BETH ISRAEL LAHEY HEALTH, INC.

DON APPLICATION #BILH-19092415-RE

ATTACHMENTS

DON-REQUIRED EQUIPMENT

BETH ISRAEL DEACONESS MEDICAL CENTER

May 10, 2021

BETH ISRAEL LAHEY HEALTH, INC.

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1. DETERMINATION OF NEED NARRATIVE

1.4 RPO Status

BILH's RPO status is pending[1].

2. Project Description

Beth Israel Lahey Health, Inc. (the "Applicant" or "BILH"), located at 330 Brookline Avenue, Boston, MA 02215, is filing a Notice of Determination of Need ("DoN") Application ("Application") with the Massachusetts Department of Public Health (the "Department" or "DPH") for the acquisition of DoN-required Equipment by Beth Israel Deaconess Medical Center, Inc. ("BIDMC"). The proposed project is for the expansion of computed tomography ("CT") services by adding one CT unit to BIDMC's West Campus Rosenberg Building, within the Department of Radiology ("Radiology"), located at 1 Deaconess Road, Boston, MA 02215 (the "Proposed Project"). The CT unit to be purchased is a Siemens Force, appropriate for a broad range of uses and with some enhanced capabilities consistent with the evolution of CT technology.

BIDMC provides CT services, including CT-guided procedures ("procedures") and diagnostic exams ("exams"; procedures and exams are sometimes referred to collectively in this Application as "CT services") in several locations on its main campus. BIDMC has sited each CT unit to maximize efficiencies to address the patient care needs appropriate to their particular location.[2] There are nine (9) CT units currently in operation on the BIDMC main campus: three (3) CT units on the West Campus, four (4) CT units on the East campus[3], and two (2) portable CT units with limited use.[4] On the West Campus, BIDMC currently operates one (1) CT unit in the Emergency Department ("ED") that serves the diagnostic needs of emergency patients as well as inpatients requiring exams during evening or overnight hours, and two (2) CT units available for the full range of diagnostic and interventional radiology services which are located on the 3rd floor of the Rosenberg building (the "Project Site"). The additional CT unit proposed for the Project Site

[1] Discussed with the Department (Attorney Rebecca Rodman).

[2] BIDMC also operates one (1) CT unit at its Chestnut Hill satellite location, serving the diagnostic imaging needs of its urgent care patients and patients referred by on-site primary care physicians and specialists, as well as patients for whom this community location is more convenient than alternative locations. The Applicant does not operate CT units at its other community-based satellite locations in Lexington and Chelsea. The predominant uses for the Proposed Project, which are detailed in this Application, are to address the needs of BIDMC's inpatient population and to support CT-guided interventional procedures and are not appropriate for a community-based ambulatory location.

[3] The four (4) East Campus CT units are as follows:

- East (3rd floor): Two (2) CT units serve inpatients and outpatients for the full range of CT imaging services, including CT-guided interventional procedures and diagnostic uses.
- East (Shapiro outpatient building): Two (2) CT units serve an outpatient, ambulatory population. One of these CT units is particularly suited to cardiac CT exams.

[4] The portable units on BIDMC's West Campus are primarily dedicated for operating room and Neuro-ICU patients receiving neuro-CT scans.

would be used for the full range of CT services, but will primarily augment West Campus capacity for inpatient exams, CT-guided interventional procedures ("CT-guided procedures") and advanced imaging for inpatients and outpatients such as cardiac CT.

The vast majority of CT-guided procedures at BIDMC are provided on the West Campus (almost 75% in FY2019) due to the service mix and available supports on that campus. Current CT-guided procedures provided at BIDMC include, without limitation, tumor ablation procedures using radio frequency, microwave and cryogen techniques, and placement of fiducial markers for stereotactic radiotherapy. CT-guided procedures enable physicians to have highly refined, real-time visual information that precisely targets the area of concern during a procedure, improving outcomes and lessening the potential for damage to the surrounding tissue. The quality, magnification and ability to employ and detect injectable contrast into the target site are all essential tools required to perform these types of complex procedures. Access to an additional CT unit equipped to perform advanced CT-guided procedures (hereafter described) will reduce patient time to access CT services. It also will broaden BIDMC's current CT capabilities in that the additional CT unit is a newer-generation CT with enhanced functionalities that include both improved dose reduction and imaging quality, as well as metal artifact reduction algorithms and the ability to provide cardiac imaging on the West Campus for the significant number of patients with cardiac needs.[5]

The need for the Proposed Project is based on the existing needs of the Applicant's patient panel. It will also help to address anticipated growth in the need for CT services based on BIDMC's current patient panel trends of increasing acuity and the aging population, as described in this Application. The Applicant seeks to expand its Project Site CT suite to address delays in access to care, thereby improving the patient experience, the timeliness of clinical decision making, and health outcomes while improving administrative efficiencies. The West Campus CT units are operating at full capacity, there is no back-up unit on the West Campus if a unit requires service and, as discussed in more detail below, there are significant clinical and operational barriers to moving patients to CT scanners at other BIDMC sites. The current constraints, leading to delays in scheduling of scans, are caused by the following factors: (1) the increase in inpatient census on the West Campus and the resulting increase in demand for CT services;[6] (2) the increase in acuity of West Campus inpatients and the expanded use of CT technology to provide increased CT access for these patients; (3) the increase in the acuity of ED patients on the West Campus and the concomitant increase in utilization of CT services, particularly for all code stroke and trauma patients; and (4) the increase in the use of CT-guided procedures for both inpatients and outpatients, particularly on the West Campus. The expansion of the Project Site CT suite to accommodate an additional CT unit will reduce the delays in access, especially during peak

[5] As noted in footnote 3, the only other unit suitable for cardiac imaging is located in the Shapiro Building on the East Campus.

[6] The patient panel need for this Application is not based on projections for BIDMC's New Inpatient Building, DoN #CG-18051612-HE. The New Inpatient Building is currently scheduled to become operational estimated to be on or about March 2023; additional patients served in that building will likely contribute to increased use of the CT units on the West Campus in the future.

demand times, and reduce significant wait times for CT-guided procedures (e.g. tissue biopsies, abscess drainage, tumor ablations and cardiac procedures).

As noted, BIDMC's intention is for the proposed additional CT to be used consistent with the Project Site CTs' current uses, which are heavily concentrated in inpatient use, CT-guided procedures and complex diagnostic use.[7] Existing West Campus CT units are heavily used by inpatients, due to their proximity to the large number of West Campus inpatient nursing units, operating rooms, and specialty centers. In addition, the West Campus has critical services and supports rendering it the primary location for performing CT-guided procedures for both inpatients and outpatients, further driving up the volume of CT-guided procedures on the West Campus. One CT unit is particularly suited to CT-guided procedures, as it has a wider bore which is needed to facilitate intraprocedural imaging needed during image-guided interventions. As a result, outpatient diagnostic use is the least prevalent use for West Campus CTs. However, Radiology makes an effort to schedule outpatients with medical appointments on the West Campus for CT services on the West Campus, when possible, to avoid the additional need for patients to transport between the East and West Campuses for their multiple appointments.

The new CT unit will be readily integrated within the existing Radiology CT program, with access to highly specialized and experienced BIDMC physicians, robust departmental and overall hospital quality assurance mechanisms and strong health care quality and patient satisfaction criteria.

The Proposed Project is consistent with Massachusetts' cost containment goals for multiple reasons. As a threshold matter, the Proposed Project maximizes use of existing hospital space, facilities and ancillary services; reduces administrative inefficiencies caused by capacity constraints; and, most importantly, increases timely patient access to care in the appropriate setting. Also, with respect to cost containment, it is important to highlight that a significant proportion of the services planned for the additional CT unit is included as a component of an inpatient stay or an interventional procedure.[8] With respect to the limited number of standalone outpatient diagnostic exams, in addition to the limitations imposed by prior authorization requirements, every order is subject to review by radiologists. BIDMC also is currently implementing an electronic clinical decision support tool, in accordance with federal law, to ensure that physicians ordering advanced imaging consult appropriate use criteria. Additionally, BIDMC will be implementing the Medicare Part B Appropriate Use Criteria for Advanced Diagnostic

[7] As previously discussed with the Department, this Application is being filed in connection with the proposed CT unit's diagnostic use (as discussed with Attorney Rebecca Rodman). The Department confirmed to Applicant (in August 2018), following the meeting of the DoN Required Equipment and Services Advisory Committee, that interventional and intraoperative imaging modalities will not on their own require the filing of a DoN application. The Department noted at that time that while imaging technology may be used for the procedure, it is integrally linked to it, is a part of operative planning, and is billed for under the single procedure, and thus cannot serve as a separate unit in the context of capacity to serve patients not having the relevant procedure. Similarly, the Applicant submits that based on the more acute needs of inpatients and the bundling of inpatient charges, inpatient CT use of any kind should not raise the concerns set forth in the Department's Determination of Need- Required Equipment and Services Guidelines (dated January 2017).

[8] *See also supra* note 7.

Imaging in time for the 2022 effective date. The Proposed Project will not impact existing payor contracts.

In sum, the expanded CT services capacity on BIDMC's West Campus will ensure that BIDMC patients, including vulnerable patients in BIDMC's Community Benefits Service Area ("CBSA"), and, in particular, inpatients and patients in need of CT-guided procedures, have timely access to essential hospital-based imaging services from a lower cost provider of high quality tertiary and quaternary services.

Factor 1: Applicant Patient Panel Need, Public Health Value and Operational Objectives

F1.a.i Patient Panel:
Describe your existing Patient Panel, including incidence or prevalence of disease or behavioral risk factors, acuity mix, noted health disparities, geographic breakdown by zip codes or other appropriate measure, demographics including age, gender and sexual identity, race, ethnicity, socioeconomic status and other priority populations relevant to the applicant's existing patient panel and payor mix.

A. Beth Israel Lahey Health Patient Panel

The Applicant is a Massachusetts, non-profit, tax-exempt corporation that oversees a regional, non-profit health care delivery system comprised of teaching and community hospitals, physician groups, behavioral health providers, post-acute care providers and other caregivers. BILH's member entities serve the health needs of patients and communities of Greater Boston[9] and other surrounding communities in Eastern Massachusetts. BILH's purpose is to support the patient care, research, and educational missions of its member entities. BILH's member hospitals include BIDMC and the following hospitals: Addison Gilbert Hospital; Anna Jaques Hospital; Beth Israel Deaconess Hospital-Milton; Beth Israel Deaconess Hospital-Needham; Beth Israel Deaconess Hospital-Plymouth; Beverly Hospital; Lahey Hospital & Medical Center; Lahey Medical Center, Peabody; Mount Auburn Hospital; New England Baptist Hospital; and Winchester Hospital (collectively known as "BILH Hospitals"). BILH's vision is to have a broader impact on the health care industry and patient populations in Massachusetts by sharing best practices, investing in foundational infrastructure to support population health management, and encouraging true market competition based on value.

[9] Greater Boston includes the complementary geographies, from the Northeastern Massachusetts border to Plymouth County, and west to the I-495 beltway, including the following cities/towns: Greater Boston includes the following cities and towns: Acton, Arlington, Ashland, Bedford, Belmont, Boston, Boxborough, Braintree, Brighton, Brookline, Burlington, Cambridge, Canton, Carlisle, Chelsea, Cohasset, Concord, Dedham, Dorchester, Dover, Foxboro, Framingham, Hingham, Holbrook, Holliston, Hopkinton, Hudson, Hull, Lexington, Lincoln, Littleton, Marlborough, Maynard, Medfield, Millis, Milton, Natick, Needham, Newton, Norfolk, Northborough, Norwell, Norwood, Quincy, Randolph, Revere, Roslindale, Scituate, Sharon, Sherborn, Somerville, Southborough, Stow, Sudbury, Walpole, Waltham, Watertown, Wayland, Wellesley, Westborough, Weston, Westwood, Weymouth, Wilmington, Winchester, Winthrop, Woburn, and Wrentham.

BILH also operates Beth Israel Lahey Health Performance Network, LLC ("BILHPN"), a value-based physician and hospital network and Massachusetts Health Policy Commission (HPC) certified Accountable Care Organization ("ACO"), whose goal is to partner with other community hospitals and other providers throughout Eastern Massachusetts to improve quality of care while effectively managing medical costs. Through BILHPN, BILH and its participating community partners are working to align the incentives and efforts needed to dramatically improve the health of broad populations and to focus intently on caring for patients at the right time, in the right location, and in the community whenever possible. BIDMC is contracted to participate in BILHPN and currently participates in its subsidiary ACO, Beth Israel Deaconess Physician Organization, LLC d/b/a Beth Israel Deaconess Care Organization or "BIDCO".[10]

An estimated five million people reside in the BILH service area (see attached Table 1 in Exhibit A). This area has experienced 6.4% population growth since FY 2010, and is projected to increase at a faster rate (4.5%) than the state (3.5%) from 2017 to 2022, as shown in Table 1 in Exhibit A. As shown on Table 2 in Exhibit A, the BILH patient panel represents approximately 1.23 Million patients in FY 2017, representing an increase of 0.96% compared to the BILH patient panel for FY 2015. The patient panel includes over 250 zip codes, more than 80% of which are in Middlesex, Essex, Norfolk, Suffolk and Plymouth counties. Please refer to Table 3 of Exhibit A. Table 2 in Exhibit A contains a geographic breakdown of the patient panel expressed by zip code. The Massachusetts Center for Health information and Analysis ("CHIA") reports that BILH's patient care panel represents approximately 18% of all discharges in the Commonwealth.[11]

As shown on Table 2 in Exhibit A, the gender breakdown of BILH's patient panel mix is relatively stable consisting of approximately 58.3% females and 41.7% males based on FY 2017 data, with gender unknown for approximately .1% of the population. The average age of the BILH patient is increasing year to year, with approximately 26.6% aged 65 and older based on 2017 data. Approximately 65.6% are aged 18-64 and less than 8% are under the age of 18.

Based on self-reporting, the diversity of BILH's patient panel continues to increase year to year with a larger percentage identifying as Other (as defined in Table 2 in Exhibit A) (13.4% in FY 2017 as compared with 11.4% in FY 2015). Data demonstrates that in FY 2017, 74.6% of the total patient population identified as white, 4.8% identified as Black or African American, 5.4% identified as Asian, 1.6% identified as Hispanic/Latino, .1% identified as American Indian or Alaskan Native, and .1% identified as Native Hawaiian or Other Pacific Islander.[12]

[10] Certain BIDCO activities relevant to this Application are described in later sections.
[11] *See* CHIA, *Massachusetts Case Mix: Hospital Inpatient Discharge Data (HIDD)*, *available at* www.chiamass.gov/assets/docs/r/hdd/FY18-Case-Mix-Hospital-Inpatient-Discharge-Documentation-Guide.pdf.
[12] Only data provided by BIDMC includes a separate Hispanic/Latino category, and patients who are Hispanic/Latino may be of any race.

The following additional key demographic statistics with demonstrated links to health outcomes were analyzed within the BILH patient panel, including through a review of the then current Community Health Needs Assessments ("CHNAs") associated with BILH providers.[13]

1. Payor Mix

As shown on Table 2 in Exhibit A, the payor breakdown of BILH's patient panel mix is approximately 52.9% Commercial, 24.2% Medicare, 12.87% Medicaid, 4.7% Multiple Payors, 4.3% Other, and 1.1% Unknown.

2. Health Indicators

The prevalence of a Chronic Condition (as defined in Table 2 in Exhibit A[14]) within the BILH patient panel has increased slightly from FY 2015 to FY 2017, representing over 30% of the panel. A review of the population within the BILH collective communities through the CHNA process revealed a high prevalence of certain chronic diseases such as obesity, diabetes, hypertension, and cancer. Most counties and neighborhoods in the BILH service area are comparable to the Commonwealth averages[15], however, rates of these diseases vary by segments of the population, and especially by risk factors. Hypertension and cancer have been highlighted as chronic conditions of particular interest with respect to BILH patients in communities served by BIDMC in and around Boston, with cancer being the leading cause of death among Boston residents.

BIDMC's most recent CHNA contains the following points of interest:[16]

- A significantly higher percentage of residents in Roxbury (30%) and Dorchester (30%) reported having been diagnosed with hypertension as compared to Boston overall (25%).

- Heart disease hospitalization rates were significantly higher in Roxbury (144.2 per 100,000 residents), Dorchester (114.0 per 100,000 residents (zip codes 02121 and 02125) and 116.8 per 100,000 residents (zip codes 02122 and 02124), and the South

[13] The Applicant notes that while the CHNAs encompass broad geographies, and may include individuals that have not historically been patients at a BILH facility or of a BILH physician, BILH believes the attributes identified in the CHNAs are consistent with those of the patients served by BILH hospitals, and provide relevant context for better understanding the needs of the patient panel. Understanding and addressing these needs is critical to disease prevention and management efforts.

[14] Not including behavioral health conditions.

[15] As DPH DoN staff have cited with authority, cancer is the leading cause of death in Massachusetts, with incidence rates higher than the national average, and cardiovascular disease is the second leading cause of death. *See* DPH DoN Staff Report PHS-19093011-HS.

[16] These examples are derived from BIDMC's 2019 CHNA, which CHNA also incorporates information from the 2019 New England Baptist CHNA, the North Suffolk CHNA, and the 2019 Boston Collaborative CHNA. *See* BIDMC, *Community Health Needs Assessment (CHNA) – 2019*, at 29 (2019), *available at* https://www.bidmc.org/-/media/files/beth-israel-org/about-bidmc/helping-our-community/community-initiatives/community-benefits/chna-report93019final.pdf. The Executive Summary of the BIDMC 2019 CHNA is included in this Application.

End (including Chinatown) (106.5 per 100,000 residents) as compared to Boston overall (97.6 per 100,000 residents).

- In Chelsea, mortality rates due to major cardiovascular disease, heart disease, and coronary heart disease were higher (though not significantly higher) or similar to the Commonwealth overall. However, the rate of cardiovascular hospital admissions was higher in Chelsea (1,807.5 per 100,000 residents) as compared to the Commonwealth overall (1,563.0 per 100,000 residents).

The effects of the COVID-19 pandemic have also exacerbated existing racial inequities. A recent study published in Health Affairs found, "Across Massachusetts cities and towns, significant COVID-19 disparities are evident along multiple dimensions—particularly race/ethnicity, foreign-born noncitizens status, household size, and job type" and that, "[h]igher proportions of Black or Latino residents within a community were significantly associated with higher rates of COVID-19 cases."[17]

While BILH hospitals and other BILH providers are located in distinct and complementary regions, with each organization primarily providing health care services to their unique patient communities and patient service areas, BILH is working to ensure that specialized capabilities of its providers are made available to patients throughout its system, and that care is delivered in the community whenever appropriate. BIDMC serves as the academic medical center hub of the system, while continuing to serve the needs of the existing BIDMC patient panel for tertiary and quaternary care, and as the primary acute care and community hospital for neighborhoods in close proximity to BIDMC that include vulnerable patient populations.

B. Beth Israel Deaconess Medical Center Patient Panel

As a leading academic medical center, BIDMC provides tertiary and quaternary care to meet complex patient needs and concurrently fulfills its mission as an essential community hospital for residents living in Boston and other nearby communities, including many from vulnerable populations that often demonstrate an increased need for access to health care. BIDMC's patient panel for this Application consists of the unique inpatients and outpatients (including observation patients and ED patients) who were admitted or treated by BIDMC on the main campus and satellite locations during the 3-year period from October 1, 2016 through September 30, 2019 ("Lookback Period") (hereinafter known as "BIDMC Patient Panel" or "Patient Panel"). The BIDMC Patient Panel is comprised of a total of 496,675 unique patients who generated a total of 3,554,232 inpatient and outpatient encounters over the Lookback Period, as demonstrated in Table 1 of Exhibit B. Between FY15 and FY19, BIDMC had an 2.9% increase in inpatient discharges

[17] Figueroa et al., *Community-Level Factors Associated With Racial And Ethnic Disparities In COVID-19 Rates In Massachusetts*, (Aug.t 27, 2020), *available at* https://www.healthaffairs.org/doi/10.1377/hlthaff.2020.01040.

compared to a 1.9% increase at its peer hospital cohort, and an increase of 1.5% in outpatients as compared to its peer hospital cohort.[18] The number of patient encounters has increased by approximately 17% over the past several years, and by approximately 4.5% during the Lookback Period. During the Lookback Period, the gender makeup of BIDMC's patients consisted of approximately 53% females, 47% males. CHIA reports that BIDMC's patient care panel represents approximately 5% of all discharges in the Commonwealth.[19]

BIDMC patients originating from all across New England[20] accounted for 99% of the total Patient Panel encounters during the Lookback Period. Within the BIDMC Patient Panel, 97% of patient encounters were from Massachusetts residents, and an even more concentrated portion of the Patient Panel, 71% of total patient encounters, lived within the DPH defined Health Service Area ("HSA") 4[21] in Eastern Massachusetts where 28% of the total encounters were from the City of Boston[22]. For reference, a service area map of population density of BIDMC patients for FY19 is provided in Table 2 of Exhibit B.

BIDMC serves a diverse Patient Panel. During the Lookback Period, 58% of the Patient Panel identified as White, 10% identified as Black or African American, 12% identified as Asian, 7% identified as Hispanic/Latino, 0.3% identified as American Indian or Alaska Native, 0.2% identified as Native Hawaiian or Other Pacific Islander, and 6% identified as Other.

Racially and ethnically diverse residents living in BIDMC's CBSA face major health disparities.[23] A map showing the specific neighborhoods, cities, and towns that are part of BIDMC's CBSA is included as Table 3 of Exhibit B. Social inequities, such as poverty and a lack of educational and employment opportunities, often have origins in discriminatory policies and practices that have historically denied people of color the right to earn income, own property, and accumulate

[18] CHIA, *FY2019 Massachusetts Hospital Profiles* (March 2021).
[19] *See* CHIA, *supra* note 11.
[20] New England area consists of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.
[21] Health Service Area 4 (Greater Boston) consists of the following 68 cities/town: Acton, Arlington, Ashland, Bedford, Belmont, Boston, Boxborough, Braintree, Brighton, Brookline, Burlington, Cambridge, Canton, Carlisle, Chelsea, Cohasset, Concord, Dedham, Dover, Dorchester, Foxborough, Framingham, Hingham, Holbrook, Holliston, Hopkinton, Hudson, Hull, Lexington, Lincoln, Littleton, Marlborough, Maynard, Medfield, Millis, Milton, Natick, Needham, Newton, Norfolk, Northborough, Norwell, Norwood, Quincy, Randolph, Revere, Roslindale, Scituate, Sharon, Sherborn, Somerville, Southborough, Stow, Sudbury, Walpole, Waltham, Watertown, Wayland, Wellesley, Westborough, Weston, Westwood, Weymouth, Wilmington, Winchester, Winthrop, Woburn, and Wrentham.
[22] The City of Boston includes the following 23 neighborhoods: Allston, Back Bay, Bay Village, Beacon Hill, Brighton, Charlestown, Chinatown-Leather District, Dorchester, Downtown, East Boston, Fenway-Kenmore, Hyde Park, Jamaica Plain, Mattapan, Mid-Dorchester, Mission Hill, North End, Roslindale, Roxbury, South Boston, South End, West End, and West Roxbury.
[23] The CBSA is a subset of BIDMC's primary service area focusing on the underserved neighborhoods in Boston correlating with the neighborhoods and locations of its six licensed and/or affiliated health centers which serve primarily MassHealth and uninsured individuals, in addition to Chelsea. BIDMC has a total of six cities/towns within its CBSA: Boston, Chelsea, Brookline, Newton, Needham and Lexington.

wealth.[24] The lasting impact of racism and racial segregation creates additional barriers to care which negatively affects health outcomes.

Certain neighborhoods in BIDMC's CBSA that have relatively high racial and ethnic diversity also have high cancer mortality rates due to limited access to cancer screening. For example, among Black/African-American women, the breast cancer mortality rate was higher (26.2 per 100,000 residents) compared to Boston overall (19.9 per 100,000 residents). Similarly, for Black/African-American males, the prostate cancer mortality rate (49.8 per 100,000 residents) was significantly higher compared to Boston overall (24.5 per 100,000 residents). To address these particular needs, BIDMC participates in a variety of initiatives including the following:

- BIDMC provides bilingual and bicultural Cancer Patient Navigators to bridge the gulf between community providers and the medical center. One Patient Navigator specializes in serving the Latino community and the other in serving the Chinese community, though both also serve patients from any ethnic group. The Patient Navigators also lead support groups for cancer patients, such as Team Time, for Chinese women with breast cancer, and the Latinas with Cancer group. To provide support for its Patient Navigators, BIDMC hosts a city-wide Patient Navigator Network that meets quarterly to promote education, support, networking, and sharing of resources.

- BIDMC participates in both the Dana Farber/Harvard Cancer Center (DF/HCC) and the Faith-Based Cancer Disparities Network, facilitating the educational and outreach programs with ten churches and the Black Ministerial Alliance. Building on the partnership with the faith-based community, beginning in FY 2013, DF/HCC incorporated a new strategy that provides cancer survivors within the faith community an opportunity to break through the silence. Through self-portraits and testimonies, survivors recount stories of hope and resilience promoting cancer awareness in their communities. BIDMC has hosted these installations since FY2017.

- BIDMC also participates in Boston Breast Cancer Equity Coalition, which aims to eliminate disparities in breast cancer outcomes in Boston.

1. <u>Age of Patient Panel</u>

Older adults are one of BIDMC's priority populations, as they are inherently more at-risk for medical illness than younger age cohorts, more likely to struggle with depression, anxiety, isolation, and chronic health conditions, and are more likely to rely on immediate community

[24] Boston Public Health Commission, *Health of Boston 2014-2015* (2015), *available at* http://www.bphc.org/healthdata/health-of-boston-report/Documents/HOB-2014-2015/FullReport_HOB_2014-2015.pdf.

resources for support as compared to young people.[25] In addition, certain social determinants of health ("SDoH") that may exist in urban settings contribute to chronic conditions that affect older patients.[26] Historically, BIDMC has served a high acuity, aging patient population, many of whom have multiple chronic conditions.

While adults over the age of 65 represent approximately 13% of the entire U.S. population, research has shown that the aging population accounts for approximately 20% of all ED visits and 36% of all hospitalizations. As the Department has cited, advancing age is the most important risk factor for cancer.[27] BIDMC's is also seeing a trend identifying an increasing number of patients within the older age cohorts within its Patient Panel: from FY 2013 to FY 2019, the percentage of patients aged 65 and over within BIDMC's Patient Panel increased by 5%. During the Lookback Period, 35% of the Patient Panel was between the ages of 45-64, and 26% were age 65 and older. Please refer to Table 4 in Exhibit B.[28] Moreover, BIDMC has seen an increase in the case mix index ("CMI") of aging patients (age 65 and over) during the Lookback Period, with a CMI of 2.10 for FY 2017 for this population to 2.15 for FY 2019 (a 2.4% increase). Please refer to Table 1 in Exhibit C.

2. Other Vulnerable Populations Within Patient Panel

The information derived from BIDMC's 2019 CHNA enables BIDMC to better understand the population it serves and how to best address health-related needs and health disparities in its CBSA. In recognition of the considerable health disparities that exist in some communities, BIDMC focuses the bulk of its community benefits resources on improving the health status of low income and underserved populations living in the city of Chelsea and the Boston neighborhoods of Allston/Brighton, Bowdoin/Geneva, Chinatown, Fenway/Kenmore, Roxbury, and Mission Hill. A map showing the specific neighborhoods, cities, and towns that are part of BIDMC's CBSA is included as Table 3 of Exhibit B. BIDMC further prioritizes the needs of individuals in these communities within vulnerable cohorts, in particular, youth and adolescents, older adults, low resource individuals and families, Lesbian Gay Bisexual Transgender Queer ("LGBTQ") populations, and racially and ethnically diverse populations/non-English speakers.[29]

Language barriers create inconveniences and make it more difficult for patients to receive care. In recognition of these challenges, BIDMC focuses on enhancing the experience of Limited English Proficient ("LEP") patients and families, defined as patients who prefer to receive their health care

[25] BIDMC, *Community Health Needs Assessment (CHNA) – 2019*, at 29 (2019), *available at* https://www.bidmc.org/-/media/files/beth-israel-org/about-bidmc/helping-our-community/community-initiatives/community-benefits/chna-report93019final.pdf. The Executive Summary of the BIDMC CHNA is included in this Application.

[26] For example, exposure due to lack of heat or air conditioning is correlated with adverse health events, including cardiovascular events, particularly among the elderly. *See* TMF Health Quality Institute, *Addressing Social Determinants of Health: The Need for Provider-Community Collaboration*, at 5 (Nov. 2018).

[27] *See* DPH DoN Staff Report PHS-19093011-HS.

[28] Patients' age may change during the FY, so percentages do not add up to 100% exactly.

[29] BIDMC, *supra* note 25, at p. 2.

information in a language other than English (including American Sign Language). As noted in the 2015 Health of Boston Report, in households that have limited English-speaking members, Spanish and Asian languages are the most commonly spoken.[30] BIDMC has experienced substantial growth in the number of inpatient days generated by LEP patients over the past seven years. From FY 2017 through FY 2019, approximately 16% of BIDMC's Patient Panel encounters indicated a preference to receive their health care information in a language other than English. More specifically, the percentage of encounters with patients who indicated such a preference increased by 5% during the Lookback Period. Furthermore, total inpatient days generated by LEP patients discharged during the Lookback Period increased by 12%, equating to approximately 2,951 additional inpatient days for FY 2019 discharges. Please refer to Table 5 of Exhibit B.

3. Payor Mix

BIDMC has a covenant to care for the underserved and to work to address disparities in access to care. BIDMC provides medical services to patients regardless of their ability to pay. BIDMC also recognizes that the high cost of health care and lack of insurance are barriers to patients seeking health care. BIDMC's Financial Assistance Office assists patients with eligibility determination for supplemental coverage and the completion of necessary applications to reduce their cost of care and improve access to needed services. From FY 2017 through FY 2019, approximately 54% of Patient Panel encounters were covered by Medicare, Medicaid (including managed care)[31], or Health Safety Net. In comparison, approximately 42% of Patient Panel encounters were paid by commercial payors. Please refer to Table 6 in Exhibit B for the distribution of Patient Panel encounters for all service lines by payor group.

F1.a.ii **Need by Patient Panel:**

Provide supporting data to demonstrate the need for the Proposed Project. Such data should demonstrate the disease burden, behavioral risk factors, acuity mix, health disparities, to other objective Patient Panel measures as noted in your response to Question F1.a.i that demonstrates the need that the Proposed Project is attempting to address. If an inequality or disparity is not identified as relating to the Proposed Project, provide information justifying

[30] Boston Public Health Commission, *supra* note 24.

[31] Medicaid includes all Medicaid managed care other than Neighbor Health Plan (now Allways). BIDMC's payor database does not readily distinguish between the Medicaid and commercial components of Neighborhood Health Plan for certain years, so the total government payor percentage cannot be precisely calculated.

the need. In your description of Need, consider the principles underlying Public Health Value and ensure that Need is addressed in that context as well.

A. BIDMC's Patient Panel Need for Computed Tomography for Acute Clinical Needs

The use of CT services at BIDMC, and on the West Campus in particular, has increased over the past several years and during the Lookback Period, with both East and West Campus CT units currently at capacity necessitating diversions among the various units, including for ED patients. Increases in use of CT services within the BIDMC Patient Panel, as described below, have been driven by increases in patient acuity in addition to technological advances, additional clinical applications and techniques, and new payor approved uses. Through the Proposed Project, BIDMC will be able to meet the current and future needs of the Patient Panel by providing increased access to timely CT services for BIDMC patients.

As noted above, at this time BIDMC continues to provide care to an increasingly complex patient population due to its status as an academic medical center and the vulnerable communities it serves. BIDMC is the referral center for the sickest patients who require the most complex care within BIDMC's network of health care providers and also, when appropriate, within the BILH system. BILH and BILHPN affiliated community hospitals send their highest acuity patients to BIDMC, further contributing to the increase in BIDMC's average patient acuity. BIDMC's West Campus, where the additional CT would be located, has 382 licensed inpatient beds, 19 operating rooms, the ED, and various outpatient clinics (in addition to physician offices). The CTs on the West Campus are used for a significant number of inpatient CT services as well as procedures, consistent with the projected use for the additional CT.

Patient acuity is impacted by the risk factors and health disparities described in Section F1.a.i, such as increasing age, chronic illness(es), and being a member of a vulnerable patient cohort which may contribute to patients within such cohorts delaying or failing to access care or manage conditions and treatment protocols effectively. During the Lookback Period, while acuity was rising, BIDMC cared for a higher volume of inpatients and realized a 5.0% increase in average daily census for all services. BIDMC's CMI has continued to increase (to 1.75 overall and to 2.15 for age 65 and over) during the Lookback Period, as indicated in Exhibit C, Table 1. Moreover, during this timeframe, BIDMC's average CMI for general surgery discharges was 1.90.

Clinically, based on research data pulled from six integrated health systems from different regions of the United States, CT utilization in an acute setting has nearly tripled from 1996 to 2010 across the nation.[32] Consistent with growth of its acute patient panel, BIDMC's total CT volume increased by approximately 8% during the Lookback Period. Please refer to Table 3 of Exhibit

[32] Smith-Bindman et al. *Use of Diagnostic Imaging Studies and Associated Radiation Exposure for Patients Enrolled in Large Integrated Health Care Systems, 1996-2010*, at 2401–9 (2012).

C.[33] The BIDMC Patient Panel generated a total of 184,297 inpatient, observation, and outpatient (including emergency patient) CT exams and procedures over the Lookback Period including imaging of the head and neck, chest, abdomen, and musculoskeletal structures. These CT services included a significant number of patients with cardiac issues or cancer, consistent with the significant number of BIDMC patients with chronic conditions in the Patient Panel and as identified in the FY2019 CHNA. The number of patients within the BIDMC Patient Panel over the age of 65 that received a CT scan during their stay grew 8.5% during the Lookback Period from 11,828 to 12,836 unique patients. Please refer to Table 3 of Exhibit C.

