compete for patients.[271] In Section VI.C, I evaluate the effect of OHIC's Affordability Standards and explain why the standards are not a reliable means to prevent the merged entity from increasing prices and will not prevent the lessening of competition from harming residents of Rhode Island.

(135) I present the results of two econometric analyses that quantify the closeness of competition between Lifespan and CNE for inpatient GAC services. The empirical methodologies are insensitive to the product and geographic boundaries utilized to calculate market shares and market concentration, meaning they are robust to alternative definitions of the relevant market. This section proceeds as follows.

(136) In Section V.C.1, I measure the closeness of competition between Lifespan and CNE by calculating the diversion between the two hospital systems. I find the following:

☐ Commercially insured patients: About one in four commercially insured patients (25%) whose first choice is CNE view a Lifespan hospital as the next closest substitute. If patients were to switch away from CNE hospitals, 52 percent that switch away from Kent view a Lifespan hospital as their next closest substitute.[272] A similar proportion of commercially insured patients whose first choice is Lifespan view a CNE hospital as the next best substitute, 23%.

☐ Medicare patients: If patients were to switch away from Lifespan hospitals 27 percent of those Medicare patients whose first choice is RIH view a CNE hospital as the next closest

---

[271] The Affordability Standards (230-20-30 R.I. Code R. § 4.10 Affordable Health Insurance – Affordability Standards) were developed by OHIC over the 2008 to 2009 period in consultation with its legislatively created Health Insurance Advisory Council. The "rate cap" regulation specifies that the rate increase will require review and approval by OHIC if it exceeds the US All Urban Consumer All Items Less Food and Energy CPI ("CPI-Urban") percentage increase plus one percent (1%). (§ 4.10(D)(6)(e)(1).) *See* Rhode Island Department of State, "Powers and Duties of the Office of the Health Insurance Commissioner". https://rules.sos.ri.gov/regulations/part/230-20-30-4.

[272] Because inpatient obstetric services are not currently offered at either Miriam or RIH, only 11% of patients that go to W&I view Miriam and RIH as close substitutes.

substitute. Among those patients whose first choice is Kent, 75 percent view a Lifespan hospital as their next closest substitute.[273]

☐ The diversion ratios empirically demonstrate that there is meaningful head-to-head competition between Lifespan and CNE to attract patients, which they do by investing in service delivery and other dimensions of quality. Furthermore, a higher diversion ratio between hospitals indicates that they constrain each other's ability to raise prices. ████████ ██

(137)   In Section V.C.2, I describe the willingness-to-pay or WTP methodology that estimates the amount merging hospitals' bargaining leverage is increased by a merger and estimate the increase WTP predicted to result from the Proposed Transaction. I estimate that the Proposed Transaction will produce a substantial increase in WTP, indicating an equally substantial lessening of competition. This reduction in competition would typically result in much higher prices for hospital services.

(138)   Based on these empirical analyses, the Proposed Transaction will substantially lessen competition for inpatient GAC services in Rhode Island. The likely consequences of this reduction in competition are higher prices and/or reduced quality of care that harm Rhode Island residents.

V.C.1. Diversion ratios between Lifespan and CNE show they are close competitors

(139)   Patient preferences over hospitals depend on a multitude of factors, including those related to personal convenience and service quality, such as travel time, waiting times, private rooms, and other amenities, as well as indicators of clinical quality such as mortality rates, readmission rates, and rates of hospital-acquired infections. Because hospitals may vary, sometimes considerably, in each of these dimensions, inpatient GAC services represent a *differentiated* product industry. As the *Merger Guidelines* explain, "[i]n differentiated product industries, some products can be very close substitutes and compete strongly with each other, while other products are more distant substitutes and compete less strongly."[274] Diversion ratios are used to empirically measure—i.e., quantify—how interchangeable two sellers' products are to consumers and, as such, are an important tool for assessing how a proposed merger will affect competition.[275]

---

[273]   Because inpatient obstetric services are not currently offered at either Miriam or RIH, only 11% of patients that go to W&I view Miriam and RIH as close substitutes.

[274]   *Merger Guidelines*, §6.1.

[275]   The *Merger Guidelines* explain that "[d]iversion ratios between products sold by one merging firm and products sold by the other merging firm can be very informative for assessing unilateral price effects, with higher diversion ratios indicating a greater likelihood of such effects." Unilateral refers to the merged firm's ability to raise its price as a result of enhanced market power, as compared to coordinated effects, which rely on implicit or explicit coordination among multiple firms. *Merger Guidelines*, §6.1.

(140)   Generically, the diversion ratio from product A to product B represents the proportion of any sales that product A loses because of, e.g., a price increase or reduction in quality, that go to product B. Within the context of inpatient GAC services, the diversion ratio from hospital (or hospital system) A to hospital (or hospital system) B measures the proportion of patients for whom hospital A is their first choice that would go to hospital B if either hospital A were not available as an in-network option, or because, e.g., hospital A was moved to a higher insurance tier generating higher out-of-pocket costs for the patient, or because hospital A's quality declined. To illustrate, if the number of discharges at hospital A were to decline by 100 when it went out of network and hospital B's patient volume were to increase by 20 discharges as a result, then the diversion ratio from A to B is 20/100 or 20 percent.

(141)   Diversion ratios illuminate the competitive constraints hospitals place on one another when competing for inclusion in an insurer's network. They also illuminate the degree to which the hospital systems compete against one another for patients. Larger diversion ratios between merging hospitals indicate that they are closer substitutes (i.e., more interchangeable) and, all else equal, a merger between them is likely to substantially lessen competition—both stage one and stage two competition—and ultimately harm consumers.

(142)   I estimate diversions using a statistical model of patients' hospital choice. I use the semi-parametric approach developed by Raval, Rosenbaum, and Tenn (2017) to estimate patient choice probabilities.[276] Specifically, I categorize patients into groups based on observable patient characteristics, including zip code of residence, medical condition, gender, and age, and use the observed hospital shares within each group as an estimate of patient choice probabilities.[277] I use the choice probabilities to compute where patients would go if they did not go to their hospital of choice. I then average the individual diversions across patients to compute the total diversion ratio for each hospital.[278] This approach accounts for the differences in patient preferences for hospitals based on where the patient resides, their medical condition, and their gender and age. For example, the diversion ratio from Kent to RIH will be much lower for patients that live near South County Hospital than for patients that live near RIH. And the diversion from Kent to South County Hospital will be lower for patients that live near RIH than for patients that live near South County Hospital.

(143)   I estimate the diversion from CNE's Kent and W&I to Lifespan hospitals and the diversion from Lifespan's Miriam, Newport, and RIH to CNE hospitals. These diversions quantify the extent to

---

[276]   Devesh Raval, Ted Rosenbaum, and Steven A. Tenn, "A Semiparametric Discrete Choice Model: An Application to Hospital Mergers," *Economic Inquiry* 2017, 55(4): 1919– 944. [hereinafter Raval et al. (2017)]. Raval, Rosenbaum, and Wilson (2020) find that the semi-parametric model is the best performing of several models for predicting individual patient choices following natural disasters that caused hospitals to close. Devesh Raval, Ted Rosenbaum, and Nathan E. Wilson, "Using Disaster Induced Closures to Evaluate Discrete Choice Models of Hospital Demand," (working paper, 2020).

[277]   Raval et al. (2017).

[278]   *Id.*

which an exclusion of one of the two health systems would shift that system's patients to the other system's hospitals or to other competitor hospitals.

Figure 21. Lifespan and CNE diversion ratios for commercially insured patients

To System	To Hospital	From Lifespan			From CNE	
		RIH	Miriam	Newport	Kent	W&I
Lifespan	Rhode Island Hospital	-	-	-	34%*	5%
Lifespan	Miriam	-	-	-	17%	1%
Lifespan	Newport	-	-	-	1%	5%
CNE	Kent	19%*	17%	5%	-	-
CNE	Women & Infants	5%	3%	24%*	-	-
Lifespan / CNE total		**23%***	**20%**	**29%***	**52%***	**11%**

Source: RI and MA discharge data, 2017–2019.
Notes: * indicates the hospital or system is the closest substitute based on diversions ranking. Diversions are limited to commercial Rhode Island patients, excluding patients 65 and over. *See* Figure 59 in the appendix for a more complete set of diversions.

(144) Figure 21 presents the estimated inpatient GAC diversion ratios for commercially insured patients. Each row in the figure displays the diversion ratio from the hospital indicated by the column to the hospital in each row. The analysis is based on all commercially insured patients that receive treatment at a CNE or Lifespan hospital, except those over the age of 65.[279] The diversion ratios reveal that the two systems are generally each other's closest substitutes. At the hospital-level, Rhode Island Hospital and Kent County Hospital—the two largest hospitals in the state—are each other's closest substitutes. Additional observations include:

- If patients were to switch away from Lifespan hospitals (e.g., because Lifespan was out of network, moved to a higher insurance tier, or declined in quality), 23 percent of the switching RIH patients, 20 percent of the switching Miriam patients, and 29 percent of the switching Newport patients would choose a CNE hospital for inpatient GAC services.

- If patients were to switch away from CNE hospitals, 52 percent of the switching Kent patients and 11 percent of the switching W&I patients would choose a Lifespan hospital.

(145) Figure 22 presents the estimated inpatient GAC diversion ratios for Medicare patients. Each row in the figure displays the diversion ratio from the hospital indicated by the column to the hospital in each row. The diversion ratios reveal that Lifespan is by far the closest substitute for CNE's hospitals. CNE hospitals are also substitutes to RIH, but the diversions from Miriam and Newport to CNE hospitals are lower than those for commercially insured patients largely as a result of Medicare patients having a stronger preference for receiving care at nearby hospitals. Hospitals such as

---

[279] I exclude patient 65 and over to exclude patients that may be enrolled in a Medicare Advantage plan, which are not always clearly identified in state discharge data.

CharterCARE's Our Lady of Fatima and Roger Williams are much closer to Miriam, causing a higher proportion to view these hospitals as closer substitutes. Additional observations include:

- If patients were to switch away from Lifespan hospitals (e.g., because Lifespan was out of network, moved to a higher insurance tier, or declined in quality), 26 percent of the switching RIH patients, 14 percent of the switching Miriam patients, and 4 percent of the switching Newport patients would choose a CNE hospital for inpatient GAC services. The lower diversion from Miriam and Newport reflects the strong preference of Medicare patients to receive care nearby at available alternatives that are closer than CNE's Kent in particular.

- If patients were to switch away from CNE hospitals, 75 percent of the switching Kent patients and 61 percent of the switching W&I patients would choose a Lifespan hospital. These increases are also reflective of Medicare patients' preference for closer hospitals (which significantly increases diversion to RIH due to its proximity) and the fact that Medicare patients who receive care at W&I are largely receiving non-obstetrical services that RIH also provides.

- Application of the Farrell and Shapiro (2010) "UPP" diagnostic indicates that there would be significant pressure on Lifespan and CNE to reduce activities that cannibalize patient volume from each other's hospitals.[280] This pressure would be stronger at CNE hospitals, which have a "UPP" estimate ranging from 12 percent to 23 percent owing to the high diversion to Lifespan hospitals. Such pressure could, for example, induce the combined Lifespan-CNE to consolidate services at one or the other's hospitals (and thereby reduce access to care) and/or cause the combined system to reduce service quality in other ways. Regardless, the pressure represents a substantial lessening of competition.

---

[280] *See* Appendix H for details.

Figure 22. Lifespan and CNE diversion ratios for Medicare patients

To System	To Hospital	From Lifespan			From CNE	
		RIH	Miriam	Newport	Kent	W&I
Lifespan	Rhode Island Hospital	-	-	-	55%*	37%*
Lifespan	Miriam	-	-	-	19%	21%
Lifespan	Newport	-	-	-	0%	3%
CNE	Kent	26%	14%	4%	-	-
CNE	Women & Infants	1%	1%	0%	-	-
Lifespan / CNE total		27%	15%	4%	75%*	61%*
"UPP" (downward pressure on quality)		5%-8%	3%-4%	1%-1%	15%-23%	12%-18%

Source: RI and MA discharge data, 2017–2019.
Notes: * indicates the hospital or system is the closest substitute based on diversions ranking. Diversions are limited to traditional Medicare Rhode Island patients. The estimated "UPP" ranges are based on Medicare margins that range from 20% to 30%. Lifespan's Medicare margin ranged from 23% to 31% during the 2015 to 2019 period and CNE's ranged from 32% to 45%. *See* Figure 63 in the appendix for a more complete set of diversions.

(146) The diversion ratios indicate that the Proposed Transaction will eliminate material head-to-head competition that currently benefits Rhode Island residents. ███████████████████████████████ ███ ████████████████████████[281] ██████████████ ██████████████████████ ██ ██[282] ██████████████████████[283] ████████████████[284] ████████████ ████████████[285] █████████████[286] In Section V.D, I present numerous examples of the Parties' business documents and testimony that confirm that Lifespan and CNE compete for patients across several major service lines.

(147) The estimated diversions are also consistent with insurer's expectations. ████████████████████ ██ ███ ██████████████████████████████[287]

(148) To further highlight the intensity of head-to-head competition that exists between Kent and Lifespan in particular, I compute the diversions using only patients within Kent's 80 percent primary service area (PSA). Given the strong preference by patients to travel short distances for most admissions,

---

[281] ██████████████████████

[282] LIFESPAN00460190.

[283] LIFESPAN00760037.

[284] LIFESPAN00450957.

[285] LIFESPAN00487651.

[286] LIFESPAN0038696.

[287] ██████████████████████.

these are the patients that Kent and RIH most intensely compete against one another to attract. As I explain in Section V.C.1, there is also significant overlap in the services that Kent and RIH deliver to these patients as evidenced by their diversions.

- For commercially insured patients that reside in this area, the estimated diversion ratio from Kent to Lifespan hospitals remains high at 55 percent, and the estimated diversion ratio from RIH to CNE hospitals significantly increases from 23 percent to 44 percent.

- For Medicare patients that reside in this area, the estimated diversion from Kent to Lifespan hospitals is 77 percent (up from 75 percent) while the diversion ratio from RIH to CNE more than doubles from 27 percent to 60 percent.

(149) For both types of patients in the large population centers between the two hospitals (*see* Figure 3), the diversion ratios are high, and the higher degree of symmetry shows that RIH and Kent are viewed as reasonably close substitutes and compete head-to-head for the large number of patients residing in the region.

(150) Notably, the diversions are symmetric when based on those patients in Kent's service area but are somewhat asymmetric when considering all commercial patients in Rhode Island. However, the degree of symmetry or asymmetry in the diversions between the Parties is not an indicator for whether there is significant head-to-head competition between them. Instead, it is the presence of significant diversion from, say hospital A to hospital B, that indicates that B serves as a competitive constraint on A, i.e., that A must maintain low prices or high quality to avoid losing patients to B. A merger between A and B removes this constraint and increases A's market power. Over half of all patients that have Kent as their first choice would choose a Lifespan hospital if CNE were not available, imposed a higher out-of-pocket cost, or lowered its quality. This high diversion from Kent to Lifespan indicates significant head-to-head competition that would be eliminated by the Proposed Transaction. ██
████████████████████████████████████[288]

███
████████████████████████████████████
███
███████████████████████████████████████
███████████████████████████████████████
██████████████████████████████████
██████████████████████████████████████
██████████████████████████████████████
████████████████████████████████████

---

[288] ██████████████████████████████████

[black redaction bars]

(151)   The asymmetry in the diversion between Kent and Lifespan as compared to RIH and CNE also reflects in part the difference in Kent's patient draw area and RIH's patient draw area. RIH hospital is about twice the size of Kent and, because it offers additional high-acuity services for which patients are generally more willing to travel further to receive, it draws patients from a broader area. Depending on where those patients are located within Rhode Island, many have other options available that are closer than Kent. For example, patients from the northside of Providence have closer options, including the two CharterCARE hospitals. However, from the perspective of patients for whom the hospitals are more similarly situated—i.e., patients in Kent's 80 percent PSA—the diversion ratios are more symmetric, indicating that for these patients Kent and Lifespan's RIH and Miriam are close substitutes.

(152)   In sum, the diversion ratios show that the Proposed Transaction will eliminate substantial head-to-head competition between Lifespan and CNE.

V.C.2. Willingness-to-Pay analysis additionally shows that the Proposed Transaction would substantially lessen competition

V.C.2.a. WTP methodology

(153)   The value that a hospital system adds to a commercial insurer's network is the difference between (1) the value of the insurer's provider network when it includes that system and (2) the value of the insurer's provider network when it does not include that system, holding all else equal.[289] As an illustration, if an insurer's enrollees each value having access to its provider network at $1,100 when it includes Hospital A and value the same network at $1,000 when it excludes Hospital A—i.e., the insurer's enrollees would each be willing to pay $100 more in premiums for an otherwise equivalent insurance product that included Hospital A compared to one that excluded Hospital A—then the value-add for Hospital A is $100 per member.

(154)   Hospitals that face fewer or less closely substitutable competitors add more value to an insurer's network. For example, if consumers view two hospitals as being close substitutes—e.g., because they have similar locations, reputations, amenities, and services—each hospital will add relatively little value to an insurer's network when the network already includes the other hospital. Most patients who prefer one hospital will regard the other hospital as being nearly as good and a network that includes only one will not be substantially less attractive than a network that includes both. However,

---

[289] To avoid repetition, I assume throughout this section that all other factors are held equal when describing the effect on WTP of a change in some condition or characteristic.

if the two hospitals merged into one and negotiated as one—i.e., all hospitals in the combined system are either in- or out-of-network—then that merged system would add significantly more value to the network than the sum of value-add by each hospital alone.

(155)   If two closely substitutable hospitals were to merge, then an insurer would lose the ability to exclude one hospital while retaining the other. Excluding only one of the two hospitals may moderately decrease the value of an insurer's network, but excluding both hospitals can substantially reduce its value. To illustrate, consider again the example at the beginning of this section. Suppose Hospitals A and B are close substitutes and each adds $200 in value to the insurer's network. That is, when both hospitals are in the network, the network is worth $1,000 to members, but when either hospital is excluded (while the other is included), the network is worth $800. Now, because there are fewer or no other sufficiently close substitutes, suppose the network is only worth $500 when both hospitals are excluded. In this instance, the two hospitals collectively add more value to the network, $500, than the total value added when the hospitals are considered separately, $400 (= $200 + $200). The additional $100 represents the value-add associated with the merger and is the source of the merging hospitals' increased bargaining leverage.

(156)   Economists developed an empirical methodology, commonly called the "willingness-to-pay" or simply "WTP" methodology, to estimate the value that a hospital or hospital system adds to an insurer's provider network.[290] A hospital's value-add, or WTP, to an insurer's network is measured in abstract units called "utils" that may be converted to be expressed in terms of dollars.[291] A hospital's value-add to an insurer's network is the sum of all patients' utils and are estimated using inpatient admissions as I explain below. Although utils are an abstract measure of value, they provide a useful economic index to measure the additional bargaining leverage created by the merger of hospitals even without converting the utils into dollars. As I discuss in Section VI.A, the economics literature has documented a strong, positive relationship between the WTP of a hospital system and hospital prices. The literature has also consistently found a strong positive relationship between the additional WTP created by a merger and price increases corresponding with the merger. In addition, WTP analysis is often used in hospital mergers to estimate the increase in the merged system's bargaining leverage resulting from the merger. [292]

---

[290]   *See* Town & Vistnes (2001) and Capps et al. (2003).

[291]   ██
██
██
██
██

Rather than convert utils into dollars, Garmon (2017) estimated the percentage change in the dollar payments to a hospital by an insurer given some percentage change in utils. More specifically, Garmon (2017) found that every 10% increase in the value-add of a hospital to an insurer's network to a 5.7% increase in payments to the hospital. Christopher Garmon, "The Accuracy of Hospital Merger Screening Methods," *RAND Journal of Economics* 48, no. 4 (2017): 1068–1102 [hereinafter Garmon (2017)].

[292]   WTP was relied upon in the FTC's challenges of proposed mergers between Hackensack Meridian Health and

(157)   WTP is estimated using a statistical model of patients' hospital choice. As with diversions, I use the semi-parametric approach developed by Raval, Rosenbaum, and Tenn (2017) to estimate WTP.[293] As with the diversion ratios, I categorize patients into groups based on observable patient characteristics, including zip code of residence, medical condition, gender, and age, and use the observed hospital shares within each group to estimate patient choice probabilities.[294] I use the choice probabilities to compute the relative utils that patients would derive from visiting the different hospitals within their choice set. These values can be summed across patients in any geography to compute the total WTP for a hospital's patients.[295]

(158)   The change in WTP generated by a merger represents the difference between the WTP for the merged hospitals and the sum of the individual WTP for each of the two merging hospitals; e.g., if hospitals A and B were to merge, the change in WTP associated with that merger is defined as the value-add of A and B together, less the value-add of just A and the value-add of just B:

Change in WTP generated by the merger = WTP(A & B) – WTP(A) – WTP(B).

(159)   Hospitals that are more substitutable to one another because of their geography and service offerings will have a higher combined WTP. At one extreme, a merger between hospitals that are not at all substitutable because they either do not attract patients from the same geographies or do not have overlapping services, will not produce any increase in WTP, i.e., WTP(A & B) = WTP(A) + WTP(B).

Englewood Healthcare, Advocate Health Care and NorthShore University Health System, OSF Healthcare and Rockford Health, Promedica Health System and St. Luke's Hospital. *See* (1) Opinion with Findings of Fact and Conclusions of Law, FTC v. Hackensack Meridian Health Inc. and Englewood Healthcare Foundation, No. 20-18140 (D.N.J. August 4, 2021), 48: "Dafny used her patient-based WTP model, which quantified the impact of the acquisition on Defendants' bargaining leverage with insurers." (2) FTC v. Advocate Health Care and Northshore University Health System, No. 15 C 11473 (N.D. Ill, March 16, 2016), 25: "Dr. McCarthy Case and Dr. Eisenstadt used the Hospital Merger Simulation Model, developed by FTC economists, which measures the relationship between actual prices negotiated by hospital systems and "willingness to pay" ("WTP"), a quantitative measure of a hospital system's desirability, or the "willingness to pay" for access to a system". (3) Memorandum Opinion and Order, FTC v. OSF Healthcare System and Rockford Health System, No. 11 C 50344 (N.D. Ill. April 5, 2012), 28: "However, Dr. Capps has determined that there will be a substantial price increase if the merger were consummated, and he has attempted to corroborate this conclusion with his "willingness-to-pay" analysis." (4) Initial Decision, In re Promedica Health System, Inc. FTC Docket No. 9346 (December 11, 2011, 73): "Complaint Counsel's expert, Professor Town, utilized an econometric, or merger simulation model, called the "willingness to pay" model, to try to predict what the change in price would be to MCOs from the Joinder."

[293]   Devesh Raval, Ted Rosenbaum, and Steven A. Tenn, "A Semiparametric Discrete Choice Model: An Application to Hospital Mergers," *Economic Inquiry* 2017, 55(4): 1919−944. [hereinafter Raval et al. (2017)]. Raval, Rosenbaum, and Wilson (2020) find that the semi-parametric model is the best performing of several models for predicting individual patient choices following natural disasters that caused hospitals to close. Devesh Raval, Ted Rosenbaum, and Nathan E. Wilson, "Using Disaster Induced Closures to Evaluate Discrete Choice Models of Hospital Demand," (working paper, 2020). Raval et al. (2017) top code shares at 95%. I top code at 99% because CNE and Lifespan's combined share frequently exceed the 95% bound. A lower top code necessarily reduces the WTP when the combined shares exceed the limit; however, the estimates with a 99% top code are also more similar to those based on a logit model of demand.

[294]   Raval et al. (2017).

[295]   *Id.*

And at the other extreme, a merger between hospitals having significant geographic and service overlap will have very high WTP, i.e., WTP(A & B) >> WTP(A) + WTP(B).

V.C.2.b. The estimated WTP of the Proposed Transaction indicates that there is substantial head-to-head competition between Lifespan and CNE that will be eliminated by the merger

(160)   Figure 23 shows the effect of the Proposed Transaction on the WTP for the combined system relative to the WTP for Lifespan and CNE hospitals when operating as two separate systems. The figure shows WTP for both commercially insured Rhode Island patients only and, separately, for commercially insured MARI patients. ██████████████████████████████████████

██

███████████.[296] The table shows that WTP for the combined system is 16.2 percent higher than the sum of the WTP for each of the two systems.[297] That is, the value that the merged system adds to an insurer's network from the perspective of Rhode Island residents is 16.2 percent higher than the value that Lifespan and CNE separately add to an insurer's network. The increase is due to the elimination of competition between Lifespan and CNE caused by the Proposed Transaction; competition that would otherwise continue. Published economic research has shown that post-transaction WTP increases of this magnitude are associated with higher prices and further shows that the Proposed Transaction is likely to substantially lessen competition.[298]

---

[296]   ██

██

[297]   This estimate is based on all commercial discharges (with the exception of newborns, patients 65 and over, and transfers) without limiting to overlapping services to be market agnostic since the WTP will not change for non-overlapping services. If the WTP is estimated using only overlapping services and adults, the estimates are similar, but slightly higher: 17.6% for RI patients and 16.6% for MARI. *See* Figure 54 in Appendix D. Estimates derived from a Logit model of hospital choice are similar.

[298]   *See* Section VI.A for a discussion of the economic literature on hospital competition.

Figure 23. WTP of a merged Lifespan and CNE

State	Step	Measure	Avg. WTP per patient	
			RI patients	MARI patients
Pre-acquisition	[1]	CNE	0.72	0.55
	[2]	Lifespan	0.68	0.54
	[3] = [1] + [2]	Sum of each system's WTP	1.40	1.09
Post-acquisition	[4]	WTP for the merged system	1.63	1.25
	[5] = [4] - [3]	**Increase in WTP**	0.23	0.16
	[6] = [5] ÷ [3] × 100%	**% Increase in WTP**	**16.2%**	**15.1%**

Source: RI and MA state discharge data, 2017–2019.
Notes: WTP based on all RI (or RI + select MA zips) GAC patients. Excludes newborns, patients 65 and over, and transfers. WTP estimated using a semi-parametric hospital choice model.

(161) Figure 24 depicts the relationship between inpatient GAC prices in Rhode Island and WTP. Specifically, for each inpatient GAC hospital in Rhode Island, the figure plots the system's WTP per discharge against the system's payment amount per APR DRG case-weight with BCBSRI, Tufts, and United.[299] The figure confirms that the positive relationship between WTP and price that has been repeatedly observed in the economics literature applies to Rhode Island hospitals as well, even under OHIC's affordability standards.[300]

(162) Ordinary least squares regressions of the price per DRG case weight against the WTP per patient and the natural log of the price per DRG case weight against the natural log of WTP per patient show a statistically significant positive correlation. The elasticity of price to WTP is a statistically significant 0.55,[301] indicating that every 10 percent increase in the WTP per discharge corresponds with a 5.5 percent higher price per DRG case weight. As a result, the estimated 16.2 percent increase in WTP generated by the Proposed Transaction corresponds with an 8.9 percent increase in price. This positive relationship between prices and WTP in Rhode Island is further confirmed by the observation that prices for BCBSRI, Tufts, and United generally move together, i.e., when a system has a higher price with one insurer, it has a relatively higher price with all insurers.

---

[299] Values represent the natural log of the WTP per discharge and price per APRG DRG case weight for commercially insured patients. ███

[300] *See* Figure 53 in Appendix D.

[301] Estimates derived from ordinary least squares regressions of price per discharge against WTP per patient and log price per discharge against log WTP per patient are both statistically significant. *See* Appendix B-1. Garmon (2017) similarly estimates a price/WTP elasticity of 0.57, meaning a 16.2% increase in WTP is associated with a 9.2% increase in price.

Figure 24. There is a positive relationship between WTP per commercially insured patient and hospital prices in Rhode Island
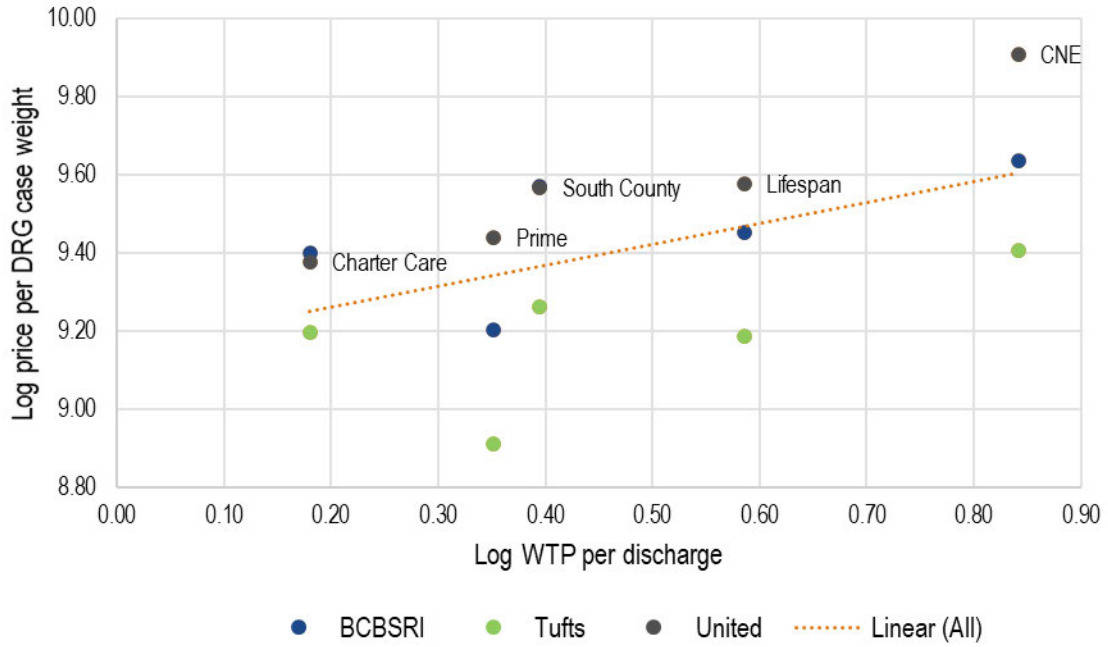
Source: Prices derived from APCD, 2019. WTP derived from RI and MA state discharge data, 2019.
Note: The Orange line represent the best-fit line. *See* Figure 53 in Appendix D for estimates.

V.D. ███

███

██████

(163)   ███

███

███

████████████████████████████████ .

V.D.1. ██

████████████████

(164)   ███

███

██████████████████████

- ██
  ██
  █████████████████████████████████.[302]

- ██
  ██
  ██
  ████████████████████████████.[303]

  - ██
    ██
    ██
    ██████████████████████████████.

  - ██
    ██
    ███.

  - ██
    ██
    ███████████████████.

- A███
  ██
  ███████████████████████████████████"[304]

  - ██
    ██
    █████████████████████████████"[305]

  - ██
    ██
    ██"[306]

  - ██
    ██
    ██

---

[302] LIFESPAN00460190 at -0204, -0206. ████████████████████
██
██ HCA Application (C-R-CNE-LS64-0078002),
Exhibit 64(4)). (███

[303] FTC-CNE-00227332.

[304] LIFESPAN00450957.

[305] *Id.* at -0958 (emphasis added).

[306] *Id.* at -0964 (emphasis added).

███

███

███

████████[307]

- ██

███

███████████████████████████████████.[308]

- ███

███

███

███

███

███

████████"[309]

  □ ██

  ███

  ███

  ███████████████████████████[310]

- ██

███████████████████████████████[311]

- ██

███

████████████████████████"[312]

- ██

███

███

████████[313]

---

[307] LIFESPAN00450957 at -0962.

[308] LIFESPAN00760037 at -0049–0055. ██████████████████████████████
████████████████████████████████.

[309] LIFESPAN00887179 at -7180.

[310] LIFESPAN00890978 at slide 22.

[311] LIFESPAN02250641.

[312] LIFESPAN06669178.

[313] LIFESPAN06437609 at -7610–7611.

- ██
██
██
██
██
██
████████████[314]

- ██
██
████████[315]

- ██
████████████████████[316]

- ██
██
██
██
████████████[317]

- ██
██"[318]

- ██
██
████████████.[319]

- ██
██
██
██
██
██
████████████████████████.[320] ████████
██

---

[314] FTC-CNE-00866098 at -6100 (emphasis added).

[315] LIFESPAN04238401 at -8402, -8410.

[316] ████████████████████████.

[317] FTC-CNE-00992714, ████████████████████████████████

[318] FTC-CNE-00486268 at -6277

[319] FTC-CNE-00650671 at slide 15.

[320] LIFESPAN00375168

Expert Report of Kevin E Pflum, PhD

██
██████████████████████████████████

V.D.2. ██
██████████████████████████████

(165)   ██
██████████████████████████████ :

- ██
██
██
██
██
██
██
███████████[321]

- ██
██
██
██████████████████████████████████[322]

- ██
██████████████████████████████████████
██
█████████████''[323]

- ██
██
██
██
██
████████████████████████████████████

---

[321] LIFESPAN00037945. ████████████████████████████████
██
██
██████████████████

[322] LIFESPAN00099564.

[323] LIFESPAN00558383.

Page 86

██

████████████████████████████.''[324]

▪ ██

██

██

██

██

██

████████████████████████████ ██ ████████████████

██

████████████████████████████[326]

▪ ██

██

██

██

████████████████''[327]

▪ ██

██.[328]

▪ ██

██

██

██████████████████████████''[329] ████████████████

██

██

██████████████████████████████████████

██

██

████████████████████████████[330]

(166) ██

---

[324] LIFESPAN07797163.

[325] LIFESPAN02461754 at -1755.

[326] LIFESPAN00450957 at -0958.

[327] LIFESPAN06694370 at -4370.

[328] LIFESPAN02436669.

[329] FTC-CNE-00854411.

[330] HCA Application, §II.B.2 (C-R-CNE-LS64-0078002).

