

MASS GENERAL BRIGHAM INCORPORATED

**DON APPLICATION # MGB-20121612-HE
SUBSTANTIAL CAPITAL EXPENDITURE
SUBSTANTIAL CHANGE IN SERVICE
MASSACHUSETTS GENERAL HOSPITAL**

January 21, 2021

BY

**MASS GENERAL BRIGHAM INCORPORATED
800 BOYLSTON STREET, SUITE 1150
BOSTON, MA 02199**

MASS GENERAL BRIGHAM INCORPORATED
APPLICATION # MGB-20121612-HE

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Appendix 1

DoN Application Form



Massachusetts Department of Public Health

Determination of Need

Application Form

Version: 11-8-17

Application Type:	Hospital/Clinic Substantial Capital Expenditure	Application Date:	01/21/2021
Applicant Name:	Mass General Brigham Incorporated		
Mailing Address:	800 Boylston Street, Suite 1150		
City:	Boston	State:	Massachusetts
		Zip Code:	02199
Contact Person:	Andrew Levine, Esq.	Title:	Attorney
Mailing Address:	One Beacon Street, Suite 1320		
City:	Boston	State:	Massachusetts
		Zip Code:	02108
Phone:	6175986700	Ext:	
E-mail:	alevine@barrettsingal.com		

Facility Information

List each facility affected and or included in Proposed Project

1 Facility Name:	The General Hospital Corporation d/b/a Massachusetts General Hospital		
Facility Address:	55 Fruit Street		
City:	Boston	State:	Massachusetts
		Zip Code:	02114
Facility type:	Hospital	CMS Number:	220071
Add additional Facility		Delete this Facility	

1. About the Applicant

1.1 Type of organization (of the Applicant):	nonprofit
1.2 Applicant's Business Type:	<input checked="" type="radio"/> Corporation <input type="radio"/> Limited Partnership <input type="radio"/> Partnership <input type="radio"/> Trust <input type="radio"/> LLC <input type="radio"/> Other
1.3 What is the acronym used by the Applicant's Organization?	MGB
1.4 Is Applicant a registered provider organization as the term is used in the HPC/CHIA RPO program?	<input checked="" type="radio"/> Yes <input type="radio"/> No
1.5 Is Applicant or any affiliated entity an HPC-certified ACO?	<input checked="" type="radio"/> Yes <input type="radio"/> No
1.5.a If yes, what is the legal name of that entity?	Mass General Brigham Incorporated (f/k/a Partners HealthCare System, Inc.), inclusive of Partners HealthCare Accountable Care Organization, LLC *
1.6 Is Applicant or any affiliate thereof subject to M.G.L. c. 6D, § 13 and 958 CMR 7.00 (filing of Notice of Material Change to the Health Policy Commission)?	<input type="radio"/> Yes <input checked="" type="radio"/> No

* As of March 2021, the legal name of the Applicant's ACO will become Mass General Brigham Incorporated, inclusive of Mass General Brigham ACO, LLC

1.7 Does the Proposed Project also require the filing of a MCN with the HPC? ☐ Yes ☒ No

1.8 Has the Applicant or any subsidiary thereof been notified pursuant to M.G.L. c. 12C, § 16 that it is exceeding the health care cost growth benchmark established under M.G.L. c. 6D, § 9 and is thus, pursuant to M.G.L. c. 6D, §10 required to file a performance improvement plan with CHIA? ☐ Yes ☒ No

1.9 Complete the Affiliated Parties Form

2. Project Description

2.1 Provide a brief description of the scope of the project.

See Attached Narrative.

2.2 and 2.3 Complete the Change in Service Form

3. Delegated Review

3.1 Do you assert that this Application is eligible for Delegated Review? ☐ Yes ☒ No

4. Conservation Project

4.1 Are you submitting this Application as a Conservation Project? ☐ Yes ☒ No

5. DoN-Required Services and DoN-Required Equipment

5.1 Is this an application filed pursuant to 105 CMR 100.725: DoN-Required Equipment and DoN-Required Service? ☒ Yes ☐ No

5.2 If yes, is Applicant or any affiliated entity thereof a HPC-certified ACO? ☒ Yes ☐ No

5.2.a If yes, Please provide the date of approval and attach the approval letter:

12/29/2017

5.3 See section on DoN-Required Services and DoN-Required Equipment in the Application Instructions

6. Transfer of Ownership

6.1 Is this an application filed pursuant to 105 CMR 100.735? ☐ Yes ☒ No

7. Ambulatory Surgery

7.1 Is this an application filed pursuant to 105 CMR 100.740(A) for Ambulatory Surgery? ☐ Yes ☒ No

8. Transfer of Site

8.1 Is this an application filed pursuant to 105 CMR 100.745? ☐ Yes ☒ No

9. Research Exemption

9.1 Is this an application for a Research Exemption? ☐ Yes ☒ No

10. Amendment

10.1 Is this an application for a Amendment? ☐ Yes ☒ No

11. Emergency Application

11.1 Is this an application filed pursuant to 105 CMR 100.740(B)? ☐ Yes ☒ No

12. Total Value and Filing Fee

Enter all currency in numbers only. No dollar signs or commas. Grayed fields will auto calculate depending upon answers above.

Your project application is for: Hospital/Clinic Substantial Capital Expenditure

12.1 Total Value of this project:

\$1,880,774,238.

12.2 Total CHI commitment expressed in dollars: (calculated)

\$94,038,711.90

12.3 Filing Fee: (calculated)

\$3,761,548.48

12.4 Maximum Incremental Operating Expense resulting from the Proposed Project:

\$350,012,000.00

12.5 Total proposed Construction costs, specifically related to the Proposed Project, If any, which will be contracted out to local or minority, women, or veteran-owned businesses expressed in estimated total dollars.

13. Factors

Required Information and supporting documentation consistent with 105 CMR 100.210

Some Factors will not appear depending upon the type of license you are applying for.

Text fields will expand to fit your response.

Factor 1: Applicant Patient Panel Need, Public Health Values 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 expressed in 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 payer mix.

See Attached Narrative.

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, or 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 inequity or disparity is not identified as relating to the Proposed Project, provide information justifying the need. In your description of Need, consider the principles underlying Public Health Value (see instructions) and ensure that Need is addressed in that context as well.

See Attached Narrative.

F1.a.iii Competition:

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.

See Attached Narrative.

F1.b.i Public Health Value /Evidence-Based:

Provide information on the evidence-base for the Proposed Project. That is, how does the Proposed Project address the Need that Applicant has identified.

See Attached Narrative.

F1.b.ii Public Health Value /Outcome-Oriented:

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.

See Attached Narrative.

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

For Proposed Projects addressing health inequities identified within the Applicant's description of the Proposed Project's 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.

See Attached Narrative.

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.

See Attached Narrative.

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.

See Attached Narrative.

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.

See Attached Narrative.

F1.e.i Process for Determining Need/Evidence of Community Engagement: 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.

See Attached Narrative.

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".

See Attached Narrative.

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 **Cost Containment:**

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.

See Attached Narrative.

F2.b **Public Health Outcomes:**

Describe, as relevant, for each new or expanded service, how the Proposed Project will improve public health outcomes.

See Attached Narrative.

F2.c **Delivery System Transformation:**

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.

See Attached Narrative.

Factor 3: Compliance

Applicant certifies, by virtue of submitting this Application that it is in compliance and good standing with federal, state, and local laws and regulations, including, but not limited to M.G.L. c. 30, §§ 61 through 62H and the applicable regulations thereunder, and in compliance with all previously issued notices of Determination of Need and the terms and conditions attached therein .

F3.a Please list all previously issued Notices of Determination of Need

Add/Del Rows	Project Number	Date Approved	Type of Notification	Facility Name
<input checked="" type="checkbox"/> <input type="checkbox"/>	PHS-17071716-TO	02/14/2018	Transfer of Ownership	Massachusetts Eye and Ear Infirmary
<input checked="" type="checkbox"/> <input type="checkbox"/>	PHS-17111513-HE	03/06/2018		Brigham and Women's Hospital
<input checked="" type="checkbox"/> <input type="checkbox"/>	PHS-1802210-HE	06/13/2018		Massachusetts General - Waltham
<input checked="" type="checkbox"/> <input type="checkbox"/>	PHS-18050912-AM	09/12/2018	Amendment	North Shore Medical Center
<input checked="" type="checkbox"/> <input type="checkbox"/>	PHS-18090711-HS	01/03/2019	Hospital/Clinic Substantial Change in Service	Massachusetts General Physicians Organization - Waltham
<input checked="" type="checkbox"/> <input type="checkbox"/>	PHS-19030610-HS	08/09/2019	Hospital/Clinic Substantial Change in Service	Brigham and Women's Faulkner Hospital
<input checked="" type="checkbox"/> <input type="checkbox"/>	PHS-19040915-HE	10/25/2019		Massachusetts General Hospital
<input checked="" type="checkbox"/> <input type="checkbox"/>	PHS-19072212-RE	12/16/2019	DoN-Required Equipment	Brigham and Women's/Mass General Health Care Center, Foxborough
<input checked="" type="checkbox"/> <input type="checkbox"/>	PHS-19093011-HS	02/19/2020	Hospital/Clinic Substantial Change in Service	Massachusetts General Physicians Organization - Assembly Row
<input checked="" type="checkbox"/> <input type="checkbox"/>	PHS-19092711-HE	03/18/2020		Newton-Wellesley Hospital
<input checked="" type="checkbox"/> <input type="checkbox"/>	MGB-20101916-TS	11/09/2020	Transfer of Site/Change in Designated Location	McLean Hospital

Factor 4: Financial Feasibility and Reasonableness of Expenditures and Costs

Applicant has provided (as an attachment) a certification, by an independent certified public accountant (CPA) as to the availability of sufficient funds for capital and ongoing operating costs necessary to support the Proposed Project without negative impacts or consequences to the Applicant's existing Patient Panel.

F4.a.i **Capital Costs Chart:**

For each Functional Area document the square footage and costs for New Construction and/or Renovations.

[illegible]

F4.a.ii For each Category of Expenditure document New Construction and/or Renovation Costs.

	Category of Expenditure	New Construction	Renovation	Total (calculated)
	Land Costs			
	Land Acquisition Cost			
	Site Survey and Soil Investigation	\$1227600.		\$1227600.
	Other Non-Depreciable Land Development	\$32437276.		\$32437276.
	Total Land Costs	\$33664876.		\$33664876.
	Construction Contract (including bonding cost)			
	Depreciable Land Development Cost	\$7662803.		\$7662803.
	Building Acquisition Cost			
	Construction Contract (including bonding cost)	\$1594307410.	\$19364999.	\$1613672409.
	Fixed Equipment Not in Contract	\$71120607.	\$6600428.	\$77721035.
	Architectural Cost (Including fee, Printing, supervision etc.) and Engineering Cost	\$85822355.	\$2707492.	\$88529847.
	Pre-filing Planning and Development Costs	\$12861071.	\$61710.	\$12922781.
	Post-filing Planning and Development Costs	\$16472448.	\$77138.	\$16549586.
Add/Del Rows	Other (specify)			
<input type="checkbox"/> + <input type="checkbox"/> -	Utility Consumption During Construction, Moves & Move Management, Project Administration Consultant	\$22916354.	\$107993.	\$23024347.
	Net Interest Expensed During Construction			
	Major Movable Equipment			
	Total Construction Costs	\$1811163048.	\$28919760.	\$1840082808.
	Financing Costs:			
	Cost of Securing Financing (legal, administrative, feasibility studies, mortgage insurance, printing, etc	\$6918105.	\$108449.	\$7026554.
	Bond Discount			
Add/Del Rows	Other (specify)			
<input type="checkbox"/> + <input type="checkbox"/> -				
	Total Financing Costs	\$6918105.	\$108449.	\$7026554.
	Estimated Total Capital Expenditure	\$1851746029.	\$29028209.	\$1880774238.

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:

See Attached Narrative.

Quality:

See Attached Narrative.

Efficiency:

See Attached Narrative.

Capital Expense:

See Attached Narrative.

Operating Costs:

See Attached Narrative.

List alternative options for the Proposed Project:

Alternative Proposal:

See Attached Narrative.

Alternative Quality:

See Attached Narrative.

Alternative Efficiency:

See Attached Narrative.

Alternative Capital Expense:

See Attached Narrative.

Alternative Operating Costs:

See Attached Narrative.

Add additional Alternative Project

Delete this Alternative Project

F5.a.ii 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.

See Attached Narrative.

Documentation Check List

The Check List below will assist you in keeping track of additional documentation needed for your application. Once you have completed this Application Form the additional documents needed for your application will be on this list. E-mail the documents as an attachment to: DPH.DON@state.ma.us

- ☐ Copy of Notice of Intent
- ☐ Affidavit of Truthfulness Form
- ☐ Scanned copy of Application Fee Check
- ☐ Affiliated Parties Table Question 1.9
- ☐ Change in Service Tables Questions 2.2 and 2.3
- ☐ Certification from an independent Certified Public Accountant
- ☐ Articles of Organization / Trust Agreement
- ☐ Community Engagement Plan form
- ☐ Current IRS Form, 990 Schedule H CHNA/CHIP and/or Current CHNA/CHIP submitted to Massachusetts AGO's Office
- ☐ Community Engagement Stakeholder Assessment form
- ☐ Community Engagement-Self Assessment form

Document Ready for Filing

When 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 Determination of Need" button.

This document is ready to file:

☐

Date/time Stamp:

E-mail submission to
Determination of Need

Application Number: MGB-20121612-HE

Use this number on all communications regarding this application.

☒ Community Engagement-Self Assessment form

Appendix 2

DoN Narrative

2.1 Provide a brief description of the scope of the project.

The Applicant

Mass General Brigham Incorporated, a Massachusetts not-for-profit corporation with its principal office located at 800 Boylston Street, Suite 1150, Boston, Massachusetts 02199 (the “Applicant”), is the parent organization of a charitable, integrated health care system (referred to herein as “Mass General Brigham”) that currently comprises two tertiary and seven community acute care hospitals, hospitals specializing in inpatient and outpatient services in behavioral health, rehabilitation medicine and ophthalmology and otolaryngology, a home health agency, a nursing home and a physician network with approximately 7,500 employed and affiliated primary care and specialty care physicians. Mass General Brigham also operates a non-profit managed care organization and a for-profit insurance company that collectively provide health insurance and administrative services products to the MassHealth Program (Medicaid), ConnectorCare and commercial populations. Mass General Brigham maintains the largest non-university-based, non-profit, private medical research enterprise in the United States; its hospitals are principal teaching affiliates of the medical and dental schools of Harvard University; and it operates a graduate level program for health sciences.

In order to fulfill its four-part mission of patient care, research, education and community service, the Applicant has affirmed a system-wide strategy that is grounded in the excellence of Mass General Brigham’s two academic medical centers, focused on improved patient outcomes and experience, and supported by its historical and ongoing commitment to digital health and data analytics, population health, ambulatory care and insurance risk management. Implementation of this strategy relies on a series of synergistic priorities that include:

- i. improving health outcomes across the full continuum of care with an emphasis on the development by Mass General Brigham’s academic medical centers of multidisciplinary centers of excellence for tertiary and quaternary care;
- ii. enhancing the patient experience, particularly for primary care and behavioral health care, by developing community-based health care settings that improve access and ease of navigation for patients;
- iii. reducing the total cost of health care by developing delivery models that focus on value while simultaneously improving outcomes; and
- iv. investing in research and innovations that meaningfully improve the diagnosis and treatment of all forms of human illness.

The Proposed Project

The Applicant is filing a Notice of Determination of Need (“DoN”) (“Application”) with the Massachusetts Department of Public Health (“Department”) for a substantial capital expenditure and substantial change in service by The General Hospital Corporation d/b/a Massachusetts General Hospital (“MGH” or “the Hospital”) located at 55 Fruit Street, Boston, MA 02114. This Application requests approval for the following: (A) construction of a new building that will contain the following: (1) 482 private medical/surgical and intensive care unit beds and with the corresponding closure of 388 semi-private beds from existing buildings, MGH will have a total of 94 new licensed beds; (2) relocated and expanded outpatient oncology services; (3) 24 cardiovascular operating rooms; (4) two computed tomography (“CT”) units; (5) two magnetic resonance imaging (“MRI”) units; (6) two positron emission tomography-computed tomography (“PET/CT”) units; (7) one positron emission tomography-magnetic resonance (“PET/MR”) unit; and (B) other renovation projects at MGH’s main campus and licensed satellites.

The Proposed Project will maximize the use of the current inpatient facilities and alleviate capacity issues at MGH's main campus for medical/surgical and ICU inpatients as well as cancer and cardiac outpatient services through construction of a new building. This will improve throughput across MGH's campus, specifically in the ED and PACU. The Proposed Project also seeks to ensure facilities are built according to current industry standards, providing enhanced stability during natural disasters, and ensuring flexibilities to appropriately transition to meet patient needs in the event of emergencies, such as a pandemic or other mass casualty situations. Finally, the Proposed Project will be a focal point in launching the Hospital's Anchor Program, whereby MGH invests in the social and economic wellbeing of communities the Hospital serves through inclusive, local hiring and workforce development, local and diverse sourcing, and place-based investing.

The following chart details the changes that will occur at MGH's campus as a result of the Proposed Project:

MGH Cambridge Street DoN Programming			
	Total in New Building	Existing/Moving	Net New
Oncology Exam Rooms	120	123/120	-3
Infusion Bays	100	79/79 *Note: includes 9 short stay bays	21
Cardiac ORs	24	17/17	7
Small Procedure Rooms	3	0/0	3

A. Construction of New Facility and Expansion of Private Inpatient Rooms

Through the Proposed Project, MGH will construct 482 inpatient beds (418 medical/surgical; 64 ICU), resulting in a net increase of 54 medical/surgical beds and 40 ICU beds at MGH. These beds will be designated for patients with cancer and cardiovascular disease, the two most prevalent diseases in the United States. Currently, one-third of routine medical/surgical care occurs in MGH's two oldest buildings, White and Bigelow. The White building is 80 years old, and the Bigelow building is 51 years old. Accordingly, the majority of inpatient rooms in these buildings are semi-private rooms with two beds and do not meet current industry standards for inpatient infrastructure. In addition, these buildings cannot be adapted to meet these standards. To address these limitations, the Hospital will close 388 existing semi-private beds and construct 482 new private rooms, increasing the overall percentage of single-bed medical/surgical rooms across the Hospital from 38% to 88%. This transition will help to alleviate ED and PACU overcrowding and extended boarding times, and decrease lost and denied transfers from community hospitals of high-acuity patients who require the expertise and resources of an academic medical center. Accordingly, increased inpatient capacity combined with increased private patient rooms will ensure patients receive timely care in the most appropriate setting, increasing patient experience and outcomes.

B. Relocation and Expansion of Cancer and Cardiac Services

Currently, cancer and cardiac services are scattered in various building across MGH's campus, resulting in fragmented care. The Proposed Project seeks to relocate a most of its cancer and cardiac services to the new building, including co-located imaging services. This co-location of services will enhance care coordination, patient experience, and patient satisfaction due to the ability to receive care in a single location.

1. Cancer Center

The Mass General Cancer Center was established in 1986 and currently comprises more than 37 treatment programs within 29 fully integrated, multidisciplinary disease centers, accompanied by a vast array of support and educational services. Age is the number one risk factor for cancer, resulting in increased incidence rates as the population continues to age rapidly. Additionally, advances in research and technology allow for earlier detection of disease, often resulting in cancer as a chronic disease with patients requiring treatment and monitoring over longer periods of time. Accordingly, demand for continued screening and diagnostics, initial and continuing treatments, and monitoring is expected to continue to grow into the foreseeable future. To meet this demand for specialized cancer care, through the Proposed Project, the Hospital will relocate 120 of its existing outpatient oncology exam rooms; and relocate 79 infusion bays, including 9 short stay bays, and add 21 infusion bays, resulting in a total of 100 infusion bays. The expansion and co-location of specialized cancer care services will provide improved access to a more comprehensive continuum of care, resulting in enhanced patient experience and improved health outcomes.

2. Heart Center

MGH's Corrigan Minehan Heart Center offers a variety of diagnostic and treatment options to patients facing various cardiovascular diseases, including numerous condition-specific programs. Cardiovascular disease is the most prevalent disease and the number one cause of death in the United States, with age being a significant risk factor for developing cardiovascular disease. Consequently, the need for cardiovascular services is rapidly increasing due to increased incidence of cardiovascular disease associated with an aging population. The Proposed Project includes 24 cardiovascular procedure rooms (6 EP procedure rooms, 8 catheterization procedure rooms, and 10 cardiovascular operating rooms) and 3 small procedure rooms. To support these procedure rooms, the Proposed Project includes an expansion of perioperative bays from 13 to 68. Finally, the Proposed Project also will relocate cardiac surgical services, including electrophysiology, catheterization, cardiovascular, and small procedures such as biopsies. The co-location and expansion of inpatient, outpatient, and surgical services will provide enhanced patient experience and better overall health outcomes through access to a continuum of care and increased convenience.

C. Acquisition of Imaging Modalities

The Proposed Project also includes the acquisition of two CT units, two MRI units, two PET/CT units, and one PET/MR unit. In accordance with the goals and design of the Centers of Excellence, the Proposed Project will co-locate imaging services necessary to support the cancer and cardiac services included in the Proposed Project. As the population in the 65+ age cohort continues to grow, so too will the incidence of certain conditions, such as cancer and cardiovascular conditions that may be diagnosed, treated, and monitored utilizing these imaging modalities. The imaging modalities included in the Proposed Project will ensure convenient

access to imaging services in a single location, enhance patient experience, facilitate team collaboration, and optimize efficient operations within the Cardiovascular and Cancer Centers of Excellence.

D. Other Renovation Projects

Finally, the Applicant submits this Application for approval of other renovation projects at MGH to improve access to and the quality of existing services and facilities. As provided in further detail below, renovations will be performed in various departments on the Hospital's main campus. These additional renovation projects are included in this Application as the Hospital's combined planned capital expenditures exceed the inpatient minimum capital expenditure threshold.

The additional renovation projects at the Hospital's main campus and satellites include the following:

- Renovation to Emergency Department ("ED") bays. This renovation will convert all ED bays to negative pressure.
- Renovation to the Molecular Pathology Lab. This minor renovation will create functional workspaces and improve operations.
- Renovation of a storage room in Bigelow building to convert it to a PICC treatment room. This renovation will expedite the discharge of patients awaiting placement of a PICC line and allow staff to troubleshoot existing PICC lines, avoiding ED delays.
- Renovation of induction rooms in the Gray and Jackson buildings. These rooms will be repurposed for staff workrooms and storage space in compliance with regulatory requirements. This renovation will also provide a centralized Immediate Use Steam Sterilization room to enhance efficiencies in the operating rooms.
- Replacement of interventional radiology imaging equipment in Ellison 2 through the acquisition of acquire a Siemens High-Powered C-Arm to replace the existing equipment that has reached the end of its life.
- Renovation to Lunder 6 to create a neuroscience-specific receiving unit which will allow for expedited transfers of emergency neurology patients, resulting in ED avoidance.
- Renovation to Interventional Room 6 at Gray 2 to replace the existing room and update imaging equipment that has reached end of life.
- Renovation to PET production facility in Bulfinch to meet current FDA regulatory compliance standards.
- Renovation to establish new Homeless Clinic. This renovation will provide additional support to the homeless population, allowing private exam and consultation space.
- Renovation of operating rooms located at the Hospital's Charles River Plaza Endoscopy satellite. This renovation will provide updates necessary to meet current high level disinfection regulatory standards.
- Renovation to Yawkey Oncology Pharmacy. This renovation will expand the pharmacy to provide additional support due to increases in Oncology & Medical infusion volume and Phase 1 research trials.
- Renovation to convert the podiatry office on Yawkey 3 to exam rooms. This renovation will accommodate increased podiatry volume.