BIDMC invests significant administrative resources to optimize scheduling of CT services on the three units located on the West Campus in order to ensure timely care and to maximize patient volume needs among ED patients, inpatients, and outpatients. Inpatient and ED patient need is both significant and unpredictable. Since FY 2017, all BIDMC CT units have been operating at above the full utilization rate of 80%.[34] As a result, Radiology is currently operating under extended hours, with certain locations scheduling exams until 7:15 p.m., as well as during the weekend, to accommodate the additional CT scan slots for patient care, including evening slots for ED patient use only. Regular scheduling hours (9:00 a.m.-5:00 p.m.) have been extended as far as possible while leaving room for both routine maintenance and scheduling of off-hour services. Radiology staff work hard to ensure that scheduling is done in a manner to enable staff to accommodate emergency and add-on patients[35] with maximum efficiency.

CT scheduling for all three BIDMC campus locations has evolved into a complex process as volumes have increased. Radiology staff do not schedule for each CT unit separately but rather utilize the schedules for the entire department[36], as necessary, to determine how to best maximize the use of all CT units, taking into account the longer appointment times for procedures (90-150 minutes) as compared with exams (15-30 minutes). Due to the various types of CT services being scheduled, coupled with the unique parameters of each CT both in terms of the types of procedures that are prioritized and the hours of availability in general and off-hours, scheduling of CT services is more complicated than standard scheduling for other types of imaging, requiring intensive management and additional administrative resources: Inpatients are scheduled by both the lead technician working with a second technician; procedures are scheduled by a group comprised of a senior technician, nurse coordinator, an interventional radiologist or an interventional radiology fellow and potentially someone from anesthesiology; and outpatients are scheduled by the call

[33] Exhibit C, Table 2, includes patients who presented through the ED and were admitted to the Medical Center as inpatient or observation patients.
[34] During daytime hours (7:00 a.m. – 7:15 p.m.), BIDMC schedules all CT units at 100% of the time, but the rate of utilization defaults to approximately 80% due to cancellations, failed exams, and scheduled and unscheduled downtime. This rate also does not take into account the subset of procedures that may be scheduled after hours, as described.
[35] Add-on patients include (i) inpatients and (ii) outpatients that have an unscheduled need to be seen on campus that day (e.g. due to urgent need or patient convenience if patient lives far from the main campus).
[36] There is a separate schedule for the West Campus, the East Campus and the Shapiro Building.

center. These various staff members also must spend significant time and effort poring over complicated calendars to attempt to fit in Stat CT exams or procedures.

Despite the various efforts to optimize scheduling and CT unit use on the West Campus, the current utilization rates for all CTs continue to increase beyond the full utilization rate of 80%, resulting in ongoing delays in the scheduling. Prior to the COVID-19 pandemic, patients could wait up to approximately 32 days for a non-urgent appointment; this wait has since increased. These delays also cause scheduling to regularly extend beyond the weekday, daytime scheduling period. CT services that are scheduled off-hours are not able to be counted to effectively measure CT utilization. By increasing access, the proposed additional CT unit is expected to reduce off-hours utilization and relieve the pressure in scheduling all types of West Campus procedures and exams while ensuring that the most emergent and time-sensitive procedures and exams continue to be provided when needed. The efficiency of CT operations is also projected to increase.[37] BIDMC would expect the additional CT unit to operate at full capacity (80%) within a short period of time after becoming operational.

Below, the increased use of CT as it relates to patient hospital status is discussed in more detail.

B. BIDMC Patient Panel Need for CT for Emergency Department and Time Sensitive Uses

As described in the Project Description, BIDMC has one CT unit on the West Campus located in the ED, allowing optimal access for ED patients; the ED unit is dedicated for diagnostic exam use. BIDMC also has two additional units on the West Campus located on the third floor, one of which is primarily for procedures, and the other which is primarily used for all CT services for both inpatients and outpatients.[38] There is no back-up unit on the West Campus if a unit requires service.

ED patients often need urgent/emergent CT scan requests and must be scheduled in a timely manner. The already high and increasing acuity of BIDMC's ED patients, and the high volume of its ED patients overall (approximately 50,000 annually), creates challenges in scheduling CT services on the West Campus. [39] Currently, the average wait time from order to ED CT exam is not optimal at approximately 2.5 hours, and ED patients must sometimes receive their exams on the third floor units when the ED CT unit is at capacity. During the Lookback Period, there was a

[37] Based on the current patient panel need, but not accounting for future factors that may impact need (e.g. changing demographics such as age and health status of the patient panel, technological developments, payor requirements, and patient choice).
[38] BIDMC has four other CT units available for general use (i.e. not dedicated for intraoperative, ICU or research uses) on the Main Campus: two CT units on the East Campus for general use, and two CT units in the Shapiro Building for outpatient use.
[39] CHIA FY2018 Massachusetts Hospital Profiles, Jan. 2020.

148% increase in overflow ED patient use of the two third floor units.[40] ED access to the third floor units is also limited, however, by the high number of CT-guided procedures and inpatient diagnostic exams. Situating the new unit on the West Campus will provide additional capacity for urgent diagnostic uses for ED patients reducing emergency wait times.

In addition to emergency patient CT exams, BIDMC prioritizes other time-sensitive CT service requests for uses such as stroke, trauma, post-procedural and post-surgical, and inpatient procedures. When accommodating such emergent and other time sensitive CT scan requests, the CT schedule often needs to move around patients that have a less urgent need for a CT scan. BIDMC has optimized the outpatient scheduling process for the West Campus CT units located on the third floor for accommodating outpatient procedures and patients with same-day appointments with a provider on the West Campus, although sometimes such patients must still be diverted to the East Campus or Shapiro Building. This is not optimal for patients who may be ill and need to transfer between campuses by relocating their car, walking or taking a shuttle. Other outpatients are booked on CT units located in the Shapiro Building or East Campus at the outset.

C. BIDMC's Patient Panel Need for CT for Inpatients and for Procedures

BIDMC's existing CT units on the West Campus are heavily used by inpatients due to patient acuity and the proximity of the CT suites to West Campus inpatient nursing units, operating rooms, specialty centers, and the primary interventional radiology service site. As a result, BIDMC anticipates the additional CT in this location will be heavily used for inpatient CT services. It will also be used to expand the capacity for outpatient procedures, with additional availability for some outpatient exams.

i. Increase in Inpatient Need

There was a significant increase during the Lookback Period (5.3%) in the number of overall unique inpatients that require CT scans during their inpatient stay. Please refer to Table 4 of Exhibit C. As described above, there are two key drivers to the increase in inpatient use of CT services. First, BIDMC's existing relationships with community hospitals has led to an increase in the acuity of inpatients over time, as demonstrated by BIDMC's increasing CMI from 1.57 in FY 2013 to 1.75 in FY 2019 (approx.11.5%). Please refer to Table 1 of Exhibit C. Most recently, the severity of BIDMC's case mix is further impacted by BILH's system-wide case management efforts to ensure that patients receive care in a community hospital setting where appropriate. BIDMC works closely with other BILH hospitals, physicians and other BILH providers to ensure that patients with lower acuity are treated locally, and to facilitate transfer of patients requiring higher levels of care to BIDMC. Second, inpatient volume is also increasing due to the increase

[40] According to the 2019 HPC Cost Trends Report Select Findings (Slide 19, *available at* https://www.mass.gov/doc/slides-1142020-cost-trends-report/download), BIDCO's 2017 patient panel reflected the industry average with respect to potentially avoidable ED visits.

in the older adult population who have more acute needs and, thus, greater utilization of CT services, as described in subsection F1, a.iii, below.

Increases in the volume of acute inpatients have had a compounding effect on the already limited access to the CT units on the West Campus. Inpatients are significant users of CT services, comprising approximately 40% of the CT patient panel in FY2019. Please refer to Table 4 of Exhibit C. Inpatient uses comprise both procedures and exams. Specifically, the amount of CT services directly related to inpatients has grown from 25,212 in FY 2017 to 26,585 in FY 2019. While total CT volume increased by 8% during the Lookback Period, over the three years prior to the Lookback Period, the volume of BIDMC inpatient CT services increased 9-10% per year. This plateauing of service volumes in recent years reflects the diminishing returns of efficiency improvements as the available CT equipment has become fully utilized.

ii. Increase in Need for CT- Guided Procedures

As previously noted, the acquisition of CT technology dedicated for procedural use has not been of concern to the DoN program. Since the Proposed Project will allow for mixed uses, however, the procedural uses are important for understanding the complete picture of the proposed use of the additional CT unit and to demonstrate the strain on BIDMC's existing capacity. CT- guided procedures on BIDMC's West Campus are used by both inpatients and outpatients, with approximately 46% performed on inpatients and 54% on outpatients. It is important to highlight that most CT-guided procedures require 90-150 minutes of dedicated CT scan room time per procedure as compared with diagnostic exams, which take on average 15-30 minutes.

Complex procedures are often associated with increased procedural risks to patients, and navigational tools, such as CT-guidance, have offered providers a way to facilitate complex interventions and improve outcomes. Image-guided procedures are the safe and preferred alternative to surgical drainage procedures, such as the draining of intra-abdominal abscesses. Research studies[41] have demonstrated that a minimally invasive approach facilitated by image guidance for such procedures offers lower morbidity, allows for the use of moderate sedation (instead of general anesthesia), and is associated with lowered costs of medical care. Each patient's area of concern is precisely targeted during a procedure using guidance from real-time visual information, which leads to improved outcomes and reduced risk of damage to the surrounding tissue. At BIDMC, image-guidance is used for all body regions. As discussed in the Project Description, CT-guided procedures performed at BIDMC include ablation using radio frequency, microwave and cryogen techniques, placement of fiducial markers for stereotactic radiotherapy, targeted biopsies and aspiration/drainage for abscesses. Some of these are performed on outpatients, as described in subsection iii, below.

[41] *See infra* notes 42-50.

Consistent with the increasing acuity makeup of BIDMC's inpatients, the number of CT-guided procedures increased 17% during the Lookback Period, and the number in FY19 is twice the number of procedures in FY13. Please refer to Table 4 of Exhibit C. In particular, BIDMC has seen an increase in CT use for the following procedures: head CTs and head and neck CTAs, abdominal CTs, and chest CTAs. For example, BIDMC's volume for the interventional radiology service has increased by 33% during the Lookback Period, from 209 procedures performed in FY 2017 to 279 exams performed in FY 2019. Please refer to Table 2 of Exhibit C.

iii. Increase in Need for Outpatient Procedures

Radiology expects outpatient procedures will continue to further drive up the need for the additional West Campus CT services. This is due to the fact that outpatient minimally invasive treatment options are shown to provide improved clinical outcomes when compared to open surgery, resulting in decreased patient morbidity and increased cost efficiencies.[42] In some cases minimally invasive treatment approaches offer oncologic options when surgical and/or chemotherapeutic approaches are not feasible. Emerging new minimally invasive procedures for oncology and cardiac patients, among others, are now predominantly performed in the outpatient setting for increased patient comfort and reduced health care expenditures. Minimally invasive oncology treatment options involving CT-guided tumor ablation utilizing radiofrequency, microwave and cryogen techniques allow for single-day and same-day treatment.[43] In addition, BIDMC patients receiving CyberKnife® therapy require fiducial seeds be placed in tissue structures under CT guidance ahead of time for accurate targeting of the treated lesions.[44, 45] As discussed above, these procedures are performed using CT-guidance for improved accuracy and safety. Furthermore, recent advances in surgery require high-end CT and CT angiography (CTA) for triage, planning and safe execution for the following: cardiac CT for coronary artery evaluation and for patients planning for cardiac valve replacement[46], pancreatic CTA for pancreatic cancer surgery[47], lower extremities CTA for patients with peripheral vascular disease[48], comprehensive

[42] Mohkam et al., *No-touch Multibipolar Radiofrequency Ablation vs. Surgical Resection for Solitary Hepatocellular Carcinoma Ranging from 2 to 5cm*, at 1172–80 (2018).
[43] Yang et al., *Local Control by Radiofrequency Thermal Ablation Increased Overall Survival in Patients With Refractory Liver Metastases of Colorectal Cancer, Medicine (Baltimore)* (2016).
[44] Ihnát et al., *Stereotactic Body Radiotherapy Using the CyberKnife® System in the Treatment of Patients with Liver Metastases: State of the Art. Oncol. Targets Ther.*, at 4685-91 (2018).
[45] Fumagalli et al., *A Single-Institution Study of Stereotactic Body Radiotherapy for Patients with Unresectable Visceral Pulmonary or Hepatic Oligometastases, Radiat. Oncol.* (2012).
[46] Matsumoto et al., *CT Imaging Before Transcatheter Aortic Valve Implantation (TAVI) Using Variable Helical Pitch Scanning and Its Diagnostic Performance for Coronary Artery Disease. Eur. Radiol.*, at 1963-70 (2017).
[47] Chen et al., *Presurgical Evaluation of Pancreatic Cancer: A Comprehensive Imaging Comparison of CT Versus MRI*, at 526-35 (2016).
[48] Preuß et al. *Run-Off Computed Tomography Angiography (CTA) for Discriminating the Underlying Causes of Intermittent Claudication*, (2016).

evaluation and triage prior to organ transplant[49,50] as well as monitoring for complications. The majority of these CT studies can be performed on an outpatient basis in seconds or minutes, subject to patient acuity and other chronic conditions.

iv. Need for CT Services by BIDMC's Growing Aging Adults Population

CT service volume has increased among BIDMC patients in the age 60-79 cohort at the rate of 6% per year and 40% cumulatively over the recent six-year period, while the increase in volume of inpatient CTs in the age 60-79 cohort has been 10% per year or 74% cumulatively. Please refer to Table 5 of Exhibit C. With the patient population between the ages of 45-64 representing about 24% of the patients receiving CT services at BIDMC, BIDMC expects that the population of patients over the age of 65 years old receiving CT services to continue to grow. Please refer to Table 3 of Exhibit C.

v. Outpatient Diagnostic Use

BIDMC's West Campus diagnostic CT services encompass primarily ED and inpatient exams.[51] The majority of West Campus outpatient CT use is heavily ED driven. In addition, as noted above, outpatients need exams for diagnosis and treatment planning in proximity to their visits to specialist physician offices on the West Campus. These scheduled exams are currently provided in the two third floor units, subject to availability. When the ED CT is at capacity, overflow ED patients also receive CT services on these same third floor units. With the addition of a new CT unit on the West Campus, in addition to there being more capacity for ED and inpatient overflow and procedures, there will also be additional availability for outpatient exams coordinated with medical visits.

vi. Ongoing Impact of COVID-19 on BIDMC's Patient Panel Need for CT

BIDMC's CT volume has increased during the Public Health Emergency. This increase is a result of increased infection control measures that the Radiology Department has put in place including additional sanitization and prep time between scans and better spaced out appointments to reduce traffic in the CT suites, which in turn reduces the capacity of the CT equipment and adds to the already long wait times.

[49] Jhaveri et al., *Mapping of Hepatic Vasculature in PotentialLliving Liver Donors: Comparison of Gadoxetic Acid-Enhanced MR Imaging Using CAIPIRINHA Technique with CT Angiography*, at 1682–92 (2018).
[50] Braunagel et al., *Dynamic CTA in Native Kidneys Using a Multiphase CT Protocol-Potential of Significant Reduction of Contrast Medium*, at 842–49 (2018).
[51] ED CT use is tracked as either inpatient or outpatient services depending on whether the patient is ultimately admitted or discharged from the ED.

To summarize, the above Patient Panel need data are illustrative of both the wide array of CT services that are required by an academic medical center for its entire patient panel together with the lack of sufficient current capacity to provide such services.

F1.a.iii **<u>Competition</u>:**

Provide evidence that the Proposed Project will compete on the basis of price, total medical expenses, provider costs, and other recognized measures of health care spending. When responding to this question, please consider Factor 4, Financial Feasibility and Reasonableness of Costs.

Having in place the appropriate complement of and access to CT equipment on the West Campus will help enable BIDMC to continue to compete with other academic medical centers on the basis of price, total medical expenses (TME), costs and other measures of health care spending. BIDMC is already a lower cost provider of high quality tertiary and quaternary services. Patients rely on BIDMC as a cost-effective alternative to more expensive providers in the region, and as a community hospital provider to vulnerable patients in its CBSA. For all the reasons described in this subsection, operation of the Proposed Project will be consistent with this low cost position. In addition, the Proposed Project would not impact BIDMC's contracted rates for CT services.

A. <u>Additional CT Raises Little to No Risk of Excessive or Inappropriate Utilization & is Cost Effective</u>

The Proposed Project will be primarily used for high value care[52], targeted primarily to patients in those categories where there is lowest risk of excessive utilization, and for whom CT services provide a necessary and integral component of hospital-based care: inpatients and patients in need of CT-guided procedures. In such cases, CT services are not a separately billable event, but rather the service is included as a component of the inpatient stay or is integrated as part of the primary intervention, thereby minimizing risk of inappropriate or overutilization. As described in Section F.1.a.ii, oncology and cardiac uses, in contrast to orthopedic and other uses, are the primary drivers for the proposed acquisition of an additional CT unit on the West Campus.

With respect to inpatient use, BIDMC supports the Commonwealth's goals of managing cost growth and total health care expenditures with its lower than average CMI adjusted cost per discharge. In FY 2016, the average CMI-adjusted cost per discharge for hospitals in Massachusetts was $11,483, based on the CMS cost report issued in October 2017. Not only was BIDMC lower

[52] The HPC addresses "low value care" in the 2018 Cost Trends report (Chapter 4), its most recent report on that topic. *See* HPC, *2018 Annual Health Care Cost Trends Report* (Feb. 2019), *available at* https://www.mass.gov/files/documents/2019/02/20/2018%20Cost%20Trends%20Report.pdf. The HPC lists three CT exams under "low value care": (1) Sinus CT for simple sinusitis, (2) abdominal CT, with and without contrast, and (3) thorax CT, with and without contrast. The first and last of these CT exams are rarely used at BIDMC. In addition to low value abdominal CT exams, there are also valid indications for such use; therefore, some abdominal CT studies are performed at BIDMC, though representing a relatively low percentage of CT service volume.

than the average CMI-adjusted cost per discharge for local academic medical centers, but it had the lowest adjusted cost per discharge of $8,069. According to the recent select findings from the HPC's 2019 Cost Trends Report, even with BIDMC's status as a Boston-based academic medical center, annual medical spending for patients of BIDCO in 2017 (the most recent data) was similar to, and in many cases lower than, the patient spending rate of smaller and/or community-based health care systems.[53]

With respect to CT-guided procedure use, as described in Section F.1.a.ii, CT technology is an essential tool, providing high quality resolution, magnification, and the ability to employ and detect injectable contrast in the target site. Integrated imaging enables physicians to have highly refined, real-time visual information that precisely targets the area of concern, thereby improving outcomes and lessening the potential for damage to the surrounding tissue during the procedure. Improved outcomes reduce health care expenditures through the reduction in use of health care resources due to reduced complications and faster recovery times.

To the extent the proposed CT unit has availability to be used for a limited amount of outpatient diagnostic imaging, Radiology employs best practices and standards of care to ensure that CT imaging at the hospital is used under appropriate circumstances. Commencing in 2022, providers also will be required to follow the Medicare Part B Appropriate Use Criteria for Advanced Diagnostic Imaging, which BIDMC is prepared to do.[54] As previously noted, BIDMC also is implementing an electronic clinical decision support tool.

Once a radiology order is scheduled for an appointment, the order also goes to the Financial Clearing Unit (FCU) for a final check for both medical necessity and compliance with the external payor preauthorization requirements.

It is important to also highlight that BIDMC's ACO affiliate BIDCO has performed well when it comes to avoiding unnecessary medical expenses. According to the HPC's analysis of unnecessary pre-operative tests in 2017, the BIDCO rate was lower than most other provider systems of all types (25.4% as compared with the average of 26.7 %).[55] Moreover, BIDCO's total per-member spending on several low value care measures was well below several other large systems, exceeding only safety net and community-based health care systems and some smaller providers.[56] As stated in Section F.1.a.i, BILH and BILHPN, and through them BIDMC and BIDCO, are focused on ensuring the status of the health system as a lower cost, high value provider, and recent data bears this out. BILH's goal is to continue to maintain and improve value measures like these.

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[53] HPC, *2019 Health Care Cost Trends Report: Select Findings*, slide 18, *available at* https://www.mass.gov/doc/slides-1142020-cost-trends-report/download.
[54] *Available at* https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/Downloads/AUCDiagnosticImaging-909377.pdf.
[55] HPC, *supra* note 53, at slide 23.
[56] *Id.* at slide 24.

B. Increased Capabilities and Capacity Improves Outcomes and Operating Efficiencies

The implementation of an additional CT unit will result in increased access through expanded capabilities and capacity to address Patient Panel need, improvements in patient wait-times, and the efficient use of existing hospital infrastructure, thereby improving outcomes and reducing unnecessary health care spending from a variety of approaches. According to the Institute for Healthcare Improvement, "The results of improving flow can include increased access, shorter waiting times, lower costs, and better outcomes"[57] (refer to F1.c for detail). As the Department has cited, timely access to needed imaging may assist in diagnosing and treating patients in a more timely fashion, potentially reducing treatment complications and contributing to better outcomes, reducing morbidity and mortality.[58] This is because patients may avoid undergoing more invasive, or less effective diagnostics or treatments, such as biopsies, and benefit from more targeted treatment plans, which would likely result in reductions in health care spending. According the Department, "These improvements can result in lower provider and payor costs, and lower out of pocket costs for patients, leading to a reduction in TME."[59]

As described in the Project Description and in Section F.1.a.ii, the proposed CT unit's updated capabilities include several items that can improve both health care quality and efficiency, thus resulting in lower costs: (i) superior image quality, including better metal artifact reduction algorithms that lessen the appearance of metal artifacts within the body that might otherwise interfere with scan images, for better diagnosis and guidance for procedures; (ii) shorter scan times meaning reduced motion degradation of images and reduced radiation exposure; and (iii) additional cardiac imaging capability. It is also important to note that in addition to Radiology quality assurance and patient satisfaction criteria, all CT images at BIDMC are interpreted by subspecialty radiologists who specialize in interpreting radiology images for specific parts of the body, which may improve outcomes and reduce costs on an ongoing basis.

In sum, to accommodate the existing patient panel and address patient panel growth in the near future, it is necessary to address significant capacity challenges which are creating unsatisfactory scheduling delays for which administrative workarounds are no longer sufficient. The new unit will have the impact of reducing these inefficiencies and concomitantly, the added expenses created by these administrative challenges, while also improving the quality of care and through expanded capabilities and expanded access leading to a reduction in health care costs.

C. Proposed Project Has Been Planned to Minimize Capital Costs

The Proposed Project has been planned and will be implemented with the goal of minimizing capital expenditures. With respect to the equipment itself, the CT being purchased is

[57] Institute for Healthcare Improvement, *Optimizing Patient Flow: Moving Patients Smoothly Through Acute Care Settings*, at 3 (2003).
[58] *See* DPH DoN Staff Report PHS-19093011-HS.
[59] *Id.* at 16.

a multi-functional unit with good adaptability for general purposes and as described above, expanded capabilities.

The placement of the proposed unit in proximity to the other West Campus CT units is the most cost effective option available to Applicant (refer to F5.a.i). The Proposed Project will be implemented within existing space, minimizing additional build out and disruption of existing services. Moreover, it will be adjacent or convenient to related ancillary facilities, services and functions on the West Campus.

BIDMC must be able to ensure timely access to convenient treatment in order to continue to provide its patient panel with the highest quality care, thereby improving health outcomes and quality of life, and to meet the Commonwealth's cost containment goals by maintaining and enhancing efficient access to a lower cost provider. The Proposed Project will allow BIDMC to continue providing high quality, complex treatment at an economical value, enabling it to continue to compete effectively with other academic medical centers, and in turn supporting the shared goal of lowering total medical expenses in the Commonwealth. An additional CT unit is an essential component of the high value inpatient and outpatient hospital care delivered on the BIDMC campus. For all the reasons described in this subsection, the Proposed Project will help maintain BIDMC's low cost position and will not contribute to inappropriate or overutilization of high cost or low value services.

F1.b.i <u>Public Health Value/Evidence-Based</u>:
Provide information on the evidence-base for the Proposed Project. That is, how does the Proposed Project address the Need that Applicant has identified?

Factor F1.a.ii describes how the addition of the Proposed Project will meet the Applicant's patient panel need. As provided in greater detail below, the Proposed Project is further supported by extensive evidence-based literature related to the efficacy of CT technology for those areas of use proposed in the Application. This review focuses on clinical applicability, comprehensive access, efficiency and convenience.

CT has been available for clinical use for several decades and is highly utilized in a variety of clinical disciplines.[60] Generally speaking, CT is a diagnostic imaging test that combines the use of sophisticated x-ray technology and computer processing to provide detailed anatomical and structural information.[61] Since its introduction into clinical use in the United States in the 1970s, CT has made enormous technical and engineering advances that have led to improvements in

[60] Carlo Liguori et al., *Emerging clinical applications of computed tomography*, at 265-78 (2015), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4467659/; *Computed Tomography*, RADIOLOGYINFO.ORG, https://www.radiologyinfo.org/en/submenu.cfm?pg=ctscan (last visited Mar.15, 2021); *Computed Tomography (CT)*, U.S. FOOD & DRUG ADMINISTRATION, https://www.fda.gov/radiation-emitting-products/medical-x-ray-imaging/computed-tomography-ct (last updated June 14,2019); Computed Tomography (CT or CAT) Scan of the Brain, JOHNS HOPKINS MEDICINE, https://www.hopkinsmedicine.org/health/treatment-tests-and-therapies/computed-tomography-ct-or-cat-scan-of-the-brain (last visited Mar. 15, 2021).
[61] *Id.*

image quality, speed and dose reduction and application, which all have led to increased clinical utilization of the technology.[62] As noted earlier, CT is used in image-guided procedures because the evidence demonstrates that this technique results in lower morbidity, allows for reduced sedation, and is associated with lowers costs of medical care.[63] The CT unit will assist in providing timely, accurate diagnoses of patients with a variety of health conditions[64], including cancer and cardiac conditions. It will also be used for CT-guided procedures such as tumor ablation procedures using radiofrequency, microwave and cryogen techniques, and placement of fiducial markers for stereotactic radiotherapy.

The Proposed Project will decrease the time to procedure, which in turn will decrease the time to diagnosis and treatment improving health care outcomes. From a patient perspective, reducing wait times in scheduling, results and, ultimately, a diagnosis, can reduce anxiety[65], relieve unnecessary pain and suffering, and hasten treatment. As noted earlier in the Application, BIDMC is experiencing increased demands for CT services because of the increased acuity of its inpatient population. These demands derive from increases in volume and acuity discussed in Factor F.1.a.ii. As a result, appointments for non-urgent CT-guided procedures and outpatient exams are pushed out further in the schedule. BIDMC is continually evaluating workload patterns to help guide schedules for a more effective alignment of workload with existing resources.[66] BIDMC has attempted to streamline scheduling; Radiology has extended the hours, and outpatient procedures are scheduled on the East Campus to the extent possible. This allows the CT units on

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[62] Pelc, *Recent and Future Directions in CT Imaging, Ann Biomed Eng.* (Feb. 2014), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3958932/; International Society for Computed Tomography, Half a Century in CT: How Computed Tomography Has Evolved, Oct. 7, 2016, available at https://www.isct.org/computed-tomography-blog/2017/2/10/half-a-century-in-ct-how-computed-tomography-has-evolved (last visited Mar. 15, 2021).

[63] Brolin et al., *Percutaneous catheter versus open surgical drainage in the treatment of abdominal abscesses*, at 102-8 (1984). ; Bufalari et al., *Postoperative intra abdominal abscesses: percutaneous versus surgical treatment*, at 197-200 (1996).; Levison, *Percutaneous versus open operative drainage of intra-abdominal abscesses*, at 525-44 (1992).; Ferraioli et al., Percutaneous and surgical treatment of pyogenic liver abscesses: observation over a 21-year period in 148 patients. at 690-6 (2008).

[64] Smith-Bindman et al., *Rising Use Of Diagnostic Medical Imaging In A Large Integrated Health System*, 27 HEALTH AFFAIRS 1491 (2008), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2765780/pdf/nihms-137739.pdf; Smith-Bindman et al., *Use of Diagnostic Imaging Studies and Associated Radiation Exposure For Patients Enrolled in Large Integrated Healthcare Systems*, *1996-2010* (2012), *available at* https://jamanetwork.com/journals/jama/fullarticle/1182858; McDonald et al., *The Effects of Changes in Utilization and Technological Advancements of Cross-Sectional Imaging on Radiologist Workload*, 22 ACADEMIC RADIOLOGY 1191 (2015), *available at* https://www.ncbi.nlm.nih.gov/pubmed/26210525; Walter, *Feeling Overworked? Rise in CT, MRI images adds to radiologist workload* (Jul. 31, 2015), https://www.radiologybusiness.com/topics/quality/feeling-overworked-rise-ct-mri-images-adds-radiologist-workload; *Increases in Imaging Procedures, Chronic Diseases Spur Growth of Medical Imaging lnformatics Market*, IMAGING TECHNOLOGY NEWS (Oct. 28, 2016), https://www.itnonline.com/content/increases-imaging-procedures-chronic-diseases-spur-growth-medical-imaging-informatics-market.

[65] Heyer et al., *Anxiety of Patients Undergoing CT Imaging – An Underestimated Problem?*, (Sept. 2014), *available at* https://www.researchgate.net/publication/265859977_Anxiety_of_Patients_Undergoing_CT_Imaging-An_Underestimated_Problem.

[66] Itri, *Patient-centered Radiology*, 35 RadioGraphics 6 (Oct. 14, 2015), *available at* https://pubs.rsna.org/doi/full/10.1148/rg.2015150110#r47.

the West Campus to be dedicated to inpatient CT-guided procedures as often as possible. Additionally, some BIDMC outpatients are seen on the West Campus because of physical limitations that restrict a patient's ability to travel to the East Campus and/or to accommodate patients with other medical appointments scheduled on the West Campus.

The current scheduling work-around is not sustainable given the patient panel needs. The existing CT units on both the East Campus and West Campus are at maximum capacity. There is limited availability for the outpatient services that are prioritized for the West Campus. Currently, there is approximately a one-month wait time for non-urgent, outpatient CT services.

The Proposed Project will provide continuity and integration along the continuum of care as described in in Factor F1.c and improve patient satisfaction.[67] By increasing CT capacity at the West Campus, BIDMC hopes and expects to provide patients with access to a continuous quality health care experience with reduced wait times, improved patient satisfaction, and better health outcomes.

F1.b.ii **<u>Public Health Value/Outcome-Oriented</u>:**
Describe the impact of the Proposed Project and how the applicant will assess such impact. Provide projections demonstrating how the Proposed Project will improve health outcomes, quality of life, or health equity. Only measures that can be tracked and reported over time should be utilized.

A. <u>Improving Health Outcomes and Quality of Life</u>

BIDMC anticipates that the Proposed Project will provide its patients with improved access to high quality CT services, which in turn will improve health outcomes and quality of life. Research indicates that delayed access to quality health care negatively affects patient satisfaction as well as health outcomes due to delays in diagnosis and treatment.[68] Given that quality of life is a multidimensional concept that includes aspects of physical health, delayed access to care also results in decreased quality of life.[69] Through the addition of the CT unit to the Project Site, BIDMC endeavors to improve access to time-effective, high-quality imaging services, and thereby enhance patient satisfaction, health outcomes and quality of life for its patient population.

[67] Strange, *The Problem of Fragmentation and the Need for Integrative Solutions*, at 100-3 (2009), *available at* http://www.annfammed.org/content/7/2/100.full.pdf+html (last visited Dec. 19, 2019); Itri, *supra* note 66.
[68] Prentice & Pizer, *Delayed Access to Health Care and Mortality*, 42 Health Services Research 644 (2007), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955366/.
[69] *Health-Related Quality of Life & Well-Being*, HealthyPeople.gov, https://www.healthypeople.gov/2020/topics-objectives/topic/health-related-quality-of-life-well-being (last visited on Mar. 15, 2021).

i. Improved Access

The West Campus CT units are operating at full capacity with a wait time of approximately one month for non-urgent, outpatient CT services. By adding another CT unit to the Project Site, the Applicant will address the current patient panel need as well as anticipated growth in need based on patient trends. The addition of the CT unit will provide increased access, which will reduce delays in access, especially during peak demand times, and reduce significant wait times for outpatient CT-guided procedures.

ii. High Quality Care and Efficiency

In addition to improving access, the Proposed Project will also ensure the provision of high-quality care and realize efficiencies.

With respect to efficiencies, the increase in CT capacity, particularly with the addition of the newer-generation CT with enhanced capabilities, should decrease the time to procedure, which in turn will decrease the time to diagnosis and treatment. For example, newer-generation CTs, such as those that will be utilized in the Proposed Project, have cardiac imaging capabilities which have been shown to benefit cardiac patients who are difficult to image (e.g. obese, have irregular heart rates, and have high levels of coronary calcium or a previous stent or bypass graft), and provide additional information to help plan surgery in patients who have complex abnormalities from congenital heart disease.[70] In particular, it has been found that for patients with suspected coronary artery disease that newer-generation CTs would be favorable and cost-effective.[71] The Proposed Project will also have enhanced functionality that improves metal artifact reduction algorithms, which lessens the appearance of metal artifacts on the scan and, thus, makes the CT image data clear, providing a better image for the radiologist.[72]

B. Assessing the Impact of the Proposed Project

To assess the impact of the Proposed Project, BIDMC has developed the following quality metrics and reporting schematic as well as metric projections for quality indicators that will measure patient satisfaction and access.

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[70] *A systematic review and economic evaluation of newer-generation computed tomography scanners for imaging in coronary artery disease and congenital heart disease: Somatom Definition Flash, Aquilion ONE, Brilliance iCT and Discovery CT750 HD* (2013), *available at* https://www.ncbi.nlm.nih.gov/books/NBK202064/.

[71] *Id.*

[72] *See* Yazdi & Beaulieu, *Artifacts in Spiral X-ray CT Scanners: Problems and Solutions*, 26 PROCEEDINGS OF WORLD ACADEMY OF SCIENCE, ENGINEERING AND TECHNOLOGY 376 (2007), *available at* http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.74.4883&rep=rep1&type=pdf.

1. **Patient Experience/Satisfaction:** Patients who are satisfied with care are more likely to seek additional treatment when necessary. Radiology will review overall assessment of care via Press Ganey survey ("Survey") scores.

    a. **Measure:** The Survey's overall assessment has two inquiries: (1) How well staff worked together to provide care; and (2) The likelihood of patients recommending our facility to others. Response options include: Very Good, Good, Fair, Poor and Very Poor.