- ██
██
██
██
████████"331 ████████████████████████████████
██
██
███████████████

- ██
██
████████.332 ████████████████████████████████
██
████████████████████████████████████"333

- ██
██
████████████████████████████████████
████████████████████████"334

- ██
██
████████████████████████"335

- ██
██
██
██
████████████████████████336

V.D.3. ████████████████████████████████████
██

(167) ██
██

---

331 FTC-CNE-00056441.

332 FTC-CNE-00674502

333 ████████████████

334 *See* LIFESPAN00487651.

335   LIFESPAN00163463.

336 ████████████████████████

■ ███
███████████"337 ████████████████████████████████"338 ███████████
███
██████████████████████████████████.339

☐ ███████████████████████████████████████
███████████████████████████████.340 ██████
████████████████████████████

███████████████████████████████████
███████████████████████████████████
███████████████████████████████
█████████341

■ ███████████████████████████████████████
███████████████████████████.342

███████████████████████████████████
███████████████████

███

███████████████████████████████
███████████

■ ███████████████████████████████████████
███████████████████████████████████
███████████████████████████████████
█████████████████████████343 ████████████████████
███████████████████████████████████████
███████████████████████████████████████
█████████████████████████"344

---

337 *See* LIFESPAN0038696.

338 ████████████████████

339 *See* LIFESPAN00053423.

340 LIFESPAN00053423.

341 ███████████████████

342 ███████████████████

343 *See* LIFESPAN00371916.

344 █████████████████████████████

- ███
  ██
  ██
  ███
  ███
  ██
  ███████████████████████████████"[345]

  ☐ ██
     █████████████████████████████████████
     ███████"[346]

- ███
  ██
  ██████████████████████████████████████
  █████.[347] ███████████████████████████████████."[348]

  ☐ ██
     ██
     ██
     ███████████████████[349] ████████████████████
     █████████████████████████████████████
     ███████████████████████████████████
     ███████.[350]

- ███
  ██
  ██████████████████████████████ ██ ████████████
  ██
  ████████████████████████████████████[351]

  ☐ ███████████████████████████████████████
     ██
     ██

---

[345] ███████████████████

[346] LIFESPAN03731940.

[347] ███████████████████████

[348] ████████████████████.

[349] LIFESPAN03731940.

[350] LIFESPAN01790603.

[351] █████████████████████.

███

███

███████████████████████████████ .[352]

▪ ███

███

███ [353]

███

███

███

███

███

██████████████████████████████████ .[354]

☐ ███

███

███

███

███

██████ .[355]

V.D.4. ██

██

▪ ███

███

███

███

████████████ "[356] ████████████████████████████████████

██████████████████

▪ ███

███

███

---

[352] LIFESPAN06725952.

[353] ███████████████████

[354] ███

███████████████████████████████████

[355] FTC-CNE-00036405.

[356] FTC-CNE-00002750, at -2756.

[REDACTED][357][REDACTED]

[REDACTED]

[REDACTED][358]

- [REDACTED]

  [REDACTED]

  [REDACTED][359][REDACTED]

  [REDACTED]

  [REDACTED]

  [REDACTED][360]

- [REDACTED]

  [REDACTED] This value is consistent with the 53 percent diversion from a CNE hospital to Kent that I estimate in Section V.C.I.[361]

- [REDACTED]

  [REDACTED]

  [REDACTED]"[362]

- [REDACTED]

  [REDACTED]

  [REDACTED]

  [REDACTED]

  [REDACTED]"[363]

- Finally, declarations from BCBSRI and South County Health [REDACTED] confirm that payors and other hospitals in Rhode Island view Lifespan and CNE as each other's primary competitors with significantly overlapping service lines,[364] and that this competition benefits patients as the Parties are incentivized to compete via marketing campaigns, investing in improvements to quality and access metrics, and overall patient experience outcomes.[365]

---

[357] FTC-CNE-01589095 at -9117.

[358] FTC-CNE-01589095 at -9128.

[359] [REDACTED]

[360] [REDACTED]

[361] [REDACTED].

[362] FTC-CNE-00002683, at -2707.

[363] LIFESPAN01241582 at -1593.

[364] BCBSRI Declaration; Declaration of Tom Breen, State of Rhode Island, Town of Wakefield (February 8, 2022) (Tom Breen, Vice President and Chief Financial Officer for South County Health) [hereinafter "South County Declaration"].

[365] South County Declaration, 2.

V.E. Entry into inpatient GAC services sufficient to offset the harm of the Proposed Transaction is unlikely in both the short term and the longer term

(168)   Even if a merger were to increase concentration within a market, it may not necessarily result in a substantial lessening of competition if, in response to an attempt by a merged firm to exercise its enhanced market power, firms that do not currently participate in the relevant market enter the market, or existing suppliers expand or alter their services in ways that prevent the merged firm from exercising its market power. The *Merger Guidelines* explain the relevance of entry to the analysis of the likely competitive effects of a proposed merger as follows:[366]

> A merger is not likely to enhance market power if entry into the market is so easy that the merged firm and its remaining rivals in the market, either unilaterally or collectively, could not profitably raise price or otherwise reduce competition compared to the level that would prevail in the absence of the merger. Entry is that easy if entry would be timely, likely, and sufficient in its magnitude, character, and scope to deter or counteract the competitive effects of concern.

(169)   In the case at hand, the ability of current or potential rivals to Lifespan and CNE to enter or expand inpatient GAC services in a timely fashion and restore competition is hindered by regulatory constraints and the lengthy lead time required to plan, design, and build facilities. That is, entry and expansion of inpatient GAC services in Rhode Island is costly, time-consuming, and unlikely. ████

██

██[367]

██

██████████████████████████████████

██

██

████████████████████

(170)   In addition to the barriers highlighted in the email above, Healthcare facilities in Rhode Island must receive a state certificate of need (CON) to offer for significant expansions of, or investments in, services.[368] Activities requiring CON approval in Rhode Island include building or relocating a hospital and adding patient beds to an existing unit as well as to add new units such as obstetrics

---

[366]   *Merger Guidelines*, §9.

[367]   LIFESPAN00490152.

[368]   ████████████████████; Rhode Island Department of Health, "Certificate of Need Application," 2022. https://health.ri.gov/programs/detail.php?pgm_id=1012.

units, trauma units, cardiac surgery departments, or organ transplants. Indeed, CON approval is needed even to renovate an existing unit.[369]

(171)   During the CON evaluation process, competitors and other interested parties can submit letters in opposition to CON applications, and the Department of Health considers those opposition letters as part of its approval process. And there is no guarantee that a CON will be approved. For example, Lifespan's 2007 application to establish pediatric bone marrow transplant program at RIH was denied after a 14-month review (February 10, 2007 to April 25, 2008).

(172)   The CON process varies in length depending on the specifics of each proposal, increasing the difficulty of planning and the length of time from inception to completion of an expansion (if approved and pursued). Applications for significant new constructions are rare and have required more than a year to get approval. The following are the only two CON applications involving new construction (this does not include additions to existing buildings) for inpatient or general outpatient care in Rhode Island since 2007:[370]

■   It took 14 months (June 10, 2020 to August 5, 2021) for CNE to receive CON approval for its yet to be constructed ambulatory surgical center.[371]

■   It also took 14 months (June 10, 2019 to August 26, 2020) for Encompass Health Corporation to receive CON approval to construct and operate a new 50-bed inpatient rehabilitation center in Providence County.[372]

(173)   Once a CON application is approved, the construction of a new hospital or renovation of an existing hospital facility is a costly process that requires many years to plan and complete. For example, in its CON application for its ASC CNE projected that it would require two years for full implementation of phase 1, which includes construction and implementation of just three operating rooms, from the time of the application and five years from the time of the application (Oct. 2026) for phase 2, which will add three additional operating rooms. As noted, there has not been a CON application to build a

---

[369]   See, e.g., LIFESPAN_ORIG000196 (███████████████████████████████████████ ████████; State of Rhode Island Department of Health, "2007 - 2021 Annual Activity Reports - Google Sheets", "2017" tab. https://docs.google.com/spreadsheets/d/1fdRP2rh34eluTT13k8EIqjJUSnGTH2U5yGD-KwRFi-M/edit#gid=1763346793.

[370]   All examples are from State of Rhode Island Department of Health, "2007 - 2021 Annual Activity Reports - Google Sheets". https://docs.google.com/spreadsheets/d/1fdRP2rh34eluTT13k8EIqjJUSnGTH2U5yGD-KwRFi-M/edit#gid=1763346793.
It took only four months for Lifespan to receive approval for a 44.5 thousand square foot new construction at Bradley hospital (February 10, 2007 to June 28, 2007); however, this construction was an expansion of an existing building at Bradley Hospital and not a new site like the other examples. In contrast, it took 20 months for CNE to get approval to construct an addition to Butler Hospital (February 10, 2009 to November 1, 2010).

[371]   ███████████████████████

[372]   See also Adler Pollock and Sheehan, "AP&S Obtains Certificate of Need Approval for Encompass Health's Proposal to Establish a 50-bed Inpatient Rehabilitation Hospital in Rhode Island," September 2020. https://www.apslaw.com/news/aps-obtains-certificate-of-need-approval-for-encompass-healths-proposal-to-establish-a-50-bed-inpatient-rehabilitation-hospital-in-rhode-island/.

new inpatient medical care or outpatient surgery facility in Rhode Island since at least 2007. In addition, my understanding is that no new hospital has entered Rhode Island since Hasbro was constructed in 1994. The construction of Hasbro began on September 19, 1991 and the hospital opened its doors to patients on February 12, 1994.[373] ███████████████████████████

██

██████████.[374]

(174)   Given the lack of examples in Rhode Island, to provide a sense of how long inpatient hospital construction projects often take, the following are a few examples of recent hospital construction in other states that show that not only does construction take several years, but the time needed to construct new facilities has increased since Hasbro was constructed nearly 30 years ago:

- Virtua Health's new hospital in Burlington County, New Jersey, a 339-bed, 670,000 sq. ft. hospital, took about five years of planning to receive approval by the New Jersey Health Planning Board in April 2017. As of then, the hospital was expected to open in 2022.

- Inspira Medical Center Mullica Hill, a 210-bed, 465,000 sq. ft. hospital in Gloucester County was announced in September 2015 and took over four years to open to patients in December 2019.[375]

- The 234 bed Utah Valley Hospital replacement project took about four years from first breaking ground (July 2015) to when patients were transferred into the new tower in 2019.[376]

- Memorial Hermann Cypress Hospital, an 80-bed hospital in Cypress, Texas, took about five years from the first announcement of the project (October, 2012) to opening to patients (summer, 2017).[377]

---

[373] G. Wayne Miller, "How Hasbro Children's Hospital was built: A look back as it celebrates 25 years," October 2019. http://gwaynemiller.blogspot.com/2019/10/how-hasbro-childrens-hospital-was-built html.

[374] ██

██

████████████████████████.

[375] Inspira Health, "Inspira Health Network Announces Plans for Expansion in Gloucester County," September 2015. https://www.inspirahealthnetwork.org/news/inspira-health-network-announces-plans-expansion-gloucester-county; Inspira Health, "Inspira Health Completes New Hospital, Marking a Historic Moment for Gloucester County," November 2019. https://www.inspirahealthnetwork.org/news/inspira-health-completes-new-hospital-marking-historic-moment-gloucester-county. (accessed January 10, 2022)

[376] Daily Herald, "Utah Valley Hospital replacement project wins construction award," January 2020. https://www.heraldextra.com/news/2020/jan/08/utah-valley-hospital-replacement-project-wins-construction-award/.

[377] Memorial Hermann, "Memorial Hermann to Build New, State-of-the-Art, 80-Bed Hospital in Cypress," October 2014. https://memorialhermann.org/about-us/newsroom/press-releases/memorial-hermann-to-build-new-state-of-the-art-80-bed-hospital-in-cypress; Memorial Hermann, "Memorial Hermann Cypress Hospital Now Open for Business," March 2017. https://memorialhermann.org/about-us/newsroom/press-releases/memorial-hermann-cypress-hospital-now-open-for-business.

- - Stamford Hospital, a 180-bed hospital in Fairfield County, Connecticut, took over four years to construct from when the board approved the project (April, 2012) to the ribbon cutting ceremony (September, 2016).[378]

(175)   In light of the substantial barriers to timely entry, expansion, and repositioning in the market for inpatient GAC services, I conclude these responses are unlikely to be timely or sufficient to replace the competition eliminated by the Proposed Transaction.[379]

V.F. The Proposed Transaction will eliminate future competition for inpatient obstetrical services

(176)   The Proposed Transaction also raises concerns about the elimination of competition in service lines in which the two systems do not currently compete intensively. Specifically, the Proposed Transaction raises competitive concerns related to the provision of inpatient obstetric services.

(177)   ██
████████████████████████████████████.[380] ████████████████████████
██
██
██.[381] ██████████████
██
██████████████.[382] ██
██
████████████████████.[383] In 2016 and again in early 2017, Lifespan filed CON applications with RIDOH to open an inpatient obstetrical unit to provide prenatal, antenatal, and postnatal care in two new floors that it would construct on top of the Hasbro building.[384] Lifespan ultimately pulled its CON application for obstetrics services, ████████████████████████████████████
████████████████████████.[385]

---

[378]   Stamford Health, "Timeline," https://www.stamfordhealth.org/new-hospital/timeline/.

[379]   The Parties have not introduced any economic analysis of efficiencies.

[380]   LIFESPAN04574033 at -0436; ████████████████████████████████
██
██
████████

[381]   LIFESPAN04574033 at -4041, -4057

[382]   *Id.*

[383]   LIFESPAN04574033. ████████████████████████████

[384]   LIFESPAN_ORIG000196, ████████████████████████

[385]   ████████████████████████████

(178)   ██
████████████████████████████. The elimination of this potential competition can be as harmful as
the elimination of existing competition. The *Merger Guidelines* explain the concern raised by the
merger of an incumbent and potential entrant as follows:[386]

> A merger between an incumbent and a potential entrant can raise significant
> competitive concerns. The lessening of competition resulting from such a merger is
> more likely to be substantial, the larger is the market share of the incumbent, the
> greater is the competitive significance of the potential entrant, and the greater is the
> competitive threat posed by this potential entrant relative to others.

(179)   In this instance, CNE holds a very large share of inpatient obstetrics in Rhode Island: 81.8 percent of
commercially insured obstetrical discharges.[387] Furthermore, Lifespan poses a significant threat to
CNE's dominance in obstetrical services. In its CON application, Lifespan projected it would attain
about 16 to 18 percent of Rhode Island newborn deliveries.[388] If Lifespan's share were to come
entirely at CNE's expense, as is likely given the geographic proximity of W&I and RIH, this would
decrease the HHI for obstetrics by over 1,600 points.[389,390] The only other health system in
Providence, CharterCARE, does not pose as significant of a competitive threat to W&I and CNE
more generally. Furthermore, I have not seen evidence that CharterCARE has contemplated adding
inpatient obstetrics services to its hospitals.

(180)   The addition of obstetrics care at RIH would drive competition between the Parties' and improve the
value of obstetrics care in Rhode Island. ████████████████████████████████
██
██
██.[391]

(181)   ██
██

---

[386] *Merger Guidelines*, §5.3.

[387] *See* Figure 29.

[388] LIFESPAN_ORIG000196 at -0217.

[389] ██
██
████████████████

[390] Lifespan through Newport currently has a 3.9% share of obstetrics discharges so is predicted to gain 12.1% (=16% −
3.9%). This results in a 1,682 point (= (81.6% - 12.1%) × (12.1%) × 2 = 1,682) reduction in HHI within inpatient
obstetrics services.

[391] FTC-CNE-02191260, ██
██
██
████████████████████████████

███"[392] █████████████████████████████

██

██

██

██[393] █████████ The

Proposed Transaction eliminates the opportunity to introduce competition that will benefit Rhode

Islanders.

---

[392] LIFESPAN_ORIG000196 at -0233.

[393] LIFESPAN_ORIG000196 at -0216.

VI. The Proposed Transaction is likely to harm residents of Rhode Island through higher healthcare costs and/or reduced healthcare quality

(182)   In the preceding section, I showed that there is ample evidence that the Proposed Transaction is likely to substantially lessen competition for inpatient GAC services. That evidence includes empirical analysis as well as testimonial and document evidence. In this section, I explain why this lessening of competition is likely to harm residents of Rhode Island.

(183)   I begin by discussing the academic research on hospital mergers in Section VI.A. There now exists an extensive body of published academic papers consistently showing that competition among hospitals, as well as other health care providers, results in lower prices and often in higher quality. Conversely, the literature finds that a reduction in competition increases prices and often lowers quality. I begin with a brief review of the literature on hospital competition and prices in Section VI.A.1 before turning to the literature on hospital competition and quality in Section VI.A.2.

(184)   In Section VI.B, I explain how higher hospital prices drive higher out-of-pocket spending and insurance premiums. I describe how health care costs have been increasing nationally and that individuals increasingly directly bear the costs of health care through higher premiums and out-of-pocket costs. I then present data that shows that increased health care costs—including inpatient hospital care—are directly passed on by Rhode Island insurers to members in the form of higher premiums.

(185)   In Section VI.C, I discuss OHIC's Affordability Standards, including what they have accomplished to date. I explain why OHIC's regulatory authority is an imperfect replacement for competition because of inherent challenges and limitations of regulation to reproduce competitive outcomes. OHIC will not be able to regulate all of the dimensions across which Lifespan and CNE compete today and, as a result, the Proposed Transaction will harm residents of Rhode Island even in the shadow of OHIC's Affordability Standards.

VI.A. The academic literature finds that hospital consolidation harms consumers by increasing prices and lowering quality

(186)   Economic research establishes that provider competition benefits consumers—employers, their employees and dependents, and others with commercial health insurance coverage—by generating lower prices and promoting higher clinical quality and better service. Although prices for services

rendered to Medicare and Medicaid enrollees are largely regulated, enrollees in those programs also benefit when competition promotes greater clinical quality and better service.

VI.A.1. Mergers of competing hospitals tend to raise prices

(187)   Several peer-reviewed academic economic studies have consistently shown that mergers of hospitals—both for-profit and not-for-profit hospitals—tend to lessen competition and increase prices with insurers. Moreover, the literature has found that merged hospitals are able to charge higher prices on an ongoing basis, meaning entry and repositioning that would compete away the gains from consolidation do not generally occur, cementing in place the merged hospitals' enhanced market power.

- Robert Town and Gregory Vistnes (2001) and Capps, Dranove, and Satterthwaite (2003) developed the WTP methodology described in Section V.C.2.a. Both papers showed that hospitals and systems with higher WTP had higher prices. Capps et al. also found that WTP increases in the range of 12–20 percent were associated with the ability to increase prices by 10–12 percent.

- Capps and Dranove (2004)[394] used insurer data on commercial prices in five geographies across two states to study the price effects of six hospital mergers. They found 9 of the 12 merging hospitals increased price by more than the median price in their area and note that nonprofits and for-profits appeared to be equally likely to exploit their market power. Specifically, the two markets with the most significant relationship between change in HHI and price had virtually no for-profit hospitals."

- Fournier and Gai (2007)[395] study the price changes following two merger cases in Florida and New York State to evaluate the reliability of the WTP measure for predicted merger price effects.[396] They find that the WTP methodology provided a reliable but conservative prediction of post-merger price increases for those mergers.

- Dafny (2009)[397] analyzed a set of hospital mergers and found large price increases attributable to mergers of geographically proximate hospitals. The majority of the mergers Dafny analyzed involved nonprofit hospitals.

---

[394] Cory Capps and David Dranove, "Hospital Consolidation and Negotiated PPO Prices," *Health Affairs* 23, no. 2 (2004): 175–181 at 179.

[395] Gary M. Fournier and Yunwei Gai, "What does Willingness-to-Pay reveal about hospital market power in merger cases?" *iHEA* (2007) 6th World Congress: Explorations in Health Economics Paper.

[396] Fournier and Gai analyze the 1995 merger between 1995, Columbia/HCA Healthcare and HealthTrust and the 1997 merger between Long Island Jewish Medical Center and North Shore University Hospital in New York.

[397] Leemore Dafny, "Estimation and Identification of Merger Effects: An Application to Hospital Mergers," *Journal of Law and Economics* 52 (2009): 523–550.

- In Lewis and Pflum (2015),[398] a coauthor and I analyzed and decomposed the degree to which a hospitals' market power is determined by having a stronger bargaining position—as defined by WTP—versus having greater bargaining power, which represents the share of the contract surplus a hospital retains. We found that differences in WTP explain differences in hospital prices in regions that have different market structures, holding all else equal.[399]

- Garmon (2017)[400] studied the price effects associated with 12 hospital mergers in Missouri and North Carolina from 1997 to 2001 and 16 hospital mergers in Arkansas, Connecticut, Georgia, New York, Oklahoma, and Pennsylvania from 2007 to 2012. Among the 28 mergers analyzed, Garmon finds that nine resulted in statistically significant price increases and six resulted in statistically significant price decreases.

- Cooper et al. (2019)[401] studied the effects of 366 hospital mergers occurring over 2007–2011 on prices paid by commercial insurers. They found statistically significant price increases for mergers of hospitals within 5 or 10 miles of one another. The findings are robust to a range of methods and control variables. The authors also note mergers are more common among nonprofit and teaching hospitals than for-profit and government-owned hospitals.

(188)   There is also a literature linking higher hospital concentration with higher prices and price growth, meaning geographies that have fewer hospitals and/or hospitals with more substantial shares tend to have higher prices as compared to geographies with more hospitals and the prices also tend to increase faster in such geographies.

- Melnick et al. (2011)[402] found that hospital prices increased more rapidly from 2001 to 2004 in Metropolitan Statistical Areas (MSAs) with higher hospital market concentration, as measured by the hospital HHI.

(189)   The literature on hospital competition and pricing was reviewed in a detailed survey article published in the *Handbook of Health Economics* in 2012.[403] The authors reviewed eight papers published after

---

[398]   Lewis & Pflum (2015), 243–274.

[399]   We also find considerable variation in hospital bargaining power—which defines what share of the contract surplus a hospital receives—and that specific hospital characteristics unrelated to market share and structure are associated with these differences in bargaining power.

[400]   Garmon (2017)

[401]   Zack Cooper, Stuart Craig, Martin Gaynor, and John Van Reenen, "The price ain't right? Hospital prices and health spending on the privately insured." *Quarterly Journal of Economics* 134 (2019): 51–107. Cooper et al. use straight-line distances between hospitals in their analysis.

[402]   Glenn A. Melnick, Yu-Chu Shen, and Vivian Yaling Wu, "The Increased Concentration of Health Plan Markets Can Benefit Consumers Through Lower Hospital Prices," *Health Affairs* 30, no. 9 (2011): 1728–1733.

[403]   Martin Gaynor and Robert J. Town, "Competition in Health Care Markets," *Handbook of Health Economics* 2, eds. Mark V. Pauly, Thomas G. McGuire, and Pedro P. Barros, 499–638 (Waltham, MA: Elsevier B.V., 2012), Tables 9.8– 9.9. *See also,* Claudia Williams, Robert Town, and William B. Vogt, "How Has Hospital Consolidation Affected the Price and Quality of Hospital Care?" *The Synthesis Project Policy Brief No. 9*, (2006): 11; Martin Gaynor, Katherine Ho, and Robert J. Town, "The Industrial Organization of Health-Care Markets," *Journal of Economic Literature* 53, no. 2 (2015): 243; and Thomas C. Tsai and Ashish K. Jha, "Hospital consolidation, competition, and quality: is bigger

2000 that examined the relationship between hospital prices and concentration. All but one of those report a positive relationship between the degree of hospital market concentration and price. The authors also reviewed nine studies that evaluated the effects of hospital mergers. All but one found that prices increased at the merged hospitals relative to control group hospitals.

VI.A.2. A reduction in stage two competition lowers quality and harms patients

(190)   In Rhode Island, like in most states, some hospital prices such as those for Medicare are fixed administratively by the government while other prices such as prices for commercial insurers are determined by market forces, i.e., competition. ███████████████████████████ ██ ███ ██ ██ ███ ███████████████████████████████████.[405] In addition, patients whose healthcare is covered by government programs such as Medicare in which prices are administratively set can still be harmed by a lessening of competition between providers.

(191)   As I discussed in Section IV.B, hospitals compete to attract patients—whether they are commercially insured or covered by a government program—in stage two competition. They compete to attract patients primarily through non-price factors like waiting times, private rooms, and other amenities, as well as through factors related to clinical quality such as lower mortality rates, lower readmission rates, and lower rates of hospital-acquired infections, among many other dimensions of clinical quality. These various non-price factors capture what is colloquially referred to as hospital quality, and competing hospitals that provide higher quality can expect to receive a higher volume of patients. The incentive to improve quality is higher when the return on an investment in quality is higher, which occurs when patient demand is more responsive to quality or, in economic jargon, when the elasticity of patient demand with respect to quality is higher.[406]

(192)   In 2006, Great Britain's National Health Service instituted reforms that (re)implemented administrative pricing for hospitals and allowed patients to choose which hospital to go to for care.[407]

---

necessarily better?" *Journal of the American Medical Association* 312, no. 1 (2014): 29–30.

[404]   HCA Application, §II.B.2 (C-R-CNE-LS64-0078002) ████████████████████████████ ███

[405]   In Section V.C, I discuss the limitations that OHIC faces in trying to regulate the same outcomes achieved through competition.

[406]   An economics, the term "elasticity" refers to how much the demand for a good (i.e., a product or service) changes in response to a change in some factor like price or quality. High elasticity means demand is more sensitive to that factor. *See*, Robert S. Pindyck and Daniel L. Rubinfeld, "Elasticities of Supply and Demand," in Microeconomics. (Pearson Education, 2013) at 33.

[407]   Sean Boyle, "The UK Health Care System," *The Commonwealth Fund* (February 2008). https://www.commonwealthfund.org/sites/default/files/documents/___media_files_resources_2008_health_care_system__profiles_uk_country_profile_2008_pdf.pdf; Zack Cooper, Stephen Gibbons, Simon Jones, and Alistair McGuire,

Prior to the reforms, patients had little choice over the hospital at which they would receive care. However, the new reform linked hospital revenue to the number of patients they can attract, exposing hospitals to non-price competition based on quality rather than relying on proximity-based referrals through which hospitals effectively operated as local monopolists in their service area. Several economic studies have used this policy change to empirically test whether greater hospital competition leads to higher hospital quality, commonly measured using health indicators related to heart diseases, when prices are regulated. These studies confirm what economic theory predicts: greater hospital competition is positively associated with higher quality.

- Brekke, Canta, Siciliani, and Straume (2021)[408] examined the effects of implementing a nationwide patient choice policy in Norwegian National Health Service hospitals on indicators of hospital quality. They found that after the patient choice reform, hospitals that faced more competition with surrounding hospitals improved outcomes via larger reductions in acute myocardial infarction (AMI) mortality, all-cause mortality, length of hospital admission, and waiting times.[409]

- Gaynor, Propper, and Seiler (2016) examined mortality rates among patients receiving a coronary artery bypass graft (CABG).[410] They found that the removal of constraints on patient hospital choice, and thus the introduction of quality-based competition for patient volume, resulted in patients receiving care at higher-quality hospitals than they would have prior to the reform, reducing CABG mortality by about three percent. These increases in patient welfare are particularly pronounced in areas with severely ill residents and low-income residents.

- Gaynor, Moreno-Serra, and Propper (2013) analyzed an expanded set of quality measures, including the AMI mortality rate (both within hospital and within 30 days of treatment), the all-cause 30-day mortality rate, and the non-AMI 30-day mortality rate.[411] They also evaluated total expenditures and expenditures per admission. They found evidence that hospital competition results in both higher quality and lower healthcare expenditure:[412]

> Within two years of implementation, the NHS reforms resulted in significant improvements [declines] in mortality and reductions in length of stay without changes in total expenditure or increases in expenditure per patient. Our back of the

---

"Does Hospital Competition Save Lives? Evidence from the English NHS Patient Choice Reforms," *Economic Journal* 121, no. 554 (2011): 228–60.

[408] Kurt R. Brekke, Chiara Cantac, Luigi Siciliani, Odd Rune Straume, "Hospital competition in a national health service: Evidence from a patient choice reform," *Journal of Health Economics* 79, (2021): 1-23.

[409] The authors did not find that increased competition significantly altered stroke mortality rates.

[410] Martin Gaynor, Carol Propper, and Stephan Seiler, "Free to Choose? Reform, Choice, and Consideration Sets in the English National Health Service," *American Economic Review* 106, no. 11 (2016): 3521-57

[411] Martin Gaynor, Rodrigo Moreno-Serra, and Carol Propper, "Death by Market Power: Reform, Competition, and Patient Outcomes in the National Health Service," *American Economic Journal: Economic Policy* 5, no. 4 (2013): 134–166.

[412] *Id.*

envelope estimates suggest that the immediate net benefit of this policy is around $479 million per year. We have only calculated the value from decreases in death rates. Allowing for improvements in other less well measured aspects of quality will increase the benefit. . . . Our results show that the introduction of competition can be an important mechanism for enhancing the quality of care patients receive even in a set up where hospitals are not profit maximizers.

■ Cooper et al. (2011) examined AMI mortality rates and overall AMI occurrences to test whether quality improved more in areas with more hospital competition. Their central finding is that hospital service quality improved more quickly where there was more competition, as hospitals were incentivized to improve both clinical performance and administrative conditions.[413]

■ In the U.S., Kessler and McClellan (2000) analyzed Medicare patients and found similar quality effects.[414] Specifically, they found that risk-adjusted one-year AMI mortality rates are significantly higher (worse) in areas with less hospital competition, i.e., patient health outcomes are worse when there is less competition. They also find that, after 1991, healthcare expenditures are higher in areas with less hospital competition.

(193)   The preceding examples are for settings in which the prices for hospital services are administratively set. However, a number of studies have also found that hospital mergers diminished the quality of hospital care along various dimensions in settings where the prices are established through negotiations and subject to market forces.

■ Hamilton and Ho (2000) studied the effect of 140 hospitals merged or acquired in California between 1992 and 1995. They found that acquisition of independent hospitals is associated with an increase in the readmission rates for heart attack patients at the formerly independent hospitals and no significant change in inpatient mortality rates or early discharge of newborn babies.[415]

■ Capps (2005) studied the effect of mergers on a set of quality and safety indicators developed by the Agency for Healthcare Research and Quality, using 25 New York hospitals which merged in 1997 and 1998. The author found that the mergers were associated with higher cardiac mortality rates and no significant change in the remaining indicators.[416]

---

[413] "[A]fter the introduction of these reforms in 2006, our marker for service quality (AMI mortality) improved more quickly for patients living in more competitive hospital markets. Compared to the mean, AMI mortality has fallen approximately 0.31 percentage points per year faster in places that were one standard deviation higher on our market structure index (on a base mortality of 13.82% during the 2002–8 period)." Zack Cooper, Stephen Gibbons, Simon Jones, and Alistair McGuire, "Does Hospital Competition Save Lives? Evidence from the English NHS Patient Choice Reforms," Economic Journal 121, no. 554 (2011): 228–60.

[414] Daniel Kessler and Mark McClellan, "Is Hospital Competition Socially Wasteful?" *Quarterly Journal of Economics* 115, no. 2 (2000): 577–615.

[415] Vivian Ho and Barton Hamilton, "Hospital mergers and acquisitions: does market consolidation harm patients?" *Journal of Health Economics* 19 (2000): 767-791.

[416] Cory Capps, "The Quality Effects of Hospital Mergers," (discussion paper, Economic Analysis Group, US Department

---

■ Hayford (2012) examined the effect of 40 hospital mergers that took place in California from 1990 to 2006 on the utilization of bypass surgery and angioplasty and the inpatient mortality rates for patients having heart disease. The author found that hospital mergers are associated with increased treatment intensity and higher inpatient mortality rates among heart disease patients.[417] Dr. Hayford hypothesized that the increased mortality was the result of some hospitals consolidating services, requiring some patients to travel farther for care. Put differently, hospital consolidation reduced access to care for some patients, worsening health outcomes.

■ Garmon and Kmitch (2018)[418] examined the impacts on commercial inpatient prices and service quality of a Georgia hospital merger that was challenged by the FTC as anticompetitive, but nonetheless completed under state-granted antitrust immunity. They found that post-merger prices and hospital quality were negatively impacted, even when rates were subject to local regulation: patient satisfaction declined significantly, as did pneumonia mortality and readmission rates. Improvements to post-merger heart attack mortality and readmission rates trailed behind those at comparable hospitals across the state, and commercial prices at the merged hospitals spiked by 43 percent in the year following the acquisition.

■ Beaulieu et al. (2021) evaluated the effects of more recent hospital acquisitions on four quality measures. The authors studied 276 hospitals acquired between 2009 and 2013 and used data from 2007 to 2016 to assess the effects. The authors found hospital acquisition by another hospital or hospital system was associated with modestly worse patient experiences and no significant changes in readmission or mortality rates overall.[419]

(194)   A number of studies also link hospital market concentration with reductions in quality of care.

■ Short and Ho (2019) studied the effect of market concentration on quality as measured by indicators from the Center for Medicare and Medicaid Services' Hospital Compare database. They found that higher market concentration is associated with lower patient satisfaction in six indicators and no significant difference in the remaining indicators.[420]

---

of Justice, Washington, DC, October 2005).

[417] Tamara Hayford, "The Impact of Hospital Mergers on Treatment Intensity and Health Outcomes," *Health Services Research* 47, no. 3 (2011): 1008–29.

[418] Christopher Garmon and Laura Kmitch, "Hospital mergers and antitrust immunity: the acquisition of Palmyra Medical Center by Phoebe Putney Health," *Journal of Competition & Law Economics* 14, no. 3 (2017): 433–466.

[419] Nancy Beaulieu, Leemore Dafny, Bruce Landon, Jesse Dalton, Ifedayo Kuye, and J. Michael McWilliams, "Changes in Quality of Care after Hospital Mergers and Acquisitions," *New England Journal of Medicine* 382, no. 19 (2020): 1867–68.

[420] Marah Short and Vivian Ho, "Weighing the Effects of Vertical Integration Versus Market Concentration on Hospital Quality," *Medical Care Research and Review* 77, no. 6 (2019): 538–548.