- Furnish and install new flooring in four orthopedic operating rooms at the MGH Waltham Ambulatory Surgery Center. The existing flooring is original and worn. The new flooring will include upgrades necessary to meet current industry standards.
- Renovation of the ambulatory care center in Danvers to meet high level disinfection regulatory standards.

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 expressed in 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 payer mix.

A. Mass General Brigham Patient Panel

Demographic Data

Mass General Brigham¹ serves a large and diverse patient panel as demonstrated by the utilization data for the 36-month period covering Fiscal Year ("FY") 2017 ("FY17") through Fiscal Year 2019 ("FY19") and the preliminary data available for Fiscal Year 2020 ("FY20").² Appendix 2 illustrates the demographic diversity of Mass General Brigham's patient panel in table form. The number of patients utilizing Mass General Brigham's services has increased since FY17, with 1,408,587 unique patients in FY17; 1,504,625 unique patients in FY18; and 1,528,359 unique patients in FY19.³ Preliminary data for FY20 indicates that Mass General Brigham had 634,989 unique patients. Mass General Brigham's patient mix consists of approximately 42.2% males and 57.8% females based on FY19 data, with gender unknown for less than 0.01% of the patient

¹ Utilization of patient care services at the following Mass General Brigham provider organizations was used to determine the Applicant's patient panel: Brigham and Women's Hospital, Brigham and Women's Faulkner Hospital, The General Hospital Corporation d/b/a Massachusetts General Hospital, Newton-Wellesley Hospital, North Shore Medical Center, Cooley Dickinson Hospital, Martha's Vineyard Hospital, McLean Hospital, Nantucket Cottage Hospital (post-Epic data only), Massachusetts Eye and Ear Infirmary (post-Epic data for specific locations only), Spaulding Rehabilitation Hospital (excluding data for certain programs), Brigham and Women's Physicians Organization, Massachusetts General Physicians Organization, Newton-Wellesley Medical Group, North Shore Physicians Group, Cooley Dickinson PHO (post-Epic data only) and Mass General Brigham Community Physicians (excluding pre-Epic non-risk patients).

² The Applicant's fiscal year is from October 1 – September 30. Annual comparisons are calculated using data for FY17-FY19. The FY20 data is was pulled as of January 7, 2020, and is therefore subject to change for purposes of annual comparisons.

³ The methodology for aggregating Mass General Brigham's patient panel data has evolved into an automated process utilizing internal data resources. Initially, in 2017, when Mass General Brigham began developing its patient panel information for Determination of Need applications, such as the Change of Ownership for Massachusetts Eye and Ear Infirmary and the Substantial Capital Expansion for Brigham and Women's Hospital, staff manually aggregated the necessary data. However, since these submissions, Mass General Brigham staff have developed a new automated process that allows for the collection and amalgamation of system-wide data. This refined methodology allows staff to continuously monitor and improve the way that data are aggregated. Accordingly, between June 2018 and December 2019, staff further refined the data collection processes leading to an increase of no more than 1% in overall patient counts for the system. Staff will continue to refresh and refine the process for aggregating data across the system, leading to more exact patient panel data.

population. The Massachusetts Center for Health Information and Analysis (“CHIA”) reports that Mass General Brigham’s patient panel represents 19% of all discharges in the Commonwealth.⁴

Age demographics for the past three Fiscal Years show that the majority of Mass General Brigham’s patient panel is between the ages of 18-64 (61.0-62.1). Patients that are 65 and older also make up a significant portion of the total patient population (26.2-28.5%). Only 10.5-11.7% of Mass General Brigham patients are between 0-17 years of age.

Mass General Brigham’s patient panel reflects a mix of races. Data based on patient self-reporting demonstrates that in FY19, 73.4% of the total patient population identified as White; 5.6% identified as African American or Black; 4.4% identified as Asian; 1.3% identified as Hispanic/Latino; 0.1% identified as American Indian or Alaska Native; and 0.1% identified as Native Hawaiian or Other Pacific Islander. Since patients were grouped into these categories based on how they self-identified,⁵ there is a portion of the patient population (15.2% in FY19) that either chose not to report their race or identified as a race that did not align with the above categories.

Mass General Brigham provides care to patients from a broad range of geographies including all 50 states. While Mass General Brigham’s patients reside mainly in eastern Massachusetts, there is a sizeable portion of its patient panel that resides outside of Massachusetts (11.0%, or 167,835 patients, in FY19). By applying the Department’s Health Service Area (“HSA”) categories to FY19 data, 44.6% of Mass General Brigham’s patients reside in HSA 4 (682,126 patients); 16.0% reside in HSA 6 (244,000 patients); 11.4% reside in HSA 5 (174,459 patients); 6.7% reside in HSA 3 (101,785 patients); 6.6% reside in HSA 1 (100,146 patients); and 3.4% reside in HSA 2 (52,353 patients). The remaining 0.4% of Mass General Brigham’s patients (5,655 patients) either reside in MA but outside of HSAs 1-6 or their origin is unknown.

The COVID-19 pandemic challenged health care systems to address hospital capacity to care for critically ill COVID-19 patients while continuing to provide outpatient services at both hospital and community-based settings and to utilize enhanced precautions to address patient and provider safety. Consistent with the Department’s Memorandum dated March 15, 2020, the Applicant’s hospitals and ambulatory surgical centers postponed or canceled any nonessential, elective invasive procedures, and its providers deferred many outpatient encounters, including routine physicals and diagnostic tests, such as MRI and CT, when clinically appropriate to do so. These measures resulted in a significant, but temporary, decline in utilization of clinical services at all Mass General Brigham provider organizations that is inconsistent with the utilization patterns described above. While the Applicant cannot predict the time frame during which the utilization of its clinical services will return to pre-COVID-19 levels, the Applicant is confident that utilization will normalize as The Commonwealth emerges from this extraordinary period.⁶ Moreover, COVID-19

⁴Massachusetts Center for Health Information Analysis, *Fiscal Year 2017: Partners HealthCare System*, <https://www.chiamass.gov/assets/Uploads/mass-hospital-financials/2017-annual-report/system-profiles/Partners-HealthCare.pdf> (last visited Dec. 3, 2020).

⁵ With the exception of the category “Hispanic/Latino,” the race categories shown above are based on the 1997 Office of Management and Budget standards on race and ethnicity. Patients were grouped into these categories based on their responses as follows – White: “White”; African American or Black: “African American”, “Black”, “Black or African American”; American Indian or Alaska Native: “American Indian”, “American Indian or Alaska Native”; Asian: “Asian”; Native Hawaiian or Other Pacific Islander: “Native Hawaiian or Other Pacific Islander”, “Native Hawaiian/Other Pacific Islander”, “Pacific Islander”; Hispanic/Latino: “Hispanic”, “Hispanic or Latino”, “Latino”; Other/Unknown: All other responses.

⁶ The government’s response to the pandemic continues to impact the Applicant’s facilities. See, e.g., Order of the Commissioner of Public Health Regarding Scheduling and Performance of Elective Invasive Procedures, issued December 7, 2020. <https://www.mass.gov/info-details/covid-19-state-of-emergency#health-care-delivery>.

has not lessened the need for clinical services - patients still require health care for acute, urgent and chronic issues. Indeed, the COVID-19 pandemic has underscored the importance of a coordinated care model that decentralizes outpatient care out of large hospital-based settings and instead utilizes multiple access points in community settings, such as the Project Sites. Therefore, the Applicant believes that it is appropriate to use the historic utilization data (FY17 through FY19 and preliminary FY20) shown above to define its patient panel and to demonstrate the need for the Proposed Project, disregarding the anomalous utilization decline attributable to the measures taken in response to the COVID-19 pandemic.

Accountable Care Organization / Alternative Payment Model and Payer Mix Data

Please refer to Table 1 and the narrative below for the accountable care organization (“ACO”)/alternative payment model (“APM”) contract and payer mix percentages for the Applicant.

Table 1: Mass General Brigham ACO/APM and Payer Mix Percentages					
APM Contract Percentages ⁷		Payer Mix Percentages ⁸			
			FY17	FY18	FY19
ACO and APM Contracts	Please see narrative below.	Commercial ⁹	59.6%	59.2%	58.8%
		<i>PPO/Indemnity</i>	--	36.7%	37.4%
		<i>HMO/POS</i>	--	22.5%	21.3%
MassHealth		3.8%	3.5%	1.6%	
Managed Medicaid		5.3%	5.5%	6.3%	
Commercial Medicare		3.8%	4.4%	5.1%	
Medicare fee-for-service (“FFS”)		22.7%	23.2%	22.7%	
Free Care/Health Safety Net		0.1%	0.2%	0.1%	
All Other ¹⁰		4.7%	4.0%	5.3%	
Non-ACO and Non-APM Contracts					

The Applicant notes that the shift shown in the table in the MassHealth and Managed Medicaid percentages from FY18 to FY19 (with an increase in Managed Medicaid and a decrease in MassHealth) is due to the fact that Mass General Brigham began grouping the MassHealth ACOs (Models A, B, and C) as Managed Medicaid in FY19. Accordingly, the MassHealth percentage of the patient panel inclusive of ACO was 5.2%, representing an increase over previous fiscal years of panel patients in MassHealth.

⁷ For any system-affiliated primary care physicians.

⁸ Please note the following regarding the Mass General Brigham data: (1) Reflects aggregate Mass General Brigham revenue for the 2017, 2018 and 2019 Cost Hearing Submissions for P4P Contracts, Risk Contracts, FFS Arrangements and Other Revenue; (2) Data is aggregate hospital (Massachusetts General Hospital, Brigham and Women’s Hospital, Brigham and Women’s Faulkner Hospital, North Shore Medical Center, and Newton-Wellesley Hospital) and provider organization (Massachusetts General Physicians Organization, Brigham and Women’s Physicians Organization, North Shore Physicians Group, and Newton-Wellesley Medical Group). Payer specific information for other Mass General Brigham providers (e.g., McLean Hospital, Spaulding Network, Martha’s Vineyard Hospital, and Nantucket Cottage Hospital) is not available; and (3) Revenue based on payments minus denials, bad debt, free care surcharge, and uncompensated care assessment.

⁹ “Commercial” includes but is not limited to: AllWays Health Partners, Aetna, Blue Cross Blue Shield, Cigna, Fallon Health, Harvard Pilgrim Health Care, Tufts Health Plan, UnitedHealthcare, and many other smaller plans.

¹⁰ “All Other” includes but is not limited to: Self-Pay, International, Other Government (e.g., Tricare, Veterans), and Workers Compensation.

With regard to APM contract percentages, the percentage of Mass General Brigham's primary care lives covered in risk contracts is 57.9%.¹¹ This percentage is derived from the number of primary care lives within the patient panels of the Mass General Brigham primary care physicians ("PCP") that are covered under risk contracts (MGB bears the risk). This data does not include referral patients as such patients are not managed by a Mass General Brigham PCP and are not included in Mass General Brigham's risk contracts.

Of note, the data used to determine the percentage of lives covered in Mass General Brigham's risk contracts differ from the Mass General Brigham patient panel data that is included at Appendix 2 as the risk contract data is based on primary care lives; whereas patient panel data is a standard report of all of Mass General Brigham's patients that received care over the last three fiscal years from one of the five Mass General Brigham acute care hospitals and/or hospital physicians, including referral patients.

Moreover, regarding the methodology for collecting system-wide patient panel data, as well as data associated with primary care lives, this process is evolving at Mass General Brigham, particularly with the system-wide adoption of Mass General Brigham's electronic health record ("EHR") system, Epic. Previously, each regional service organization ("RSO") would have to manually pull the data in order to calculate a system wide total of primary care lives. The implementation of Epic has changed the manual process of data extraction, allowing for a more centralized and standardized way of obtaining aggregate data.

Currently, there are some Mass General Brigham affiliates that are not on Epic and some RSOs have just converted to Epic; typically, it takes approximately one year for the Epic data to be "clean." Given that there are some gaps in the Epic data and that some RSOs are still ramping up on the system, historical FY17 primary care covered lives data is being used for this calculation. Accordingly, as Mass General Brigham's staff develop additional data and methods for providing this information, the percentage may change.

Regarding non-ACO and/or non-managed care contracts, Mass General Brigham staff are working on how best to provide this information. From a Mass General Brigham primary care perspective, all lives are managed by a PCP, leading to no non-managed lives. However, if "non-managed lives" are defined as primary care lives that are in external risk contracts, there are numerous factors to consider when developing this calculation and Mass General Brigham staff are working through how this information may be reported to the Department. Although it would seem an inverse calculation of the ACO/managed care contracts could be conducted to provide this data point, there are other factors that require additional consideration.

B. Massachusetts General Hospital Patient Panel

Massachusetts General Hospital is one of the founding members of Mass General Brigham and the original teaching hospital of Harvard Medical School. With 1,043 licensed beds at its main campus in Boston, MGH is the largest hospital in the state. In addition to its main hospital campus in Boston, MGH offers services to patients through various hospital satellite and clinic locations across Eastern Massachusetts.

¹¹ The number of risk members is for CY19 and includes members from the following risk contracts: Medicare Shared Savings Program, Blue Cross Blue Shield AQC and Blue Cross Blue Shield PPO, Harvard Pilgrim Health Care, Tufts Associated Health Plans, AllWays Health Partners Commercial, and Medicaid ACO. The total number of patients within a PCP's panel are for FY17 adult and pediatric patients.

Appendix 2 provides the demographic profile for MGH in table form. Similar to Mass General Brigham, the number of patients utilizing MGH's services increased from FY17-19, with 563,967 unique patients in FY17, 566,405 unique patients in FY18, and 588,833 unique patients in FY19. Preliminary data for FY20 indicate that from October 19, 2019 – January 14, 2020, MGH had 292,603 unique patients. Of these patients, approximately 44.1% are male and 55.8% are female.

Regarding age, the majority of MGH's patients are between the ages of 18-64 (58.5%, or 344,316 patients, in FY19). The next largest age cohort is patients that are 65 years and older (27.3%, or 160,947 patients, in FY19). Subsequently, 14.2% of MGH's patients are between ages 0-17 (83,570 patients in FY19). Preliminary data for FY20 shows similar trends in the number of patients served across these age cohorts.

Moreover, MGH's patients reflect a diversity of races. Data based on patient self-reporting demonstrate that in FY19, 72.8% of patients identified as White; 5.3% identified as African American or Black; 5.3% identified as Asian; 0.7% identified as Hispanic/Latino; 0.1% identified as American Indian or Alaska Native; and 0.1% identified as Native Hawaiian or Other Pacific Islander. Since patients were grouped into these categories based on how they self-identified,¹² there is a portion of the patient population (15.8% in FY19) that either chose to not report their race or identified as a race that did not align with the above categories. Therefore, it is important to note that the racial composition of MGH's patients may be understated.

MGH's patients also are diverse with respect to primary languages spoken and preferred. In federal fiscal year 2019, MGH received 196,098 interpreter services ("IS") requests, and completed 100% of those requests utilizing face-to-face, video remote, and telephonic sessions. These requests covered more than 80 languages. The top five IS languages requested were Spanish, Portuguese-Brazilian, Arabic, Chinese-Mandarin, and Haitian-Creole.

Appendix 2 also provides aggregated zip code data by HSA for MGH's patient population, which has a similar geographic composition to the larger Mass General Brigham patient panel. This data indicates that 48.5% of MGH's patients reside in HSA 4 (285,507 patients); 17.4% reside in HSA 6 (102,623 patients); 8.0% reside in HSA 5 (47,294 patients); 5.9% reside in HSA 3 (34,955 patients); 3.6% reside in HSA 2 (21,166 patients); 1.4% reside in HSA 1 (8,047 patients). Over 86,743 patients, or 14.7% of the panel, were from outside of Massachusetts, and the origin of 0.4% of the panel was unknown or reside in Massachusetts outside of HSAs 1-6.

Finally, Table 2 below outlines the payer mix percentages for MGH for the last three fiscal years.

¹² With the exception of the category "Hispanic/Latino," the race categories shown above are based on the 1997 Office of Management and Budget standards on race and ethnicity. Patients were grouped into these categories based on their responses as follows – White: "White"; African American or Black: "African American", "Black", "Black or African American"; American Indian or Alaska Native: "American Indian", "American Indian or Alaska Native"; Asian: "Asian"; Native Hawaiian or Other Pacific Islander: "Native Hawaiian or Other Pacific Islander", "Native Hawaiian/Other Pacific Islander", "Pacific Islander"; Hispanic/Latino: "Hispanic", "Hispanic or Latino", "Latino"; Other/Unknown: All other responses

Table 2: MGH Payer Mix Percentages			
	FY17	FY18	FY19
Commercial ¹³	58.1%	57.7%	58.4%
<i>PPO/Indemnity</i>	--	37.5%	38.2%
<i>HMO/POS</i>	--	20.1%	20.2%
Managed Medicaid	5.7%	6.4%	7.1%
MassHealth	4.1%	3.7%	1.8%
Commercial Medicare	3.8%	4.2%	4.9%
Medicare FFS	24.4%	24.2%	23.8%
Free Care/Health Safety Net	0.2%	0.3%	0.2%
Other ¹⁴	3.7%	3.5%	3.8%

Similar to the Applicant, MGH notes that the shift shown in the table in the MassHealth and Managed Medicaid percentages from FY18 to FY19 (with an increase in Managed Medicaid and a decrease in MassHealth) is due to the fact that Mass General Brigham began grouping the MassHealth ACOs (Models A, B, and C) as Managed Medicaid in FY19. Accordingly, the MassHealth percentage of the MGH patient panel inclusive of ACO was 5.7%, representing an increase over previous fiscal years of panel patients in MassHealth.

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, or 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 inequity or disparity is not identified as relating to the Proposed Project, provide information justifying the need. In your description of Need, consider the principles underlying Public Health Value (see instructions) and ensure that Need is addressed in that context as well.**

The goal of the Proposed Project is to improve and maximize inpatient capacity in order to address the needs of the Hospital's patient panel to ensure that future demand for general medical/surgical, cancer, and cardiac care are met. The Proposed Project includes two components: (1) provide for more efficient and effective use of existing inpatient facilities; and (2) expand capacity and improve the provision of care for patients with cancer and cardiovascular disease. To that end, the Proposed Project includes the closure of 388 beds in double-occupancy rooms in the Hospital's aged inpatient buildings, thereby increasing the number of private occupancy rooms. In addition, the Hospital will construct a new facility that will primarily focus on furthering care coordination for cancer and cardiovascular patients by relocating the Hospital's Cancer Center and Heart Center services into one facility that will provide for co-located services utilized by patients including exam rooms, infusion rooms, operating rooms, advanced imaging and 482 inpatient beds, of which 201 will be dedicated to cancer care and 180 will be dedicated to cardiovascular care. By creating new private rooms through the elimination of existing double-occupancy rooms and the addition of the new facility, there will be a total of 94 new licensed beds (54 medical/surgical; 40 ICU). Accordingly, as detailed throughout this narrative, the Proposed

¹³ "Commercial" includes the following categories: Allways Health Commercial, Blue Cross Blue Shield, Commercial National Carriers, Commercial Other, Connector Care Plans, Harvard Pilgrim Health Plan, International, Qualified Health Plans, and Tufts Health Plan.

¹⁴ "Other" includes the following categories: Government Other, Other Payor, Self-Pay, Workers Comp, and Unknown Summary Payor.

Project was planned to utilize existing facilities to their maximum benefit while only increasing total licensed beds by the number needed to meet the projected demand of the patient panel.

A. Existing Facilities Result in Capacity Constraints

The Proposed Project seeks to address inpatient capacity constraints at the main campus due to the aged infrastructure of MGH's oldest buildings in which patient care is provided. MGH was founded in 1811 and opened its doors in 1821. Although it has undergone extensive expansions and renovations over time, one-third of inpatient care on MGH's Main Campus is provided in facilities built in 1940 and 1969. The current inpatient buildings primarily consist of semi-private rooms and cannot be renovated to address these issues to adequately provide for sufficient private room capacity on campus. Moreover, modern facilities are required due to advancements in patient care and technology, to provide support in cases of natural disasters or disease outbreaks, and to provide the space necessary to transform semi-private rooms into private rooms to improve patient care, throughput, and care coordination. As a quaternary academic medical center and a regional resource for providing high acuity, advanced care not available elsewhere in the Commonwealth, MGH needs a transformative facility to continue to adapt and offer the types of rapidly evolving technologies and treatments that are improving and saving more lives, to be able to efficiently and comfortably accommodate those seeking care, and to attract the preeminent health care leaders and trainees who will sustain this level of excellence.

Due to the age of the campus, only 38% of MGH's medical/surgical beds are in private rooms, resulting in capacity constraints due to bed blocks. However, single-occupancy inpatient rooms are the industry standard and required for DPH licensure for all new construction because private rooms enhance patient care, experience and satisfaction, contributing to improved health outcomes. For example, single-bed rooms provide improved patient care and safety through the reduction of airborne and contact infection transmission.¹⁵ To that end, many of MGH's national peers have much higher percentages of private rooms, with some counterparts at 100%. The Proposed Project would result in approximately 88% private medical/surgical rooms at MGH.

In addition to adversely affecting patient care and experience, double rooms result in inefficiencies throughout the Hospital due to the inability to fully utilize all beds. Specifically, with so many double rooms, a significant number of beds cannot be utilized on a daily basis due to patient incompatibility resulting from infection, gender or age mismatches, patients requiring end of life care, and patients exhibiting disruptive behaviors. Each day, an estimated 30-50 of MGH's semi-private beds are blocked due to patient need. Based on data collected from January 2019 through September 2019, the number of instances requiring a bed block in a single month ranged from 693 instances to 1,121 instances. Total closed bed days ranged from 1,206 days to 2,160 days in a single month. In January 2019 for example, there were 1,121 instances of bed closures and 2,160 total days of bed closures, resulting in each bed being closed for an average of 1.9 days. Infection control was the number one reason for bed closures, followed by disruptive patient behavior. As a result, the Hospital is challenged in its ability to ensure that patients are cared for in the right place at the right time, not only for patients already at the Hospital but for patients that require transfer to the Hospital for care that is not available in the community.

¹⁵ Roger Ulrich, *Effects of Single Versus Multi-bed accommodation on Outcomes*, <http://www.wales.nhs.uk/sites3/documents/254/ProfUlrich01.pdf> (last visited Dec. 4, 2020).

Impact on ED and Throughput

MGH's average medical/surgical and ICU bed operating capacity is 88%, even with these closed or unoccupied beds due to bed blocks. MGH's high operating capacity and inability to fully utilize all its licensed beds have a downstream effect on ED boarding and wait times. Lack of available beds has an adverse impact on care provided in the ED in several ways, including high boarder hours, patients leaving without being seen, delays in care within the ED and patient and staff dissatisfaction.

MGH operates a high-volume 68-bay ED that is a Level 1 trauma center. In addition to treating high acuity patients throughout the region, the MGH ED is also the local ED for residents throughout Boston, and Suffolk County who rely on the Hospital for emergent and urgent care needs. This is evidenced by the fact that MGH's ED treated 108,741 patients in FY17; 110,567 patients in FY18; and 113,297 patients in FY19, representing a greater than 4% increase in visit volume over the past three years. MGH saw an average of 310 ED patients per day in FY19 and saw more than 300 patients in a single day for 67% of days in FY19.

