

# Tripp Umbach

Transforming Rhode Island's Biomedical Economy:

## **Economic Benefits Resulting from a Transformational Partnership among Brown University, Lifespan Health System, and Care New England**

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# Introduction

Brown University retained Tripp Umbach in September 2021 to provide an independent analysis of the economic impact and social value of developing a fully integrated academic medical center<sup>1</sup> serving Rhode Island. This report concludes that closer integration of health systems, physician practices, and research can create significant economic and societal gains to communities throughout Rhode Island. The proposed merger of Lifespan and Care New England could ignite a stronger affiliation with Brown University's medical, public health, and engineering schools to establish a world-class academic medical center that serves Rhode Island and neighboring states.

A fully integrated academic medical center in Rhode Island can combine leading-edge research and renowned medical expertise to improve the quality of care; advance biomedical discovery; and educate future leaders in medicine, public health, and biomedical engineering. It would create a vibrant driver to the state's economy. Not only can the merger create needed scale, but it will eliminate the danger to the state's economy if Lifespan or Care New England merged with other systems from outside of Rhode Island. An out-of-state purchase of Rhode Island-based hospitals would have the damaging effect of accelerating the move of high-quality specialty care out of the state, further distancing care from communities and increasing costs for Rhode Island families. Losing local control of the state's largest health systems would also cause a negative impact on the Rhode Island economy as patients and their healthcare dollars leave for other states.

<sup>1</sup> At an academic medical center, education, research, and clinical care are combined to provide the best possible clinical care that uses cutting-edge technologies, resources, and therapies other community hospitals may not have available.

Hospital mergers can result in benefits that accrue to patients in the form of better care and reduced costs, according to the American Hospital Association (AHA).<sup>2</sup> While the literature on hospital mergers' impact on healthcare costs is mixed with some studies showing that costs to consumers increase<sup>3</sup>, hospital consolidation can provide communities with high-quality, convenient, and cost-effective care if managed appropriately. The benefits of mergers allow hospitals to create connected networks of care and keep the focus where it belongs: on improving care for the patient. Large-scale healthcare delivery systems are important drivers within academic medical centers.<sup>4</sup> The most successful academic medical centers in the United States offer the scale needed to provide cost-effective management of the health of large populations. Large academic medical centers can facilitate major capital investments and coordinate with payers to create a high-quality network of primary and specialty care.

Through the creation of a unified vision, an integrated academic medical center partnership between Lifespan, Care New England, and Brown University can play a major role in providing patients with the best possible individualized and integrated care from world-class physicians who are attracted to the state by the vibrant academic environment, low cost, and quality of life. A merger also can improve population health in Rhode Island while reducing costs by using innovative “big data”- informed strategies developed and tested by leading researchers at Brown’s Warren Alpert Medical School and School of Public Health. Through closer collaboration with payers, including the state government, the new partnership can focus resources on developing ways to prevent costly diseases by reducing smoking, obesity, substance abuse, exposure to environmental toxins, and more. Finally, through closer participation of clinicians, public health practitioners, and researchers, the partnership between Lifespan, Care New England, and Brown University can drive public health transformation in Rhode Island communities that leads to reductions in racial and ethnic disparities in health.

Across the country, healthcare systems are expected to provide high-quality care to ever larger numbers of people at lower cost. These demands can be met only by consolidated health systems that oversee large patient populations and are adept at using sophisticated tools to manage population health. The current bifurcation of Lifespan and Care New England makes it difficult to provide effective and efficient clinical care to patients as quality of care is undermined by the need to operate across two competing systems. In addition, the significant duplication in administrative and back-office support across the two systems leads to higher healthcare operating costs. Tripp Umbach believes that the lack of a consolidated faculty practice plan leads to inefficiency and to uncoordinated care and recommends merging the systems to enhance high-quality and lower cost coordinated care across primary care providers, specialists, and hospitals to the benefit of consumers.

<sup>2</sup> Charles Rivers Associates: Hospital Merger Benefits: Views from Hospital Leaders and Econometric Analysis.

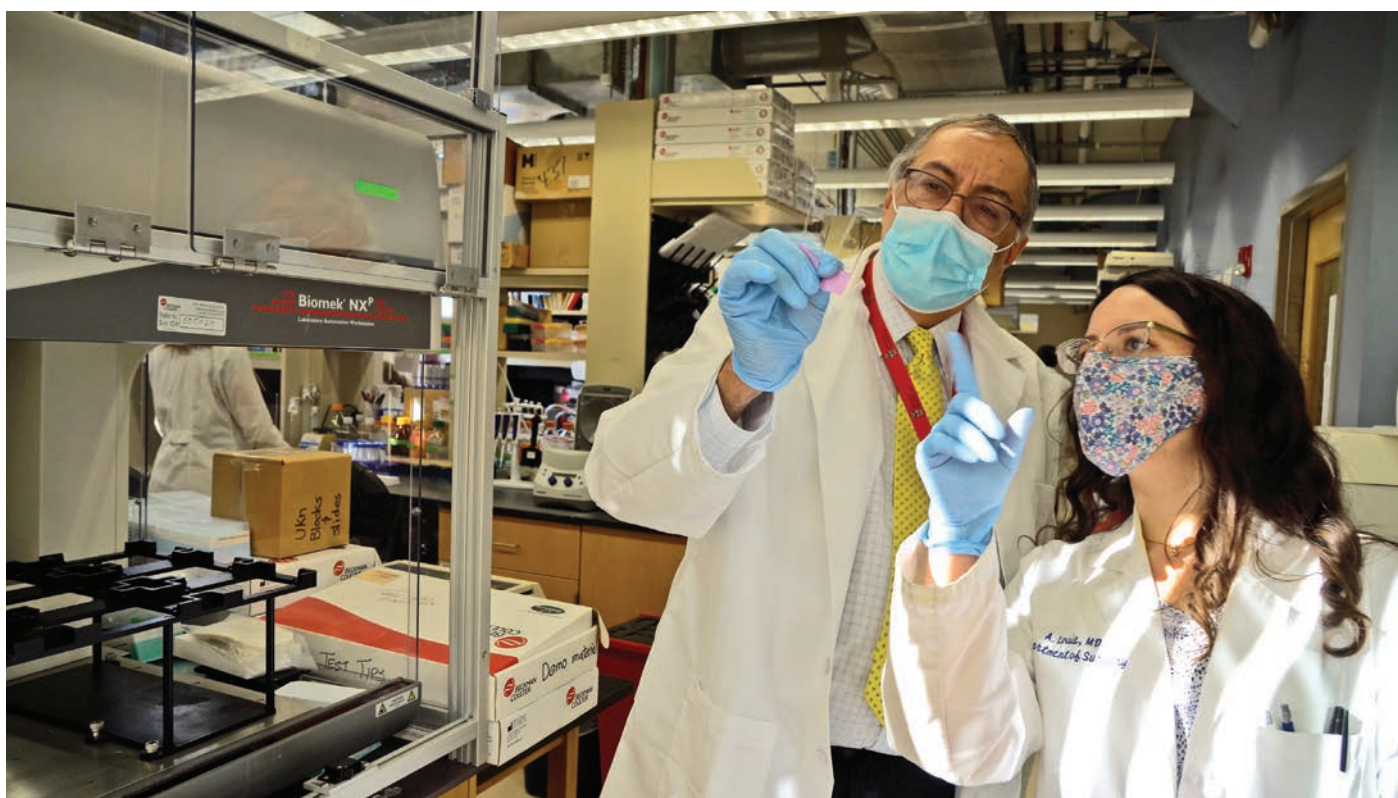
<sup>3</sup> [https://www.ncci.com/Articles/Pages/II\\_Insights\\_QEB\\_Impact-of-Hospital-Consolidation-on-Medical-Costs.aspx](https://www.ncci.com/Articles/Pages/II_Insights_QEB_Impact-of-Hospital-Consolidation-on-Medical-Costs.aspx)