    Projections: Baseline[73]: 84 %; Year 1: 85 %; Year 2: 87%; Year 3: 89%

    Monitoring: Radiology will review the Survey's comments on a quarterly basis. Patients who report a negative experience and indicate that they wish to be contacted about their experience (and leave a name and number on the survey) will be contacted. Mean score trends are evaluated on a quarterly basis, and policy changes instituted as appropriate. This data will be provided on an annual basis.

2. **Access- Wait Times[74]:** The Proposed Project seeks to ensure timely access to CT services. Accordingly, BIDMC will track on the West Campus the median time from order placement to the third next available appointment for outpatient CT-guided procedures, as well as the time from CT scanning to finalization of radiology report.

    a. **Measure:** Average (median) time interval from the CT services request was initiated to the third next available appointment.

    Projections: Baseline: 30 days; Year 1: 7-10 days; Year 2: 7-10 days; Year 3: 7-10 days

    Monitoring: This data will be provided on an annual basis.[75]

    b. **Measure:** Average (median) time interval from the completion of a patient's CT services on the West Campus to finalization of radiology report.

[73] The baseline measure will encompass FY2021 -- 12 months prior to implementation of the Proposed Project of patient satisfaction data for the current complement of CT units, and will be based on the first year of implementation of the Radiology Department's new Survey. Prior to implementation of the new survey in October 2019, the Radiology Department used a different survey format that did not generate any comparative data. The Year 1 measure will be based on the first year of implementation of the additional CT unit.

[74] The measures in Item 2 (Access-Wait Times) will be measured with "Year 1" beginning on the date which the applicable imaging unit is installed and fully operational for patients.

[75] This measure fluctuates based on the day of the week and time of day a request for a CT scan is made.

Projections: Baseline: 3 days[76]; Year 1: 1-2 days; Year 2: 1-2 days; Year 3: 1-2 days

Monitoring: This data will be provided on an annual basis.

F1.b.iii **Public health Value/Health Equity-Focused:**

For Proposed Projects addressing health inequities identified within the Applicant's description of the proposed projects need-base, please justify how the Proposed Project will reduce the health inequity, including the operational components (e.g. culturally competent staffing). For Proposed Projects not specifically addressing a health disparity or inequity, please provide information about specific actions the applicant is and will take to ensure equal access to the health benefits created by the Proposed Project and how these actions will promote health equity.

BIDMC strives to continually ensure health equity to all populations, including vulnerable and underserved populations. The Proposed Project will increase access to hospital-based CT services and therefore will not affect accessibility of BIDMC's services for poor, medically indigent and/or Medicaid eligible individuals or participation in the MassHealth ACO. BIDMC is committed to serving the community regardless of an individual's ability to pay, and BIDMC does not discriminate based on ability to pay or payor source.

Additionally, BIDMC strives to use a culturally appropriate lens to facilitate communication with, and understanding of, the patient experience. BIDMC was one of Boston's first hospitals with an Interpreter Services Department and has a proven track record for expanding capacity and increasing resources to serve BIDMC's increasing non-English speaking patient population. Staff interpreters provide translation services in ten different languages and interpreters are arranged on request for over 70 additional languages either in person or via phone/video. The Interpreter Services staff also offer in-service training to employees and clinical staff and enhance BIDMC's Cultural Competence Initiative—BIDMC's program to focus efforts to provide care that recognizes and responds to differences in culture. Each year, BIDMC submits an interpreter services report to the Department. In addition, BIDMC's Language Access and Assistive Services Plan was approved by the Department as part of the Applicant's change of ownership determination of need.

BIDMC also has one of Massachusetts' longest tenured nationally certified American Sign Language interpreters on staff, supported by a cadre of certified per diem American Sign Language interpreters. BIDMC accommodates patients' need for interpreters 24 hours a day, seven days a

[76] This measure is based on Monday-Friday.

week. BIDMC has Sorenson videophones installed across the campus to increase communication access for BIDMC's Deaf and Hard-of-Hearing patients and their families. BIDMC also has personalized headsets with adjustable volume controls for use by patients admitted to the hospital. For these efforts, in 2014 BIDMC received the Outstanding Organization of the Year award from the Massachusetts Commission for the Deaf and Hard of Hearing.

Specific to Radiology, like the other CT units at BIDMC, the Proposed Project unit to be installed has the ability to translate discussions for non-native English speaking patients during procedures. Meanwhile, an interpreter is available before and after the procedures to address patients' medical questions.

All of these practices will continue following implementation of the Proposed Project.

F1.b.iv: Provide additional information to demonstrate that the Proposed Project will result in improved health outcomes and quality of life of the Applicant's existing Patient Panel, while providing reasonable assurances of health equity.

As described throughout this Application, the Proposed Project will assist BIDMC in improving health outcomes and quality of life for its patient panel, while enhancing health equity for vulnerable populations in need of enhanced access to hospital-based services. The Proposed Project will facilitate improved health outcomes and quality of life indicators for the Applicant's patient panel by ensuring that BIDMC patients, including vulnerable patients in BIDMC's CBSA, and in particular, inpatients and those in need of CT-guided procedures, have timely access to essential hospital-based imaging services. Combined with the fact that BIDMC does not discriminate and offers a variety of services to address SDoH and health care disparities (e.g. interpreter services, financial assistance, social services, and partnerships with community health centers), the Applicant anticipates that the Proposed Project will result in improved patient care experiences and quality outcomes while assuring health equity.

F1.c Provide evidence that the Proposed Project will operate efficiently and effectively by furthering and improving continuity and coordination of care for the Applicant's Patient Panel, including, how the Proposed Project will create or ensure appropriate linkages to patients' primary care services.

BIDMC serves as the community hospital for many primary care practices and clinics, community health centers, and the patients they serve. This includes the provision of exceptional, personalized, culturally and linguistically appropriate care for the urban population that resides near BIDMC. This patient population cannot readily travel to other suburban community hospital alternatives for care. Thus, BIDMC serves as the community hospital for this group of patients.

Integrated medical records are a proven tool to efficiently and effectively improve quality of care and public health outcomes.[77] BIDMC's integrated medical record ("EMR") serves as the primary linkage between Radiology, BIDMC's specialists, and community primary care providers. In the first instance, the EMR allows BIDMC's radiologists real-time access to a patient's comprehensive medical information, including medical history, lab results, and clinical notes while they are protocoling or reading a study. Once the radiologist report is complete, the EMR enables imaging results and information to be available to primary care and specialty physicians across the system and integrated into the patient's medical record. The EMR also allows authorized providers outside of the Applicant to access their patients' data, view their patients' records, and send progress notes back for improved continuity of care. This integration ensures that the BIDMC patient panel benefits from care coordination, better outcomes, and improved quality of life as discussed in Factor F1.b.i and ii.

In addition to the cancer patient navigators that bridge the gulf between community providers and BIDMC discussed in F1.a.i, BIDMC also works in partnership with Bowdoin Street Health Center[78], The Dimock Center, Fenway Health and its affiliate, Sidney Borum Jr. Health Services, Charles River Community Health, and South Cove Community Health Center, all of which are members of the Community Care Alliance. These community providers are uniquely positioned to offer access to community-based primary care to Boston's most vulnerable patient populations. BIDMC works closely with these providers to ensure that Boston residents have access to on-site specialty care as well as laboratory, radiology, mammography, and culturally and linguistically appropriate health services. The Proposed Project will allow for increased access for these patients to the high quality, coordinated care that BIDMC offers.

Lastly, BIDMC participates in the MassHealth ACO Program through BIDCO, part of BILHPN and its clinically integrated network. Through the ACO Program, BIDCO strives to increase access to high quality care for residents that are more negatively impacted by SDoH than the commercially insured population. A significant portion of BIDCO's efforts to improve health care for this patient population are accomplished by BIDCO members through the primary care setting. For example, BIDMC's Community Health Implementation Plan includes the goal of chronic disease management and reduced cancer disparities (access to screening and treatment). Through BIDCO, data analysis and care and risk management tools are provided to BIDMC providers, including a Population Health Management Tool that helps primary care physicians monitor patients' health and manage chronic conditions. BIDMC's links to primary care providers are vital to its success in providing vulnerable patients with continuity and coordination of care. These primary care linkages will continue to enhance care for BIDMC patients, including timely access to radiology services that will be achieved through the Proposed Project.

[77] HealthIT.gov, https://www.healthit.gov/topic/health-it-and-health-information-exchange-basics/improved-diagnostics-patient-outcomes (last updated June 4, 2019).
[78] Bowdoin Street Health Center is operated and licensed by BIDMC.

F1.d Provide evidence of consultation, both prior to and after the Filing Date, with all Government Agencies with relevant licensure, certification, or other regulatory oversight of the Applicant or the Proposed Project.

The Applicant consulted with the following individuals regarding the Proposed Project:

- Margo Michaels and Nora Mann, MPH, former Directors, Determination of Need Program, Department of Public Health (updated Lara Szent-Gyorgyi, MPH, Director, Determination of Need Program, Department of Public Health)
- Rebecca Rodman, Esq., Deputy General Counsel, Department of Public Health
- Ben Wood, Director, Division of Community Health Planning and Engagement, Department of Public Health
- Jennica Allen, MPH, Division of Community Health Planning and Engagement, Department of Public Health

F1.e.i <u>Process for Determining Need/Evidence of Community Engagement</u>: For assistance in responding to this portion of the Application, Applicant is encouraged to review Community Engagement Standards for Community Health Planning Guideline. With respect to the existing Patient Panel, please describe the process through which Applicant determined the need for the Proposed Project.

As stated in the Project Description and patient panel need discussion, the Proposed Project will improve BIDMC's existing CT services by ensuring that BIDMC patients, including vulnerable patients in BIDMC's CBSA, and, in particular, inpatients and patients in need of CT-guided procedures, have timely access to essential hospital-based imaging services from a lower cost provider of high quality tertiary and quaternary services. To determine need for the Proposed Project, BIDMC not only looked at patient acuity, historical usage data, capacity, and patient wait time, but it also solicited direct feedback from patients and clinicians about their experience with BIDMC's CT services. To ensure appropriate community engagement, the Proposed Project was presented to BIDMC's Community Advisory Committee (CAC) and its Patient and Family Advisory Committee (PFAC).

Radiology presented the Proposed Project to the CAC on July 23, 2019. The CAC was established in connection with the New Inpatient Building Community-based Health Initiative ("CHI") process. The CAC members had few questions and expressed support for combining the CHI funds associated with this Application with the New Inpatient Building CHI process.

Radiology presented the Proposed Project to the PFAC on January 8, 2020. The PFAC is comprised of a group of patients and family members who volunteer their time each month to provide BIDMC input that helps improve BIDMC's care with a focus on quality, safety and communication at the hospital. At the PFAC meeting, there was a robust dialogue with the PFAC patient and family members in attendance, many of whom expressed strong support of the

Proposed Project. The PFAC was engaged and asked critical questions about the Proposed Project. There was discussion about the operational need for the additional CT unit that included the need for back-up CT resources when West Campus ED unit is down and why the expanded schedule with BIDMC's existing CT equipment is not an adequate solution. A key concern for the PFAC was the current access and wait time for CT services. In its support for the Proposed Project, the PFAC also questioned whether only one new CT unit was sufficient for BIDMC to meet the patient panel needs. Radiology representatives expressed their belief that the Proposed Project would allow BIDMC to meet its goals over the new few years, and it would continually assess the impact of the Proposed Project and make annual reports to the Department.

F1.e.ii Please provide evidence of sound Community Engagement and consultation throughout the development of the Proposed Project. A successful Applicant will, at a minimum, describe the process whereby the "Public Health Value" of the Proposed Project was considered, and will describe the Community Engagement process as it occurred and is occurring currently in, at least, the following contexts: Identification of Patient Panel Need; Design/selection of DoN Project in response to "Patient Panel" need; and Linking the Proposed Project to "Public Health Value".

As discussed in Section F1.e.i., to ensure sound community engagement throughout the development of the Proposed Projects, Radiology took the following actions:

- Presentation to the CAC on July 23, 2019. For detailed information on this meeting, see Appendix 4a.
- Presentation to the PFAC on January 8, 2020. For detailed information on this meeting, see Appendix 4b.

Factor 2: Health Priorities

Addresses the impact of the Proposed Project on health more broadly (that is, beyond the Patient Panel) requiring that the Applicant demonstrate that the Proposed Project will meaningfully contribute to the Commonwealth's goals for cost containment, improved public health outcomes, and delivery system transformation.

F2.a <u>Cost Containment</u>:
Using objective data, please describe, for each new or expanded service, how the Proposed Project will meaningfully contribute to the Commonwealth's goals for cost containment.

The Proposed Project will meaningfully contribute and further the Commonwealth's goals of ensuring resources will be made reasonably and equitably available to every person at the lowest reasonable aggregate cost and creating an accountable health care system that ensures quality, affordable health care for Massachusetts residents.[79] As discussed throughout the Application, the Proposed Project will ensure the appropriate complement of and access to CT equipment on the West Campus that will enable BIDMC to continue to compete with other academic medical centers on the basis of price, total medical expenses (TME), costs and other measures of health care spending. The Proposed Project is an essential component of high value inpatient and hospital care delivered on the BIDMC campus.

As discussed in F1.a.iii, the Proposed Project will be targeted primarily to patients in those categories where there is lowest risk of excessive or inappropriate utilization, and for whom CT services provide a necessary and integral component of hospital-based care. Timely access to appropriate imaging services will improve outcomes, which will reduce health care expenditures through the reduction in use of health care resources due to faster recovery times.[80] To the extent the Proposed Project has capacity to be used for a limited amount of outpatient diagnostic imaging, best practice/standards of care will ensure that CT imaging at the hospital is used under appropriate circumstances. There will be no impact on BIDMC's contracted rates for CT services. The Proposed Project will also improve patient access by reducing wait-times and thereby efficiently using hospital infrastructure. Accordingly, the Proposed Project will lower costs, as well as overall TME and total health care expenditures, and will meaningfully contribute to the Commonwealth's goals of cost containment.

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[79] *See* 105 CMR 100.001; *See also* HPC, *2019 Annual Health Care Cost Trends Report*, *available at* https://www.mass.gov/doc/2019-health-care-cost-trends-report/download; Hattis, *Massachusetts and its Approach To Health Care Cost Containment Since its Passage of its 2012 Law – Chapter 224* (Dec. 11, 2017), *available at* https://www.assembly.ca.gov/sites/assembly.ca.gov/files/Archives/paul_hattis_powerpoint_presentation_massachusetts_and_its_approach_to_health_care_cost_containment.pdf.

[80] *See supra* note 56.

F2.b. <u>Public Health Outcomes</u>:
Describe, as relevant, for each new or expanded service, how the Proposed Project will improve public health outcomes.

The Proposed Project will improve public health outcomes as patients will have timely access to CT services, which will reduce delays in diagnosis and treatment. As discussed in Factor F1.b, BIDMC is currently operating at capacity for CT services. With historical volume trends showing high utilization rates, BIDMC also predicts that imaging demand will grow in to the future as BIDMC continues to treat an older, more acute population. To address both the current and future demand in CT services, increased capacity is required. The Proposed Project will also improve public health outcomes by providing a better patient care experience due to more timely scheduling of CT services on the most appropriate CT equipment.

Lastly, for the limited number of standalone outpatient diagnostic exams performed using the additional CT unit, the exams will be protocoled to ensure appropriateness, which will improve public health outcomes. First, the radiology order will go into BIDMC's Financial Clearing Unit (FCU) to check for preauthorization and medical necessity. Second, Radiology will screen the order to ensure appropriateness. Radiology is also implementing its electronic clinical decision support tool. Additionally, BIDMC will implement the Medicare Part B Appropriate Use Criteria for Advanced Diagnostic Imaging after the COVID-19 public health emergency in time for the 2022 start date.[81]

F2.c. <u>Delivery System Transformation</u>:
Because the integration of social services and community-based expertise is central to goal of delivery system transformation, discuss how the needs of their patient panel have been assessed and linkages to social services organizations have been created and how the social determinants of health have been incorporated into care planning.

BIDMC is committed to improving the health status of the communities it serves.[82] To do so effectively, BIDMC supports and/or provides numerous community health initiatives, many in conjunction with community partners such as: the Community Care Alliance, a network of Boston neighborhood community health centers licensed and/or affiliated with BIDMC. BIDMC is also a member of BIDCO, a physician and hospital network and ACO. Through BIDCO, BIDMC

[81] *Available at* https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/Downloads/AUCDiagnosticImaging-909377.pdf. *See also* CMS, *Appropriatee Use Criteria Program*, https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Appropriate-Use-Criteria-Program. This program was initially set to go into effect in 2020, but has been delayed until 2022.
[82] This response does not describe BIDMC's relevant efforts in this area in connecting with the Boston Collaborative and community-based health initiatives, which are reported separately to the Department.

collaborates with the other BIDCO members to evaluate and manage the health of the population it serves through assessing SDoH through its affiliated ACOs and providing care coordination and referrals.

BIDMC founded and is an active participant in the Community Care Alliance. Community Care Alliance health centers provide a safety net for those in need and ensure access to health care for the disenfranchised, underinsured, and uninsured by offering culturally-responsive, community-based primary care with integrated behavioral health and social services. The five Community Care Alliance health centers located in Boston serve 100,000 patients annually and support numerous educational, outreach, and community-strengthening initiatives. All Community Care Alliance health centers focus on serving underserved populations who face existing barriers and obstacles to accessing care. These health centers are a vital component of BIDMC's community health implementation strategy through their assessment, referral and coordination of care and services addressing SDoH. Through collaboration in the Community Care Alliance, BIDMC supports outreach to underserved cohorts to improve access to primary care and specialty care by serving as a clinical and academic resource for the Community Care Alliance health centers. These health centers provided critical services during the height of the COVID-19 pandemic. Three Community Care Alliance health centers served as testing sites in communities that were disproportionately impacted, and all of the health centers provided timely access to care and resources such as food and personal protective equipment for community residents.

As part of BIDMC's participation in BIDCO's MassHealth ACO program, the Post-Acute Care Transition ("PACT") Team at BIDMC, addresses identifies SDoH that impact coordination of care for patients admitted to BIDMC for medical/surgical services. The PACT team is comprised of nurse care managers, pharmacists, and community resource specialists, who conduct face-to-face evaluations with BIDCO's MassHealth ACO members admitted to BIDMC and follow their care for 30 days post discharge. While patients are hospitalized, the PACT team performs standardized SDoH assessments and provides referrals and/or resources, as necessary. Two of BIDMC's outpatient partners, Bowdoin Street Health Center, also a Community Care Alliance member, and HealthCare Associates (HCA), BIDMC's on-campus community physician practice, are also in the process of implementing the Protocol for Responding to and Assessing Patients' Assets, Risks and Experiences ("PRAPARE") tool to screen MassHealth patients for SDoH needs.

HCA primary care physicians screen patients for SDoH. The following describes HCA's current screening process: HCA's front desk staff is prompted to provide the screening tool to patients annually at the time of check-in. The screening tool, the Community Health Questionnaire, asks patients to identify the following: SDoH that they have not been able to access in the past year, their current housing situation, transportation issues, access or lack of access to community and family supports, and safety concerns at home or with family, and provides an opportunity for them to request help generally. There is a Community Resource Team specialist available to support

patients who have identified needs and connect them with available resources. The SDoH screening process began as a pilot for HCA's MassHealth ACO population. HCA began screening its entire Medicaid population in Spring 2020, surveying for all HCA patients will follow.

Radiology also screens for SDoH and works with the Social Work Department to address transportation issues for outpatients who need to access necessary CT services.

Factor 5: Relative Merit

F5.a.i Describe the process of analysis and the conclusion that the Proposed Project, on balance, is superior to alternative and substitute methods for meeting the existing Patient Panel needs as those have been identified by the Applicant pursuant to 105 CMR 100.210(A)(1). When conducting this evaluation and articulating the relative merit determination, Applicant shall take into account, at a minimum, the quality, efficiency, and capital and operating costs of the Proposed Project relative to potential alternatives or substitutes, including alternative evidence-based strategies and public health interventions.

Proposal: The Proposed Project is for the expansion of CT imaging capacity at BIDMC's West Campus through the acquisition and implementation of one additional CT unit.

Quality: Improving the quality of care through increased timely access to hospital-based CT services, in particular, inpatients and patients in need of CT-guided procedures, is the primary driver behind the Proposed Project. Adding a newer-generation CT with improved imaging and cardiac capabilities on the West Campus will provide the necessary capacity to ensure timely access for the BIDMC patient panel. In addition, the additional CT unit will afford for more predictable, timely, and reliable scheduling of patients and will reduce the rescheduling of outpatients due to emergent or urgent patients. Reducing delays and rescheduling for urgent CT services will ensure that necessary care is provided timely for maximum therapeutic benefit and reduce risk of patient noncompliance with scheduling. Moreover, it will improve the care experience for patients and mitigate the burdens of having to reschedule appointments.

Efficiency:

a) Capital Expense: There are capital expenses associated with the implementation of the CT unit. The total capital expenditure for the unit and related construction is $4,795,388.00.

b) Operating Costs: The first-year incremental operating expense of the Proposed Project is $935,480.

List of Alternative Options for the Proposed Project:

Option 1:

Alternative Proposal: The first alternative for the Proposed Project would be to maintain the status quo by continuing to operate with the existing complement of CT units. Radiology has already expanded its schedule to the fullest extent possible to accommodate current demand. The East Campus extended hours of operation in May of 2017 from 5:00 p.m. to 7:00 p.m., Monday through Friday, for outpatient booking, adding six appointments per day. The Shapiro Center (also located on the East Campus) extended its hours of operation in October of 2018 from 4:15 p.m. to 5:00 p.m., Monday through Friday, adding three appointments per day. As previously noted, the Radiology schedule operates at 80%, which is considered full capacity, in order to ensure access for emergency and urgent CT services and to accommodate required maintenance and CT downtime.

Alternative Quality: This is not a feasible solution, as demand for services, wait times and patient experience would not be addressed and would continue to have a negative impact on both inpatients and outpatients who need the CT services performed on a timely basis. It would also still require that certain patients be transported from the West Campus to the East Campus for CT services, which is less than optimal, particularly for patients with health and/or mobility limitations. Transport is an added expense and an inefficient use of staff time. Finally, the alternative would not address the capacity and access needs identified above.

Alternative Efficiency: This alternative would be inefficient. The status quo has already significantly impacted Radiology's ability to provide timely CT services. The current wait time is approximately 1-3 months for non-urgent CT-guided procedures and exams.

Alternative Capital Expense: This alternative would allow BIDMC to forgo certain construction costs and the cost of acquiring a new CT unit. However, it would have an overall negative impact on access, quality of care, patient and provider satisfaction, and cost effective and efficient operations.

Alternative Operating Costs: There would be no additional operating costs associated with sustaining the current complement of CT units and forgoing expansion. However, this alternative would not afford BIDMC with any operational efficiencies, as Radiology and current CT units will continue to operate at capacity, which has created challenges and inefficiencies for staff at multiple levels in scheduling patients and insufficient patient access.

Option 2:

Alternative Proposal: There is no alternative proposal to the Proposed Project elsewhere on BIDMC's main campus because (i) there is no other, better space for the Proposed Project on the West Campus, and (ii) placement on the East Campus will not address the identified patient panel need that pertains to the West Campus—addressing the impact of ED overflow, heavy inpatient use and heavy CT-guided procedure use. Moreover, moving an East Campus CT unit to the West Campus would destabilize CT services on the East Campus, which are at capacity.

Alternative Quality: NA

Alternative Efficiency: NA

Alternative Capital Expense: NA

Alternative Operating Costs: NA

Option 3:

Alternative Proposal: There is no alternative off-campus proposal to the Proposed Project because BIDMC needs additional CT capacity primarily for inpatients and for CT-guided procedures, which are only performed by BIDMC at the main campus.

Alternative Quality: NA

Alternative Efficiency: NA

Alternative Capital Expense: NA

Alternative Operating Costs: NA

2. PATIENT PANEL EXHIBITS

Exhibit A – BILH Patient Panel

Table 1: Patient Panel Demographic Study[83]

	BILH Service Area	MA
Total Population (2017 Est.)	4,971,366	6,861,490
Percent Growth since 2010	6.4%	4.8%
Projected Growth to 2022	4.5%	3.5%

Table 2: Patient Panel Summary
BILH
FY 2015 – FY 2017

Demographic Measure	FY 2015 Count	FY 2015 Percent	FY 2016 Count	FY 2016 Percent	FY Count	FY Percent
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Gender						
Male	509,497	41.8 %	518,168	41.8 %	512,848	41.7 %
Female	709,106	58.2	721,392	58.2	717,417	58.3
Other	641	0.1	705	0.1	687	0.1
Total:	**1,219,244**	**100.0 %**	**1,240,265**	**100.0 %**	**1,230,952**	**100.0 %**
Age						
0 to 17	100,421	8.2 %	99,851	8.1 %	96,675	7.9 %
18 to 64	815,552	66.9	824,669	66.5	807,187	65.6
65+	303,271	24.9	315,745	25.5	327,090	26.6
Total:	**1,219,244**	**100.0 %**	**1,240,265**	**100.0 %**	**1,230,952**	**100.0 %**
Race						
White	934,061	76.6 %	931,987	75.1 %	918,598	74.6 %
Black or African American	57,651	4.7	59,787	4.8	58,974	4.8
American Indian or Alaska Native	1,420	0.1	1,309	0.1	1,289	0.1
Asian	62,441	5.1	65,136	5.3	66,930	5.4
Native Hawaiian or Other Pacific Islander	846	0.1	698	0.1	662	0.1
Hispanic/Latino	24,019	2.0	20,575	1.7	19,660	1.6
Other	138,806	11.4	160,773	13.0	164,839	13.4
Total:	**1,219,244**	**100.0 %**	**1,240,265**	**100.0 %**	**1,230,952**	**100.0 %**
Diagnoses for Inpatients						
Chronic Condition	34,261	30.5 %	34,910	30.4 %	36,230	31.0 %
Non-Chronic Condition	78,026	69.5	79,868	69.6	80,539	69.0
Total:	**112,287**	**100.0 %**	**114,778**	**100.0 %**	**116,769**	**100.0 %**
Behavioral Health	6,832	6.1 %	6,421	5.6 %	6,339	5.4 %
Non-Behavioral Health	105,455	93.9	108,357	94.4	110,430	94.6
Total:	**112,287**	**100.0 %**	**114,778**	**100.0 %**	**116,769**	**100.0 %**
Payor						
Commercial	668,718	54.8 %	670,517	54.1 %	650,627	52.9 %
Medicare	278,456	22.8	289,982	23.4	298,160	24.2
Medicaid	129,092	10.6	157,355	12.7	158,153	12.8
Multiple Payors	73,024	6.0	56,940	4.6	57,309	4.7

[83] Source: Neilson Segmentation & Market Solutions Pop-Facts Demographics Report. Accessed June 14, 2017.

Other		59,110	4.8	53,819	4.3	52,761	4.3
Unknown		10,844	0.9	11,652	0.9	13,942	1.1
	Total:	**1,219,244**	**100.0 %**	**1,240,265**	**100.0 %**	**1,230,952**	**100.0 %**
Patient Origin							
02360		33,353	2.7 %	34,418	2.8 %	35,200	2.9 %
01801		28,403	2.3	28,790	2.3	28,739	2.3
01915		27,390	2.2	26,723	2.2	26,978	2.2
01960		24,892	2.0	25,281	2.0	25,635	2.1
01930		22,442	1.8	22,762	1.8	23,774	1.9
01803		18,024	1.5	18,227	1.5	18,141	1.5
01923		18,258	1.5	17,727	1.4	17,701	1.4
01821		17,252	1.4	17,557	1.4	17,637	1.4
01887		17,036	1.4	17,247	1.4	17,243	1.4
02155		18,292	1.5	18,268	1.5	17,064	1.4
01867		15,886	1.3	16,021	1.3	15,799	1.3
02474		15,495	1.3	15,699	1.3	14,796	1.2
01876		14,033	1.2	14,073	1.1	14,378	1.2
01890		14,136	1.2	14,040	1.1	13,847	1.1
01950		13,652	1.1	13,653	1.1	13,616	1.1
02472		14,133	1.2	14,556	1.2	13,517	1.1
02169		11,882	1.0	12,968	1.0	13,255	1.1
01913		13,068	1.1	12,967	1.0	12,850	1.0
02148		12,793	1.0	12,972	1.0	12,501	1.0
02180		12,992	1.1	12,770	1.0	12,393	1.0
02186		11,448	0.9	11,805	1.0	11,833	1.0
01970		11,413	0.9	11,429	0.9	11,766	1.0
02478		12,014	1.0	12,226	1.0	11,379	0.9
01810		11,224	0.9	11,176	0.9	11,302	0.9
01880		11,175	0.9	11,338	0.9	11,151	0.9
02368		10,453	0.9	10,902	0.9	10,836	0.9
01938		11,562	0.9	11,347	0.9	10,669	0.9
02138		10,863	0.9	11,184	0.9	10,474	0.9
01864		10,279	0.8	10,305	0.8	10,366	0.8
02492		10,036	0.8	10,136	0.8	9,756	0.8
02421		9,463	0.8	9,496	0.8	9,524	0.8
02135		9,080	0.7	9,220	0.7	8,915	0.7
01830		9,042	0.7	9,011	0.7	8,903	0.7
02124		8,385	0.7	8,644	0.7	8,762	0.7
02446		9,010	0.7	8,819	0.7	8,697	0.7
02476		8,858	0.7	9,127	0.7	8,506	0.7
02420		8,642	0.7	8,616	0.7	8,442	0.7
02453		8,361	0.7	9,415	0.8	8,429	0.7
02130		8,154	0.7	8,218	0.7	8,398	0.7
01845		7,996	0.7	8,196	0.7	8,003	0.7
02176		8,178	0.7	8,253	0.7	7,985	0.6
02026		6,877	0.6	6,995	0.6	7,289	0.6
02184		6,505	0.5	7,087	0.6	7,272	0.6
02139		7,659	0.6	7,710	0.6	7,165	0.6
02151		7,197	0.6	7,253	0.6	7,161	0.6
02170		6,345	0.5	6,681	0.5	7,108	0.6
02136		6,676	0.5	7,002	0.6	7,026	0.6
01844		7,020	0.6	6,969	0.6	6,952	0.6
01906		6,850	0.6	6,798	0.5	6,910	0.6
01730		6,723	0.6	6,883	0.6	6,792	0.6
01952		6,721	0.6	6,650	0.5	6,727	0.5
01902		5,958	0.5	6,120	0.5	6,246	0.5
02132		5,897	0.5	6,118	0.5	6,211	0.5
02445		6,141	0.5	6,112	0.5	5,970	0.5
02140		6,164	0.5	6,429	0.5	5,937	0.5
02144		6,229	0.5	6,206	0.5	5,787	0.5
Other		551,234	45.2	563,670	45.4	561,239	45.6
	Total:	**1,219,244**	**100.0 %**	**1,240,265**	**100.0 %**	**1,230,952**	**100.0 %**

Notes: BILH includes Addison Gilbert Hospital, AJH, BayRidge Hospital, Beverly Hospital, BIDMC, BID-Milton, BID-Needham, BID-Plymouth, LHMC-Burlington, LHMC-Peabody, MAH, NEBH, and Winchester Hospital.

Counts represent the number of unique patients that visited a facility on a BILH hospital license for inpatient or outpatient services,

including patients who were admitted through the emergency department. Unique patients are identified at the hospital level, with the exception of Addison Gilbert Hospital, BayRidge Hospital, and Beverly Hospital, which are jointly identified, and LHMC-Burlington and LHMC-Peabody, which are also jointly identified. Patients visiting multiple BILH hospitals in a given year are not uniquely identified.

Patients for whom a gender is not specified or whose gender varies across visits over the time period are included in “Other.”

Patients who fall into multiple age categories in a given year are included in the younger category.

Race information is self-reported. Patients for whom a race is not specified or whose race varies across visits over the time period are included in “Other.”

A patient is included in the "Chronic Condition" category in a given year if the primary ICD diagnosis code for any inpatient visit during the year is associated with a chronic condition identified by CMS for Medicare ACOs. Only inpatients are included in the chronic condition counts.

A patient is included in the "Behavioral Health" category in a given year if the primary ICD diagnosis code for any inpatient visit during the year is classified under the Clinical Classifications Software "Mental Illness" Level I Description. Only inpatients are included in the behavioral health counts.

Patients whose primary payor is missing in the data are included in "Unknown." Patients whose primary payors within a given fiscal year fall into more than one payor category are included in "Multiple Payors." "Other" includes the following payor categories: self pay, worker's compensation, other government payment, free care, health safety net, auto insurance, Commonwealth Care/ConnectorCare plans, and dental plans.

Patients were assigned the ZIP Code from their last visit in the given fiscal year. Patients with a missing or invalid ZIP Code or from a ZIP Code from which less than 0.5% of the hospital’s patients originate in all years are included in "Other."

A fiscal year spans October 1 of the previous year to September 30 of the given year. For example, fiscal year 2015 spans October 1, 2014 to September 30, 2015.

Source Internal inpatient and outpatient visit data submitted by the BILH hospitals.