When an inpatient bed is not available once it is determined that an ED patient requires admission, the patient must wait or "board" in the ED until an appropriate bed becomes available. These ED boarders are resource intensive, taking up one of the 68 monitored bays in the ED. Other ED patients are treated on a stretcher in the ED hallway because on a daily basis the ED has more patients than the number of treatment bays. Boarding inpatients in the ED is a significant contributor to ED crowding and adverse outcomes.¹⁶ Patients boarding in the ED represent a large percentage of total inpatient volume. In FY19, 78% of all patients admitted to an inpatient bed boarded in the ED for more than two hours following a bed request. The ED admitted 1,819 cardiology patients, 1,485 (82%) of whom were boarded. Cardiology patients represent those who were admitted to an inpatient cardiology unit or went to the catheterization lab but does not include cardiology patients who required cardiovascular surgery. The average length of stay in the ED for cardiology patients awaiting admission was approximately 10.5 hours. Oncology patients made up 1,606 admissions from the ED in FY19, with 1,401 (87%) of those patients boarded in the ED. The need to decrease boarders and boarding times has been further highlighted by COVID-19 and the need for appropriate social distancing within the ED. Long waits in the ED for an inpatient bed delays receipt of care in the most appropriate setting for the patient.

Patients awaiting admission to an inpatient bed are not the only patients impacted by the Hospital's inpatient capacity constraints. In addition to the impact on admitted patients waiting to receive care in the appropriate setting, high ED boarding rates also result in increased lengths of stay for patients who are eventually discharged from the ED and do not require inpatient care. One study found the overall length of stay of patients discharged from the ED increased by approximately 10% as the boarder burden increased.¹⁷ ED boarders generally require more monitoring for longer periods of time than patients who are eventually discharged directly from the ED, leading to lack of sufficient resources being directed towards true ED patients. Long wait times and ED crowding also contribute to patients leaving before receiving treatment. In FY19, 2.5% of patients presenting to the ED left without treatment, with 1.3% leaving without completing treatment, and 1.2% leaving without being seen. Increased inpatient bed capacity will enhance throughput and have a positive impact on patients seeking care at MGH's ED.

¹⁶ Benjamin A. White, MD et al., *Boarding Inpatients in the Emergency Department Increases Discharged Patient Length of Stay*, 44 J. EM. MED. 230, 230 (2013), available at [https://www.jem-journal.com/article/S0736-4679\(12\)00646-4/pdf](https://www.jem-journal.com/article/S0736-4679(12)00646-4/pdf).

¹⁷ *Id.* at 232.

High ED boarding rates ultimately require MGH to implement Code Help in accordance with DPH requirements. When Code Help is activated, the MGH ED must continue to accept ambulance traffic, but may no longer accept patients transferred from community hospitals. In each of the past three years, the occurrences of the MGH ED implementing Code Help have doubled over the previous year, and the ED is close to needing to implement Code Help often. In FY17, MGH operated in Code Help 5% of the time. This increased to 10% in FY18 and doubled again to 20% in FY19. This data demonstrates a need to increase availability of inpatient rooms in order to create capacity necessary to provide effective and quality care to patients presenting to the ED, those requiring a transfer to the MGH ED, and those ED patients who require hospitalization.

Impact on Post Anesthesia Care Unit ("PACU") and Throughput

Similar to the ED, the Hospital's PACUs are adversely impacted by the lack of sufficient private rooms. A PACU is in intermediate area where patients are cared for following surgery or other procedures. While some patients recover in the PACU and are discharged home, such is the case with day surgery, many patients require admission to an inpatient bed for extended recovery periods. Due to the challenges presented by a large percentage of semi-private rooms, patients often must wait in the PACU for extended periods of time following the acute recovery period for which the PACU is intended. This is because an inpatient bed is often not available when the patient is ready to be admitted to a unit for extended recovery. As a result, like the ED, patients also board unnecessarily in the PACUs. For FY20 through February, patients boarded in the PACU for an average of 10,233 hours per month waiting for an available inpatient bed. With respect to patients requiring medical/surgical beds, the average monthly boarder hours for FY19 was 18 hours. Moreover, in FY19 an average of 22 patients per day remained in the PACU overnight due to a lack of an available inpatient bed. This high patient boarding in the PACU from the time it is determined that the patient no longer needs PACU services results in delays in patients being cared for in the most appropriate setting, impacting patient experience and outcomes.

Impact on Transfers from Community Hospitals

As an Academic Medical Center, MGH provides a significant amount of quaternary and tertiary high-acuity patients who are referred to the Hospital from other hospitals in Massachusetts and neighboring states, as well as national and international patients. Transfers of tertiary patients account for approximately 26% of utilized beds at MGH. In addition, MGH receives a high number of high-end secondary and secondary care transfers that cannot be accommodated by the patient's local community hospital, accounting for 60% of total transfers to MGH.¹⁸ This is particularly the case during weekend and overnight hours as community hospitals have limited staff to care for such patients. Due to inadequate inpatient capacity to meet the needs of transfer patients, medically appropriate patients may experience transfer delays and denials. In calendar year ("CY") 2019, MGH accepted 5,229 transfer patients and lost 457 (approximately 8.7%) of those transfers that ultimately needed to be sent elsewhere due to lack of available beds at MGH. In the first two months of CY20, MGH lost 68 of 868 accepted transfers (approximately 7.8%). This data is reflective of the transfer requests documented in the central system and does not include the numerous direct physician-to-physician transfer requests via telephone that do not end up in the central system and are ultimately lost. Accordingly, this lost transfer data is

¹⁸ High end secondary cases are those patients whose diagnosis related group could be treated in the community hospital if the hospital had the capability to do so (e.g., access to cardiac catheterization). Secondary cases are patients with acuity levels that typically are treated in a community hospital.

understated. Through the Proposed Project, inpatient bed capacity will be expanded to meet the demand for transfers of patients who cannot receive the level of care needed at a community hospital. This increased capacity will reduce the number of lost transfers and ensure access to the resources available at MGH that cannot be provided locally.

In FY19, MGH received 1,545 cardiac transfer patients and 1,095 cancer transfer patients. Common diagnosis categories for cardiac patients who require a transfer to MGH include heart failure; need for ECMO; stent procedure; acute myocardial infarction; circulatory disorders; major cardiothoracic procedure; coronary bypass; cardiac catheterization; and percutaneous cardiovascular procedures. Many of MGH's cardiac transfer patients suffer from major complications or comorbidities. The most common disease categories for cancer patients transferred to MGH in FY19 were craniotomy procedures; nervous system neoplasms; lymphoma; leukemia; respiratory neoplasms; digestive malignancy; septicemia or severe sepsis; and malignancy of hepatobiliary system or pancreas. Like cardiac patients transferred to MGH, patients with a cancer diagnosis transferred to MGH often have a major complication or comorbidity. Accordingly, the Proposed Project focuses on ensuring adequate capacity for patients with such complex conditions.

Regional Resource

MGH is a regional resource with the capability to provide high-level, specialized care for critical patients that other hospitals are unequipped to handle. MGH is a Level 1 Trauma Center, treating patients with the most critical injuries and has more than 2,500 trauma admissions annually. MGH also is the only transplant center in the region to offer adult transplantation for every organ and is leading advances in transplantation. Recently, MGH performed five adult heart transplants using what are known as Donation after Circulatory Death ("DCD") donor hearts,¹⁹ performing the first of this kind of procedure in the region. MGH is one of the first hospitals in the nation with this expertise and capability. Finally, MGH is one of the few hospitals in the region to offer Extracorporeal Membrane Oxygenation ("ECMO"), a specialized type of life support for the heart and lungs that is used to support patients with severe heart and lung failure until they recover or are able to go on long-term support for transplantation. MGH is recognized by the Extracorporeal Life Support Organization as an ECMO Center of Excellence, signifying that the Hospital has achieved the highest level of performance, innovation, satisfaction, and quality. To that end, other hospitals in the region that also perform ECMO transfer patients to MGH for care because MGH can provide ECMO to certain critical patients that transferring hospitals (including hospitals with ECMO) cannot. Further, MGH's expertise in performing ECMO is critically important in the treatment of critically ill patients diagnosed with COVID-19.²⁰ For example, one study involving 1,035 patients facing a high risk of death due to complication from COVID-19, found that as ventilators and other similar treatments failed to support the patients' lungs, the use of an ECMO improved outcomes for a significant number of patients, reducing the mortality rate to below 40%.²¹ These specialized and unique services offered by MGH contribute to its status as a regional and national provider and demonstrate the need to meet demands of its vast patient panel, particularly with respect to critical care patients.

¹⁹ A DCD donor has brain function incompatible with life but does not meet all criteria for brain death.

²⁰ Liz Kowalczyk, *Dispatch from MGH: Emotional Limbo on the Front Lines of Caring for the Very Sick with COVID-19*, BOSTON GLOBE (Apr. 4, 2020), <https://www.bostonglobe.com/2020/04/04/metro/dispatch-mgh-emotional-limbo-front-lines-caring-very-sick-with-covid-19/?event=event12>.

²¹ Ryan P. Barbaro, *Extracorporeal membrane oxygenation support in COVID-19: an international cohort study of the Extracorporeal Life Support Organization registry*, 396 THE LANCET 1071 (2020).

In recognition of MGH's role as a critical healthcare resource for the Commonwealth and the region, the Proposed Project was designed with disaster preparedness in mind. Recent natural disasters in New Orleans, New York, Puerto Rico, and Houston demonstrate the need for MGH to have the infrastructure necessary to withstand a disaster and to accommodate an influx of patients in such an event. These recent disasters provide insight into the consequences we are already seeing with respect to climate change. As a result of climate change and global warming, average temperatures and rates of heat waves will rise, average precipitation will increase in northern parts of the U.S., and hurricane strength and intensity will increase.²² Accordingly, health systems must incorporate disaster preparedness into their architectural plans to be more resilient in cases of natural disasters.²³ Such resilience is necessary not only to withstand the disaster and continue to be able to provide ongoing care to patients without disruption, but to be available as a resource for victims during such an event.

When the Hospital's core buildings were designed and built, the extreme environmental weather conditions that are being forecasted, including flooding, wind, and heat/cold blast threats, were not contemplated. While work has been done over the years to study and make existing buildings more flexible and resilient, much of the hospital's critical infrastructure (food services, pharmacy, central building operations, communications, etc.) are located in basements and susceptible to flooding. The mechanical systems were not designed for and are unable to be expanded to accommodate extreme temperature rise. In addition, when the existing buildings were constructed, the increased intensity of care, new technologies and information systems requirements could not have been contemplated. It is not feasible to retrofit these facilities to ensure self-sustainability of the hospital during environmental disaster or to accommodate the change in the way health care is currently provided. The Proposed Project is designed as a place of refuge in case of disaster and allows the functions of the hospital to continue operating as a regional resource by incorporating features that provide building resiliency, flood resistance, and adaptability in mass casualty and pandemic events.

Moreover, MGH is at the forefront as a critical healthcare resource for the Commonwealth during the global pandemic associated with a novel coronavirus (COVID-19). When the first cluster of cases of COVID-19 was being investigated following a large meeting at a Boston hotel, MGH was one of the two hospitals charged with performing large-scale coronavirus testing of potential positive patients.²⁴ A separate site was set up to perform this testing in part because individuals seeking testing were "overwhelming the emergency room" at MGH.²⁵ As the virus continued to spread and the number of residents continued to accelerate, MGH cared for more patients than any hospital in the state, in part due to its ability to mobilize during periods of disaster and its ability and expertise in caring for critically ill patients with services including ECMO. Despite having the greatest number of licensed beds of any hospital in the state, MGH was unable to fully utilize all its beds for the reasons discussed throughout this application. In the event of a future pandemic, MGH must have the inpatient capacity necessary to care for patients and allow for timely admission from the ED to the appropriate care setting. For example, like the recently renovated Lunder building on MGH's campus, the construction of the Proposed Project will allow for enhanced flexibility through the ability to convert from general medical/surgical care to ICU in

²² *The Effects of Climate Change*, NASA, <https://climate.nasa.gov/effects> (last visited Dec. 4, 2020).

²³ David Blumenthal & Shanoor Seervai, *To Be High Performing, the U.S. Health System Will Need to Adapt to Climate Change*, THE COMMONWEALTH FUND (2018), <https://www.commonwealthfund.org/blog/2018/be-high-performing-us-health-system-will-need-adapt-climate-change> (last visited Dec. 4, 2020).

²⁴ Felice J. Freyer et al., *Coronavirus Outbreak at Biogen Meeting in Boston Shows Widening Impact of Illness*, BOSTON GLOBE (Mar. 6, 2020), <https://www.bostonglobe.com/2020/03/06/metro/seven-total-presumptive-coronavirus-cases-mass> (last visited Dec. 4, 2020).

²⁵ *Id.*

the event of a major disaster. In addition, the design of the Hospital's PACUs enabled the conversion to ICU beds as the bays were large enough to allow for necessary equipment including ventilators and afforded patient privacy. The Proposed Project design will further MGH's operational agility in responding efficiently in similar future situations.

Aging Population

The United States is experiencing a rapidly aging population as decades of the Baby Boomer generation begin reaching the age of 65. The 65+ age cohort is expected to reach 77 million in by year 2034 and grow to 83.7 million by 2050, accounting for approximately 20% of the U.S. population.²⁶ Massachusetts is expecting an even more rapidly aging population. The UMass Donohue Institute projects that by year 2035, the 65 and over population will represent 23% of the state's population.²⁷ Accordingly, Massachusetts health care providers must appropriately plan for future age-related health care demands, including general medical/surgical services and the top two most prevalent diseases, cancer and cardiovascular disease. The Proposed Project will address the future demand for healthcare services by the 65+ age cohort by increasing capacity of MGH's medical/surgical inpatient beds, expanding cancer and cardiac services with co-located, dedicated advanced imaging in a single building, enhancing the continuum of care and ensuring access to care for an aging population.

B. Need for New Construction

The Proposed Project was thoughtfully conceived and designed to address the needs of MGH's patient panel. While creating more private rooms by decoupling double-bed rooms could have some impact on the Hospital's existing inpatient capacity constraints and ability to provide care in the most appropriate setting, such efforts alone will not fully address the Hospital's need for additional capacity. In order to determine the most appropriate focus for expanded capacity on campus, the Applicant reviewed the Hospital's patient panel and historical and projected demand based on disease cohorts and determined that cardiovascular disease and cancer are not only the most prevalent diseases currently treated, but they are also the disease categories with the highest incidence as individuals age. Accordingly, the Proposed Project includes the construction of a new facility that will focus on providing services to treat cardiovascular disease and cancer.

Currently, cardiovascular and cancer services are scattered throughout the main campus, leading to disjointed, less efficient care and staffing patterns. MGH currently has a Center of Excellence in cardiovascular services ("Heart Center") and also a Center of Excellence in cancer services ("Cancer Center"). MGH defines the work of Centers of Excellence as developing approaches to the care of patients within a particular disease area that is multidisciplinary, comprehensive, and across the continuum of the disease process. MGH Centers of Excellence provide the highest quality standard of care, experimental care in the form of clinical trials, and supportive care, in order to ensure that respect for the patient's experience is among the primary focuses of the patient's care. To address the current inefficiencies that result from the fragmentation of resources

²⁶ *Older People Projected to Outnumber Children for First Time in U.S. History*, US CENSUS BUREAU (Mar. 13, 2018; updated Sept. 6, 2018 and Oct. 8, 2018), <https://www.census.gov/newsroom/press-releases/2018/cb18-41-population-projections.html>; *Fueled by Aging Baby Boomers, Nation's Older Population to Nearly Double in the Next 20 Years*, *Census Bureau Reports*, US CENSUS BUREAU (May 6, 2014) <https://www.census.gov/newsroom/press-releases/2014/cb14-84.html>.

²⁷ Henry Renski & Susan Strate, *Long-Term Population Projections for Massachusetts Regions and Municipalities*, UMass DONAHUE INST. (2015), http://www.pep.donahue-institute.org/downloads/2015/new/UMDI_LongTermPopulationProjectionsReport_SECTION_2.pdf (last visited Dec. 4, 2020).

associated with the Heart Center and the Cancer Center across the campus and to provide more comprehensive care throughout the disease process, the Proposed Project is designed to enhance team-based care by relocating the services of the Heart Center and the Cancer Center to allow each Center to provide the majority of services to patients in one location.²⁸ The Centers of Excellence provide a patient-centered care model, enhancing patient experience and convenience by bringing the services to the patient, rather than requiring the patient to schedule multiple appointments with providers at various times and locations on campus. For example, a patient presenting to the Cancer Center may make a single appointment to see all providers on his or her care team, such as the medical oncologist and surgeon, providing a level of multidisciplinary care not achieved with other models. This transition will not only provide operational efficiencies but will allow for enhanced communication among providers and staff and optimal convenience for patients and families.

1. Inpatient Bed Demand

As discussed, the Hospital needs additional inpatient capacity and, more specifically, private room capacity. The Hospital currently has 789 licensed medical/surgical beds and 124 licensed adult ICU beds. The Proposed Project includes the construction of 482 beds (418 medical/surgical; 64 ICU) and will result in 54 additional medical/surgical beds and 40 additional ICU beds on campus, with the closure of 364 medical/surgical and 24 ICU beds elsewhere on the campus. The Hospital determined that the new facility will require 64 ICU beds due to the specialty services that will be located in the building. Specifically, the Heart Center historically requires more ICU beds for ED and post-procedure patients due to the acuity of patients with cardiac conditions. Both the Heart and Cardiac Centers also provide a significant amount of inpatient care in medical/surgical beds. The Proposed Project will optimize the availability of inpatient beds in the most appropriate setting on campus by decompressing double-occupancy rooms and relocating this capacity to the new facility that will be occupied by the two specialty services that have the highest demand for inpatient care.

The following table provides historical inpatient discharge volume that is relevant to the need for the Proposed Project. As the Proposed Project will create expanded and improved capacity for all medical/surgical patients, while also creating a facility dedicated to the care of cancer and cardiovascular patients, the table focuses on inpatient utilization for these specific patient cohorts.

Table 3: Historical Inpatient Discharge Volume			
	FY17	FY18	FY19
Cancer	9,872	9,579	9,675
Heart and Vascular	6,470	6,651	6,718
Med/Surg, all other	25,568	25,194	25,585
Total	41,910	41,424	41,587

As the incidence rate of all disease increases as the population ages, advances in technology result in increased survivorship and chronic diseases require on-going monitoring and treatment, MGH must have the inpatient capacity to meet the demand for general medical-surgical needs.²⁹ MGH will, in part, create this capacity by increasing the number of private rooms in its existing facilities. In addition, as the two leading causes of death are cardiovascular disease and cancer,

²⁸ The Cancer Center's radiation therapy and surgical services will not be relocated.

²⁹ The top ten diagnoses for inpatient general med/surg patients are: (1) sepsis, (2) pneumonitis, (3) alcohol dependence with withdrawal, (4) morbid (severe) obesity, (5) left knee unilateral primary osteoarthritis, (6) right knee unilateral primary osteoarthritis, (7) pneumonia, (8) acute kidney failure, (9) COPD with acute exacerbation, and (10) spinal stenosis, lumbar region with neurogenic claudication.

which also have higher incidence rates with age, MGH has designed the new facility to ensure these Centers of Excellence operate with optimal efficiency and collaboration as well as create sufficient inpatient capacity for those patients requiring cancer and cardiovascular specialty care. Table 4 describes the projected inpatient discharge volume relevant to the Proposed Project.

Table 4: Projected Inpatient Discharge Volume					
	FY25	FY26	FY27	FY28	FY29
Cancer	10,839	11,056	11,277	11,390	11,504
Heart & Vascular	7,345	7,455	7,567	7,870	8,027
Med/Surg, all other	23,477	23,594	23,712	23,831	23,950
Total	41,211	42,105	42,556	43,091	43,481

As a comparison of the data on Tables 3 and 4 demonstrates, the anticipated medical/surgical inpatient discharge volume is expected to decrease when the Proposed Project is implemented. These volume projections are based on several assumptions including, for example, medical advancements shifting care from the inpatient to outpatient setting, as well as improved care coordination and improved health outcomes resulting in fewer inpatient medical/surgical admissions. MGH also anticipates fewer inpatient admissions due in part to the Population Health Management programs described in more detail in section F1.a.iii. Further, the Applicant is committed to providing the right care in the right setting. Accordingly, MGH anticipates a continued shift of appropriate cases to community hospitals, while ensuring appropriate capacity at MGH for higher acuity and higher complexity patients with longer lengths of stay.

However, discharge volume does not fully represent the utilization of the Hospital's beds because high acuity patients, appropriately served in the AMC setting, typically have longer lengths of stay. In FY19, high acuity patients or tertiary patients utilized 15% of the Hospital's beds, experienced longer lengths of stay and represented more bed days than any other patient cohort. This translates into 199 beds at the Hospital required solely for the care of tertiary patients in FY19. As the Proposed Project is implemented, although major increases in the number of individuals coming to the facility are not expected, the lengths of stay required due to the tertiary nature of the patients who do utilize the Hospital, inform the Project's planned increase in beds. Moreover, 55% of the Hospital's beds were utilized for tertiary care, transfer patients of all acuity levels, out of state patients and high-end secondary cases. Each of these patient cohorts will continue to require care at MGH and does not present opportunity to move these cases to alternative sites as these are patients who historically either require tertiary services not available at a community hospital, have been sent to MGH for inpatient services from a community hospital, or have specifically opted for specialized care at MGH as their hospital of choice. Finally, MGH also is the community hospital for local residents and such patients will continue to utilize the Hospital regardless of acuity level. The lowest utilization of the Hospital's beds is for elective cases, representing 34 beds in FY19. While efforts are and will continue to be made to appropriately shift the care of these patients out of the AMC setting, the shift of these patients out of MGH for care elsewhere would not have a material impact on bed availability at the Hospital.

In recognition of the need to ensure access to these patient cohorts that will continue to utilize MGH for inpatient care, the Proposed Project will allow efficiencies to be realized in several important ways, including through the expansion of inpatient beds and the increased availability of and flexibility afforded by private patient rooms, as well as the enhanced opportunities for team-based, collaborative care and the benefit of other co-located resources, such as imaging infrastructure and operating rooms. These efficiencies will result in increased patient satisfaction by virtue of the convenience and reduced waits experienced by patients, the improved

collaboration among their providers resulting in better coordination of patient care, and the privacy that single-bed rooms provide. The Proposed Project will enhance patient experience and quality outcomes by increasing the availability of private single-occupancy rooms; providing increased square footage of rooms to accommodate technologies, patient family members, and the care team; reducing the spread of infections; and reducing bed blocks and associated ED and PACU boarding issues. Moreover, as the projected demand for inpatient stays associated with the disease categories described above is expected to rise in the coming years, the Proposed Project will meet those demands.

2. Cancer Center

MGH opened the nation's first tumor clinic in 1925. With nearly a century of dedication to cancer treatment and research, MGH has been instrumental in revolutionizing cancer care and is consistently ranked one of the leading cancer care providers in the United States.³⁰ The Mass General Cancer Center was established in 1986 and currently comprises more than 37 treatment programs within 29 fully integrated, multidisciplinary disease centers, accompanied by a vast array of support and educational services. The MGH Cancer Center is a founding member of a Harvard Medical School consortium designated by the National Cancer Institute as a comprehensive cancer center, forming the largest cancer research collaboration in the country. As a result of this partnership, numerous new cancer treatments have been, and continue to be, discovered.