<sup>4</sup> At an academic medical center, education, research, and clinical care are combined to provide the best possible clinical care using cutting-edge technologies, resources, and therapies other community hospitals may not have available.

# Key Findings

Tripp Umbach’s evaluation found that Rhode Island lags peer states in the size of the academic medicine industry, defined by total economic impact of higher education, healthcare, and biomedical industry (see Key Findings 1 and 2). However, Rhode Island has the largest academic medicine industry compared with all U.S. states that have only one medical school (see Key Finding 3). Brown University provides the largest economic impact among all medical schools who are not part of an integrated academic medical center (see Key Finding 4).

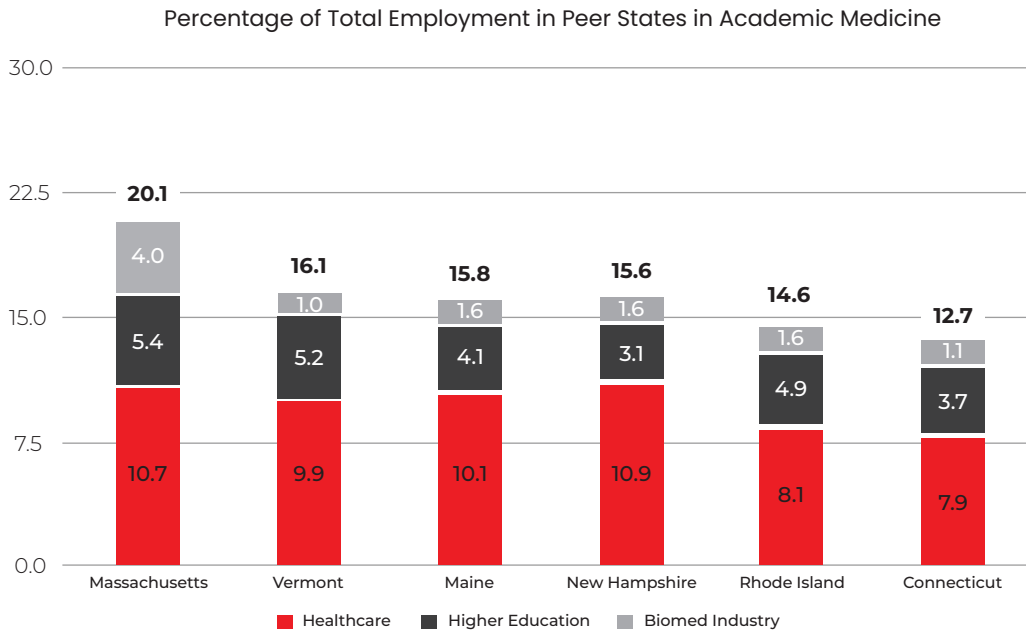
Even without the benefits of a fully integrated academic medical center, Brown University’s medical, public health, and biomedical engineering programs compare favorably in economic impact to medical schools in peer markets (see Key Finding 5). Lack of integration with Brown University and teaching hospitals restricts economic development in Rhode Island (see Key Finding 6), as teaching hospitals in Rhode Island produce lower-than-average economic impact compared with peer markets (see Key Finding 7). Tripp Umbach’s analysis indicates that a stronger integration of healthcare systems with Brown University can accelerate in a stronger biomedical economy in Rhode Island. The development of an integrated academic medical center can serve as a magnet for out-of-state patients while keeping Rhode Islanders in the state for care. Creating an integrated academic medical center can significantly increase biomedical economic development by 2035 (see Key Finding 8).



**Key Finding 1: Rhode Island lags behind peer states in academic medicine industry impact.**

Rhode Island trails neighboring states in terms of total employment engaged in higher education, healthcare, and biomedical industry as a percentage of total state employment (see Figure 1). For this report, Tripp Umbach refers to these three sectors collectively as the academic medicine industry, including healthcare, higher education, and biomedical industry. Only Connecticut has a lower percentage of employment in these sectors, largely because of an undersized biomedical industry sector and healthcare sector as patients in Connecticut are attracted to New York and Massachusetts for care. Rhode Island has a larger-than-average higher education sector, fueled by the size and scope of Brown University, but has a smaller biomedical and healthcare sector than peer states. Tripp Umbach included Massachusetts to show comparison with the nation’s highest percentage of employment engaged in the academic medicine industry.

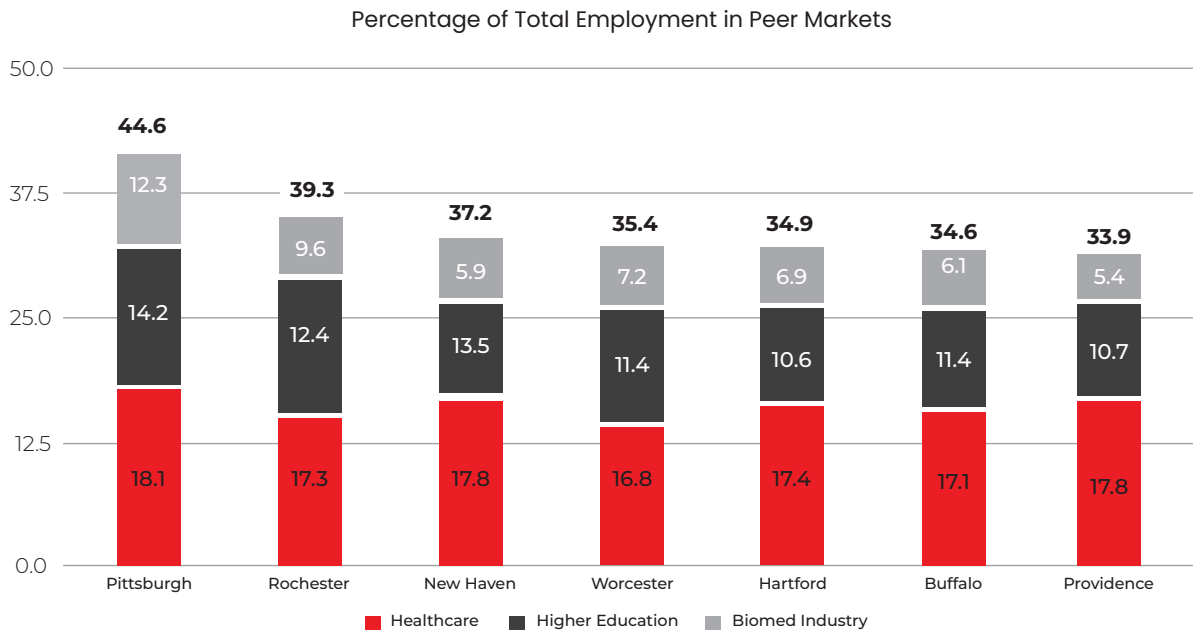
**Figure 1. Percentage of Peer States’ Total Employment Engaged in Academic Medicine**