Table 3: BILH Patient Panel Zip Codes[84]

Zip Code - Town	Zip Code - Town	Zip Code - Town	Zip Code - Town
02351 - Abington	02026 - Dedham	01944 - Manchester	02562 - Sagamore Beach
01720 - Acton	02638 - Dennis	02048 - Mansfield	01970 - Salem
02743 - Acushnet	02121 - Dorchester	01945 - Marblehead	01952 - S alisbury
02134 - Allston	02122 - Dorchester	02738 - Marion	02563 - Sandwich
01913 - Amesbury	02125 - Dorchester	01752 - Marlborough	01906 - Saugus
01810 - Andover	02124 - Dorchester Center	02050 - Marshfield	02066 - Scituate
02474 - Arlington	02030 - Dover	02126 - Mattapan	02067 - Sharon
02476 - Arlington	01826 - Dracut	01754 - Maynard	01770 - Sherborn
01721 - Ashland	01571 - Dudley	02052 - Medfield	01545 - Shrewsbury
02703 - Attleboro	01827 - Dunstable	02155 - Medford	02143 - Somerville
01501 - Auburn	02332 - Duxbury	02053 - Medway	02144 - Somerville
02466 - Auburndale	02333 - East Bridgewater	02176 - Melrose	02145 - Somerville
02322 - Avon	02536 - East Falmouth	01860 - Merrimac	02748 - South Dartmouth
01730 – Bedford	02032 - East Walpole	01844 – Methuen	02375 - South Easton
02019 - Bellingham	02189 - East Weymouth	02346 - Middleboro	01982 - South Hamilton
02478 - Belmont	01929 - Essex	01949 - Middleton	02190 - South Weymouth
01915 - Beverly	02149 - Everett	01527 - Millbury	01772 - Southborough
01821 - Billerica	02540 - Falmouth	02054 - Millis	01564 - Sterling
02108 - Boston	02035 - Foxboro	02186 - Milton	02180 - Stoneham
02109 - Boston	01701 - Framingham	01908 - Nahant	02072 - Stoughton
02110 - Boston	01702 - Framingham	02554 - Nantucket	01775 - Stow
02111 - Boston	02038 - Franklin	01760 - Natick	01566 - Sturbridge
02113 - Boston	01833 - Georgetown	02492 - Needham	01776 - Sudbury
02114 - Boston	01930 - Gloucester	02494 - Needham Heights	01590 - Sutton
02115 - Boston	01519 - Grafton	01951 - Newbury	01907 - Swampscott
02116 - Boston	01834 - Groveland	01950 - Newburyport	01876 - Tewksbury
02118 - Boston	02339 - Hanover	02458 - Newton	01983 - Topsfield
02127 - Boston	01731 - Hanscom AFB	02459 - Newton Center	01879 - Tyngsboro
02128 - Boston	02341 - Hanson	02461 - Newton Highlands	01568 - Upton
02163 - Boston	01451 - Harvard	02464 - Newton Upper Falls	01569 - Uxbridge
02199 - Boston	02645 - Harwich	02460 - Newtonville	02568 - Vineyard
Haven 02210 - Boston	01830 - Haverhill	02056 - Norfolk	02468 - Waban
02215 - Boston	01832 - Haverhill	01845 - North Andover	01880 - Wakefield
01719 - Boxborough	01835 - Haverhill	02760 - North Attleboro	02081 - Walpole
01921 - Boxford	02043 - Hingham	01862 - North Billerica	02451 - Waltham
02184 - Braintree	02343 - Holbrook	01863 - North Chelmsford	02452 - Waltham
02631 - Brewster	01520 - Holden	02747 - North Dartmouth	02453 - Waltham
02324 - Bridgewater	01746 - Holliston	02356 - North Easton	02571 - Wareham
02135 - Brighton	01748 - Hopkinton	01864 - North Reading	02472 - Watertown
02301 - Brockton	01749 - Hudson	02191 - North Weymouth	01778 - Wayland
02302 - Brockton	02045 - Hull	01532 - Northborough	02482 - Wellesley
02445 - Brookline	02136 - Hyde Park	02766 - Norton	02481 - Wellesley Hills
02446 - Brookline	01938 - Ipswich	02061 - Norwell	01984 - Wenham
01803 - Burlington	02130 - Jamaica Plain	02062 - Norwood	01583 - West Boylston
02532 - Buzzards Bay	02364 - Kingston	01960 - Peabody	02379 - West Bridgewater
01922 - Byfield	02347 - Lakeville	02359 - Pembroke	01985 - West Newbury
02138 - Cambridge	01841 - Lawrence	02762 - Plainville	02465 - West Newton
02139 - Cambridge	01843 - Lawrence	02360 - Plymouth	02132 - West Roxbury
02140 - Cambridge	01453 - Leominster	02367 - Plympton	01581 - Westborough
02141 - Cambridge	02420 - Lexington	02169 - Quincy	01886 - Westford
02142 - Cambridge	02421 - Lexington	02170 - Quincy	01473 - Westminster
02021 - Canton	01773 - Lincoln	02171 - Quincy	02493 - Weston
01741 - Carlisle	01460 - Littleton	02368 - Randolph	02790 - Westport
02330 - Carver	01850 - Lowell	02767 - Raynham	02090 - Westwood
02129 - Charlestown	01851 - Lowell	01867 - Reading	02188 - Weymouth
02633 - Chatham	01852 - Lowell	02769 - Rehoboth	01588 - Whitinsville
01824 - Chelmsford	01854 - Lowell	02151 - Revere	02382 - Whitman
02150 - Chelsea	01462 - Lunenburg	02370 - Rockland	01887 - Wilmington
02467 - Chestnut Hill	01901 - Lynn	01966 - Rockport	01475 - Winchendon
01510 - Clinton	01902 - Lynn	02131 - Roslindale	01890 - Winchester
02025 - Cohasset	01904 - Lynn	01969 - Rowley	02152 - Winthrop
01742 - Concord	01905 - Lynn	02119 - Roxbury	01801 - Woburn
02635 - Cotuit	01940 - Lynnfield	02120 - Roxbury Crossing	01602 - Worcester
01923 - Danvers	02148 - Malden	01543 - Rutland	02093 - Wrentham

[84] Source: Nielson Segmentation & Market Solutions Pop-Facts Demographics Report. Accessed June 14, 2017. Zip codes represent combined geographic service area as illustrated in Exhibit 3.

Exhibit B – BIDMC Patient Panel

Table 1: BIDMC Inpatient and Outpatient Encounters

Year (FY)	Number of Patient Encounters
2013	1,035,438
2014	1,053,847
2015	1,104,639
2016	1,160,980
2017	1,156,413
2018	1,189,675
2019	1,208,144
Total	**7,909,109**
FY 2017 - FY 2019	**3,554,232**

Table 2: BIDMC Patients by Service Area FY2019

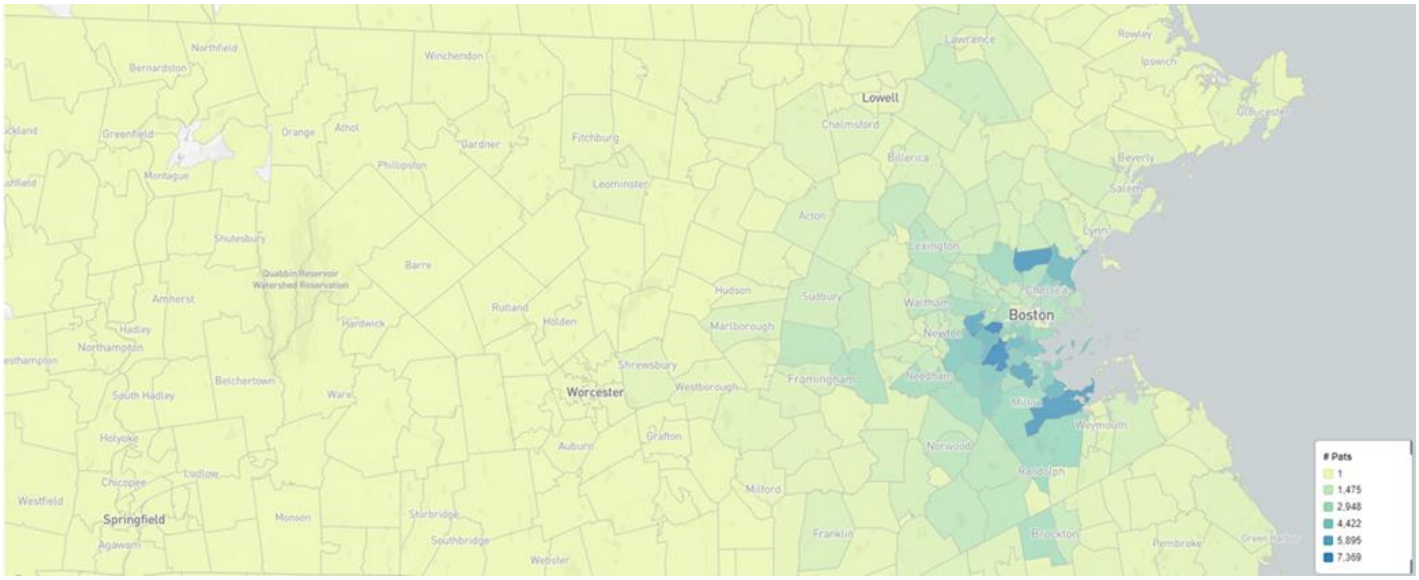


Table 3: BIDMC Community Benefits Service Area (CBSA

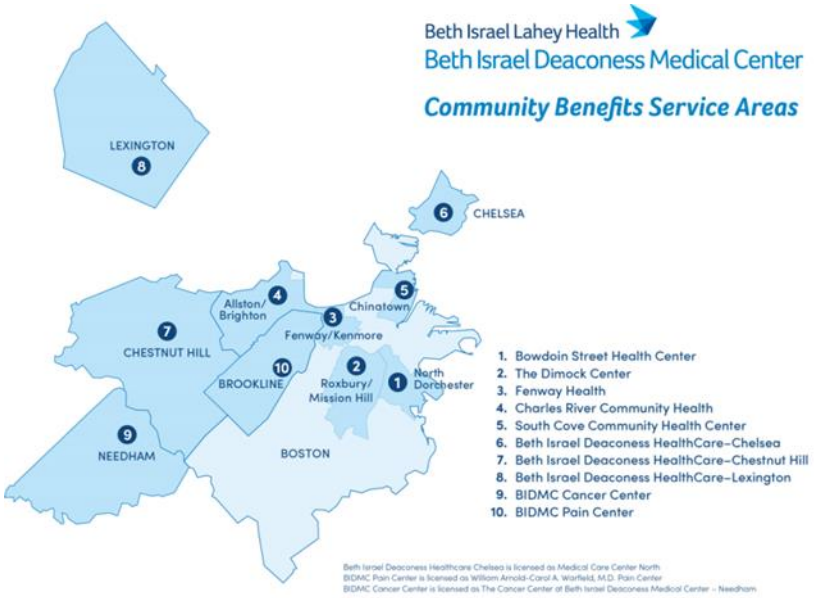


Table 4: Age Distribution of Patient Panel

Age Group	2013	2014	2015	2016	2017	2018	2019	FY 2017-FY 2019
0	2%	2%	2%	2%	2%	2%	2%	2%
1-17	3%	3%	3%	3%	3%	3%	3%	3%
45-64	37%	37%	37%	36%	36%	35%	35%	35%
18-64	74%	73%	72%	71%	70%	69%	69%	70%
65+	22%	23%	24%	24%	25%	26%	27%	26%

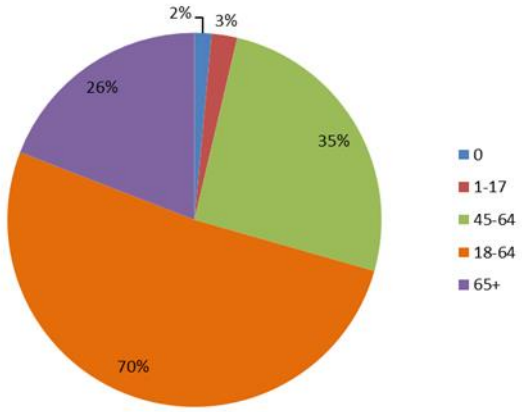


Table 5: Growth in Limited English Proficient (LEP) Inpatient Days

Language							
	Encounters			Total Inpatient LOS			
Language	FY17	FY18	FY19	FY17	FY18	FY19	Look back period increase
LEP Pats	21%	21%	22%	25,265	27,211	28,216	2,951
English Preferred Pats	79%	79%	78%	55,605	58,668	57,667	
Grand Total	100%	100%	100%	80,870	85,879	85,883	

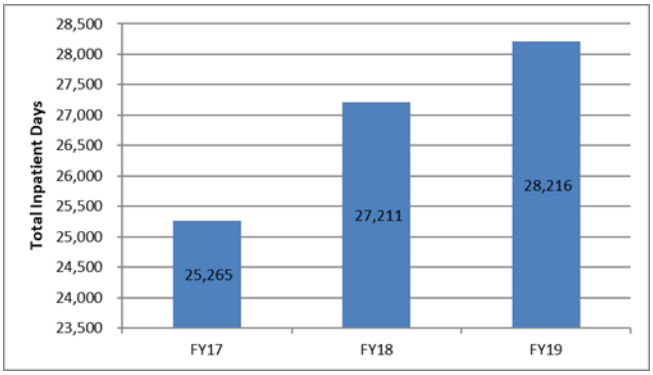


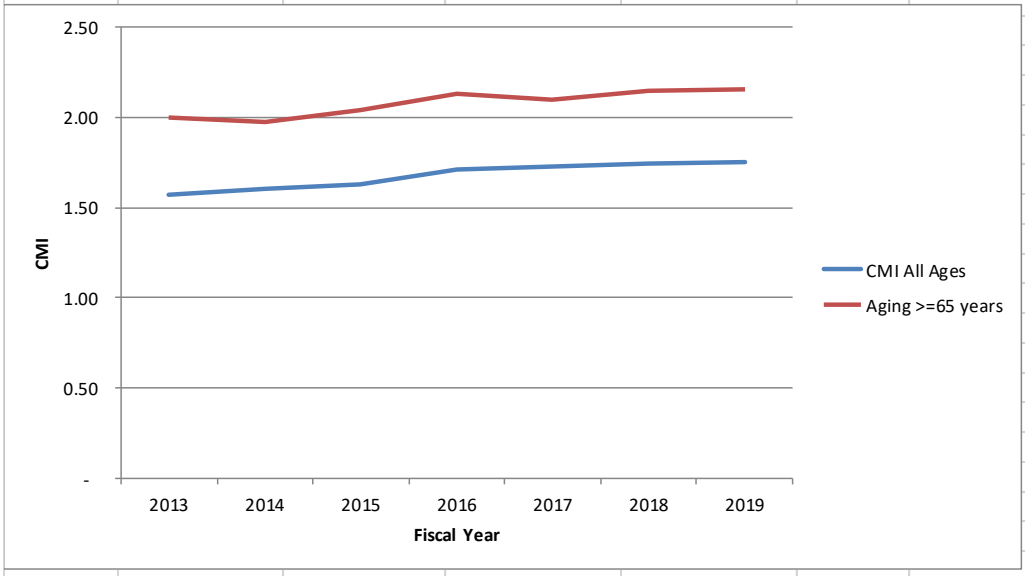
Table 6: BIDMC Payor Mix

Payor Groups	2013	2014	2015	2016	2017	2018	2019	2017-2019
Government MDCR, MDCD, HSN, NH	**49%**	**51%**	**51%**	**53%**	**54%**	**54%**	**54%**	**54%**
Medicare (incl. MC)	**28%**	**29%**	**30%**	**31%**	**32%**	**32%**	**33%**	**32%**
BLUE CROSS SR	1%	1%	1%	1%	1%	1%	1%	1%
HPHC SR	0%	0%	0%	0%	0%	0%	0%	
MED ADV OTH	2%	3%	4%	5%	5%	6%	6%	6%
MEDICARE	24%	24%	24%	24%	24%	24%	23%	24%
TUFTS SR	1%	1%	1%	1%	1%	2%	2%	2%
Medicaid (incl. MC)	**19%**	**20%**	**20%**	**21%**	**22%**	**21%**	**21%**	**21%**
MEDICAID	15%	15%	15%	15%	16%	18%	19%	18%
NEIGHBORHOOD	4%	5%	6%	6%	6%	3%	2%	3%
Uncomp/Indigent	**2%**	**2%**	**1%**	**1%**	**1%**	**1%**	**0%**	**1%**
HEALTH SAFETY NET	2%	2%	1%	1%	1%	1%	0%	1%
Commercial	**46%**	**45%**	**44%**	**44%**	**42%**	**42%**	**41%**	**42%**
BCBS	**21%**	**20%**	**19%**	**19%**	**19%**	**19%**	**19%**	**19%**
HPHC	**15%**	**14%**	**14%**	**14%**	**13%**	**12%**	**12%**	**13%**
Tufts	**7%**	**7%**	**7%**	**6%**	**6%**	**6%**	**5%**	**6%**
Other Commercial	**5%**	**4%**	**4%**	**4%**	**5%**	**5%**	**5%**	**5%**
Other	**4%**	**4%**	**3%**	**3%**	**3%**	**3%**	**3%**	**3%**
Self Pay	**1%**	**1%**	**1%**	**1%**	**1%**	**1%**	**1%**	**1%**

Exhibit C - BIDMC CT Patient Panel

1. BIDMC Care Mix Index ("CMI")

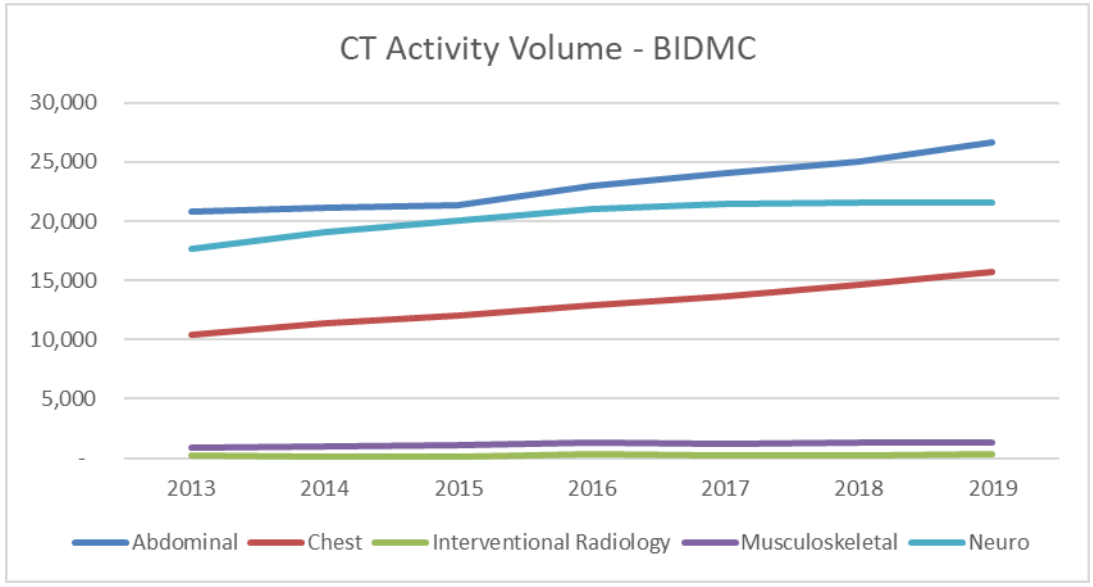
Inpatient							
FY	CMI All Ages	CMI >=65 Years	# Enctrs All Ages	Enctrs >=65 Years	# CT Enctrs All Ages	% CT Enctrs	>=65 Years as % all BIDMC Enctrs
2013	1.57	2.00	35,388	11028			31%
2014	1.60	1.98	37,069	12243	10040	27%	33%
2015	1.62	2.04	39,387	13526			34%
2016	1.71	2.13	40,066	13813			34%
2017	1.73	2.10	40,463	14471	12052	30%	36%
2018	1.74	2.15	40,413	14937			37%
2019	1.75	2.15	40,629	14916	12256	30%	37%
FY19-FY17	0.02	0.05					
FY19-FY17 %	1%	2%					



2. Total CT Service Volume by Radiology Department

Total Radiology Department CT Service Volume - Exams and Procedures - by Fiscal Year

	2013	2014	2015	2016	2017	2018	2019	Lookback 2017-2019
Abdominal	20,783	21,161	21,376	23,002	24,101	24,997	26,704	11%
Chest	10,442	11,338	12,082	12,944	13,610	14,641	15,689	15%
Interventional Radiology	171	142	156	364	209	228	279	33%
Musculoskeletal	917	929	1,058	1,253	1,216	1,322	1,355	11%
Neuro	17,693	19,039	20,091	21,020	21,514	21,530	21,530	0%
All Other	4	6	3	-	2	3	5	150%
Total	50,010	52,615	54,766	58,583	60,652	62,721	65,562	8%
% change		5.2%	4.1%	7.0%	3.5%	3.4%	4.5%	



3. BIDMC Main Campus CT Patient Panel by Age (percentage)

LastOfage_year		2013		2014		2015		2016		2017		2018		2019	
	under 24	1163	**3%**	1105	**3%**	1092	**3%**	1095	**3%**	1106	**3%**	1067	**3%**	1067	**2%**
	25-34	1963	**5%**	1980	**5%**	2112	**5%**	2195	**5%**	2131	**5%**	2081	**5%**	2181	**5%**
	35-44	2412	**6%**	2390	**6%**	2409	**6%**	2427	**6%**	2367	**6%**	2312	**6%**	2495	**6%**
	45-54	3944	**11%**	3882	**10%**	4113	**10%**	3998	**10%**	3841	**9%**	3761	**9%**	3828	**9%**
	55-64	5112	**14%**	5497	**14%**	5388	**13%**	5816	**14%**	5887	**14%**	6071	**14%**	6349	**15%**
	65+	9415	**25%**	10292	**26%**	10795	**27%**	11340	**27%**	11828	**29%**	12407	**30%**	12836	**29%**
	total	37440	**100.00%**	38895	**100%**	39931	**100%**	41307	**100%**	41386	**100%**	41924	**100%**	43609	**0%**
															100%
									growth from Lookback Period				**8.52%**		

4. Inpatient and Outpatient CT Exams and CT - Guided Procedures by Service

Inpatient and Outpatient CT Exams and CT - Guided Procedures by Service - by Fiscal Year

Inpatient Exams

	2013	2014	2015	2016	2017	2018	2019	Lookback 2017-2019
Abdominal	6,948	7,311	7,800	8,865	9,442	9,993	10,609	12%
Chest	2,373	2,619	3,102	3,302	3,526	3,788	3,981	13%
Interventional Radiology	2	2	4	48	14	7	10	-29%
Musculoskeletal	269	260	344	420	403	464	471	17%
Neuro	8,083	9,269	10,039	10,608	11,215	11,100	10,737	-4%
All Other	-	-	-	-	-	-	1	
Total	17,675	19,461	21,289	23,243	24,600	25,352	25,809	5%
% change		10.1%	9.4%	9.2%	5.8%	3.1%	1.8%	

Inpatient Procedures

	2013	2014	2015	2016	2017	2018	2019	Lookback 2017-2019
Abdominal	264	337	383	378	520	601	701	35%
Chest	4	-	1	-	1	-	-	
Interventional Radiology	22	13	19	69	28	33	30	7%

Musculoskeletal	23	39	45	77	62	49	44	-29%
Neuro	-	-	-	-	-	-	-	
All Other	3	4	2	-	1	1	1	0%
Total	316	393	450	524	612	684	776	27%
% change		24.4%	14.5%	16.4%	16.8%	11.8%	13.5%	

Outpatient Exams

	2013	2014	2015	2016	2017	2018	2019	Lookback 2017-2019
Abdominal	13,242	13,163	12,839	13,346	13,617	13,888	14,814	9%
Chest	8,065	8,719	8,979	9,642	10,083	10,853	11,708	16%
Interventional Radiology	4	28	22	69	17	33	60	253%
Musculoskeletal	530	515	538	580	594	653	688	16%
Neuro	9,610	9,770	10,052	10,412	10,299	10,430	10,793	5%
All Other	-	-	-	-	-	-	1	
Total	31,451	32,195	32,430	34,049	34,610	35,857	38,064	10%
% change		2.4%	0.7%	5.0%	1.6%	3.6%	6.2%	

Outpatient Procedures

	2013	2014	2015	2016	2017	2018	2019	Lookback 2017-2019
Abdominal	329	350	354	413	522	515	580	11%
Chest	-	-	-	-	-	-	-	
Interventional Radiology	143	99	111	178	150	155	179	19%
Musculoskeletal	95	115	131	176	157	156	152	-3%
Neuro	-	-	-	-	-	-	-	
All Other	1	2	1	-	1	2	2	100%
Total	568	566	597	767	830	828	913	10%
% change		-0.4%	5.5%	28.5%	8.2%	-0.2%	10.3%	

Total Exams and Procedures

	2013	2014	2015	2016	2017	2018	2019	Lookback 2017-2019
Inpatient Exams	17,675	19,461	21,289	23,243	24,600	25,352	25,809	5%
Outpatient Exams	31,451	32,195	32,430	34,049	34,610	35,857	38,064	10%
total	49,126	51,656	53,719	57,292	59,210	61,209	63,873	8%
Inpatient Procedures	316	393	450	524	612	684	776	27%
Outpatient Procedures	568	566	597	767	830	828	913	10%

total	884	959	1,047	1,291	1,442	1,512	1,689	17%
Total Inpatient Activity	17,991	19,854	21,739	23,767	25,212	26,036	26,585	5%
		10%	9%	9%	6%	3%	2%	
Total Outpatient Activity	32,019	32,761	33,027	34,816	35,440	36,685	38,977	10%
Total Activity	50,010	52,615	54,766	58,583	60,652	62,721	65,562	8%

5. All Activity in CT by IP/OP for patients between 60-79 years of age

inout_cd	2013	2014	2015	2016	2017	2018	2019	6-year chg
I	6936	7874	8969	9825	10818	11488	12049	74%
O	12431	13272	13362	14451	15172	16238	17273	39%
total	**19367**	**21146**	**22331**	**24276**	**25990**	**27726**	**29322**	
IP % change (per year)		14%	14%	10%	10%	6%	5%	
							Total Lookback change	6%

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3. Evidence of Community Engagement for Factor 1

3(a) Community Engagement Committee Meeting Materials (July 2019)

Community Advisory Committee
Goals and Votes

Goals for the meeting:

- Finalize and vote on NIB CHI Priority Areas
- Discuss and vote on NIB CHI sub-priorities
- Begin discussion on funding strategy/allocation

Votes needed for:

- Approval of meeting minutes
- NIB CHI Priorities
- NIB CHI Sub-Priorities

Current Status on the West Campus

Scanner in the ER for emergency exams

- Approximately 2000 exams monthly
- Needs to be immediately available for code stroke, AAA, trauma

Scanner on 3rd floor for inpatient and outpatient use

- Average of 1300 per month
- State of the art scanner for complicated patients

Scanner on the 3rd floor for procedures

- Average of 5 procedures per day
- Average length of procedure 1.5 hours

CT Scanners at capacity

Challenges

ER scanner is at full capacity

- Can not assist with overflow inpatients or outpatients scans
- Wait times are long, additional scanner is needed to decrease wait time for ED patients

Procedure scanner booked 9am-5pm with "add-on" inpatients procedures after hours

- Can not assist with overflow
- procedures for cancer diagnosis scheduled up 10 days away
- procedures for cancer treatment scheduled up 6 weeks away

Disruption to patient care

Problem with ACCESS!

More challenges

Scanner for inpatients and outpatients operating near capacity

- Inpatient flow is unpredictable due to individual patient needs, limits the availability for outpatients.
- Outpatients are being diverted to the other campuses, also operating at capacity. This requires very sick patients to walk 12-15 minutes between MD office and CT scanner

Sick patients need to travel

No back up capabilities

If a scanner goes down, we have to suspend one of the services

Why a new scanner?

Need DON to be submitted

Benefits of additional scanner:

- Less wait time for inpatients
- More availability for outpatients
- Equipment issues would not require suspension of services
- More patients would be able to be scanned in the same building as their MD appointments
- Reduction in wait times for CT-guided procedures
  - Faster diagnosis of cancer
  - Faster cancer treatment

Additional scanner will solve problem of access

Selection of CHI Priorities
Goals and Things To Keep in Mind

Goal tonight: Finalize 4 priorities & narrow sub-priorities to 2-3 per priority

Things to keep in mind:

- Less is more, if we are going to have an impact;
- Keep in mind the ranking criteria;
  (i.e., Burden, Equity, Impact, Feasibility, and Collaboration)
- Make sure that the priorities are aligned with BCCC, BIDMC CHNA, and DPH;
- Keep in mind the MA DPH Framing Questions

3(b) Patient Family Advisory Council Meeting Materials (January 2020)

PATIENT AND FAMILY ADVISORY COUNCIL PRESENTATION

NEW CT SCANNER FOR THE WEST CAMPUS

Presented by BIDMC CT team

Beth Israel Deaconess Medical Center | HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

Why are we here?

Massachusetts Department of Public Health, Determination of Need Process

- **BIDMC is applying to obtain a new CT scanner to serve all patients on the West Campus**
- Massachusetts' currently requires a Determination of Need (DoN) Application Approval for new CT devices
- As part of this DoN process, BIDMC is required to engage with community groups, such as the PFAC, to:
  - Answer questions about the device and use; and
  - Seek your input and support of the Proposed Project.

CT Overview

What is a CT?

- Computed Tomography (CT) is a **diagnostic tool** that combines x-rays with state of the art computer technology to produce "cross-sectional" images of the body
- CT-guided imaging is also used for **procedures** to treat cancer and other conditions
- BIDMC uses the **latest imaging techniques and equipment** to produce precise, quality images which are an indispensable for planning of the medical treatment.

Current arsenal of CT scanners across both BIDMC campuses:

2 on East

2 on Shapiro (outpatients)

3 in Rosenberg

Primary Scanner Uses on the West Campus

Scanner in the ER for **emergency exams**

- Approximately 2000 exams monthly
- Needs to be *immediately* available for code stroke, aortic rupture, trauma

Scanner on 3rd floor for **inpatient and outpatient** use

- Average of 1300 per month
- State of the art scanner for complex medical conditions

Scanner on the 3rd floor for **procedures**

- Average of 5 procedures per day
- Average length of procedure 1.5 hours

CT Scanners at capacity

Challenges

ER scanner is at full capacity

- Can not assist with overflow inpatients or outpatients scans
- Wait times are long, additional scanner is needed to decrease wait time for ER patients
- **Average wait time from order to exam in ER is 2.5 hours**

Procedure scanner booked 9am-5pm with “add-on” inpatients procedures after hours

- 3rd floor scanners are used for ER overflow
- **procedures for cancer diagnosis scheduled up to 15 days away, longer than some other locations in Boston**

Limits Access to Patients

More challenges

Scanner for inpatients and outpatients operating near capacity

- Inpatient flow is unpredictable due to individual patient needs, limiting the availability for outpatients.
- Outpatients seeing their provider on the West Campus are sometimes being diverted to the East Campus, which is also operating at capacity. This may require **patients who are ill to transfer between campuses, by relocating their car, walking or taking a shuttle.**

If a scanner goes down, we have to suspend one of the services

Inconvenient Diversions

No back up capabilities

Why a new scanner?

Benefits of additional scanner:

- **Less wait time** for inpatients – reducing delay of care and length of hospital stay
- Less wait time for CT-guided procedures
  - **Faster diagnosis of cancer**
  - **Faster cancer treatment**
- More patients would be able to be scanned in the same building as their MD appointments
- More availability for outpatients
- Equipment issues would not require suspension of services

Additional scanner will solve problem of access

QUESTIONS

- In your opinion as a patient:

What is a reasonable time frame for how quickly a CT scan or procedure should be scheduled, once the BIDMC Radiology Department has received a patient's appointment request?

Beth Israel Deaconess Medical Center | HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

4. Community Health Initiative Materials

4a. FY2019 CHNA Report Summary and Table of Contents

COMMUNITY HEALTH NEEDS ASSESSMENT

Beth Israel Lahey Health

Beth Israel Deaconess Medical Center

2019

Executive Summary

Background, Purpose, and Approach

Beth Israel Deaconess Medical Center (BIDMC) is one of the nation's preeminent academic medical centers and is nationally recognized for its world-class clinical expertise, education and research. BIDMC is part of the newly formed Beth Israel Lahey Health (BILH) - a system of academic medical centers, teaching hospitals, community hospitals, and specialty hospitals that employ more than 4,000 physicians and 35,000 staff members combined. BIDMC is one of BILH's premier institutions with 673 licensed beds and over 1,200 active physicians. BIDMC is also a Level 1 trauma center with a full range of medical/surgical, critical care, OB/GYN, and emergency services, and an extensive network of primary care and outpatient specialty care practices. BIDMC prides itself on its ability to combine exceptional and compassionate patient care with advanced medical knowledge, research, and technology in ways that allow it to achieve the best outcomes for its patients.

In addition to its commitment to clinical excellence, BIDMC is committed to being an active partner and collaborator with the communities it serves. This Community Health Needs Assessment (CHNA) and the associated Implementation Strategy (IS) were completed in close collaboration with BIDMC's staff, dozens of health and social service partners, and the community at-large. In their entirety, the assessment efforts engaged thousands of community residents, as well as a wide range of other stakeholders, including service providers, community advocates, Commonwealth and local public officials, faith leaders, and representatives from community-based organizations. The process that was applied to conduct the CHNA and develop the IS exemplifies the spirit of collaboration and community engagement that is such a vital part of BIDMC's mission.

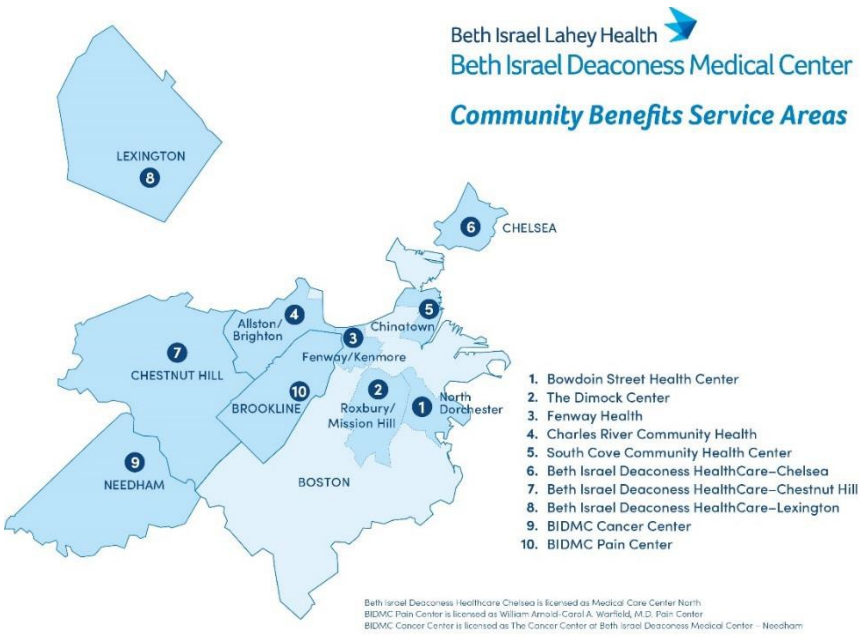
This report is an integral part of BIDMC's population health and community engagement efforts. It provides information that is used to make sure that BIDMC's services and programs are appropriately focused, are delivered in ways that are responsive to those in its Community Benefits Service Area (CBSA), and are conducted to address unmet community needs. This assessment and the associated prioritization and planning processes also allow BIDMC to strengthen its community partnerships. Finally, the CHNA and the IS allow BIDMC to meet its Commonwealth and Federal Community Benefits requirements per the Massachusetts Attorney General's Office (MA AGO) and the Federal Internal Revenue Service (IRS) as part of the Affordable Care Act.