- A 2012 Robert Wood Johnson Foundation literature survey identified 16 studies examining the link between hospital competition and quality published since its last survey in 2012. Thirteen of the 16 found that competition results in higher quality.[421]

VI.B. Higher healthcare prices lead to higher out-of-pocket spending and insurance premiums for plan sponsors and members

(195)   Healthcare costs have continuously increased across the U.S. for many years, and payments to hospitals account for well over one-third of these costs (36.7 percent of private sector payments were for personal healthcare services in 2019).[422] A recently published report by the Health Care Cost Institute, which analyzed a comprehensive database of insurance claims for 55 million enrollees in commercial, employer-sponsored insurance plans, found that inpatient prices increased by about 30.8 percent between 2015 and 2019 alone.[423]

(196)   The 2021 Annual Survey of Employer Health Benefits published by the Kaiser Family Foundation (KFF) and the Health Research & Educational Trust (HRET) highlights the ways in which this rising healthcare spending is passed on to end-consumers:

- Increased premiums: Average annual premiums for family coverage reached $22,221 in 2021, up from $15,073 in 2011, a 47 percent increase. In comparison, the consumer price index (reflecting general price inflation) increased by only 19 percent during this time period.[424] The average worker's contribution toward family premiums similarly increased 44.6 percent from $4,129 in 2011 to $5,969 in 2021.[425]

- Increased deductibles: The average single coverage annual deductible among covered workers with a deductible has increased 68% over the last ten years. The proportion of workers in a plan with an annual deductible has also increased. Assigning a value of $0 to plans with no annual deductible, the average annual deductible increased from $747 in 2011 to $1,434 in 2021.[426]

---

[421] Claudia Williams, Robert Town, and William B. Vogt, "How Has Hospital Consolidation Affected the Price and Quality of Hospital Care?" *The Synthesis Project Policy Brief No. 9*, (2006); Martin Gaynor and Robert Town, "The Impact of Hospital Consolidation – Update," *The Synthesis Project Policy Brief No. 9 Revised*, (2012).

[422] U.S. Centers for Medicare & Medicaid Services, "Table 04 National Health Expenditures by Source of Funds and Type of Expenditures xlsx". https://www.cms.gov/files/zip/nhe-tables.zip (accessed December 2, 2021).

[423] *See* Health Care Cost Institute, "2019 Health Care Cost and Utilization Report," October 2021. https://healthcostinstitute.org/images/pdfs/HCCI_2019_Health_Care_Cost_and_Utilization_Report.pdf.

[424] U.S. Bureau of Labor Statistics, "Consumer Price Index Historical Tables for U.S. City Average". https://www.bls.gov/regions/mid-atlantic/data/consumerpriceindexhistorical_us_table.htm (accessed December 12, 2021).

[425] Kaiser Family Foundation, "2021 Employer Health Benefits Survey," November 2021. https://www.kff.org/health-costs/report/2021-employer-health-benefits-survey/.

[426] Kaiser Family Foundation, "2021 Employer Health Benefits Survey," at Figure 7.10, November 2021. https://www.kff.org/report-section/ehbs-2021-section-7-employee-cost-sharing/.

(197)   Within Rhode Island, worker contributions to employer sponsored insurance premiums have grown nearly three times faster than personal income over the 2001 to 2021 period.[427] And from 2018 to 2019 per capita healthcare spending went up 4.1 percent, resulting in a spend of $8,949 per covered Rhode Islander. This increase exceeded the 3.2 percent cost growth target established by the Rhode Island Health Care Cost Trends Steering Committee.[428]

(198)   OHIC rate filings show that increased insurer spend on inpatient medical care translates *directly* into higher premiums for Rhode Island employers and residents. Figure 25 reports for each insurer and each commercial segment—individual, large group, and small group—the OHIC approved percentage increase in the insurer's premium and the OHIC approved assumed cost increase for inpatient medical care.[429] The figure shows that approved premium increases and approved increases in inpatient medical care generally move together, i.e., larger increases in inpatient medical care generally correspond with larger increases in the OHIC premiums. Indeed, an analysis by OHIC indicates that in Rhode Island, hospital inpatient and outpatient paid claims accounted for between 43 percent and 45 percent of premium, depending on the insurer.[430] Furthermore, OHIC notes that increases in the cost of care are passed through to individuals:[431]

> The rate cap protects the consumer interest in affordable health insurance by
> foreclosing large hospital systems from the practice of negotiating excessive price

---

[427] Office of the Health Insurance Commissioner, "Rhode Island Health Care Cost Trends Steering Committee," April 29, 2021.
http://www.ohic ri.gov/documents/2021/April/Cost%20Trends/steering%20committee%20meeting%202021%204-29%20for%20sharing.pdf.

[428] Alexa Gagosz, Boston Globe, "Health care has become less affordable in Rhode Island," April 29, 2021.
https://www.bostonglobe.com/2021/04/29/metro/health-care-has-become-less-affordable-rhode-island/.

[429] For individual and small group segments the percentage increase in the insurer's premium is the approved increase in the insurer's Calibrated Plan Adjusted Index Rate (CPAIR), which is the weighted average base rate across all plan designs calibrated (or normalized) for rating factors. For large group, the approved increase is the average expected premium increase, holding benefits constant, across all employers that are up for renewal within a given market weighted by employer size. *See* OHIC, "Requested and Approved Summary for 2022 Rates in the Individual, Small Group, and Large Group Markets," (September 2021).
http://www.ohic ri.gov/documents/2021/September/Final%202022%20Rate%20Review%20All%20Market%20Requested%20and%20Approved%20Summary%202021.pdf; OHIC, "Requested and Approved Summary for 2021 Rates in the Individual, Small Group, and Large Group Markets," (August 2020).
http://www.ohic ri.gov/documents/2020/August/28/Final%202021%20Rate%20Review%20All%20Market%20Requested%20and%20Approved%20Summary.pdf; OHIC, "Requested and Approved Summary for 2020 Rates in the Individual, Small Group, and Large Group Markets," (August 2019).
http://www.ohic ri.gov/documents/2019/September%202019/Final%202020%20Rate%20Review%20All%20Market%20Requested%20and%20Approved%20Summary.pdf; and OHIC, "Requested and Approved Summary for 2019 Rates in the Individual, Small Group, and Large Group Markets," (August 2018).
http://www.ohic ri.gov/documents/2018%20Rate%20Review%20Documents/Final-2019-Rate-Review-All-Market-Requested-and-Approved-Summary-2018-8-17.pdf.

[430] Office of the Health Insurance Commissioner, "Revisions to the affordability standards," December 2019, at 17.
http://www.ohic ri.gov/documents/2019/December%202019/AS%20Revisions/Revisions%20to%20the%20Affordability%20Standards%20230-RICR-20-30-4.pdf

[431] *Id*.

increases from commercial payers. These price increases are ultimately passed on to consumers in the form of higher premiums and out-of-pocket medical expenses

(199)   Consistent with OHIC's statement, statistical analysis of the premium increases shows that a one percentage point increase in an insurer's inpatient medical expense is associated with a statistically significant increase in the OHIC-approved premium of more than one percentage point.[432] That is, when insurers' costs increase, those increases are passed on to their members through higher premiums.

(200)   Increases in the cost of insurance coverage can reduce access to care for some people by pricing them out of health insurance. For example, Town et al. (2007) examined how hospital consolidation has increased the disparities in health care access across racial and income groups. They found that consolidation resulted in higher prices that were passed down through premiums. And the higher premiums priced more vulnerable populations out of the market and thereby decreased their access to health care.[433] Although this study predates the ACA, which provides subsidies to low-income individuals and families and allowed for the expansion of the Medicaid program in Rhode Island, about 40,000 Rhode Islander are still uninsured and many more are likely on the margins of being able to afford their health insurance.[434]

---

[432]   Specifically, in fixed-effect regression analyses of the OHIC-approved premium increases that identify the relationship between inpatient medical spend and premium increases from increases over time for an insurer-segment, the coefficient estimate on the inpatient medical care increase ranges from 1.09 to 1.55, depending on the specification. Estimates are statistically significant at the 1% level.

[433]   Robert J. Town, Douglas R. Wholey, Roger D. Feldman, and Lawton R. Burns, "Hospital Consolidation And Racial/Income Disparities In Health Insurance Coverage," *Health Affairs* 26, no. 4 (2007). https://doi.org/10.1377/hlthaff.26.4.1170

[434]   Kaiser Family Foundation, "Election 2020: State Health Care Snapshots: Rhode Island," https://www.kff.org/statedata/election-state-fact-sheets/rhode-island/.

Figure 25: OHIC approved premium and IP cost trend increases

Commercial segment	Insurer	Type	2019	2020[A]	2021[A]	2022[A]
INDIVIDUAL	BCBSRI	Premium	10.7%	-	-	-
		IP cost trend	2.4%	-	-	-
	NHPRI	Premium	8.7%	-	-	-
		IP cost trend	6.1%	-	-	-
LARGE	BCBSRI	Premium	8.0%	8.1%	4.5%	4.6%
		IP cost trend	3.4%	3.8%	1.6%	4.4%
	Tufts (HMO)	Premium	10.3%	9.6%	9.6%	7.7%
		IP cost trend	5.9%	6.7%	3.0%	3.6%
	Tufts (PPO)	Premium	10.2%	10.6%	8.5%	7.7%
		IP cost trend	5.9%	6.7%	3.0%	3.6%
	United	Premium	6.5%	7.5%	4.7%	6.9%
		IP cost trend	8.1%	8.1%	8.1%	7.7%
SMALL	BCBSRI	Premium	4.6%	4.5%	2.7%	-0.3%
		IP cost trend	2.4%	4.3%	1.6%	4.2%
	NHPRI	Premium	6.1%	5.2%	5.0%	4.5%
		IP cost trend	-0.2%	-0.9%	1.8%	1.5%
	Tufts (HMO)	Premium	5.7%	6.7%	3.0%	3.5%
		IP cost trend	10.2%	6.7%	2.9%	4.7%
	Tufts (PPO)	Premium	5.7%	6.7%	3.0%	3.5%
		IP cost trend	9.4%	11.0%	2.1%	4.6%
	United (HMO)	Premium	-1.2%	7.5%	2.3%	7.8%
		IP cost trend	5.4%	7.4%	4.4%	6.8%
	United (PPO)	Premium	5.4%	7.4%	4.4%	6.8%
		IP cost trend	-5.0%	6.8%	-0.5%	1.3%

Sources: OHIC Final 2022 Rate Review All Market Requested and Approved Summary, Final 2021 Rate Review All Market Requested and Approved Summary, Final 2020 Rate Review All Market Requested and Approved Summary, and Final-2019-Rate-Review-All-Market-Requested-and-Approved-Summary-2018-8-17.
Notes: [A] Data do not report the premium increase for the individual segment 2020–2022.

VI.C. OHIC's Affordability Standards will not prevent all the harms caused by a lessening of competition and are unlikely to prevent the merged firm from increasing prices in the long run

(201)   Rhode Island is unique among most states in that the rate increases that hospitals are able to negotiate with insurers are essentially capped by OHIC via its Affordability Standards.[435] ▮▮▮▮▮▮▮▮

---

[435] The Affordability Standards require approval by OHIC if the rate increase either exceeds US All Urban Consumer All

██

██ ""[436]

(202) OHIC's Affordability Standards are laudable; analysis has shown that they have had some success at restraining hospital cost growth relative to other states.[437] █████████████████████████████

███████████████████████████[438] ███████████████████████████████████████

███.[439] In addition, the Standards are primarily limited to hospital price growth, which represents only one dimension of competition out of many that will be detrimentally impacted by the Proposed Transaction.[440]

(203) Economists have studied the effectiveness of regulation and the degree to which it can or cannot control costs, promote economic efficiency, and benefits to consumers.[441] Based on the evidence and the historical effectiveness of regulation, I conclude that OHIC will not be able to generate the same

---

Items Less Food and Energy CPI + 1% or less than 50 percent of the average rate increase is for expected quality incentive payments. (230-20-30 R.I. Code R. § 4.10(D)(6)(e).)

[436] HCA application, § II.B.2. (C-R-CNE-LS64-0078002.)

[437] *See* Aaron Baum, Zirui Song, Bruce E. Landon, Russell S. Phillips, Asaf Bitton, and Sanjay Basu, "Health Care Spending Slowed After Rhode Island Applied Affordability Standards to Commercial Insurers," *Health Affairs* 38, no. 2 (2019): 237–245.

[438] ██
██
██
████████████████████████████

[439] FTC-CNE-01382521, ███
██
██
FTC-CNE-00242643 at -2644: ███████████████████████████████████████
████████████████████

[440] The Affordability Standards do require that at least 50% of a hospital's rate increase be tied to quality. There are core measures that are set by the State that must be included in all hospital contracts that represent the beginning framework of the quality program, but OHIC does not directly regulate quality. ████████████████████ and 230-20-30 R.I. Code R. § 4.10(D). ██
██
██
██
██
██
██████ ███
██

[441] *See*, e.g., W. Kip Viscusi, Joseph E. Harrington, Jr., David E. M. Sappington, "Economics of regulation and antitrust," *MIT Press* (5th ed.), (2018); Jean-Jacques Laffont, "The New Economics of Regulation Ten Years After" *Econometrica* 62, no. 3 (1994): 507-537.

benefits created through competition. The Proposed Transaction will, therefore, harm Rhode Island residents. This section proceeds as follows:

- In Section VI.C.1, I discuss the limits of what regulation can achieve and the scope of the challenges that OHIC would face in trying to replicate the competitive benefits lost by the proposed merger. Specifically, I discuss how challenges associated with enforcement and regulatory design can generate unintended consequences. I also discuss why regulation is ill-suited to spur innovation. In contrast, "enforcement" is embedded and decentralized in the market itself; with competition, insurers, employers, and patients will shift away from a hospital that provides lower value and towards those that provide higher value.

- In Section VI.C.2, I end with a brief discussion of the limitations of the Affordability Standards to prevent the exercise of market power in stage one competition. That is, I describe ways in which the Parties can work around OHIC's rate cap regulation and soften its ability to prevent them from exercising their market power in stage one.

VI.C.1. Regulation is an imperfect solution with a history of unintended consequences and subject to future political forces

(204)   A key benefit of competition is that it drives suppliers—hospital systems in the matter at hand—to seek out unmet market needs and develop ways to meet those needs. A firm that is effective at meeting market demands will benefit at the expense of its rivals. On the other hand, a firm that does a poor job of identifying and meeting the needs of consumers will either find ways to adjust so that it does or lose out to its rivals. It is through this mechanism that competition benefits residents of Rhode Island today. ███████████████████████████████████████

███

█████████████████████████████████

- ███
  ███████████████████████████████████.[442] ████████████████
  ████████████████████████[443]

- ███
  ███████████████████████████████████████

---

[442] FTC-CNE-00650671; ████████████████████

[443] FTC-CNE-00650671; ███
████████████████████ *See* FTC-CNE-01241941 ████████████████████████
██
███████████████████

████████████████████████.[444] ████████████████████████████

████████████████████████████[445]

■ ██

████████████████████████████████████

██████████████████████████████████████

██████████████████████████████████████

████,"[446]

■ ██

██████████████████████████████████████

████████████████████████████████████

██████████████████████████

██████████████████████████████,"[447]

■ ██

████████████████████████████.[448]

■ ██

████████████████████████████████████

████████████████████████.[449]

████████████████████████████████████

██████████████████████████████████

██████████████████████████████████

██████████████████████████████████

██████████████████████████.

■ ██.[450]

---

[444] FTC-CNE-00071835.

[445] *Id.*

[446] ██

██

████████████████████████

[447] ██

██

████████

[448] ██████████████████████

[449] FTC-CNE-00227332 at -7334. ████████████████████████

████████████████████████████

[450] *Id.*

██

██

████████████████████████████████████

(205)   ██. Absent the
competitive pressure to gain or retain patient volume, Lifespan and CNE will have a significantly
diminished incentive to innovate or deliver high value health care. And, in general, there are
limitations on the ability of regulators like OHIC to construct regulations that ensure the same
outcomes. These limitations include challenges related to enforcement, which can be costly for the
regulator as well as impose substantial regulatory burdens and administrative costs on the regulated
firms. There may also be unforeseen errors in regulatory design, such as the potential to fail to
recognize loopholes that allow firms to circumvent a regulation's intent. The market may also simply
evolve in unexpected ways over the life of the remedy that lead to potentially significant unintended
consequences—this may be particularly applicable to a highly dynamic market such as health care
where technologies are rapidly evolving.[451]

(206)   OHIC's recent amendment to the Affordability Standards, which allows hospitals with a below
median payment rate to receive larger increases that bring their payments up to the median, illustrates
one such unintended consequence.[452] As the Affordability Standards' rate cap limited increases to a
uniform percentage standard for all hospitals, hospitals at the low end of the payment spectrum had
more limited ability to close the payment gap by investing in quality and innovating in ways that
enhanced their leverage vis-à-vis insurers. Moreover, the hospitals that had the highest rates at the
time the regulation went into effect could more easily secure larger annual increases in terms of
dollars as compared to the hospitals with the lowest rates, widening any disparities.[453] Furthermore,

---

[451]   *See, e.g.,* Joseph Kvedar, Molly Joel Coye, and Wendy Everett, "Connected health: a review of technologies and
strategies to improve patient care with telemedicine and telehealth," *Health Affairs* 33, no. 2 (2014): 194-9. *See also*
Heru Susanto and Chin Kang Chen, "Information and Communication Emerging Technology: Making Sense of
Healthcare Innovation," in *Internet of Things and Big Data Technologies for Next Generation Healthcare*, ed. Chintan
Bhatt, Nilanjan Dey, and Amira S. Ashour. *Studies in Big Data* 23: 229–583. Springer, 2017; Richard Milani and Nina
Franklin, "The Role of Technology in Healthy Living Medicine," *Progress in Cardiovascular Diseases* 59, no. 5 (2017):
487–491.

[452]   230-20-30 R.I. Code R § 4.10(D)(6)(f). ("Hospitals which have been paid by a health insurer at less than the median
commercial payments made to all Rhode Island acute care hospitals for inpatient services, including inpatient behavioral
health services, in the health insurer's provider network, as determined by the health insurer summing all of its inpatient
payments (numerator) and dividing that by a sum of all DRG case weights (denominator) to provide a case-mix-adjusted
discharge payment rate for each hospital for inpatient services, shall receive an equal percentage increase in payment for
each inpatient service until the hospital's average payment per case-mix-adjusted DRG for inpatient services is equal to
the median.")

[453]   One of the objectives of the amendments made to the Affordability Standards was to "address the price disparity across
hospitals." Office of the Health Insurance Commissioner, "Revisions to the Affordability Standards," December 2019, at
29.
http://www.ohic ri.gov/documents/2019/December%202019/AS%20Revisions/Revisions%20to%20the%20Affordabilit
y%20Standards%20230-RICR-20-30-4.pdf.

---

market conditions changed, which caused the regulation to strain some hospitals. In public comments to OHIC, CharterCARE described the effect of the rate cap as follows:[454]

> While the imposition of the rate limit in 2010 has protected the health insurers from the stronger bargaining positions of the larger hospital systems, it has also prohibited some community hospitals from realizing anything close to sustainable commercial rates. . . . The long-term impact of the annual rate increase limit is manifest in the receiverships of two community hospitals and the closure of another [and] will likely lead to similar outcomes if not corrected.

(207)   While the rate cap is intended to maintain affordability for patients, some hospitals struggle to remain competitive, describing the regulation as "unsustainable" and "destabilizing."[455] ███████████

██

██.[456]

Recognizing there were issues, OHIC amended the Affordability Standards to allow reimbursement rate increases for hospitals that receive sub-median inpatient rates "until the hospital's average payment per case-mix-adjusted DRG for inpatient services is equal to the median."[457] The need for the adjustment illustrates the challenge with implementing effective regulation.

(208)   While not an OHIC regulation, CMS's Hospital Readmissions Reduction Program (HRRP) provides another example of the challenges in designing regulation that induces the intended outcome while not producing other, unintended results. On October 1, 2012 CMS began HRRP, which imposes penalties on hospitals that exhibit above average risk-adjusted 30-day readmission rates for acute myocardial infarction (AMI), heart failure (HF) and pneumonia (PN) patients.[458] For hospitals that fell short, the fraction of payments made for excess readmissions in the three conditions combined, up to a maximum of one percent, was deducted from the hospital's Medicare payments. The goal of the regulation is to "improve healthcare for Americans by linking payment to the quality of hospital

---

[454]   Letter from CharterCARE to OHIC RE: Comments on Proposed Changes to the Affordability Standards, May 30, 2018. Available at http://www.ohic ri.gov/documents/July%202019/Stakeholder%20Comments%20on%20Advance%20Notice%20of%20 Proposed%20Rulemaking%20Combined%202019%206-24.pdf

[455]   Office of the Health Insurance Commissioner, "Revisions to the Affordability Standards," December 2019, at 15. http://www.ohic ri.gov/documents/2019/December%202019/AS%20Revisions/Revisions%20to%20the%20Affordabilit y%20Standards%20230-RICR-20-30-4.pdf.

[456]   ██
        ██
        ██
        ████████████████████████████   ███████████████████████████████████
        ██
        ████████████████████████████████████

[457]   230-20-30 R.I. Code R § 4.10(D)(6)(f).

[458]   The HRRP was introduced in the Patient Protection and Affordable Care Act of 2010 (ACA). Centers for Medicare & Medicaid Services, "Hospital Readmissions Reduction Program (HRRP)". https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Readmissions-Reduction-Program.

care."[459] Chen and Savva (2018) analyzed how hospitals' admission decisions were affected by the program.[460] They found that hospitals exposed to HRRP penalties increased observation bed usage by 16.9 percent more compared to non-penalized hospitals, and by as much as 40.6 percent if the hospital was also financially constrained.[461] The implication is that, rather than invest in process changes that would reduce the likelihood of a readmission, as intended by the regulation, some hospitals changed how they classified some patients' status, keeping them as observation stays rather than formally admitting them which, thusly, excluded these patients from the hospitals' inpatient readmission statistics.

(209)   In addition to the challenges associated with enforcement and design, OHIC will not be able to regulate all dimensions of hospital competition that will be diminished, if not eliminated, by the Proposed Transaction. For example, there are many aspects to quality and patient convenience that are likely key dimensions of competition that are not currently regulated by OHIC.[462] These include things that can be measured, such as emergency department waiting times, the time required to be discharged, the availability of surgery dates, and so on. Because these can be measured, they could conceivably be regulated by OHIC, but with significant administrative costs. However, there are also many dimensions of competition that are qualitative in nature like the scope of services that are offered and the capabilities of the hospital system's patient portal among a multitude of other characteristics that differentiate hospital systems that cannot be quantified and readily regulated. ▮

---

[459]   Centers for Medicare and Medicaid Services, "Hospital Readmissions Reduction Program (HRRP): Fiscal Year (FY) 2015 Fact Sheet". https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/HRRP/HRRP-2015-Fact-Sheet-.pdf.

[460]   Christopher Chen and Nicos Savva, "Unintended consequences of hospital regulation: The case of the Hospital Readmissions Reduction Program," (working paper, 2018, available at the Social Science Research Network: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3236983)

[461]   Observation status means a patient is classified as being "outpatient" even though, like inpatients, observation patients are assigned a bed and remain in the hospital the same as if they are an inpatient admission. Observation stays are not counted with inpatient admission rates, even if the patient stays overnight. *See*, e.g., Center for Medicare Advocacy, "Observation Stays Fact Sheet". https://www.medicareadvocacy.org/wp-content/uploads/2017/09/Observation-Coalition-Fact-Sheet.pdf,

[462]   ██

██

████████████████████████████████████.[463]

████████████████████████████████████

██████████████

████████████████████████████████

████████████████████████████████

████████████████████████████████

██████████████████████████████

████████

(210) ██

████████████████████████.[464]

████████████████████████████████

████████████████████████████████

████████████████████████████████

██████████████

████████████████████████████████

████████████████████████████████

████████████████████████

(211) OHIC will not be able to regulate all dimensions that hospitals invest in to distinguish themselves when competing with one another for patients. And to the extent they can regulate some dimensions, OHIC will not be able to assess the tradeoffs hospitals face when deciding where to invest time and capital. Competition, on the other hand, drives firms to target their resources optimally across quality dimensions to produce and, ideally, maximize value to consumers.

(212) ████████████████████████████████████"[465] Innovation can take many forms in a hospital setting including innovation in clinical capabilities, processes (clinical, technological, and administrative), and payment models.[466] However, regulation is simply not suited to incentivize and support innovation, while competition is. For example, even if OHIC knows what types of innovation

---

[463] ████████████████████

[464] ██

██

████████████████████████████

[465] LIFESPAN04574033.

[466] Clinical processes include things like how the health system follows-up with patients to ensure treatment adherence, or how information is shared among providers. Administrative processes include how the hospital manages its relations with third party physicians and their ability to schedule surgery time or use hospital resources, for example.

the combined system should pursue to optimize efficiency and patient value, there is no clear mechanism that it could use to compel the combined system to achieve those goals.

(213)   In contrast to regulation, "enforcement" is embedded and decentralized in the market itself with competition: insurers, employers, and patients will shift away from a hospital that provides lower value and towards those that provide higher value. The takeaway from the economic literature is that competition incentivizes firms to invest in quality, innovation, and access.

VI.C.2. OHIC's Affordability Standards will not prevent a combined Lifespan-CNE from exercising market power

(214)   OHIC's Affordability Standards limit the amount a hospital's prices can increase year-over-year without requiring OHIC's approval.[467] ████████████████████████████████████
██.[468] ████████████████████████████
██
██████████.[469] Setting that aside, however, the rates that insurers pay hospitals for services are only one lever available to hospitals to leverage their market power. In this section, I address how the combined system may extract its enhanced market power even with the rate regulation.

(215)   Hospitals and insurers negotiate over a range of terms including financial terms such as the payment rate as well as the method of payment (e.g., per diems, case rates, discount of charges). ████████
██
████████████████████████████.[470] A combined Lifespan-CNE could use its enhanced leverage to affect any aspect of the negotiated terms to improve its revenue and thereby increase the overall cost of care in Rhode Island. As an example of how hospitals have used their leverage to their benefit in a way that increase the costs of care, Cooper et al. (2019) found that hospitals with fewer potential competitors are more likely to negotiate contracts with insurers that have payment forms that are more favorable to them (e.g., fee for service) and reject payment forms they dislike (e.g.,

---

[467]   230-20-30 R.I. Code R § 4.10(D)(6)(f).

[468]   HCA Application §IV.C (C-R-CNE-LS64-0078002) ████████████████████████████
██
████████████████████████████

[469]   ██████████████████████████████

[470]   ██
██
██
████████████████████████

DRG-based payment).[471] In other words, a provider's bargaining leverage can be used to do more than negotiate higher rates, it can be used to negotiate more favorable payment methods.

(216)   Although OHIC's Affordability Standards specify that "[h]ospital contracts shall utilize unit-of-service payment methodologies for both inpatient and outpatient services that realign payment to provide incentives for efficient use of health services," they would not prevent a combined Lifespan-CNE from leveraging its enhanced market power.[472] For example, there has been a broad industry-wide movement to value-based payment arrangements, including in Rhode Island.[473] ███████████ ██.[474] Such arrangements generally transfer risk from the insurer to providers. A combined Lifespan-CNE will be able to resist or water down such innovations in payment methodologies more than a standalone Lifespan or CNE if it believes that such an arrangement is not in its best-interest because, e.g., it requires taking on more risk than it prefers. According to BCBSRI, Lifespan has historically tried to negotiate less rigorous quality metrics. A combined Lifespan-CNE would have even more leverage to avoid such alternative payment methods.[475] When there are two major competing systems as there are today, insurers can work with one of the systems and leverage the ability to steer patients to secure concessions.

(217)   BCBSRI's concerns are not just hypothetical either. ████████████████████ ███ ████████████.[476]

███████████████████████████████████████
███████████████████████████████████████
██████████████████████████
█████
█████████████████████
███
███████████████████████████████████████
███████████████████████████████████████
███████████████████████████████████████
███████████████████████████████████████

[471]   Zack Cooper, Stuart Craig, Martin Gaynor, and John Van Reenen, "The price ain't right? Hospital prices and health spending on the privately insured." *Quarterly Journal of Economics* 134 (2019): 51–107.

[472]   230-20-30 R.I. Code R § 4.10(D)(6)(c).

[473]   Rajender Agarwal, Ashutosh Gupta, A. Mark Fendrick, "Value-Based Insurance Design Improves Medication Adherence Without an Increase In Total Health Care Spending," *Health Affairs* 37, no.7 (2018): 1057-1064. ████████ ████████████

[474]   ████

[475]   BCBSRI Declaration, 4.

[476]   ██████████████████████

██

██

███

██

(218) ██

██

███

██ .

(219) With respect to the rates that insurers pay, there are other ways that a combined Lifespan-CNE may circumvent the hospital rate cap. As a general proposition, it is well understood in the economics literature on regulatory evasion that regulated firms may employ tie-ins, sales in a separate product market, to evade regulations such as price-cap regulation, rate-of-return regulation, or other regulations that prevent the firm from fully exercising its market power.[477] ████████████████

██

██

██

█████████████████ .[478] Indeed, this is a key concern of Rhode Island's largest insurer, BCBSRI:[479]

> In addition, even if OHIC regulations were binding on hospitals, the regulations only impact facility rates for commercially insured subscribers, not professional fees or Medicare Advantage fees, providing a mechanism for hospitals to achieve net reimbursement rate increases that exceed the OHIC cap by shifting unachievable facility rate increases to higher professional or Medicare Advantage rates.

(220) ██

██

██

██

████████████████████████████████████[480] ████████████████████████████

---

[477] *See, e.g.*, Timothy J. Brennan, "Why Regulated Firms Should Be Kept Out of Unregulated Markets: Understanding the Divestiture in United States v. AT&T," Antitrust Bulletin 32, no. 3 (September 1987): 741-793; Michael H. Riordan & Steven C. Salop, "Evaluating Vertical Mergers: A Post-Chicago Approach," Antitrust Law Journal 63, no. 2 (1995): 513-519; Erik Hovenkamp, "Tying, Exclusivity, and Standard-Essential Patents," Columbia Science and Technology Law Review 19, (2017): 79-135.

[478] ████████████████████████ ; ████████████████████ .

[479] BCBSRI Declaration, 6.

[480] LIFESPAN00800265.

███

████████ .[481]

      ███████████████████████████████████████

      ███████████████████████████████████████

      ███

      ████████

      ███████████████████████████████████████

      ███

      ████████████████████████

(221)   ███████████████████████ █████████████████████████████████

██████████████████████ [482] My understanding is that these cash payments are not currently regulated by the Affordability Standards. █████████████████████████████████

██

███ [483]

(222)   In addition, the rate cap in the Affordability Standards does not prevent larger rate increases; it only requires that OHIC *approve* of any increases that exceed its cost target. █████████████████

██

██ .[484] ███████████████

███████████████████████████████ ███████████████████████████

██████████████████████████████ .[485] ██████████████████████████████

██

████████ .[486]

---

[481] ██████████████████████

[482] █████████████████ ████████████████

[483] ████████████████████████████ ; FTC-CNE-00445217. ██████████████████████ and FTC-CNE-01075218 at -5218 ██ FTC-CNE-00854411 at -4412.

[484] *See* FTC-CNE-01314234 at slide 30: A███ *See also* BCBSRI Declaration, 5: ("[T]he regulations are not binding on hospitals like Lifespan and CNE. OHIC also can – and does – waive the cap and permit hospital rate increases above the regulatory targets.")

[485] ███████████████████████

[486] ██ *See also* FTC-

[███]

(223) As Rhode Island's largest employer, the merged health system would be able to exert significant pressure on OHIC. The Parties have been vocal about their disapproval of the rate cap and the constraints it poses to their financial performance; [██]

[███]

[██████████████]"[487] [███████████████████████████████████]

[███]

[███]"[488] As a result of such pressure, OHIC's authority to regulate hospitals to the degree that it does today could be severely diminished or revoked.

(224) This dynamic is further recognized by insurers such as BCBSRI: "Moreover, major healthcare providers – particularly significant hospital systems like Lifespan and CNE – can actively shape OHIC regulation by, for example, impacting quality targets for the portion of rate increases that must be tied to quality, as well as impacting where the OHIC rate cap is set relative to the consumer price index."[489] Other hospitals in Rhode Island have expressed concern that a merged Lifespan/CNE would exert political pressures to do away with OHIC rate regulations altogether.[490] OHIC itself acknowledges this risk:[491]

> As a regulatory requirement, the OHIC hospital rate increase cap could be overridden
> statutorily at a future date. This means that there can be no assurance that it will exist
> as a permanent feature of the regulatory landscape. Even without pressure from the

---

CNE-00204716 [██]
[████████████████████████████] *See also* BCBSRI Declaration, 5: ("The merged entity has only committed to not seek a waiver from OHIC rate caps for the next three years, and it is unclear what rate increases the merged entity could insist upon after that time.")

[487] FTC-CNE-00854411 at -4412.

[488] LIFESPAN01580978 at -0979.

[489] BCBSRI Declaration, 6.

[490] South County Declaration, 4

[491] Office of the Health Insurance Commissioner, "The Care New England and Lifespan Proposed Merger: Policy Considerations Related to the State of Rhode Island Office of the Health Insurance Commissioner's Statutory Purpose," June 2021. http://www.ohic.ri.gov/documents/2021/June/OHIC%20CNE-Lifespan%20Proposed%20Merger%20Policy%20Considerations%20Working%20Paper%206-29-21%20Final.pdf.

merged health system, a future OHIC may not share the same objectives or operate with the same information that it has today.

(225)   Last, annual rate increase regulations also fail to prevent aggregate increases that hospitals may achieve by altering a facility's service offerings from lower-cost to higher-cost facilities within a system. By restructuring where and how they offer which services, a merged Lifespan-CNE could achieve collective rate increases that exceed OHIC policies without filing for an annual waiver by shifting their service composition.[492]

(226)   OHIC recommends that "regulators strongly consider treating as dispositive modeling of the likely price effects of the proposed merger of Lifespan and CNE assuming an unregulated environment." I agree with their recommendation. The degree and effectiveness of OHIC's regulatory oversight is subject to change, while the reduction in competition resulting from the Proposed Transaction will be cemented in place.