**Key Finding 2: The Providence region ranks last among peers in biomedical economic impact.**

The Providence region, as defined in this report as all five Rhode Island counties, lags peer markets in terms of total employment engaged in higher education, healthcare, and biomedical industry (see Figure 2). While the higher education sector is strong in the Providence region, with the presence of Brown University and other institutions of higher education, the total size of the biomedical industry sector falls significantly below that of peer markets. Tripp Umbach included Pittsburgh as an aspirational region in Figure 2 as this area has highest percentage of employment engaged in academic medicine among all markets nationally. Tripp Umbach believes from experience with academic medical centers in more than 100 markets that a merger between two competing healthcare systems will fuel growth in the healthcare sector, as a consolidated academic medical center will offer a greater range of quality service lines. Tripp Umbach predicts that the merger will expand care options in sub-specialty service lines, leading to a reduction of patients from Rhode Island who leave the area for such care and attracting patients from neighboring states. Tripp Umbach estimates that more than \$632 million in annual healthcare spending leaves Rhode Island for care by out-of-state providers.

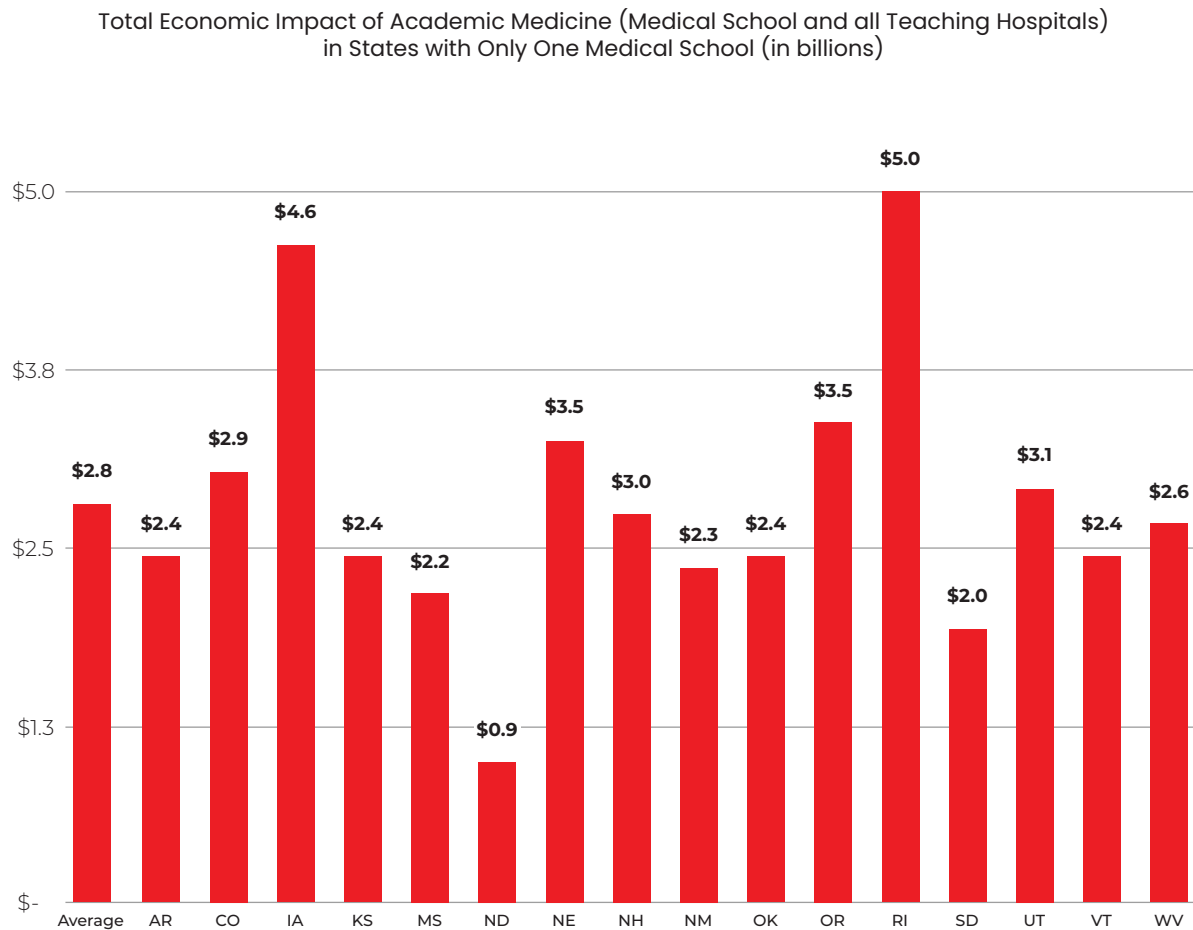
**Figure 2. Percentage of Total Employment Engaged in Academic Medicine in Peer Markets**



**Key Finding 3: Rhode Island has the largest academic medicine industry compared with states that have only one medical school.**

Academic medicine in Rhode Island as defined by medical schools, all hospitals with teaching programs, and biomedical industry generates \$5 billion annually in the state’s economy, according to models developed by Tripp Umbach for the Association of American Medical Colleges (AAMC) and updated in 2020. Even without a highly integrated academic medical center and underperforming biomedical industry sector compared to peers, academic medicine in Rhode Island is larger than in other states that contain only one medical school (see Figure 3). States with higher economic impact, such as Iowa, Nebraska, and Oregon, all have highly integrated academic teaching hospitals embedded with their medical schools.