An aging population coupled with the fact that age is the number one risk factor for cancer requires health care providers to ensure adequate capacity to meet the needs of the subset of its patient panel requiring cancer care. As many cancers are now chronic in nature, with treatments that maintain patients' survival for longer periods, the course of treatment and maintenance is often long-term. Advances in detection and treatment also result in increased demand for services. Accordingly, demand for continued screening and diagnostics, initial and continuing treatments, and monitoring is expected to continue to grow into the foreseeable future.

While the cancer incidence rate has declined slightly in recent years, this decline is not expected to continue, in part due to the rapidly aging U.S. population. As age is a major risk factor associated with cancer, the expectation is that cancer rates will rise in parallel with the population's age.³¹ Recent statistical data shows that the median age of a cancer diagnosis is 66 years, with one quarter of new cancer diagnoses occurring in individuals ages 65 to 74,³² which accounts for approximately 27.3% of MGH's existing patient panel. This trend is consistent with statistics concerning the most common types of cancer. The median age at diagnosis is 61 years for breast cancer, 66 years of prostate cancer, 68 years for colorectal cancer, and 70 years for lung cancer. As more than one-quarter of MGH's current patient panel are in the 65+ age cohort, this percentage will increase as the general population ages. Consequently, the need for cancer services is steadily increasing due to previously diagnosed patients requiring treatment and monitoring for longer lengths of time, as well as the anticipated rates of new cancer diagnoses as the population rapidly ages. As the national cancer incidence rises with the aging population, MGH is already experiencing increased demand for oncology services.

³⁰ *Massachusetts General Hospital*, U.S. NEWS AND WORLD REPORT, <https://health.usnews.com/best-hospitals/area/ma/massachusetts-general-hospital-6140430> (last visited Dec. 4, 2020).

³¹ National Cancer Institute, *Cancer Statistics*, <https://www.cancer.gov/about-cancer/understanding/statistics> (last visited Dec. 4, 2020).

³² National Cancer Institute, *Age and Cancer Risk*, <https://www.cancer.gov/about-cancer/causes-prevention/risk/age> (last visited Dec. 4, 2020).

Demand for Outpatient Cancer Services

Over the last three fiscal years, MGH's Cancer Center experienced steady growth in the number of visits and unique patients. Table 5 outlines historical data for new and established patient outpatient visits.

Table 5: Cancer Center Outpatient Exam Volume³³					
		FY17	FY18	FY19	FY20 Q1
New	Visits	16,920	17,010	18,103	4,579
	Unique Patients	12,884	12,840	13,407	3,578
Established	Visits	134,409	134,576	141,262	38,379
	Unique Patients	32,155	32,442	33,688	16,335

From FY17-FY19, the MGH Cancer Center experienced a 5-6% increase in patient visits across new and established patients, and a 4-5% increase in the number of unique patients.

As infusion therapy is one of the common treatments for cancer, the MGH Cancer Center experienced an increase in the number of infusion therapy visits each year during this same time period. Table 6 outlines historical infusion therapy volume.

Table 6: Infusion Therapy Volume				
	FY17	FY18	FY19	FY20 Q1
Visits	40,468	42,660	43,877	11,322
Unique Patients	4,793	4,982	5,071	2,533

To address the current and future demand for oncological exams and infusion therapy, the Proposed Project includes the relocation of 120 oncology exam rooms that will operate for expanded hours, and the relocation of 79 infusion bays and expansion of infusion bays by 21 for a total of 100 infusion bays. The infusion space includes 9 short stay bays to allow patients to receive emergent infusions outside of the ED. The 9 short stay bays included in the Proposed Project are multi-purpose and provide an alternative to an ED visit for those patients who require IV hydration and are expected to stay more than 4-6 hours, but do not require an overnight stay. The expanded capacity of short stay bays will provide an alternative care option, as more patients can be managed as outpatient or short stay, rather than presenting to the ED or being admitted to the Hospital as an inpatient, relieving capacity constraints at the ED and reducing ED boarding and long-stay observation patients. The existing facilities that house the Hospital's outpatient cancer services may be repurposed in the future consistent with changes in demand for care or to meet the need for adequate spatial configuration in order to safely provide ambulatory care in a post-COVID environment.

The Proposed Project will allow MGH to meet current and future demand for outpatient oncology services. Volume projections for oncology exams and infusions are outlined in Table 7.

³³ Outpatient encounters are inclusive of visits requiring a visit with a physician, nurse, or advanced practice nurse. Data for outpatient encounters excludes visits where an exam room was unnecessary (e.g., blood draw only).

Table 7: Five-Year Volume Projections for Outpatient Oncology Services					
	FY25	FY26	FY27	FY28	FY29
Outpatient Exams	188,063	193,132	198,352	203,728	209,840
Infusion Therapy	58,018	59,759	61,551	63,398	65,300

Demand for Inpatient Cancer Beds

Patients with a cancer diagnosis continue to require hospitalization at various intervals throughout the disease process.³⁴ Hospitalization may be necessary as a result of severe reactions or side effects of treatments, during treatments to monitor for reactions, and at end-of-life. MGH provides CAR T-cell therapy, a complex cellular immunotherapy, for patients with lymphoma. CAR T-cell therapy can only be administered in the hospital, as side effects can be severe. Depending on the individual's reaction to this immunotherapy, the length of stay can range from one week to one month, which can have significant effects on MGH's inpatient bed capacity. Other cancer treatments, such as chemotherapy, may cause symptoms or side effects so severe as to require hospitalization for management of symptoms. Patients with a cancer diagnosis experiencing severe pain or other symptoms, or those who are at end-of-life and are receiving palliative care, will also require hospitalization. To address the increasing demand for cancer inpatient beds due to increased cancer incidence, and longer survivorship of cancer patients, and to allow MGH the capacity to accept higher acuity patients from community hospitals, the Proposed Project includes 201 designated cancer inpatient beds, an increase of the current number of dedicated cancer beds by 91 beds. The need for oncology inpatient beds is evidenced by the historical volume and unique patient counts for oncology patients at MGH as described in Table 3 above.

3. Heart Center

MGH has provided patients with dedicated cardiovascular care since the opening of its first cardiac unit in 1916. Currently, MGH's Corrigan Minehan Heart Center offers a variety of diagnostic and treatment options to patients facing various cardiovascular diseases. As part of its multidisciplinary approach to cardiovascular care, MGH offers numerous condition-specific programs including: Adult Congenital Heart Disease Program, Atrial Fibrillation Program, Cardio-Oncology Program, Cardiovascular Genetics Program, Cardiovascular Performance Program, Complex Coronary Intervention Program, Heart Failure and Cardiac Transplant Program, Heart Transplant Program, Heart Valve Program, Hypertrophic Cardiomyopathy Program, and Marfan Syndrome and Related Conditions Program.

Cardiovascular disease is the most prevalent disease, and the number one cause of death, in the United States. As with cancer, age is the dominant risk factor for cardiovascular disease.³⁵ Adults aged 65 and older are more likely to suffer from cardiovascular disease because aging can cause changes in the heart and blood vessels, which may increase the risk of developing cardiovascular disease. The prevalence of cardiovascular disease is expected to increase approximately ten

³⁴ The top 10 diagnoses requiring inpatient cancer care at MGH for FY19 were: (1) malignant neoplasm of prostate; (2) malignant neoplasm of unspecified site of right female breast; (3) malignant neoplasm of unspecified site of left female breast; (4) malignant neoplasm of unspecified site of unspecified female breast; (5) secondary malignant neoplasm of bone; (6) multiple myeloma not having achieved remission; (7) malignant neoplasm on unspecified part of unspecified bronchus or lung; (8) malignant neoplasm of brain, unspecified; (9) malignant neoplasm of thyroid gland; and (10) malignant neoplasm of rectum.

³⁵ Francesco Paneni, MD, PhD et al., *The Aging Cardiovascular System*, 69 J. AM. COLLEGE OF CARDIOLOGY 1952, 1952 (2017), available at <https://www.sciencedirect.com/science/article/pii/S0735109717307908>.

percent by the year 2030.³⁶ MGH's current patient panel consists of approximately 27.3% individuals in the age 65+ cohort, signaling an impending surge in patients with cardiovascular disease. Consequently, the need for cardiovascular services is rapidly increasing due to increased incidence of cardiovascular disease associated with an aging population.

Demand for Cardiovascular Procedures

Patients treated at the Heart Center present with various levels of severity and receive commensurate treatments, whether the cardiovascular disease is acute or chronic. Patients may undergo diagnostic procedures such as percutaneous coronary intervention, cardiac catheterization, electrophysiology studies (EP), echocardiograms, stress tests, or minimally invasive mitral valve repair. Patients presenting with more severe cardiovascular disease may undergo more invasive cardiovascular surgery, such as open-heart surgery or transplants. As a regional resource, MGH provides quaternary care services to high-acuity patients and offers advanced treatments not available at community hospitals. MGH is one of the few hospitals in the region to provide the dual heart-lung life support mechanism, ECMO. MGH also performs heart and heart-lung transplants and is one of five hospitals in the nation to participate in a clinical trial utilizing Donation after Circulatory Death donor hearts. The Proposed Project will address the needs of its cardiovascular patient population and, as such, MGH must have the capacity to perform cardiovascular procedures that are a necessary component of the myriad diagnoses and treatment plans associated with its patient panel.

Historical demand for cardiovascular procedures is outlined in Table 8 below.

Table 8: Historical Cardiovascular Procedure Volume			
	FY17	FY18	FY19
Total Procedures	39,779	41,810	42,092

The Proposed Project expands cardiovascular procedure rooms by 7, for a total of 24 procedure rooms (6 EP procedure rooms, 8 catheterization procedure rooms, and 10 cardiovascular operating rooms); however, these rooms are designed to be used for any type of cardiovascular procedures, allowing for flexibility in scheduling and to accommodate demand. The Proposed Project also will add 3 cardiovascular small procedure rooms to meet future MGH's patient panel demand associated with increased incidence of cardiovascular disease. To support the additional procedure rooms, the Proposed Project expands the number of perioperative bays from 13 to 68 bays.

Volume projections for cardiovascular procedures are outlined in Table 9.

Table 9: Five-Year Volume Projections for Cardiovascular Procedures					
	FY25	FY26	FY27	FY28	FY29
Total Procedures	43,195	43,408	43,627	44,183	44,651

Demand for Inpatient Cardiovascular Beds

Patients with cardiovascular disease require inpatient care for a variety of reasons.³⁷ While some cardiovascular procedures may be performed in an outpatient setting, often the patient must be

³⁶ *Id.*

³⁷ Top 10 diagnoses requiring inpatient cardiac care at MGH in FY19: (1) hypertensive heart and chronic kidney disease with heart failure and Stage 1 through Stage 4 chronic kidney disease; (2) non-ST elevation (NSTEMI)

monitored in an inpatient unit following the procedure, particularly if the patient is higher risk or has comorbidities. For example, high-acuity patients such as those undergoing a heart or heart-lung transplant or requiring ECMO will require a hospital stay. As indicated above, nearly half of patients undergoing EP and Catheterization procedures will be hospitalized. Similarly, while low-risk individuals may be able to undergo angioplasty in an outpatient setting, higher-risk individuals will be monitored in an inpatient unit following the procedure. Further, while trans-catheter aortic valve replacement (“TAVR”) is minimally invasive, it is generally performed on a high-risk patient who does not qualify for open heart surgery, therefore MGH must prepare for the possibility of admission of such patients. Finally, MGH’s high capacity results in the inability to accommodate transfers of high acuity cardiovascular patients from community hospitals. To address the increasing demand for cardiovascular inpatient beds due to increased incidence of cardiovascular disease and to allow MGH the capacity to accept higher acuity patients from community hospitals, the Proposed Project includes 180 designated cardiovascular inpatient beds, increasing the total number of cardiovascular beds by 23 beds.

C. Need for Imaging Technology

In accordance with the goals and design of the Centers of Excellence, the Proposed Project will co-locate imaging services necessary to support the cancer and cardiac services included in the Proposed Project. Imaging is a necessary component of cancer and cardiovascular disease detection and diagnosis as well as on-going monitoring. As the incidence of cancer and cardiovascular disease increases, the need for imaging services to diagnose, treat and monitor those diseases will correspondingly increase. The imaging modalities included in the Proposed Project will ensure convenient access to imaging services in a single location, enhance patient experience, facilitate team collaboration, and optimize efficient operations within the Cardiovascular and Cancer Centers of Excellence.

Oncology patients presenting to the new building for an outpatient medical visit who also require an imaging scan will be able to receive that scan on the same day in the same location, leading both to greater patient convenience and satisfaction and to increased efficiencies. Inpatients with imaging needs will also have their needs met by the imaging units in the Proposed Project. Without co-located imaging services, patients presenting to the new building would require transportation to separate spaces throughout MGH’s campus, which would be inconsistent with the overarching goals of the Proposed Project such as increased care efficiencies, increased coordination of care, and increased patient satisfaction. Accordingly, the new facility housing the Cancer Center and Heart Center will have 2 new units each of CT, MRI (one 1.5T and one 3T) and PET/CT and one PET/MR. These advanced imaging units will provide the necessary support to diagnose, treat, and monitor patients with cancer and cardiovascular disease. The co-location of these modalities will ensure patients receive timely imaging services in the same facility as their other care, resulting in higher patient satisfaction and greater care efficiencies.

In addition to the benefits of co-location for cancer and cardiac patients, the imaging modalities included in the Proposed Project will provide necessary capacity to address the needs of MGH’s entire patient panel. Currently, MGH’s main campus has severely limited imaging capacity, resulting in delayed and fragmented care. Patient demand for imaging is increasing as the

myocardial infarction; (3) hypertensive heart disease with heart failure; (4) atherosclerotic heart disease of native coronary artery without angina pectoris; (5) nonrheumatic aortic (valve) stenosis; (6) atherosclerotic heart disease of native coronary artery with unstable angina pectoris; (7) paroxysmal atrial fibrillation; (8) nonrheumatic mitral (valve) insufficiency; (9) ventricular tachycardia; and (10) hypertensive heart and chronic kidney disease with heart failure and with stage 5 chronic kidney disease.

population ages, disease incidence increases, and as treatments advance. As described in more detail below, unique patient and scan volume is increasing annually for each of the modalities included in the Proposed Project. Capacity at MGH's main campus is already strained with long wait times to next available to appointment, requiring multiple visits to MGH in order to receive clinical care and imaging scans. This is inefficient and cost intensive. Accordingly, the CT, MRI, PET/CT, and PET/MR modalities included Proposed Project will address the need for co-location of imaging in the Cancer and Heart Centers, as well as current and future demand for more timely access to imaging for all MGH patients.

CT

MGH patients are experiencing increased demand for CT imaging services. Between FY17 and FY19, there was a 9.5% increase in unique patients with CT imaging needs.³⁸ Scan volume increased rapidly, with approximately 17.6% increase in scan volume between FY17 and FY19. MGH patients currently experience a 23-day wait time for outpatient CT imaging services at the main campus.³⁹ The top indicators for CT scans of cancer and cardiovascular inpatients at MGH include: malignancy, left lower quadrant pain, sarcoma, metastatic disease evaluation, renal mass, lung cancer, lung nodule, lymphoma, melanoma, coronary disease, heart valve disease, and trans-catheter aortic valve implantation. Accordingly, the new CT units will address the needs of patients in terms of co-location of services, as well as increased demand for imaging services. The CT units included in the Proposed Project will primarily support cancer and cardiac patients presenting to the new building.

The historical and future CT scan volumes are provided in Tables 10 and 11 below:

Table 10: Historical CT Scan Volume and Unique Patients			
	FY17	FY18	FY19
Unique Patients	45,518	46,150	49,841
CT Scan Volume	90,227	97,873	106,087

Table 11: Projected CT Scan Volume					
	FY25	FY26	FY27	FY28	FY29
Projected CT Scan Volume	144,716	150,652	152,743	162,906	172,972

MRI

MRI imaging is already the highest-demand imaging modality at MGH, and patients requiring an MRI experience the longest wait time, as compared to CT and PET/CT. Further impacting capacity constraints, MGH has seen a 15% increase in unique patients with MRI needs between FY17 and FY19. Accordingly, MRI scan volume has increased by 14.9% between FY17 and FY19. The current wait time for an MRI at the MGH main campus is 40 days.⁴⁰ The top indicators for MRI of cancer and cardiac inpatients include: abnormal prior CT imaging, liver cancer,

³⁸ FY17 data volumes and patient counts are approximate. FY17 data was calculated using 11 months of data, and one month (October 2016) of extrapolated data, by calculating the ratio between November 2016 and November 2017 to determine approximate numbers for October 2016 to October 2017.

³⁹ Wait time is calculated based on time to next 3rd available appointment.

⁴⁰ Wait time is calculated based on time to next 3rd available appointment.

abdominal mass, pancreatic cyst, glioblastoma, melanoma, metastatic cancer, brain/CNS neoplasm, spinal cord tumor assessment, cardiomyopathy, congenital heart disease, and aortic disease. The additional MRI capacity included in the Proposed Project will provide more timely access to MRI scans, addressing current high demand. In particular, there is a historical backlog of approximately three weeks for an outpatient cardiac MRI. The Proposed Project will reduce wait times for imaging patients and seeks to provide a 7-day turnaround time from order to imaging exam.

The historical and future MRI scan volumes are provided in Tables 12 and 13 below:

Table 12: Historical MRI Scan Volume and Unique Patients			
	FY17	FY18	FY19
Unique Patients	24,435	26,732	28,061
MRI Scan Volume	39,237	42,486	45,080

Table 13: Projected MRI Scan Volume					
	FY25	FY26	FY27	FY28	FY29
Projected MRI Scan Volume	48,390	49,451	50,460	51,450	52,496

PET/CT

Among all four technologies in the Proposed Project, demand for PET/CT imaging services is rising the most rapidly. Between FY17 and FY19, unique patients requiring a PET/CT scan increased by 15.6%. PET/CT scan volumes further increased by 28.3% between FY17 and FY19. The current wait time for PET/CT imaging services is 6 days at the main campus and is projected to increase as demand continues to grow.⁴¹ The most common indicators for PET/CT by inpatients at MGH include: lymphoma, lung mass, lung cancer, fever of unknown origin, esophageal cancer, gastric cancer, weakness, and cancer surveillance. Through the Proposed Project, outpatients will have access to timelier PET/CT scan across MGH's main campus. The additional PET/CT capacity will support inpatients in the new building, similarly, reducing overall wait times for important cancer-related imaging.

The historical and future PET/CT scan volumes are provided in Tables 14 and 15 below:

Table 14: Historical PET/CT Scan Volume and Unique Patients			
	FY17	FY18	FY19
Unique Patients	3,134	3,088	3,624
PET/CT Scan Volume	9,621	10,311	12,343

⁴¹ Wait time is calculated based on time to next 3rd available appointment.

Table 15: Projected PET/CT Scan Volume					
	FY25	FY26	FY27	FY28	FY29
Projected PET/CT Scan Volume	20,237	20,758	21,216	21,547	21,875

PET/MR

PET/MR is a new technology and the proven beneficial uses of this modality increase as research continues. As the population ages within the Commonwealth and MGH's patient population, so too, will the incidence of certain age-related conditions, such as cancer and cardiovascular disease. PET/MR has proven to be an important tool in obtaining data to accurately diagnose, stage and treat conditions within these subspecialties. Some benefits associated with the use of PET/MR include simultaneous PET and MR data acquisition, allowing for accurate spatial and temporal matching of the PET and MR imaging; better soft tissue contrast than CT; and a radiation dose substantially less than PET/CT. Moreover, the sophistication of PET/MR imaging provides additional findings not seen on PET/CT in many patients.⁴² The addition of this PET/MR unit will provide patients with access to this necessary imaging technology in the same location as the Cancer and Heart Centers.

MGH has recently obtained approval to operate one PET/MR unit on its main campus and it is in the process of being implemented. Therefore, MGH does not currently have historical volume data. However, MGH projects a need for future PET/MR imaging particularly because this modality has been shown to be effective in providing more accurate diagnosis of certain cancers. As the new facility, and consequently the PET/MR unit, will not be operational until year 2025, the addition of this technology will be pivotal in providing clear and accurate imaging for cancer patients as the population ages and the prevalence of these disease categories increase accordingly. Based on forecasted volume of patients within the panel that will have cancers for which PET/MR has been utilized, MGH has developed Table 16 outlining the number of clinical PET/MR scans that will be performed annually.

Table 16: Projected PET/MR Scans					
	FY25	FY26	FY27	FY28	FY29
Annual PET/MR Scans	468	546	624	702	780

The imaging modalities included in the Proposed Project will serve to enhance patient experience and satisfaction by providing timely, increased access to imaging services that will aid in diagnosis, treatment and appropriate on-going monitoring of cancer and cardiovascular disease. Inpatients of the new facility will benefit from co-located imaging services as they will not have to be transferred to other buildings across MGH's campus to receive any necessary imaging exams. The co-location of imaging with inpatient and outpatient services will enhance care coordination and will support the missions of the Cancer Center and Heart Center.

⁴² Janet Cochrane Miller, *Combined PET/MR Imaging*, 14 RADIOLOGY ROUNDS (2016), <https://www.massgeneral.org/assets/MGH/pdf/imaging/radiology-rounds/radiology-rounds-nov-dec-2016.pdf>; H. F. Wehrl et al., *Combined PET/MR Imaging – Technology and Applications*, 9 TECH. CANCER RES. TREATMENT 5, 6 (Feb. 2010), available at <https://journals.sagepub.com/doi/pdf/10.1177/153303461000900102>.

C. Conclusion

Each component of the Proposed Project was carefully planned to ensure that the Hospital can meet future demand of its patient panel in an effective and efficient manner. The Hospital needs additional capacity through new beds and the creation of private rooms so that patients can receive care in the most appropriate setting in a timely manner. MGH also requires modern, updated infrastructure to keep pace with advancing technology and industry standards and to ensure greatest efficiency in operations as the population ages and the incidence of cancer and cardiovascular disease rises.

Patient care and experience will be greatly enhanced with the creation of a greater number of private inpatient rooms on campus. Expanded private inpatient capacity also has a positive impact on ED and PACU throughput, ensuring patients are cared for in the most appropriate setting in a timely manner. In addition, MGH will be able continue its role as a regional resource with the capacity to accept more transfers of high-acuity patients from community hospitals that do not have the ability to provide the proper level of care to these patients.

Moreover, the age of the population of the U.S. and the Commonwealth, as well as the Applicant's and MGH's patient panel is increasing rapidly with the aging of the Baby Boomer population. As age is the predominant risk factor for both cancer and cardiovascular disease, the two most prevalent disease categories in the U.S., MGH has selected these two diseases to be the primary focus of the new facility. Through the Centers of Excellence for both cancer and cardiac services, patients will benefit from co-located inpatient, outpatient, and imaging services. Accordingly, the Proposed Project will meet the demands of its patient panel into the future.

F1.a.iii

Competition:

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

The Proposed Project will not have an adverse effect on competition in the Massachusetts healthcare market based on price, total medical expenses ("TME"), provider costs or other recognized measures of health care spending as outlined in the arguments below.