Community Benefits Service Area & Community Benefits Priorities

In addition to the Medical Center in the Longwood area of Boston, BIDMC operates licensed multi-specialty outpatient facilities in Chelsea, Lexington, and Chestnut Hill, as well as a cancer center in Needham and a pain center in Brookline. BIDMC also operates a licensed health center in Bowdoin/Geneva and has strong, long-standing partnerships with an additional four Boston Federally Qualified Health Centers (See Figure Below) within its Community Benefits Service Area (CBSA).

The communities in which these facilities operate define BIDMC's CBSA and all of the communities listed above were included in the assessment. In recognition of the considerable health disparities that exist in some communities, BIDMC focuses the bulk of its community benefits resources on improving the health status of low income and underserved populations living in the city of Chelsea and the Boston

Figure 1: BIDMC Community Benefits Service Area (CBSA)



neighborhoods of Allston/Brighton, Bowdoin/Geneva, Chinatown, Fenway/Kenmore, and Roxbury/Mission Hill. While there are certainly segments of the populations in Brookline, Chestnut Hill, Lexington, and Needham that are vulnerable and underserved, the greatest disparities exist in Chelsea and Boston. In order to maximize the impact of its community benefits resources, BIDMC's Community Benefits Committee (CBC) voted to prioritize and focus BIDMC's attention on the more urban, high-need communities in BIDMC's CBSA.

The population segments and community health priorities that have been prioritized by the CHNA, as well as the core elements of BIDMC's community health improvement response are discussed in summary below, and in greater detail in the full CHNA report.

Approach and Methods

In conducting this assessment and planning process, it would be difficult to overstate BIDMC's commitment to community engagement and a robust, collaborative, transparent, and objective process. Rather than one-single assessment, BIDMC's Community Benefits staff dedicated countless hours of their time and other resources to participate in and gather information from a series of three concurrent and comprehensive assessments that were conducted by organizations or collectives of organizations throughout Boston and Chelsea. BIDMC also integrated the extensive community engagement and strategic planning work that BIDMC is conducting as part of its Massachusetts Determination of Need New Inpatient Building Community-based Health Initiative (CHI). Involvement in these four efforts allowed BIDMC to leverage resources and create a robust and inclusive CHNA and IS process.

In October of 2019, BIDMC hired John Snow, Inc. (JSI), a public health consulting firm based in Boston, to integrate the information gathered across these concurrent assessments and augment the information gathered where appropriate. BIDMC worked with JSI to ensure that the final BIDMC CHNA engaged the necessary community constituents, incorporated comprehensive quantitative and qualitative information across its entire CBSA, and fulfilled Commonwealth and Federal Community Benefits requirements. A more detailed summary of the approach and methods that were applied across all

segments of BIDMC's CHNA is included in the full body of this report. More extensive information is available in Appendix A.

Key Health-Related Findings

This section summarizes the key health-related findings that were identified after a comprehensive review of all the quantitative and qualitative information that was collected across all of BIDMC's assessment efforts.

Social Determinants and Health

- **Social Determinants of Health (e.g., economic stability, education, and community/social context) Continue to Have a Massive Impact on Many Segments of the Population.** The dominant theme from the assessment's key informant interviews, survey, focus groups and community forums was the continued impact that the underlying social determinants of health are having on the CBSA's low income, underserved, diverse population cohorts. More specifically, determinants such as poverty, employment opportunities, housing, violence, transportation, racial segregation, literacy, provider linguistic/cultural competency, social support, and community integration limit many people's ability to care for their own and/or their families' health.

- **Disparities in Health Outcomes Exist in BIDMC's CBSA by Race/Ethnicity, Foreign Born Status, Income, and Language:** There are major health disparities for residents living in BIDMC's CBSA. This is particularly true for racially/ethnically diverse, foreign born, low income, and non-English speaking residents living in Chelsea and the Boston neighborhoods of Allston/Brighton, Bowdoin/Geneva, Chinatown, Fenway/Kenmore, and Roxbury/Mission Hill. The impact of racism, barriers to care, and disparities in health outcomes that these populations face are widely documented in the literature and confirmed by the data captured across all of BIDMC CHNA components.

  It is crucial that these disparities be addressed and, to this end, BIDMC's Implementation Strategy (IS) continues to include a myriad of programs, strategic interventions, and services that are carefully targeted to address these disparities. However, it is critical to note that there is a multitude of individual, community and societal factors that work together to create these inequities. The underlying issue is not only race/ethnicity, racism, income, or language but rather a broad array of interrelated social issues including economic opportunity, education, crime, transportation, and community cohesion.

Chronic / Complex Conditions and their Risk Factors

- **High Rates of Chronic and Acute Physical Health Conditions (e.g., heart disease, hypertension, cancer, and asthma).** The assessment's quantitative data clearly shows that many communities in BIDMC's CBSA have high rates for many of the leading physical health conditions (e.g., heart disease, hypertension, cancer, and asthma). In many communities, these rates are statistically higher than Commonwealth rates, indicating a particularly significant problem. However, even for those communities where the rates are not statistically higher, these conditions are still the leading causes of premature death.

- **Limited Access to Cancer Screening for Racial/Ethnic Diversity and Other At-risk Populations.** Many of the communities that are part of BIDMC's CBSA have high cancer mortality rates. This is particularly true for certain cancers in specific communities in specific Boston neighborhoods, such as Roxbury, Dorchester, and Chinatown that have a high proportion of racial/ethnic diversity. At the root of addressing high mortality is screening, early detection and access to timely treatment.

- **High Rates of the Leading Health Risk Factors (e.g., Lack of Nutritional Food and Physical Activity, Alcohol/Illicit Drug Use, and Tobacco Use).** One of the leading findings from the assessment is that many communities and/or population segments in BIDMC's CBSA have high rates of chronic physical and behavioral health conditions. In some people, these conditions have underlying genetic roots that are hard to counter. However, for most people these conditions are widely considered preventable or manageable. Addressing the leading risk factors is at the root of a sound chronic disease prevention and management strategy.

Access to Care

- **Limited Access to Primary Care Medical, Medical Specialty, Behavioral Health, and Oral Health Care Services for Low Income, Foreign Born, those covered by Medicaid, Uninsured, and Other Vulnerable Populations Facing Health Care Disparities and Barriers to Care.** Despite the fact that 1) Massachusetts has one of highest rates of health insurance and 2) the communities that make up BIDMC's CBSA have strong, robust safety net systems, there are still substantial numbers of low income, Medicaid covered, uninsured, and otherwise vulnerable individuals who face health disparities and are not engaged in essential medical, behavioral, and oral health services. Efforts need to be made to expand access, reduce barriers to care, and improve the quality of primary care medical, medical specialty, behavioral health, and oral health services.

- **Barriers to Access and Disparities in Health Outcomes Continue to Challenge Three Special Populations (Infants/Mothers/Fathers, Frail Older Adults, and Lesbian, Gay, Bi-sexual, Transgender, and Queer (LGBTQ) Populations.** Based on information gathered primarily from the interviews and community forums, the assessment identified a number of special populations that face barriers to care and disparities in access. More specifically, infants/mothers/fathers, frail older adults, and the lesbian, gay, bi-sexual, transgender, and queer (LGBTQ) populations face disparities in access and outcome and are particularly at-risk. If these disparities are going to be addressed then care needs to be taken to tailor identification/screening and preventive services as well as acute and chronic disease management services for these special populations.

Mental Health and Substance Use

- **High Rates of Substance Use (e.g., Alcohol, Prescription Drug/Opioids, Marijuana) and Mental Health Issues (e.g., Depression, Anxiety, and Stress).** The impact of social determinants was the lead finding, but a close second was the profound impact of behavioral health issues (i.e., substance use and mental health) on individuals, families and communities in every geographic region and every population segment in BIDMC's CBSA. Depression/anxiety, suicide, alcohol use, opioid and prescription drug use, and marijuana use are major health issues and are having a significant impact

on the population as well as a burden on the service system. The fact that physical and behavioral health are so intertwined compounds the impact of these issues. Of particular concern are the increasing rates of opioid use and the impacts of trauma.

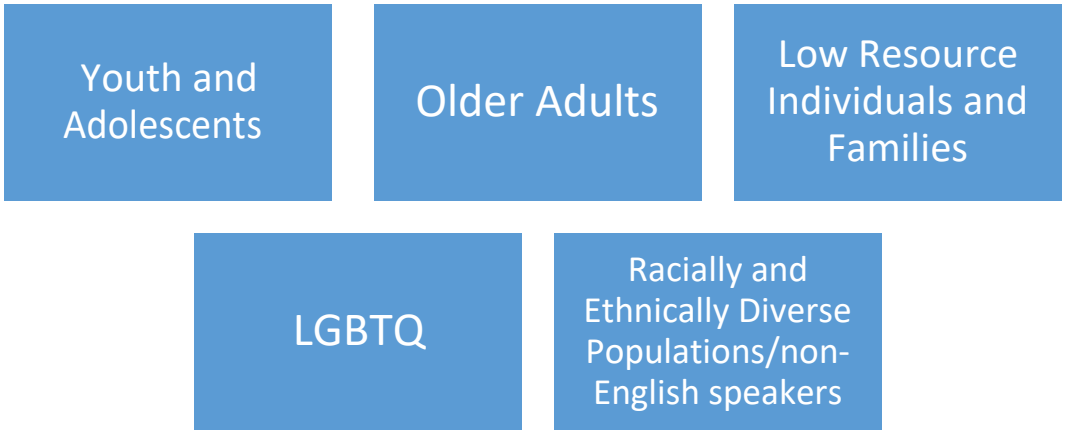
- **Limited Access to Behavioral Health Services, Particularly for Low Income, Medicaid Covered, Uninsured, Foreign Born, Non-English speakers, and those with Complex/Multi-faceted Issues.** Despite the burden of mental health and substance use on all segments of the population, there is an extremely limited service system available to meet the needs that exist for those with mild to moderate episodic issues or those with more serious and complex, chronic conditions. Efforts need to be made to expand access, reduce barriers to care (including stigma), and improve the quality of primary care and specialized behavioral health services.

Priority Populations

BIDMC is committed to improving the health status and well-being of all residents living throughout its CBSA. However, in recognition of the considerable health disparities that exist in some communities, BIDMC focuses the bulk of its community benefits resources on improving the health status of low income and underserved populations living in the city of Chelsea and the Boston neighborhoods of Allston/Brighton, Bowdoin/Geneva, Chinatown, Fenway/Kenmore, and Roxbury/Mission Hill. While there are certainly segments of the populations in Brookline, Chestnut Hill, Lexington, and Needham that are vulnerable and underserved, the greatest disparities exist in Chelsea and Boston. In order to maximize the impact of its community benefits resources, BIDMC's CBC voted to prioritize and focus BIDMC's attention on the more urban, high-need communities in BIDMC's CBSA.

Based on the findings from the breadth of BIDMC's assessment activities, further efforts were made to prioritize certain population segments by race/ethnicity, socio-economic status, and other factors. More specifically, the CBC and the Community Benefits Senior Leadership Team (CBSLT) voted to prioritize youth and adolescents, older adults, low-resource individuals and families, LGBTQ populations, racially/ethnically diverse populations, and limited-English speakers.

BIDMC Priority Populations 2020-2022



Community Health Priorities

BIDMC's CHNA is a population-based assessment. The goal was to engage the community and compile quantitative and qualitative information to identify the leading health-related issues affecting individuals throughout the CBSA, including social determinants of health, service gaps, and barriers to care. The priorities that have been identified have been framed broadly to ensure that the full breadth of unmet needs and community health issues are recognized. These priorities were identified through an integrated and thorough review of all of the quantitative and qualitative information captured across all of the components of BIDMC's CHNA. The priorities have been identified to maximize impact, reduce disparities, and promote collaboration and cross-sector partnership.

During the later stages of the CHNA process, significant efforts were made to vet the priority issues with leadership and the community-at large, through meetings with the CBC and the CBSLT. Based on the findings from the breadth of BIDMC's CHNA activities, the CBC and the CBSLT voted to prioritize: 1) Social determinants of health, 2) Chronic/complex conditions and their risk factors, 3) Access to care, and 4) Mental health and substance use.

BIDMC Priority Areas 2020-2022

It is important to note that there are community health needs that were identified by BIDMC's assessment that, due to the limited burden that these issues present and/or the feasibility of having an impact in the short- or long-term on these issues, were not prioritized for investment. Namely, transportation and education were identified as community needs but these issues were deemed by the CBC and the CBSLT to be outside of BIDMC's primary sphere of influence and have opted to allow others

in its CBSA, the Greater Boston region, and the Commonwealth to focus on these issues. This is not to say that BIDMC will not support efforts in these areas. BIDMC remains open and willing to work with hospitals across Beth Israel Lahey Health's network, with COBTH, and other public and private partners to address these issues, particularly as part of a broad, strong collaborative.

The community health priorities that have been prioritized by the CHNA in the figure above are described in detail below. The goals, objectives and strategic intentions on which BIDMC will focus are included in BIDMC's Implementation Strategy in Appendix F.

Summary Implementation Strategy

The following outlines BIDMC's goals for addressing the priority populations and community health priorities identified above.

Priority Area 1: Social Determinants of Health
Goal 1: Increase Physical Activity and Healthy Eating
Goal 2: Promote Violence Prevention (Safe Neighborhoods and Community Cohesion)
Goal 3: Promote Affordable Housing
Goal 4: Promote Home Ownership
Goal 5: Support Workforce Development and Creation of Employment Opportunities
Goal 6: Promote Environmental Sustainability
Priority Area 2: Chronic/Complex Conditions and their Risk Factors
Goal 1: Improve Chronic Disease Management
Goal 2: Reduce Cancer Disparities (access to screening and treatment)
Goal 3: Support Older Adults to Age in Place
Priority Area 3: Access to Care
Goal 1: Increase Access to Quality Medical Services, Including Primary Care, OB/GYN, and Specialty Care, as well as Urgent, Emergent, and Trauma Care
Goal 2: Increase Access to Quality Oral Health Services
Goal 3: Promote Equitable Care and Support for those who face cultural and linguistic barriers
Goal 4: Promote Greater Health Equity and Reduce Disparities in Access for LGBTQ Populations
Priority Area 4: Behavioral Health (Mental Health and Substance Use)
Goal 1: Increase Access to Quality Mental Health Care and Substance Use Services
Goal 2: Reduce burden of opioid use

Acknowledgements

This report is the culmination of nearly a year of work, involving thousands of community residents, service providers, community advocates, Commonwealth and local public officials, and staff throughout BIDMC, its affiliates, and its community partners. While it was not possible for the assessment to involve all residents and community stakeholders, there were enormous efforts made to ensure that all segments of the community had the opportunity to participate, particularly those that are hard-to-reach and often left out of these types of assessments. BIDMC, including the BIDMC CBC who oversaw this entire process, would like to extend its sincere appreciation to everyone who invested their time, effort, and expertise to ensure the development of the Medical Center's Community Health Needs Assessment (CHNA) and its Community Health Implementation Strategy (IS).

BIDMC would like to extend its special thanks to the Steering Committee of the Boston Community Health Needs Assessment (CHNA)-Community Health Improvement Plan (CHIP) Collaborative (Boston CHNA-CHIP Collaborative). This collaborative of Boston Area teaching hospitals and medical centers, community health centers, the Boston Public Health Commission, community based organizations and residents hired Health Resources in Action (HRiA) to support this effort. HRiA spent countless hours working with Boston CHNA-CHIP Collaborative to create a robust, inclusive, collaborative assessment that involves all of the leading public health, community health, and health care organizations in the City of Boston. In particular, thanks are due to Monica Valdes Lupi, Executive Director of the Boston Public Health Commission, and her staff for providing data, time, and other resources. Per Commonwealth and Federal requirements, local health departments need to be involved in CHNA activities and the Boston Public Health Commission more than fulfilled this requirement. Special thanks are also due to the North Suffolk Integrated Community Health Needs Assessment (iCHNA) initiative for their support and their contributions to this assessment.

BIDMC's Community Advisory Committee (CAC) also supported this assessment. The CAC is made up of community members, service providers, and other key stakeholders that either live in or work in Chelsea and/or the neighborhoods in Boston that are part of the CBSA. The CAC was initially constituted to oversee BIDMC's New Inpatient Building Community-based Health Initiative, and because of their expertise and specific knowledge of Boston they assisted with community engagement and provided valuable insight related to community need. It should also be noted that the assessment was greatly informed and supported by staff and clinicians at the community health centers who are part of BIDMC's Community Care Alliance (CCA). These health centers are a major part of Boston's health care safety net and do excellent work on behalf of some of Boston's most underserved populations. The administrative and clinical staff from the health centers provided a great amount of information on community need and helped BIDMC to engage community residents.

Finally, BIDMC's Community Benefits Staff and Senior Leadership would like to acknowledge the great work, support, and commitment of the BIDMC CBC. The CBC oversaw every aspect of the needs assessment across all facets. BIDMC owes a tremendous debt of gratitude to every member of the CBC.

Over the years, the BIDMC CBC membership has provided their expertise and invested hundreds of hours of their time to engage the community, align BIDMC's efforts with community need, and ensure the strength and impact of the Medical Center's Community Benefits Program. The work of the CBC has ultimately strengthened the BIDMC's connections with the people and the communities it serves. It is also abundantly clear that the Community Health Needs Assessment Report provided below, along with the associated Implementation Strategy, would not be as strong were it not for the CBC's commitment and the contributions of all of its members.

Beth Israel Deaconess Medical Center Community Benefits Committee 2019

Phyllis Barajas, Committee Co-Chair
Pamela Scott, Committee Co-Chair
Carol F. Anderson, Chair, Board of Directors
Arese Carrington, MD,
Elizabeth Cheng
Helen Chin Schlichte
Jose de la Rosa
Stephen Denny
Thomas DeSimone
Matthew E. Epstein
Lee Ann Fatalo
Joan Feinberg Berns, PhD
Peter Healy, President, BIDMC
Paula Ivey Henry, PhD
Nancy Kasen, Community Benefits, BIDMC
Jamie Katz, Chief General Counsel, BIDMC
Edward Ladd
Vivien Li
Femi Obi
April Tang
Fred Wang
Tracey West

Beth Israel Deaconess Medical Center Community Advisory Committee 2019

Elizabeth Browne
Tina Chery
Lauren Gabovitch, Social Work, BIDMC
Richard Giordano
Sarah Hamilton
Nancy Kasen, Community Benefits, BIDMC
Barry Keppard
Phillomin Laptiste
Theresa Lee
Tish McMullin, Government Affairs, BIDMC
Holly Oh
Alex Oliver-Davila
Joanne Pokaski, Workforce & Community Relations, BIDMC
Jane Powers
Luis Prado
Edna Rivera-Carrasco
Richard Rouse
Jerry Rubin
LaShonda Walker-Robinson, Social Work, BIDMC
Fred Wang

Beth Israel Deaconess Medical Center Community Benefits Senior Leadership Team 2019

Joanne Devine, BIDMC Psychiatric Clinical Nurse Specialist, BIDMC Psychiatry and Addictions Team
Shari Gold-Gomez, Director, BIDMC Interpreter Services
Peter Healy, President, BIDMC
Nancy Kasen, Director, BIDMC Community Benefits
Lisa LaChance, Director, BIDMC Center for Violence Prevention and Recovery
Phillomin Laptiste, Executive Director, Bowdoin Street Health Center
Marsha Maurer, DNP, RN, Senior Vice President BIDMC Patient Care Services
Patricia B. McMullin, JD, Director, BIDMC Government Affairs and Special Counsel
Kelina Orlando, Executive Director, BIDMC Ambulatory Operations
Joanne Pokaski, Senior Director BIDMC Workforce Development & Community Relations
Barbara Sarnoff Lee, LICSW, BIDMC, Senior Director, Social Work and Patient/Family Engagement
Anthony Weiss, MD, BIDMC Chief Medical Officer
Richard E. Wolfe, MD, Chief, BIDMC Department of Emergency Medicine

Acronyms

ACA	Affordable Care Act
BBRFSS	Boston Behavioral Risk Factor Surveillance Survey
BIDMC	Beth Israel Deaconess Medical Center
BILH	Beth Israel Lahey Health
CAC	Community Advisory Committee
CBC	Community Benefits Committee
CBSA	Community Benefits Service Area
CBSLT	Community Benefits Senior Leadership Team
CHIA	Center for Health Information and Analysis
CHI	Community Health Initiative
CHNA	Community Health Needs Assessment
DoN	Determination of Need
FBI	Federal Bureau of Investigation
HRiA	Health Resources in Action
HMOs	Health Maintenance Organizations
iCHNA	North Suffolk Integrated Community Health Needs Assessment
IRS	Internal Revenue Service
IS	Implementation Strategy
JSI	John Snow, Inc.
LEP	Limited English Proficiency
LGBTQ	Lesbian, Gay, Bisexual, Transgender, Queer/Questioning
MassCHIP	Massachusetts Community Health Information Profile
MDPH	Massachusetts Department of Public Health
MHPC	Massachusetts Health Policy Commission
CHI	New Inpatient Building-Community-based Health Initiative
PHIT	Population Health Information Tool
SNAP	Supplemental Nutrition Assistance Program
YRBS	Youth Risk Behavioral Survey

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4b. DoN Self -Assessment

Massachusetts Department of Public Health
Determination of Need
Community Health Initiative
CHNA / CHIP Self Assessment

Version: 8-1-17

This self-assessment form is to understand the Community Engagement process that has led/ will lead to the identification of priorities for community health planning processes. It is being used to demonstrate to DPH that an existing community health planning process adequately meets DPH standards for community engagement specific to Determination of Need, Community Health Initiative purposes.

This form will provide the basic elements that the Department will use to determine if additional community engagement activities will be required. When submitting this form to DPH, please also submit your IRS Form 990 and Schedule H CHNA/CHIP and/or current CHNA/ CHIP that was submitted to the Massachusetts Attorney General's Office. Additionally, the Applicant is responsible for ensuring that the Department receives Stakeholder-Assessments from the stakeholders involved in the CHNA / CHIP process.

All questions in the form, unless otherwise stated, must be completed.

Approximate DoN Application Date: 04/09/2021 DoN Application Type: DoN-Required Equipment

What CHI Tier is the project? (•) Tier 1 ( ) Tier 2 ( ) Tier 3

1. DoN Applicant Information

Applicant Name: Beth Israel Lahey Health, Inc.

Mailing Address: 330 Brookline Avenue

City: Boston State: Massachusetts Zip Code: 02215

2. Community Engagement Contact Person

Contact Person: Robert Torres Title: Director of Community Benefits

Mailing Address: 330 Brookline Avenue

City: Boston State: Massachusetts Zip Code: 02215

Phone: 6176677311 Ext: E-mail: robert.torres@bilh.org

3. About the Community Engagement Process

Please indicate what community engagement process (e.g. the name of the CHNA/CHIP) the following form relates to. This will be use as a point of reference for the following questions and does not need to be a fully completed CHNA or implemented CHIP.
(please limit the name to the following field length as this will be used throughout this form):

2019 BIDMC CHNA/IS and CHI

4. Associated Community Health Needs Assessments

In addition to the above engagement process, please list Community Health Needs Assessments and/or Community Health Improvement Planning Processes, if any that the Applicant been involved with in the past 5 years (i.e. CHNA/CHIP processes not led by the Applicant bur where the Applicant was involved?

(Please see page 22 of the Community-Based Health Initiative Guidelines for reference http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf)

Add/ Del Rows	Lead Organization Name / CHNA/CHIP Name	Years of Collaboration	Name of Lead Organizer	Phone Number	Email Address of Lead Organizer
+ -	Boston Community Health Needs Assessment	3	Nancy Kasen & Carl Sciortino	6176672602	nancy.kasen@bilh.org & csciortino@fenwayhealth.org
+ -	North Suffolk Integrated Community Health Needs Assessment	3	Leslie Aldrich	6176435288	laldrich@mgh.harvard.edu
+ -					

Save Print form

5. CHNA Analysis Coverage

Within the 2019 BIDMC CHNA/IS and CHI , please describe how the following DPH Focus Issues were analyzed DoN Health Priorities and Focus Issues (please provide summary information including types of data used and references to where in the submitted CHNA/CHIP documents these issues are discussed):

5.1 Built Environment

See Supplemental Information

5.2 Education

See Supplemental Information

5.3 Employment

See Supplemental Information

5.4 Housing

See Supplemental Information

5.5 Social Environment

See Supplemental Information

5.6 Violence and Trauma

See Supplemental Information

5.7 The following specific focus issues

a. Substance Use Disorder

See Supplemental Information

b. Mental Illness and Mental Health

See Supplemental Information

c. Housing Stability / Homelessness

See Supplemental Information

d. Chronic Disease with a focus on Cancer, Heart Disease, and Diabetes

See Supplemental Information

6. Community Definition

Specify the community(ies) identified in the Applicant's 2019 BIDMC CHNA/IS and CHI

Add/Del Rows	Municipality	If engagement occurs in specific neighborhoods, please list those specific neighborhoods:
+ -	Boston	Allston/Brighton, Bowdoin/Geneva, Chinatown, Fenway/Kenmore, Mission Hill and Roxbury
+ -	Chelsea	

7. Local Health Departments

Please identify the local health departments that were included in your 2019 BIDMC CHNA/IS and CHI . Indicate which of these local health departments were engaged in this 2019 BIDMC CHNA/IS and CHI . For example, this could mean participation on an advisory committee, included in key informant interviewing, etc. (*Please see page 24 in the Communit further description of this requirement* http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf.)

Add/ Del Rows	Municipality	Name of Local Health Dept	Name of Primary Contact	*Email address*	Describe how the health department was involved
+ -	Boston	Boston Public Health Commission	Edna Rivera-Carrassco	ercarrasco@bphc.org	Edna Rivera-Carrasco represented the Boston Public Health Commission on BIDMC's Community Advisory Committee which participated in the 2019 BIDMC CHNA.
+ -	Chelsea	City of Chelsea, Department of Health and Human Services	Luis Prado	lprado@chelseama.gov	Luis Prado represented the City of Chelsea's Department of Health and Human Services on BIDMC's Community Advisory Committee which participated in the 2019 BIDMC CHNA.

8. CHNA / CHIP Advisory Committee

Please list the community partners involved in the CHNA/CHIP Advisory Committee that guided the 2019 BIDMC CHNA/IS and CHI . (please see the required list of sectorial representation in the *Community Engagement Standards for Community Health Planning Guidelines* http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf) Please note that these individuals are those who should complete the *Stakeholder Engagement Assessment* form. It is the responsibility of the Applicant to ensure that DPH receives the completed *Stakeholder Engagement Assessment* form:

Add/Del Rows	Sector Type	Organization Name	Name of Primary Contact	Title in Organization	Email Address	Phone Number
	Municipal Staff	Boston Public Health Commission	Edna Rivera-Carrasco	Associate Director of Health Equity	ercarrasco@bphc.org	6175343142
	Education	Jewish Vocational Services	Jerry Rubin	Chief Executive Officer	jrubin@jvs-boston.org	6173993138
	Housing	Fenway Community Development Corporation	Richard Giordano	Director of Policy and Community Planning	rgiordano@fenwaycdc.org	6172674637
	Social Services	Louis D. Brown Peace Institute	Tina Chery	Founder and President	tina@ldbpeaceinstitute.org	6178251917
	Planning + Transportation	Medical Academic & Scientific Community Organization (MASCO)	Sarah Hamilton	Vice President of Area Planning and Development	shamilton@masco.harvard.edu	6176322776
	Private Sector/ Business	Mission Hill Main Streets	Richard Rouse	Advisory Board Member	mainstreetrouse@gmail.com	6178402409
	Community Health Center	The Dimock Center	Dr. Holly Oh	Chief Medical Officer	hoh@dimock.org	6174428800
	Community Based Organizations	Sociedad Latina	Alex Oliver-Davila	Executive Director	alex@sociedadlatina.org	6174424299

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Add/Del Rows	Sector Type	Organization Name	Name of Primary Contact	Title in Organization	Email Address	Phone Number
+ -	Community health centers	Bowdoin Street Health Center	Phillomin Laptiste	Executive Director	plaptist@bidmc.harvard.edu	6177540200
+ -	Regional Planning and Transportation agencies	Metropolitan Area Planning Council	Barry Keppard	Public Health Director	bkeppard@mapc.org	6179330750
+ -	Local Public Health Departments/Boards of Health	City of Chelsea	Luis Prado	Director, Health and Human Services, City of Chelsea	lprado@chelseama.gov	6174664090
+ -	Community health centers	Fenway Health	Jane Powers	Chief of Staff	JPowers@fenwayhealth.org	8573136523
+ -	Community health centers	Charles River Community Health	Elizabeth Browne	Executive Director	ebrowne@charlesriverhealth.org	6172081511
+ -						

8a. Community Health Initiative

For Tier 2 and Tier 3 CHI Projects, is the the Applicant's CHNA / CHIP Advisory Board the same body that will serve as the CHI advisory committee as outlined in the Table 1 of the Determination of Need Community-Based Health Initiative Guideline (http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-chi-planning.pdf)?

(•) Yes ( ) No

Save Print form

9. Engaging the Community At Large

Thinking about the extent to which the community has been or currently is involved in the 2019 BIDMC CHNA/IS and CHI , please choose one response for each engagement activity below. Please also check the box to the left to indicate whether that step is complete or not. (For definitions of each step, please see pages 12-14 in the *Community Engagement Standards for Community Health Planning Guidelines* http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf).

	Inform	Consult	Involve	Collaborate	Delegate	Community - Driven / -Led
☒ Assess Needs and Resources	○	○	○	●	○	○
Please describe the engagement process employed during the "Assess Needs and Resources" phase.	See 2019 BIDMC CHNA/CHIP Narrative					
☒ Focus on What's Important	○	○	○	○	●	○
Please describe the engagement process employed during the "Focus on What's Important" phase.	See 2019 BIDMC CHNA/CHIP Narrative					
☒ Choose Effective Policies and Programs	○	○	○	●	○	○
Please describe the engagement process employed during the "Choose Effective Policies and Programs" phase.	See 2019 BIDMC CHNA/CHIP Narrative					
☒ Act on What's Important	○	○	○	●	○	○
Please describe the engagement process employed during the "Act on What's Important" phase.	See 2019 BIDMC CHNA/CHIP Narrative					
☒ Evaluate Actions	○	○	●	○	○	○
Please describe the engagement process employed during the "Evaluate Actions" phase.	See 2019 BIDMC CHNA/CHIP Narrative					

10. Representativeness

Approximately, how many community agencies are currently involved in 2019 BIDMC CHNA/IS and CHI within the engagement of the community at large?

300 Agencies

Approximately, how many people were engaged in the process (please include team members from all relevant agencies and independent community members from the community at large)?

5,000 Individuals

Please describe the diversity of the people who have been engaged in the process both within the CHNA/CHIP Advisory Committee and the community at large. Explicitly describe how the process included diverse representation from different groups/individuals with varied gender, sexual orientation, race/ethnicity, disability status, international status and age. Please see page 10 and Appendix A of *the Community Engagement Standards for Community Health Planning Guideline* (http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf) for further explanation of this.

See Supplemental Information

Please describe the type of representation that was/is employed in the community engagement process and the rationale for that type of representation. For more information on types of representation and representativeness, please see Appendix A from the *Community Engagement Standards for Community Health Planning Guidelines* (http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf). Please include descriptions of both the Advisory Board and the Community at large.

See Supplemental Information

To your best estimate, of the people engaged in 2019 BIDMC CHNA/IS and CHI approximately how many: Please indicate the number of individuals.

Number of people who reside in rural area	0
Number of people who reside in urban area	5,000
Number of people who reside in suburban area	0

11. Resource and Power Sharing

For more information on Power Sharing, please see Appendix A from the *Community Engagement Standards for Community Health Planning Guidelines* (http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf).

By community partners, we mean agencies, organizations, tribal community, health departments, or other entities representing communities.

By Applicant partners, we mean the hospital / health care system applying for the approval of a DoN project

	Community Partners	Applicant Partners	Both	Don't Know	Not Applicable
Which partner hires personnel to support the community engagement activities?	○	●	○	○	○
Who decides the strategic direction of the engagement process?	○	○	●	○	○
Who decides how the financial resources to facilitate the engagement process are shared?	○	●	○	○	○
Who decides which health outcomes will be measured to inform the process?	○	○	●	○	○

12. Transparency

Please describe the efforts being made to ensure that the engagement process is transparent. For more information on transparency, please see Appendix A from the *Community Engagement Standards for Community Health Planning Guidelines*.

See Supplemental Information

13. Formal Agreements

Does / did the 2019 BIDMC CHNA/IS and CHI have written formal agreements such as a Memorandum of Agreement/ Understanding (MOU) or Agency Resolution?

● Yes, there are written formal agreements ○ No, there are no written formal agreements

Did decision making through the engagement process involve a verbal agreement between partners?

○ Yes, there are verbal agreements ● No, there are no verbal agreements

Save Print form

14. Formal Agreement Specifics

Thinking about your MOU or other formal agreement(s), does it include any provisions or language about:

	Yes	No	Don't Know	Doesn't Apply
Distribution of funds	●	○	○	○
Written Objectives	●	○	○	○
Clear Expectations for Partners' Roles	●	○	○	○
Clear Decision Making Process (e.g. Consensus vs. Voting	●	○	○	○
Conflict resolution	●	○	○	○
Conflict of Interest Paperwork	●	○	○	○

15. Document Ready for Filing

When the document is complete click on "document is ready to file". This will lock in the responses and date and time stamp the form. To make changes to the document un-check the "document is ready to file" box. Edit document then lock file and submit Keep a copy for your records. Click on the "Save" button at the bottom of the page.

To submit the application electronically, click on the"E-mail submission to DPH" button.

This document is ready to file: ☐ Date/time Stamp:

E-mail submission to DPH

E-mail submission to Stakeholders and CHI Advisory Board

When providing the Stakeholder Assessment Forms to the community advisory board members(individuals identified in Section 8 of this form), please include the following information in your correspondence with them. This will aid in their ability to complete the form:

A) Community Engagement Process: 2019 BIDMC CHNA/IS and CHI

B) Applicant: Beth Israel Lahey Health, Inc.