**Figure 3. Economic Impact of Academic Medicine in States with a Single Medical School<sup>5</sup>**



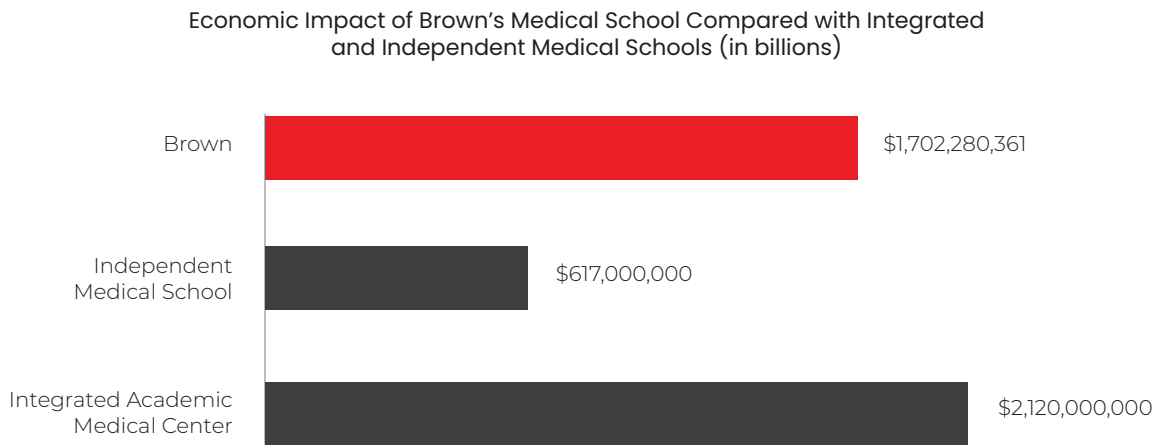
<sup>5</sup> Data includes all medical school and all teaching hospitals within the state.



**Key Finding 4: Brown University has the largest economic impact among independent medical schools in the United States.<sup>6</sup>**

Tripp Umbach divided all U.S. M.D.-granting medical schools into two broad categories: 1) Fully integrated academic medical centers in which the medical school is closely integrated into the ownership and operations of one or more teaching hospitals,<sup>7</sup> and 2) independent medical schools where no formal ownership or operational relationship exists between the medical school and the teaching hospital.<sup>8</sup> The total economic impact of fully integrated academic medical centers is nearly three times larger than the impact of independent medical schools. The impact of Brown University’s academic medicine education, research, and clinical programs compares favorably with the average independent medical school. However, the total economic impact of Brown University’s programs is lower than the economic impact of all U.S. medical schools with closely integrated academic medicine center relationships with one or more academic teaching hospitals. In fact, Tripp Umbach’s national economic impact analysis of academic medical centers indicates that Brown University has the largest impact among independent medical schools in the United States and is about three times larger than the average school (see Figure 4). Brown University’s medical school, public health school, and biomedical engineering department make up more than 50% of Rhode Island’s higher education economy.<sup>9</sup>

**Figure 4. Impact of Academic Medicine at Brown Compared with U.S. Medical Schools**

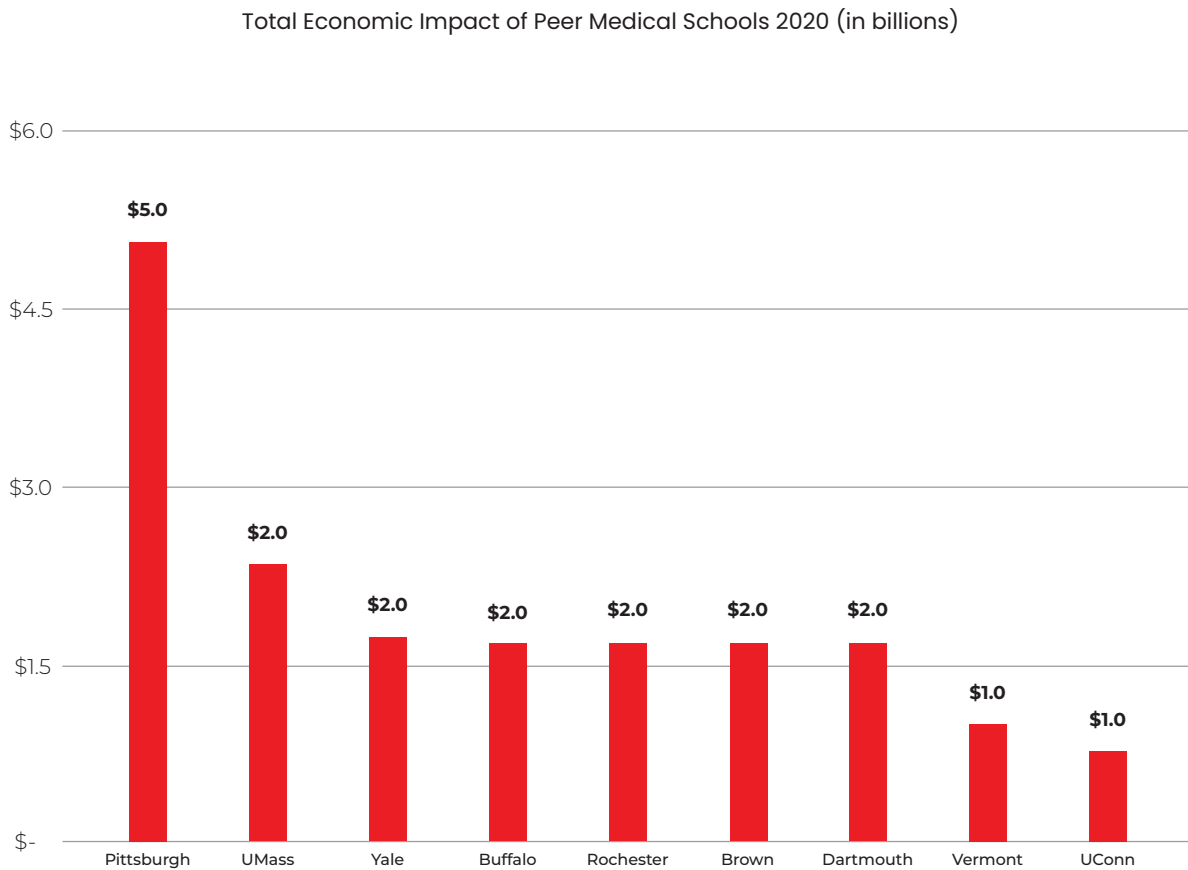


<sup>6</sup> Independent medical schools where there is no formal ownership or operational relationship between the medical school and the teaching hospital. For this analysis “Brown University” includes the medical school, public health school, and biomedical engineering program.  
<sup>7</sup> For this analysis, 95 medical schools are in this category.  
<sup>8</sup> For this analysis, 45 medical schools are in this category.  
<sup>9</sup> Tripp Umbach analysis.

**Key Finding 5: The economic impact of Brown University’s medical school is on par with medical schools in peer markets.**

When comparing peer medical schools, the economic impact of Brown University’s academic medicine programs falls in the middle of eight peer medical schools selected by the university. Brown University delivers comparable economic impact to medical schools in Buffalo, Rochester, and Dartmouth but ranks below peer medical schools New Haven and Worcester and dramatically lower than the medical school in Pittsburgh, which Tripp Umbach identified as an aspirational integrated academic medical center (see Figure 5).