---

[492] *See* BCBSRI Declaration, 6.

VII. The Parties' arguments and analyses ████████████

██

███████████████████████████████

(227) ██
██
██
██
████████████████[493]████████████████████████████
██
██
██
██
██
███████████████████████████

(228) In this section, I address the shortcomings of the Parties' arguments as follows.

- In Section VII.A, I present empirical, documentary, and testimonial evidence of the extensive head-to-head competition between Lifespan and CNE and provide examples of how Rhode Island patients have benefited from this competition. In Section V.C, I quantified the closeness of substitution between Lifespan and CNE, and in Section V.D I discussed ████████████ ██ ████████████████████████████████ In Section VII.A, I expand on those analyses and quantify the closeness of substitution between Lifespan and CNE at the service-line level.

- In Section VII.B, I discuss the relevance of diversions analyses to assess the likely competitive effects of the Proposed Transaction. I explain how the estimated diversion ratios provide additional evidence of the substantial head-to-head competition that exists between Lifespan and CNE. I show that there are high diversions between Lifespan and CNE across most service lines, including a number of service lines in which Lifespan and CNE each have a double-digit share of discharges.

- In Section VII.C, I discuss ████████████████████████████ ██ ██

---

[493] ██
██

███

███

██

███

███

███

███

██

███████████████████████████████████████

- ■ In Section VII.D, I show that the Parties' argument ███████████████████ ███ ███

- ■ Last, in Section VII.E I discuss the Parties' argument ██████████████ ██ ███ ██████████████████████

VII.A. There is substantial empirical evidence that Lifespan and CNE compete head-to-head for patient volume

(229)   As an initial matter, ███,[494] Lifespan and CNE are treating patients for predominately the same illnesses. Figure 21 depicts the proportion of CNE GAC discharges that are for services (DRGs) also provided at Lifespan hospitals and the proportion of Lifespan's GAC discharges that are for services also provided at CNE hospitals.[495] It shows that there is significant overlap in the patient care being provided at the two systems: 98 percent of CNE's discharges for Rhode Island patients are for services provided at Lifespan hospitals and 93 percent of Lifespan's discharges are for services provided at CNE.[496] ██ ███ ██. [497] Figure 21 implies that to the

---

[494] ███ ███ ██████████████████████████████████

[495] ██.

[496] *See* Appendix F for details on how I compute overlapping services.

[497] ███ ███ ███ ██████████

extent Lifespan and/or CNE offer unique services, those services account for a small minority of the total care the two systems provide patients.

Figure 21. Lifespan and CNE largely offer the same set of inpatient GAC services
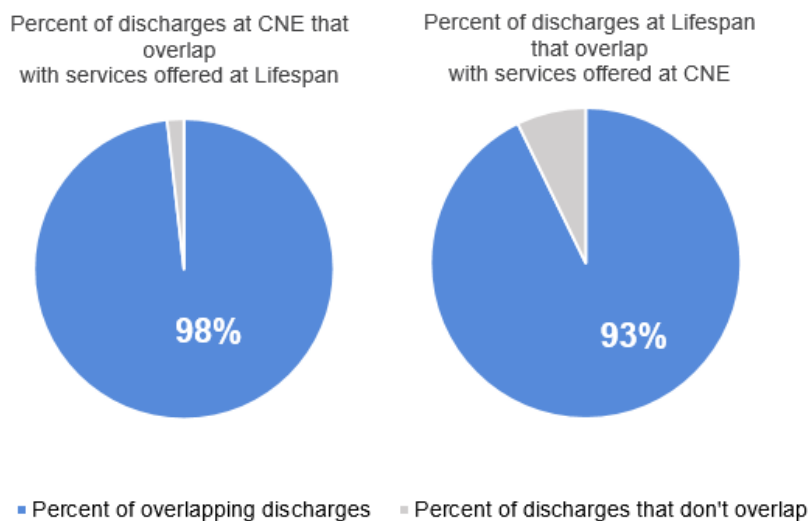
Source: RI discharge data, MA discharge data, 2017-2019.
Notes: Limited to GAC DRGs. Excludes out-transfers and normal newborns. Discharges are limited to RI patients. *See* Appendix F for details.

(230)   Contributing to the strong head-to-head competition is the significant geographic and service overlap between CNE's Kent Hospital and Lifespan's RIH and Miriam hospitals. ████████████ ██ ████████████████████████████████ [498] Furthermore, Kent is only about 11 miles away from RIH with I-95 providing a direct path between them.[499] Lifespan's Miriam hospital sits another four miles north of RIH on I-95. Lying between Kent and RIH are some of the most populous areas of Rhode Island, including southern Providence as well as Cranston, and Warwick, which are Rhode Island's second and third largest cities, respectively (*see* Figure 3).[500] Both hospitals compete for and draw a significant number of patients from this area.[501,502]

---

[498]   *See*, e.g., LIFESPAN_ORIG005179 at -005191.

[499]   Based on December 2021 searches of Google Maps.

[500]   U.S. Census Bureau, Population Division. "Annual Estimates of the Resident Population for Incorporated Places in Rhode Island: April 1, 2010 to July 1, 2019" (SUB-IP-EST2019-ANNRES-44 xlsx). https://www.census.gov/data/tables/time-series/demo/popest/2010s-total-cities-and-towns html

[501]   Between 2017 and 2019, there were 15,027 commercial inpatient discharges for patients from the southern Providence, Cranston, and Warwick area (identified by the following zip codes: 02886, 02888, 02889, 02893, 02903, 02905, 02907, 02909, 02910, 02920, and 02921). 53% of Kent's total discharges are from this area.

[502]   ██. FTC-CNE-01241941 at slide 29.

(231)   In addition to the significant geographic overlap, Lifespan and CNE offer a wide range of the same primary, secondary, and even some tertiary services.[503] Indeed, rather than focus on the limited set of services for which either are particularly strong, both actively market their broad capabilities. For example, Lifespan has ██ ███████[504] and the technical expertise to treat whatever may come its way: "From common illnesses to the rarest conditions, we have the specialists and technical expertise to treat whatever may come our way."[505] And CNE similarly markets far more than its obstetrics capabilities:[506]

> Backed by a broad range of services—primary care, surgery, cardiovascular care, oncology, psychiatry, behavioral health, newborn pediatrics and the full spectrum of women's health services—CNE is reinventing the way health care is delivered, partnering with our patients to provide the best care possible while working to create a community of healthier people.

(232)   Figure 26 quantifies the extensive inpatient service overlap between CNE's Kent hospital and Lifespan's RIH and Miriam hospitals. The figure depicts the share of discharges that are for services offered at both sets of hospitals based on (1) all Rhode Island patients and (2) only those patients within Kent's 80 percent service area, which would include a large proportion of the patients that Kent and RIH compete head-to-head to attract. The figure shows that 93 percent of discharges at Kent involve services (categories of diagnostic related groups, or DRGs[507]) that are also offered at RIH and/or Miriam. Indeed, the only services offered at Kent that are not offered at RIH or Miriam are related to labor and childbirth. Otherwise, Lifespan's two Providence hospitals offer all of the same inpatient GAC services that Kent offers. Viewing the overlap in the other direction, 92 percent of discharges at RIH and Miriam are for services that Kent also offers.

(233)   Figure 26 also presents information on the degree of overlap when narrowly focused on those patients residing within Kent's 80 percent service area, i.e., the set of zip codes in which Kent draws 80 percent of its inpatient discharges. ████████████████████████████ ██ ████████████████████████████████.[508] ████████████████████ Figure 26 shows that RIH and Miriam are providing the same services as Kent for 89 percent of these patients, and 92 percent of the discharges at Kent are for services that RIH and Miriam also offer. Put

---

[503]   ██████████████████████████ ██████████████████; ████████████████████ ██ .

[504]   ██ ████████████████████████████████

[505]   Lifespan, "Every Specialty Under the Sun". https://www.lifespan.org/underthesun.

[506]   Care New England, "About Care New England," https://www.carenewengland.org/about.

[507]   ██

[508]   C-R-CNE-LS64-0078002 at -8011 ████████████████████████ ████████████████████████████████████

differently, patients in this region are overwhelmingly going to Kent, RIH, and Miriam for the *same* services.

Figure 26. CNE's Kent hospital and Lifespan's RIH and Miriam hospitals offer largely overlapping inpatient GAC services
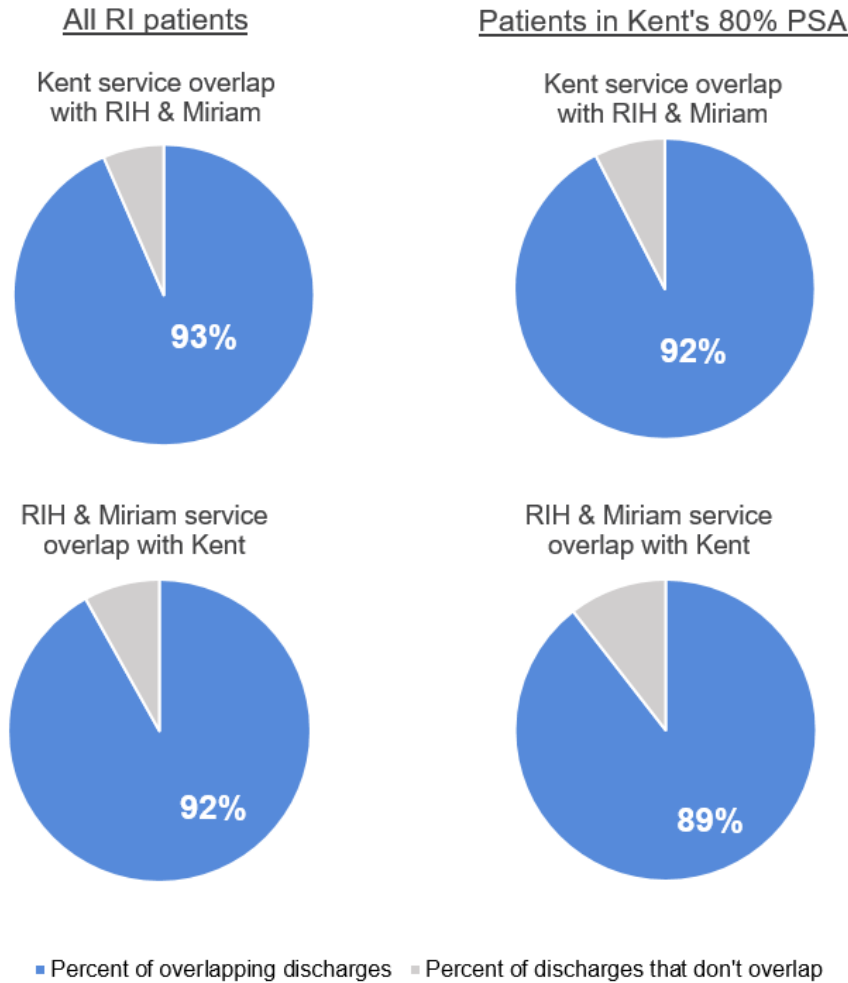
Source: RI discharge data, MA discharge data, 2017-2019.
Notes: Blue portion of pies represent the proportion of discharges at the indicated hospital(s) that are for services also offered at the indicated overlap hospital(s). [1] Excludes out-transfers and normal newborns. [2] Kent County Memorial Hospital has 31,448 total discharges for RI patients and 25,825 total discharges for patients in Kent's 80% PSA. RIH and Miriam combined have 126,347 total discharges for RI patients and 29,247 total discharges for patients in Kent's 80% PSA. [3] See Appendix F for a more complete table.

(234)   Figure 27 provides a more granular view of the extensive service overlap between CNE's Kent hospital and Lifespan's RIH and Miriam. The figure reports the percent of service overlap between each set of hospitals for the 11 most common "major diagnostic categories" (MDCs). [509] These 11

---

[509]   Major diagnostic categories represent groups of DRGs that are for the same organ system or have common etiology. *See* Research Data Assistance Center, "Major Diagnostic Category (MDC) Code", November 2019.

MDCs collectively account for nearly 90 percent of the hospitals' volume. For each of the 11 MDCs, the figure reports the number of discharges at Kent, Miriam, and RIH for that MDC from the 2017 to 2019 period, the percentage of RIH and Miriam's discharges within that MDC that are for services that Kent also offers, and the percentage of Kent's discharges within that MDC that are for services that RIH and/or Miriam also offer. The figure shows that all (100%) of the services that Kent performs in each MDC except for Pregnancy, Childbirth, & The Puerperium (i.e., obstetrics) are also being done at RIH and/or Miriam. Generally, about 90 percent of the services that RIH and Miriam perform are also being performed at Kent. The lowest service overlap is associated with the Nervous system (MDC 1) where about 72 percent of the services that RIH and Miriam are performing are also provided at Kent.

(235) ███
███
███████████████████████████[510]████████████████████████████
████████████████████████████,[511] Lifespan and CNE compete head-to-head for the large majority of their discharges, i.e., well over 90 percent of their services on a volume basis.[512]
██
██████████████████.[513]

███
███████
██████████████████████████████
███████
██████████████████████████████
████████
████████████████████

https://resdac.org/sites/datadocumentation resdac.org/files/Major Diagnostic Category.txt for a complete list of MDCs.

[510] ██
█████

[511] ██
LIFESPAN04574033 at -4037.

[512] 98 percent of the services performed by CNE are also provided by Lifespan and 93 percent of the services performed by Lifespan are also provided by CNE.

[513] ███████████████████

Figure 27. Overlapping services by Major Diagnostic Category (MDC), 2017–2019

MDC	MDC Description	Total commercial discharges	Overlap percentage (all RI patients)	
			Percent of RIH & Miriam's patient volume that are for services that Kent also offers	Percent of Kent's patient volume that are for services that RIH & Miriam also offer
8	Musculoskeletal System & Connective Tissue	4,115	91%	100%
6	Digestive System	3,708	98%	100%
5	Circulatory System	2,979	89%	100%
4	Respiratory System	2,696	99%	100%
1	Nervous System	2,428	72%	100%
10	Endocrine, Nutritional & Metabolic System	2,037	97%	100%
18	Infectious & Parasitic Diseases & Disorders	1,873	99%	100%
14	Pregnancy, Childbirth, & The Puerperium	1,287	89%	7%
7	Hepatobiliary System & Pancreas	1,252	91%	100%
11	Kidney & Urinary Tract	1,080	93%	100%
9	Skin, Subcutaneous Tissue, & Breast	798	95%	100%
TOTAL		24,253		

Source: RI and MA state discharge data, 2017-2019.
Notes: [1] The 11 MDCs represent 89.0 percent of total commercial discharges for Kent, RIH, and Miriam. [2] Discharges are limited to commercial RI patients and exclude newborns, patients 65 years of age and older, and transfers. [3] Total commercial discharges restricted to Kent, RIH, and Miriam.

(236) To further show the similarity in the types of services delivered at Kent, Miriam, RIH, and W&I, I analyze the distribution of the service acuities as determined by the case weights of the inpatient services provided at the hospitals. DRG case weights measure the relative amount of resources required to treat patients in that DRG as compared to the average resources used to treat patients in all DRGs; i.e., DRG case weights capture differences in service intensity.

(237) Figure 28 depicts the distribution of DRG weight quartiles using data from 2017–2019. The figure shows that Kent treats patients with a similar acuity distribution as Miriam. Approximately 7.7 percent of Kent's patients are within the top quartile of the acuity distribution as compared to 9.6 percent for Miriam. And about 29.5 percent of Kent's patients are in the third quartile of the acuity distribution as compared to 37.6 percent of Miriam's patients. As a proportion of its total volume, RIH treats more of the highest acuity patients than either Kent or Miriam—17.4 percent of RIH's patients are in the top quartile. But RIH treats proportionally fewer patients in the third quartile and a similar share of patients in the lowest and second quartile of the acuity distribution than either Kent or Miriam. Owing to its focus on obstetrics, which typically consists of low acuity labor and delivery cases, about 96 percent of the patients at W&I are in the bottom half of the acuity distribution.

Figure 28. Acuity distribution by DRG quartile
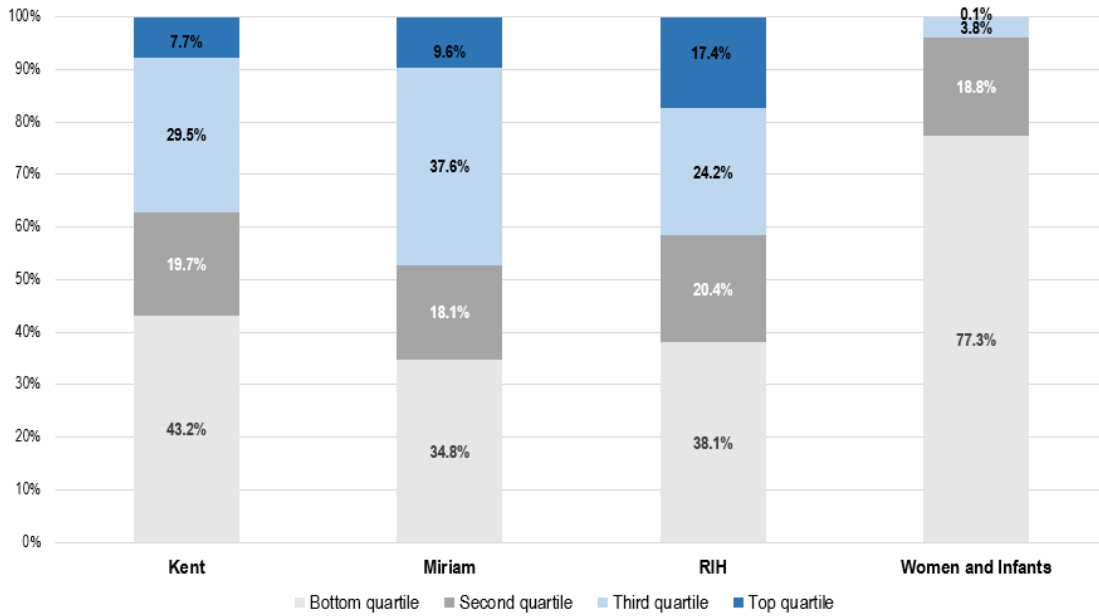
Source: RI discharge data, MA discharge data, 2017-2019.
Notes: [1] Limited to commercial RI patients, excluding patient 65 and over. [2] Excludes normal newborns.

(238)   The empirical evidence indicates that Lifespan and CNE compete head-to-head for the vast majority of the inpatient GAC services that they each offer. Furthermore, there is also no evidence that Kent treats a systematically different type of patient for these diagnoses than RIH and Miriam. Reflecting this competition, Lifespan and CNE regularly review and assess one another's offerings, capabilities, quality, and strategies and use that information to guide their own strategy and decision making.[514] This is a quintessential benefit of competition; it makes both firms work harder to offer more services at higher quality and thereby generate more value for Rhode Island residents.

(239)   ██
████████████████████████████████████ . ██
██ .[515]
██
████████████ .[516]

---

[514] ████████████████████████████████ ███
██

[515] LIFESPAN04574033 at -4041.

[516] ██████████████████████████

(240) ██
████████████████████.[517]

████████████████████████████████
████████████████████████████████
██████████████████████████████
██████████████████████████████

(241) ███
██████████████████████████████████████
█████████████████████████.[518]

████████████████████████████████
████████████████████████████████
████████████████████████████████
████████████████████████████████
██████████████████████

(242) ████████████████████████████████████
█████████████████████████████████████
█████████████████.[519]

(243) ██████████████████████████████████
██████████████████████████████████
███████████████████████[520]████████████████
██████████████████████████████████
██████████████████████████████[521]

---

[517] FTC-CNE-00866098 at -6100.

[518] FTC-CNE-00217942. *See also* FTC-CNE-00396546 ████████████████████
██
████████

[519] ████████████████████████

[520] ██████████████████

[521] ██████████████████

███████████████████████████████████████
███████████████████████████████████████
██████████████████████████████████████
███████████████████████████████████████
██
███████████████████████████████████████
███████████████████████████████████████
██████████████████████████████

(244) ██
██
██████████████████████████████████.[522]

███████████████████████████████████████
███████████████████████████████████████
███████████████████████████████████████
███████████████████████████████████████
████████████████████

(245) ██
██
█████████████████████████████████████.[523]

███████████████████████████████████████
████████████████████████████
██████
██████████████████
████████████████████████████████████
█████████████████████████████████████
█████████████████████████████████████
██████████████████

(246) █████████████████████████████████████.[524]

███████████████████████████████████████
██████████████████████████████████████
███████████████████████████████████████

---

[522] LIFESPAN02396896. █████████████████████████████████████

[523] ████████████████████████████ LIFESPAN00053423.

[524] ███████████████████████

██

████████████████████

██

████████████████████████████████████

██

████████████████

(247)   Competition puts pressure on businesses to meet market needs as efficiently as possible. Without that pressure, businesses would not receive the necessary market signals—market share gains and losses—that informs them of whether they have met those needs, and if not, what changes they must make. ██

██

████████████████████████████████ ”[525] If Lifespan and CNE were to combine, they would face very limited competitive pressure.

(248)   Lifespan and CNE compete head-to-head for patients for the vast majority of the care they provide. This loss in competition will harm residents of Rhode Island by reducing the value of healthcare delivered by the combined system.

VII.B. Diversion ratios provide reliable evidence that the Proposed Transaction is likely to substantially lessen competition

(249)   ██

████████████████████████████████████

█████████████████████████████████ .[526] ████████████

████████████████████████████████████

(250)   As I explained in Section IV, hospital competition occurs in two stages. ████████████████

██

██

---

[525] CNE-LS-HCA-0017959 at -61.

[526] ████████████████████████████████████

██

██

████████████████████████████████████

██. Patient substitution as measured by diversion ratios is informative of how the Proposed Transaction will affect stage two competition.

(251) ██
██
██
██
██
██
██
██████████████████████████████████████.[527] ████████████
██
██
██
██████████████████████████

(252) Diversion analysis provides direct insight into the likely competitive effects of the Proposed Transaction in these two respects as I explain in more detail next.

(253) ██
██
██
████████████████████████████ In stage one, if an insurer were to exclude hospital A, then rather than substitute to hospital B, patients may substitute to a different insurer that has hospital A in its network. Diversion ratios do not directly assess the degree to which patients may switch insurers. However, diversion ratios are directly informative of the likely competitive effects in stage two competition, whether for commercially insured patients or for patients in government programs.

(254) As I explained in Section V.C.1, the diversion ratio from hospital (or hospital system) A to hospital (or hospital system) B represents the proportion of patients who have hospital A as their first choice that would go to hospital B if they switched away from hospital A. Patients may switch from hospital A because it is no longer available as an in-network option, which is how the Parties frame diversions; but, patients may also switch away from A because A was moved to a higher insurance tier generating higher out-of-pocket costs for the patient or because A's quality declined, among other reasons.[528]

---

[527] HCA Application, §II.B.2. (C-R-CNE-LS64-0078002.). ████████████████████████

[528] For example, at its current level of quality, some patients may prefer hospital A over hospital B, but following a decline in quality at hospital A, a fraction of these patients will now prefer hospital B and others over hospital A (holding the

(255)   A higher diversion ratio from A to B indicates that a greater proportion of A's patients would go to B and, consequently, the merged system will have less incentive to deliver or maintain high quality at A. To illustrate, if A were to let its quality decline pre-merger, it would lose patients and the profit associated with those patients. As a result, hospital A has an incentive to invest in maintaining a level of quality that balances the cost of investment needed to maintain share with the profit generated by that patient volume. However, post-merger, A no longer competes with B for patients. In consequence, if A were to let its quality decline after merging with B, it would still lose patients, but the *system* would recover those patients and the profit associated with those patients because some patients would switch from A to B. This can also be viewed in reverse. If A were to invest in quality that increases the demand for its services at the expense of B, then the system has unnecessarily increased its costs because a sizeable portion of A's gain in volume came from B. This "recapture" reduces A's incentive to invest in quality. This is one of the ways in which the Proposed Transaction will harm residents of Rhode Island.

(256)   Hospitals in tier two remain in-network options for members, but members face higher out-of-pocket costs for the care they receive from these hospitals. In consequence, hospitals have an incentive to accept lower rates to be in a lower tier rather than be placed in a higher tier. Post-merger, however, if hospital B were in a lower tier, then hospital A's incentive to offer a price discount to be placed in tier one is reduced relative to what it was pre-merger because the merged system will recapture through hospital B some of the patients that hospital A loses.[529] Again, this represents a reduction in competition that will harm employers and residents of Rhode Island.

(257)   ███
███.[530] Figure 29 displays the discharge counts, shares, and diversion ratios between Lifespan and CNE for all GAC MDCs, excluding newborns and neonates. ██████████████████████████ the data show that Lifespan and CNE each have significant shares and substantial diversion to one another across multiple MDCs. Indeed, the diversions from CNE to Lifespan exceed 40 percent for all but three MDCs, two of which account for less than one percent of all discharges.[531]

---

quality at hospital B and other hospitals constant). The diversion ratio from hospital A to hospital B measures the proportion of patients that switch way from A following its decline in quality and choose hospital B. Patients may switch away from hospital A for a variety of factors related to its clinical quality, convenience, service offerings, and amenities relative to other hospitals.

[529]   *See*, e.g., the discussion on diversion ratios and upward pricing pressure (UPP) in Garmon (2017).

[530]   ██
██
██

[531]   The lowest diversions from CNE to Lifespan are for obstetrics (Pregnancy, Childbirth, & the Puerperium), pre-MDCs (e.g., organ transplants), and diagnoses related to either female or male reproductive system and the endocrine system, which are just below 50 percent.

Figure 29. Discharge shares and diversion ratios by MDC, 2017-2019

MDC	MDC number	Discharges	Shares		Diversions	
			Lifespan	CNE	Lifespan to CNE	CNE to Lifespan
Pregnancy, Childbirth, & The Puerperium	14	15,121	3.9%	81.8%	67.8%	7.5%
Musculoskeletal System & Connective Tissue	8	7,566	49.7%	7.3%	13.5%	50.2%
Digestive System	6	6,210	53.3%	11.3%	19.1%	63.4%
Circulatory System	5	4,801	51.7%	12.7%	24.4%	76.8%
Respiratory System	4	3,992	59.5%	11.8%	16.6%	76.2%
Nervous System	1	3,444	67.3%	6.0%	18.7%	80.8%
Endocrine, Nutritional & Metabolic System	10	3,325	42.3%	21.8%	21.8%	48.7%
Infectious & Parasitic Diseases & Disorders	18	2,991	45.0%	22.0%	23.6%	68.7%
Hepatobiliary System & Pancreas	7	2,249	50.0%	10.8%	21.1%	64.6%
Kidney & Urinary Tract	11	1,804	49.7%	13.6%	20.1%	62.4%
Skin, Subcutaneous Tissue, & Breast	9	1,573	44.9%	25.2%	30.1%	53.0%
Injuries, Poison, & Toxic Effect Of Drugs	21	1,142	55.3%	15.6%	32.2%	68.8%
Female Reproductive System	13	928	17.5%	64.7%	73.4%	43.9%
Myeloproliferative Diseases & Disorders	17	877	57.9%	1.9%	2.1%	53.1%
Blood & Immunological Disorders	16	708	59.7%	10.2%	11.6%	61.0%
Ear, Nose, Mouth, & Throat	3	623	62.9%	2.9%	6.6%	69.1%
Male Reproductive System	12	361	41.6%	13.3%	21.3%	47.3%
Pre-MDCs (organ transplants, tracheostomies)	0	356	27.0%	0.3%	0.2%	20.0%
Factors Influencing Health Status	23	239	50.6%	14.6%	25.4%	61.4%
Multiple Significant Trauma	24	113	90.3%	0.0%	-	-
Eye	2	89	76.4%	3.4%	15.7%	81.0%
Burns	22	43	93.0%	2.3%	13.9%	93.3%
HIV	25	37	89.2%	2.7%	31.3%	90.5%

Source: RI and MA discharge data, 2017-2019
Notes: Limited to commercial RI patients, excluding patient 65 and over and newborns.

(258) One example of a service line in which there is high diversion between Lifespan and CNE is diagnoses of the circulatory system. These services represent the fourth largest MDC by number of discharges, and among these services the diversions from Lifespan to CNE are 24.4 percent and from CNE to Lifespan they are 76.8 percent. Because the diversion from CNE to Lifespan is so high—76.8 percent—most of the market share that CNE gains comes at Lifespan's expense. If Lifespan and CNE were to combine, CNE would have little incentive to take steps to attract patients and thereby gain market share because doing so would cannibalize patients that would go to Lifespan.

(259) ███

███████████████████████████████████

███

███

███

██

███████████████████████.[532]

VII.C. ██

███

██████████

(260) ███

██.[533] ██████████████

████████████████████

     1. ███

██████████████████████████████████████

     2. ███

███████████████████

     3. ███

████████████████████.[534]

(261) ███

███

█████████████████████████████

(262) ███

███

███

███

██

██████████████████

Figure 30. ██

██
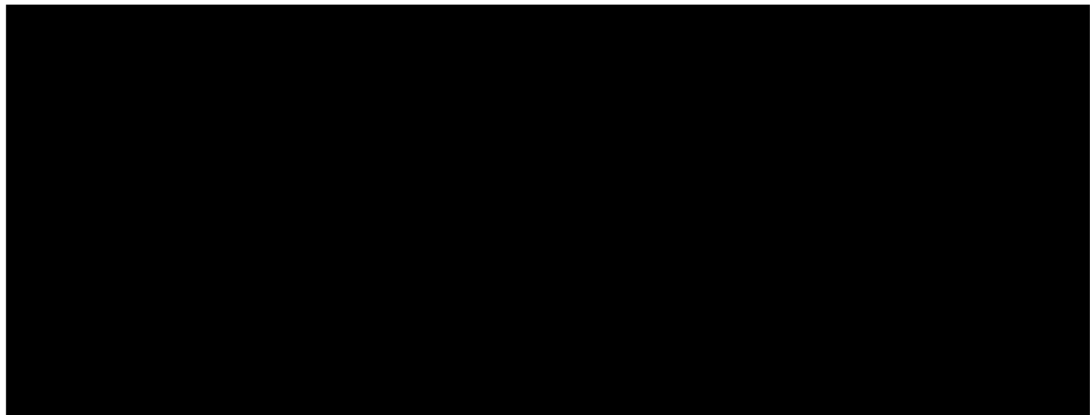
(263)   ██
██
██
██ [535]
████████████████████████████████. [536] As previously discussed, a hospital's
bargaining leverage is reduced when an insurer can credibly turn to other hospitals to fill out its
network should it fail to reach a deal with that hospital. In Section V.C.2.a, I described how WTP
analysis is a tool frequently used by economists to measure the degree to which there are other
substitutable hospitals available for an insurer.

(264)   In this section, I first revisit the WTP analysis presented in Section V.C.2.b and show how the
estimated WTP of a merger is a measure of the closeness of substitution between merging hospitals.
More specifically, WTP analysis accounts for whether, and the degree to which, merging hospitals
overlap geographically and in terms of the services they offer. A merger between hospitals with high
shares will not produce a high WTP if the merging hospitals do not have material overlap in both
respects. ██
██
██
████████████████████████████████████

---

[535]   ███████████ FTC et al. v. Penn State Hershey Med. Ctr. 838 F.3d 327, 342 (3d Cir. 2016). ("Patients are relevant to
the analysis, especially to the extent that their behavior affects the relative bargaining positions of insurers and hospitals
as they negotiate rates.")

[536]   ██
██
██

VII.C.1. WTP analysis confirms that there is significant head-to-head competition between Lifespan and CNE

(265)   Typically, the principal question to answer when evaluating a hospital merger is how much greater (1) is over the sum of (2) and (3) since hospitals are generally substitutes from the perspective of patients, and WTP analysis is often employed to answer this question.[537] At one extreme, (1) will be exactly equal to the sum of (2) and (3) when the merging hospitals do not have any geographic and/or service overlap because patients will not view the hospitals as substitutable in this instance. All else equal, the greater the degree to which hospital overlap both geographically and in terms of their services, the greater will be the WTP of their merger.

(266)   To illustrate that WTP accounts for the amount of overlap between hospitals, consider the merger of two hospitals that have no overlapping services; e.g., one hospital has cardiac services and the other does not, one has orthopedic services and the other does not, and so on. Figure 31 presents a concrete, but hypothetical example of the merger between two such hospitals that have no overlapping services. In this example, hospital A has an 18 percent share of all discharges, B has a 12 percent share, and the merger of hospitals A and B will result in a combined system share of 30 percent. Such a merger will increase the HHI by 432 points and, depending on the shares of the other hospitals, their merger would be presumptively anticompetitive.[538] However, the merger will not increase the combined system's shares in any service line, and, despite either hospital A or hospital B having a relatively high share in every service line, the WTP will not increase. That is, the WTP of the merger is 0 percent. As this stylized example shows, WTP analysis accounts for the absence of service overlap and, even though the shares and market concentration may presumptively indicate the merger would enhance market power, WTP analysis correctly shows that the hospitals are not close substitutes, and their merger would not enhance their bargaining leverage.[539]

---

[537]   *See* cases cited *infra* note 292.

[538]   The concentration measured by the HHI depends on the shares of the other hospitals and could be very high as well. For example, if there was only one other hospital in the market, the merger would increase the HHI by 432 to 5,800, which is well above the levels specified in the *Merger Guidelines* over which it would be deemed to be likely to enhance market power.

[539]   Observe that the WTP of the merger of two hospitals that have substantial service line overlap but no geographic overlap, e.g., the hospitals are in distant states, would also be 0%.