A. Monitoring Variables that Contribute to Cost and Implementing Effective Initiatives

Since 2012, when the Massachusetts Legislature ushered in a new era of health care cost reform in the Commonwealth, the Applicant has sought ways to reduce costs and ensure high quality care. Chapter 224 of the Acts of 2012 created a healthcare cost growth benchmark ("benchmark"), a statewide target for the rate of growth in total healthcare expenditures. Since the inception of the benchmark, the Applicant has monitored and controlled costs, outcomes and access to services in an effort to meet the benchmark and reduce the overall cost of care. The Applicant recently implemented specific efforts to continue to reduce of costs, positively impacting the Massachusetts healthcare market. These strategic initiatives include:

- **MGB Enterprise Data and Digital Health Initiative ("EDDH")**: EDDH is a five- year strategic digital health initiative to improve patient experience, boost digital innovation and transform clinical care across the system's hospitals. It will engage patients on their health

care journeys, build upon MGB foundational investments in data and technology, and develop and scale existing digital care projects. For example, a pillar in EDDH is Digital Care Transformation (“DCT”). An ongoing program in DCT is focused on identifying patients with specific conditions (Lipid/Hypertension) through population screening; their progress is then monitored remotely via algorithmically enabled apps. The program has shown that patients have quickly adhered to guidelines due to providers actively managing their care through these remote interactions. The program has demonstrated progress in advancing patient care for its participants.

- Community Hospital Transfer Program (“CHTP”): CHTP is a system-wide initiative to provide care for patients in the most appropriate setting. Through CHTP ED physicians at the system’s academic medical centers can directly admit medically appropriate patients to one of the system’s community hospitals, thereby providing care in the most appropriate and cost-effective setting for the patient’s condition.

Accordingly, the Applicant’s strategic initiatives are reducing both operational costs and the cost of care, leading to reductions in overall provider costs, thereby reducing TME, and ultimately total healthcare expenditures.

Use of Population Health Management Programming to Reduce Costs

An additional way that the Applicant is impacting costs is through effective population health management (“PHM”) programming. These programs are used throughout the system, providing patient-centric, holistic care, creating efficiencies and achieving improved quality outcomes. Efficiencies lead to a reduced cost of care, as many of these initiatives seek to eliminate unnecessary hospitalizations, emergency department visits, and specialty visits.

For example, from 2006-2011, MGH participated in a CMS demonstration project to assess the impact of care management for high-risk patients. The pilot program resulted in a 12% gross savings among enrolled patients and a 20% reduction in hospitalizations compared to the control group. Based on the success of this demonstration project, the Applicant continued the program known as the Integrated Care Management Program (“iCMP”). Over the past decade, more than 13,000 patients have enrolled in iCMP and at present, MGH has 4,200 patients enrolled in active care management. Patients in this program range from pediatric to elderly with multiple medical conditions that are at risk for becoming high utilizers of care, which is costly to the health care system. Many patients have behavioral health or substance use disorders that worsen their existing medical conditions. Through iCMP, patients are supported by a team of professionals including the primary care physician who refers that patient to the program. Each primary care practice has an iCMP team embedded at the site consisting of a registered nurse, social worker, community resource specialist, pharmacist, community health worker and a community resource specialist. The team works to identify patient needs, both medical and social determinant of health needs, and coordinate care and resources to address the identified need. Through this program, the Applicant has been able to positively impact TME by managing high risk patients so that they do not require care in high-cost settings including the ED and inpatient admissions.

Further, a 2019 study conducted at MGH found that e-consultations (e-consults), part of the Hospital’s PHM strategy to provide timely, high quality and lower cost care, led to reduced wait times for services and reduction in costly specialty visits. For many patients, e-consults avoid the need for an in-person visit entirely; and even when an in-person visit is required, the initial e-consult provides valuable information, including additional patient history, previous diagnostic testing and treatment trials, that can make the in-person visit more productive, efficient and

valuable for the physician, the referring provider, and the patient, thereby reducing costs.⁴³ MGH began offering e-consults in cardiology and dermatology in late 2013 and extended the program to allergy and immunology in August 2016. As of January 2019, the MGH e-consult program involves 47 specialty areas, and in 2018 it provided almost 10,000 e-consults.

Through PHM, the Applicant has created a care delivery infrastructure to control costs, while assuring patients have high quality outcomes and a positive care experience. Care optimization is critical to reduce costs and maintain high quality outcomes. PHM programs optimize care and cost effectiveness in several ways, including the evaluation of various patient populations' health status and outcomes; monitoring of administrative and operational costs to create efficiencies in various care settings, including hospitals; and reviewing tools, technologies and resources that will assist clinical teams in providing the best care possible. The Proposed Project builds upon the Applicant's and MGH's work in this area.

A. Expansion Efforts will Lead to Timely Care

Through the Proposed Project, patients will receive more timely access to treatment in the optimum location on campus. Specifically, early diagnosis and treatment onset reduce the burden of disease on the patient and avoid costs associated with later diagnoses. The design of the Cancer Center will reduce wait time to initial appointment thereby facilitating early detection and treatment of cancer. In addition, the addition of inpatient beds at MGH will allow for improved care as patients are moved out of the ED into the inpatient setting. Through more functional inpatient capacity throughput in other areas of the Hospital, such as the ED, will improve, generally contributing to more efficient use of resources as well as improved health outcomes across the board. In particular, the expansion of cardiovascular and cancer care services will lead to expedited treatment for these patients, reducing their rates of emergency department visits and the associated inefficient use of patients' and physicians' time. For example, the Proposed Project includes nine infusion short stay bays, which can be used for patients undergoing cancer treatment who require a hydration infusion. These patients can receive appropriate care in the designated Cancer Center, rather than presenting to the ED. Through the Proposed Project, MGH aims to reduce wait times through the addition of inpatient beds, the expansion of certain cancer and cardiovascular services, and additional imaging resources, creating greater throughput, more expeditious and efficient care and ensuring patients are receiving that care in the location within the facility most appropriately suited to their needs.

B. The Design of the Proposed Project Will Create Efficiencies

The Applicant consistently seeks ways to create operational efficiencies and lower administrative costs. With this overarching goal in mind, the Proposed Project is being designed to create efficiencies wherever possible. As discussed in Section F1.b.ii, the co-location of services leads to increased and improved communication amongst practitioners, ensuring consistency and continuity for patients, leading to improved quality outcomes. When clinical teams are physically separated in the delivery of care, not only is the patient inconvenienced, but diagnoses and treatment may be delayed, potentially leading to worsening of a patient's condition and resulting in a higher cost of care. The co-location of services also reduces duplication of services and resources, additional factors leading to lower cost care. The design of the Proposed Project is

⁴³ Sue McGreevey, *MGH: E-Consults Can Streamline, Simplify Care and Reduce Need for Visits*, HARVARD GAZETTE (June 12, 2019), <https://news.harvard.edu/gazette/story/2019/06/mgh-e-consults-can-streamline-simplify-care-and-reduce-need-for-visits>.

focused on facilitating co-location and team-based care, creating efficiencies in care delivery, high quality outcomes, and ultimately, cost containment.

The design of the Proposed Project will allow for the co-location and integration of cardiovascular and cancer care through the respective Centers for Excellence. The co-location of services in the same physical space for each of these focus areas will allow for more efficient staffing patterns, which will reduce the overall cost of care as patient demand will be aligned with staffing capacity. For example, the staffing of nurses and advanced practice providers in multiple smaller units with waxing and waning patient populations is inefficient. By co-locating patients and cross-training staff, the daily fluctuations in both patient volume and acuity may be addressed most efficiently. Additionally, for physician resources, the co-location of particularly high acuity patients allows for much more efficient staffing patterns due to the "cross coverage" of patients at off-hours by a smaller clinical team.

Team-based care improves health outcomes. Team-based care is defined as, "the provision of comprehensive health services to individuals, families, and/or their communities by at least two health professionals who work collaboratively along with patients, family caregivers, and community service providers on shared goals within and across settings to achieve care that is safe, effective, patient-centered, timely, efficient, and equitable."⁴⁴ The benefits of competent and effective care teams that can optimize care (with each team member having a clear role that allows for the creation of efficiencies), include "improved quality, safety, and reliability of care; enhanced health and functioning in those who have chronic conditions; and more cost-effective care. Patient and family experience also tend to improve with a high-functioning care teams."⁴⁵ Accordingly, the ability for team-based care in the proposed new building will also impact the cost of care while assuring high quality outcomes.

Moreover, the expansion of services will lead to improved throughput in locations across MGH's campus, such as the ED, contributing to overall cost-savings. Studies have shown that a reduction in patient wait times by even 60-minutes when being moved from the ED to the inpatient setting will decrease the overall cost of care for hospital providers by 21-30% (depending upon the acuity level of the patient), thereby reducing total healthcare expenditures for the hospital and the system.⁴⁶ Moreover, by reducing time spent in the ED or eliminating the need to go through an ED, the patient's experience is greatly improved. With improved access to dedicated cancer and cardiovascular services through the Centers for Excellence, these patients will receive more efficient and effective care, resulting in fewer ED visits and decreased hospitalizations. These reductions in utilization will lead to an overall decrease in healthcare spending for these patients, as well as systemically. Accordingly, the Proposed Project seeks to lower costs, as well as overall total health care expenditures, while maintaining high quality services.

⁴⁴ M.D. Naylor, et al., *Team-Based Primary Care for Chronically Ill Adults: State of the Science. Advancing Team-Based Care*. Unpublished white paper presented at the ABIM Foundation meeting to Advance Team-Based Care for the Chronically Ill in Ambulatory Settings (March 24-25, 2010), Philadelphia, PA.

⁴⁵ Cindy Hupke, *Team-Based Care: Optimizing Primary Care for Patients and Providers*, INST. FOR HEALTHCARE IMPROVEMENT (May 16, 2014), <http://www.ihl.org/communities/blogs/team-based-care-optimizing-primary-care-for-patients-and-providers->.

⁴⁶ Lindsey Woodworth & James F. Holmes, *Just a Minute: The Effect of Emergency Department Wait Time on Cost of Care*, AM. ECON. ASS'N, available at <https://www.aeaweb.org/conference/2018/preliminary/paper/AQRh5Azk>.

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

A. Modern Infrastructure for Healthcare Facilities

Role of an Academic Medical Center

Evidence-based literature supports the Proposed Project as necessary to maintain MGH's status as a world-renowned academic medical center and national and regional resource for high-acuity patients. Academic medical centers serve a critical role in the United States healthcare system through the provision of clinical care, conducting groundbreaking research, and guiding the education and training of the next generation of health care providers.⁴⁷ In addition, due to academic medical centers' roles as innovators in medical care and, staffed by highly-specialized physicians, academic medical centers play a vital role in the care of higher-complexity, higher-acuity and riskier patients, and serve as a referral site for community hospitals.⁴⁸ Further, Academic medical centers provide communities with critical care that is often unavailable at other hospitals.

Centers of Excellence: Importance of Integrated, Team-Based Care

Centers of Excellence are programs designed to improve the coordination of care, reduce inefficiencies, and improve the quality of health care delivery at hospitals and health systems, resulting in the best patient outcomes possible.⁴⁹ While there is no single definition of a Center of Excellence, all Centers of Excellence have the common premise of being comprised of highly skilled experts dedicated to specific therapeutic areas, who are often at the forefront of innovation in their field of practice.⁵⁰ Centers of Excellence are situated in hospitals and health systems, providing highly specialized treatments, procedures, and surgeries for complex and rare conditions.

Additionally, Centers of Excellence are heavily involved in research and clinical trials concerning the conditions they treat, solidifying the hospital or health system's position as a leader in the healthcare delivery system, conducting 876 research and clinical trials for cancer and cardiac conditions in FY19, a number that represents approximately a 6.2% compounded annual growth rate of the number of clinical trials from FY10 to FY19. The Hospital's commitment to research as demonstrated by the increase in the number of trials during the past decade furthers its ability to advance treatment for not only its own patients, but for patients around the world. This first-hand knowledge through its own research of new therapies and advances in protocols informs the Hospitals' clinicians in making the most appropriate and personalized treatment decisions for the Hospital's patients every day.

⁴⁷ Howard B. Fleishon et al., *Academic Medical Centers and Community Hospitals Integration: Trends and Strategies*, 14 J. AM. COLL. RADIOLOGY 45, 45 (2017), [https://www.jacr.org/article/S1546-1440\(16\)30586-5/pdf](https://www.jacr.org/article/S1546-1440(16)30586-5/pdf).

⁴⁸ *Id.* at 46.

⁴⁹ James K. Elrod & John L. Fortenberry, Jr., *Centers of Excellence in Healthcare Institutions: What They Are and How to Assemble Them*, 17 BMC HEALTH SERVS. RES. 425 (2017), available at <https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-017-2340-y#citeas>.

⁵⁰ Matthew Pakizegee & Richard G. Stefanacci, *Centers of Excellence: Criteria and Comprehensive Clinical Pathways*, 5 CLINICAL PATHWAYS 28 (2019), available at <https://www.journalofclinicalpathways.com/article/centers-excellence-criteria-and-comprehensive-clinical-pathways>.

In addition to providing patients with access to leading health care experts, Centers of Excellence are organizationally designed to provide an integrated, comprehensive continuum of care to support patients throughout the disease process. Patients may receive all care for the disease specific to the focus of the Center in a single building, resulting in convenience and consistency for patients and staff and contributing to overall satisfaction. Communication among providers in sub-specialties is enhanced in Centers of Excellence due to the co-location. Further, the specialization of the centers attracts patients, providing an opportunity for teams of providers to perform a high volume of procedures that require specialized training and continued proficiency, contributing to high-quality and improved outcomes, as compared to systems with more dispersed programs and teams.⁵¹ The consolidation of services also results in efficiencies and cost savings through the ability to share resources, reduce delays in care, and prevent duplication of high-cost equipment and supplies.⁵²

Disaster Preparedness

Evidence-based literature supports the need for construction of hospital facilities to withstand major disasters and provide the space necessary to treat patients during large-scale disasters and mass casualty incidents. Hospitals are important access points on a day-to-day basis but are increasingly becoming critical resources in response to disasters.⁵³ In recent years, there has been a steady increase in the number of significant emergencies and natural, technological or terrorist-related disasters.⁵⁴ Recently, the worldwide pandemic of a novel coronavirus, COVID-19, is testing the resources of hospitals across the United States, including MGH, highlighting the importance of modern infrastructure, adequate space, and increased efficiencies.⁵⁵ Structural integrity of the facility is paramount to maximize the hospital's chance of surviving a disaster while retaining functional capability to care for patients.⁵⁶ A modern, durable infrastructure also will influence the hospital's performance following a disaster, directly affecting the community's health outcomes.⁵⁷ For example, the Hospital's facilities must be flexible in terms of response to disaster or other emergency in order to accommodate increased volume or surge in capacity, and increased acuity or complexity of patients by being able to adapt spaces for multiple uses as demand dictates. Accordingly, it is important for a regional academic medical center to ensure it can meet the needs of the broader community, as well as its neighbors who rely on MGH as their local hospital, in times of disaster.

⁵¹ Elrod & Fortenberry, *supra* note 49.

⁵² *Id.*

⁵³ Boeriu Cristian, *Hospital Resilience: A Recent Concept in Disaster Preparedness*, 4 CRITICAL CARE MED. 81 (2018), available at https://www.researchgate.net/publication/326964354_Hospital_Resilience_A_Recent_Concept_in_Disaster_Preparedness.

⁵⁴ *Id.*

⁵⁵ Emma Brown, *A Look Inside Coronavirus Preparations at a Major U.S. Hospital*, WASH. POST (Mar. 9, 2020), https://www.washingtonpost.com/investigations/a-look-inside-coronavirus-preparations-at-a-major-us-hospital/2020/03/09/9169d156-5f64-11ea-9055-5fa12981bbbf_story.html.

⁵⁶ Cristian, *supra* note 53. See also Vesela Radovic et al., *Health Facilities Safety in Natural Disasters: Experiences and Challenges from South East Europe*, 9 INT'L JUSTICE ENVTL. RES. AND PUB. HEALTH 1677 (2012), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3386580/>.

⁵⁷ Cristian, *supra* note 53. See also Mohammad Amiri et al., *Preparedness of Hospitals in North of Iran to Deal with Disasters*, 15 IRAN RED CRESCENT MED. J. 519 (2013), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3840841/>.

A. Private Inpatient Rooms Result in Lower Overall Costs and Better Patient Outcomes

Single-bed inpatient rooms have become the industry standard in the United States.⁵⁸ Per the Massachusetts Department of Public Health standard, which follows the Facility Guidelines Institute Guidelines for Design and Construction of Hospitals, hospitals undergoing new construction are limited to a maximum capacity of one bed per inpatient room.⁵⁹ Research shows that implementation of single-bed rooms reduces airborne and contact infection transmission, providing a safer physical environment for inpatients.⁶⁰ Further, single-bed rooms provide patients with increased privacy and reduced patient stress, leading to faster healing.⁶¹ Operating costs are also reduced in single-bed inpatient rooms due to reduction in transfer costs and labor costs, decreased length of stay, and decreased medication errors and costs.⁶² Infection control is significantly improved with the use of single-bed rooms, as evidenced by decreased rate of nosocomial (i.e., hospital-acquired) infection, decreased patient transfers, decreased patient length of stay, among other decreased rates of disease transmission.⁶³ Beds in multi-occupancy rooms occasionally need to be blocked off from admissions due to infections or patient gender mismatches, preventing the hospital from most efficiently utilizing, and potentially limiting its inpatient capacity. Such reduced capacity contributes to the problem of extended wait times and ED boarding. The transition to single occupancy inpatient rooms will help ease inpatient capacity constraints. Consequently, private rooms contribute to better patient health outcomes, higher patient satisfaction, and overall health care cost savings.

Evidence strongly supports the provision of care in private rooms. Hospital-acquired infections are one of the leading causes of death in the United States, costing hospitals approximately \$9.8 billion annually.⁶⁴ Cancer and cardiac patients are more vulnerable to contracting infections than the general hospital inpatient population due to side effects of treatments. Cancer treatments, particularly chemotherapy, damage an individual's immune system, which in turn makes that individual more susceptible to contracting viral and bacterial infections both during and after treatment.⁶⁵ Moreover, well-known risk factors associated with transmission of multi-drug resistant organisms, which cause infections and viruses, include frequent contact with the health care environment and multiple and/or prolonged hospitalizations,⁶⁶ both of which are common experiences of cancer and cardiac patients. Evidence shows that private single-bed inpatient rooms facilitate healthier environments, reducing risk for infections, and thereby reducing costs associated with hospital-acquired infections.

⁵⁸ Habib Chaudhury et al., *Advantages and Disadvantages of Single- Versus Multiple-Occupancy Rooms in Acute Care Environments: A Review and Analysis of the Literature*, 37 ENV'T AND BEHAVIOR 761 (2005), available at <https://journals.sagepub.com/doi/pdf/10.1177/0013916504272658>.

⁵⁹ See, e.g., DPH Compliance Checklist IP1 Medical Surgical Patient Care Unit, <https://www.mass.gov/doc/ip1-medical-surgical-patient-care-unit/download> (last visited Dec. 4, 2020).

⁶⁰ Ulrich, *supra* note 15.

⁶¹ Chaudhury et al., *supra* note 58, at 774.

⁶² *Id.* at 775.

⁶³ *Id.* See also E.R.C.M. Huisman et al., *Healing Environment: A Review of the Impact of Physical Environmental Factors on Users*, 58 BUILDING AND ENV'T 70, 74 (2012), available at <https://www.sciencedirect.com/science/article/pii/S0360132312001758>.

⁶⁴ Eyal Zimlichman et al., *Health Care-Associated Infections: A Meta-analysis of Costs and Financial Impact on the US Health Care System*, 173 JAMA INTERNAL MED. 2039 (2013), available at <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/10.1001/jamainternmed.2013.9763>.

⁶⁵ *Preventing Infections in Cancer Patients*, CDC, <https://www.cdc.gov/cancer/dccp/resources/features/preventinfections/index.htm> (last reviewed Nov. 10, 2020).

⁶⁶ Ella J. Ariza-Heredia & Roy F. Chemaly, *Update on Infection Control Practices in Cancer Hospitals*, 68 CANCER J. FOR CLINICIANS 340, 341 (2018), available at <https://acsjournals.onlinelibrary.wiley.com/doi/full/10.3322/caac.21462>.

B. Medical Oncology Services

Cancer is the term used to encompass related diseases. The National Cancer Institute describes cancer as a genetic disease “caused by changes to genes that control the way our cells function, especially how they grow and divide.”⁶⁷ Each type of cancer involves some of the body’s cells dividing without stopping, spreading into surrounding tissues.⁶⁸ Due to the genetic nature of the disease, each patient’s individual cancer, and even different cells within the same tumor, may have a unique combination of genetic changes.⁶⁹ Consequently, treatments for an individual’s cancer will vary, with most patients receiving a relatively unique combination of therapies to treat their specific type of cancer. Common treatments for cancer include surgery, radiation therapy, chemotherapy, and immunotherapy.⁷⁰

Infusion Therapy

One highly utilized treatment method for cancer involves chemotherapy through infusion, commonly known as “infusion therapy.” Infusion therapy involves injecting, or infusing, drugs into the body, generally via a central line or port. Chemotherapy drugs each have a different chemical composition and use different mechanisms to attack the cancer cells in different phases of the cell cycle.⁷¹ Some chemotherapy medications work by damaging the cell’s DNA, which prevents the cell from dividing.⁷² This mechanism is effective for many categories of cancer. Another mechanism for attacking cancer cells involves chemotherapy drugs that act as a substitute for the building blocks of RNA and DNA, which prevents the cancer cell’s DNA from copying itself and reproducing.⁷³ Other widely used chemotherapy drugs are anti-tumor antibiotics that change the DNA inside cancer cells to prevent them from growing and multiplying.⁷⁴ Finally, some chemotherapy drugs utilize mechanisms that do not fit into one of the above-mentioned categories. In addition to using infusion therapy to treat cancer, it may also be used as a form of palliative care to shrink tumors that are causing pain and address other side effects of cancer.⁷⁵ Infusion therapy is typically performed in an outpatient setting, though special situations, such as the need for extended observation of the patient or monitoring for specific side effects, may require an inpatient stay.⁷⁶

Advances in cancer care, including earlier diagnosis and more advanced treatments have contributed to an increasing number of cancers becoming chronic diseases. Many cancers can be controlled and managed for long periods of time.⁷⁷ Certain cancer types such as ovarian

⁶⁷ *What Is Cancer?*, NAT’L CANCER INST., <https://www.cancer.gov/about-cancer/understanding/what-is-cancer> (last updated Feb. 9, 2015).

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ *Types of Cancer Treatment*, NAT’L CANCER INST., <https://www.cancer.gov/about-cancer/treatment/types> (last visited Dec. 4, 2020).

⁷¹ *How Chemotherapy Drugs Work*, AM. CANCER SOC’Y, <https://www.cancer.org/treatment/treatments-and-side-effects/treatment-types/chemotherapy/how-chemotherapy-drugs-work.html> (last updated Nov. 22, 2019).

⁷² *Id.*

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ *How Chemotherapy Drugs Work*, *supra* note 71; *Chemotherapy to Treat Cancer*, NAT’L CANCER INST. <https://www.cancer.gov/about-cancer/treatment/types/chemotherapy> (Apr. 29, 2020).

⁷⁶ Malin Dollinger, *Guidelines for Hospitalization for Chemotherapy*, 1 ONCOLOGIST 107 (1996), available at <https://pubmed.ncbi.nlm.nih.gov/10387975/>.