**Figure 5. Total Economic Impact of Peer Medical Schools**

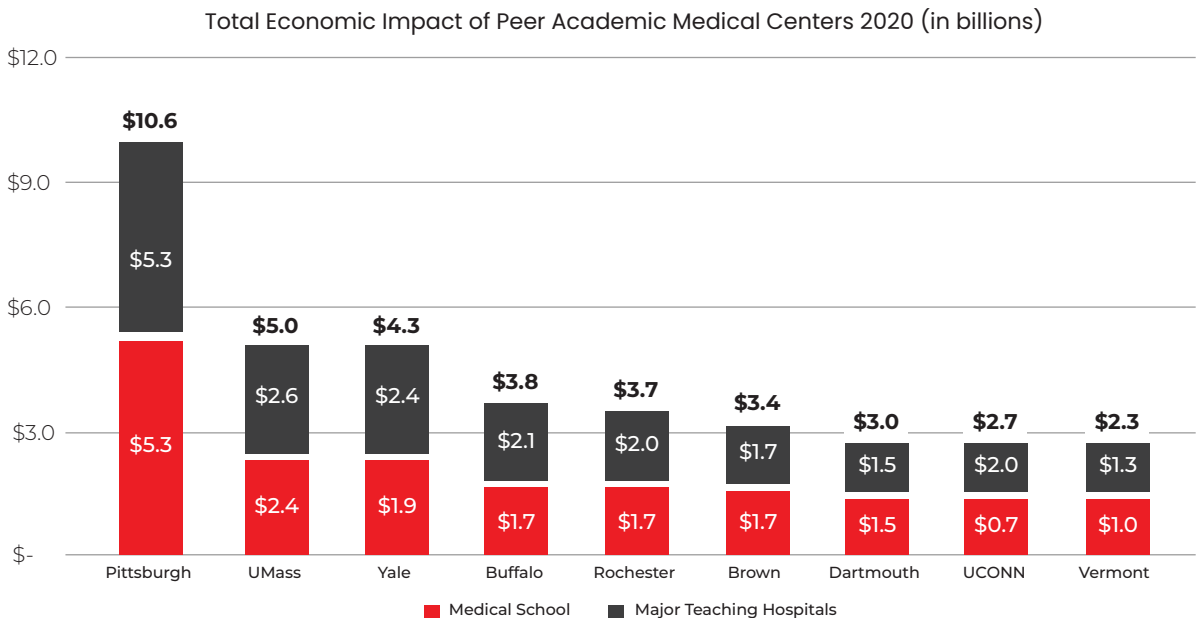


**Key Finding 6: Lack of integration among major teaching hospitals and Brown University limits economic impact potential in Rhode Island.**

Individually, Lifespan and Care New England are smaller than most academic medical centers in the United States. When measuring the economic impact of Brown University’s total academic medical center, including education, research, and clinical programs, with that of peer medical schools, Brown compares favorably with Rochester and Dartmouth and produces a greater economic impact than UConn and Vermont. However, highly integrated healthcare delivery systems in Worcester and New Haven drive the total economic impact of academic medicine. Therefore, UMass and Yale provide greater economic impact to their states than Brown because of the lack of closely aligned healthcare delivery systems. The University of Pittsburgh and its integrated health system UPMC is among the largest integrated academic medical centers in the United States.

The current competitive nature between Lifespan and Care New England and the resulting lack of full integration with the education, research, and clinical programs at Brown University, limits the state’s potential economic impact of academic medicine. Growing the economic impact of academic medicine programs through the development of an integrated relationship with Brown University provides an opportunity for economic growth in Rhode Island. Tripp Umbach suggests that the academic medicine industry in Pittsburgh can serve as an aspirational peer for Rhode Island (see Figure 6). Figure 6 data include Brown University academic medicine components and major teaching hospitals within Lifespan and Care New England in Rhode Island.

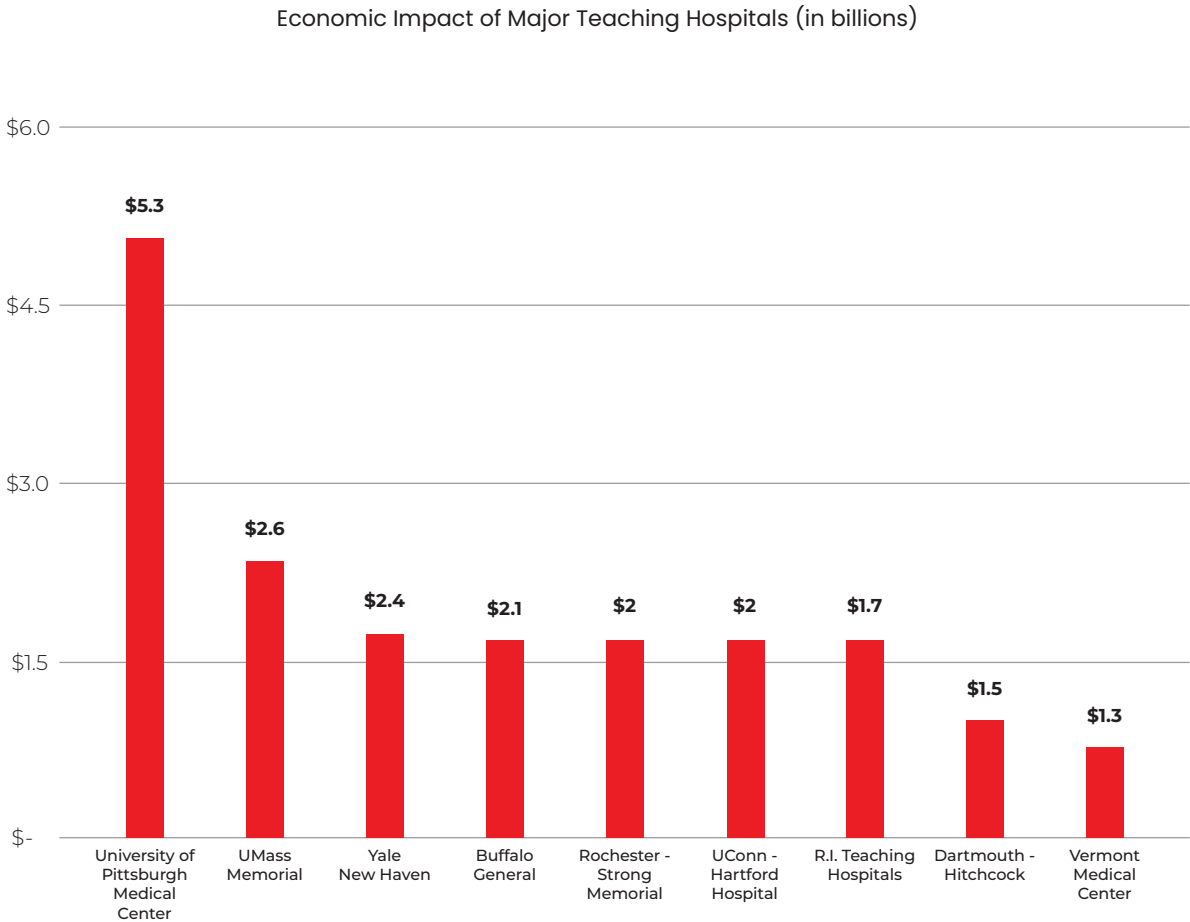
**Figure 6. Economic Impact of Primary Academic Medical Centers<sup>10</sup> in Peer Markets**



**Key Finding 7: The major teaching hospitals in Rhode Island delivers lower economic impact than in peer markets.**

The current economic impact of Life Span and Care New England’s teaching hospitals ranks significantly lower than teaching hospitals in peer markets (see Figure 7).