Figure 31. Hypothetical merger between purely complementary hospitals

Service line	Discharges	Hospital A share	Hospital B share	Combined share
Musculoskeletal System & Connective Tissue	1,000	35%	0%	35%
Digestive System	800	25%	0%	25%
Circulatory System	750	0%	30%	30%
Respiratory System	700	40%	0%	40%
Nervous System	500	0%	10%	10%
Endocrine, Nutritional & Metabolic System	400	0%	40%	40%
Infectious & Parasitic Diseases & Disorders	300	0%	35%	35%
Pregnancy, Childbirth, & The Puerperium	200	20%	0%	20%
Hepatobiliary System & Pancreas	100	0%	25%	25%
Kidney & Urinary Tract	50	0%	30%	30%
All services	**4,800**	**18%**	**12%**	**30%**
Increase in WTP				**0%**

Notes: This figure depicts the hypothetical merger between two purely complementary hospitals. The hospitals offer an entirely different set of services. In consequence, despite either hospital A or hospital B having a high share in every service line, the WTP of the merger is 0% and it will not lessen competition for inpatient GAC services.

(267) ██
██.540
██
██
███
██
███
██
██
████████████████████

(268) As further illustration of how the degree of service overlap determines the WTP of a merger, consider separately the hypothetical mergers of Kent and Lifespan and of W&I and Lifespan. Figure 32 reports the WTP associated with the combination of Kent with Lifespan. Consistent with the significant amount of service and geographic overlap described above, the figure shows that the WTP for a

540 ██
██
████████████████████████████████

Page 140

combined Lifespan and Kent is 20.6 percent higher than the sum of the WTP for Lifespan and the WTP for Kent.

(269) In comparison, there is less service overlap between W&I and Lifespan since RIH and Miriam do not provide obstetrics services. Figure 33 reports the WTP associated with the combination of W&I and Lifespan. The figure shows that the WTP for a combined W&I and Lifespan is 3.9 percent higher than for W&I and Lifespan separately. The WTP is much lower precisely because RIH and Miriam, the two Lifespan hospitals closest to W&I geographically, do not offer obstetrics services despite the significant geographic overlap of these hospitals with W&I.[541]

(270) The WTP created by a hypothetical merger of Kent and Lifespan shows that Lifespan's hospitals are viewed as reasonably close substitutes to Kent by patients and the lower WTP of a hypothetical merger of W&I with Lifespan shows that they are less close substitutes. Because of the inpatient volume at Kent, the WTP of a merged Lifespan and CNE remains high despite the low service overlap between W&I and RIH and Miriam. As shown in Section V.C.2.b, the overall WTP of the merger is estimated to increase by 16.2 percent. This is a significant increase; increases of this magnitude have been found by the economics literature to enhance the combined system's market power, resulting in higher prices, lower quality, or both.

---

[541] In Section V.B, I showed that even if obstetrics is excluded from the relevant product market, the shares and concentration associated with the Proposed Transaction far exceed the Merger Guidelines' thresholds over which the merger is presumed likely to enhance market power.

Figure 32. WTP of Lifespan + Kent

State	Step	Measure	Avg. WTP per patient	
			RI patients	MARI patients
Pre-acquisition	[1]	Kent	0.14	0.11
	[2]	Lifespan	0.69	0.56
	[3] = [1] + [2]	Sum of each system's WTP	0.83	0.66
Post-acquisition	[4]	WTP for the merged system	1.00	0.79
	[5] = [4] - [3]	**Increase in WTP**	0.17	0.13
	[6] = [5] ÷ [3] × 100%	**% Increase in WTP**	**20.6%**	**18.9%**

Source: RI and MA state discharge data, 2019.
Notes: WTP based on all RI (or RI + select MA zips) GAC patients. Excludes newborns, patients 65 and over, and transfers.
WTP estimated using a semi-parametric hospital choice model.

Figure 33. WTP of Lifespan + W&I

State	Step	Measure	Avg. WTP per patient	
			RI patients	MARI patients
Pre-acquisition	[1]	Women and Infants	0.45	0.36
	[2]	Lifespan	0.68	0.54
	[3] = [1] + [2]	Sum of each system's WTP	1.14	0.90
Post-acquisition	[4]	WTP for the merged system	1.18	0.93
	[5] = [4] - [3]	**Increase in WTP**	0.04	0.03
	[6] = [5] ÷ [3] × 100%	**% Increase in WTP**	**3.9%**	**3.6%**

Source: RI and MA state discharge data, 2019.
Notes: WTP based on all RI (or RI + select MA zips) GAC patients. Excludes newborns, patients 65 and over, and transfers.
WTP estimated using a semi-parametric hospital choice model.

VII.C.2. ███████████████████████████████████
███████████

(271) ███████████████████████████████████
███
███████████████████████████████████████
███
███
███████████████████████████████████████
████

(272) ███████████████████████████████████████
███████████████████████████████████████
███████████████████████████████████████

███
███[542]████████
███
██
██
███
███
███
████████████████████

(273) ██
███
██
███████████████████████████████████████
███
██
██
███
███
███
██████████████

(274) ██
██
██
███
██
██████████████████████████████[543]█████████████████
███
███
██████████████████████████████████

███.[544] █████████████████████████

████████████████████

Figure 34. ███
████████████████████████████████████

███
███
███
███

(275)   ███
███
███
███
███
███
██████████████████████████████████.[545] ██████████████████████
███
███
███████████████████████████████████.[546] ██████████████████████
███

---

[544] ██
███
████████████████████████████████████

[545] ██
███
███
███
███
████████████████████████████████████

[546] ███

██ ██████████████████████████

███

███

███████████████████████████████████████ ████

██

███

███

████████████ .

(276) ██

█████████████████████████████████████

███

██

██

██

███

████████████ █████████████████████████████████████

██

██

██████ .[550] ███████████████████████████████████████

███

██

███

████████████████████ .[551] █████████████████████████

██

██[552] ███████

██

---

[547] ██

████████████████████████████████

[548] ███

██

██

███

███

███████████████████████████████████

[549] ██

██

[550] ███████████████████████████████

[551] ██

[552] ██

████

██[553]

██

███████

(277) ██

██

████████████████[554]████████████████████████████

██

██

██

████████████████████████████[555]

(278) ██

██

████████████████████████████████[556]████████

██

██

██

███████████████████████████

(279) ██

██

██

██

---

[553] ██
██
██
██████████████████████████████

[554] ██
██
██████████████████████████████

[555] ██
██
██
██
██
██
██
██
██
██
██

[556] ██
████████████████████████████████████

██
███
███
███
███
██
███
██
███
██████████████████████████████████████ .

Figure 35. ████████████████████████████████

██

(280)   ██
███
███
███
███
███
██
███
███
██
███
███ .

(281) ██
██
██
████████████████████████████████████[557]

    ██
    ███████████████████████████████████████
    ███████████████████████████████████
    ███████████████████████████████████
    ████████████████████████████████████
    ███████████████████████████████████
    ██████████████████████████████

(282) ██
██
██.[558]
███
██
██
██
██████.[559] The ████████████████████████████

(283) ██
██
██,.[560] ████████████████
███
██
██
██
████████████████████████████████████

---

[557] ██
████████████████████

[558] ██
██████████████████████████████████████

[559] ██
██
██
████████████████████████████

[560] ██
██

██

██████████████████████████████████ .

VII.D. Documents and testimony from insurers ████████████

████████████████████████████████████

(284)   ██

██

███

████████████████████████████████ when there are more hospitals competing to provide services, insurers are better able to secure lower rates for members because they can credibly threaten to exclude hospitals. Insurers are also able to get hospitals to accept lower rates if they have a means to steer patients to them. ██,[561] and BCBSRI references such competitive pressures between CNE and Lifespan as beneficial to its ability to negotiate down healthcare prices.[562]

(285)   BCBSRI also confirms that Lifespan and CNE are each other's primary competitors with largely overlapping service lines in both inpatient and outpatient markets.[563] Thusly, BCBSRI expressed concern that the Proposed Transaction will increase the combined entities' bargaining leverage:[564]

> All else equal, the elimination of competition between Lifespan and CNE would give the merged entity increased leverage in negotiations with BCBSRI… Negotiations with a merged Lifespan-CNE system could be more challenging given the merged entity's increased leverage and the lack of competitors to keep the merged system in check. A merged Lifespan-CNE could negotiate higher rates. I am not aware of any reason why rates would decrease as a result of the merger

(286)   Also evident in testimony from South County Health is that the Parties' increased leverage over payors will have negative consequences for the price and accessibility of health care:[565]

> [T]he merged entity would have extraordinary leverage with health plans… As the dominant provider in the state, the merged entity would be able to dictate terms to the insurers, limit patient choice, and disadvantage other hospital systems.

---

[561] ████████████████████████████████████

[562] BCBSRI Declaration.

[563] BCBSRI Declaration, 2

[564] *Id*, 4.

[565] South County Declaration, 4

> [A] merged Lifespan/CNE entity would be able to dictate the rates that it wanted to
> insurers.. as a result the merged entity would be able to secure greater
> reimbursements from insurers.

(287) ██
██████████████████████████[566]

     ██████████████████████████████████████
     ████████████████
     ██████████████████████████████████████
     ███████████████████████████████████████
     ██
     ██
     ██
     ████████████████████████

██
██

BCBSRI's testimony explains why OHIC's limits on hospital facility reimbursements cannot reliably mitigate payor concerns as to the bargaining power of the consolidated Lifespan-CNE system to receive waivers for rate increases above the caps.[567] BCBSRI's experience is consistent with the limitations to inducing competitive outcomes that I outlined in Section VI.C.

VII.E. FTC inaction on prior merger attempts do not provide guiding precedent for the Proposed Transaction

(288) ██
██
██
███████████████████████.[568]

     ██
     ██
     ██
     ██

---

[566] ████████████████████████████

[567] BCBSRI Declaration, 5.

[568] ████████████████████

███
███
███████████████████████████████

(289) ███
███
███
███████████████████████████████, since Lifespan and CNE's prior merger attempts there
have been significant developments in the methodological tool kit economists employ to analyze
hospital mergers, as well as a large amount of new published economic research papers documenting
the many harmful effects of hospital consolidation. For these reasons, the FTC's actions on Lifespan
and CNE's prior merger attempts are not a reliable indicator for whether the Proposed Transaction
will substantially lessen competition now.

(290) In Section VI.A, I summarized some of the economic literature on hospital mergers and
consolidation, much of which was conducted after Lifespan and CNE's prior attempts to merge. That
literature consistently finds that hospital mergers and consolidation has increased the cost of hospital
care and generally lowered quality. In this section, I focus on and describe the advances in the
economic toolkit used to evaluate hospital mergers. Regardless of why the FTC did not attempt to
block prior attempts by Lifespan and CNE to merge, there is ample evidence—document, testimony,
and empirical—showing that the Proposed Transaction is likely to substantially lessen competition
and harm Rhode Island residents.

(291) To provide some context for the antitrust enforcement climate in which Lifespan and CNE's prior
merger attempts occurred, I begin with a very brief history of hospital merger enforcement.
Throughout the 1980s into the early 1990s the Agencies won five of six hospital merger challenges,[569]
and settled others by consent decree.[570] However, in the mid-1990s the Agencies began a losing
streak consisting of six successive hospital merger cases between 1994 and 1999.[571] In 2001, the State
of California also lost in its attempt to block a hospital merger in Oakland, California.[572] A major
factor for these losses was the courts' rejection of the Agencies' alleged geographic markets.[573] After

---

[569] The US DOJ lost *United States v. Carilion Health Sys*tem, 707 F. Supp. 840 (W.D. Va. 1989).

[570] Thomas L. Greaney, "Whither Antitrust? The uncertain future of competition law in health care," *Health Affairs* 21, no. 2 (2002).

[571] Adventist Health System/West, et al., No. 9234, 117 F.T.C. 224 (1994); FTC v. Freeman Hosp., 911 F. Supp. 1213 (W.D. Mo. 1995), aff'd 69 F.3d 260 (8th Cir. 1995); FTC v. Butterworth Health, 946 F. Supp. 1285 (W.D. Mich. 1996), aff'd mem., 121 F.3d 708 (6th Cir. 1997); United States v. Mercy Health Servs., 902 F. Supp. 968 (N.D. Iowa 1995), vacated as moot, 107 F.3d 632 (8th Cir. 1997); United States v. Long Island Jewish Med. Ctr., 983 F. Supp. 121 (E.D.N.Y. 1997); FTC v. Tenet Healthcare, 186 F.3d 1045 (8th Cir. 1999), and FTC v. Hosp. Bd. of Dirs. of Lee Cty., 38 F.3d 1184 (11th Cir. 1994).

[572] California v. Sutter Health Sys., 84 F. Supp. 2d 1057 (N.D. Cal.), revised, 130 F. Supp. 2d 1109 (N.D. Cal. 2001).

[573] For additional discussion and details about the reasons for the string of losses, see Cory Capps, Laura Kmitch, Zenon Zabinski, and Slava Zayats, "The continuing saga of hospital merger enforcement," *Antitrust Law Journal* 82, no. 2

this string of losses, the Agencies did not prospectively challenge a hospital merger again until the FTC's 2008 challenge to Inova Health System's proposed acquisition of Prince William Hospital in northern Virginia.[574]

(292) Notably, several of Lifespan and CNE's prior merger attempts occurred during this period during which the Agencies did not challenge *any* hospital mergers. Moreover, it was during this period that the Agencies took steps to improve their ability to assess hospital mergers. Specifically, in 2002 the FTC assembled a Merger Litigation Task Force,[575] which initiated a hospital merger retrospective study and issued subpoenas for documents and pricing data to several recently formed hospital systems. These studies had two related goals: to identify potential targets of FTC enforcement actions, and to better inform the FTC "about the consequences of particular transactions and the nature of competitive forces in health care."[576] In its review of the acquisition of Highland Park Hospital by Evanston Northwestern Healthcare, the FTC concluded that the merger had resulted in substantial price increases, and, in 2004, it sued to unwind that merger.[577]

(293) During this period in the early 2000s the economics literature made several important advances with respect to hospital competition that have improved our understanding of hospital competition and generated methods that economists now typically employ to evaluate hospital mergers.

- First, the literature turned its focus on how the hospital industry has transitioned to payor-driven competition in which hospitals and insurers engaged in selective contracting to establish prices.[578] With this change in focus, Dr. Gregory Vistnes introduced the model of two-stage competition that I discussed in Section IV. As noted, in this model of competition hospitals first compete on price for inclusion in payors' networks and then compete with other in-network hospitals on non-

---

(2019): 441–496.

[574] Complaint, in Federal Trade Commission and Commonwealth of Virginial ex. rel. Robert F. McDonnell, Attorney General, v. Inova Health System Foundation and Prince William Health System (May 2008) https://www.ftc.gov/sites/default/files/documents/cases/2008/05/080513complaint.pdf; In 2004 the FTC sued to unwind the acquisition of Highland Park Hospital by Evanston Northwestern Healthcare, which had occurred in 2000. *See* Federal Trade Commission, "Commission Rules that Evanston Northwestern Healthcare Corp.'s Acquisition of Highland Park Hospital Was Anticompetitive," August 2007. https://www.ftc.gov/news-events/press-releases/2007/08/commission-rules-evanston-northwestern-healthcare-corps.

[575] Federal Trade Commission, "Federal Trade Commission Announces Formation of Merger Litigation Task Force," August 2002. https://www.ftc.gov/news-events/press-releases/2002/08/federal-trade-commission-announces-formation-merger-litigation.

[576] Prepared remarks of Timothy J. Muris, "Everything Old is New Again: Health Care and Competition in the 21st Century," 7th Annual Competition in Health Care Forum, November 2002, at 19. https://www.ftc.gov/sites/default/files/documents/public_statements/everything-old-new-again-health-care-and-competition-21st-century/murishealthcarespeech0211.pdf.

[577] Complaint, In re Evanston Northwestern Healthcare Corp., FTC Docket No. 9315 (Feb. 10, 2004). See also Deborah Haas-Wilson and Christopher Garmon, "Hospital Mergers and Competitive Effects: Two Retrospective Analyses," International Journal of the Economics of Business 18, no. 1 (2011): 17–32.

[578] *See*, e.g., David Dranove, Mark Shanley, and William D. White, "Price and Concentration in Hospital Markets: The Switch from Patient-Driven to Payer-Driven Competition," *Journal of Law and Economics* 36, no. 1 (1993): 179–204.

price factors for patient volume.[579] This framework provided insight into why patient flows do not provide a reliable approach to define geographic markets, which was a key factor in the string of agency losses.

■ Second, building on the two-stage model of competition, two papers introduced empirical techniques to quantify the bargaining leverage of a hospital or system in stage-one negotiations with payors: one by Dr. Robert Town and Dr. Gregory Vistnes and the other by Dr. Cory Capps, Dr. David Dranove, and Dr. Mark Satterthwaite.[580] More specifically, these papers develop the WTP methodology discussed in Section V.C.2 to analyze a hospital's value-add to an insurer's network. These papers established that hospitals with greater WTP generally had higher prices. Subsequent research, some of which I outline in Section VI.A.1, has repeatedly confirmed the relationship between WTP and hospital prices. The FTC has incorporated these advances in economic methodology into their analyses of hospital mergers.[581]

(294) Taking these facts together, the FTC's inaction on prior merger attempts by Lifespan and CNE does not provide any useful or reliable information regarding the likely competitive effects of the Proposed Transaction.

---

[579] Vistnes (2000), 671–692.

[580] Town and Vistnes (2001) and Capps et al. (2003).

[581] *See* Joseph Farrell, David Balan, Keith Brand, Brett Wendling, "Economics at the FTC: Hospital Mergers, Authorized Generic Drugs, and Consumer Credit Markets," *Review of Industrial Organization* 39, no. 4 (2011): 271–296.

VIII. Other major areas of competitive concern

(295)   In addition to inpatient GAC services, Lifespan and CNE offer an array of ambulatory services including outpatient surgery services. They both also offer inpatient behavioral health care and own the largest ACOs, as measured by attributed lives, in Rhode Island. In this section, I analyze the likely competitive effects of the Proposed Transaction in markets defined around these additional service lines. I find that the Proposed Transaction raises significant competitive concerns in outpatient surgeries, the market for inpatient behavioral health services, and the labor market for nurses and other advanced medical practitioners. Lifespan and CNE's control over Rhode Island's three largest ACOs also raise broad competitive concerns about the effect it will have on stage two competition and other benefits of accountable care. This section proceeds as follows:

- In Section VII.A, I analyze the competitive effects in markets defined around outpatient surgery service lines. As with inpatient GAC services, I find that the Proposed Transaction would increase concentration by amounts that far exceed the thresholds defined in the *Merger Guidelines*, over which a merger is presumed to be likely to enhance market power. ███████ ██ ███ Diversion analysis further confirms and quantifies the extent of the head-to-head competition. The Proposed Transaction will eliminate this competition and harm Rhode Island patients.

- In Section VIII.B, I analyze the market for inpatient behavioral health services. I first establish that inpatient behavioral health treatment in Rhode Island is a relevant market in which to evaluate the likely effects of the Proposed Transaction. As with inpatient GAC care, the market for inpatient behavioral health care in Rhode Island is also highly concentrated before the merger and will become even more so afterwards. I estimate the diversion ratios between Lifespan and CNE, which ███████████████████████████████████████ show that there exists significant head-to-head competition for patients.

- In Section VIII.C, I discuss the competitive concerns created by the consolidation of the Parties' accountable care organizations (ACOs): Integra ACO, Lifespan Health Alliance ACO, and the Coastal ACO. These three ACOs contain 81 percent of commercial attributed patients in the state. I discuss how the lack of competition between ACOs reduces the ability of insurers to advance innovative payment models that reduce utilization while maintaining quality care.

- I end with Section VIII.D in which I consider the labor market for nurses and other advanced medical practitioners. I explain why hospitals represent a relevant "product" market for nurses and other advanced health practitioners. I show that the economics literature has found that hospitals have market power within geographic areas similar in size to Rhode Island and the MARI region. The evidence of such market power raises significant concerns that the Proposed

Transaction will lessen competition for nurses, thereby resulting in lower compensation and/or higher workloads than would otherwise occur.

VIII.A. The Proposed Transaction raises significant competitive concerns in markets for outpatient surgery services in several service lines

(296)   Outpatient surgery—also referred to as ambulatory surgery—refers to surgical procedures that do not require an overnight stay in a hospital. Outpatient surgeries, specifically invasive procedures that generally require some form of anesthesia, are performed in hospital outpatient departments (HOPDs) as well as in free-standing ambulatory surgery centers (ASCs) and other specialty locations such as endoscopy centers. Medical advances have reduced and continue to reduce the risk and complexity of surgery, allowing a wider array of surgeries to be performed in an outpatient setting.[582]

(297)   ██ ██ ██ ██ ████████████.[583]

(298)   I first discuss in Section VIII.A.1 why the various service lines for outpatient surgeries offered by Rhode Island facilities represent antitrust relevant markets (product and geographic) in which to evaluate the effects of the Proposed Transaction. In Section VIII.A.2, ████████████████████ ██ ████████████████████ This competition increases the value of the care that they offer, benefiting Rhode Island patients. I then conduct a structural analysis in Section VIII.A.3 and show that the Proposed Transaction would increase concentration in these markets for outpatient surgery services for several specialties to levels well above the thresholds outlined in the *Merger Guidelines*; i.e., structural analysis indicates that the Proposed Transaction is likely to substantially lessen competition in several specialties of ambulatory care services. I end by conducting a direct analysis of the competitive effects by estimating the diversions between Lifespan and CNE by OP surgery service line and estimate the increase in WTP in OP surgery services created by the Proposed

---

[582] ████████████████████████ ███████████████████ Karen A. Cullen, Margaret J. Hall, and Aleksandr Golosinskiy, "Ambulatory Surgery in the United States, 2006," *National Health Statistics Reports* 11, (January 2009): 1–25.

[583] ██ ██ ██████. ████████ . FTC-CNE-00002557; Lifespan011595.xlsx, ██████████████ ████████████████████████████

Transaction. The estimates show that ████████████████████████████████████ ████████████████ there is significant head-to-head competition between Lifespan and CNE for these services in most specialties; competition that will be eliminated by the merger.

VIII.A.1. Outpatient surgery services are relevant product markets and Rhode Island is a relevant geographic market in which to evaluate the Proposed Transaction

(299)   As I explained in Section V.A.1, I do not include ambulatory services such as outpatient surgery within the cluster product market of inpatient GAC services because ambulatory services—outpatient care—is not generally a substitute for inpatient care. The decision to treat a patient in an inpatient versus outpatient setting is typically guided by clinical considerations and not price differences, meaning insurers and their members will not (because they cannot) substitute towards outpatient care in response to an increase in the price of inpatient care or a degradation in the quality of inpatient care, and vice versa. Furthermore, the competitive conditions in terms of the number and composition of competitors and the barriers to entry substantially differ between the inpatient and outpatient care settings.

(300)   Indeed, the composition of competitors and barriers to entry differ across outpatient surgery service lines as well. There are a number of freestanding outpatient surgical facilities in Rhode Island, most of which specialize in a particular service line, such as ophthalmology, urology, orthopedic or dermatology procedures.[584] These specialties involve varying degrees of invasiveness, and thus a wide variety of equipment, trained surgical staff, and physical space is needed to operate within each unique specialty. Each facility requires different types of clinical spaces, such as examination rooms, procedure rooms, operating rooms (ORs), sterile processing rooms, changing rooms, patient waiting areas, and pre-operative and post-operative recovery rooms.[585] These types of clinical spaces are subject to distinct guidelines such as minimum clear floor area, minimum air ventilation infrastructure, or different levels of security restriction and accessibility within a building layout, all of which is typically determined prior to construction rather than subsequent expansion. Industry-standard OR sizes also differ based on the service type[586] and there are unique types of operating rooms requiring licensed technicians to operate surgery-specific equipment, such as non-fixed versus

---

[584]   Rhode Island Department of Health, "Licensee Lists: Freestanding Ambulatory Surgery Centers," https://health.ri.gov/lists/licensees/

[585]   Health Facilities Management, "Design distinctions for exam, procedure, and operating rooms," October 2019, https://www.hfmmagazine.com/articles/3764-design-distinctions-for-exam-procedure-and-operating-rooms

[586]   *Id. See also* Avente Medical Surgical, "An Introduction to Operating Room Design," https://www.dremed.com/medical_equipment_news/a-basic-guide-to-setting-up-todays-or/#:~:text=As%20minimally%20invasive%20procedures%20become%20the%20new%20standard%2C,new%20technology%20including%20endovascular%2C%20MRI%2C%20and%20imaging%20equipment. (accessed February 7, 2022)

mounted imaging machines in spinal operating rooms.[587] For example, procedures at outpatient otolaryngology facilities (commonly known as ear, nose, and throat, or "ENT") such as tonsillectomy require a small restricted operating room with general anesthesia capabilities, particular surgical tools, and a short-term recovery area, but a dermatology facility may only require unrestricted examination rooms with basic equipment for biopsies and local anesthesia administration.[588,589] For these reasons, it is appropriate to separately consider distinct service lines rather than cluster all outpatient surgery services lines together.

(301)   I focus on the set of invasive outpatient surgical services that are performed in an operating room and require regional anesthesia, general anesthesia, or sedation.[590] An invasive surgical procedure is a procedure that penetrates the protective surfaces of a patient's body, is often performed in a sterile field, generally requires entry into a body cavity, and may involve insertion of an indwelling foreign body.[591] Examples include knee arthroscopy, extracapsular cataract removal, and creating an eardrum opening.[592] I exclude other types of ambulatory care, including diagnosis, observation, consultation, and treatments that are less invasive as these are often performed in additional settings such as physician offices.[593] That is, I focus on the surgical treatments that can only be performed in an operating room, meaning in a HOPD or surgery center. Other outpatient services that can be performed in physician offices are not generally clinical substitutes for more invasive outpatient surgical services and the competitive conditions are generally very different. Just as outpatient care is not generally substitutable for inpatient care, these lower acuity types of services that can be performed in physician offices would not render unprofitable a SSNIP by a hypothetical monopolist

---

[587] Strategic Dynamics, "10 Things You May Not Know About the Operating Room: Part 1," September 2015, https://strategicdynamicsfirm.com/10-things-you-may-not-know-about-the-operating-room-part-1/?nonitro=1 (accessed February 7, 2022).

[588] Middlesborough Primary Care Skin Service, "Primary Care Dermatology Society - Skin Surgery Guidelines" January 2007. https://www.pcds.org.uk/files/gallery/skin_surgery_guidelines.pdf (last accessed February 7, 2022).

[589] Even within outpatient service lines the OR requirements can differ. For example, cardiac catheterization labs require proprietary software for hemodynamic monitoring whereas vascular labs do not. Depending on the size and rigor of the facility, different specialties may also have varying degrees of advanced technologies, such as video-assisted, laparoscopic, or robotic equipment, which require special training for physicians and technicians and high-cost capital up-front.

[590] These are surgeries that that are defined as "narrow" by the Healthcare Cost and Utilization Project (HCUP). Narrow surgical procedures usually represent a major therapeutic procedure and involve "incision, excision, manipulation, or suturing of tissue that penetrates or breaks the skin." Healthcare Cost and Utilization Project, "Surgery Flag Software for Services and Procedures," 2021. https://www.hcup-us.ahrq.gov/toolssoftware/surgeryflags_svcproc/surgeryflagssvc_proc.jsp. HCUP is a division of the Agency for Healthcare Research and Quality (AHRQ), which in turn is a division of the Department of Health and Human Services. Agency for Healthcare Research and Quality, "Healthcare Cost and Utilization Project (HCUP)." http://www.ahrq.gov/research/data/hcup/index.html

[591] Sian Cousins, Natalie S. Blencowe, and Jane M. Blazeby "What is an invasive procedure? A definition to inform study design, evidence synthesis and research tracking" *BMJ Open* 9, no. 7 (2019).

[592] *Id.*

[593] Outpatient services also include emergency room visits, laboratory tests, pathology services, and other ancillary services. Centers for Medicare and Medicaid Services, "Are you a Hospital Inpatient or Outpatient?" May 2014. https://www.medicare.gov/Pubs/pdf/11435.pdf. In my analysis in this section, I focus solely on outpatient surgery.

---

of outpatient surgical services. Outpatient surgical services sold to commercial health insurers therefore constitute a second set of relevant product markets in which to assess the competitive effects of the Proposed Transaction.[594]

(302)   As with inpatient services, Rhode Island is an appropriate relevant geographic market in which to analyze the effects of the Proposed Transaction. As discussed in Section V.A.3.a, most commercially insured patients who reside in Rhode Island area receive routine care close to where they work or live and generally do not travel outside of Rhode Island to receive that care. A hypothetical monopolist of all outpatient surgery providers in Rhode Island would be able to profitably impose a SSNIP because a commercial insurer's only alternative to accepting the SSNIP would be to send all patients to facilities located outside the state for all outpatient surgeries related to that specialty (or to pay much more out-of-pocket for out-of-network care). Such an insurance product would not only not meet network adequacy standards but would be substantially less attractive than products that included in-state outpatient options.

(303)   Faced with a demand for a SSNIP, an insurer must either accept the SSNIP or substantially lower its premiums, which would also lower the insurer's profits. Thus, a hypothetical monopolist of all outpatient surgery facilities providing surgeries within a given specialty in Rhode Island could increase its price by a small but significant amount (e.g., 5 percent to 10 percent) and insurers would still be compelled to contract with it. Therefore, under the *Merger Guidelines*' hypothetical monopolist test, the Rhode Island is an appropriate relevant geographic market in which to evaluate the Proposed Transaction.

VIII.A.2. ███
██
████████████████████

(304)   ███
██
██
██
████████████████████████████████████

---

[594] Examples of matters in which the product market was defined as a set of outpatient surgical services include Reading Health System, FTC Docket No. 9353 (November 30, 2012) and In re Cabell Huntington Hosp., Inc., FTC File No. 141-0218 (November 6, 2015).

- ██
██
███[595].

- ██
██
██
████████████████████"[596]

- ██
███[597].

  □ ██
  ██
  ██
  ██
  ████████████████████████[598]

- ██
██
██
███████████████████████████████████[599].

- ██
██
██
██
██
███████████████████[600].

---

[595] LIFESPAN01790603 at -0604: ████████████████████████
████████████████████████████████████

[596] LIFESPAN02376622 at 2, 4.

[597] ██████████████████████

[598] FTC-CNE-0036405. (emphasis added).

[599] LIFESPAN00760037 at -0049. ████████████████████████
████████████████████████████████████
████████████████████████████████████
████████████████████████████████████
████████████████████████████████████
████████████████████

[600] C-R-CNE-LS-0079827 at -9832, -9839.

VIII.A.3. Structural analysis of market shares and market concentration show that the Proposed Transaction is likely to substantially lessen competition for outpatient surgeries

(305)   Figure 36 reports shares of outpatient surgeries and the corresponding HHIs by service line, defined by the site of service (i.e., the organ system involved) as identified by the surgery procedure code among commercially insured Rhode Island patients.[601] The figure includes the ten specialties with the highest work RVUs.[602] These collectively account for 96.9 percent of all surgeries performed on a work RVU basis. The figure shows that the combined Lifespan and CNE system would have a post-merger share ranging from a low of 6.7 percent for surgeries related to auditory (e.g., creating an eardrum opening or repairing an eardrum) to a high of 82.5 percent for surgeries related to the female reproductive system (e.g., total laparoscopic hysterectomy or laparoscopic removal of an adnexal mass). The Proposed Transaction is predicted to increase HHI by substantially more than 200 points for seven of the ten specialties as well as for all other specialties, and the post-merger HHI measure is above 2,500 for seven of the ten specialties as well as for all other systems. Thus, the Proposed Transaction exceeds the *Merger Guidelines* thresholds above which the merger is presumed to be likely to enhance market power for outpatient surgical services in these service lines: Cardiovascular, Digestive, Endocrine, Female genital, Integumentary. The Parties would also have a combined share in excess of 35 percent in the Musculoskeletal and Nervous service lines.[603]

---

[601] That is, the shares represent the work RVU shares for all commercially-insured patients in Rhode Island, regardless of what facility they went to for care. I identify the site of service based on the current procedure terminology (CPT) code. CPT codes are numerical codes used primarily to identify medical services and procedures rendered by healthcare professionals including physicians and other medical practitioners. The CPT coding system used by CMS to record and compensate physicians and other medical practitioners in the Medicare and Medicaid programs as well as commercial insurers. *See* Peggy Dotson, "CPT® Codes: What Are They, Why Are They Necessary, and How Are They Developed?" *Advances in Wound Care (New Rochelle)* 2, no. 10 (2013): 583–587.

[602] Each physician procedure, including outpatient surgeries, is assigned a work relative value unit (RVU). These work RVUs measure the resources used to provide each service where resources include the physician's work in terms of time and experience required to perform the procedure, the expenses of the physician's practice associated with the procedure, and professional liability insurance. For example, the work RVUs for a diagnostic colonoscopy are more than double the work RVUs for an intermediate office visit because the colonoscopy requires more physician time and effort than the visit. CMS multiplies all of the work RVUs associated with the procedures performed by a physician during a patient encounter—an encounter may include multiple procedure—by a dollar conversion factor to determine the physician's compensation. Commercial insurers also often compensate physicians based on their work RVUs. *See* National Health Policy Forum, "THE BASICS: Relative Value Units (RVUs)," January 2015. http://www.nhpf.org/library/the-basics/Basics_RVUs_01-12-15.pdf

[603] The Parties' share of musculoskeletal surgeries is likely to have fallen with the opening of OrthoRI's surgery center. During the time period of these data, OrthoRI were performing their OP surgeries at Kent. Haffey Transcript, 170–171.