C) A link to the DoN CHI Stakeholder Assessment

4c. DoN Self-Assessment Supplemental Information

Beth Israel Lahey Health

DoN Application Number: #BILH-19092415-RE

DON-Required Equipment

Beth Israel Deaconess Medical Center, Inc. (BIDMC)

Massachusetts Department of Public Health
Determination of Need
Community Health Initiative
CHNA / CHIP Self-Assessment

Supplemental Information

BIDMC Supplemental Information to the CHNA/CHIP Self-Assessment Form

This narrative is to supplement information contained in the *Community Health Initiative (CHI) CHNA/CHIP Self-Assessment Form*.

1. **DoN Applicant Information – See Self-Assessment Form**
2. **Community Engagement Contact Person - See Self-Assessment Form**
3. **About the Community Engagement Process - See Self-Assessment Form**
4. **Associated Community Health Needs Assessments - See Self-Assessment Form**
5. **CHNA Analysis Coverage**

Within the 2019 CHNA/Implementation Strategy and CHI, please describe how the following DPH Health Priorities and Focus Issues were analyzed (please provide summary information including types of data used and references to where in the submitted CHNA/CHIP documents these issues are discussed).

Introduction

In Fiscal Year 2019 Beth Israel Deaconess Medical Center (BIDMC) funded, conducted, and collaborated on a series of three concurrent and comprehensive Community Health Needs Assessments (CHNAs) with organizations and public health departments in Boston and Chelsea: (i) the Boston CHNA-CHIP Collaborative 2019 Community Health Needs Assessment (Boston Collaborative CHNA), (ii) the BIDMC 2019 Community Health Needs Assessment (BIDMC CHNA), and the (iii) North Suffolk 2019 Integrated Community Health Needs Assessment (North Suffolk iCHNA). BIDMC's Community Benefits Committee was actively engaged in and oversaw these efforts.

BIDMC also integrated into its CHNA additional community engagement and strategic planning work that BIDMC conducted as part of its Massachusetts Determination of Need (DoN) New Inpatient Building (NIB) Community-based Health Initiative (CHI). BIDMC's NIB CHI Community Advisory Committee (Advisory Committee)[1] actively engaged with residents and community stakeholders to assess and prioritize areas for funding.

The BIDMC CHNA synthesizes and includes the results from all four of these concurrent community health needs assessment efforts. These efforts engaged thousands of community residents, as well as a wide range of other stakeholders, including service providers, community advocates, Commonwealth and local public officials, faith leaders, and representatives from community-based organizations. The report, which includes the Boston Collaborative CHNA as Appendix H and the North Suffolk iCHNA as Appendix I, can be found on the BIMDC Community Benefits website.

Community Benefits Service Area (CBSA)

BIDMC operates the medical center, and multispecialty outpatient facilities in Chelsea, Lexington, and Chestnut Hill, as well as a cancer center in Needham and a pain center in Brookline. BIDMC also operates a licensed health center in Bowdoin/Geneva and has strong, long-standing partnerships with four Boston Federally Qualified Health Centers within its Community Benefits Service Area (CBSA).

[1] As of January 2020, the Advisory Committee is now known as the Community Benefits Advisory Committee (CBAC). The CBAC is the body that will oversee current and future CHNA cycles and Community-based Health Initiatives. It includes all the representatives of the Advisory Committee and additional members to increase representativeness and comply with Attorney General Office guidelines.

The communities in which these facilities operate define BIDMC's CBSA and all of these communities were included in the assessment. In recognition of the considerable health disparities that exist in some communities, BIDMC's Community Benefits Committee[2] chose to prioritize and focus BIDMC's Community Benefits resources and attention on the more urban, high-need communities of Chelsea and Boston (Boston neighborhoods of Allston/Brighton, Bowdoin/Geneva, Chinatown, Fenway/Kenmore, Roxbury, and Mission Hill).

5.1 Built Environment

The built environment is mentioned 36 times throughout the BIDMC CHNA; key highlights can be found on pages 51 and 52 of the BIDMC CHNA, Appendix H pages vi-vii, 69-74, and 205-207 of the BIDMC CHNA, and on Appendix I pages 13, 18-19, and 33-34 of the BIDMC CHNA.

BIDMC relied on numerous primary and secondary data sources to analyze the built environment health priority. Data sources included the Boston Behavioral Risk Factor Surveillance Survey (BBRFSS), Journal of Urban Health, American Journal of Public Health, U.S. Census American Community Survey (ACS), and the Massachusetts Center for Health Information and Analysis. Please see Appendix H, page 280 of the BIDMC CHNA for more technical notes about the most frequently cited datasets.

Through the CHNA process, BIDMC analyzed the built environment and found that over 15% of land in Boston is comprised of green space, including parks, playgrounds, athletic fields, parkways, reservations, and beaches. Boston received a walk score of 81, which designates it as "very walkable." Despite these statistics, participants in focus groups and key informant interviews expressed concerns about differences in the built environment across neighborhoods. In Allston/Brighton, Chinatown, and Dorchester, residents reported insufficient green space, attributable to an increase in new housing developments. Participants in Dorchester and Chinatown also expressed concerns around snow removal, lack of public restrooms, and pest control (BIDMC CHNA, pg. 51).

BIDMC found that across the city, residents were concerned about noise pollution, pollution from vehicles, and traffic. Air pollution and air quality was a particular concern raised for residents in Chinatown due to the proximity to highways and transportation hubs. Data from the BBRFSS shows Boston residents of color and those of lower socioeconomic status experienced significantly higher rates of secondhand smoke exposure compared to Boston residents overall. Key informant interviewees were also concerned about the impacts of climate change, including extreme heat and rising sea levels, and the potential impacts on health (BIDMC CHNA, pg. 51).

An analysis of the 2016 Health of Boston Report found that individuals may also be exposed to environmental hazards in their homes. The report found that the Environmental and Occupational Health Division of the Boston Public Health Commission responded to requests for inspections for a number of potential health hazards in private homes, workplaces, and outdoor spaces. From 2012-2016, over 400 hazards and/or violations were identified due to mold. Most hazards and violations were in Dorchester (02121, 02125, 02122, and 02125) and Roxbury (BIDMC CHNA, pg. 51).

[2] The Community Benefits Committee was sunset as of September 2019. The functions of the Community Benefits Committee were transferred to the Advisory Committee (now known as the Community Benefits Advisory Committee or CBAC). See footnote 1 regarding the CBAC.

In Chelsea, environmental health was the fifth leading health concern amongst residents who took the North Suffolk CHNA Community Survey. Within this category, trash/litter and outdoor air quality were the most significant concerns (BIDMC CHNA, pg. 52).

5.2 Education

Overall, education is mentioned 311 times throughout the BIDMC CHNA; key highlights can be found on pages 37-39 of the BIDMC CHNA, Appendix H pages xvii, 23 -29, 234, 301-303 of the BIDMC CHNA, and on Appendix I pages 30-33 of the BIDMC CHNA.

BIDMC relied on numerous primary and secondary data sources to analyze the education health priority. Data sources included community surveys, *Population Health: Behavioral and Social Science Insights*, ACS, and the Massachusetts Department of Elementary and Secondary Education. Please see Appendix H, page 280 of the BIDMC CHNA for more technical notes about the most frequently cited datasets.

Higher levels of education are associated with improved health outcomes and social development at the individual and community levels. Approximately half of adults in Boston (48.2%) ages 25 years old and older have a college degree or higher; this is significantly higher compared to the Commonwealth overall (BIDMC CHNA, pg. 37). Despite this, there are significant differences in educational attainment by neighborhood and by race/ethnicity.

- Approximately 70% of White, non-Hispanic/Latino residents have a college degree, compared to approximately 20% of Black/African American, non-Hispanic/Latinos and Hispanic/Latino residents. Nearly 60% of Asian, non-Hispanic/Latino residents hold a college degree (US Census data).
- Only 4% of White, non-Hispanic/Latino residents do not have a high school diploma. 26.1% of Hispanic/Latino adult residents do not have a high school diploma.

Among neighborhoods in BIDMC's CBSA, Roxbury, Dorchester, and the South End (including Chinatown) have significantly higher percentages of residents without a high school diploma compared to Boston overall (BIDMC CHNA, pg. 38).

In Boston, education was viewed as a key component of a healthy community (45% of survey respondents reported access to good education as an important factor that defines a healthy community). While statistics indicate that Boston is a well-educated city, there are substantial inequities across racial and ethnic groups. A higher proportion of White and Asian adults have college degrees or more (70% and 57%, respectively), as compared to one in five Black and Latino adults. It was noted that current school-age children have multiple needs that affect their educational achievement. Comments shared in focus groups and interviews from Boston Public Schools show that over three-quarters of students are deemed high needs (76%), defined as either being low income, economically disadvantaged, being a current or former English Language Learner, or having a disability (BIDMC CHNA Appendix H, pg. iii).

In Chelsea, educational attainment percentages were significantly lower compared to the Commonwealth across nearly all levels. Over one-fifth (22%) of residents did not attend high school, and 33% had less than a high school diploma. Looking at higher levels of educational attainment, 12% had a college degree or higher compared to 48.2% in Boston (BIDMC CHNA Appendix I, pg. 31; BIDMC CHNA Appendix H, pg. 24).

5.3 Employment

Overall, employment is mentioned 167 times throughout the BIDMC CHNA and key highlights can be found on pages 40-43 of the BIDMC CHNA, Appendix H pages iii, 29-34, 234, 238 and 303 of the BIDMC CHNA, and in Appendix I page 46 of the BIDMC CHNA.

BIDMC relied on numerous primary and secondary data sources to analyze the employment health priority. Data sources included the U.S. Bureau of Labor Statistics, Boston Planning and Development Agency, ACS, and *From Equality and Equity: Advancing the LGBT Community in Massachusetts: A Special Report of Boston Indicators and the Fenway Institute*. Please see Appendix H, page 280 of the BIDMC CHNA for more technical notes about the most frequently cited datasets.

Employment was a common theme throughout the BIDMC CHNA process that emerged throughout interviews, focus groups, surveys, and key informant interviews. Lack of gainful and reliable employment is linked to several barriers to care, including lack of health insurance, inability to pay for health care services and copays, and inability to pay for transportation (BIDMC CHNA, pg. 40).

Findings from the BIDMC CHNA, drawing from US Census Bureau data, showed that 7.3% of Boston residents were unemployed in 2013-2017 (pg. 40). However, when looking at unemployment data by neighborhood and by race/ethnicity, unemployment rates were significantly higher in several Boston neighborhoods, including Dorchester, Roxbury, and Fenway compared to Boston overall.

Participants in Boston focus groups shared that immigrants, individuals with limited education, and those with a criminal record were more likely to struggle with employment issues. Participants shared a number of issues that impeded people's ability to get a job, including educational requirements, mandatory background checks, and difficulties navigating web-based job applications. While the unemployment rate was low in Boston overall, many individuals reported underemployment, wanting higher pay, or low job satisfaction.

LGBTQ individuals in BIDMC's Community Benefits Service Area experience high levels of discrimination in the workplace, which has negative effects on wages, job opportunities, productivity, job satisfaction, and health (BIDMC CHNA, pg. 41).

In Chelsea, the percentage of the population that was unemployed was similar to the Commonwealth overall (5.5%) in 2013-2017 (BIDMC CHNA, pg. 41).

5.4 Housing

Overall, housing is mentioned 603 times throughout the BIDMC CHNA. Key highlights can be found on pages 43-45 of the BIDMC CHNA, Appendix H pages vi, 52-64, and 314 of the BIDMC CHNA, and in Appendix I page 20 and page 46 of the BIDMC CHNA.

BIDMC relied on numerous primary and secondary data sources to analyze the housing health priority. Data sources included the Massachusetts Commission Against Discrimination (MCAD), ACS, U.S. Department of Housing and Urban Development Continuums of Care, Social Needs Screening Data from Partners Health Care and Boston Medical Center, Eviction Lab, and community surveys. Please see Appendix H, page 280 of the BIDMC CHNA for more technical notes about the most frequently cited datasets.

Lack of affordable housing and poor housing conditions contribute to a wide range of health issues, including respiratory diseases, lead poisoning, infectious disease and poor mental health (BIDMC CHNA, pg. 43).

The majority of housing units across Boston are renter occupied (65%), and renter households spend an average of $1,445 per month on housing. More than half of those in renter-occupied units are housing cost-burdened, meaning they spend more than 30% of their income on housing. Additional pressures include gentrification, long wait lists for housing assistance, overcrowding, poor housing quality, and for some, housing discrimination.

High and rising costs of housing in Boston was a main theme in the BIDMC CHNA. These perceptions are mirrored in the statistics: from 2011 to 2016, median single-family house prices increased by 48% in Boston overall, according to the U.S. Census American Community Survey (BIDMC CHNA Appendix H, pg. v).

In Chelsea, survey respondents to the North Suffolk CHNA Community Survey ranked housing as the second top health concern in the community. When the survey was administered in 2015, housing was not identified in the top five health concerns (BIDMC CHNA, pg. 44).

Almost half (47%) of households in Chelsea were burdened by housing costs compared to 37% in the Commonwealth overall. Percentages were slightly higher among renter households (49%) compared to owner occupied households (42%). Rent burdens are reported by neighborhood in Figure 15 (pg. 43) in the BIDMC CHNA.

5.5 Social Environment

Overall, the social environment is mentioned fifteen times throughout the BIDMC CHNA. Key highlights can be found in Appendix H pages vi-vii, 74-86, and 323 of the BIDMC CHNA, and in Appendix I page 12, pages 38-40, and Appendix D of the BIDMC CHNA.

BIDMC relied on numerous primary and secondary data sources to analyze the social environment health priority. Data sources included the ACS, North Suffolk CHNA Community Survey, and the Boston Collaborative CHNA Community Survey. Please see Appendix H, page 280 of the BIDMC CHNA for more technical notes about the most frequently cited datasets.

Focus group and interview participants in Boston identified examples of strong social networks in Boston, citing cohesion across different immigrant groups and among others who share similar racial, cultural, linguistic and religious backgrounds (BIDMC CHNA Appendix H, pg. 75). Two-thirds of Boston survey respondents believed that people in their neighborhoods help each other and three-quarters perceived that residents want the same thing for their neighborhoods. Survey respondents also indicated strong civic engagement, as evidenced by high levels of self-reported involvement in community organizations and voting. At the same time, focus group participants mentioned a decline in community social ties, brought on by lack of time and generational differences. Gentrification has also changed the atmosphere of some neighborhoods, specifically Roxbury and Dorchester. Subtle and overt discrimination is an issue in Boston, particularly for immigrants and non-English speakers, LGBTQ residents, and older residents and youth, substance users, and the homeless.

Neighborhoods in Boston were described as being "tight-knit" with substantial cultural diversity and strong faith communities. Sixty-eight percent of survey respondents in Boston identified racial and cultural diversity as a top strength of their community. Activism and resiliency are other notable characteristics of Boston residents. Community survey respondents identified proximity to medical services as one of the top strengths of their communities, with 69% of respondents identifying this as a top strength. Other assets include services and supports for students at Boston Public Schools, and positive strides in the city for LGBTQ residents, including within the school system through Gay Straight Alliances. The social services network in Boston was also perceived to be large, strong, and collaborative, although some suggested more could be done to enhance cooperation across institutions and reduce duplication (BIDMC CHNA Appendix H, pgs. 82-83).

5.6 Violence and Trauma

Overall, violence and trauma is mentioned thirty-six times throughout the BIDMC CHNA and key highlights can be found on pages 48-51 of the BIDMC CHNA, Appendix H pages xii, 172-190, and 374 of the BIDMC CHNA, and in Appendix I (page 43 and Appendix D) of the BIDMC CHNA.

BIDMC relied on numerous primary and secondary data sources to analyze the violence and trauma health priority. Data sources included the BBRFSS, Boston CHNA Community Survey, North Suffolk CHNA Community Survey, Massachusetts Center for Health Information and Analysis, Massachusetts Department of Public Health, and Boston Police Department. Please see Appendix H, page 280 of the BIDMC CHNA for more technical notes about the most frequently cited datasets.

Violence and trauma are important public health issues affecting physical and mental health and were frequent concerns reported by focus group and interview participants in Boston. Many focus group participants expressed concern about personal safety in their communities, noting that they saw communities of color and children as being disproportionately affected (BIDMC CHNA Appendix H, pg. 172).

Similarly, one quarter of Boston survey respondents described their neighborhoods as unsafe or extremely unsafe; Black and Latino respondents were more likely than other respondents to describe their communities this way (40% and 37%, respectively) (BIDMC CHNA Appendix H, pg. 176). Intimate partner violence was also mentioned in focus groups and interviews, with women of color and non-English speaking immigrants identified as particularly vulnerable populations. Populations varied with respect to their experience of violence overall. The BBRFSS identified that respondents who identified as female, 35-49 years of age, 50-65 years of age, residents of the Boston Housing Authority, renters or tenants receiving housing assistance, and LGBTQ-identified respondents were significantly more likely than their counterparts to report experiencing violence in their lifetime (BIDMC CHNA Appendix H, pg. 173).

Exposure of children and youth to unhealthy relationships and violence (adverse childhood experiences) is also of concern: nearly one in five Boston adults (19%) reported experiencing at least one adverse childhood experience such as living with a caregiver with mental health concerns or who was a problem drinker, having parents who were physical violent towards each other, or living with a caregiver who had been in prison. Focus group and interview participants noted that trauma from community violence, poverty, and, more recently, fear of deportation and family separation, are growing issues of concern among Boston residents (BIDMC CHNA Appendix H, pgs. 172-173, 182).

5.7 EOHHS Focus Issues

a. *Substance Use Disorder*

Overall, "substance use" is mentioned 151 times throughout the BIDMC CHNA; key highlights can be found on pages 69-70 of the BIDMC CHNA, Appendix H pages xii and 151-168 of the BIDMC CHNA, and Appendix I pages 19-23 and Appendix D of the BIDMC CHNA.

BIDMC relied on numerous primary and secondary data sources to analyze the substance use disorder focus issue. Data sources included Massachusetts Department of Public Health Bureau of Substance Addiction Services, Massachusetts Center for Health Information and Analysis, BBRFSS, Youth Risk Behavior Survey, and Massachusetts Department of Public Health Boston Resident Death and Substance Use Services data. Please see Appendix H, page 280 of the BIDMC CHNA for more technical notes about the most frequently cited datasets.

Substance use was identified as a critical community health concern. As with mental health services, there are a number of community partners working to fill service gaps and address the needs of both individuals and the at-large community. BIDMC's CHNA found some individuals may face delays or barriers to care due to limited providers and specialists, limited treatment beds and social determinants that impede access (e.g., insurance coverage, transportation, employment, linguistic capacity, health literacy) (BIDMC CHNA, pg. 69).

Participants in activities for the Boston Collaborative CHNA identified substance use as a priority health issue; marijuana, prescription drugs, and opioids were the most concerning substances identified.

The impacts of the opioid epidemic on individuals, families, and communities was a key theme of focus groups and interviews. Focus group participants in Chinatown and Roxbury spoke about the health and safety hazards of drug paraphernalia on the streets, especially for youth and adolescents. In Boston there were differences in prevalence of use and health outcomes by population groups (BIDMC CHNA, pg. 69). For example, LGBTQ adults and youth were more likely to use tobacco, e-cigarettes, marijuana, alcohol, and prescription drugs compared to heterosexual and cisgender adults and youth.

Boston focus group participants and key informants were particularly concerned about issues of substance use pertaining to youth. Some individuals reported that the overprescribing and diagnoses of mental and behavioral health issues enabled addictive behaviors among youth by contributing to overmedication. Participants also suggested that behavioral health issues might stem from undiagnosed mental health issues and trauma (BIDMC CHNA, pg. 70).

In Chelsea, substance use, including opioids, alcohol use, marijuana, and tobacco/e-cigarettes, was also a significant area of concern. Treatment statistics from the Massachusetts Bureau of Substance Abuse Services (BSAS) showed the percentage of individuals from Chelsea who were admitted for the treatment of drug and alcohol use increased between 2008 and 2018, from 29% to 32%. Among respondents to the North Suffolk CHNA Community Survey, 12% reported that they have needed substance use services, but were unable to access them (BIDMC CHNA, pg. 70; BIDMC CHNA Appendix I, pg. 75).

b. Mental Illness and Mental Health

Overall, the term mental health appears 425 times across the BIDMC CHNA. Examples of key findings pertaining to mental health can be found on pages 4 and 66-67 of BIDMC's CHNA, in Appendix H pages xi, 139-151 and 358-363 of the BIDMC CHNA, and in Appendix I pages 40-41 of the BIDMC CHNA.

In analyzing mental health, secondary data were from a variety of sources, including the BBRFSS, Youth Risk Behavior Survey, ACS, vital records, Acute Hospital Case Mix Database from the Center for Health Information and Analysis, and the Boston Public Schools Student Climate Survey. Please see Appendix H, page 280 of the BIDMC CHNA for more technical notes about the most frequently cited datasets. Mental health—including depression, anxiety, stress, serious mental illness and other conditions—was identified as one of the leading health issue for residents of BIDMC's CBSA. Mental health was discussed in nearly all focus groups and interviews and was identified as a priority health issue among Boston residents. Stress, anxiety, and depression were specifically identified as issues and conditions of concern. Many participants discussed the interrelatedness of these and other mental health issues with trauma and poverty.

Overall, approximately one in five Boston adults reported that they felt persistent anxiety, and one in eight reported that they felt persistent sadness. While mental health affects all segments of the population, disparities in prevalence and intensity of issues were identified for specific neighborhoods, age groups, racial/ethnic segments, socioeconomic cohorts, and other groups. A prominent theme was a concern for mental health issues among youth and adolescents (BIDMC CHNA, pg. 66).

Mental health outcomes varied by population. For example, a higher percentage of females, Hispanic/Latinos, lower income individuals, young people, LGBTQ, and unemployed residents reported feeling persistent anxiety compared to other groups. In addition, age-adjusted suicide rates were highest amongst White, non-Hispanic/Latino residents, men, and individuals ages 45-64 (BIDMC CHNA, pg. 66).

Mental health, specifically for youth and adolescents, was also a primary concern in Chelsea. In Chelsea, 28% of middle school students and 38% of high school students reported feeling sad or hopeless for more than two weeks in a row, and 20% of middle school students and 13% of high school students reported having seriously considered suicide. All four of these data points are higher than percentages in Massachusetts overall (BIDMC CHNA, pg. 67).

c. Housing Stability / Homelessness

Overall, homeless/ness is mentioned 164 times across the BIDMC CHNA. Key findings pertaining to homelessness are found in pages 43-45 of the BIDMC CHNA, Appendix H pages 61-63 of the BIDMC CHNA, and pages 18-19 of Exhibit I of the BIDMC CHNA.

In analyzing housing instability and homelessness, secondary data were from a variety of sources, including the U.S. Department of Housing and Urban Development Continuums of Care, Massachusetts Department of Elementary and Secondary Education, and Community Action Programs Inter-City Point

in Time Count. Please see Appendix H, page 280 of the BIDMC CHNA for more technical notes about the most frequently cited datasets.

In 2018, there were an estimated 6,188 residents that were counted as homelessness or housing unstable in Boston. These data may not account for residents who are temporarily without a permanent address and are staying with friends or in their car. Among those identified, the majority of homeless residents were staying in emergency shelters (5,427 individuals), followed by transitional shelters (598 individuals), and unsheltered housing (163 individuals). Among the homeless population, 45.1% identified as Black, 36.1% as White, and 17.0% as two or more races. More than 35% identified as Latino (any race) (BIDMC CHNA Appendix H, pg. 61).

In addition to those with mental illness or substance use, key informants who participated in the Boston Collaborative CHNA also named the following population groups as vulnerable to being homeless: LGBTQ youth and seniors; immigrants; those with criminal records; and single mothers. Of these groups, LGBTQ youth were identified as being especially vulnerable to becoming homeless, particularly for those who identify as transgender or non-binary. While homelessness was described as impacting many different populations, the experience of trauma was a reported commonality among them (BIDMC CHNA Appendix H, pg. 62).

d. Chronic Disease with a Focus on Cancer, Heart Disease, and Diabetes

Overall, chronic disease, cancer, heart disease, and diabetes are collectively mentioned 583 times throughout the BIDMC CHNA. Key findings pertaining to chronic disease are found on pages 114-138 of the BIDMC CHNA and Appendix H pages 58-66 of the BIDMC CHNA.

In analyzing chronic disease prevalence and disparities, secondary data were from a variety of sources, including the Boston Public Health Commission, Massachusetts Department of Public Health Registry of Vital Records and Statistics, Massachusetts Cancer Registry, Massachusetts Center for Health Information and Analysis, and BBRFSS. Please see Appendix H, page 280 of the BIDMC CHNA for more technical notes about the most frequently cited datasets.

Although chronic diseases are among the most common and costly health problems, they are also among the most preventable through changes in behavior such as reduced use of tobacco and alcohol and improved diet and physical activity. The impact of chronic diseases and their risk factors—especially diabetes, obesity, and pediatric asthma—emerged as a priority concern among residents. Residents of color, as well as residents who live in Roxbury and Dorchester are disproportionately affected by chronic diseases. Assessment participants frequently discussed a number of social determinants that presented challenges to the prevention and management of these chronic conditions, such as poverty, high housing costs, a lack of affordable recreational programming, and lack of access to nutritious food (BIDMC CHNA Appendix H, pg. 114).

Cancer: Quantitative data around cancer mortality from the Massachusetts Department of Public Health show that the overall cancer mortality rate in Boston was 160.0 per 100,000 residents. Rates of cancer mortality differed, however, across different subgroups. Across racial/ethnic groups, Black residents experienced significantly higher rates of cancer mortality (181.9 deaths per 100,000 residents) compared to White residents. Females (138.5 per 100,000) in Boston had significantly lower cancer mortality rates than males (192.5 per 100,000). Black residents experienced significantly higher

mortality rates for prostate cancer (49.8 deaths per 100,000 residents) when compared to White residents (19.1 deaths per 100,000 residents) (BIDMC CHNA Appendix H, pgs. 131-132).

Heart Disease: In 2013-2017, 25% of Boston adults reported being diagnosed with hypertension, one of the most significant risk factors for heart disease and stroke. There were significant differences in reported prevalence across specific conditions and neighborhoods. For instance, a significantly higher percentage of residents in Roxbury (30%) and Dorchester (30%) reported having been diagnosed with hypertension compared to Boston overall (25%). Heart disease hospitalization rates were significantly higher in Roxbury (79.5 per 100,000), Dorchester (114.0 and 116.8 per 100,000), and the South End (including Chinatown) (106.5 per 100,000) compared to Boston overall (97.6 per 100,000 residents). The heart disease mortality rate was significantly higher in Roxbury (158.8 per 100,000) and significantly lower in Fenway (96.5 per 100,000) and the South End (including Chinatown) (101.4 per 100,000) compared to Boston overall (131.4 per 100,000). The rate of cardiovascular hospital admissions was higher in Chelsea (1807.5 per 100,000 residents) compared to the Commonwealth overall (1,563.0 per 100,000 residents) (BIDMC CHNA, pgs. 58-59).

Diabetes: Among Boston focus group and interview participants, diabetes was frequently mentioned as a community concern that impacts both adults and children. While the prevalence of reported diabetes across Boston was 9% in 2013-2017, there were significant differences in the distribution of diabetes across the population (BIDMC CHNA Appendix H, pg. 114). Compared to their counterparts, a significantly higher proportion of adults who identified as Black (15%), Latino (12%), older (>50 years; 16-23%), Boston Housing Authority residents (18%), renters receiving rental assistance (17%), adults with a high school education or less (12%-18%), immigrants who have resided in the US for more than 10 years (14%) reported a diabetes diagnosis (BIDMC CHNA Appendix H, pg. 115). Residents of Roxbury and Dorchester are also disproportionately affected by diabetes; individuals in these communities experience diagnoses and hospitalizations at significantly higher rates than residents in the rest of Boston (BIDMC CHNA, pg. 65).

6. Community Definition – See Self-Assessment Form

7. Local Health Departments – See Self-Assessment Form

8. CHNA/CHIP Advisory Committee - See Self-Assessment Form

Note: Edna Rivera-Carrasco is no longer a member of the Advisory Committee. Triniese Polk, also of the Boston Public Health Commission, now holds Edna's seat on the Advisory Committee. Luis Prado is no longer a member of the Advisory Committee, Flor Amaya, also of the City of Chelsea Department of Health and Human Services now holds Luis's seat on the Advisory Committee.

Additional Advisory Committee members who joined after the completion of the 2019 CHNA/IS are:
Walter Armstrong, Beth Israel Deaconess Medical Center (*joined January 2020*)
Shondell Davis, Cory Johnson Center for Post-Traumatic Healing (*joined December 2020*)
Angie Liou, Asian Community Development Corporation (*joined April 2020*)
James Morton, YMCA of Greater Boston (*joined April 2020*)
Sandy Novack, MSW, Universal Access Council (*joined April 2020*)
Robert Torres, Beth Israel Lahey Health (*joined October 2019*)

8a. Community Health Initiative

BIDMC will pool funds from this CT Scanner DoN CHI into the previous NIB CHI DoN, and invest them in the health priorities determined by the Advisory Committee on September 24, 2019 and re-confirmed on June 23, 2020, and as approved by the Massachusetts Department of Public Health.[3]

9. Engaging the Community at Large

Thinking about the extent to which the community has been or currently is involved in the 2019 BIDMC CHNA/IS and CHI, please choose one response for each engagement activity below. Please also check the box to the left to indicate whether that step is complete or not. (For definitions of each step, please see pages 12-14 in the Community Engagement Standards for Community Health Planning Guidelines http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf)

Assess Needs and Resources

Please describe the engagement process employed during the "Assess Needs and Resources" phase.

COLLABORATE: BIDMC's CHNA and the associated Implementation Strategy (IS) were completed in close collaboration with BIDMC's staff, health and social service partners, and the community at-large. The assessment efforts engaged community residents, as well as a wide range of other stakeholders, including service providers, community advocates, Commonwealth and local public officials, faith leaders, and representatives from community-based organizations. BIDMC's Community Benefits Committee (CBC) oversaw all aspects of the assessment and planning process and was integral to the development of the CHNA report and the IS. BIDMC's Advisory Committee participated in the CHNA and identified and prioritized the most important health issues. Additionally, Advisory Committee meetings are open to the public.

Both the CBC and Advisory Committee are made up of community members, service providers, public health representatives and other key stakeholders that either live in and/or work within BIDMC's priority Boston neighborhoods and/or the City of Chelsea. Collectively, the BIDMC CHNA engaged with the community through interviews, surveys, focus groups, and community meetings (see Appendix C of the BIDMC CHNA).

Focus on What's Important

Please describe the engagement process employed during the "Focus on What's Important" phase.

DELEGATE:

Advisory Committee meetings are open to the public and with dedicated time for public comments. Advisory Committee meeting discussions focused on achieving equity and addressing racial/ethnic disparities within BIDMC CBSA priority neighborhoods.

[3]See pg. 16 of the DoN CHI Planning Guideline https://www.mass.gov/doc/community-health-initiative-planning/download

The Advisory Committee built upon information from the prioritization processes employed during the Boston Collaborative CHNA and North Suffolk iCHNA.

The Boston Collaborative prioritization process involved small group discussions across Boston as well as a large in-person prioritization meeting with over 100 organizational staff and community members.

The North Suffolk iCHNA prioritization process involved a special meeting of the Steering Committee, which employed a multi-stage, facilitated process to review, discuss, prioritize, and vote on priority areas to focus on.

BIDMC prioritized in collaboration with the Community Benefits Committee and Advisory Committee. Each reviewed and considered the priority areas selected by the Boston CHNA-CHIP Collaborative and the North Suffolk iCHNA. BIDMC then conducted additional community meetings to understand the community's perspective on priorities and undertook a prioritization exercise over several meetings.

The Advisory Committee selected the final health priorities, sub-priorities, and allocation percentages for the NIB CHI based on information gathered through the Boston Collaborative CHNA, the North Suffolk iCHNA, BIDMC's community meetings, and research on evidence-based strategies.

Choose Effective Policies and Programs

Please describe the engagement process employed during the "Choose Effective Policies and Programs" phase.

COLLABORATE:

Informed by the extensive community engagement and prioritization efforts conducted as part of the BIDMC CHNA and the NIB CHI, working with its Community Benefits Committee and the Advisory Committee, BIDMC developed its 2020-2022 Implementation Strategy (IS), designed to address the leading community health priorities: social determinants of health, chronic/complex conditions and their risk factors, access to care, and mental health and substance use.

The BIDMC IS includes the evidence-based and evidence-informed strategies developed for the NIB CHI. The CHI disbursement plan will consist of direct investments, community-driven/led investments, and competitive Request for Proposals (RFP) processes. The direct investment strategies will leverage other resources and involve collaborations with other organizations. The community-driven/led investments will provide an opportunity for residents and community leaders to come together to prioritize and address neighborhood-specific issue areas. The competitive and transparent RFP process is focused on funding innovative, and evidence-based and/or evidence-informed strategies that address upstream causes of poor health.

Act on What's Important

Please describe the engagement process employed during the "Act on What's Important" phase.

COLLABORATE: The Advisory Committee continues to guide the implementation of evidence-based strategies to address the priorities and goals of the IS and CHI.

There will be extensive community outreach surrounding the upcoming CHI RFP processes for grantee selection, with support and guidance from the Advisory Committee. BIDMC formed an Allocation Committee consisting of neighborhood residents, government representative(s), a Community

Development Corporation representative, and BIDMC staff with expertise in the selected priority areas. Allocation Committee members helped develop the RFP, reviewed applications for the first round of funding, and voted on grantee selection. BIDMC also compiled a list of subject matter experts who may be called upon to attend meetings, advise BIDMC and/or the Allocation Committee, and/or review applications on an as needed basis.

BIDMC and the Advisory Committee are excited about the community-driven and community-led Healthy Neighborhoods opportunity, in which each neighborhood will be awarded funds to address pertinent health needs in their community. BIDMC will be collaborating with the city of Chelsea and neighborhood coalitions in Boston to implement evidence-based, neighborhood-specific strategies.