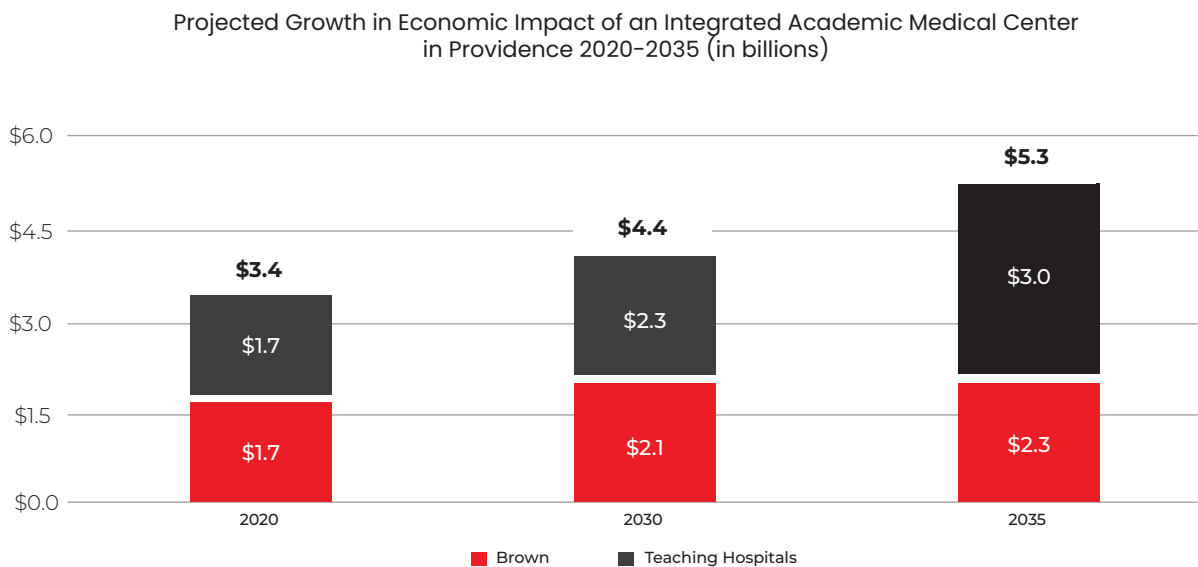
**Figure 7. Economic Impact of Major Teaching Hospitals in Peer Markets**



**Key Finding 8: Creating an integrated academic medical center in Rhode Island will drive significant economic development.**

Tripp Umbach analyzed the potential economic impact of an integrated academic medical center based on expected levels of education, research, and clinical programs for two factors: 1) The merger of the two largest Rhode Island-based health systems, namely Lifespan and Care New England and 2) a closer integration with Brown University’s programs, specifically with the School of Medicine, the School of Public Health, and Biomedical Engineering. By 2035, the potential economic impact of an integrated academic medical center in Rhode Island, with the combined resources of an integrated healthcare delivery system fueled by the merger of the two largest Rhode Island academic medical centers, totals \$5.3 billion annually. Tripp Umbach based its projection on the experiences of other academic medical centers that moved over time from independent relationship with teaching hospitals to fully integrated academic medical centers from 1995 to 2020.<sup>10</sup> Therefore, the economic impact of an integrated academic medical center in Rhode Island has the potential to equal that of the current impact of the UMass academic medical center in Worcester (see Figure 8).

**Figure 8. Projected Economic Impact of an Integrated Academic Medical Center**



Tripp Umbach’s analysis of the size and scope of peer academic medical centers at Yale, UConn, and UMass and in approximately 100 U.S. markets indicates that an integrated academic medical center in Rhode Island would add 5,954 jobs directly and indirectly to the Rhode Island economy by 2030 and 11,909 jobs by 2035. Such increases would effectively place the employment impact of academic medicine in Rhode Island on par with the academic medical center in New Haven and surpass the current economic impact of academic medical centers in Rochester and Buffalo. An integrated academic medical center in Rhode Island resulting from the merger of two competing health systems and a stronger alliance with Brown University would also significantly increase community health services.

<sup>10</sup> Tripp Umbach economic impact models based on data supplied by the AAMC 1995–2020.

# Potential Economic Impact of an Integrated Academic Medical Center

An integrated academic medical center in Rhode Island has the potential to increase the percentage of statewide employment engaged in healthcare, higher education, and industry from 14.6 percent of the state's workforce in 2020 to 18.6 percent by 2035. Tripp Umbach estimates that the total annual GDP of academic medicine in Rhode Island could grow by \$3.3 billion, from \$8.2 billion in 2020 to \$11.5 billion by 2035, driven by an integrated academic medical center (see Table 1).

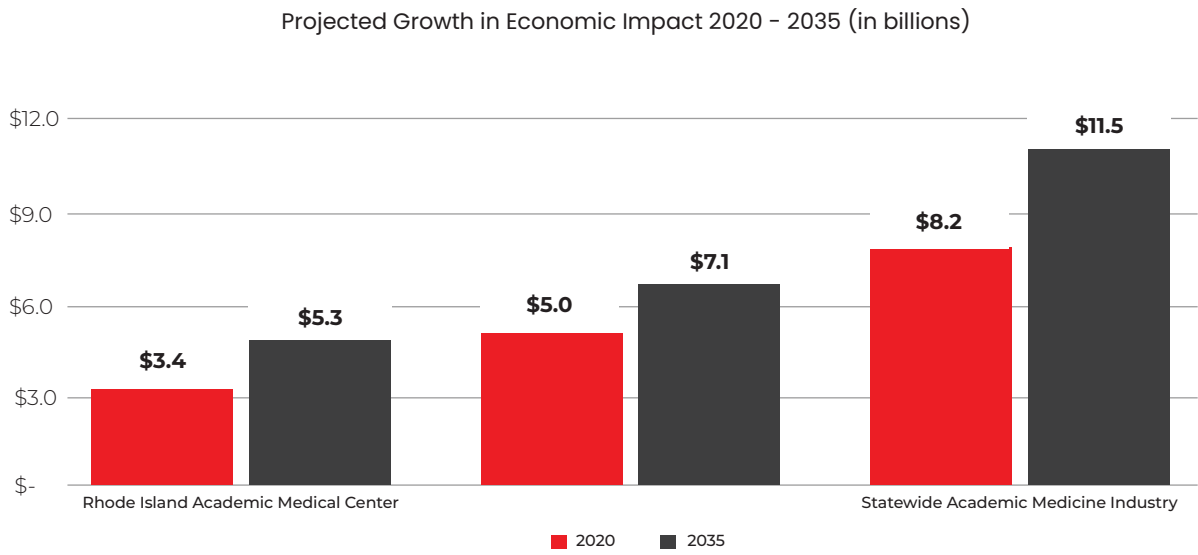
Tripp Umbach's analysis also shows that Rhode Island trails peer states in attracting and growing biomedical companies. The fragmentation of research across Brown University, Lifespan, and Care New England inhibits collaboration among the faculty and hinders the ability to compete with peer institutions for grant funding. Tripp Umbach's peer benchmarking analysis indicates that the biomedical sector in Rhode Island can grow from its current annual impact of \$900 million in 2020 to \$1.7 billion in 2035, an addition of about \$800 million annually to the state's economy (see Table 1).