⁷⁷ *Managing Cancer as a Chronic Condition*, NAT’L COMPREHENSIVE CANCER NETWORK, https://www.nccn.org/patients/resources/life_after_cancer/managing.aspx (last visited Dec. 4, 2020).

cancer, chronic leukemias, and some lymphomas are more likely to require ongoing treatments and monitoring. Additionally, metastatic cancer such as breast or prostate cancer tend to become chronic cancers.⁷⁸ While some chronic cancers cannot be cured, many can be controlled and stabilized utilizing ongoing treatments, such as infusion therapy, and must be continually monitored by routine exams and imaging to ensure the tumor is not growing or metastasizing.⁷⁹ Accordingly, many patients with cancer may receive continuing cancer treatment and monitoring for months or years following initial diagnosis and treatment.

CAR T-Cell Therapy

In addition to the traditional cancer treatment methods of surgery, chemotherapy, radiation therapy, and targeted drug therapy, in recent years immunotherapy has become the “fifth pillar” of cancer treatment.⁸⁰ Immunotherapy is a treatment whereby the patient’s immune system is strengthened to attack tumors.⁸¹ One such revolutionary immunotherapy treatment is CAR T-cell therapy, which involves T cells (a type of immune system cell) being manipulated in the laboratory to enable the cells to attack the cancer cells.⁸² In CAR T-cell therapy, a patient’s T-cells are removed from their blood, and taken to a laboratory to undergo genetic engineering where a special receptor called chimeric antigen receptor (“CAR”) is inserted into the T cells. The newly formed CAR T-cells are then grown in large quantities and transferred back into the patient’s body via infusion, where they can bind to a specific antigen on the cancer cells, effectively killing the cancer cells.⁸³ Successful CAR T therapy will result in the CAR T-cells continuing to reproduce within the body, and recognizing and killing cancer cells containing the specific antigen. CAR T-cell therapy has been extremely effective in patients with advanced blood cancer, such a leukemia and lymphoma, with success rates between 70 to 94% in different clinical trials.⁸⁴ CAR T-cell therapy research is a continually growing field, with much research dedicated to the expansion of this therapy in solid-tumor cancers.⁸⁵

As each patient’s body reacts differently to CAR T therapy, hospitalization is required to monitor any side effects. When CAR T-cells multiply in the body following injection, massive amounts of chemicals called cytokines are released into the blood, which can cause severe side effects such as high fevers and low blood pressure. Other potential side effects include neurotoxicity or changes in the brain causing swelling, confusion, seizures, or severe headaches.⁸⁶ Accordingly,

⁷⁸ *Managing Cancer as a Chronic Illness*, AM. CANCER SOC’Y, <https://www.cancer.org/treatment/survivorship-during-and-after-treatment/when-cancer-doesnt-go-away.html> (last updated Jan. 14, 2019).

⁷⁹ *Id.* See also *Living With Chronic Cancer*, CANCER.NET (May 2018), <https://www.cancer.net/survivorship/living-with-chronic-cancer>.

⁸⁰ *CAR T Cells: Engineering Patients’ Immune Cells to Treat Their Cancers*, NAT’L CANCER INST., <https://www.cancer.gov/about-cancer/treatment/research/car-t-cells> (last updated July 30, 2019).

⁸¹ *Id.*

⁸² *Id.* See also *NCI Dictionary of Cancer Terms: CAR T-cell Therapy*, NAT’L CANCER INST., <https://www.cancer.gov/publications/dictionaries/cancer-terms/def/car-t-cell-therapy> (last visited Dec. 9, 2020).

⁸³ *Id.*

⁸⁴ Androulla N. Miliotou & Lefkothea C. Papadopoulou, *CAR T-cell Therapy: A New Era in Cancer Immunotherapy*, 19 CURRENT PHARMACEUTICAL BIOTECHNOLOGY 5 (2018), available at <https://pubmed.ncbi.nlm.nih.gov/29667553/>.

⁸⁵ Kheng Newick et al., *CAR T Cell Therapy for Solid Tumors*, 68 ANN. REV. OF MED. 139 (2017), available at <https://www.annualreviews.org/doi/abs/10.1146/annurev-med-062315-120245>; Zhenguang Wang et al., *New Development in CAR-T Cell Therapy*, 10 J. HEMATOLOGY AND ONCOLOGY 53 (2017), <https://jhoonline.biomedcentral.com/articles/10.1186/s13045-017-0423-1>.

⁸⁶ *CAR T-Cell Therapy and Its Side Effects*, AM. CANCER SOC’Y, <https://www.cancer.org/treatment/treatments-and-side-effects/treatment-types/immunotherapy/car-t-cell1.html> (last updated July 24, 2020).

patients receiving CAR T-cell therapy require extended inpatient stays to ensure the patient's safety and monitor the body's response to the therapy. The length of stay may range from one week to a month or longer depending on the body's reaction to the CAR T-cell infusion and the presence of side effects.⁸⁷ Evidence shows emerging CAR T-cell therapies are proving to be a revolutionary treatment for cancers of the blood, and as research into this therapy expands, there is the potential for further significant usefulness in solid-tumor cancers.

MGH is a leader in research on CAR T-cell therapies, which will result in continued high-volume CAR T-therapy evidence-based care and testing of new applications. Since its inception in 2015, the Center for Cancer Immunology has led efforts to develop novel therapies for fighting cancer through the Mass General Cellular Immunology Program. For example, in 2018, researchers in this program began testing the potential to pair CAR T-cells with a revolutionary gene-editing tool called CRISPR Cas-9. CRISPRs allow for quick and easy cutting and pasting of DNA, potentially correcting genetic defects. The tool could be used to create even more powerful CAR-T cells. Research is also being conducted to test the effectiveness of CAR T-cell therapy on ovarian cancer.⁸⁸ Recently, MGH researchers successfully treated glioblastoma, a common and aggressive form of brain cancer, in mice, and are ready to test the method in human trials.⁸⁹

Inpatient Rooms for Cancer Care

While some cancer treatment can be performed in an outpatient setting, hospitalization continues to be an unavoidable occurrence in cancer care.⁹⁰ Cancer is a debilitating disease, and its treatment is often accompanied by severe side effects. Inpatient care may be necessary to monitor and treat not just symptoms of the cancer itself but also the side effects associated with treatments. Inpatient hospitalization also is more likely to be necessary for individuals with advanced stages of cancer or those with complex co-morbidities. Research shows that patients with cancer often have unpredictable and complex medical needs that in some instances can only be managed in the context of inpatient services.⁹¹ In particular, hospitalization frequency increases near end-of-life and allows for consistent palliative measures. Moreover, oncology patients with a solid tumor located in one specific area of the body may undergo surgery as a treatment option, which would typically require an inpatient hospital stay following the surgery for recovery.⁹² As more people are being diagnosed with cancer, necessitating cancer treatment, the need for inpatient rooms is also necessary, whether patients are being admitted for recovery post-surgery, for purposes of treatment and monitoring of side effects of treatment, or for palliative measures near end-of-life.

⁸⁷ *CAR T-Cell Therapies*, MASSACHUSETTS GENERAL HOSPITAL, <https://www.massgeneral.org/cancer-center/clinical-trials-and-research/immunotherapy/car-t-cell-therapies> (last visited Dec. 9, 2020).

⁸⁸ Ellen Barlow, *Researchers Explore Car-T Cell's Potential*, MASSACHUSETTS GENERAL HOSPITAL, <https://giving.massgeneral.org/car-t-cell-therapy-explored> (last visited Dec. 4, 2020).

⁸⁹ Kay Cahill, *A New Generation of Brain Cancer Therapy Emerges*, MASSACHUSETTS GENERAL HOSPITAL, <https://giving.massgeneral.org/marcela-maus-research> (last visited Dec. 4, 2020).

⁹⁰ G. Numico et al., *Hospital Admission of Cancer Patients: Avoidable Practice or Necessary Care?*, 10 PLoS One e0120827 (2015), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4374858/>.

⁹¹ *Id.*

⁹² *Surgery to Treat Cancer*, NAT'L CANCER INST., <https://www.cancer.gov/about-cancer/treatment/types/surgery> (Apr. 19, 2015).

C. Cardiovascular Services

Cardiovascular disease is a general term that encompasses a multitude of conditions affecting the heart and is the number one cause of death in the United States.⁹³ The most common type of heart disease is coronary artery disease, a condition caused by plaque buildup in the walls of the arteries that supply blood to the heart and other parts of the body.⁹⁴ Over time, the plaque buildup causes the insides of the arteries to narrow, partially or fully blocking the blood flow, a process called atherosclerosis.⁹⁵ Coronary artery disease is the main cause of a heart attack, and in fact, many people are unaware they have coronary artery disease until they experience a heart attack.⁹⁶

Cardiac Catheterization

Patients who are at high risk for heart disease or who are already experiencing symptoms of heart disease may undergo diagnostic tests such as cardiac catheterization.⁹⁷ During cardiac catheterization, a catheter is guided through a main artery in the leg or arm and up to the heart, where a dye is injected to assist the physician in tracking the blood flow.⁹⁸ If, during the procedure, a blockage is found, the physician can perform an interventional catheterization procedure to improve the blood flow, depending on the severity, location, and degree of blockage.⁹⁹

Angioplasty

In addition to diagnostic procedures, some interventional procedures may also be performed in the cardiac catheterization lab. Patients with more severe cases of weak or narrowed arteries due to atherosclerosis may require angioplasty. Angioplasty, also called percutaneous coronary interventions (“PCI”) is a procedure involving the threading of special tubing with an attached deflated balloon into the coronary arteries.¹⁰⁰ The balloon is inflated, widening the blocked areas where blood flow to the heart has been reduced or blocked completely. Angioplasty is also accompanied by the placement of mesh, generally metal, tubes called stents. Stents help to hold open the arteries to ensure sufficient blood flow to the heart.¹⁰¹ Coronary artery stents are widely used in the treatment of coronary artery disease, have increased the safety of interventional procedures, and have increased revascularization procedure success rates.¹⁰²

⁹³ *Heart Disease Facts*, CDC, <https://www.cdc.gov/heartdisease/facts.htm> (last reviewed Sept. 8, 2020); *What is Cardiovascular Disease?*, AM. HEART ASS’N, <https://www.heart.org/en/health-topics/consumer-healthcare/what-is-cardiovascular-disease> (last updated May 31, 2017).

⁹⁴ *Heart Disease Facts*, *supra* note 92; *What is Cardiovascular Disease?*, *supra* note 93; *Coronary Artery Disease (CAD)*, CDC, https://www.cdc.gov/heartdisease/coronary_ad.htm (last reviewed Dec. 9, 2019).

⁹⁵ *Heart Disease Facts*, *supra* note 92; *What is Cardiovascular Disease?*, *supra* note 93; *Coronary Artery Disease (CAD)*, *supra* note 94.

⁹⁶ *Heart Disease Facts*, *supra* note 92; *What is Cardiovascular Disease?*, *supra* note 93; *Coronary Artery Disease (CAD)*, *supra* note 94; *Heart Attack Symptoms, Risk, and Recovery*, CDC, https://www.cdc.gov/heartdisease/heart_attack.htm (last reviewed August 19, 2020).

⁹⁷ *Heart Disease Facts*, *supra* note 92; *What is Cardiovascular Disease?*, *supra* note 93; *Coronary Artery Disease (CAD)*, *supra* note 94; *Heart Attack Symptoms, Risk, and Recovery*, *supra* note 96.

⁹⁸ *Cardiac Catheterization*, MASSACHUSETTS GENERAL HOSPITAL CORRIGAN MINEHAN HEART CENTER <https://www.massgeneral.org/heart-center/treatments-and-services/cardiac-catheterization> (last visited Dec. 9, 2020).

⁹⁹ *Id.*

¹⁰⁰ *Cardiac Procedures and Surgeries*, AM. HEART ASS’N, <https://www.heart.org/en/health-topics/heart-attack/treatment-of-a-heart-attack/cardiac-procedures-and-surgeries> (last reviewed Oct. 5, 2020).

¹⁰¹ *Stents*, NAT’L HEART, LUNG AND BLOOD INST., <https://www.nhlbi.nih.gov/health-topics/stents> (last visited Dec. 9, 2020); *Angioplasty and Vascular Stenting*, RADIOLOGYINFO.ORG, <https://www.radiologyinfo.org/en/info.cfm?pg=angioplasty> (last updated Feb. 26, 2019).

¹⁰² Jassim Al Suwaidi et al., *Coronary Artery Stents*, 284 JAMA 1828, 1834 (2000), available at <https://jamanetwork.com/journals/jama/fullarticle/193148>.

Open Heart Surgery

Open-heart surgery encompasses any operation on the heart which requires the surgeon to make a large incision in the chest to open the rib cage to access the heart.¹⁰³ Open-heart surgery may be used for coronary artery bypass grafting, repairing or replacing heart valves, treating atrial fibrillation, performing heart transplants, and placing ventricular assist devices and total artificial hearts. The most common type of heart surgery is coronary artery bypass grafting (“CABG”), a procedure used to improve blood flow to the heart for those patients suffering from severe coronary heart disease. During CABG, a healthy artery or vein is connected (i.e., grafted) to the blocked coronary artery, allowing the healthy artery or vein to bypass the blocked portion of the coronary artery, creating a new pathway for blood flow to the heart.¹⁰⁴ For heart valves that do not open or close properly, preventing proper blood flow, a surgeon may perform open heart surgery to replace or repair the heart valves by threading a catheter into the heart and expanding the valve as necessary. If replacement of the valves is required, biological or man-made valves may be used to replace the faulty heart valves via open heart surgery.¹⁰⁵

TAVR

Transcatheter aortic valve replacement (TAVR) is a minimally invasive procedure to treat patients with aortic valve stenosis. TAVR is a safer alternative procedure for patients who are considered high-risk or non-operable for open-heart surgery.¹⁰⁶ This procedure involves threading a transcatheter heart valve on a balloon delivery catheter through the circulatory system via blood vessels in either the leg, shoulder, or chest, and into the heart’s pumping chamber. TAVR is associated with shorter inpatient lengths of stay, better health outcomes as compared to surgical aortic valve replacement for high- and intermediate-risk patients.¹⁰⁷ Accordingly, evidence supports TAVR as an alternative to open heart surgery for high- and intermediate-risk patients.

EP Studies

Another common cardiovascular disease is arrhythmia, which involves an abnormal heart rhythm.¹⁰⁸ Electrophysiology (“EP”) studies are minimally invasive procedures designed to allow physicians to examine the heart’s electrical activity to determine the cause of an arrhythmia.¹⁰⁹

¹⁰³ *Heart Surgery*, NAT’L HEART, LUNG, AND BLOOD INST., <https://www.nhlbi.nih.gov/health-topics/heart-surgery> (last visited Dec. 9, 2020)

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

¹⁰⁶ *Transcatheter Aortic Valve Replacement*, MASSACHUSETTS GENERAL HOSPITAL, <https://www.massgeneral.org/heart-center/treatments-and-services/transcatheter-aortic-valve-replacement> (last visited Dec. 4, 2020).

¹⁰⁷ Suzanne J. Baron et al., *Cost-Effectiveness of Transcatheter Versus Surgical Aortic Valve Replacement in Patients with Severe Aortic Stenosis at Intermediate Risk*, 139 CIRCULATION 877 (2019), available at <https://pubmed.ncbi.nlm.nih.gov/30586747/>; Michael J. Mack et al., *5-Year Outcomes of Transcatheter Aortic Valve Replacement or Surgical Aortic Valve Replacement for High Surgical Risk Patients with Aortic Stenosis (PARTNER 1): A Randomised Controlled Trial*, 385 LANCET 20 (2015), available at <https://pubmed.ncbi.nlm.nih.gov/25788234/>; Michael J. Reardon, *Transcatheter Aortic Valve Replacement*, 40 TEXAS HEART INST. J. 593 (2013), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3853820/>; Toby Rogers et al., *Transcatheter Aortic Valve Replacement in Intermediate- and Low-Risk Patients*, 7 J. AM. HEART ASS’N (2018), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6015326>.

¹⁰⁸ *What is Cardiovascular Disease?*, *supra* note 93.

¹⁰⁹ *Electrophysiology Studies (EPS)*, AM. HEART ASS’N, <https://www.heart.org/en/health-topics/arrhythmia/symptoms-diagnosis--monitoring-of-arrhythmia/electrophysiology-studies-eps> (last reviewed Sept. 30, 2016). See also *Cardiac Arrhythmia Service*, MASSACHUSETTS GENERAL HOSPITAL CORRIGAN MINEHAN HEART CENTER, <https://www.massgeneral.org/heart-center/treatments-and-services/electrophysiology-ep-study> (last visited Dec. 4, 2020).

During an EP study, catheters are placed into the veins and guided into the heart to record the heart's electrical activity.¹¹⁰ The findings of an EP study are used to determine the best course of treatment for an arrhythmia. In some cases, catheter ablation may be used to effectively treat an arrhythmia by destroying a small area of heart tissue that is causing the arrhythmia.¹¹¹ In other instances, an EP specialist may determine that an implantable device, such as a pacemaker or other implantable cardioverter defibrillator may be the best treatment to correct the arrhythmia.¹¹² Implantable devices improve rates of survival along with other benefits, such as improved quality of life.¹¹³ Finally, in other cases, antiarrhythmic medication management may be possible to treat a cardiac arrhythmia. By analyzing the findings of the EP study, physicians are equipped with specific information regarding the heart's functioning to develop an appropriate treatment plan for a patient.

ECMO as Effective Life Support

For nearly 50 years, extracorporeal membrane oxygenation ("ECMO") has been used as an advanced life support technique during life-threatening conditions such as severe lung damage from infection, or shock after a massive heart attack.¹¹⁴ An ECMO machine replaces the function of the heart and lungs, and may be used for hours, days, or weeks, depending on how the patient's condition progresses. An ECMO machine is connected to the patient via plastic tubes that are placed in veins and arteries in the legs, neck, or chest. The ECMO machine pumps blood from the patient's body to an artificial lung that adds oxygen to it and removes the carbon dioxide, effectively replacing the patient's lung function. The machine then sends the blood back to the body via a pump with the same force as the heart, effectively replacing the patient's heart function.¹¹⁵ The use of an ECMO machine benefits patients who are in critical condition and helps prolong their lives while health care practitioners treat the underlying disease or condition. ECMO improves survival for many individuals who are critically ill and are not responding to traditional life support options.¹¹⁶

Recent studies show that use of ECMO early in treatment of patients in cardiac arrest to augment traditional cardiopulmonary resuscitation results in better health outcomes and lower mortality rates.¹¹⁷ ECMO is also supported for use in patients experiencing cardiogenic or septic shock, with studies showing high survival rates.¹¹⁸ In addition to immediate life-saving benefits, research shows ECMO can serve as a bridge to recovery, device implantation, or cardiac implantation following a severe cardiac event.¹¹⁹ A significant mortality benefit is also realized with the use of

¹¹⁰ *Id.*

¹¹¹ *Ablation for Arrhythmias*, AM. HEART ASS'N, <https://www.heart.org/en/health-topics/arrhythmia/prevention--treatment-of-arrhythmia/ablation-for-arrhythmias> (last reviewed Sept. 30, 2016).

¹¹² *Electrophysiology Studies (EPS)*, *supra* note 109.

¹¹³ Michael Bristow et al., *Cardiac-Resynchronization Therapy with or without an Implantable Defibrillator in Advanced Chronic Heart Failure*, 350 NEW ENGLAND J. OF MED. 2140 (2004), available at <https://www.nejm.org/doi/full/10.1056/nejmoa032423>.

¹¹⁴ Jason Ali & Alain Vuylsteke, *Extracorporeal Membrane Oxygenation: Indications, Technique and Contemporary Outcomes*, 105 HEART 1437 (2019), available at <https://heart.bmj.com/content/105/18/1437>; *What is ECMO?*, 193 AM. J. RESPIRATORY CRITICAL CARE MED. 9 (2016), <https://www.thoracic.org/patients/patient-resources/resources/what-is-ecmo.pdf>.

¹¹⁵ *What is ECMO?*, *supra* note 114.

¹¹⁶ *Id.* See also, *International Summary: ECLS Overall Outcomes*, EXTRACORPOREAL LIFE SUPPORT ORG., <https://www.elso.org/Registry/Statistics.aspx> (last visited Dec. 4, 2020).

¹¹⁷ Jarrod M. Mosier et al., *Extracorporeal Membrane Oxygenation (ECMO) for Critically Ill Adults in the Emergency Department: History, Current Applications, and Future Directions*, 19 CRITICAL CARE 431, available at <https://ccforum.biomedcentral.com/articles/10.1186/s13054-015-1155-7>.

¹¹⁸ *Id.*

¹¹⁹ *Id.*

ECMO in patients with Advanced Respiratory Distress Syndrome, as compared to the use of conventional mechanical ventilation techniques.¹²⁰ In further support of the Applicant's expansion of ECMO services, research shows a correlation between improved mortality outcomes and hospitals with a higher volume of ECMO cases.¹²¹

Transplants

A heart transplant is a surgical procedure where the patient's diseased heart is replaced by a donor's healthy heart to improve the patient's lifespan and quality of life.¹²² Heart transplants are generally reserved for patients with advanced heart failure due to coronary artery disease, valve disease, rhythm disorders, and cardiomyopathy.¹²³ Heart failure is often accompanied by debilitating symptoms such as severe fatigue, leg swelling, and shortness of breath. For many patients with end-stage heart failure, a heart transplant will result in improvement of symptoms, improved quality of life, and may prolong their survival by approximately ten years.¹²⁴

In addition, patients with congenital heart disease ("CHD"), a structural heart defect present at birth, are candidates for a heart transplant. Due to medical advancements, many patients born with complex CHD are now reaching adulthood. Many of these patients will still suffer the severe medical consequences of CHD, such as ventricular dysfunction and heart failure. For those patients who develop end-stage CHD, a transplant is the sole final treatment option. Individuals with congenital heart disease who undergo heart transplantation and survive the first year following the transplant have better long-term survival than other transplant recipients.¹²⁵ Current one-year survival rates are approximately 85%.¹²⁶ Patients experiencing heart failure due to the presence of CHD, who are also experiencing pulmonary hypertension as a result of the disease, may undergo concurrent transplants of the heart and lung as the ultimate therapeutic option.¹²⁷

D. Imaging Services

Imaging technologies serve important diagnostic and treatment purposes in everyday health care. Advanced diagnostic imaging has been cited as a factor in the increased life expectancy of individuals across the United States.¹²⁸ Effective medical decisions are dependent on correct diagnosis, determination of which in many situations is best obtained via imaging.¹²⁹ Imaging improves available information, ensures proper diagnosis of disease, allows for continued

¹²⁰ Diamonto Aretha et al., *Extracorporeal Life Support: The Next Step in Moderate to Severe ARDS – A Review and Meta-Analysis of the Literature*, BIOMED RESEARCH INT'L 1035730 (2019), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6791231/>.

¹²¹ Mosier et al., *supra* note 117.

¹²² *Heart Transplant*, AM. HEART ASS'N, <https://www.heart.org/en/health-topics/congenital-heart-defects/care-and-treatment-for-congenital-heart-defects/heart-transplant> (last visited Dec. 4, 2020); *Heart Transplant*, NAT'L HEART, LUNG, AND BLOOD INST., <https://www.nhlbi.nih.gov/health-topics/heart-transplant> (last visited Dec. 4, 2020).

¹²³ Christopher Harris et al., *Heart Transplantation*, 7 ANNALS OF CARDIOTHORACIC SURGERY 172 (2018), available at <http://www.annalscts.com/article/view/16445/html>.