Figure 36. Outpatient surgery shares by service line, 2017–2019

Specialty (Site of surgery)	Work RVUs	Lifespan			CNE		Total LS+CNE share	Delta-HHI	Post-HHI
		RIH	Miriam	Newport	Kent	W&I			
Auditory	7,861	6.2%	-	-	0.5%	-	6.7%	6	6,654
Cardiovascular	4,958	32.6%	20.9%	0.6%	12.1%	0.4%	66.7%	1,360	4,605
Digestive	45,978	14.5%	18.1%	3.1%	12.0%	0.8%	48.6%	915	2,853
Endocrine	6,738	67.4%	6.9%	-	2.7%	-	77.0%	397	6,000
Eye and Ocular Adnexa	41,108	13.1%	2.6%	0.2%	0.3%	-	16.2%	11	1,762
Female Genital	40,015	13.7%	0.4%	1.7%	7.9%	58.8%	82.5%	2,112	6,849
Integumentary	39,120	13.0%	12.0%	3.9%	8.0%	25.6%	62.5%	1,941	4,041
Musculoskeletal	158,167	10.0%	6.3%	3.7%	16.3%	0.2%	36.6%	663	1,901
Nervous	17,590	15.8%	7.7%	2.9%	10.4%	0.5%	37.2%	573	1,889
Respiratory	13,706	2.6%	0.9%	-	10.0%	-	13.6%	71	4,244
All other specialties	12,085	26.0%	16.2%	1.3%	5.1%	11.6%	60.2%	1,453	3,848
Weighted Total	**387,326**	**13.2%**	**7.6%**	**2.6%**	**11.0%**	**9.2%**	**43.6%**	**893**	**3,072**

Source: RI APCD claims data, 2017–2019.
Notes: [1] Shares and work RVUs are based facility claims. [2] Limited to "narrow", non-emergency surgeries for commercial RI patients, excluding patients 65 and over. [3] Weighted Total shares and HHI represent work RVU-weighted averages. [4] Rendering organization name used when billing organization name is missing. [5] 96.7 percent of work RVUs for narrow surgeries for commercial RI patients are non-emergency. [6] See Figure 55 in the appendix for a complete table. [7] Limited to providers in RI, MA, or CT.

VIII.A.4. Diversion and WTP analysis confirms that there is significant head-to-head competition between Lifespan and CNE for OP surgeries in multiple service lines

(306)   Figure 37 presents the estimated diversion ratios for outpatient surgeries by surgery service line. Each row displays the share of diverted patients following an exclusion of the Lifespan or CNE hospital indicated in the column header.

■ If patients were to switch away from Lifespan hospitals (e.g., because Lifespan was out of network, moved to a higher insurance tier, or its OP surgeries declined in quality), 25 percent of RIH patients, 27 percent of Miriam patients, and 16 percent of Newport patients would switch to a CNE hospital. Indeed, CNE is Lifespan's closest substitute for outpatient surgeries overall. The diversions are much higher within specific service lines and diversions from RIH and Miriam to

CNE are similar across specialties. For example, nearly 50 percent of RIH's and Miriam's patients would switch to a CNE hospital for a surgery related to hemic & lymphatic and integumentary systems (e.g., lymph node removals and mastectomies). And over 80 percent of RIH's and Miriam's patients would switch to a CNE hospital for surgeries related to the female reproductive system (e.g., hysterectomies).

■ If patients were to switch away from CNE hospitals, 36 percent of Kent's patients and 30 percent of W&I's patients would switch to a Lifespan hospital, making Lifespan CNE's closest substitute for outpatient surgeries. As with Lifespan, the diversions are much higher within specific service lines. For example, the diversions are over 50 percent for either Kent or W&I (usually both) to a Lifespan hospital in over seven specialties including Cardiovascular, Digestive, Endocrine, Eye and ocular adnexa, Female genital, Hemic and lymphatic, and Integumentary.

(307) ███
███
████████████████████████[604]

    ██████████████████████████████████████
    ██████████████████████████████████████
    █████████████████

    ██████████████████████████████████████
    ██████████████████████████████████████
    ██████████████████████████████████████
    █████████████████████████████

(308) ██
██

---

[604] LIFESPAN06437609 at -7610 (emphasis added).

Figure 37. Outpatient surgery diversion ratios by specialty

Service line	Total work RVUs	From Lifespan to CNE hospitals			From CNE to Lifespan hospitals	
		RIH	Miriam	Newport	Kent	Women and Infants
Auditory	7,861	0%	-	-	1%	-
Cardiovascular	4,958	24%	30%	-	63%	100%
Digestive	45,978	19%	20%	4%	45%	52%
Endocrine	6,738	5%	2%	-	77%	-
Eye and ocular adnexa	41,108	4%	0%	-	57%	-
Female genital	40,015	80%	91%	55%	53%	56%
Hemic and lymphatic	3,805	49%	48%	36%	55%	58%
Integumentary	39,120	48%	52%	27%	53%	57%
Male genital	4,325	2%	9%	-	31%	-
Musculoskeletal	158,167	19%	18%	16%	21%	24%
Nervous	17,590	16%	16%	5%	33%	8%
Respiratory	13,706	8%	6%	-	3%	-
Urinary	3,798	11%	19%	12%	26%	46%
Total	**387,168**	**25%**	**27%**	**16%**	**36%**	**30%**

Sources: RI APCD claims data, 2017-2019.
Notes: [1] Limited to non-emergency, "narrow" outpatient surgeries for commercial RI patients, excluding patients 65 and over. [2] Bin size threshold based on 5th percentile of wRVUs. [3] Dropped procedure codes with wRVU of zero or missing.

(309) Figure 38 shows the effect of the Proposed Transaction on the WTP for outpatient surgeries overall. As I discussed in Section V.C.2.a, the WTP of a merger is driven by the degree of service and geographic overlap for the merging hospitals. I therefore estimate the WTP for the entire set of OP surgery services to account for the fact that the degree of overlap can vary considerably across service lines. The figure shows that the WTP for the combined system for outpatient surgeries is 19.4 percent higher than the sum of the WTP for each of the two systems. In other words, the merged system adds 22.7 percent more value to an insurer's network than Lifespan and CNE separately add. For MARI patients, the increase in WTP is similar at 19.3 percent. This is a significant increase that results from the Proposed Transaction eliminating competition between the two systems. This increase in WTP for outpatient surgeries raises significant competitive concerns and indicates that the Proposed Transaction is likely to enhance the combined system's market power within outpatient surgeries resulting in higher prices and/or lower quality services.

Figure 38. WTP of Lifespan + CNE for outpatient surgeries

State	Step	Measure	Avg. WTP per patient	
			RI patients	MARI patients
Pre-acquisition	[1]	CNE	0.24	0.24
	[2]	Lifespan	0.26	0.26
	[3] = [1] + [2]	Sum of each system's WTP	0.50	0.50
Post-acquisition	[4]	WTP for the merged system	0.60	0.60
	[5] = [4] - [3]	**Increase in WTP**	0.10	0.10
	[6] = [5] ÷ [3] × 100%	**% Increase in WTP**	**19.4%**	**19.3%**

Source: RI APCD claims data, 2017-2019
Notes: WTP based on all RI (or RI + select MA zips) GAC patients. Excludes newborns, patients 65 and over, and transfers. WTP estimated using a semi-parametric hospital choice model. Limited to "narrow", non-emergency surgeries. See Appendix E for additional outpatient WTP tables

(310) Last, for the same reasons entry or expansion by competitors into the market for inpatient GAC services is unlikely to deter or reverse the harm caused to consumers by the Proposed Transaction, entry or expansion of outpatient surgery services by competitors are unlikely to prevent a lessening of competition. Although not as extensive as opening an inpatient GAC hospital, creating a new outpatient surgery center also requires substantial time and capital resources. For example, OrthoRI, which only performs orthopedic surgeries, just opened a new surgery center in March of 2021, two years after construction first began.[605]

VIII.B. The Proposed Transaction raises significant competitive concerns in the market for inpatient behavioral health services

(311) Behavioral health services are those medical services used to treat mental illnesses or substance use disorders. Treatments can include counseling and specialized psychotherapies as well as medications. Such treatments are often given on an outpatient basis, but some behavioral health treatments are provided in an inpatient setting. For example, hospitalization may be needed because the patient requires close monitoring to provide accurate diagnosis or to help adjust or stabilize medications, or during an acute episode where a person's mental illness temporarily worsens.[606]

(312) In Rhode Island, there are only two inpatient specialty behavioral health hospitals: CNE's Butler Hospital and Lifespan's Bradley Hospital. In addition, Kent and RIH each have over 500 discharges for psychiatric conditions per year.[607] Furthermore, both systems offer a complete complement of

---

[605] "Ortho Rhode Island opens innovative RI campus," RINewsToday, March 27, 2021, available at https://rinewstoday.com/ortho-rhode-island-opens-innovative-ri-campus/.

[606] *See* Mental Health America, "In patient care". https://www.mhanational.org/patient-care.

[607] This includes the years 2017 and 2018; in 2019, Kent had just over 300 behavioral health discharges while RIH had over
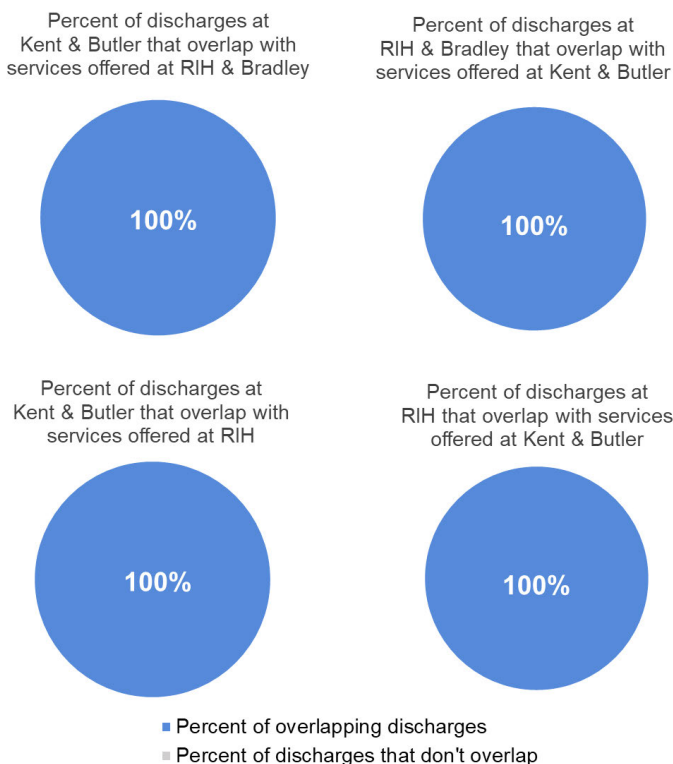
behavioral health services.[608] Figure 39 reports the overlapping DRGs and discharges between RIH and Bradley Hospital combined, and Kent and Butler combined. Since Bradley predominantly treats children and adolescents, the figure also reports degree of service overlap between RIH alone and Kent and Butler.[609] It shows that all of Kent's and Butler's inpatient behavioral health care (100%) are for services (DRGs) that are also offered at RIH and Bradley. Conversely, 100% of RIH discharges for behavioral health are for services also offered at Kent and Butler hospitals, and vice versa.

---

500. Psychiatric conditions correspond to DRGs in MDCs 19 and 20, "mental diseases and disorders" and "alcohol/drug use or induced mental disorders."

[608] ██████████████████

[609] ████████████████ Lifespan, "Child & adolescent inpatient program". https://www.lifespan.org/centers-services/child-adolescent-inpatient-program. ███████████████████████████████ ██████████████████████████████████████ █████████████████████████████

Figure 39 Lifespan and CNE provide the same set of inpatient behavioral health care

Percent of discharges at Kent & Butler that overlap with services offered at RIH & Bradley: **100%**

Percent of discharges at RIH & Bradley that overlap with services offered at Kent & Butler: **100%**

Percent of discharges at Kent & Butler that overlap with services offered at RIH: **100%**

Percent of discharges at RIH that overlap with services offered at Kent & Butler: **100%**

■ Percent of overlapping discharges
■ Percent of discharges that don't overlap

Source: RI and MA discharge data, 2017-2019.
Notes: Blue portion of pies represent the proportion of DRGs or discharges at the indicated hospitals that are for services also offered at the indicated overlap hospital. [1] Excludes out-transfers. [2] Kent County Hospital and Butler Hospital combined offer 12 total DRGs pertaining to behavioral health inpatient care and RIH and Bradley Hospital combined also offer the same 12 DRGs only. [3] Kent County Hospital and Butler Hospital combined have 23,345 discharges and RIH and Bradley Hospital combined have 12,862 total discharges. RIH has 9,794 total discharges. [4] See Figure 57 and Figure 58 in the appendix for complete tables.

VIII.B.1. Inpatient behavioral health services sold to commercial health insurers and provided to their members in Rhode Island is a relevant market in which to evaluate the Proposed Transaction

(313)   As I explained in Section V.A.1, I do not include inpatient behavioral health services within the cluster product market of inpatient GAC services. There are a few key reasons why this is appropriate.

■   First, broadly speaking, inpatient behavioral health care is not a substitute for inpatient general acute care. In response to a SSNIP by a hypothetical monopolist of all inpatient GAC services (or inpatient behavioral health care) insurers and/or patients will not substitute to behavioral health care.

- ██
  ██
  ██
  ████████[610]

- Third, although an inpatient GAC hospital can have a behavioral health inpatient unit and/or a substance abuse unit, they often do not. Among the inpatient GAC hospitals in Rhode Island, only Kent, Landmark, and RIH have a material number of behavioral health inpatient patient episodes.[611] ████████████████████████████████
  ██
  ████████████████████████████████████.[612] As a result, the competitive conditions in terms of the number and composition of competitors and the barriers to entry substantially differ between the inpatient GAC and inpatient behavioral health care settings.

(314)   For these reasons, behavioral health inpatient care is a distinct antitrust relevant product market from inpatient GAC services.

(315)   As with inpatient GAC services, Rhode Island is an appropriate relevant geographic market in which to analyze the effects of the Proposed Transaction. Around 97 percent of commercially insured patients who reside in Rhode Island receive inpatient behavioral health care within Rhode Island (*see* Figure 40). A hypothetical monopolist of all inpatient behavioral health hospitals in Rhode Island would be able to profitably impose a SSNIP because a commercial insurer's only alternative to accepting the SSNIP would be to send all patients to facilities located outside the state for all inpatient behavioral health services or to force enrollees pay much more out-of-pocket for out-of-network care to receive care within Rhode Island. Therefore, under the *Merger Guidelines*' hypothetical monopolist test, Rhode Island is an appropriate relevant geographic market in which to evaluate the Proposed Transaction.

---

[610] ██
██
██
██
██
██

[611] *See* Figure 40 for inpatient behavioral health discharge counts by hospital. About 95 percent of Landmark's behavioral health discharges are in MDC 19, mental diseases, and disorders with the balance of about 5 percent being in MDC 20, alcohol/drug abuse or dependence.

[612] ████████████████████████████

VIII.B.2. ██

██

(316) ██

██

██████████████████████████████████████ .

(317) ██

████████████████████████████ . [613] ████████████████

██

██████████████████████████ . [614] ████████████████████

██

████████████████ . [615]

(318) ██

██████████████████████████████████████ ██████ :

-   ██

    ██

    ██

    ██

    ████████████████ [616]

-   ██

    ██

    ██████████████████████████████████ [617]

VIII.B.3. The market for inpatient psychiatric services is *Highly Concentrated* already and the merger will increase concentration even more

(319) Figure 40 reports market shares based on discharges and HHI measures for behavioral health services for commercial Rhode Island patients under the age of 65. The number of discharges and shares for all patients and for only adult patients are displayed. The figure shows that the combined Lifespan and CNE system would have a post-merger share above 78 percent among all patients and 74 percent among adult patients. The pre-merger HHI is 3,510 points among all patients and 3,796 among adult

---

[613] FTC-CNE-00006952, at -6977.

[614] LIFESPAN00918855 at -8857.

[615] ████████████████████

[616] LIFESPAN02685661.

[617] FTC-CNE-00274094.

patients, which makes the market *Highly Concentrated* as defined by the *Merger Guidelines*. The projected change in HHI is 2,835 points for all patients and 1,955 for adult patients, resulting in a post-merger HHI of 6,345 and 5,751 points, respectively. Regardless of which patient population is considered, the predicted increase in concentration far exceeds the 200-point threshold. Thus, the Proposed Transaction exceeds the *Merger Guidelines* thresholds above which the merger is presumed to be likely to enhance market power.

Figure 40. Commercial inpatient behavioral health shares among RI patients, 2017-2019

System	Hospital	All patients		Adult patients	
		Discharges	Share	Discharge	Share
CNE	Butler	4,272	36.5%	3,854	40.1%
CNE	Kent	1,636	14.0%	1,634	17.0%
CNE	Women & Infants	3	0.0%	3	0.0%
Lifespan	Rhode Island Hospital	1,757	15.0%	1,022	10.6%
Lifespan	Bradley	907	7.8%	13	0.1%
Lifespan	Newport	441	3.8%	441	4.6%
Lifespan	Miriam	172	1.5%	172	1.8%
Lifespan + CNE		**9,188**	**78.6%**	**7,139**	**74.2%**
Prime	Landmark Medical Center	1,003	8.6%	1,003	10.4%
Charter Care	Roger Williams	634	5.4%	634	6.6%
Charter Care	Our Lady of Fatima	480	4.1%	480	5.0%
South County	South County	23	0.2%	23	0.2%
Yale	Westerly	15	0.1%	15	0.2%
Other MA hospitals	Other MA hospitals	347	3.0%	328	3.4%
Total		**11,690**	**100%**	**9,622**	**100%**
Pre-HHI		3,510		3,796	
Delta-HHI		2,835		1,955	
Post-HHI		6,345		5,751	

Source: RI discharge data, MA discharge data, 2017–2019.
Notes: [1] Limited to commercial RI patients with discharges belonging to MDCs 19 (Mental Diseases and Disorders) and 20 (Alcohol/Drug Use or Induced Mental Disorders). [2] Excludes patients 65 and over.

VIII.B.4. Diversions analysis confirms that there is significant head-to-head competition between Lifespan and CNE for inpatient behavioral health care

(320) Figure 41 presents the estimated inpatient diversion ratios for behavioral health. Each row displays the share of diverted patients following an exclusion of the Lifespan or CNE system hospitals. The analysis is based on all commercially insured adult patients in Rhode Island (except those over the age of 65). The substitution patterns show that Butler Hospital is by far the closest substitute for

Bradley Hospital, Rhode Island Hospital, and Newport Hospital, and is the third closest substitute for Miriam Hospital. Rhode Island Hospital is the closest substitute for Butler and Kent.[618]

(321)   If Lifespan hospitals were to become unavailable to Rhode Island patients, 97 percent of Bradley Hospital patients, 72 percent of Rhode Island Hospital patients, 30 percent of Miriam Hospital patients, and 61 percent of Newport Hospital patients would switch to a CNE hospital. If CNE hospitals were to become unavailable to Rhode Island patients, 46 percent of Butler Hospital patients, 43 percent of Kent County Hospital patients would switch to a Lifespan hospital for inpatient psychiatric care.

Figure 41. Behavioral health diversion ratios

System	To Hospital	From Lifespan				From CNE	
		Bradley	RIH	Miriam	Newport	Butler	Kent
Lifespan	RIH	-	-	-	-	25%*	28%*
Lifespan	Newport	-	-	-	-	13%	11%
Lifespan	Bradley	-	-	-	-	7%	1%
Lifespan	Miriam	-	-	-	-	0%	2%
CNE	Butler	96%*	61%*	9%	44%*	-	-
CNE	Kent	1%	11%	20%	18%	-	-
Lifespan / CNE sub-total		**97%***	**72%***	**30%**	**61%***	**46%***	**43%***
Total		**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Sources: RI and MA discharge data, 2017-2019
Note: [1] * indicates the hospital or system is the closest substitute based on diversions ranking. [2] Limited to commercial RI patients, excluding patients 65 and over. Excludes out transfers. [3] W&I only had three behavioral health discharges between 2017 and 2019. [4] *See* Figure 62 for a complete table.

VIII.C. The consolidation of CNE's and Lifespan's ACOs raises competitive concerns

(322)   As discussed in Section III, CNE owns the Integra ACO and Lifespan is a joint owner of the Lifespan Health Alliance ACO. In addition, Lifespan also controls the Coastal ACO as a result of its acquisition of Coastal Medical.

(323)   Figure 42 depicts the shares of commercial attributed lives for all Rhode Island ACOs. It shows that the Parties' ACOs are the three largest ACOs in Rhode Island and have a combined 81 percent share of commercial attributed lives (whether measured by total expenses or by total member months in 2019). In addition, about 61 percent of commercial medical spend in Rhode Island is for health plan members attributed to an ACO. The remaining 39 percent of commercial medical spend is associated with commercial insurance enrollees who are not attributed to an ACO. In consequence, about half of

---

[618]   W&I only had three behavioral health discharges between 2017 and 2019.

all commercial medical spend in Rhode Island is through the Parties' ACOs. CharterCARE has the bulk of the remaining attributed lives—about 16 to 17 percent, depending on how their share is measured.

Figure 42. Shares of commercial ACO claims and attributed lives, 2019
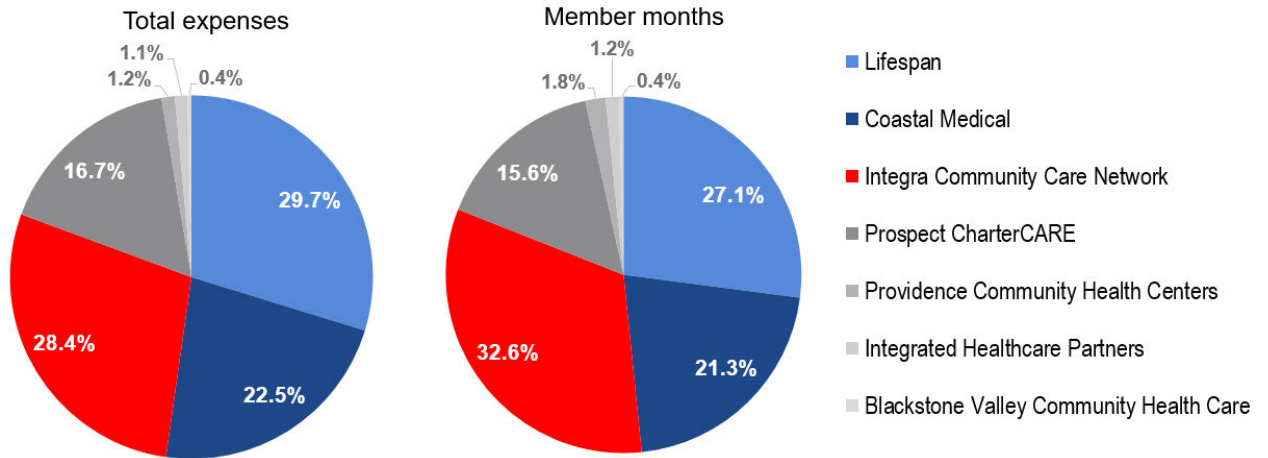
Source: BCBS, United, and Tufts TME reports, 2019.
Note: "Total expenses" consists of expenses related to both claims (such as inpatient, outpatient, and professional) and non-claims (such as incentive programs, capitation settlements, and care management).

(324)   The Parties' total share of attributed ACO lives created by controlling the three largest ACOs in Rhode Island raises concerns that the Proposed Transaction will decrease the benefits produced by accountable care. More specifically, by having one entity control over 80 percent of attributed lives, the merger will reduce the need for the combined health system to improve quality to reduce "leakage" of care outside of the ACO, grow its attributed ACO membership, and improve care coordination within the ACO, thereby harming residents of Rhode Island.

(325)   An ACO is a collection of physicians, hospitals, and other providers who work together to coordinate the care for attributed patients.[619] ██
██
███ · ██████████████████████████

---

[619] The ACO model requires that each ACO have a defined patient population for which the ACO will be held accountable for the total cost of care and quality of that care. Patients that are assigned to an ACO are said to be attributed to the ACO. Attribution may be defined prospectively by using data from prior year(s) to assign patients to an ACO for the following performance year, or retrospectively by assigning a patient to an ACO at the end of a performance year based on which providers served that patient. ███████████████████████████████████████
██████████████████████████████████ ████████████████████████████████
███
█████████████████████████████████████

███. A key objective of the ACO model is to reduce the cost of care through more efficient care delivery while maintaining high quality.[620] To achieve this objective, insurers incentivize ACOs to reduce costs by providing shared-savings bonus when an ACO lowers the cost of care below a target or benchmark level for its attributed members.

(326)   ACOs cannot reduce costs simply by skimping on quality as they must also must meet defined quality targets to be eligible for shared savings payments.[621] Instead, ACOs reduce costs through robust care management, particularly for more chronic illnesses.[622] An important component of an ACO's ability to implement these practices is through care retention,[623] i.e., by minimizing leakage so that attributed patients receive their medical care from providers that are ACO members.[624] By keeping care within the ACO, it is better able to coordinate a patient's care across providers, which helps reduce or prevent duplicative services such as diagnostic tests, and better ensures that the patient is getting the optimal care, including the optimal follow-up care to keep the patient from having to return to a hospital.[625] For example, if an attributed member were to go to an emergency department for care, that treatment episode could be relayed to the ACO so that it can determine the appropriate follow-up care plan and ensure proper treatment adherence and avoid a costly readmission.

(327)   ███
███
█████████████████████████. [626] ████████████████████████

---

[620] *See*, e.g., Centers for Medicare and Medicaid Services, "Accountable Care Organizations (ACOs)". https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/ACO.

[621] *See*, e.g., FTC-CNE-00003200 ████████████████████████
███
█████████████████████████

[622] *See, e.g.,* John Hsu, Mary Price, Christine Vogeli, Richard Brand, Michael E. Chernew, Sreekanth K. Chaguturu, Eric Weil, and Timothy G. Ferris, "Bending The Spending Curve By Altering Care Delivery Patterns: The Role Of Care Management Within A Pioneer ACO," *Health Affairs* 36, no. 5 (2017).

[623] *See, e.g.,* Michael L. Barnett and J. Michael McWilliams, "Changes in Specialty Care Use and Leakage in Medicare Accountable Care Organizations," *The American Journal of Managed Care* 24, no. 5 (2018): 141–149.

[624] ███
███████████████████████████████████

[625] *See, e.g.,* Thomas G. Rundall, Frances M. Wu, Valerie A. Lewis, Karen E. Schoenherr, and Stephen M. Shortell, "Contributions of Relational Coordination to Care Management in ACOs: Views of Managerial and Clinical Leaders," *Health Care Management Review* 41, no. 2 (2016): 88–100.

[626] ███
███
███
███
███
███
███
███

██

██████████[627]

       ████████████████████████████████████

       ██████

       ███████████████

       █████████████████████████████████████

       ███

       ██

       ██

       ██

       ██████████████████████████

(328)   This need to keep care within the ACO enhances stage two competition between providers such as Lifespan and CNE when they are not in the same ACO. That is, the availability of options outside of the ACO puts pressure on ACO members to provide high quality care so that participating PCPs will want to refer to them and so that patients want to receive care from them instead of other, non-participating providers.[628] D██ ██████:[629]

       ███

       ███

       ██████████████████████

(329)   ██.[630] However, when over 80 percent of attributed patients are under the control of one entity, there is less pressure to compete to avoid leakage; when one entity controls 80 percent of attributed lives, there are few alternative for patients to go to for their health care.[631]

(330)   Patients also benefit from ACO competition through other means. ████████████████████ ██ █████████████████████████████.[632] One way in which an ACO can attract patients is by taking steps to

---

██ █████████████

[627] ██████████████████

[628] *See* South County Declaration, 3-4: ("By acquiring Coastal Medical Group, Lifespan was able to grow its physician group and better position itself to compete with CNE's employed physician group. That competitive rivalry would be lost if CNE and Lifespan merge.")

[629] ██████████████████

[630] ██████████████████

[631] South County Declaration, 4

[632] ██████████████████

make them, and their PCPs specifically, more attractive to patients. ████████████████████

██.”[633] ACOs only

have incentive to invest in such enhancements when there is competition for patients.

(331)   Another mechanism that an ACO may use to increase its patient attribution is by working with
insurers on innovative payment mechanisms that would reduce the overall cost of care in exchange
for increased patient volume. For example, in 2012, the Cooley Dickinson Hospital (CDH) and
Cooley Dickinson Physician Hospital Organization, a health system in western Massachusetts with 66
primary care providers and 160 specialists, joined Blue Cross Blue Shield of Massachusetts'
(BCBSMA) Alternative Quality Contract (AQC), which established a per-patient global budget to
cover all services and expenses for its Commercial population.[634] As a result of joining the AQC,
reducing the prices charged for services, and providing high quality of care, CDH was "designated as
a high-value option in the Western Mass. Region," which meant BCBSMA members with certain
plans "[paid] less out-of-pocket when they [sought] care" at CDH.[635] Again, because it will already
have control over 80 percent of attributed lives, a merged Lifespan-CNE will have little incentive to
work with payors to develop innovative payment arrangements in order to gain patient volume.
Insurers echo this concern regarding a combined Lifespan and CNE's ACO's ability to evade
innovative payment methodologies and strategies to reduce costs of care. In its testimony, BCBSRI
expressed apprehension that mechanisms for patient retention among ACOs, such as in-network
specialty referrals and quality advocacy, would be diminished since 85 percent of BCBSRI's
commercial ACO membership and 77 percent of their Medicare ACO membership would be
represented by the merged system.[636]

(332)   Having control over such a large share of attributed lives could also harm rival health systems by
eliminating referrals to them, an exclusionary action that could lessen competition. For example,
South County has raised concerns that "patients could be steered within the Lifespan/CNE network
and patients would lose [South County] and other providers as a choice."[637] This would be especially
likely for any providers not participating in one of the ACOs under the control of a combined
Lifespan-CNE. Such exclusion creates barriers to entry and raises competing providers' costs if they
must build out referral networks that they did not need to assemble but-for the merger.

(333)   Putting Integra, LHA, and Coastal under the control of one entity risks eliminating most, if not all, of
the benefits generated by ACO competition described above.

---

[633]   ████████████████████

[634]   Blue Cross Blue Shield of Massachusetts, "Large Health System in Western Massachusetts Becomes the Latest to Join
the Alternative Quality Contract," October 2011. https://newsroom.bluecrossma.com/2011-10-27-Large-Health-System-
in-Western-Massachusetts-Becomes-the-Latest-to-Join-the-Alternative-Quality-Contract.

[635]   Id.

[636]   BCBSRI Declaration, 5

[637]   South County Declaration.

VIII.D. The Proposed Transaction raises concerns in the labor market for nurses

(334)   The Proposed Transaction also raises concerns about an increase in hospital monopsony power that would decrease the wages and compensation for nurses. Monopsony power refers to the market power of buyers to drive down prices below competitive levels. As explained in the *Merger Guidelines*, "mergers of competing buyers can enhance market power on the buying side of the market, just as mergers of competing sellers can enhance market power on the selling side of the market."[638] Lifespan and CNE are both buyers in the market for nurses as well advance practice providers, physicians, and other staff. Lifespan is already the largest private employer in Rhode Island, and together, Lifespan and CNE would become the largest employer in the state overall.[639] It goes without saying that a combined CNE-Lifespan would be the largest employer of nurses, which are primarily employed by hospitals and ambulatory settings.[640]

(335)   To evaluate whether a merger of buyers is likely to enhance their buying power, the Agencies employ essentially the same framework used to evaluate a merger of suppliers.[641] As described in the *Merger Guidelines,* to define relevant markets for the purpose of analyzing monopsony power the Agencies focus on the alternative buyers available to sellers in the face of a decrease in the price paid by a hypothetical monopsonist of all buyers.[642] For example, in the matter at hand the relevant product market consists of the employment alternatives available to nurses and other medical professionals employed by Lifespan and CNE if they attempted to exercise monopsony power by lowering the price—the compensation—for the services of these employees (whether directly employed or under a contractual agreement).

(336)   As with the supplier market definition, the key question to answer is whether there are sufficiently close alternative employers that would constrain a candidate set of employers from exercising monopsony power. Although non-hospital employers may hire nurses, that does not mean that their jobs should be included in the relevant product market. Their inclusion depends on whether they are considered sufficiently close alternatives as to constrain hospitals from limiting the compensation of medical staff. To illustrate, if a hypothetical monopsonist of hospitals were able to decrease wages by

---

[638] *Merger Guidelines*, §12.

[639] Rhode Island Commerce, LeadingEmployersbyAllSectorsIndividualSectors.pdf (commerceri.com) https://commerceri.com/wp-content/uploads/2018/03/LeadingEmployersbyAllSectorsIndividualSectors.pdf

[640] The majority of RNs are employed by hospitals. According to the 2018 National Sample Survey of Registered Nurses, 59.9% of RNs reported working in a hospital while others work at clinics and ambulatory settings (15.6%), other inpatient settings (8.3%), and other types of settings (16.2%). *See* U.S. Department of Health and Human Services, Health Resources and Services Administration, National Center for Health Workforce Analysis, "2018 National Sample Survey of Registered Nurses: Brief Summary of Results," (2018). https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/nssrn-summary-report.pdf.

[641] *Merger Guidelines*, §12.

[642] *Id*.

five or ten percent without losing so many registered nurses (RNs) as to make the decrease unprofitable (because, for example, the other jobs paid significantly less or were otherwise unattractive), then the relevant product market would be limited to RN services provided to hospitals. One reason to expect that a hypothetical monopsonist of hospitals could impose such a price decrease is because hospital-employed RNs gain skills and experience for which hospitals pay more than many other RN employers are willing to pay. [643] Thus, a small but significant wage decrease by hospitals would not induce enough of their RNs to seek employment with non-hospital employers to force the hospitals to rescind their wage decrease, and hospital employers constitute a relevant product market.

(337)   The same general methodology applies to the definition of the relevant geographic market. Following the hypothetical monopolist test outlined in Section V.A, if the hospitals within a defined geographic region together decreased wages by a small but significant amount that caused a sufficient number of hospital-employed RNs to turn to more distant hospitals for jobs such that the hypothetical monopsonist's profit decreased as a result of losing RNs, then the relevant geographic market would need to be expanded to include more distant hospitals.

(338)   The geographic market for nurses and other medical professionals could differ from that of hospital services. For example, nurses could be more willing to commute a longer distance than the typical patient is willing to travel for care, and/or nurses may be relatively willing to relocate for the right job.[644] ███
██████████████████████████████████████. ███████████████████████████████████
██
██.[645] ███████████████████
██
████████.[646] ██
███.[647] ████████
██
████████████████████████████.[648]

---

[643] *See* Advisory Board, "What nurses are paid—and how salaries vary, mapped," October 2018. https://www.advisory.com/en/daily-briefing/2018/10/15/nurse-salary; Chron, "Nursing Salaries in Hospitals vs. in Clinics," June 2021. https://work.chron.com/nursing-salaries-hospitals-vs-clinics-8981 html.