**Table 1. Projected Growth in Economic and Employment Impact in Academic Medicine Industry in Rhode Island 2020–2035**

	Healthcare Sector Statewide (+)	Higher Education Sector Statewide (+)	Biomedical Industry Sector Statewide (+)	Total Academic Medicine Sector Statewide
<b>2020</b>	8.1% of jobs 40,500 direct jobs \$4.4 billion	4.9% of jobs 24,500 direct jobs \$2.9 billion	1.6% of jobs 8,000 direct jobs \$900 million	14.6% of jobs 73,000 direct jobs \$8.2 billion
<b>2035</b>	10.5% of jobs 52,500 jobs \$6.5 billion	5.4% of jobs 27,000 jobs \$3.3 billion	2.7% of jobs 13,500 jobs \$1.7 billion	18.6% of jobs 93,000 jobs \$11.5 billion
<b>Growth</b>	12,000 jobs \$2.1 billion	2,500 jobs \$400 million	5,500 jobs \$800 million	20,000 jobs \$3.3 billion

Most of the growth in the healthcare, higher education, and biomedical industry statewide could be driven by the development of an integrated academic medical center in Rhode Island. Further, the economic impact of an integrated academic medical center will increase the total economic impact of the statewide academic medicine sector from \$5.0 billion in 2020 to \$7.1 billion in 2035 (see Figure 9).

**Figure 9. Projected Economic Impacts 2020–2035**



# Economic Development from Biomedical Research and Innovation

Tripp Umbach's analysis of academic medical centers in 100 U.S. markets and benchmarking with peer academic medical centers indicates that the creation of a unified academic medical center will also drive research and development growth in the biomedical sector. Other middle-sized cities such as Pittsburgh, Cleveland, and Baltimore sparked impressive economic growth by incentivizing integrated academic medical centers to fuel biomedical discovery and industry partnerships through state funding programs. Rhode Island has not capitalized on its strengths to effect a similar transformation in its healthcare economy, to the detriment of population health and economic opportunity. As Lifespan and Care New England compete for patients and doctors, neither system has a complete set of medical specialties, and neither is operating at optimal scale. Brown and its affiliated medical professionals are caught between the two systems, and today Care New England finds itself in need of substantial additional financial support.

Tripp Umbach's analysis of academic medical center partners in Rhode Island indicates that a strong, unified education, research, and care delivery system can drive the state's economy beyond 2035. Lifespan is a nationally respected healthcare system known for patient-centered care, from primary care to advanced specialty care, including neurology, cardiology, orthopedics, pediatrics, and cancer care. Care New England has made major investments in population health management provides nationally recognized expertise in primary care (family medicine), obstetrics, gynecology, neonatology, and psychiatry. Brown University offers a leading research-intensive medical school and a newly established School of Public Health, engaged in research and education in areas including aging and brain science, respiratory medicine, bioinformatics and big data, child health and development, and effective delivery of healthcare services. Collectively, Care New England, Lifespan and Brown, plus the Providence VA Medical Center, conduct groundbreaking research, from bench to bedside to commercial application, directed at preventing and curing disease, providing more effective and lower-cost medical care, and improving population health. Combined, these institutions attract about \$300 million of external research funding annual into Rhode Island annually. Tripp Umbach estimates that external funding research dollars flowing into Rhode Island can grow to about \$450 million annually by 2035, based on the experience of peer states with unified academic medical centers.



Many of the pieces for expansion of the biomedical industry in Rhode Island are in place. However, the lack of research consolidation poses a barrier to growing the state's biomedical industry sector. As presented in Figure 1, Rhode Island has the smallest biomedical industry sector among peer states, and an integrated academic medical center will drive industry partnerships critical to growing this important growth sector. The creation of a "bio-innovation ecosystem" connected with the integrated academic medical center in the state can be a driver of generating intellectual property that, in turn, attracts venture funding and partnerships with industry. Achieving such outcomes requires that Brown University and especially Brown's Warren Alpert Medical School and School of Public Health work in concert with Lifespan and Care New England, the two leading not-for-profit healthcare systems in the state with strong academic connections.

### **Economic Development Growth in the Jewelry District**

Brown University is poised to leverage investment to partner with the health systems and the University of Rhode Island, elected leaders, and business leaders in expanding a strategy to realize the ultimate economic development impact of the growing biomedical sector. For example, growing Providence's Jewelry District as a nationally recognized innovation hub will provide the space needed to expand university investments in the areas of brain science; medical device design, engineering, and manufacturing; health informatics and data science; human-centered robotics; as well as photonics and high-speed communications. Such expansion will provide the infrastructure to capture the projected growth in biomedical industry investment by 2035. University leaders interviewed also anticipate growth in immunology, genetics, respiratory disease, aging, and other critical areas spanning a wide spectrum of life, health, and physical sciences. Based on the experience of aspiration peer communities such as Pittsburgh, having collaborative industry space near universities and health systems accelerates the incubation of new companies and serves as a magnet for attracting established companies.

Growing academic and research programs will require strong partnerships with other Rhode Island institutions, including Lifespan, Care New England, the VA Medical Center, and the University of Rhode Island. Anchored by large institutions and companies, the Jewelry District can attract and maintain a dynamic community of small, medium, and large companies benefiting from closer proximity to Lifespan and Care New England teaching hospitals. Strong research attracts talented, world-class physician-scientists, leading to outstanding medical care and bringing federal and private external grant dollars to the state. Research also generates industry partnerships that create jobs and economic growth benefiting communities. Hospitals, healthcare professionals, health insurance companies, and state governments are increasingly being asked to provide integrated, world-class care to consumers at lower cost. Simultaneously, researchers working outside of broad collaborations with regional partners are likely to face cuts in federal funding for research. In this environment, the elements we have proposed of health system, physician, and research integration are more important than ever. Alignment and integration of clinical, medical education, and research will drive greater efficiency and effectively improve health and healthcare throughout Rhode Island.