The first RFP for the Boston-based grantees was issued in August 2020; the first cohort of 16 organizations to receive funding was announced in December 2020. The first Healthy Neighborhoods RFP was issued in February 2021 for the neighborhoods of Bowdoin/Geneva and Fenway/Kenmore. The Allocation Committee will be selecting the Community Collectives that will carrying out the community engagement process in April 2021. The first grant to the City of Chelsea was awarded in November 2021.

Evaluate Actions

Please describe the engagement process employed during the "Evaluate Actions" phase.

INVOLVE: BIDMC is committed to evaluating its Community Benefits programming as part of its CHNA process. Appendix G of the BIDMC CHNA details the results of reported activities in Fiscal Year 2017. Over the course of 2019, using the NIB CHI as the impetus, BIDMC has increased its evaluation efforts and increased engagement around the holistic evaluation of its Community Benefits activities. An independent evaluator is conducting a rigorous evaluation of the NIB CHI process to measure and assess engagement outcomes, the planning process, partner perception and experiences, the RFP process, and the impact of the awarded funds. Key features of the evaluation plan include:

- Formation of an evaluation workgroup with four members of the Advisory Committee and two independent public health professionals
- Review of logic models demonstrating NIB CHI impact
- Incorporating community capacity building into the evaluation plan

The Advisory Committee will also be involved in evaluation planning and assessment for future CHNA cycles. An evaluation workgroup that includes members of the Advisory Committee will continue to inform evaluation efforts as well. As part of BILH, BIDMC will also work closely with a BILH Community Benefits program evaluator.

10. Representativeness

(a) Please describe the diversity of the people who have been engaged in the process both within the CHNA/CHIP Advisory Committee and the community at large. Explicitly describe how the process included diverse representation from different groups/individuals with varied gender, sexual orientation, race/ethnicity, disability status, international status and age. Please see page 10 and Appendix A of the Community Engagement Standards for Community Health Planning Guideline (http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf)

BIDMC has been intentional in ensuring that varied experiences and perspectives, reflective of BIDMC's CBSA and the community at large, are seen throughout the CHNA and CHI processes.

For instance, nearly half (45%) of focus group participants in the Boston Collaborative CHNA identified as Black or African-American and 34% identified as Hispanic/Latino.

For the Advisory Committee, BIDMC selected representatives from the community who have lived and/or worked in the BIDMC CBSA focus neighborhoods, which contributes to a thoughtful and robust community engagement process. The representatives selected have expertise in multiple sectors including housing, regional planning/transportation, and local public health, and have first-hand knowledge of health needs in the communities BIDMC serves.

Survey results from the NIB CHI community meetings showed that 42.3% of people in attendance had either not been to a community meeting in the past year, or had gone to a community meeting once in the past year. A wide range of ages were represented at the community meetings, spanning from under 18 years old to over 75 years old. Approximately 72% of participants identified as female, with 1.4% identifying as genderqueer or an additional gender category. Approximately 37.9% of meeting participants were Asian, 22.0% White, 20.5% Black or African American, 8.3% Hispanic or Latino (any race), 2.3% multiple races, and 0.8% American Indian/Alaska Native. The surveys indicated that 64.7% of all meeting participants were residents of the community and 49.1% of participants were representing local organizations within the neighborhood.

(b) Please describe the type of representation that was/is employed in the community engagement process and the rationale for that type of representation. For more information on types of representation and representativeness, please see Appendix A from the Community Engagement Standards for Community Health Planning Guidelines (http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf). Please include descriptions of both the Advisory Board and the Community at large.

BIDMC primarily utilized grassroots representation to guide the CHNA and CHI community engagement processes by incorporating information from community members who represent the variety of backgrounds, circumstances, and people that exist within the CBSA. BIDMC believes this is the most authentic and direct method of engagement. This was augmented by outreach to "grass tops" leaders to maximize the reach of community engagement and ensure sectoral diversity in addition to community member diversity.

For the BIDMC CHNA, dissemination of community surveys and focus groups and key informant interviews were all conducted with an eye towards representativeness. For example, the survey sent out as part of the Boston Collaborative CHNA was administered online and via hard copy in seven languages. Similarly, the NIB CHI process was conducted in multiple languages to enhance access and promote representativeness. Materials and interpretation services were provided in seven languages. Furthermore, extensive outreach was conducted via social media, institutional newsletters, emails to large networks, waiting rooms, Boston Public Library neighborhood branches, community events, and large apartment buildings to help ensure diverse representation in the CHNA. The North Suffolk iCHNA Steering Committee and subcommittees used a "Segment Inclusiveness and Social Determinants of Health" list to ensure the iCHNA process and data collection were inclusive and representative.

11. Resource and Power Sharing - **See Self-Assessment Form**

12. Transparency

Please describe the efforts being made to ensure that the engagement process is transparent. For more information on transparency, please see Appendix A from the Community Engagement Standards for Community Health Planning Guidelines.

BIDMC has made an intentional and explicit effort to ensure transparency of its community engagement process and has developed standards and procedures that align with the Massachusetts Continuum of Community Engagement. The BIDMC CHNA, which encompassed both the Boston Collaborative CHNA and North Suffolk iCHNA, were conducted in a transparent and inclusive way. For instance, the North Suffolk iCHNA created a website that was widely distributed through emails and flyers, which were all available in English, Spanish, Portuguese, and Arabic. A 12-minute cable access show was also recorded and widely distributed to ensure maximum transparency and awareness of the effort and results.

In addition, BIDMC's Advisory Committee meetings are open to the public and welcome written and oral public comments. The CHI website is updated regularly with meeting agenda, slides, minutes, attendance, and updates as they become available. BIDMC sent an initial newsletter to provide a comprehensive overview of the NIB CHI process to date and upcoming plans. The quarterly e-newsletter is intended to keep the community-at-large informed about the status of the process. Translated versions of the initial newsletter were sent out in seven languages: Cantonese, Cape Verdean, Haitian Creole, Mandarin, Portuguese, Russian, and Spanish. To date, seven issues of the newsletter have been sent out to a listserv that now has over 600 individuals. BIDMC continues to seek the input from the Advisory Committee.

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5. Notice of Intent

Bus service to continue on Orange Line segment

By MARIE SZANISZLO

Shuttle buses will continue to replace Orange Line service between Oak Grove and Sullivan Square until April 11, the MBTA said Thursday.

The T shut down service in both directions between those stations after a slow-speed derailment took place on March 16 near Wellington Station.

While the shuttle buses are running, workers are replacing a decades-old track switch that was damaged during the derailment. Extending the use of the buses for an extra week will "allow for additional safety and reliability improvements," MBTA spokeswoman Lisa Battison said.

The T also is making improvements at stations along the Orange Line, including tie replacements at Malden, infrastructure repairs at Sullivan Square, station improvements at Oak Grove and the installation of a custom-built replacement of another track crossover at Wellington.

While the cause of the derailment has yet to be determined, the T said new Orange and Red line cars continue to be out of service as engineers assess the cars' performance.

The T and its engineers are trying to determine if anything vehicle-related could have been a contributing factor in the derailment.

NICOLAUS CZARNECKI / HERALD STAFF

CAUSE AND EFFECT: A new Orange Line train derails March 16 near Wellington Station.

Public Announcement Concerning a Proposed Health Care Project

Beth Israel Lahey Health, Inc. ("Applicant") located at 109 Brookline Avenue, Suite 300, Boston, MA 02215 intends to file a Notice of Determination of Need ("Application") with the Massachusetts Department of Public Health for a Substantial Change in Service by Beth Israel Deaconess Medical Center, Inc. ("BIDMC"). The proposed project is for the expansion of BIDMC's computed tomography ("CT") services (the "Proposed Project"). The Proposed Project would add one additional CT unit at BIDMC's West Campus Rosenberg Building within the Department of Radiology located at 1 Deaconess Road, Boston, MA 02215. The Proposed Project would also include related renovations to accommodate the additional CT unit with no expansion in BIDMC's square footage. The total value of the Proposed Project based on the maximum capital expenditure is $4,795,388.00. The Applicant does not anticipate any price or service impacts on the Applicant's existing Patient Panel as a result of the Proposed Project. Any ten Taxpayers of Massachusetts may register in connection with the intended Application by no later than April 9, 2021 or 30 days from the Filing Date, whichever is later, by contacting the Department of Public Health Determination of Need Program, 250 Washington Street, 4th Floor, Boston, MA 02108.

NOTICE OF MORTGAGEE'S SALE OF REAL ESTATE

By virtue and in execution of the Power of Sale contained in a certain mortgage given by Michael Nee a/k/a Michael J. Nee to Mortgage Electronic Registration Systems, Inc., solely as nominee for GMAC Mortgage Corporation, dated December 27, 2005, and recorded with the Suffolk County Registry of Deeds in Book 38827, Page 216, as affected by an assignment from Mortgage Electronic Registration Systems, Inc., as nominee for GMAC Mortgage Corporation to Trinity Financial Services, LLC, dated August 1, 2016, and recorded with the Suffolk County Registry of Deeds in Book 56568, Page 85; and assignment from Trinity Financial Services, LLC to Aspen Properties Group, LLC as Trustee for Aspen G Revocable Trust, dated September 18, 2018, and recorded with the Suffolk County Registry of Deeds in Book 60416, Page 311; of which mortgage the undersigned is the present holder by assignment, for breach of the conditions of said mortgage and for the purpose of foreclosing the same will be sold at Public Auction at 02:00 PM o'clock on April 16, 2021 at 773 Columbia Road, Unit 2 of the 773 Columbia Road Condominium, Boston (Dorchester), Suffolk County, Massachusetts, all and singular the premises described in said mortgage,

To wit:

All that certain premises and proportionate interest in 773 Columbia Road Condominium condominium situated in Dorchester, Suffolk County, Massachusetts more particularly described as follows:

Unit 2 of 773 Columbia Road Condominium

The Unit ("Unit") known as Unit 2, a unit in the condominium known as 773 Columbia Road Condominium (the "Condominium"), located at 773 Columbia Road, Boston, Suffolk County, Massachusetts, a condominium established pursuant to Massachusetts General Laws, Chapter 183A, and the Master Deed of 773 Columbia Road Condominium, dated April 30, 2002, and recorded with Suffolk County Registry of Deeds in Book 28466, Page 213, as amended of record (the "Master Deed").

Said Unit is shown on the floor plans (the "Plans") filed simultaneously with the Master Deed to which is affixed the verified statement requited by Section 9 of said Chapter 183A.

Said Unit is conveyed together with:

An undivided percentage interest in the common areas and facilities of the Condominium described in the Master Deed.

The benefit of all rights, easements, reservations, restrictions, agreements and provisions contained in the Master Deed, and in the Declaration of Trust and By-Laws of 773 Columbia Road Condominium dated April 30, 2003, as amended of record, the Rules and Regulations and the provisions of said Chapter 183A.

This conveyed is made subject to:

Subject to a Party Wall Agreement recorded with Suffolk Registry of Deeds in Book 19638, Page 13

For mortgagor's title see deed recorded at the above-named Registry of Deeds in Book 33048, Page 245.

The property will be sold subject to a First Mortgage recorded in the Suffolk County Registry of Deeds in Book 38827, Page 194.

Premises to be sold and conveyed subject to and with the benefit of all rights, rights of way, restrictions, easements, covenants, liens or claims in the nature of liens, improvements, public assessments, any and all unpaid taxes, tax titles, tax liens, water and sewer liens and any other municipal assessments or liens or existing encumbrances of record which are in force and are applicable, having priority over said mortgage, whether or not reference to such restrictions, easements, improvements, liens or encumbrances is made in the deed.

Terms of sale: A deposit of five thousand dollars ($5,000) by certified or bank check will be required to be paid by the purchaser at the time and place of sale. The balance is to be paid by certified or bank check at the offices of WCG Law Group, PLLC, 21 High Street, Suite 208B, North Andover, MA 01845 within thirty (30) days from the date of sale. Deed will be provided to purchaser for recording upon receipt in full of the purchase price. In the event of an error in this publication, the description of the premises contained in said mortgage shall control.

Other terms, if any, to be announced at the sale.

Aspen Properties Group, LLC as Trustee for Aspen G
Revocable Trust

Present Holder of said mortgage
By its attorneys,
WCG Law Group, PLLC
21 High Street, Suite 208B
North Andover, MA 01845
Nee a/k/a Michael J. Nee, Michael; 1906-Aspen-1001;

March 26, 2021, April 2, 2021, April 9, 2021

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
10 PARK PLAZA
BOSTON, MASSACHUSETTS 02116
NOTICE TO BIDDERS

Electronic proposals for the following project will be received through the internet using Bid Express until the date and time stated below, and will be posted on www.bidx.com forthwith after the bid submission deadline. No paper copies of bids will be accepted. Bidders must have a valid digital ID issued by the Authority in order to bid on projects. Bidders need to apply for a digital ID with Bid Express at least 14 days prior to a scheduled bid opening date.

Electronic bids for MBTA Contract No. **Z91CN01, STRUCTURAL REPAIRS, SYSTEMWIDE II (CLASS 1 – GENERAL TRANSIT CONSTRUCTION; CLASS 4A – STEEL SUPERSTRUCTURES; AND CLASS 4B – CONCRETE SUPERSTRUCTURES. PROJEJCT VAUE: $6,800,000),** can be submitted at www.bidx.com until two o'clock (2:00 p.m.) on April 22, 2021.Immediately thereafter, in a designated room, the Bids will be opened and read publicly.

The work to be done under this Contract consists of providing construction-related services on an on-call basis to support emergency, urgent, and routine structural repair/reconstruction needs of the Authority, including but not limited to steel and concrete repair and rehabilitation, and temporary support systems for bridges, tunnels, retaining walls, stairs, and other structures. The Work performed under this Contract will fall under three types of categories related to the urgency with which the Work must be performed.

Bidders' attention is directed to Appendix 1, Notice of Requirement for Affirmative Action to Insure Equal Employment Opportunity; and to Appendix 2, Supplemental Equal Employment Opportunity, Anti- Discrimination, and Affirmative Action Program in the specifications. In addition, pursuant to the requirements of Appendix 3, Disadvantaged Business Enterprise (DBE) Participation Provision, Bidders must submit an assurance with their Bids that they will make sufficient and reasonable efforts to meet the stated **DBE goal of 20 percent.**

http://bc.mbta.com/business_center/bidding_solicitations/current_solicitations/

On behalf of the MBTA, thank you for your time and interest in responding to this Notice to Bidders Massachusetts Bay Transportation Authority

Steve Poftak
MBTA General Manager
March 26, 2021

Public Announcement Concerning a
Proposed Health Care Project

Beth Israel Lahey Health, Inc. ("Applicant") located at 109 Brookline Avenue, Suite 300, Boston, MA 02215 intends to file a Notice of Determination of Need ("Application") with the Massachusetts Department of Public Health for a Substantial Change in Service by Beth Israel Deaconess Medical Center, Inc. ("BIDMC"). The proposed project is for the expansion of BIDMC's computed tomography ("CT") services (the "Proposed Project"). The Proposed Project would add one additional CT unit at BIDMC's West Campus Rosenberg Building within the Department of Radiology located at 1 Deaconess Road, Boston, MA 02215. The Proposed Project would also include related renovations to accommodate the additional CT unit with no expansion in BIDMC's square footage. The total value of the Proposed Project based on the maximum capital expenditure is $4,795,388.00. The Applicant does not anticipate any price or service impacts on the Applicant's existing Patient Panel as a result of the Proposed Project. Any ten Taxpayers of Massachusetts may register in connection with the intended Application by no later than April 9, 2021 or 30 days from the Filing Date, whichever is later, by contacting the Department of Public Health Determination of Need Program, 250 Washington Street, 4th Floor, Boston, MA 02108.

Mar 26

LEGAL NOTICES

Auction sale of unredeemed pledges of Ideal Pawn of Brockton on the premises 1130 Washington St., Boston, MA, on Apr 13 2021 @10:00 am by Harvey Cohen. Auctioneer. MA Lic. #353

LEGAL NOTICES

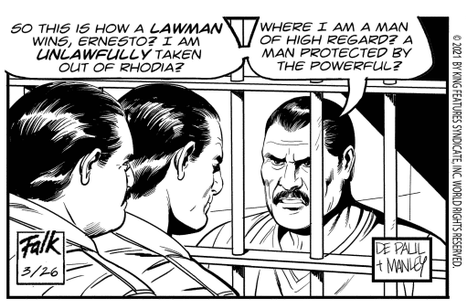
Auction sale of unredeemed pledges of Empire Loan Co. of Stoughton on the premises 1130 Washington St., Boston, MA, on Apr 6 2021 @ 10:00 am by Harvey Cohen. Auctioneer. MA Lic. #353

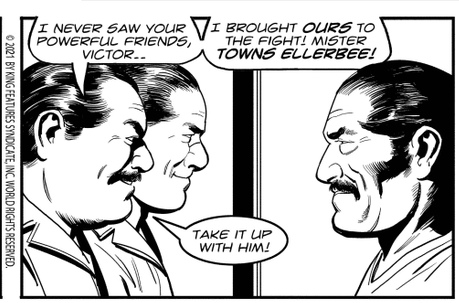
LEGAL NOTICES

Auction sale of unredeemed pledges of Empire Loan Co. of Lynn on the premises 1130 Washington St., Boston, MA, on Apr 6 2021 @10:00 am by Harvey Cohen. Auctioneer. MA Lic.

LEGAL NOTICES

Auction sale of unredeemed pledges of Empire Loan Co. on the premises 1130 Washington St., Boston, MA, on Apr 6 2021 @ 10:00 am by Harvey Cohen, Auctioneer. MA Lic. #353





JUMBLE SOLUTION

DOGMA VISOR SEASON INVEST
The car dealer just got the latest model, and people were taking test drives — IN DROVES

CROSSWORD SOLUTION

A	F	T	R	A	■	G	A	P	E	S	■	S	T	E
C	O	W	E	R	■	A	R	O	M	A	■	C	O	N
C	R	I	C	K	E	T	C	L	U	B	■	R	U	G
O	M	S	■	■	L	E	S	■	■	L	E	I	C	A
L	E	T	D	R	Y	■	■	F	L	E	A	B	A	G
A	R	T	O	O	■	S	T	L	O	■	R	E	N	E
D	L	I	S	T	■	A	I	O	L	I	S	■	■	■
E	Y	E	■	F	L	Y	B	A	L	L	■	M	A	R
■	■	■	C	L	O	S	E	T	■	I	R	A	T	E
A	R	G	O	■	A	M	T	S	■	A	N	D	Y	S
B	E	E	L	I	N	E	■	■	A	C	C	E	P	T
A	V	I	A	N	■	■	E	A	T	■	■	N	I	L
S	I	S	■	B	E	E	T	L	E	J	U	I	C	E
E	V	E	■	O	V	I	N	E	■	I	N	C	A	S
D	E	L	■	X	A	N	A	X	■	F	E	E	L	S

SUDOKU SOLUTION

6	7	2	1	3	8	4	5	9
9	1	3	5	4	7	6	2	8
8	5	4	2	6	9	1	7	3
4	9	5	8	2	1	7	3	6
7	3	6	9	5	4	8	1	2
2	8	1	6	7	3	9	4	5
3	2	7	4	9	6	5	8	1
5	6	8	7	1	2	3	9	4
1	4	9	3	8	5	2	6	7

6. Factor 4 – Independent CPA Analysis

Analysis of the Reasonableness of Assumptions Used For and Feasibility of Projected Financials of:

Beth Israel Lahey Health, Inc.

For the Years Ending September 30, 2021
Through September 30, 2025

Tel: 617-422-0700
Fax: 617-422-0909
www.bdo.com

One International Place
Boston, MA 02110-1745

April 1, 2021

Jamie Katz, Esq.
General Counsel
Beth Israel Lahey Health, Inc.
20 University Road, Suite 700
Cambridge, MA 02138

RE: Analysis of the Reasonableness of Assumptions and Projections Used to Support the Financial Feasibility and Sustainability of the Proposed Project

Dear Mr. Katz:

Enclosed is a copy of our report on the reasonableness of assumptions used for and feasibility of the financial projections for Beth Israel Lahey Health, Inc. Please contact me to discuss this report once you have had an opportunity to review.

Sincerely,

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www.bdo.com

One International Place
Boston, MA 02110-1745

April 1, 2021

Jamie Katz, Esq.
General Counsel
Beth Israel Lahey Health, Inc.
20 University Road, Suite 700
Cambridge, MA 02138

RE: Analysis of the Reasonableness of Assumptions and Projections Used to Support the Financial Feasibility and Sustainability of the Proposed Project

Dear Mr. Katz:

We have performed an analysis related to the reasonableness and feasibility of the financial projections (the "Projections") of Beth Israel Lahey Health Inc. ("Beth Israel Lahey Health", "BILH" or "the Applicant"), related to the expansion of computed tomography ("CT") services by adding one CT unit to the West Campus Rosenberg Building, within the Department of Radiology ("Radiology") of Beth Israel Deaconess Medical Center ("BIDMC") (the "Proposed Project"). This report details our analysis and findings with regard to the reasonableness of assumptions used in the preparation of the Projections and feasibility of the projected financial results prepared by the management of BILH ("Management"). This report is to be used by BILH in connection with the filing of Massachusetts Department of Public Health ("DPH") Determination of Need ("DoN") application and should not be distributed or relied upon for any other purpose.

I. EXECUTIVE SUMMARY

The scope of our review was limited to an analysis of the consolidated five-year financial projections for the Applicant for the fiscal years ending September 30, 2021 through 2025 prepared by Management and the supporting documentation in order to render an opinion as to the reasonableness of assumptions used in the preparation and feasibility of the Projections.

The Projections exhibit a cumulative operating EBITDA surplus[1] of approximately 7.5 percent of cumulative projected net patient service revenue for BILH for the five years from FY 2021 through 2025. Based upon our review of the relevant documents and analysis of the Projections, we determined the anticipated operating EBITDA surplus is a reasonable expectation and based upon feasible financial assumptions. Accordingly, we determined that the Projections are reasonable and feasible, and not likely to have a negative impact on the Applicant's patient panel or result in a liquidation of BILH's assets. A detailed explanation of the basis for our determination of reasonableness and feasibility is contained within this report.

II. RELEVANT BACKGROUND INFORMATION

The Applicant is a Massachusetts, non-profit, tax-exempt corporation that oversees a regional, non-profit health care delivery system comprised of teaching and community hospitals, physician groups, behavioral health providers, post-acute care providers and other caregivers. BILH's member entities serve the health needs of patients and communities of Boston and other surrounding communities in Eastern Massachusetts. BILH's purpose is to support the patient care, research, and educational missions of its member entities. BILH's member hospitals include BIDMC and the following hospitals: Addison Gilbert Hospital; Anna Jaques Hospital; Beth Israel Deaconess Medical Center; Beth Israel Deaconess Hospital-Milton; Beth Israel Deaconess Hospital-Needham; Beth Israel Deaconess Hospital-Plymouth; Beverly Hospital; Lahey Hospital & Medical Center; Mount Auburn Hospital; New England Baptist Hospital; and, Winchester Hospital (collectively known as (the "BILH Hospitals"). BILH's vision is to have a broader impact on the health care industry and patient populations in Massachusetts by sharing best practices, investing in foundational infrastructure to support population health management, and encouraging true market competition based on value.

BILH also operates Beth Israel Lahey Health Performance Network, LLC ("BILHPN"), a value-based physician and hospital network and Massachusetts Health Policy Commission (HPC) certified Accountable Care Organization ("ACO"), whose goal is to partner with other community hospitals and other providers throughout Eastern Massachusetts to improve quality

[1] Operating EBITDA surplus represents the sum of operating income, interest expense and depreciation and amortization.

of care while effectively managing medical costs, with the goal of providing the highest quality health care in the most efficient way. Through BILHPN, BILH and its participating community partners are working to align the incentives and efforts needed to dramatically improve the health of broad populations and to focus intently on caring for patients at the right time, in the right location, and in the community whenever possible. BIDMC is contracted to participate in BILHPN and currently participates in its subsidiary ACO, Beth Israel Deaconess Physician Organization, LLC d/b/a Beth Israel Deaconess Care Organization or "BIDCO".

As noted, the Applicant intends to add one CT unit to the Department of Radiology at BIDMC's West Campus Rosenberg Building. BIDMC provides CT services, including CT-guided procedures and diagnostic exams in several locations on its main campus. BIDMC has sited each CT unit to maximize efficiencies to address the patient care needs appropriate to their particular location. There are nine (9) CT units currently in operation on the BIDMC main campus: three (3) CT units on the West Campus, four (4) CT units on the East Campus , and one (1) portable CT unit with limited use. On the West Campus, BIDMC currently operates one (1) CT unit in the Emergency Department ("ED") that serves the diagnostic needs of emergency patients as well as inpatients requiring exams during evening or overnight hours, and two (2) CT units available for the full range of diagnostic and interventional radiology services which are located on the 3rd floor of the Rosenberg building (the "Project Site"). The additional CT unit proposed for the Project Site would be used for the full range of CT services, but will primarily support the needs of inpatients and for CT-guided interventional procedures ("CT-guided procedures"), with remaining capacity for outpatient diagnostic exams.

The vast majority of CT-guided procedures at BIDMC are provided on the West Campus (almost 75% in fiscal year 2019) due to the service mix and available supports on that campus. Current CT-guided procedures provided at BIDMC include, without limitation, ablation procedures using radio frequency, Microwave and Cryogen techniques, and placement of cyber markers. CT-guided procedures enable physicians to have highly refined, real-time visual information that precisely targets the area of concern during a procedure improving outcomes and lessening the potential for damage to the surrounding tissue. The quality, magnification and ability to employ and detect, injectable contrast into the target site are all essential tools required to perform these types of complex procedures. Access to an additional CT unit equipped to perform

advanced CT-guided procedures will reduce patient time to access CT services. It also will broaden BIDMC's current CT capabilities in that the additional CT unit is a newer-generation CT with enhanced functionalities that include both improved dose reduction and imaging quality, as well as, metal artifact reduction algorithms, and the ability to provide cardiac imaging on the West Campus for the significant number of patients with cardiac needs. The need for the Proposed Project is based on the existing needs of the Applicant's patient panel. It will also help to address anticipated growth in the need for CT services based on BIDMC's current patient panel trends of increasing acuity and the aging population, as described in this Application. The Applicant seeks to expand its Project Site CT suite to address delays in access to care, thereby improving the patient experience, the timeliness of clinical decision making, and health outcomes while improving administrative efficiencies. The West Campus CT units are operating at full capacity, there is no back-up unit on the West Campus if a unit requires service, and there are significant clinical and operational barriers to moving patients to CT scanners at other BIDMC sites. The current constraints, leading to delays in scheduling of scans, are caused by the following factors: (1) the increase in inpatient census on the West Campus and the resulting increase in demand for CT services ; (2) the increase in acuity of West Campus inpatients and the expanded use of CT technology to provide increased CT access for these patients; (3) the increase in ED patients on the West Campus and the increase in utilization of CT services, particularly for all code stroke and trauma patients; and (4) the increase in the use of CT-guided procedures for both inpatients and outpatients, particularly on the West Campus. The expansion of the Project Site CT suite to accommodate an additional CT unit will reduce the delays in access, especially during peak demand times, and reduce significant wait times for CT guided procedures.

As noted, BIDMC's intention is for the proposed additional CT unit to be used consistent with the Project Site CTs' current uses, which are heavily concentrated in inpatient use, CT-guided procedures, and complex diagnostic use with limited outpatient diagnostic use. Existing West Campus CT units are heavily used by inpatients, due to their proximity to the large number of West Campus inpatient nursing units, operating rooms, and specialty centers. In addition, the West Campus has critical services and supports rendering it the primary location for performing CT-guided procedures for both inpatients and outpatients, further driving up the volume of CT-guided procedures on the West Campus. One CT unit is particularly suited to CT-guided

procedures as it has a wider bore that enables physicians and staff to be oriented in the best location for the procedure. As a result, outpatient diagnostic use is the least prevalent use for West Campus CTs. However, the Radiology Department makes an effort to schedule outpatients with medical appointments on the West Campus for CT services on the West Campus, when possible, to avoid the additional need for patients to transport between the East and West Campuses for their multiple appointments.

The new CT unit will be readily integrated within the existing BIDMC's Department of Radiology CT program, with access to highly specialized and experienced BIDMC physicians, robust departmental and overall hospital quality assurance mechanisms and strong health care quality and patient satisfaction criteria.

The Proposed Project is consistent with Massachusetts' cost containment goals for multiple reasons. As a threshold matter, the Proposed Project maximizes use of existing hospital space, facilities and ancillary services, reduces administrative inefficiencies caused by capacity constraints, and most importantly, increases timely patient access to care in the appropriate setting. Also, with respect to cost containment, it is important to highlight that a significant portion of the services planned for the additional CT unit is included as a component of an inpatient stay or an interventional procedure. With respect to the limited number of standalone outpatient diagnostic exams, they will be subject to current and newly developing clinical decision-making support practices, as well as prior authorization requirements. The Proposed Project will not impact existing payor contracts.

In sum, the expanded CT services capacity on BIDMC's West Campus will ensure that BIDMC patients, including vulnerable patients in BIDMC's Community Benefits Service Area ("CBSA"), and, in particular, inpatients and patients in need of CT-guided procedures, have timely access to essential hospital-based imaging services from a lower cost provider of high quality tertiary and quaternary services.

III. SCOPE OF REPORT

The scope of this report is limited to an analysis of the five-year Projections for the fiscal years ending September 30, 2021 through 2025, prepared by Management, and the supporting documentation in order to render an opinion as to the reasonableness of assumptions used in the preparation and feasibility of the Projections. Reasonableness is defined within the context of this report as supportable and proper, given the underlying information. Feasibility is defined as based on the assumptions used, the Proposed Project is not likely to result in a liquidation of the underlying assets or the need for reorganization.

This report is based on prospective financial information provided to us by Management. BDO understands the prospective financial information was developed as of October 28, 2020 and is still representative of Management's expectations as of the drafting of this report. BDO has not audited or performed any other form of attestation services on the projected financial information related to the operations of BILH.

If BDO had audited the underlying data, matters may have come to our attention that would have resulted in our using amounts that differ from those provided. Accordingly, we do not express an opinion or any other assurances on the underlying data or projections presented or relied upon in this report. We do not provide assurance on the achievability of the results forecasted by the Applicant because events and circumstances frequently do not occur as expected, and the achievement of the forecasted results is dependent on the actions, plans, and assumptions of Management. We reserve the right to update our analysis in the event that we are provided with additional information.

IV. SOURCES OF INFORMATION UTILIZED

In formulating our conclusions contained in this report, we reviewed documents produced by Management as well as third party industry data sources. The documents and information upon which we relied are identified below or are otherwise referenced in this report:

1. Financial Model for BILH for the periods ending September 30, 2021 through September 30, 2025;
2. Draft BILH Application Form for DoN Application, including narrative;
3. Audited Financial Statements for Beth Israel Lahey Health, Inc. for Fiscal Year Ended September 30, 2019 and September 30, 2019;
4. Audited Financial Statements for Caregroup, Inc., Seacoast Regional Health Systems, Inc. and Lahey Health Systems, Inc. for Fiscal Years Ended September 30, 2017 and 2018;
5. Beth Israel Lahey Health, Inc. draft patient volume tables for Fiscal Years Ended September 30, 2019 and 2018;
6. BILH's Fiscal Year 2021 Operating and Capital Budgets Finance Committee Presentation as of December 18, 2020;
7. BILH's Fiscal Year 2021 Budget for Growth in Patient Volume and Consolidated Statement of Revenue and Expenses;
8. RMA Annual Statement Studies, published by The Risk Management Association;
9. Definitive Healthcare data;
10. IBISWorld Industry Report, Hospitals in the US, dated January 2021;

V. REVIEW OF THE PROJECTIONS

This section of our report summarizes our review of the reasonableness of the assumptions used and feasibility of the Projections.

The following table presents the Key Metrics, as defined below, which compare the forecasted operating results of the performance of BILH after the affiliation to market information from RMA Annual Studies ("RMA"), IBISWorld, and Definitive Healthcare to assess the reasonableness of the Projections.

Key Financial Metrics and Ratios	Projected				
Beth Israel Lahey Health, Inc.	**2021**	**2022**	**2023**	**2024**	**2025**
Profitability					
Operating Margin (%)	0.2%	1.4%	1.5%	1.6%	1.6%
Excess Margin (%)	0.7%	2.0%	2.1%	2.1%	2.1%
Debt Service Coverage Ratio (x)	3.3x	4.0x	4.2x	4.6x	5.6x
Liquidity					
Days Available Cash and Investments on Hand (#)	141.5	137.9	136.0	134.8	133.7
Operating Cash Flow (%)	5.6%	6.8%	6.8%	6.8%	6.8%
Solvency					
Current Ratio (x)	4.1x	4.0x	4.0x	4.0x	4.1x
Ratio of Long Term Debt to Total Capitalization (%)	38.3%	36.1%	33.9%	31.6%	29.3%
Ratio of Cash Flow to Long Term Debt (%)	23.8%	31.8%	34.8%	37.9%	40.9%
Net Assets Without Donor Restrictions ($ in thousands)	$ 2,205	$ 2,306	$ 2,423	$ 2,554	$ 2,699
Total Net Assets ($ in thousands)	$ 2,845	$ 2,977	$ 3,117	$ 3,272	$ 3,441

Key Financial Metrics and Ratios	Projected					Industry Data (1)		
Beth Israel Lahey Health, Inc.	**2021**	**2022**	**2023**	**2024**	**2025**	**RMA - Medical and Surgical Hospitals**	**IBIS - Hospitals in the US**	**Definitive Healthcare**
Profitability								
Operating Margin (%)	0.2%	1.4%	1.5%	1.6%	1.6%	2.2%	NA	-5.6%
Excess Margin (%)	0.7%	2.0%	2.1%	2.1%	2.1%	1.1%	NA	2.7% (2)
Debt Service Coverage Ratio (x)	3.3x	4.0x	4.2x	4.6x	5.6x	NA	NA	NA
Liquidity								
Days Available Cash and Investments on Hand (#)	141.5	137.9	136.0	134.8	133.7	NA	NA	24.8
Operating Cash Flow (%)	5.6%	6.8%	6.8%	6.8%	6.8%	NA	5.6%	NA
Solvency								
Current Ratio (x)	4.1x	4.0x	4.0x	4.0x	4.1x	NA	2.1x	1.7x
Ratio of Long Term Debt to Total Capitalization (%)	38.3%	36.1%	33.9%	31.6%	29.3%	37.5%	NA	NA
Ratio of Cash Flow to Long Term Debt (%)	23.8%	31.8%	34.8%	37.9%	40.9%	NA	NA	NA
Net Assets Without Donor Restrictions ($ in thousands)	$ 2,205	$ 2,306	$ 2,423	$ 2,554	$ 2,699	NA	NA	NA
Total Net Assets ($ in thousands)	$ 2,845	$ 2,977	$ 3,117	$ 3,272	$ 3,441	$60,308	NA	NA

Footnotes:
(1) Industry data metrics based on each data source's respective definitions and may differ from the definitions listed below. Further, we note industry metrics only include hospitals and do not reflect health systems, including physician organizations.
(2) Profit before taxes margin from RMA data and net income margin from Definitive Healthcare data treated as an equivalent to excess margin.