[644] To illustrate the latter mechanism, consider a large city with hospitals on opposite sides. Patients on either side may have a strong preference to receive care at the nearest hospital. RNs may similarly prefer to work at the nearest hospital as well but given the right opportunity at the more distant hospital (i.e., a higher salary or other more favorable compensation terms) RNs may be willing to switch employers *and* move in order to reside closer to their employing hospital.

[645] FTC-CNE-01600397. ███

[646] LIFESPAN1641352.

[647] FTC-CNE-00020398, LIFESPAN07422721. LIFESPAN02414057

[648] LIFESPAN02874247, LIFESPAN02640947 at -0948, ███████████████████

(339) ██

██ [649]

However, losing some staff to nursing agencies is not evidence that the geographic market is indeed broader, especially in the midst of a pandemic in which there has been a national shortage of medical staff due to increased demands and staff burnout.[650] ████████████████████████████

███

█████████████████████████ Instead, as outlined above, the available evidence suggests the geographic market is Rhode Island and no larger than the surrounding towns that constitute the Providence metropolitan area, which effectively coincides with the MARI region.

(340) ██

███████████ ."[651] It is true that the COVID-19 pandemic has placed significant demands on the health care system that have resulted in acute shortages in the U.S. and globally.[652] Staff burnout is also a real issue.[653] However, these are extraordinary but relatively short term shocks to the health care system. For the purposes of evaluating the competitive effects of the Proposed Transaction on the labor market for nurses, it is appropriate to consider the market conditions after the pandemic subsides as well. The merger is permanent while the intense demands on the health care system caused by the pandemic are more temporary.

(341) ██

███

██████████████████████████████████ [654] ████████████████████

███

████████████████ [655] ██

---

[649] ███

██

[650] Healthcare Finance News, "Nurses urge HHS to declare the staffing shortage a national crisis," September 2021, https://www healthcarefinancenews.com/news/nurses-urge-hhss-declare-staffing-shortage-national-crisis (accessed February 6, 2022).

[651] ███

███████████████████████████████████████

[652] Reuters, "Global shortage of nurses set to grow as pandemic enters third year – group," December 10, 2021. https://www reuters.com/business/healthcare-pharmaceuticals/global-shortage-nurses-set-grow-pandemic-enters-third-year-group-2021-12-10/.

[653] Petros Galanis, Irene Vraka, Despoina Fragkou, Angeliki Bilali, and Daphne Kaitelidou, "Nurses' burnout and associated risk factors during the COVID-19 pandemic: A systematic review and meta-analysis," *Journal of Advanced Nursing* 77, no. 8 (2021): 3286–3302.

[654] ███

███

███

███

[655] ███

██

██. [656] ████████

██

████████████████████

(342)   Figure 43 presents shares of full-time registered nurses at Rhode Island and MARI hospitals. It shows that 48.7 percent of nurses working at a hospital in Rhode Island are employed by Lifespan and 18.7 percent are employed by CNE, resulting in a combined share of 67.4 percent. The Parties' share of nurses remains high when expanding to include all hospitals within the MARI region: 37.4 percent of nurses working at a MARI hospital are employed by Lifespan and 14.4 percent are employed by CNE for a combined 51.8 percent share. Based on these shares, the Proposed Transaction is projected to increase the HHI for the share of full-time registered nurses at Rhode Island hospitals by 1,825 points, resulting in a post-merger HHI of 4,768 points. For nurses at MARI hospitals, the Proposed Transaction is projected to increase the HHI by 1,077 points, resulting in a post-merger HHI of 3,024 points. Regardless of the geography used, the predicted changes in HHI far exceed the 200-point increase and 2,500-point post-merger HHI thresholds set forth by the *Merger Guidelines*.

Figure 43. Share of full-time registered nurses employed by RI and MARI hospitals
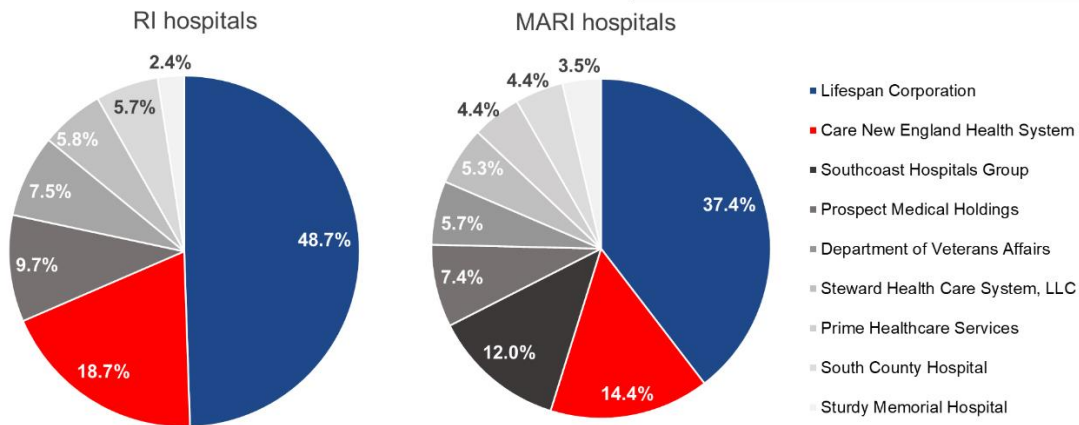
Source: AHA, 2019.
Note: The "Other" category under MARI hospitals includes systems that had less than a 3 percent share.

(343)   Several economic studies have analyzed the effects of hospital concentration on RN wages within a few different geographies—some smaller than the State of Rhode Island and some larger—and have generally found that hospitals do indeed have buyer power in the labor market for nurses within these

---

██

██

[656] ██

██

██

geographics.[657] As the following summary of these more recent studies shows, hospitals have monopsony power in the market for nurses and other medical professionals, and, as a result hospitals are able to suppress wages or increase nurses' workloads in more concentrated markets. Lifespan and CNE's collective size as purchasers of nursing services and the findings in the economic literature raise significant concerns that the Proposed Transaction may harm the labor market for nurses.

- Prager and Schmitt (2021)[658] examined whether hospital mergers that took place between 2000 and 2010 resulted in slower wage growth for skilled healthcare workers (specifically nurses and pharmacy workers), skilled non-clinical workers (e.g., human resources employees), and unskilled workers with non-specific jobs (e.g., cafeteria workers). The authors defined the geographic market to correspond with commuting zones,[659] and compared wage growth in markets that experienced a concentration-increasing merger to wage growth in markets without any merger activity. They estimated that in markets that experienced a merger wages were 4.0 percent lower for skilled non-health professionals and 6.8 percent lower for nursing and pharmacy workers than they would have been absent the merger over the four-year period following the merger. Notably, their results are statistically significant for only the top quartile of concentration-increasing mergers, which corresponds to mergers with an average HHI increase of 2,764 to an average post-merger level of 7,344.[660]

- Staiger, Spetz, and Phibbs (2010)[661] studied the effect a legislated increase in nurse wages at Veterans Affairs (VA) hospitals had on wages paid by neighboring hospitals. Economic theory suggests that other hospitals will change their wages in response to the VA wage change and that

[657] *See*, *Merger Guidelines*, §4. ("Evidence of competitive effects can inform market definition, just as market definition can be informative regarding competitive effects. For example, evidence that a reduction in the number of significant rivals offering a group of products causes prices for those products to rise significantly can itself establish that those products form a relevant market. Such evidence also may more directly predict the competitive effects of a merger, reducing the role of inferences from market definition and market shares.")

[658] Elena Prager and Matt Schmitt "Employer Consolidation and Wages: Evidence from Hospitals," *American Economic Review* 111, no. 2 (2021): 397–427.

[659] Commuting zones were developed by the Economic Research Service of the US Department of Agriculture. They are constructed based on Census commuting flow data. In the case of urban areas, the commuting zone typically encompasses the county containing the large metropolitan area as well as surrounding counties that share the same labor pool. There are 709 commuting zones in the latest definition based on the 2000 Census. One commuting zone encompasses Rhode Island and Bristol County, Massachusetts. *See* USDA Economic Research Services, "Commuting Zones and Labor Market Areas". https://www.ers.usda.gov/data-products/commuting-zones-and-labor-market-areas/.

[660] Prager and Schmitt do not find a statistically significant wage effect for the third quartile and below. The third quartile of their sample has an average HHI increase of 618 points and an average post-merger HHI of 3,823; the second quartile has an average HHI increase of 235 points and an average post-merger HHI of 3,028. The lack of a merger effect may be explained in part by the existence of non-hospital employment options for hospital workers that are not included in the concentration metrics. The estimated increase in HHI for full-time registered nurses resulting from the Proposed Transaction is 1,825 based on all hospitals in Rhode Island, and 1,077 when based on all hospitals in the MARI region. Prager and Schmitt only report average increases in HHI by quartile, but based on these averages, it is likely that the increases based on either RI or MARI hospitals are high enough to be in the top quartile of their sample, especially in account of Prager and Schmitt not including VA hospitals in their counts while I include the Providence VA Medical Center.

[661] Douglas O. Staiger, Joanne Spetz, and Ciaran S. Phibbs, "Is There Monopsony in the Labor Market? Evidence from a Natural Experiment," *Journal of Labor Economics* 28, no. 2 (2010): 211–236.

the response will be largest at hospitals that are nearest to the VA hospital. The authors found that a 10 percent increase in VA wages increased wages at neighboring hospitals by 1.4 to 1.9 percent. They found that the response was largest among hospitals located within 15 miles of a VA hospital. In addition, they found that nurse employment at individual hospitals responded very little in the short run to the resulting changes in relative wages between hospitals. Overall, their findings are consistent with hospitals being wage setters and having considerable market power in the nurse labor market.

- Currie, Farsi, and MacLeod (2005)[662] analyzed data on nurse wages and hours in California over the 1989 to 1999 period and found that nurses experienced few declines in wages following hospital takeovers but did experience increases in the number of patients per nurse. Motivated by earlier literature that also did not find evidence of hospital monopsony power and surveys of nurses that indicated they associate takeovers with increases in workload rather than with reductions in wages, the authors show that these observations are consistent with a simple model of contracting in which wages are "contractible" while effort is not. The authors argue that their findings are consistent with hospital monopsony power. They also found that these changes were similar in the largest for-profit and non-profit chains, suggesting that market forces are more important than institutional form.

- Hirsch and Schumacher (2005)[663] compared the wages of RNs against a control group of college-educated women in 240 urban and non-urban labor markets over the periods 1993–1997 and 1998–2002. The authors defined a geographic labor market to correspond with MSAs/CMSAs. They found using longitudinal analysis between the two periods that increases in hospital system concentration are associated with moderately lower RN wage growth and staffing ratios.

_____   February 13, 2022
                                                 _____

Name   Date

---

[662] Janet Currie, Mehdi Farsi, and W. Bentley MacLeod "Cut to the bone? Hospital takeovers and nurse employment contracts," *Industrial and Labor Relations Review* 58, no. 3 (2005): 471–493.

[663] Barry T. Hirsch and Edward J. Schumacher, "Classic or new monopsony? Searching for evidence in nursing labor markets," *Journal of Health Economics* 24, (2005): 969–989.

Appendix A. Curriculum vitae

A.1. Education

- PhD, Economics, The Ohio State University

- MA, Economics, New York University

- BS, Mathematics, University of Victoria

A.2. Professional experience

- Bates White Economic Consulting, Washington, DC

- Principal, 2021–present

- Manager, 2018–2021

- Senior Economist, 2016–2017

- University of Alabama, Tuscaloosa, AL

    □ Assistant Professor of Economics, 2011–2016

- The Ohio State University, Columbus, OH

    □ Research Assistant to Professor P.J. Healy, 2008–2011

    □ Teaching Assistant, 2007–2008

- Booz Allen Hamilton, Dayton, OH

    □ Senior Consultant, 2006

- Strategic Analysis, Dayton, OH

    □ Software Engineer, 2000–2006

A.3. Selected Bates White experience

- On behalf of Beaumont Health and Spectrum Health, analyzed likely competitive effects of their proposed merger. Analyses addressed concerns related to possible cross-market merger effects

and vertical effects relating to Spectrum Health's insurance product, Priority Health. Presented findings to the Federal Trade Commission. Assisted with second request compliance.

■ On behalf of Centene, analyzed the likely competitive effects of its $2.2 billion acquisition of Magellan Health. Analyses addressed concerns related to possible horizontal and vertical effects relating to Behavioral Health, Specialty Health, and Employee Assistance Plans. Presented findings to the U.S. Department of Justice (DOJ), the California Department of Managed Health Care, and the California Office of Attorney General.

■ Led the team supporting the expert analysis of Dr. Leemore Dafny on behalf of the Federal Trade Commission in its action to enjoin Hackensack Meridian Health's proposed acquisition of Englewood Health. Evaluated the market definition and competitive effects for inpatient general acute care services. Evaluated the efficiencies, cost savings, and other procompetitive effects claimed by the merging parties' economic experts.

■ On behalf of Optum, supported the expert in work to clear Optum's acquisition of Beaver Medical Group in Southern California before the Federal Trade Commission. Assisted with second request compliance as well as advocacy submissions addressing antitrust concerns.

■ Led the team supporting the expert analysis of Dr. Cory Capps on behalf of defendants in litigation brought by the Federal Trade Commission to enjoin the proposed merger of Jefferson Health with Albert Einstein Healthcare Network. Evaluated the market definition and competitive effects, and analyzed the inpatient general acute care services market to evaluate the likely competitive effects of the merger, accounting for merger-specific efficiencies, cost savings, and other procompetitive effects.

■ On behalf of DOJ, led the team supporting the expert with the competitive effects analysis of a proposed merger between two regional health insurers.

■ In Centene Corporation's $17 billion acquisition of WellCare Health Plans, supported the merging parties during the DOJ investigation by conducting economic analysis on issues related to the markets for managed Medicaid and Medicare Advantage plans that arose during the investigation and presenting the findings to the DOJ. The analyses demonstrated that the proposed transaction would not harm competition in either market.

■ Led the team supporting the expert analysis of Dr. Cory Capps on behalf of the Washington State Attorney General's office in its litigation effort to unwind CHI Franciscan Health's acquisitions of two physician groups: WestSound Orthopaedics and The Doctors Clinic.

■ On behalf of UnitedHealth's health services subsidiary Optum in its acquisition of DaVita Medical Group, assisted the expert with presentations and submissions to the Federal Trade Commission and several state Attorney General offices addressing potential horizontal and vertical concerns arising from the proposed transaction.

- Retained by major health insurer to analyze potential regulatory and antitrust exposure associated with potential acquisition of another insurer.

- On behalf of the DOJ, supported the expert in work associated with a non-merger investigation.

- Provided market definition and pattern bargaining evaluation for a client engaged in a tri-party arbitration procedure as a result of a contract salary dispute.

- Supported expert working on behalf of the DOJ to evaluate the effectiveness of a proposed conduct remedy in a vertical merger. The evaluation included a qualitative review of the ability of the remedy to constrain the merged firm's increased market power.

- Assisted expert in analyzing the economic damages to a large quaternary care hospital that experienced an unexpected, temporary closure; the analysis examined the long-term impacts to inpatient and outpatient care.

- On behalf of a state Attorney General, supported the expert in evaluating the competitive effects of the consolidation of providers in the state; the evaluation included structural analysis of market shares and concentration, diversion analysis, and price analysis.

- Supported expert on behalf of Highmark, Inc., the fourth largest Blue Cross and Blue Shield affiliate in the United States. Provided economic analyses of healthcare competition in the state of Pennsylvania with a focus on the impact of recent hospital and insurance acquisitions and the impact of Highmark's recent investments in the area.

- In response to a client's request for modification to a State Order, provided analyses of the changes in the competitive landscape for hospital services and health insurance following the acquisition of a hospital system by a large health insurer.

- Supported expert in analyzing the strategic behavior and interaction of a large hospital system and health insurer. Analysis addressed how their relationship affected the markets for commercial insurance and Medicare Advantage, and the degree to which they, respectively, have monopsony and monopoly power.

- On behalf of Humana, in connection with its proposed merger with Aetna, provided support with responses to the Department of Justice's second request and analyzed competitive effects in the sale of Medicare Advantage products and, separately, health insurance exchange products offered under the Affordable Care Act.

- Assisted expert in analyzing how the acquisition of a prominent orthopedics center altered the distribution of patients within a market in support of the client's monopolization claim.

A.4. Publications

■ "Hospital Systems and Bargaining Power: Evidence from Out-of-Market Acquisitions." (With Matthew S. Lewis) RAND Journal of Economics 48, no. 3 (2017): 579–610.

■ "Getting Market Definition Right: Hospital Merger Cases and Beyond." (With Martin Gaynor) CPI Antitrust Chronicle (July 2017).

■ "Physician Incentives and Treatment Choice." Journal of Economics and Management Strategy 24, no. 4 (2015): 712–51.

■ "Revealed Reputations in the Finitely-Repeated Prisoners' Dilemma." (With C.A. Cox, M.T. Jones, and P.J. Healy) Economic Theory 58, no. 3 (2015): 441–84.

■ "Diagnosing Hospital System Bargaining Power in Managed Care Networks." (With Matthew S. Lewis) AEJ Economic Policy 7, no. 1 (2015): 243–71.

A.5. Professional affiliations

■ American Economic Association

■ American Bar Association (Associate Member)

Appendix B. ██████████████████

Figure 45. ACO shares, 2019

ACO	Shares by total expenses	Shares by member months
Lifespan	30%	27%
Integra Community Care Network	28%	33%
Coastal Medical	23%	21%
CNE & Lifespan total	*81%*	*81%*
Prospect CharterCARE	17%	16%
Providence Community Health Centers	1%	2%
Integrated Healthcare Partners	1%	1%
Blackstone Valley Community Health Care	0%	0%

Source: BCBS, United, and Tufts TME reports, 2019.
Notes: Limited to full commercial ACO claims.

Figure 46. ACO shares by insurer, 2019

ACO	BCBS		Tufts		United	
	Shares by total expenses	Shares by member months	Shares by total expenses	Shares by member months	Shares by total expenses	Shares by member months
Integra Community Care Network	33%	38%	22%	30%	11%	10%
Lifespan	27%	24%	37%	34%	38%	37%
Coastal Medical	21%	20%	26%	20%	29%	31%
CNE & Lifespan total	*80%*	*81%*	*85%*	*84%*	*78%*	*77%*
Prospect CharterCARE	16%	15%	14%	13%	22%	23%
Integrated Healthcare Partners	2%	2%	-	-	-	-
Providence Community Health Centers	1%	2%	1%	2%	-	-
Blackstone Valley Community Health Care	0%	0%	0%	0%	-	-

Source: BCBS, United, and Tufts TME reports, 2019.
Notes: Limited to full commercial ACO claims.

Figure 47. ACO and non-ACO shares, 2019

Member attribution	Shares by total expenses	Shares by member months
ACO	61%	56%
Members Not Attributed to an ACO/AE	39%	44%

Source: BCBS, United, and Tufts TME reports, 2019
Notes: Limited to full commercial claims.

Figure 48. ACO and non-ACO shares by insurer, 2019

Member attribution	BCBS		Tufts		United	
	Shares by total expenses	Shares by member months	Shares by total expenses	Shares by member months	Shares by total expenses	Shares by member months
ACOs	68%	62%	71%	66%	35%	33%
Members Not Attributed to an ACO/AE	32%	38%	29%	34%	65%	67%

Source: BCBS, United, and Tufts TME reports, 2019.
Notes: Limited to full commercial claims.

Appendix C. Data sources

C.1. All-payer claims data (APCD)

(344)   Rhode Island's All-Payer Claims Database (RI APCD) is managed by the Rhode Island Executive Office of Health and Human Services, the Rhode Island Department of Health, the Rhode Island Office of the Health Insurance Commissioner, and HealthSource RI.[664] The dataset has healthcare insurance payment information for Rhode Island residents with health insurance and includes information on over one million people.[665] The dataset brings together data from Medicare, Medicaid, and all major health insurance companies in Rhode Island and includes information on demographics and health status, medical services, emergency room visits, healthcare providers, and member enrollment.[666]

(345)   Data for private health insurers and Medicaid was collected from 2011 to 2019, and Medicare Fee-for-Services medical data for Rhode Island state agencies and requesters working on behalf of the state is available from 2011 to 2018.[667] The data used in this report are medical claims data for 2017 to 2019 which includes claims incurred between January 1, 2016 through December 31, 2019.

C.2. Rhode Island discharge data

(346)   Rhode Island discharge data is collected by the Rhode Island Department of Health from eleven acute care hospitals (ten hospitals after 2017) and two psychiatric hospitals.[668] The data contains patient-level information on inpatient and emergency department visits for all patients discharged from Rhode Island hospitals and includes information on admission and discharge dates, diagnoses and procedures, type of insurer, cost, and demographic data. Rhode Island discharge data is used for 2017 to 2019. The Rhode Island discharge data is augmented with information on hospital locations and system affiliations, identified using a combination of data from the American Hospital Association (AHA) Annual Survey for 2019 and web research. In addition, using the DRG codes included in the

---

[664]   Rhode Island Department of Health, "HealthFacts RI Database". https://health.ri.gov/data/healthfactsri/ (accessed December 17, 2021)

[665]   Rhode Island Department of Health, "HealthFacts RI Database". https://health.ri.gov/data/healthfactsri/ (accessed December 17, 2021)

[666]   Rhode Island Office of the Health Insurance Commissioner, "Reform and Policy Work". http://www.ohic ri.gov/ohic-reformandpolicy.php (accessed December 17, 2021).

[667]   Rhode Island Department of Health, "HealthFacts RI Database". https://health.ri.gov/data/healthfactsri/ (accessed December 17, 2021)

[668]   Rhode Island Department of Health, "Hospitalization Discharge Data". https://health.ri.gov/data/hospitalization/discharge/ (accessed December 17, 2021).

RI data, MDC and DRG weights provided by the Center for Medicare and Medicaid Services (CMS) are added.

C.3. Massachusetts discharge data

(347)   The Massachusetts Center for Health Information and Analysis (CHIA) collects hospital inpatient discharge data from acute hospitals in Massachusetts.[669] The data includes admission and discharge information, patient demographics, diagnostic and procedure codes, and payor and provider information. Massachusetts discharge data is used from 2017 to 2020.

(348)   The Massachusetts discharge data is augmented with information on hospital location and system affiliation, identified through a combination of data from the AHA and web research. In addition, using the DRG codes included in the MA data, MDC and DRG weights provided by the CMS are added.

C.4. Preparing inpatient discharge data used for analyses

(349)   Rhode Island and Massachusetts discharge data are appended together to create the inpatient discharge data sample.

(350)   The following restrictions are imposed on the discharge sample[670]:

- Limit inpatient discharges to the 2017–2019 period.

- Limit discharges to Rhode Island residents for the Rhode Island discharge sample dataset, and limit discharges to MARI residents for the MARI discharge sample dataset.

- When estimating diversions and WTP, discharges are limited to residents from Rhode Island or MARI over the same period.

- Limit to GAC and related hospitals.

- Exclude non-GAC patients—defined as discharges with an MDC of 19 or 20, or a DRG assignment of 945, 946, 949, or 950—and patients with ungroupable DRGs (DRG assignments of 981 to 999).

- Exclude observation visits.

---

[669]   Center for Health Information and Analysis, "Case Mix Data". https://www.chiamass.gov/case-mix-data/ (accessed December 17, 2021).

[670]   Note that these restrictions differ from those imposed for the overlapping DRG calculation, which is discussed in detail in Appendix F

- Exclude normal newborns (identified by admit type and MDC) to avoid counting the mother and the newborn as two separate patient choices.

- Exclude admissions that were transferred to another GAC hospital to avoid double-counting.

- Exclude discharges with diagnoses that are inconsistent with the patient's demographic characteristics or with a length of stay greater than 180 days.

- Exclude patients at Women and Infants hospital who are male and older than zero years old.

- Exclude patients at a children's hospital who are 18 years old or older since children's hospitals are not materially competing for adult GAC patients.

- Limit to commercial patients.

- Exclude patients 65 years or older to better isolate non-MA commercial plans as MA plans are not always identified.[671]

- Restrict to the cluster of inpatient GAC services sold by Lifespan and CNE hospitals in Rhode Island.[672]

---

[671] Worker's compensation and automobile products are excluded.

[672] *See* Appendix F for details on how I define overlapping services provided by both Lifespan and CNE hospitals in Rhode Island.

C.5. Preparing behavioral health discharge data used for analyses

(351)   Rhode Island and Massachusetts discharge data are appended together to create the behavioral health discharge data sample.

(352)   The following restrictions are imposed on the discharge sample[673]:

■   Limit to discharges for Rhode Island residents over the 2017–2019 period.

    □   When estimating diversions and WTP, discharges are limited to residents from Rhode Island or MARI over the same period.

■   Limit to behavioral health patients—defined as discharges with an MDC of 19 or 20.

■   Exclude observation visits.

■   Exclude normal newborns (identified by admit type and MDC) to avoid counting the mother and the newborn as two separate patient choices.

■   Limit to commercial patients.

■   Exclude patients 65 years or older to better isolate non-MA commercial plans as MA plans are not always identified.[674]

C.6. Preparing outpatient data used for analyses

(353)   Rhode Island All-Payer Claims Data for outpatient facility claims was used to create the outpatient data sample.

(354)   The following restrictions are imposed on the outpatient sample[675]:

■   Limit to outpatient facility claims for residents of Rhode Island or the MARI area over the 2017–2019 period.

    □   When estimating diversions and WTP, discharges are limited to residents from Rhode Island or MARI over the same period.

■   Limit claim status to primary. Exclude if the claim was denied.

---

[673] Note that these restrictions differ from those imposed for the overlapping DRG calculation, which is discussed in detail in Appendix Appendix F

[674] Worker's compensation and automobile products are excluded.

[675] Note that these restrictions differ from those imposed for the overlapping DRG calculation, which is discussed in detail in Appendix Appendix F

■ Limit to commercial patients.

■ Exclude patients 65 years or older to better isolate non-MA commercial plans as MA plans are not always identified.[676]

■ Exclude invalid procedure and diagnosis codes.

---

[676] Worker's compensation and automobile products are excluded.

Appendix D. Inpatient shares, outmigration, and WTP

Figure 49. Market shares and HHIs in alternative geographic and product markets

Geographic market	Product market	Concentration			
		Combined share	HHI		
			Pre	Post	Change
Rhode Island hospitals	All overlapping adult inpatient GAC	79.8%	3,315	6,499	3,184
Rhode Island patients	All overlapping adult inpatient GAC	70.0%	2,588	5,038	2,449
MARI hospitals	All overlapping adult inpatient GAC	65.4%	2,337	4,474	2,136
MARI patients	All overlapping adult inpatient GAC	52.4%	1,610	2,981	1,372
Rhode Island hospitals	Overlapping adult Inpatient GAC, excluding labor and delivery	75.0%	3,855	5,821	1,966
Rhode Island patients	Overlapping adult inpatient GAC, excluding labor and delivery	63.7%	2,769	4,267	1,498
Threshold over which a merger is presumed to be likely to enhance market power:				2,500	200

Source: RI discharge data, MA discharge data, 2017-2019.
Notes: Patient-based estimates are limited to commercial RI or MARI patients. Limited to services provided by both Lifespan and CNE. Excludes newborns, patients under 18, patients 65 and over, and transfers.

Figure 50. Inpatient GAC shares for commercially insured RI patients, 2017-2019 (extended list of MA hospitals)

System	Hospital	Share	Discharges
CNE	Women & Infants	22.9%	11,858
CNE	Kent	11.7%	6,034
Lifespan	Rhode Island Hospital	18.0%	9,316
Lifespan	Miriam	14.5%	7,486
Lifespan	Newport	2.9%	1,512
Lifespan + CNE		*70.0%*	*36,206*
South County	South County	6.3%	3,269
Charter Care	Roger Williams	4.6%	2,356
Prime	Landmark Medical Center	4.1%	2,131
Charter Care	Our Lady of Fatima	2.8%	1,434
Yale	Westerly	1.0%	504
All other Rhode Island hospitals		*18.7%*	*9,694*
Partners Healthcare System	Brigham and Women's Hospital	2.7%	1,374
Partners Healthcare System	Massachusetts General Hospital	1.3%	648
Steward Health Care System	Saint Anne's Hospital	1.1%	556
Sturdy Memorial Hospital	Sturdy Memorial Hospital	0.9%	458
Southcoast Health System	Charlton Memorial Hospital	0.8%	432
Milford Regional Medical Center	Milford Regional Medical Center	0.6%	331
Beth Israel Lahey Health	Beth Israel Deaconess Medical Center	0.6%	292
Beth Israel Lahey Health	New England Baptist Hospital	0.5%	247
Wellforce	Tufts Medical Center	0.4%	215
Umass Memorial Health Care	Umass Memorial Medical Center - University Campus	0.3%	162
Partners Healthcare System	Faulkner Hospital	0.3%	143
Steward Health Care System	Norwood Hospital	0.3%	130
Partners Healthcare System	Newton-Wellesley Hospital	0.2%	124
Boston Medical Center	Boston Medical Center	0.2%	100
Beth Israel Lahey Health	Lahey Clinic	0.2%	96
Steward Health Care System	St. Elizabeth's Medical Center	0.2%	84
Dana-Farber Cancer Institute	Dana-Farber Cancer Institute	0.1%	70
Other MA hospitals	Other MA hospitals	0.7%	363
MA hospital total		*11.3%*	*5,825*
Total		**100.0%**	**51,725**
Pre-merger HHI		2,588	
Delta-HHI		2,449	
Post-merger HHI		5,038	

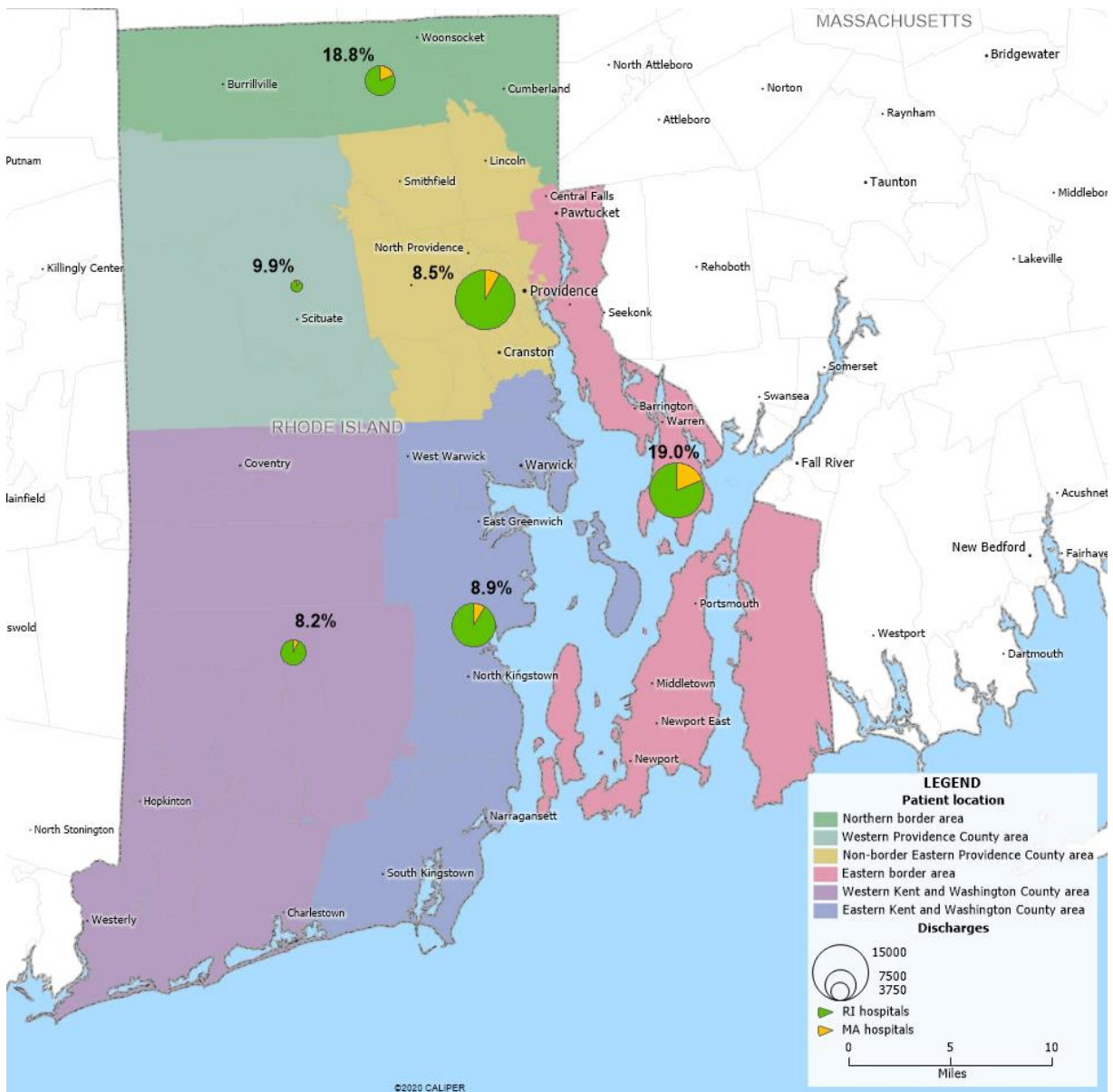Source: RI discharge data, MA discharge data, 2017–2019.
Notes: Limited to commercial patients. Limited to services provided by both Lifespan and CNE. Excludes patients 65 and over, patients 18 and under, newborns and transfers.

(355) Slightly more than 11 percent of Rhode Island's commercially insured patients seek care at a hospital in Massachusetts. Brigham and Women's is the largest recipient of this care, having almost 24 percent of the patients that go to Massachusetts hospitals. Overall, Partners Healthcare (now called

Mass General Brigham) accounts for about 35 percent of Rhode Island's commercially insured patients that go to Massachusetts hospitals. About 20 percent go to Massachusetts hospitals in the neighboring Massachusetts towns.