# Better Healthcare and Outcomes for Rhode Islanders

Lifespan, Care New England, and Brown University share an important characteristic that makes them natural partners: Each is charged with serving the public good. Lifespan and Care New England have common missions to protect and improve the health of the communities they serve. The mission of Brown University, and specifically the Warren Alpert Medical School and the School of Public Health, is to improve health and healthcare through education, research, and biomedical discovery. These three organizations' complementary strengths, when combined, can create a thriving unified academic medical center.

Brown, Lifespan, and Care New England contribute to the quality of care in the state by attracting outstanding physicians to the region and educating new doctors who remain in Rhode Island to practice medicine. About half of all physicians who complete medical school and residency at Brown are practicing in Rhode Island. Almost 60% of Rhode Island physicians have affiliation with the medical school, and half of Rhode Island physicians hold faculty appointments in the Warren Alpert Medical School. Despite these strengths, the healthcare system's fragmentation, especially the separation between Care New England and Lifespan, hinders the ability to serve the community's healthcare needs, to optimally educate the next generation of medical professionals, to grow combined research portfolios, and to contribute to the state's plans to cultivate a thriving biomedical economy in Rhode Island.

A fully integrated academic medical center will expand residency training opportunities, encouraging outstanding future physicians and public health practitioners to remain in the state after graduation.<sup>11</sup> With physician and other health provider shortages growing in Rhode Island, an integrated academic medical center can work with community hospitals and Federally Qualified Health Centers to develop additional residency training opportunities. Brown has a 50-year track record for strengthening the quality of the state's healthcare workforce. Some of Rhode Island's top physicians report that they practice medicine in the state to benefit from the innovation, discovery, and excitement of engaging with researchers and students at the Warren Alpert Medical School. Brown's Primary Care - Population Medicine Program is a first-of-its-kind program created to train physicians who are leaders in primary care and to approach health at the population level, mitigating health disparities through community partnerships.

<sup>11</sup> According to the AAMC, 38.8% of Brown medical school graduates remain in Rhode Island to practice medicine and this number is expected to grow to 45% with health system integration.

# Conclusion

Tripp Umbach's analysis finds that a stronger integration of healthcare systems with Brown University can accelerate a stronger biomedical economy in Rhode Island. Creating an integrated academic medical center can significantly increase the economic impact of the academic medicine sector in Rhode Island from \$8.2 billion in 2020 to \$11.5 billion by 2035. Further, the economic impact of an integrated academic medical center in Rhode Island can grow from \$3.4 billion in 2020 to \$5.3 billion by 2035, while the total economic impact of all medical education, teaching hospitals statewide grows from \$5.0 billion in 2020 to \$7.1 billion in 2035.

Tripp Umbach cautions from experience with similar projects that efforts to achieve the economic impact estimates in the report through developing an integrated academic medical center must go beyond a signing ceremony. Realizing the economic impacts outlined in this study will require significant new investments, philanthropic resources, patience, commitment, and culture change. On the part of the state of Rhode Island, a commitment to helping navigate regulatory hurdles associated with a merger expeditiously will be needed. On the part of the three organizations most closely involved – Brown, Lifespan, and Care New England – the development of trust and a willingness to compromise on the myriad details of governance, funds flowing among the organizations, financial investments, and decisions about leadership of systems and practice areas that are part of any health system merger will be required. All parties must share the vision to develop a next-generation academic medical center that invests in community health improvement with an abiding imperative to keep healthcare affordable and accessible.



# Recommended Next Steps

Brown University is in position to invest significant financial resources and play a constructive role in bringing together the wide range of community members and stakeholders who will benefit from a unified academic medical center. Interviews conducted by Tripp Umbach with leadership at Brown University indicate that four pieces are essential to make a unified academic medical center a reality:

**1. Health System Integration:** With co-investment from Brown, Care New England and Lifespan should undertake a full or partial merger, with the minimum participation of each of the system's premier teaching hospitals – Care New England's Women & Infants, Kent, and Butler hospitals and Lifespan's Rhode Island, Miriam, Hasbro Children's and Bradley hospitals – to create an integrated healthcare system offering the full array of medical specialties required for excellence and the scale required to support effective and efficient provision of healthcare to the community.

**2. Research Integration:** Research currently conducted at Brown University, Lifespan, and Care New England should be integrated and coordinated through Brown University to capitalize on strengths, strategically build research capacity in new areas, coordinate effectively with other local institutions such as the University of Rhode Island, and create industry partnerships that bring employment and economic growth to the region.

**3. Physician Integration:** Tripp Umbach recommends that physician groups associated with the new healthcare system join a new physician-led practice plan of which Brown University would be a member and co-investor, creating opportunities for clinical integration and risk contracting, for jointly managed and efficient back-office services, and for a united commitment to support medical education and research.

**4. State Leadership:** The state of Rhode Island should work to speed up creating a unified academic medical center in close partnership with Brown, Lifespan, and Care New England.

Tripp Umbach recommends that Brown, Lifespan, and Care New England develop an integrated academic medical center to bring together the expertise and capacity needed to create the type of integrated medical system that has provided such dramatic economic impact in peer communities. Care New England and Lifespan twice attempted but failed at mergers, leaving billions in potential economic impact to Rhode Island on the table. Our report shows that since the last failed attempt, the benefits of creating a unified academic medical center have only increased as the total economic impact of academic medicine at Brown University has stagnated compared with medical schools in New Haven, Worcester, Rochester, and Pittsburgh.

# Appendix A: Economic Impact Methodology

Economic impact projections for all medical schools and teaching hospitals are based on data supplied by the Association of American Medical Colleges (AAMC). Since 1995 Tripp Umbach has conducted economic impact studies for the AAMC and uses these data for benchmarking analysis with medical schools and teaching hospitals throughout the United States. In addition, data generated from Tripp Umbach’s studies with more than 100 academic medical centers were also used to provide estimates included in the report. Tripp Umbach accessed our database of all medical schools and teaching hospitals, to estimate the total projected impact associated with the potential merger of Care New England and Lifespan, based on the actual experience of other hospital mergers with academic medical centers (i.e., UPMC Presbyterian Shadyside; New York-Presbyterian/Columbia University Irving Medical Center; and Mass General Brigham). This knowledge base and experience with other comparable institutions helped Tripp Umbach analyze the potential economic and social benefits resulting from a transformational partnership among Brown University, Care New England, and Lifespan Health System. All economic impact findings presented in this report include the direct, indirect, and induced impacts driven by spending by institutions in the healthcare, higher education, and biomedical industry sectors on goods and services, employees, capital, and contracts that remain in the state and local economies as defined throughout the report. The total economic impact also includes visitor spending that is made in the state or local area because of the institution’s presence.