¹²⁴ *Id.*

¹²⁵ Lucile Houyel et al., *Heart Transplantation in Adults with Congenital Heart Disease*, 110 ARCHIVES OF CARDIOVASCULAR DISEASE 346 (2017), available at <https://www.sciencedirect.com/science/article/pii/S1875213617300281?via%3Dihub>.

¹²⁶ *Heart Transplant*, *supra* note 122.

¹²⁷ Houyel et al., *supra* note 125, at 351. See also *Heart Transplant*, *supra* note 122; Asma M. Khan et al., *Heart-Lung Transplantation Outcomes in Adult Congenital Heart Disease*, 134 CIRCULATION A17758 (2018), available at https://www.ahajournals.org/doi/10.1161/circ.134.suppl_1.17758.

¹²⁸ Frank Lichtenberg, *The Quality of Medical Care, Behavioral Risk Factors, and Longevity Growth*, 11 INT'L J. OF HEALTH ECONOMICS AND MANAGEMENT (2011), available at <https://link.springer.com/article/10.1007/s10754-010-9086-y>.

¹²⁹ *Imaging Modalities*, WORLD HEALTH ORG., https://www.who.int/diagnostic_imaging/en/ (last visited Dec. 4, 2020).

monitoring of disease, and provides a mechanism for health care providers to track the body's response to treatments.¹³⁰ Further, costly surgical interventions can sometimes be avoided with the proper utilization of imaging.¹³¹ Improvement in imaging technology allows for earlier diagnosis of diseases and provides an opportunity for earlier treatment, resulting in better overall health outcomes and lower health care costs.

CT

CT is a well-established, non-invasive imaging system that has been available for clinical use for several decades and has gained widespread acceptance in several fields of medicine.¹³² 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.¹³³ 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 image quality, speed, and dose reduction, and have increased the clinical utilization of the technology.¹³⁴

In oncology, CT technology is a non-invasive method used to obtain images of organs, bones, and tissue for purposes of identifying, staging, and monitoring tumors.¹³⁵ CT scans may also be used during treatment to help physicians guide a needle to perform a biopsy of tissue, or to guide needles into tumors for treatments such as radiofrequency ablation, which uses heat to destroy a tumor.¹³⁶ While CT is generally utilized for initial diagnosis and evaluation of metastases because this modality is a lower-cost option, as compared to a PET/CT, CT scans may also be used to monitor a tumor's response to treatment or determine whether a tumor returns after treatment.¹³⁷

CT technology is utilized in cardiology for diagnostic and treatment purposes. CT imaging can assist in the detection and evaluation of certain cardiac diseases including ischemic heart disease, calcium buildup in the coronary arteries, problems with the aorta, problems with the heart function and valves, and pericardial disease.¹³⁸

¹³⁰ *Id.*; U.S. FOOD AND DRUG ADMIN., *Medical X-Ray Imaging*, <https://www.fda.gov/radiation-emitting-products/medical-imaging/medical-x-ray-imaging#description> (last updated Sept. 28, 2020).

¹³¹ *Imaging Modalities*, *supra* note 129.

¹³² Liguori et al; *Computed Tomography; Computed Tomography in Clinical Use*, 12 J. INT'L COMMISSION ON RADIATION UNITS & MEASUREMENTS 25 (2012).

¹³³ Liguori et al; *Computed Tomography; Computed Tomography (CT)*, U.S. FOOD & DRUG ADMINISTRATION, <https://www.fda.gov/radiation-emittingproducts/radiationemittingproductsandprocedures/medicalimaging/medicalx-rays/ucm115317.htm> (last updated Mar. 6, 2018); *Computed Tomography (CT or CAT) Scan of the Brain*, JOHNS HOPKINS MEDICINE, https://www.hopkinsmedicine.org/healthlibrary/test_procedures/neurological/computed_tomography_ct_or_cat_scan_of_the_brain_92,P07650 (last visited Jan. 5, 2021).

¹³⁴ Norbert J. Pelc, Sc.D., *Recent and Future Directions in CT Imaging*, ANN. BIOMED. ENG. (Feb. 2014), *available at* <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3958932/> (last visited Jan. 5, 2021); INT'L SOC'Y 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 Jan. 5, 2021).

¹³⁵ *CT Scan for Cancer*, AM. CANCER SOC'Y, <https://www.cancer.org/treatment/understanding-your-diagnosis/tests/ct-scan-for-cancer.html> (last updated Nov. 30, 2015).

¹³⁶ *Id.*

¹³⁷ *Id.*; Haitham Elsameloty et al., *Increasing Accuracy of Detection of Breast Cancer with 3-T MRI*, 192 AM. J. ROENTGENOLOGY 1142 (2009), *available at* <https://www.ajronline.org/doi/full/10.2214/AJR.08.1226#:~:text=Compared%20with%20the%20results%20of,no%20significant%20difference%20in%20specificity>.

¹³⁸ *Cardiac CT Scan*, NAT'L HEART, LUNG, AND BLOOD INST., <https://www.nhlbi.nih.gov/health-topics/cardiac-ct-scan> (last visited Dec. 4, 2020); *Cardiac Computed Tomography (Multidetector CT, or MDCT)*, AM. HEART ASS'N,

MRI

MRI is a well-established, non-invasive imaging system that uses a magnetic field combined with pulses of radio waves to produce detailed images of organs, tissues, and structures within the human body.¹³⁹ MRI has the major benefit of imaging the human body without the need for ionizing radiation.¹⁴⁰ Today, MRI is not only capable of performing anatomic imaging, but also allows for dynamic functional assessment of pathology that is integral to assessing treatment effects. Research into the various uses and benefits of MRI is extensive, with studies focusing on specific diseases, as well as parts of the body that may benefit from this imaging modality. Some of the most prevalent conditions for which patients seek MRI services involve the brain, spine, breast, prostate, heart and musculoskeletal system, among other parts of the body.¹⁴¹ MRI, and specifically 3T MRI, is the preferred imaging modality for the prostate and breast.¹⁴² In addition, MRI can decrease the need for more invasive procedures, including, in some prostate cancer cases, the need to biopsy.¹⁴³ In the breast, multiple studies have shown that MRI is the most sensitive means of assessing the extent of malignancy in women diagnosed with breast cancer.¹⁴⁴ These studies suggest that 3T MRI is more accurate for pre-operative assessment of breast cancer extent, and therefore, that 3T MRI can be a valuable guide to surgical planning and a valuable tool in improving treatment outcomes.¹⁴⁵

MRI imaging provides numerous benefits in the field of oncology. MRI is used to detect cancer in the body, look for evidence the cancer has spread, and can also be used to assist with treatment planning.¹⁴⁶ As discussed earlier, MRI technology does not use ionizing radiation, making this a

<https://www.heart.org/en/health-topics/heart-attack/diagnosing-a-heart-attack/cardiac-computed-tomography-multidetector-ct-or-mdct> (last updated July 31, 2015).

¹³⁹ *Magnetic Resonance Imaging (MRI)*, NAT'L INST. OF BIOMEDICAL IMAGING & BIOENGINEERING, <https://www.nibib.nih.gov/science-education/science-topics/magnetic-resonance-imaging-mri> (last visited Jan. 5, 2021).

¹⁴⁰ *Id.*

¹⁴¹ Gail Dean Deyle, *The role of MRI in musculoskeletal practice: a clinical perspective*, 19 J. MANUAL & MANIPULATIVE THERAPY 152 (2011), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3143009/> (last visited Jan. 5, 2021); Maravi et al., *Role of MRI in Orthopaedics*, 21 ORTHOPAEDIC J. M.P. CHAPTER 74 (2015); Apostolos H. Karantanas, *What's new in the use of MRI in the orthopaedic trauma patient?*, 45 INT'L J. CARE INJURED 923 (2014), available at <https://www.ncbi.nlm.nih.gov/pubmed/24502985> (last visited Jan. 5, 2021); *Tests for Bone Cancer*, AM. CANCER SOC'Y, <https://www.cancer.org/cancer/bone-cancer/detection-diagnosis-staging/how-diagnosed.html> (last updated Feb. 5, 2018); *Tests for Osteosarcoma*, AM. CANCER SOC'Y, <https://www.cancer.org/cancer/osteosarcoma/detection-diagnosis-staging/how-diagnosed.html> (last updated Jan. 30, 2018); Duarte Nascimento et al., *The role of magnetic resonance imaging in the evaluation of bone tumours and tumour-like lesions*, 5 INSIGHTS IMAGING 419 (2014), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4141345/> (last visited Jan. 5, 2021); *Magnetic Resonance Imaging (MRI) – Head*, RADIOLOGYINFO.ORG, <https://www.radiologyinfo.org/en/info.cfm?pg=headmr> (last updated Feb. 5, 2019); M. Symms et al., *A review of structural magnetic resonance neuroimaging*, 75 J. NEUROLOGY, NEUROSURGERY & PSYCHIATRY 1235 (2004), available at <http://jnnp.bmj.com/content/jnnp/75/9/1235.full.pdf>; *What is fMRI?*, UC SAN DIEGO CTR. FOR FUNCTIONAL MRI, <http://fmri.ucsd.edu/Research/whatisfmri.html> (last visited Jan. 5, 2021); Marc C. Mabray et al., *Modern Brain Tumor Imaging*, 3 BRAIN TUMOR RESEARCH & TREATMENT 8 (2015), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4426283/>.

¹⁴² Jurgen J. Futterer & Jelle O. Barentsz, *3T MRI of prostate cancer*, APPLIED RADIOLOGY (Feb. 12, 2009), <https://www.appliedradiology.com/articles/3t-mri-of-prostate-cancer>; Reni S. Butler et al., *3.0 Tesla vs 1.5 Tesla breast magnetic resonance imaging in newly diagnosed breast cancer patients*, 5 WORLD J. RADIOLOGY 285 (2013), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3758496>.

¹⁴³ Mehralivand S, Shih J, Rais-Bahrami S, et al., *A Magnetic Resonance Imaging-Based Prediction Model for Prostate Biopsy Risk Stratification*, JAMA ONCOL. 2018;4(5):678-685.

¹⁴⁴ Butler et al., *supra* note 142; Habib Rahbar et al., *Accuracy of 3T versus 1.5T breast MRI for pre-operative assessment of extent of disease in newly diagnosed DCIS*, 84 EUROPEAN J. RADIOLOGY 611 (2015), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4348176/>.

¹⁴⁵ Rahbar et al., *supra* note 144.

¹⁴⁶ *MRI for Cancer*, AM. CANCER SOC'Y, <https://www.cancer.org/treatment/understanding-your-diagnosis/tests/mri-for-cancer.html> (last updated May 16, 2019).

superior technology for oncology patients due to their need for frequent imaging throughout the treatment process.¹⁴⁷ Moreover, MRI is being used more frequently in radiation oncology because of its superior soft-tissue contrast and image clarity, providing clinicians with the information necessary to distinguish between benign and malignant tumors and to precisely identify and monitor treatment of cancer within the body.¹⁴⁸ In particular, due to the three-dimensional imaging provided by MRI scans, it is viewed as the best modality for diagnosing brain and spinal cord tumors.¹⁴⁹

MRI imaging is an essential element of cardiac care, and may provide the best images of the heart for certain conditions.¹⁵⁰ Due to the clarity of images produced by an MRI, cardiac MRI scans can further explain results of preliminary scans such as chest x-rays or chest CT scans.¹⁵¹ Images from an MRI show the structure of the heart, with the additional benefit of identifying any narrowed or blocked arteries affecting blood flow to the heart.¹⁵² Cardiac MRI provides clinicians with images to help detect the type and severity of heart disease, as well as inform the proper treatment plan for certain cardiac conditions such as coronary artery disease, heart valve problems, pericarditis, cardiac tumors, or damage from a heart attack.¹⁵³ MRI imaging can also assist with diagnosing tumors, infections, and inflammatory conditions of the heart, and monitoring disease progression and treatment efficacy.¹⁵⁴ In addition to diagnostic uses, MRI imaging can be used during certain interventional procedures such as catheter-based ablation procedures used to treat irregular heart rhythms, including atrial fibrillation. Use of MRI imaging for procedural purposes can substantially shorten the procedure time and improve accuracy.¹⁵⁵

3T MRI

Over the last four decades, technical and engineering advances have yielded MRI systems with higher field strengths, and today most clinical MRIs operate at field strengths of 1.5T or 3T.¹⁵⁶ Clinical application of higher magnetic field strengths, such as 3T, has several advantages. Most notably, increased magnetic field strength is associated with better diagnostic image quality (i.e. higher resolution images, better contrast between different tissues, and increased ability to image smaller structures with improved resolution), which is beneficial when diagnosing neurologic, oncological, and musculoskeletal, and cardiovascular conditions affecting these areas of the

¹⁴⁷ *Id.*

¹⁴⁸ Uulke A. van der Heide et al., *MRI Basics for Radiation Oncologists*, 18 CLINICAL AND TRANSLATIONAL RADIATION ONCOLOGY 74 (2019), <https://www.sciencedirect.com/science/article/pii/S2405630819300564#b0005>.

¹⁴⁹ *MRI for Cancer*, *supra* note 146.

¹⁵⁰ *Magnetic Resonance Imaging (MRI) – Cardiac (Heart)*, RADIOLOGYINFO.ORG, <https://www.radiologyinfo.org/en/info.cfm?pg=cardiacmr> (last reviewed July 16, 2018).

¹⁵¹ *Cardiac MRI*, NAT'L HEART, LUNG, AND BLOOD INST., <https://www.nhlbi.nih.gov/health-topics/cardiac-mri> (last visited Dec. 9, 2020).

¹⁵² *Magnetic Resonance Imaging (MRI)*, AM. HEART ASS'N, <https://www.heart.org/en/health-topics/heart-attack/diagnosing-a-heart-attack/magnetic-resonance-imaging-mri> (last reviewed July 31, 2015).

¹⁵³ *Cardiac MRI*, *supra* note 151.

¹⁵⁴ *Magnetic Resonance Imaging (MRI) – Cardiac (Heart)*, *supra* note 152.

¹⁵⁵ *Id.*

¹⁵⁶ Beth W. Orenstein, *4T, 7T, 8T, and Beyond — High-Field MR Research Seeks a Closer Look Inside the Human Body*, 10 RADIOLOGY TODAY 16 (2009), available at <http://www.radiologytoday.net/archive/050409p16.shtml>.

body.¹⁵⁷ As compared to 1.5T MRIs, 3T MRIs allow for faster scan times, which provides convenience for both physicians and patients and increases availability of the resource.¹⁵⁸

1.5T MRI

As technology has continued to improve, scan times for 1.5T MRI units continue to improve. The 1.5T MRI unit the Applicant proposes to acquire allows for simultaneous multi-slice scanning. This scanning method can reduce musculoskeletal exam time by up to 46%.¹⁵⁹ Reduced scan times improve patient experience while increasing the daily throughput of patients on a single unit, thereby maximizing capacity without the need to add additional units. Additionally, for patients with medical devices or implants, a 1.5T unit is a safer alternative to a 3T unit.

PET/CT

PET/CT utilizes dual-modality imaging from both positron emission tomography (“PET”) and CT technologies that are performed concurrently on the same unit.¹⁶⁰ PET/CT is widely used in cancer and cardiology in particular. A PET scan creates images of organs and tissues in the body and detects the location of a radioactive substance injected in the body, while a CT scan provides detailed images of the inside of the body and will show anything abnormal, such as tumors.¹⁶¹ Combined into a single scan, the PET/CT scanner combines information about the body’s anatomy and metabolic function to provide more detailed and holistic image of the cancerous tissue than either of the scanners if used alone. The resulting image can identify the exact location of abnormal metabolic activity.¹⁶² The images created from the PET/CT scan assist physicians with identifying the proper location within the body to perform a biopsy, monitor the effectiveness of treatment, and plan radiation therapy where applicable.¹⁶³ The use of PET/CT reduces the overall imaging a patient will need with more accurate results. In addition, the highly detailed images resulting from a PET/CT scan may detect diseases earlier and with more accuracy than other imaging modalities such as CT or MRI.¹⁶⁴ PET/CT scans offer the same benefits in cardiology as cancer, such as early detection of disease, fewer scans, increased convenience for the patient, and more accurate imaging. Specific to cardiology, however, PET/CT can be used to quickly and effectively evaluate patients suspected of having coronary artery disease by obtaining information on coronary anatomy as well as the heart’s level of functioning in a single scan.¹⁶⁵

Images from the combined scans can also aid in treatment decisions, by detailing the effects of a heart attack, or myocardial infarction, on areas of the heart and identifying areas of the heart

¹⁵⁷ Lawrence N. Tanenbaum, *3T MRI in clinical practice*, 34 APPLIED RADIOLOGY 8 (2005), available at <https://appliedradiology.com/articles/3t-mri-in-clinical-practice>; *Why the 3 Tesla MRI is the Best Scanner for Diagnostic Imaging*, RADIOLOGY AFFILIATES IMAGING (Sep. 12, 2016), available at <https://4rai.com/blog/why-the-3-tesla-mri-is-the-best-scanner-for-diagnostic-imaging>.

¹⁵⁸ Tanenbaum, *supra* note 157; *Why the 3 Tesla MRI is the Best Scanner for Diagnostic Imaging*, *supra* note 157.

¹⁵⁹ Siemens Healthineers, *Simultaneous Multi-Slice Accelerate Advanced Neuro Applications for Clinical Routine*, available at <https://www.siemens-healthineers.com/magnetic-resonance-imaging/options-and-upgrades/clinical-applications/simultaneous-multi-slice> (last visited Jan. 5, 2021).

¹⁶⁰ *Positron Emission Tomography – Computed Tomography (PET/CT)*, RADIOLOGYINFO.ORG, <https://www.radiologyinfo.org/en/info.cfm?pg=pet#overview> (last reviewed Aug. 1, 2019).

¹⁶¹ *Positron Remission Tomography and Computed Tomography (PET-CT) Scans*, CANCER.NET, (Feb. 2020), <https://www.cancer.net/navigating-cancer-care/diagnosing-cancer/tests-and-procedures/positron-emission-tomography-and-computed-tomography-pet-ct-scans>.

¹⁶² *Id.*

¹⁶³ *Id.*

¹⁶⁴ *Id.*

¹⁶⁵ P. Knaapen et al., *Cardiac PET-CT: Advanced Hybrid Imaging for the Detection of Coronary Artery Disease*, 18 NETHERLANDS HEART J. 90 (Feb. 2010), available at <https://europepmc.org/article/med/20200615>.

muscle that would benefit from treatments such as angioplasty or coronary artery bypass surgery.¹⁶⁶ Consequently, PET/CT utilization has a significant clinical benefit in certain medical areas, especially oncology and cardiology. Patients benefit from a single scan with very highly detailed images that allow for earlier and more accurate diagnosis. As the combined modality is more accurate than a single scan and provides such precise images, providing invaluable information to physicians in the diagnosis, staging and treatment of cancer, PET/CT is the most widely used radiology modality in oncology.¹⁶⁷

PET/MR

PET and MRI are two well-established imaging modalities that have been available for clinical use for more than thirty years.¹⁶⁸ PET/MR is a recently developed combination imaging technique that merges the quantitative physiologic and metabolic information provided by stand-alone PET with the complementary anatomic and functional information provided by stand-alone MRI.¹⁶⁹ PET/MR is preferred over PET/CT in certain clinical settings as the unique features of the MRI allow for more comprehensive imaging evaluation.¹⁷⁰ MRI provides anatomical information with improved soft-tissue contrast and can visualize specific tissues and pathology using imaging sequences that are not available with CT.¹⁷¹ PET/MR units acquire data simultaneously, slice by slice, providing excellent image registration and improved fine anatomic detail.¹⁷² PET/MR offers exceptional structural, metabolic, and functional information which can significantly impact diagnostic evaluation and affect clinical decision-making, patient management, and patient outcomes.¹⁷³ Additionally, the radiation dose from PET/MR is significantly lower than from PET/CT, making PET/MR a preferred imaging modality, especially among those patients in need of continued scans.¹⁷⁴

PET/MR offers advantages over PET/CT in evaluating various forms of cancer due to the PET/MR's superior soft tissue contrast and tissue specificity, allowing for higher quality imaging of the head and neck, pelvis, liver, breast, and bone marrow.¹⁷⁵ PET/MR's higher soft-tissue contrast has proven more sensitive than CTs for early detection of bone marrow pathologies, and therefore presents an advantage in detecting and delineating bone metastases and primary bone tumors.¹⁷⁶ Early detection of bone metastases is crucial in patient management, disease outcome, and quality of life.¹⁷⁷

In whole body staging of recurrent breast cancer, a study has demonstrated that while PET/MR and PET/CT both correctly identify patients with breast cancer recurrence, PET/MR was able to

¹⁶⁶ *Positron Emission Tomography – Computed Tomography (PET/CT)*, *supra* note 160.

¹⁶⁷ Jun Li & Ying Xiao, *Application of FDG-PET/CT in Radiation Oncology*, 3 FRONTIERS IN ONCOLOGY 80 (2013), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3622875/>.

¹⁶⁸ Felix Nensa et al., *Clinical Applications of PET/MRI: Current Status and Future Perspectives*, 20 DIAGNOSTIC AND INTERVENTIONAL RADIOLOGY 438 (2014), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4463332/>.

¹⁶⁹ *Id.* See also Hossein Jadvar & Patrick M. Colletti, *Competitive Advantage of PET/MRI*, 83 EUROPEAN J. OF RADIOLOGY 84 (2014), available at <https://pubmed.ncbi.nlm.nih.gov/23791129/>.

¹⁷⁰ Jadvar & Colletti, *supra* note 169.

¹⁷¹ *Id.*

¹⁷² Miller, *supra* note 42.

¹⁷³ Jadvar & Colletti, *supra* note 169.

¹⁷⁴ Miller *supra* note 42.

¹⁷⁵ Ciprian Catana, *Principles of Simultaneous PET/MR Imaging*, 25 MAGNETIC RESONANCE IMAGING CLINICAL NORTH AMERICAN 231 (2017), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5385858/>.

¹⁷⁶ Matthias Eiber et al., *Performance of Whole-Body Integrated 18 F-FDG PET/MR in Comparison to PET/CT for Evaluation of Malignant Bone Lesions*, 55 J. NUCLEAR MED. 191 (2014), available at <http://jnm.snmjournals.org/content/55/2/191.long>.

¹⁷⁷ *Id.*

detect all lesions, whereas PET/CT identified only 97% of lesions.¹⁷⁸ PET/MR also correctly categorized lesions at a higher proportion than PET/CT (98.5% versus 94.8%).¹⁷⁹ Other research confirms that PET/MR is better able to define the correct T-stage in significantly more breast cancer cases than PET/CT, which may allow clinicians to better determine the extent of the local tumor.¹⁸⁰ Such improved accuracy and specificity in diagnostic imaging is important in identifying and monitoring tumor growth. Breast cancer researchers now consider the use of simultaneous PET/MR in their research more beneficial than separate PET/CT and MRI scans based on patient comfort associated with reduced time, physiological equivalence associated with a single anatomical position, better detection of cancerous cells, and decreased radiation exposure.¹⁸¹ The benefits of simultaneous PET/MR extend to patient care directly in the improved identification and evaluation of breast cancer lesions and indirectly through the translation of improved research methodologies to patient care.