(356)   Figure 51 shows the variation in outmigration across regions of Rhode Island. For each region, a pie chart depicts the fraction of commercially insured patients in that region that receive inpatient care at a Massachusetts hospital. The size of the pie captures the number of commercially insured patients while the yellow slice identifies that fraction of patients that receive care at a Massachusetts hospital. The figure shows that outmigration is highest in the regions that border Massachusetts with 18.8 percent of patients in the northern zip codes going to Massachusetts hospitals for care and 19.0 percent of patients in the eastern zip codes going to Massachusetts hospitals for care. Within the areas of Rhode Island that don't border Massachusetts, only between 8.2 and 9.9 percent of patients seek care at a Massachusetts hospital.

Figure 51. Percent outmigration to Massachusetts hospitals for commercially insured patients by Rhode Island region. 2017–2019

Source: Source: RI discharge data, MA discharge data, 2017-2019.
Note: Limited to commercially insured Rhode Island patients. Excludes newborns, patients 65 and under, and transfers.

Figure 52. Average acuity of care for Rhode Island patients receiving inpatient care at Massachusetts hospitals, 2017–2019

Patient location	Outmigration to MA hospitals	Mean DRG weight	
		At MA hospitals	At RI hospitals
Western Providence County area	9.9%	2.8	1.6
Western Kent and Washington County area	8.2%	2.7	1.5
Eastern Kent and Washington County area	8.9%	2.6	1.5
Non-border Eastern Providence County area	8.5%	2.3	1.4
Eastern border area	19.0%	1.9	1.4
Northern border area	18.8%	1.8	1.4

Source: Source: RI discharge data, MA discharge data, 2017-2019.
Note: Limited to commercially insured Rhode Island patients. Excludes newborns, patients 65 and over, and transfers.

(357) Figure 52 reports the percentage of commercially insured Rhode Island patients who received inpatient GAC care at a Massachusetts hospital over the 2017–2019 period by region and, for each region, it compares the average discharge case weight for those patients that received care at a Massachusetts hospital and, separately, for those patients that received care at a Rhode Island hospital. In all regions the average case weight is higher among the patients that received care in Massachusetts, meaning that on average Rhode Island patients that go to Massachusetts for care are sicker and require more intensive treatments. For example, the average case weight for patients that live in the western Providence County area that receive care at a Massachusetts hospital is 2.8 compared to only 1.6 for those patients that receive care at a Rhode Island hospital. The difference in case weights is much lower for the border regions, indicating that fewer of these patients that go to a Massachusetts hospital are doing so because they need more intensive care. Instead, for many of these patients, it is likely the case that the Massachusetts hospital is closer or more convenient to travel to.

(358) By volume, diagnoses of the musculoskeletal system are the largest category of inpatient care for commercially insured Rhode Island patients performed at Massachusetts hospitals. 1,081 discharges related to the musculoskeletal system over the 2017–2019 period occurred at Massachusetts hospitals; however, these represent only 14 percent of all discharges related to the musculoskeletal system. In contrast, over 67 percent (238 of 356) of organ transplants for commercially insured Rhode Islanders performed over the 2017–2019 period were performed at a Massachusetts hospital. The next largest category by proportion are discharges related to cancer: 34 percent (298 of 877) of discharges associated with Myeloproliferative disorders (blood disorders and cancers) and 28 percent (537 of 1,952) of discharges related to cancerous growths (neoplasms) were performed at Massachusetts hospitals. The lowest amount of outmigration as a proportion of the overall volume was for obstetrics (labor and deliver) with only 5 percent (730 of 15,121) of such discharges occurring at a

Massachusetts hospital. The two primary reasons that patients who go to Brigham and Women's Hospital and Massachusetts General Hospital are for cardiac care and cancer treatment.

Figure 53. Inpatient price-WTP relationship

Variables	CMI-adjusted price	
	Price-WTP	Log-Log
WTP per discharge	4,438***	0.547***
	(1,154)	(0.129)
Tufts	1,771	0.122
	(1,022)	(0.0740)
United	-2,921**	-0.259**
	(1,028)	(0.0942)
Constant	5,635**	9.199***
	(2,200)	(0.102)
Observations	15	15
R-squared	0.782	0.760

Source: RI APCD, 2019; RI and MA state discharge data, 2019.
Note: *** p<0.01, ** p<0.05, * p<0. Standard errors in parentheses.

Figure 54. WTP of a merged Lifespan and CNE, for overlapping services and adults only

State	Step	Measure	Avg. WTP per patient	
			RI patients	MARI patients
Pre-acquisition	[1]	CNE	0.80	0.62
	[2]	Lifespan	0.58	0.45
	[3] = [1] + [2]	Sum of each system's WTP	1.38	1.07
Post-acquisition	[4]	WTP for the merged system	1.62	1.25
	[5] = [4] - [3]	**Increase in WTP**	0.24	0.18
	[6] = [5] ÷ [3] × 100%	**% Increase in WTP**	**17.6%**	**16.6%**

Source: RI and MA state discharge data, 2017–2019.
Notes: WTP based on all RI (or RI + select MA zips) GAC patients. Excludes newborns, patients 65 and over, and transfers. Limited to services provided by both Lifespan and CNE. WTP estimated using a semi-parametric hospital choice model.

Appendix E. Outpatient shares

Figure 55. Outpatient surgery shares by specialty (top ten specialties), 2017-2019

System	Hospital	Total Work RVUs	Auditory	Cardiovascular	Digestive	Endocrine	Eye & ocular adnexa	Female genital	Integumentary	Musculoskeletal	Nervous	Respiratory	Other	Total
Lifespan	RIH	51,313	6.2%	32.6%	14.5%	67.4%	13.1%	13.7%	13.0%	10.0%	15.8%	2.6%	26.0%	13.2%
Lifespan	Miriam	29,249	-	20.9%	18.1%	6.9%	2.6%	0.4%	12.0%	6.3%	7.7%	0.9%	16.2%	7.6%
Lifespan	Newport	10,264	-	0.6%	3.1%	-	0.2%	1.7%	3.9%	3.7%	2.9%	-	1.3%	2.6%
CNE	Kent	42,451	0.5%	12.1%	12.0%	2.7%	0.3%	7.9%	8.0%	16.3%	10.4%	10.0%	5.1%	11.0%
CNE	Women & Infants	35,741	-	0.4%	0.8%	-	-	58.8%	25.6%	0.2%	0.5%	-	11.6%	9.2%
Lifespan + CNE		*169,018*	*6.7%*	*66.7%*	*48.6%*	*77.0%*	*16.2%*	*82.5%*	*62.5%*	*36.6%*	*37.2%*	*13.6%*	*60.2%*	*43.6%*
South County		26,550	0.1%	2.6%	7.7%	-	-	4.4%	2.8%	11.2%	5.9%	0.5%	10.7%	6.9%
University Orthopedics		25,919	-	-	-	-	-	-	0.5%	14.5%	16.1%	-	0.2%	6.7%
The Ent Center Of Rhode Island		24,651	81.2%	-	8.0%	0.1%	8.8%	-	3.6%	0.6%	-	63.1%	0.4%	6.4%
Steward St Anne's		21,616	0.1%	0.2%	4.4%	-	0.1%	0.4%	2.5%	11.2%	3.2%	1.1%	0.2%	5.6%
Prospect Chartercare RWMC		20,253	0.4%	2.0%	13.1%	5.1%	0.7%	0.3%	8.8%	5.9%	2.0%	0.2%	2.0%	5.2%
Prospect Blackstone Valley Surgicare		12,695	-	-	0.7%	-	5.8%	-	1.5%	5.5%	3.6%	-	0.6%	3.3%
East Bay Surgery Center		11,590	-	-	-	-	26.6%	-	1.6%	-	-	-	-	3.0%
Candescent Eye Surgicenter		10,358	-	-	-	-	25.2%	-	0.0%	-	-	-	-	2.7%
Prospect Chartercare SJHSRI		10,116	1.8%	0.1%	5.2%	1.2%	2.9%	0.1%	0.6%	2.2%	8.6%	1.9%	6.1%	2.6%
Brigham & Women's Hospital		4,356	1.1%	5.1%	0.6%	2.2%	-	1.8%	2.3%	0.8%	1.3%	0.8%	2.9%	1.1%
Southcoast Hospitals Group		4,159	0.2%	8.7%	2.0%	0.3%	0.1%	1.0%	1.0%	0.9%	2.0%	0.4%	1.5%	1.1%
Massachusetts Eye And Ear Infirmary		4,039	3.0%	-	0.4%	2.0%	4.3%	-	1.0%	0.1%	0.7%	8.0%	0.1%	1.0%
2 Dudley Street Operatory		3,516	-	-	-	-	-	-	0.1%	1.4%	7.6%	-	-	0.9%
Other		38,491	5.5%	14.5%	9.5%	12.0%	9.2%	9.5%	11.3%	9.4%	11.7%	10.4%	14.9%	9.9%
Total		387,326	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Pre-HHI			6,648	3,245	1,938	5,603	1,752	4,738	2,100	1,238	1,316	4,173	2,395	2,179
Delta-HHI			6	1,360	915	397	11	2,112	1,941	663	573	71	1,453	893
Post-HHI			6,654	4,605	2,853	6,000	1,762	6,849	4,041	1,901	1,889	4,244	3,848	3,072
Total Work RVUs by surgery specialty			7,861	4,958	45,978	6,738	41,108	40,015	39,120	158,167	17,590	13,706	12,085	387,326

Source: RI APCD claims data, 2017-2019.
Notes: [1] The "Other" system and hospital row includes all values that did not have greater than a 5% share in any surgery; [2] Limited to commercial RI patients, excluding patients 65 and over. [3] Limited to "narrow", non-emergency surgeries. [4] Total shares and HHI column represents work RVU-weighted average. [5] Used rendering organization name when missing the billing organization name but had the rendering organization name. [6] Limited to providers in RI, MA, or CT.

Appendix F. Overlapping DRGs

(359)   The following procedure is used to identify overlapping DRGs between Lifespan and CNE hospitals under the "no grouping" approach:

1. For each hospital, discharges that were transferred to another GAC hospital were excluded to account for the possibility that these discharges require medical capabilities that the hospital does not have.

2. A DRG is categorized as offered at a hospital if there are at least three discharges at the hospital for a given DRG. If the overlap offerings include multiple hospitals, such as RIH + Miriam, a DRG is categorized as being offered at RIH and Miriam if there are either at least three discharges at RIH or at least three discharges at Miriam.

3. DRGs offered at both sets of hospitals (e.g., offered at both Kent and RIH/Miriam) are categorized as overlapping DRGs.

(360)   The above procedure is applied to Rhode Island patients visiting RI or MA hospitals 2017–2019. To account for all services that the hospitals can perform, discharges from all patients are used, regardless of payers (commercial, Medicare, Medicaid, etc.), sources of admission, or length of stay. Patients with a DRG assignment of 981 to 999 are excluded because these represent unspecified operating room procedures that are unrelated to the principal diagnosis. Newborns (identified as DRG 795) are excluded to avoid double-counting the mother and the newborn as two separate discharges. For overlap comparisons among GAC offerings, non-GAC patients (defined as discharges with a MDC of 19 or 20, or a DRG assignment of 945, 946, 949, or 950) are also excluded. For overlap comparisons among behavioral health offerings, the sample is restricted to MDCs 19 and 20.

(361)   Figure 56 shows that more than 93 percent of discharges at Kent are under services (DRGs) that are also offered at RIH/Miriam. 92 percent of discharges at RIH/Miriam are under services (DRGs) that are offered at Kent. Comparing Kent/Butler to RIH/Bradley or just RIH, 100 percent of services are offered by both sets of hospitals. See Figure 57 and Figure 58.

(362)   To examine the sensitivity of DRG-level overlap ("No grouping"), I apply the same procedure described above to groupings of DRG codes. These groupings are based upon the acuity of a given procedure. For instance, "Major Chest Procedures" has three severity levels: with complicating conditions ("w CC"), with major complications/comorbidities ("w MCC"), and without complicating conditions or major complications/comorbidities ("w/o CC/MCC"). Each of these severity levels corresponds to a distinct DRG code. If only one of these severity levels is observed at a hospital during the relevant sample period, it's plausible that the hospital has the ability to treat one or all of

the other two severity levels associated with the procedure. Each of the figures shows that the overlap estimates are robust and experience minimal changes when the severity levels of each procedure are partially or fully grouped together.

Figure 56. Analysis of overlapping DRGs between Kent and RIH/Miriam

DRG grouping	Hospital	Discharges (all RI patients)				Discharges (patients in Kent's 80% PSA)			
		Not offered	Offered	Overlap	%	Not offered	Offered	Overlap	%
No grouping	Kent	163	31,290	29,243	93%	163	25,701	24,091	94%
	RIH and Miriam	74	126,284	116,211	92%	74	29,234	26,419	90%
(MCC + CC + w/o CC/MCC)	Kent	39	31,412	30,114	96%	39	25,796	24,788	96%
	RIH and Miriam	14	126,335	120,087	95%	14	29,246	27,411	94%
(MCC) & ("CC/MCC" + CC + w/o CC/MCC)	Kent	98	31,354	30,050	96%	98	25,746	24,732	96%
	RIH and Miriam	31	126,321	118,093	93%	31	29,243	26,909	92%
(MCC + "CC/MCC") & (CC + w/o CC/MCC)	Kent	109	31,343	29,296	93%	109	25,741	24,131	94%
	RIH and Miriam	46	126,308	117,859	93%	46	29,241	26,852	92%

Source: RI discharge data, MA discharge data, 2017-2019.

Notes: Limited to GAC DRGs. Excludes out-transfers and normal newborns.

Figure 57. Analysis of overlapping DRGs between Kent/Butler and RIH/Bradley

DRG grouping	Hospital	Count of DRGs				Discharges (all RI patients)			
		Not offered	Offered	Overlap	Percent	Not offered	Offered	Overlap	Percent
No grouping	Kent and Butler	-	12	12	100%	-	23,345	23,345	100%
	RIH and Bradley	1	12	12	100%	1	12,861	12,861	100%
MCC + CC + w/o CC/MCC	Kent and Butler	-	11	11	100%	-	23,345	23,345	100%
	RIH and Bradley	1	11	11	100%	1	12,861	12,861	100%
(MCC) & ("CC/MCC" + CC + w/o CC/MCC)	Kent and Butler	-	12	12	100%	-	23,345	23,345	100%
	RIH and Bradley	1	12	12	100%	1	12,861	12,861	100%
(MCC + "CC/MCC") & (CC + w/o CC/MCC)	Kent and Butler	-	12	12	100%	-	23,345	23,345	100%
	RIH and Bradley	1	12	12	100%	1	12,861	12,861	100%

Source: RI discharge data, MA discharge data, 2017-2019.
Notes: Limited to behavioral health RI discharges. Excludes out-transfers and normal newborns.

Figure 58. Analysis of overlapping DRGs between Kent/Butler and RIH

DRG grouping	Hospital	Count of DRGs				Discharges (all RI patients)			
		Not offered	Offered	Overlap	Percent	Not offered	Offered	Overlap	Percent
No grouping	Kent and Butler	-	12	12	100%	-	23,345	23,345	100%
	RIH	1	12	12	100%	1	9,794	9,794	100%
MCC + CC + w/o CC/MCC	Kent and Butler	-	11	11	100%	-	23,345	23,345	100%
	RIH	1	11	11	100%	1	9,794	9,794	100%
(MCC) & ("CC/MCC" + CC + w/o CC/MCC)	Kent and Butler	-	12	12	100%	-	23,345	23,345	100%
	RIH	1	12	12	100%	1	9,794	9,794	100%
(MCC + "CC/MCC") & (CC + w/o CC/MCC)	Kent and Butler		12	12	100%	-	23,345	23,345	100%
	RIH	1	12	12	100%	1	9,794	9,794	100%

Source: RI discharge data, MA discharge data, 2017-2019.
Notes: Limited to behavioral health RI discharges. Excludes out-transfers and normal newborns.

Appendix G. Diversion ratios

(363)   As discussed in IV.C, VI.B, VII.A, and VII.B, I estimate patients' hospital choice probabilities using a semiparametric model. The semiparametric model categorizes the patients into groups based on an array of patient characteristics and uses the observed hospital shares within each group to predict patients' choice probabilities. In the semiparametric model, diversions are proportional to the observed shares in each patients' group, "bin", and then aggregated across all bins. I incorporated a bin size threshold of ten discharges for all inpatient diversions. If there were fewer than 10 discharges within a bin, I apply the shares and corresponding diversion associated with the next higher bin level. In their order of grouping (highest to lowest bin), patient characteristics used for overall inpatient diversions are listed below:

- Patient age group;[677]

- Patient county of residence;

- Patient gender;

- Patient zip code of residence;

- MDC;

- Emergency admission indicator; and

- High acuity indicator (DRG case weight in the top quartile).

---

[677] Patient age group bin excluded when calculating diversions for traditional Medicare patients

Figure 59. Commercially insured inpatient GAC diversion ratios

To System	To Hospital	Hospital State	Discharges	From Lifespan			From CNE	
				RIH	Miriam	Newport	Kent	W&I
Lifespan	Rhode Island Hospital	RI	13,789	-	-	-	34%	5%
Lifespan	Miriam	RI	7,714	-	-	-	17%	1%
Lifespan	Newport	RI	1,530	-	-	-	1%	5%
CNE	Kent	RI	6,078	19%	17%	5%	-	-
CNE	Women & Infants	RI	12,081	5%	3%	24%	-	-
Children's Hospital Boston	Children's Hospital Boston	MA	450	15%	0%	0%	0%	0%
Charter Care	Roger Williams	RI	2,503	13%	20%	2%	8%	1%
Charter Care	Our Lady of Fatima	RI	1,502	7%	12%	1%	3%	0%
South County	South County	RI	3,307	7%	8%	15%	17%	22%
Partners Healthcare System	Brigham And Women's Hospital	MA	1,818	6%	7%	10%	5%	9%
Partners Healthcare System	Massachusetts General Hospital	MA	904	6%	3%	6%	1%	2%
Prime	Landmark Medical Center	RI	2,159	4%	8%	1%	5%	27%
Steward Health Care System	Saint Anne's Hospital	MA	573	2%	2%	13%	0%	0%
Sturdy Memorial Hospital	Sturdy Memorial Hospital	MA	464	2%	5%	1%	1%	7%
Beth Israel Lahey Health	Beth Israel Deaconess Medical Center	MA	354	2%	3%	3%	1%	2%
Wellforce	Tufts Medical Center	MA	307	2%	1%	1%	1%	0%
Southcoast Health System	Charlton Memorial Hospital	MA	448	2%	1%	9%	1%	4%
Yale	Westerly	RI	509	1%	0%	0%	0%	0%
Milford Regional Medical Center	Milford Regional Medical Center	MA	341	1%	1%	0%	1%	3%
MA Outside option	MA Outside option	MA	1,761	7%	9%	9%	3%	11%
Lifespan / CNE total			*41,192*	*23%*	*20%*	*29%*	*52%*	*11%*
MA hospital total			*7,077*	*45%*	*33%*	*52%*	*13%*	*39%*
Total			**58,249**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: RI and MA discharge data, 2017–2019.
Notes: Limited to commercial RI patients, excluding newborns and those 65 years of age and over.

Figure 60. Commercially insured inpatient GAC diversion ratios restricted to Kent's 80% PSA

System	To Hospital	Hospital State	Discharges	From Lifespan			From CNE	
				RIH	Miriam	Newport	Kent	W&I
Lifespan	Rhode Island Hospital	RI	4,274	-	-	-	38%	7%
Lifespan	Miriam	RI	1,547	-	-	-	16%	1%
Lifespan	Newport	RI	56	-	-	-	1%	4%
CNE	Kent	RI	4,545	41%	43%	29%	-	-
CNE	Women & Infants	RI	3,651	4%	2%	19%	-	-
Children's Hospital Boston	Children's Hospital Boston	MA	151	15%	0%	2%	0%	0%
Charter Care	Roger Williams	RI	691	8%	15%	7%	8%	1%
South County	South County	RI	988	8%	12%	18%	18%	48%
Charter Care	Our Lady of Fatima	RI	411	7%	11%	6%	3%	0%
Partners Healthcare System	Brigham And Women's Hospital	MA	524	6%	5%	9%	5%	7%
Partners Healthcare System	Massachusetts General Hospital	MA	200	6%	3%	5%	1%	1%
Wellforce	Tufts Medical Center	MA	91	3%	1%	0%	1%	0%
Prime	Landmark Medical Center	RI	110	1%	1%	1%	4%	21%
Yale	Westerly	RI	10	0%	0%	0%	0%	0%
MA Outside option	MA Outside option	MA	431	13%	6%	6%	5%	11%
Lifespan / CNE total			*14,073*	*44%*	*45%*	*48%*	*55%*	*11%*
MA hospital total			*1,397*	*33%*	*15%*	*20%*	*12%*	*19%*
Total			17,680	100%	100%	100%	100%	100%

Source: RI and MA discharge data, 2017-2019.
Notes: [1] Limited to commercial RI patients, excluding newborns and those 65 and over. [2] Limited to Kent's 80% PSA.

(364)   I calculate inpatient diversions by MDC following a similar approach. Diversions for all MDCs except for MDC 2, 22, 23, and 25 (Eye, Burns, Factors Influencing Health Status, and HIV Infection) were calculated using the following patient characteristics, listed in their order of grouping (highest to lowest bin):

- Patient age group;

- Patient county of residence;

- Patient gender;

- Patient zip code of residence;

- Emergency admission indicator; and

- High acuity indicator.

(365)   MDCs 2, 22, 23, and 25 had a lower sample size and thus I incorporated fewer patient characteristics to calculate diversions. In their order of grouping, characteristic used for these MDCs are:

- Patient age group;

- Patient county of residence;

- Patient gender; and

- Emergency admission indicator.

(366)   There were no discharges from any CNE hospitals for MDC 24 (Multiple Significant Trauma), so diversions from CNE to Lifespan hospitals and diversions from Lifespan to CNE hospitals are undefined.

(367)   Outpatient diversion ratios were also calculated using a semiparametric model. I incorporated a bin size threshold based on 5th percentile of work RVUs. That is, if the total work RVUs places the bin in the bottom fifth percentile, I apply the shares and corresponding diversion associated with the next higher bin level. In their order of grouping, patient characteristics used for outpatient diversions are listed below:

- Patient age group;

- Patient county of residence;

- Patient gender;

- Patient zip code of residence;

- Surgery specialty; and

- Surgery specialty subchapter.

Figure 61. Outpatient diversion ratios

System	Hospital	Work RVUs	From Lifespan			From CNE	
			RIH	Miriam	Newport	Kent	Women & Infants
Lifespan	Rhode Island Hospital	51,313	-	-	-	17%	43%
Lifespan	Miriam	29,249	-	-	-	10%	11%
Lifespan	Newport	10,264	-	-	-	2%	2%
CNE	Women And Infants	35,741	13%	9%	7%	-	-
CNE	Kent	42,451	13%	15%	11%	-	-
Brown Medicine	University Orthopedics Inc	25,919	9%	8%	14%	11%	0%
Charter Care	Prospect Chartercare RWMC LLC	20,253	8%	15%	6%	10%	4%
The Ent Center Of Rhode Island LLC	The Ent Center Of Rhode Island LLC	24,651	8%	2%	1%	3%	0%
Steward St Anne's Hospital Corporation	Steward St Anne's Hospital Corporation	23,692	7%	10%	9%	11%	1%
South County	South County Hospital Healthcare System	26,550	6%	7%	13%	11%	8%
Charter Care	Our Lady Of Fatima	10,116	5%	8%	1%	3%	1%
East Bay Surgery Center LLC	East Bay Surgery Center LLC	11,590	4%	2%	1%	0%	0%
Charter Care	Prospect Blackstone Valley Surgicare LLC	12,695	3%	3%	3%	7%	0%
The General Hospital Corporation	The General Hospital Corporation	3,295	2%	2%	3%	1%	2%
Brigham & Women's Hospital	Brigham & Women's Hospital	4,356	2%	2%	2%	2%	5%
Massachusetts Eye And Ear Infirmary	Massachusetts Eye And Ear Infirmary	4,039	2%	1%	0%	0%	0%
Southcoast Hospitals Group Inc	Southcoast Hospitals Group Inc	4,159	2%	2%	14%	0%	2%
Children's Hospital Corporation	Children's Hospital Corporation	2,371	2%	1%	1%	1%	0%
Candescent Eye Surgicenter LLC	Candescent Eye Surgicenter LLC	10,358	2%	1%	0%	0%	0%
Prime	Prime Healthcare Services-Landmark LLC	3,379	1%	2%	0%	1%	5%
2 Dudley Street Operatory LLC	2 Dudley Street Operatory LLC	3,516	1%	1%	2%	1%	0%
Blackstone Valley Surgicare Acquisition LP	Blackstone Valley Surgicare Acquisition LP	2,869	1%	1%	0%	1%	0%
The Westerly Hospital	The Westerly Hospital	3,591	1%	1%	0%	0%	2%
Outside option	Outside option	20,910	8%	9%	11%	6%	13%
Lifespan + CNE sub-total		*169,018*	*26%*	*24%*	*18%*	*30%*	*55%*
Total		**387,326**	**100%**	**100%**	**100%**	**100%**	**100%**

Sources: RI APCD claims data, 2017-2019.
Notes: Limited to commercial RI patients, excluding 65+. Limited to non-emergency, "narrow" surgeries.

(368)   Behavioral health diversions used a bin size threshold of ten discharges and used the following patient characteristics listed below in their order of grouping:

- Patient age group;

- Patient county of residence;

- Patient gender;

- Patient zip code of residence;

- MDC;

- Emergency admission indicator; and

- High acuity indicator.

Figure 62. Behavioral health diversions

System	To Hospital	Hospital State	#	From Lifespan				From CNE		
				Brdly	RIH	Miriam	NPH	Butler	Kent	W&I
Lifespan	RIH	RI	1,757	-	-	-	-	25%	28%	23%
Lifespan	Newport	RI	441	-	-	-	-	13%	11%	15%
Lifespan	Bradley	RI	907	-	-	-	-	7%	1%	-
Lifespan	Miriam	RI	172	-	-	-	-	0%	2%	-
CNE	Butler	RI	4,269	96%	61%	9%	44%	-	-	-
CNE	Kent	RI	1,635	1%	11%	20%	18%	-	-	-
CNE	W&I	RI	3	-	0%	-	0%	-	-	-
Prime	Landmark	RI	1,001	0%	5%	5%	10%	14%	14%	8%
Steward Health Care System, LLC	Norwood Hospital	MA	61	0%	0%	1%	3%	2%	2%	-
Charter Care	Our Lady of Fatima	RI	479	0%	8%	3%	6%	11%	11%	38%
Charter Care	Roger Williams	RI	634	0%	11%	51%	4%	16%	18%	4%
Yale	Westerly	RI	15	-	0%	-	0%	0%	0%	-
South County	South County	RI	23	-	0%	0%	1%	0%	0%	-
MA Outside option	MA Outside option	MA	286	3%	5%	11%	16%	11%	10%	13%
Lifespan / CNE sub-total			*9,184*	*97%*	*72%*	*30%*	*61%*	*46%*	*43%*	*38%*
MA hospital sub-total			*347*	*3%*	*5%*	*12%*	*19%*	*13%*	*13%*	*13%*
Total			11,683	100%	100%	100%	100%	100%	100%	100%

Sources: RI and MA discharge data, 2017-2019.
Note: Limited to commercial RI patients, excluding 65 and over. Excludes out transfers.

Figure 63. Inpatient diversion ratios for traditional Medicare patients

System	Hospital	Hospital State	Discharges	From Lifespan			From CNE	
				RIH	Miriam	Newport	Kent	W&I
Lifespan	RIH	RI	33,507	-	-	-	55%	37%
Lifespan	Miriam	RI	24,549	-	-	-	19%	21%
Lifespan	Newport	RI	5,249	-	-	-	0%	3%
CNE	Kent	RI	16,895	26%	14%	4%	-	-
CNE	W&I	RI	484	1%	1%	0%	-	-
Charter Care	Roger Williams	RI	8,565	27%	33%	5%	8%	11%
Charter Care	Our Lady of Fatima	RI	7,290	16%	21%	3%	4%	7%
Prime	Landmark Medical Center	RI	7,455	6%	10%	1%	1%	6%
South County	South County	RI	8,083	6%	5%	13%	8%	6%
Southcoast Health System	Charlton Memorial Hospital	MA	2,262	5%	3%	35%	0%	1%
Partners Healthcare System	Brigham And Women's Hospital	MA	1,067	3%	2%	11%	1%	2%
Steward Health Care System, LLC	Saint Anne's Hospital	MA	1,148	2%	1%	10%	0%	1%
Yale	Westerly	RI	3,001	1%	0%	1%	1%	2%
MA Outside option	MA Outside option	MA	2,532	7%	10%	16%	2%	4%
Lifespan + CNE sub-total			*80,684*	*27%*	*15%*	*4%*	*75%*	*61%*
MA hospital sub-total			*7,009*	*16%*	*16%*	*72%*	*3%*	*7%*
Total			122,087	100%	100%	100%	100%	100%

Sources: RI discharge data, MA discharge data, 2017-2019.
Notes: Limited to traditional Medicare. Limited to RI patients, excluding newborns and transfers. Patient age group bin excluded in calculating diversions.

Appendix H. SSNDQ

(369)   The following is adapted from Farrell and Shapiro (2010).[678] In their paper, Farrell and Shapiro describe an indicator of whether a proposed merger between rivals in a differentiated product industry such as hospital services is likely to raise prices through unilateral effects. Their diagnostic calibrates "upward pricing pressure" (UPP) resulting from the merger, based on the price/cost margins of the merging firms' products and the extent of direct substitution between them. Although they characterize their diagnostic as upward pricing pressure, their model is more general in that the UPP is a measure of the externality merging firms impose on one another through any activity that cannibalizes one another's demand, e.g., by increasing its quality, one firm will take demand from its merging partner.

(370)   To formalize this, like in Farrell and Shapiro (2010), consider a merger between firms A and B. These firms select a sales-boosting variable z. This variable could represent price (in which case it is measured inversely) or it could represent demand-increasing measures of quality (including advertising, R&D spending, etc). Assume the firms' objective function is convex in z. Pre-merger, the firms choose their optimal level of z without consideration of how it cannibalizes the other firm's demand. Post-merger, the firms (now business units of one firm) consider how their choice of z cannibalizes the other's demand. The insight of Farrell and Shapiro was to model this cannibalization as an opportunity cost and derive an expression for that cost, which they called UPP. When the cost is substantial, one can expect a reduction in z (reduction in quality or increase in price) and hence in the output of Product 1.

(371)   Firm A sells Product 1 at administratively set price P and quality Q_1, which it is free to set, and Firm B sells Product 2 at the same administratively set price P and quality Q_2, which it is free to set; their marginal costs are $C(Q_1)$ and $C(Q_2)$. The pre-merger values of these variables are denoted by P, $\bar{Q}_1$, $\bar{Q}_2$, for simplicity denote $\bar{C}_1 \equiv C(Q)$ and $\bar{C}_2 \equiv C(\bar{Q}_2)$. After the merger, corporate headquarters wants Divisions A and B to maximize joint profits, which pre-merger equilibrium qualities Q_1 and Q_2 fail to do. Headquarters can control this cannibalization in a decentralized manner through an internal tax on each Division's output: this tax is equal to the incremental profitability of the business cannibalized. Then each Division can continue to maximize its own profits, but now net of these internal taxes.

(372)   Following Farrell and Shapiro (2011), I begin by calculating the first-round value of the tax—that is, the inter-division externality evaluated at administrative price and pre-merger prices quality levels, outputs, and costs. This first-round tax on Product 1 is $\bar{T}_1 \equiv \left| \frac{d\pi_B}{dX_1} \right|$. Because Firm B has set its quality Q_2 to maximize its profits, the envelope theorem can be used to calculate the impact of a change in Q_1 on B's profits holding Q_2 at its initial level. The first-round tax can therefore be rewritten as $\bar{T}_1 \equiv$

---

[678]   Joseph Farrell and Carl Shapiro, "Antitrust evaluation of horizontal mergers: an economic alternative to market definition*," The B.E. Journal of Theoretical Economics* 10, no. 1 (2010).

$\frac{d\pi_B}{dX_2}\left|\frac{dX_2}{dX_1}\right|$, where $\frac{d\pi_B}{dX_2}$ is the change in B's profits if sales of Product 2 increase by one unit, holding fixed its quality: that is, its absolute gross margin, $P - \bar{C}_2$. $\left|\frac{dX_2}{dX_1}\right|$ measures the impact on sales of Product 2 when Q_1 increases by enough to sell one more unit of Product 1: this is the diversion ratio from Product 1 to Product 2, at pre-merger qualities, which are denoted by D_{12}.

(373)   Therefore, the first-round tax on Product 1 is equal to $\bar{T}_1 \equiv D_{12}(P - \bar{C}_2)$. Similarly, the first-round tax on Product 2 is $\bar{T}_2 \equiv D_{21}(P - \bar{C}_1)$. Since Products 1 and 2 are substitutes, $\bar{T}_1$ and $\bar{T}_2$ are both positive.

(374)   The driver of the merger's unilateral quality effects is the internalization of how higher quality at one firm cannibalizes demand at the other, which is accomplished through the initial increase of $\bar{T}_1$ and $\bar{T}_2$ in the marginal costs of Product 1 and 2. The equilibrium unilateral quality effects are those that result from working through a shift in Product 1's marginal cost (a non-uniform shift that, at pre-merger output, is an increase of $\bar{T}_1$), along with an analogous cost increase for Product 2. Farrell and Shapiro describe $\bar{T}_1$ as a measure of the initial impetus for Product 1's price to increase as a result of the loss in competition, but it is more generally a measure of Firm A's incentive to reduce z, meaning reduce quality or increase price, as a result of this loss of competition.