The Key Metrics fall into three primary categories: profitability, liquidity, and solvency. Profitability metrics are used in the evaluation of management performance in how efficiently resources are utilized. Liquidity metrics, including common ratios such as “days of available cash and investments on hand”, measure the quality and adequacy of assets to meet current obligations as they come due. Solvency metrics measure the company’s ability to take on and service debt obligations. Additionally, certain metrics can be applicable to multiple categories. The table below shows how each of the Key Metrics is calculated.

Key Financial Metrics and Ratios

Ratio Definitions	Calculation
Profitability	
Operating Margin (%)	Operating Income Divided by Total Operating Revenue
Excess Margin (%)	Excess Income Divided by (Total Operating Revenues + Non-Operating Revenue)
Debt Service Coverage Ratio (x)	(Excess Income + Depreciation and Amortization + Interest) Divided by (Principal Payments and Interest)
Liquidity	
Days Available Cash and Investments on Hand (#)	(Available Cash) Divided by [(Total Operating Expenses Less Depreciation and Amortization) Divided by 365 Days]
Operating Cash Flow (%)	(Operating Income + Depreciation and Amortization + Interest) Divided by Total Operating Revenue
Solvency	
Current Ratio (x)	Current Assets Divided by Current Liabilities
Ratio of Long Term Debt to Total Capitalization (%)	Long Term Debt Divided by Total Capitalization (Long Term Debt and Unrestricted Net Assets)
Ratio of Cash Flow to Long Term Debt (%)	(Operating Income + Depreciation and Amortization + Interest) Divided by Long Term Debt
Net Assets Without Donor Restrictions ($ in thousands)	Total Unrestricted Net Assets
Total Net Assets ($ in thousands)	Total Net Assets

1. Revenue

We analyzed the projected revenue within the Projections. Revenue for the Applicant includes net patient service revenue and other operating revenue. We note that the cumulative net patient service revenue comprises 87.1 percent of the cumulative total operating revenue from FY 2021 through FY 2025.

Total operating revenue for the Projections are expected to grow from $5.87 million in FY 2021 to $6.77 million in FY 2025. This represents a 3.7 percent compounded annual rate of return over the four-year period.

In order to determine the reasonableness of the projected revenue, we reviewed the underlying assumptions upon which Management relied. Based upon our review of the information provided and the discussions noted above, we understand Management relied upon historical operating results and anticipated demographic trends in the BILH service area. The projected four year compound annual total operating revenue growth rate ("CAGR") between FY2021 and FY 2025 is below the historical two year CAGR between FY2017 and FY2019 and the range of annual revenue growth rates for the Applicant between FY 2017 and FY 2019 as indicated in the table

below. We excluded the performance for fiscal year 2020 in this comparison given it was significantly impacted by the unusual event related to global pandemic Covid-19.

	CAGR (2021 – 2025)	CAGR (2017 – 2019)	Annual Growth Range (2017 – 2019)
Revenue Projection	3.7%	6.1%	5.7% to 6.4%

Based upon the foregoing, it is our opinion that the revenue growth projected by Management reflects a reasonable estimation of future revenue of BILH.

2. Operating Expenses

We analyzed each of the categorized operating expenses or reasonableness and feasibility related to the Projections. The operating expenses in the analysis include salaries and benefits, depreciation and amortization, interest expenses, and supplies and other expenses. Total operating expenses are projected to grow 3.0 percent in FY 2021 as compared to FY2019. As noted above, we excluded the performance of FY 2020 given it was significantly impacted by the unusual event related to the COVID-19 global pandemic. After FY 2021, total operating expenses are projected to grow annually at 3.3 percent from FY 2022 through FY 2025. The annual growth in total operating expenses is slightly below the annual historical expense growth from FY 2017 to FY 2019 ranging from 4.2 percent to 5.2 percent.

Similarly, and as indicated in the table below, the projected four year compound annual total operating expense growth rate ("CAGR") between FY 2021 and FY 2025 is below the historical two year CAGR between FY2017 and FY2019 and the range of annual revenue growth rates for the Applicant between FY 2017 and FY 2019. The main driver of the slightly lower expense growth is related to the synergies from reallocating centralized service costs (e.g. human resource, marketing/communications, information technology, etc.) achieved from the integration of legacy health care systems. BILH was formed on March 1, 2019 through the combination of the hospitals and other affiliates of three legacy health care systems based primarily in the Eastern Massachusetts market, including the former CareGroup, Inc., Lahey Health System, Inc. and Seacoast Regional Health Systems, Inc. The integration is expected to enable BILH to operate more efficiently and reduce administrative costs.

	CAGR (2021 – 2025)	CAGR (2017 – 2019)	Annual Growth Range (2017 – 2019)
Operating Expenses Projection	3.3%	4.7%	4.2% - 5.2%

Based upon the foregoing, it is our opinion that the operating expenses within the Projections reflect reasonable estimation of future expenses of the Applicant. We note that the projected total operating expenses as a percentage of total operating revenue range from 98.4 percent to 99.8 percent from FY 2021 to FY 2025. We further note that this level of total operating expenses is in-line with the historical total operating expenses as a percentage of total operating revenue which ranged from 98.8 percent to 101.5 percent from FY 2017 to FY 2019.

3. Capital Expenditures and Proposed Project Financing

We reviewed the project costs within the Projections related to the Proposed Project which totaled $4.8 million. The total project costs include the cost of the CT unit and the associated renovations for the space for the unit.

In addition to maintenance capital expenditures, we also reviewed the financing plans for the Proposed Project. It is our understanding that the expenditures related to the Proposed Project are expected to be funded through the Applicant's cash on hand. We note that the cash and cash equivalents balance included in the Projections is approximately $1.43 billion in FY 2021, of which the cost of the Proposed Project represents approximately 0.3 percent. We note the model indicates a consistent level of the total cash balance through the projection period and the declining trend for the days available cash and investments on hand. Based on the noted factors, there appears to be sufficient room to accommodate the financing for the Proposed Project within the Applicant's available capital without the need for debt financing.

VI. FEASIBILITY

We analyzed the Projections and Key Metrics for the Proposed Project. In preparing our analysis we considered multiple sources of information including industry metrics, historical results, and Management expectations. It is important to note that the Projections do not account for any anticipated changes in accounting standards. These standards, which may have a material

impact on individual future years, are not anticipated to have a material impact on the aggregate Projections.

Within the projected financial information, the Projections exhibit a cumulative operating EBITDA surplus of approximately 7.5 percent of cumulative projected net patient service revenue for BILH for the five years from FY 2021 through 2025. Based upon our review of the relevant documents and analysis of the Projections, we determined the anticipated EBITDA surplus is a reasonable expectation and based upon feasible financial assumptions. Accordingly, we determined that the Projections are reasonable and feasible, and not likely to have a negative impact on the patient panel or result in a liquidation of assets of BILH.

Respectively submitted,

Erik Lynch
Partner, BDO USA LLP

7. HPC ACO Certification Approval Letter

The Commonwealth of Massachusetts
HEALTH POLICY COMMISSION
50 MILK STREET, 8TH FLOOR
BOSTON, MASSACHUSETTS 02109
(617) 979-1400

STUART H. ALTMAN
CHAIR

DAVID M. SELTZ
EXECUTIVE DIRECTOR

December 23, 2019

Eryn Gallagher
Beth Israel Lahey Performance Network
109 Brookline Avenue Suite 300
Boston, MA 02215

RE: ACO Certification

Dear Ms. Gallagher:

Congratulations! The Health Policy Commission (HPC) is pleased to inform you that Beth Israel Lahey Performance Network meets the requirements for ACO Certification. This certification is effective from the date of this letter through December 31, 2021.

The ACO Certification program, in alignment with other state agencies including MassHealth, is designed to accelerate care delivery transformation in Massachusetts and promote a high quality, efficient health system. ACOs participating in the program have met a set of objective criteria focused on core ACO capabilities including supporting patient-centered care and governance, using data to drive quality improvement, and investing in population health. Beth Israel Lahey Performance Network meets those criteria.

The HPC will promote Beth Israel Lahey Performance Network as a Certified ACO on our website and in our marketing and public materials. In addition, a logo is enclosed for your use in accordance with the attached Terms of Use. We hope you will use the logo to highlight the ACO Certification to your patients, payers, and others.

The HPC looks forward to your continued engagement in the ACO Certification program over the next two years.

Thank you for your dedication to providing accountable, coordinated health care to your patients. If you have any questions about this letter or the ACO Certification program, please do not hesitate to contact Mike Stanek, Manager, at HPC-Certification@mass.gov or (617) 757-1649.

Best wishes,

David Seltz
Executive Director

8. Articles of Organization

Filing Fee: $35.00

DB

Examiner

DB

Name
Approved

The Commonwealth of Massachusetts

William Francis Galvin
Secretary of the Commonwealth
One Ashburton Place, Room 1717, Boston, Massachusetts 02108-1512

ARTICLES OF ORGANIZATION

(General Laws, Chapter 180)

ARTICLE I

The exact name of the corporation is:

Beth Israel Lahey Health, Inc.

ARTICLE II

The purpose of the corporation is to engage in the following activities:

The corporation is organized and shall be operated exclusively for charitable, scientific, and educational purposes within the meaning of Section 501(c)(3) of the Internal Revenue Code of 1986, as amended (the "Code"), and is organized and shall be operated exclusively for the benefit of, to perform the functions of, or to carry out the purposes of Beth Israel Deaconess Medical Center, Inc., Beth Israel Deaconess Hospital – Milton, Inc., Beth Israel Deaconess Hospital – Needham, Inc., Beth Israel Deaconess Hospital – Plymouth, Inc., New England Baptist Hospital, Mount Auburn Hospital, Lahey Clinic Foundation, Inc., Lahey Health Shared Services, Inc., Northeast Hospital Corporation, Winchester Hospital, Anna Jaques Hospital, Inc., Northeast Behavioral Health Corporation and their affiliated organizations that are exempt from taxation under Section 501(c)(3) of the Code, and classified as other than a private foundation under Section 509(a)(1) or 509(a)(2) of the Code (collectively, the "Supported Organizations"). In this capacity, the corporation:

(a) has been formed to maintain and operate charitable hospitals and services associated with charitable hospitals, to advance education and research in providing care to the sick and injured and in training health care professionals, and to promote the general health of the community, including, without limitation, behavioral health, and the needs of at-risk, underserved, uninsured and government payer patient populations;

(b) shall develop, provide and maintain, for the benefit of patients, patient families, employers, commercial payers, public payers, and the Commonwealth, a transformative, competitive model of care that provides the highest quality care in settings that are lower cost, clinically appropriate and both accessible and convenient to and for patients and their families;

(c) shall support the Supported Organizations, which may include support by gift, grant, guarantee, or other means, including without limitation by becoming jointly and severally liable with the Supported Organizations and/or their affiliated organizations in connection with the indebtedness of some or all of such organizations; and

(d) may engage in any other charitable activities that may be lawfully carried on by a corporation formed under Chapter 180 of the Massachusetts General Laws and which is exempt from taxation under Section 501(c)(3) of the Code.

C ☐
P ☐
M ☐
R.A. ☐

7

P.C.

Note: If the space provided under any article or item on this form is insufficient, additions shall be set forth on one side only of separate 8 1/2 x 11 sheets of paper with a left margin of at least 1 inch. Additions to more than one article may be made on a single sheet so long as each article requiring each addition is clearly indicated.

ARTICLE III

A corporation may have one or more classes of members. If it does, the designation of such classes, the manner of election or appointments, the duration of membership and the qualification and rights, including voting rights, of the members of each class, may be set forth in the by-laws of the corporation or may be set forth below:

The corporation shall have no members. All powers of members under Massachusetts law shall be exercised by the trustees.

ARTICLE IV

**Other lawful provisions, if any, for the conduct and regulation of the business and affairs of the corporation, for its voluntary dissolution, or for limiting, defining, or regulating the powers of the corporation, or of its directors or members, or of any class of members, are as follows:

See Attachment Sheets 4A - 4C.

ARTICLE V

The by-laws of the corporation have been duly adopted and the initial directors, president, treasurer and clerk or other presiding, financial or recording officers, whose names are set out on the following page, have been duly elected.

***If there are no provisions, state "None".*

Note: The preceding four (4) articles are considered to be permanent and may only be changed by filing appropriate Articles of Amendment.

4. Other lawful provisions, if any, for the conduct and regulation of the business and affairs of the corporation, for its voluntary dissolution, or for limiting, defining, or regulating the powers of the corporation, or of its trustees, are as follows:

4.1. The corporation shall have in furtherance of its corporate purposes all of the powers specified in Section 6 of Chapter 180 and in Sections 9 and 9A of Chapter 156B of the Massachusetts General Laws (except those provided in paragraph (m) of said Section 9) as now in force or as hereafter amended, and may carry on any operation or activity referred to in Article 2 to the same extent as might an individual, either alone or in a joint venture or other arrangement with others, or through a wholly or partly owned or controlled corporation; provided, however, that no such power shall be exercised in a manner inconsistent with said Chapter 180 or any other chapter of the Massachusetts General Laws or inconsistent with the exemption from federal income tax to which the corporation shall be entitled under Section 501(c)(3) of the Internal Revenue Code.

4.2. The trustees may make, amend or repeal the bylaws in whole or in part.

4.3. Meetings of the trustees (and meetings of any committees elected or appointed by the trustees) may be held anywhere in the United States.

4.4. No trustee or officer of the corporation shall be personally liable to the corporation for monetary damages for breach of fiduciary duty as such director or officer notwithstanding any provision of law imposing such liability, except to the extent that such exemption from liability is not permitted under Chapter 180 of the Massachusetts General Laws.

4.5.(a) The corporation shall, to the extent legally permissible, indemnify each person who serves as one of its trustees or officers, or who serves at its request as a director, trustee or officer of another organization or in a capacity with respect to any employee benefit plan (each such person being called in this Section 4.5 a "Person") against all liabilities and expenses, including amounts paid in satisfaction of judgments, in compromise or as fines and penalties, and counsel fees, reasonably incurred by such Person in connection with the defense or disposition of any action, suit or other proceeding, whether civil or criminal, in which such Person may be involved or with which such Person may be threatened, while in office or thereafter, by reason of being or having been such a Person, except with respect to any matter as to which such Person shall have been adjudicated in any proceeding: (i) not to have acted in good faith in the reasonable belief that his or her action was in the best interests of the corporation or (ii), to the extent that such matter relates to service at the request of the corporation for another organization or an employee benefit plan, to not have acted in the best interests of such organization or of the participants or beneficiaries of such employee benefit plan. Such best interests shall be deemed to be the best interests of the corporation for the purposes of this Section 4.5.

(b) Notwithstanding the foregoing, as to any matter disposed of by a compromise payment by any Person, pursuant to a consent decree or otherwise, no indemnification either for said payment or for any other expenses shall be provided unless such compromise shall be approved as in the best interests of the corporation, after notice that it involves such indemnification, (a) by a disinterested majority of the trustees then in office; or (b) by a majority of the disinterested trustees then in office, provided that there has been obtained an opinion in writing of independent legal counsel to

the effect that such Person appears to have acted in good faith in the reasonable belief that his or her action was in the best interests of the corporation.

(c) Expenses, including counsel fees, reasonably incurred by any Person in connection with the defense or disposition of any such action, suit or other proceeding may be paid from time to time by the corporation in advance of the final disposition thereof upon receipt of an undertaking by such Person to repay the amounts so paid if such Person ultimately shall be adjudicated to be not entitled to indemnification under this Section 4.5. Such an undertaking may be accepted without reference to the financial ability of such Person to make repayment.

(d) The right of indemnification hereby provided shall not be exclusive. Nothing contained in this Section shall affect any other rights to indemnification to which any Person or other corporate personnel may be entitled by contract or otherwise under law.

(e) As used in this Section 4.5, the term "Person" includes such Person's respective heirs, executors and administrators, and a "disinterested" trustee or officer is one against whom in such capacity the proceeding in question, or another proceeding on the same or similar grounds, is not then pending.

4.6.(a) No person shall be disqualified from holding any office by reason of any interest. In the absence of fraud, any trustee or officer of this corporation, or any concern in which any such trustee or officer has any interest, may be a party to, or may be pecuniarily or otherwise interested in, any contract, act or other transaction (collectively called a "transaction") of this corporation, and

(1) such transaction shall not be in any way invalidated or otherwise affected by that fact; and

(2) no such trustee, officer or concern shall be liable to account to this corporation for any profit or benefit realized through any such transaction; provided, however, that such transaction either was fair at the time it was entered into or is authorized or ratified by a majority of the directors who are not so interested and to whom the nature of such interest has been disclosed. No interested trustee of this corporation may vote or may be counted in determining the existence of a quorum at any meeting at which such transaction shall be authorized, but may participate in discussion thereof.

(b) For purposes of this Section 4.6, the term "interest" shall include personal interest and also interest as a trustee, officer, stockholder, shareholder, overseer, member or beneficiary of any concern; and the term "concern" shall mean any corporation, association, trust, partnership, firm, person or other entity other than this corporation.

(c) No transaction shall be voided by reason of any provisions of this Section 4.6 which would be valid but for such provisions.

4.7. No part of the assets or net earnings of the corporation shall inure to the benefit of any officer or director of the corporation or any individual (except that the corporation shall be authorized and empowered to pay reasonable compensation for services rendered and reimburse for reasonable expenses incurred on behalf of and for the benefit of the corporation); no substantial part of the

activities of the corporation shall be the carrying on of propaganda, or otherwise attempting, to influence legislation except to the extent permitted by Section 501(h) of the Internal Revenue Code; and the corporation shall not participate in, or intervene in (including the publishing or distributing of statements), any political campaign on behalf of (or in opposition to) any candidate for public office. It is intended that the corporation shall be entitled to exemption from federal income tax under Section 501(c)(3) of the Internal Revenue Code and shall not be a private foundation under Section 509(a) of the Internal Revenue Code.

4.8. If and so long as the corporation is a private foundation (as that term is defined in Section 509 of the Internal Revenue Code), then notwithstanding any other provisions of the articles of organization or the bylaws of the corporation, the following provisions shall apply:

(a) the income of the corporation for each taxable year shall be distributed at such time and in such manner as not to subject the corporation to the tax on undistributed income imposed by Section 4942 of the Internal Revenue Code, and

(b) the corporation shall not engage in any act of self-dealing (as defined in Section 4941(d) of the Internal Revenue Code), nor retain any excess business holdings (as defined in Section 4943(c) of the Internal Revenue Code), nor make any investments in such manner as to subject the corporation to tax under Section 4944 of the Internal Revenue Code, nor make any taxable expenditures (as defined in Section 4945(d) of the Internal Revenue Code).

4.9. Upon the liquidation or dissolution of the corporation, after payment of all of the liabilities of the corporation or due provision therefor, all of the assets of the corporation shall be disposed of to one or more of the Supported Organizations as are at that time exempt from federal income tax under Section 501(c)(3) of the Internal Revenue Code.

4.10. The corporation shall not discriminate in administering its policies and programs or in the employment of its personnel on the basis of race, color, religion, national or ethnic origin, sex, handicap, gender, gender identity, sexual orientation, military status or otherwise.

4.11. All references herein: (i) to the Internal Revenue Code shall be deemed to refer to the Internal Revenue Code of 1986, as now in force or hereafter amended; (ii) to the General Laws of The Commonwealth of Massachusetts, or any chapter thereof, shall be deemed to refer to said General Laws or chapter as now in force or hereafter amended; and (iii) to particular sections of the Internal Revenue Code or said General Laws shall be deemed to refer to similar or successor provisions hereafter adopted.

ARTICLE VI

The effective date of organization of the corporation shall be the date approved and filed by the Secretary of the Commonwealth. If a *later* effective date is desired, specify such date which shall not be more than *thirty days* after the date of filing.

ARTICLE VII

The information contained in Article VII is not a permanent part of the Articles of Organization.

a. The street address (post office boxes are not acceptable) of the principal office of the corporation *in Massachusetts* is:

109 Brookline Avenue, Suite 300, Boston, MA 02215-3903

b. The name, residential address and post office address of each director and officer of the corporation is as follows:

	NAME	RESIDENTIAL ADDRESS	POST OFFICE ADDRESS
President:	Kevin Tabb, M.D.	64 Beethoven Ave, Waban, MA 02468	Same as Residential Address
Treasurer:	Kevin Tabb, M.D.	64 Beethoven Ave, Waban, MA 02468	Same as Residential Address
Clerk:	Jamie Katz	18 Barberry Rd, Lexington, MA 02421	Same as Residential Address
Directors: (or officers having the powers of *directors)*	Ann-Ellen Hornidge	79 Wilsondale St, Dover MA 02030	Same as Residential Address
	Kevin Tabb, M.D.	64 Beethoven Ave, Waban, MA 02468	Same as Residential Address
	Jamie Katz	18 Barberry Rd, Lexington, MA 02421	Same as Residential Address

c. The fiscal year of the corporation shall end on the last day of the month of: September

d. The name and business address of the resident agent, if any, of the corporation is:

Not applicable

I~~/We~~, the below signed incorporator(s), do hereby certify under the pains and penalties of perjury that I~~/we~~ have not been convicted of any crimes relating to alcohol or gaming within the past ten years. I~~/We~~ do hereby further certify that to the best of my~~/our~~ knowledge the above-named officers have not been similarly convicted. If so convicted, explain.

IN WITNESS WHEREOF AND UNDER THE PAINS AND PENALTIES OF PERJURY, I~~/we~~, whose signature(s) appear below as incorporator(s) and whose name(s) and business or residential address(es) *are clearly typed or printed* beneath each signature, do hereby associate with the intention of forming this corporation under the provisions of General Laws, Chapter 180 and do hereby sign these Articles of Organization as incorporator(s) this 23rd day of NOVEMBER, 2018 ,

David P Spackman

David Spackman, 41 Burlington Mall Road, Burlington, MA 01805

Note: If an existing corporation is acting as incorporator, type in the exact name of the corporation, the state or other jurisdiction where it was incorporated, the name of the person signing on behalf of said corporation and the title he/she holds or other authority by which such action is taken.

SECRETARY OF THE COMMONWEALTH

2018 NOV 27 AM 9:55

CORPORATIONS DIVISION

THE COMMONWEALTH OF MASSACHUSETTS

ARTICLES OF ORGANIZATION

(General Laws, Chapter 180)

! 320882

I hereby certify that, upon examination of these Articles of Organization, duly submitted to me, it appears that the provisions of the General Laws relative to the organization of corporations have been complied with, and I hereby approve said articles; and the filing fee in the amount of $ 35 having been paid, said articles are deemed to have been filed with me this 27 day of November 20 18 .

Effective date: _____

William Francis Galvin

WILLIAM FRANCIS GALVIN

Secretary of the Commonwealth

40848

TO BE FILLED IN BY CORPORATION

Contact information:

David Spackman

41 Burlington Mall Road

Burlington, MA 01805

Telephone: 781-744-3466

Email: David.G.Spackman@lahey.org

A copy this filing will be available on-line at www.state.ma.us/sec/cor once the document is filed.

IDENTIFICATION no. _____

Filing Fee: $15.00

Examiner

The Commonwealth of Massachusetts

William Francis Galvin
Secretary of the Commonwealth
One Ashburton Place, Room 1717, Boston, Massachusetts 02108-1512

ARTICLES OF AMENDMENT
(General Laws, Chapter 180, Section 7)

Name Approved

We, Kevin Tabb, M.D., *President / ~~*Vice President,~~

and Jamie Katz, *Clerk / ~~*Assistant Clerk,~~

of Beth Israel Lahey Health, Inc.,
(Exact name of corporation)

located at 109 Brookline Avenue, Suite 300, Boston, Massachusetts, 02215,
(Address of corporation in Massachusetts)

do hereby certify that these Articles of Amendment affecting articles numbered:

2
(Number those articles 1, 2, 3, and/or 4 being amended)

of the Articles of Organization were duly adopted at a meeting held on June 7 20 19, by vote of:

_____ members, 20 directors, or _____ shareholders**,

☐ Being at least two-thirds of its members legally qualified to vote in meetings of the corporation; OR

☑ Being at least two-thirds of its directors where there are no members pursuant to General Laws, Chapter 180, Section 3; OR

☐ In the case of a corporation having capital stock, by the holders of at least two-thirds of the capital stock having the right to vote therein.

Article II: The corporation is organized and shall be operated exclusively for charitable, scientific, and educational purposes within the meaning of Section 501(c)(3) of the Internal Revenue Code of 1986, as amended (the "Code"), and is organized and shall be operated exclusively for the benefit of, to perform the functions of, or to carry out the purposes of Beth Israel Deaconess Medical Center, Inc., Beth Israel Deaconess Hospital - Milton, Inc., Beth Israel Deaconess Hospital - Needham, Inc., Beth Israel Deaconess Hospital - Plymouth, Inc., New England Baptist Hospital, Mount Auburn Hospital, Lahey Clinic Foundation, Inc., Lahey Health Shared Services, Inc., Northeast Hospital Corporation, Winchester Hospital, Anna Jaques Hospital, Inc., Northeast Behavioral Health Corporation, and their affiliated organizations that are exempt from taxation under Section 501(c)(3) of the Code, and classified as other than a private foundation under Section 509(a)(1) or 509(a)(2) of the Code (collectively, the "Supported Organizations"). In this capacity, the corporation:

C ☐
P ☐
M ☐
R.A. ☐

**Delete the inapplicable words.*
***Check only one box that applies.*
Note: If the space provided under any article or item on this form is insufficient, additions shall be set forth on one side only of separate 8 1/2 x 11 sheets of paper with a left margin of at least 1 inch. Additions to more than one article may be made on a single sheet so long as each article requiring each addition is clearly indicated.

P.C.

180amen 11/6/13

(a) has been formed to maintain and operate charitable hospitals and services associated with charitable hospitals, to advance education and research in providing care to the sick and injured and in training health care professionals, and to promote the general health of the community, including, without limitation, a core commitment to (i) meeting the health care, including behavioral health, needs of at-risk, underserved, uninsured and government payer patient populations throughout the Commonwealth; and (ii) diversity and geographic representation from within the service areas of its affiliated safety net hospitals, Lawrence General Hospital, Cambridge Health Alliance, and Signature Healthcare Brockton Hospital, for so long as each such hospital maintains a clinical and/or contractual affiliation with the corporation.

(b) shall develop, provide and maintain, for the benefit of patients, patient families, employers, commercial payers, public payers, and the Commonwealth, a transformative, competitive model of care that provides the highest quality care in settings that are lower cost, clinically appropriate and both accessible and convenient to and for patients and their families;

(c) shall support the Supported Organizations, which may include support by gift, grant, guarantee, or other means, including without limitation by becoming jointly and severally liable with the Supported Organizations and/or their affiliated organizations in connection with the indebtedness of some or all of such organizations; and

(d) may engage in any other charitable activities that may be lawfully carried on by a corporation formed under Chapter 180 of the Massachusetts General Laws and which is exempt from taxation under Section 501(c)(3) of the Code.

The foregoing amendment(s) will become effective when these Articles of Amendment are filed in accordance with General Laws, Chapter 180, Section 7 unless these articles specify, in accordance with the vote adopting the amendment, a *later* effective date not more than *thirty days* after such filing, in which event the amendment will become effective on such later date.

Later effective date:_____ .

SIGNED UNDER THE PENALTIES OF PERJURY, this 25 day of June , 20 19

,

Kevin Tabb, M.D. , *President / ~~*Vice President,~~

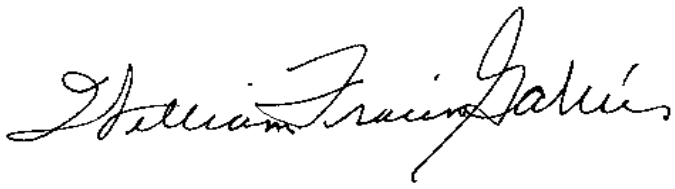
Jamie Katz , *Clerk / ~~*Assistant Clerk.~~

**Delete the inapplicable words.*

THE COMMONWEALTH OF MASSACHUSETTS

I hereby certify that, upon examination of this document, duly submitted to me, it appears that the provisions of the General Laws relative to corporations have been complied with, and I hereby approve said articles; and the filing fee having been paid, said articles are deemed to have been filed with me on:

July 19, 2019 11:12 AM



WILLIAM FRANCIS GALVIN

Secretary of the Commonwealth

9. Affidavit of Truthfulness and Compliance

Massachusetts Department of Public Health
Determination of Need
Affidavit of Truthfulness and Compliance with Law and Disclosure Form 100.405(B)

Version: 7-6-17

Instructions: Complete information below. When complete check the box "This document is ready to print:". This will date stamp and lock the form. Print Form. Each person must sign and date the form. When all signatures have been collected, scan the document and e-mail to: **dph.don@state.ma.us** Include all attachments as requested.

Application Number: BILH-19092415-RE

Original Application Date: 5-10-21

Applicant Name: Beth Israel Lahey Health, Inc.

Application Type: Acquisition of DoN-Required Equipment

Applicant's Business Type: (•) Corporation ( ) Limited Partnership ( ) Partnership ( ) Trust ( ) LLC ( ) Other

Is the Applicant the sole member or sole shareholder of the Health Facility(ies) that are the subject of this Application? (•) Yes ( ) No

The undersigned certifies under the pains and penalties of perjury:

1. The Applicant is the sole corporate member or sole shareholder of the Health Facility[ies] that are the subject of this Application;
2. I have ~~read~~[1] 105 CMR 100.000, the Massachusetts Determination of Need Regulation;
3. I understand and agree to the expected and appropriate conduct of the Applicant pursuant to 105 CMR 100.800;
4. I have ~~read~~[1] this application for Determination of Need including all exhibits and attachments, and ~~certify~~[2] that all of the information contained herein is accurate and true;
5. I have submitted the correct Filing Fee and understand it is nonrefundable pursuant to 105 CMR 100.405(B);
6. I have submitted the required copies of this application to the Determination of Need Program, and, as applicable, to all Parties of Record and other parties as required pursuant to 105 CMR 100.405(B);
7. I have caused, as required, notices of intent to be published and duplicate copies to be submitted to all Parties of Record, and all carriers or third-party administrators, public and commercial, for the payment of health care services with which the Applicant contracts, and with Medicare and Medicaid, as required by 105 CMR 100.405(C), et seq.;
8. I have ~~caused~~[3] proper notification and submissions to the Secretary of Environmental Affairs pursuant to 105 CMR 100.405(E) and 301 CMR 11.00; will be made if applicable
9. ~~If subject to M.G.L. c. 6D, § 13 and 958 CMR 7.00, I have submitted such Notice of Material Change to the HPC in accordance with 105 CMR 100.405(G);~~ [4]
10. Pursuant to 105 CMR 100.210(A)(3), I certify[5] that both the Applicant and the Proposed Project are in material and substantial compliance and good standing with relevant federal, state, and local laws and regulations, as well as with all ~~previously issued~~ Notices of Determination of Need ~~and the terms and Conditions attached therein;~~ [6]
11. I have ~~read~~[3] and understand the limitations on solicitation of funding from the general public prior to receiving a Notice of Determination of Need as established in 105 CMR 100.415;
12. I understand that, if Approved, the Applicant, as Holder of the DoN, shall become obligated to all Standard Conditions pursuant to 105 CMR 100.310, as well as any applicable Other Conditions as outlined within 105 CMR 100.000 or that otherwise become a part of the Final Action pursuant to 105 CMR 100.360;
13. Pursuant to 105 CMR 100.705(A), I ~~certify~~[2] that the Applicant has Sufficient Interest in the Site or facility; and
14. Pursuant to 105 CMR 100.705(A), I ~~certify~~[2] that the Proposed Project is authorized under applicable zoning by-laws or ordinances, whether or not a special permit is required; or,
    a. If the Proposed Project is not authorized under applicable zoning by-laws or ordinances, a variance has been received to permit such Proposed Project; or,
    b. The Proposed Project is exempt from zoning by-laws or ordinances.

Corporation:

Attach a copy of Articles of Organization/Incorporation, as amended

Kevin Tabb, M.D.		
CEO for Corporation Name:	Signature:	Date
Ann-Ellen Hornidge		
Board Chair for Corporation Name:	Signature:	Date

10. Filing Fee

THE SECURITY FEATURES ON THIS CHECK INCLUDE PADLOCK ICON, ULTRAVIOLET FIBERS, A BROWN BLEACH STAIN FEATURE AND A SIMULATED WATERMARK ON THE BACK.

Beth Israel Deaconess Medical Center
330 Brookline Avenue
Boston, MA 02215

Bank of America

1131489
51-44/119

Date Apr/20/2021 Pay Amount $9,590.78***

Pay ****NINE THOUSAND FIVE HUNDRED NINETY AND 78/100 DOLLAR ****

VOID AFTER 6 MONTHS

To The Order Of
COMMONWEALTH OF MA
DEPT OF PUBLIC HLTH / RADIATION
PO BOX 3423
BOSTON MA 02241-3423

Authorized Signature

Two Signatures Required for $100,000 or More

MC 1241 (Rev. 10/19)

Check Date: Apr/20/2021		Supplier Number: 0000001430				Check No: 1131489
Invoice Number	**Invoice Date**	**Voucher ID**	**Gross Amount**	**Discount Taken**	**Late Charge**	**Paid Amount**
CT SCAN DO N FILING FEE To hand deliver	Apr/17/2021	02644896	9,590.78	0.00	0.00	9,590.78

Check Number	Date	Total Gross Amount	Total Discounts	Total Late Charge	Total Paid Amount
1131489	Apr/20/2021	9,590.78	0.00	0.00	9,590.78