The combination of PET/MR imaging also is helpful in diagnosing cardiovascular disease (“CVD”), the successful treatment of which is often determined by early detection.¹⁸² CVD is among the leading cause of death in the world, and early detection through PET/MR imaging allows physicians to more accurately predict the risk of complications, guide therapeutic interventions, and monitor the success of treatment.¹⁸³ When PET and MR technologies are combined, they provide a total assessment with increased sensitivity and accuracy.¹⁸⁴ PET/MR also presents a substantial advantage to the use of separate imaging; in one longer, combined procedure, patients experience less disruption and improved ability to comply with direction, such as for patients with conditions that prevent breath-holding.¹⁸⁵

F1.b.ii Public Health Value /Outcome-Oriented:

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.

MGH anticipates that the Proposed Project will provide its patients with improved health outcomes, improved quality of life and additional access to high quality health care services on MGH's main campus. Specifically, MGH anticipates that the Proposed Project will result in several measurable improvements throughout the Hospital with respect to access to care in the most appropriate setting. Such improvements can be quantified through surveying patient experience, measuring data relating to better throughput and decreases in lost transfers, and performance on

¹⁷⁸ Lino M. Sawicki et al., *Evaluation of 18F-FDG PET/MRI, 18F-FDG PET/CT, MRI, and CT in Whole-Body Staging of Recurrent Breast Cancer*, 85 EUROPEAN J. RADIOLOGY, 459 (2016), available at <https://www.sciencedirect.com/science/article/abs/pii/S0720048X15301960>.

¹⁷⁹ *Id.*

¹⁸⁰ Johannes Grueneisen et al., *Positron Emission Tomography/Magnetic Resonance Imaging for Local Tumor Staging in Patients with Primary Breast Cancer: A Comparison with Positron Emission Tomography/Computed Tomography and Magnetic Resonance Imaging*, 50 INVESTIGATIVE RADIOLOGY 505 (2015).

¹⁸¹ Nathaniel E. Margolis et al., *Assessment of Aggressiveness of Breast Cancer Using Simultaneous 18F-FDG-PET and DCE-MRI*, 41 CLINICAL NUCLEAR MED. e355–e361, e360 (2016), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4935605/>.

¹⁸² Myriam Amsallem et al., *Magnetic Resonance Imaging and Positron Emission Tomography Approaches to Imaging Vascular and Cardiac Inflammation*, 80 CIRCULATION J. 1269 (2016), available at https://www.jstage.jst.go.jp/article/circj/80/6/80_CJ-16-0224/_article.

¹⁸³ *Id.*

¹⁸⁴ *Id.* at 1275.

¹⁸⁵ Christoph Rischpler et al., *Hybrid PET/MR Imaging of the Heart: Potential, Initial Experiences, and Future Prospects*, 54 J. NUCLEAR MED. 402 (2013), available at <http://jnm.snmjournals.org/content/54/3/402.full>.

standardized quality metrics. The full impact of the Proposed Project on health outcomes, patient experience and health equity are described in the sections below.

A. New Construction to Address MGH's Aging Physical Plant: Improving Patient Experience and Health Outcomes

As more fully described in Factor F.1.a.ii., certain aspects of MGH's physical plant, specifically some of the Hospital's inpatient clinical buildings, are beyond useful life. Among MGH's clinical buildings, two of them (White and Gray Bigelow) are 80 and 50 years old respectively, and an additional two buildings (Ellison and Blake) are approximately 30 years old. Consequently, there is an increased need for new clinical space that can accommodate current models of care, such as team-based healthcare and co-located services, which these older clinical buildings cannot be entirely renovated to provide. There also are several limiting factors that make it difficult for the Hospital to efficiently utilize its existing inpatient beds. Although MGH has 789 licensed inpatient medical/surgical beds, its high number of semi-private rooms make it difficult for the Hospital to utilize all beds at a given time. These capacity and throughput challenges can lead to negative experiences for both patients and staff and may impact overall quality outcomes for patients.

The impact of a hospital's physical environment on patient and staff outcomes is the focus of multiple evidence-based articles. In 2016, the American Hospital Association ("AHA") published an article entitled *Improving the Patient Experience through the Healthcare Physical Environment*.¹⁸⁶ In this paper, AHA presented its "people, process, and place theory" with regard to improving patient satisfaction on a holistic level, which entails improving the interpersonal connections between hospital staff and patients, the policies and procedures in the hospital, and the environment of the hospital.¹⁸⁷ Research on how the physical environment impacts health outcomes began over forty years ago, and since this time, more than 600 studies have linked the hospital-built environment to factors such as patient satisfaction, stress, health outcomes and overall health care quality.

Overarching environmental factors that impact both patient experience and health outcomes include noise levels, patient and pain management, as well as factors inhibiting communication, and privacy, such as semi-private rooms.¹⁸⁸ When patients receive care in a healing environment – a hospital setting that is easy to navigate (a building with an efficient layout) with noise cancelling features and appropriate cleanliness, as well as private rooms for privacy, these features create a calmer atmosphere where patients may visit with family and friends and focus on healing.¹⁸⁹ Consequently, these environmental factors lead to overall improved patient experience and outcomes.¹⁹⁰ Through the Proposed Project, MGH will create a healing environment in its new facility, with the overall design focused on patient-centered care. By developing a facility that maximizes patient experience and improved health outcomes, MGH will ensure a higher level of care for high acuity cardiovascular and oncology patients.

In addition to impacting the environment in which care is provided and its effect on patient satisfaction and outcomes, the existing buildings with semi-private rooms and space constraints lead to capacity challenges in certain areas of the Hospital, including the ED and PACUs, as well as improved throughput on the medical/surgical floors. At present, the Hospital is unable to

¹⁸⁶ Sara Heath, *How Hospital Environment Effects Patient Satisfaction*, PATIENT ENGAGEMENT HIT (April 1, 2016), <https://patientengagementhit.com/news/how-hospital-environments-affect-patient-satisfaction-levels>.

¹⁸⁷ *Id.*

¹⁸⁸ *Id.*; E.R.C.M. Huisman, et al., *supra* note 62.

¹⁸⁹ *Id.*

¹⁹⁰ *Id.*

efficiently move patients out of its ED and PACU for admission to an inpatient bed. This is not ideal from an operational or patient care perspective as longer ED and PACU boarding times may result in the exacerbation of patient conditions, increased mortality and infection rates. Although the Hospital has worked to improve patient flow and added measures to decrease ED boarding, these actions cannot fully address the throughput challenges as the Hospital continues to experience high average monthly boarder hours (7.45 hours for ED boarders; 18 hours for PACU boarders in FY19). These capacity and throughput challenges can lead to negative experiences for both patients and staff and may impact overall quality outcomes for patients. Accordingly, as more fully outlined below, the Hospital proposes several patient satisfaction, access, and standardized quality measures to assess the impact of the Proposed Project on patient experience and health outcomes.

B. The Impact of the Co-Location and Team-Based Care on Patient Experience, Health Outcomes and Quality

The design of the Proposed Project also allows for the co-location of services, one of the key components of integrated care.¹⁹¹ Studies evaluating the impact of integrated care on health outcomes demonstrate that this approach has a positive impact on length of stay, readmission rates, and patient satisfaction and experience.¹⁹² Studies evaluating the co-location of services, such as exam space located near imaging modalities, provide that patients are more likely to receive the services that they need in a more expeditious manner. When care is timely, clinical staff can more efficiently treat specific conditions prior to reaching a heightened disease state, ensuring improved quality outcomes given that patients are less sick.

Moreover, integrated care models also allow for the management of patients with complex health and social needs, including aging populations. By using collaborative working and integration efforts within a hospital, clinical staff are able to improve efficiency and person centered care.¹⁹³ Accordingly, integrated care breaks down “silos” within a hospital by allowing multi-disciplinary care teams to better communicate and interact on patient care in ways that ultimately lead to improved quality outcomes. The Proposed Project breaks down care silos in multiple ways. Within the Center of Excellence for cardiac care – the new clinical building will bring together the traditional medical cardiology dominated coronary care unit and the cardiac surgical intensive care unit – allowing clinical staff to naturally interact on a regular basis given the close proximity of the units. Moreover, cardiac procedural spaces, such as the cardiac catheterization lab and the cardiac surgical operating rooms also will be adjacent in the Proposed Project. Physical co-location of these services leads to more fluid communication between clinicians and the more effective matching of care to a patient's individual needs in a timely manner. Physical separation of services can lead to delays in diagnosis and treatment, which results in increased morbidity, mortality and cost. At the same time, the co-location of services reduces duplication and redundancy of high-cost equipment and supplies – leading to higher quality and more cost-effective care.

MGH is a regional resource for providing both tertiary and quaternary care. Tertiary care is inpatient care that is provided by highly specialized clinicians and equipment. This type of care includes coronary artery bypass surgery, renal or hemodialysis, and other highly technical and

¹⁹¹ *Id.*

¹⁹² Anne E. M. Liljas et al., *Impact of Integrated Care on Patient-Related Outcomes Among Older People*, 19 INT'L J. INTEGRATED CARE 6 (2019), available at <https://www.ijic.org/articles/10.5334/ijic.4632/>.

¹⁹³ Marta Marino, et al., *Effectiveness and Cost Effectiveness of Integrate Care Models for Elderly, Complex Patients: A Narrative Review. Don't We Need a Value-Based Approach?*, 21 INT'L J. CARE COORDINATION 120 (2018).

invasive procedures.¹⁹⁴ Quaternary care is considered to be an extension of tertiary care, but more specialized.¹⁹⁵ MGH is a leader for both tertiary and quaternary care, providing life-sustaining services that are not available in community care settings. Through the Proposed Project, MGH is developing a facility for two of its most highly utilized Centers of Excellence – the Cancer Center and the Heart Center. These care centers currently serve as and will continue to be regional, national, and international resources for advanced oncology and cardiovascular care.

Center of Excellence: Cancer Center

MGH's Cancer Center is one of the world's leading cancer programs. The MGH Cancer Center offers sub-specialized multi-disciplinary services across seventeen different disease centers with access to cutting edge technologies and access to the latest therapies in cancer treatment. These multidisciplinary disease centers include sub-specialized faculty from the core departments: Division of Hematology/Medical Oncology, Department of Radiation Oncology, and Departments of Surgery and/or relevant Surgical Specialties. These core departments are the backbone of the Cancer Center, and the engine behind multidisciplinary collaboration. Key faculty from the Departments of Pathology and Diagnostic Radiology are also subspecialized and fully integrated within the disease centers.

A central component of MGH's Cancer Center is the multi-disciplinary care model that engages care providers across disciplines in team-based care, and the role of these teams in ensuring patients receive input and guidance from multiple perspectives. Through multi-disciplinary sessions, providers develop a care plan in collaboration with the patient and other members of the clinical team. Next, the care team works in-person and telephonically to coordinate a patient's care to reduce hospital readmissions when possible, to ensure a smooth transition post discharge, and as a patient enters survivorship. Additionally, as needed the Cancer Center team connects patients with community-based resources that facilitate recovery. These processes and approaches to care improve patient experience and health outcomes, as well as ensure that patients are receiving the highest level of care, positively impacting health outcomes. Additionally, this integrated care model allows for an improved patient experience by providing patients with the clinical and social support services they need to cope throughout their treatment experience, to get well and to stay well.

MGH is uniquely positioned to offer quaternary level care because of the clinical expertise of its care providers coupled with the robust infrastructure and capital investments made by the Hospital. The Hospital combines innovative research and powerful therapeutic breakthroughs with a human, compassionate touch that honors the very personal cancer experiences of each patient. Central to the mission of the MGH Cancer Center is the integration of cancer care across clinical disciplines. The concept of patient-centered care, in which traditionally disparate, siloed departments work together to provide a unified and cohesive treatment plan, is essential to high quality cancer care. As the field of cancer therapy rapidly evolves to reflect new discoveries and therapeutic approaches, cross-disciplinary integration becomes even more essential, both to facilitate further discovery of treatments, as well as to provide patients and their families with the most advanced care possible. Thus, multidisciplinary disease centers serve both as a home for clinical research and as a key foundation for MGH's primary clinical mission.

¹⁹⁴ Trisha Torrey, *Differences Between Primary, Secondary, Tertiary, and Quaternary Care* (Feb. 16, 2020), <https://www.verywellhealth.com/primary-secondary-tertiary-and-quaternary-care-2615354#quaternary-care>.

¹⁹⁵ *Id.*

Additionally, fourteen cancer specialty programs (from Survivorship and Palliative Care, to Cancer Genetics and Psychiatric Oncology) support Cancer patients. A range of supportive care services also are available to Cancer Center patients (from the Lazarex Cancer Trials Equity Program and Nutrition Support, to Integrative Therapies and the Healing Garden). Finally, all Cancer Center clinical operations are supported by a dedicated administrative team, that oversees the outpatient clinics, communications and educational programs, and manages the Boston area affiliate networks, international programs, community outreach, and global health outreach.

The Cancer Center is dedicated to enhancing health equity through improving access to clinical trials. For example, the patient navigation program at MGH's community health centers assist with clinical trial referrals. Moreover, the Cancer Center implemented an initiative to improve diversity in clinical trials. Programs in this initiative include financial assistance for incidental costs for socioeconomically disadvantaged patients enrolled in clinical trials; advocacy efforts at the local and national level to remove financial barriers to clinical trial participation; and employment of a cancer equity nurse practitioner whose primary focus is to improve the care of clinical trial participants from underserved groups. The Cancer Center also has a partnership with the Section of Hematology/Oncology at Boston Medical Center to provide greater access to clinical trials for the underserved population.

Furthermore, the Cancer Center offers a robust set of wrap-around services to patients which include:

- **Social Work and Psych-Oncology:** Oncology social workers are licensed mental health professionals who provide support to patients and their families throughout cancer diagnosis, treatment and recovery. Psychiatric Oncology is a collaborative effort between the Department of Psychiatry and the Cancer Center, designed to provide easily accessible state-of-the-art treatment for the psychological distress that is often experienced following cancer diagnosis and during treatment.
- **Integrative Therapy:** The Katherine A. Gallagher Integrative Therapies Program offers free wellness services including yoga and music therapy for Cancer Center patients.
- **Parenting at a Challenging Time (PACT):** This program provides individualized support for Cancer Center patients who have children in their lives.
- **Nutrition:** Registered dietitians provide evidence-based, expert nutrition counseling to patients and caregivers as an integral part of cancer care.
- **Tobacco Cessation:** The Smoke-free Support Service provides free, phone-based individual tobacco counseling resources for Cancer Center patients.
- **Healing Garden:** The Healing Garden is a year-round rooftop garden for patients and their families to seek rest and solace.
- **Illuminations:** Illuminations is a rotating art exhibit housed throughout the Cancer Center designed to offer enlightenment and encouragement to patients and families as they receive care or accompany loved ones.
- **Mind-Body Resiliency:** This program is designed to assist patients who have completed cancer treatment by providing critical tools to help them cope with the experience of their diagnosis and treatment, as well as adjust to life after treatment.

Center of Excellence: The Corrigan Minehan Heart Center

At the Corrigan Minehan Heart Center (the “Heart Center”) at MGH, world-class specialist physicians and nurses offer leading treatments and preventative care for both common and complex cardiac conditions. The Heart Center also offers cross-specialty cardiac care. A dedicated team of cardiologists, cardiac surgeons, cardiac anesthesiologists, cardiac nurses and cardiac radiologists provide cutting edge cardiac care. MGH's clinicians are some of the world's foremost experts in diagnosing, treating and preventing heart disease. Each of the Heart Center's eleven condition-specific programs offers a team approach to diagnosis and treatment that involves a multidisciplinary team of physicians who each specialize in a particular heart condition and procedures to remedy the condition, including cardiac surgery, angioplasty, heart transplant, and ECMO.

The Heart Center is an international referral center for complex cases, such as: (1) Thoracic aortic disease: The Heart Center's Thoracic Aortic Center is one of the largest of its kind in New England and brings together specialists from cardiology, cardiac surgery, vascular and endovascular surgery and imaging; (2) Cardiac resynchronization therapy: Physicians in the Cardiac Resynchronization Therapy Program are developing new ways to treat heart failure patients, including applying remote monitoring technology; and (3) Hypertrophic cardiomyopathy: MGH's physicians have treated more than 500 patients with hypertrophic cardiomyopathy, a rare condition characterized by an abnormal thickening of the muscle in the heart's left ventricle.

Through the Proposed Project, the Heart Center will improve its capacity to care for patients with advanced cardiac disease, impacting patient experience and improving health outcomes. Currently, MGH serves as resource to the Commonwealth for providing mechanical circulatory support for patients who experience shock due to acute myocardial infarction, pulmonary embolism or other causes, such as peripartum hemodynamic collapse. Frequently, the Hospital accepts patients from other facilities for mechanical support as MGH has highly experienced teams with specialized knowledge in the care of patients in need of mechanical circulatory support.

Through its Cardiovascular Disease Prevention Center at the Corrigan Minehan Heart Center, MGH provides a robust prevention-as-treatment program for patients who have heart disease or are at risk for developing heart disease. Specialists within the Cardiovascular Disease Prevention Center arm patients with strategies and tools to reduce risks of cardiovascular disease through primary and secondary disease prevention. Primary disease prevention is aimed toward patients whose family history, physical condition and other factors increase their risk for developing coronary artery disease, congestive heart failure, or Type 2 diabetes. Secondary disease prevention involves strategies to prevent a recurrence of symptoms and ensure the safe recovery of individuals who have already experienced a cardiovascular event such as a heart attack or other symptoms of coronary artery disease. Prevention techniques include novel imaging and laboratory tests to evaluate risks, and patient education on how to prevent heart disease from developing or worsening. Specialists also conduct research into the genetic basis for cardiovascular disease and use remote monitoring and smartphone applications to improve preventive measures.

The Cardiovascular Disease Prevention Center offers three unique programs for patients of all risk levels. The Heart Attack Primary Prevention Program treats patients whose family history places them at risk for developing heart disease. Physicians evaluate the individual's risks based on family history to support patients in reaching their heart health goals. The Cardiac Rehabilitation Program assists patients recovering from heart attack, angioplasty and cardiac

surgery, and provides counseling on how to make lifestyle changes to prevent cardiovascular disease recurrence. This program is nationally certified by the American Association of Cardiovascular and Pulmonary Rehabilitation. Finally, the Cardiac Metabolic Syndrome Program assists patients who have, or are at risk for developing, diabetes to lose weight and manage other cardiac risk factors such as hypertension and high cholesterol, through a 12-week program called Learn to be Lean. This program encourages patients to make better nutrition choices and become more physically active through weekly group discussions, medically supervised exercise, and yoga and meditation for stress reduction.

Finally, and perhaps most important in demonstrating the public health value of the Proposed Project, clinical staff at MGH's Heart Center not only treat a patient's cardiac disease but focus on the physical and mental health of the patient as a whole. A diagnosis of cardiovascular disease and the need for interventions, such as cardiac surgery may result in a patient's unexpected realization of their own mortality as evidenced by the high frequency of clinical depression experienced after the initial diagnosis of cardiac disease or sudden heart attack. Providing a restorative environment that attends to the emotional and spiritual needs of a patient in recovery is critical to the long-term aim of keeping a patient well. Through the Proposed Project, the Heart Center will continue to provide patients with necessary psycho-social supports and clinical programming to treat all aspects of their health and will be able to do so with greater efficiency and support for the necessary team-based approaches.

C. Additional Strategies for Improving Patient Experience and Ensuring High Quality Outcomes for All Services at MGH

The Applicant and MGH are committed to developing and implementing population health management ("PHM") strategies to ensure high quality outcomes and an exceptional care experience for all patients. Currently, MGH is undergoing a ten-year strategic plan aimed at improving patient experience and clinical quality outcomes, as well as reducing the costs associated with care. Every clinical department at MGH has a PHM strategy. These strategies are aimed at improving quality, efficiency and patient experience, such as care models that are rooted in collaboration, including patient-centered medical homes, care integration, team-based care and other care initiatives specifically designed by MGH clinicians. PHM programs at MGH that impact health outcomes and patient experience include:

- **eConsults and eVisits:** eConsults are an innovative way to deliver outpatient specialist care, helping to reduce unnecessary specialist utilization and improve access to care for MGH's sickest patients. Primary Care Providers or other care providers initiate an eConsult order in Epic, and then receive structured guidance from a specialist within 3 business days. This provides rapid access to specialist expertise compared with waiting for a traditional office visit to implement the optimized course of treatment. eVisits are telemedicine modalities designed to avoid unnecessary in-person office visits, to promote convenience for the patient and to save providers time in evaluating and managing patients. eVisits are condition-specific questionnaires addressing over 50 chronic conditions, intended for routine follow-up with an established ambulatory patient.
- **Enhanced Recovery After Surgery (ERAS):** ERAS is a comprehensive, patient-centered, evidence-based approach to perioperative care for planned surgeries. Across a range of complex surgeries, ERAS has been shown to empower patients as partners in their own care, reduce complications, improve outcomes, decrease length of hospital stay, and reduce care costs.

- **Home Hospital and Mass General Brigham Mobile Observation Unit (“MOU”):** The MGH Home Hospital Program and the MOU provide home-based urgent care for patients experiencing acute medical events believed to be treatable with enhanced home care. These programs are “alternative pathways” aimed at reducing hospital admissions and providing care for patients in less acute settings. Moreover, they alleviate overcrowding in the ED and improve inpatient bed capacity by meeting patients’ acute care needs in the comfort of their own home, avoiding the use of inpatient resources.
- **Medicaid ACO:** MGH is part of the Mass General Brigham MassHealth ACO. As part of the ACO, additional care management programming has been implemented, and established programming has been expanded to help meet the needs of patients, while simultaneously working towards reducing preventable hospitalizations and ED visits, and improving care transitions.
- **Patient Reported Outcome Measures (PROMs):** PROMs use clinically validated questionnaires to collect patient-reported assessments of their own health status across various health domains. PROMs are collected through the Patient Portal or on an iPad. Responses are automatically saved in Epic and can be reviewed by providers as part of shared decision-making during the visit or before/after clinical intervention procedures to monitor longitudinal progress.
- **Post PCI Readmission Management:** This program includes a portfolio of solutions to reduce avoidable 30-day readmissions after percutaneous coronary intervention. Strategies utilized include readmission risk scores, patient education materials, optimized ED triage, use of real-time auto-notification system in the ED/Observation units to expedite cardiology consults and decision support analytics.
- **Procedure Order Entry (PrOE):** PrOE is a web-based IT application designed to assist providers in assessing the appropriateness of surgical procedures. PrOE helps clinicians to apply complex guidelines-based decision criteria to each patient to generate a recommended treatment approach and risk scores for the procedure. PrOE aims to identify and avoid inappropriate procedures, to improve patient care and reduce healthcare costs.
- **Skilled Nursing Facility (SNF) 3-Day Waiver:** The 3 Day Rule Waiver is a CMS program that provides Medicare ACO patients the opportunity to have a covered SNF stay without the 3-day inpatient stay normally required qualify for SNF benefits. This program promotes the right level of care at the right time and is instrumental in helping the Applicant’s hospitals, especially MGH, with ongoing inpatient capacity issues and cost savings.
- **Stay Connected Program (SCP):** SCP provides a bundle of interventions, pre- and post-discharge, to improve care transitions of vulnerable patients at high risk of readmission based on a high-risk indicator or clinical condition. SCP provides Social Work or Nurse-led care coordination in the 30-day post-discharge period, assistance with scheduling follow-up appointments prior to discharge, enhanced pharmacy services, and in-home nurse practitioner visits as needed. SCP’s “opt-in” conditions include CHF, COPD, Cirrhosis and Pneumonia.
- **Transition Care Management Program:** A program that utilizes the naviHealth tool to manage episodes of care for Medicaid ACO patients admitted to one of the MGH

Collaborative SNFs. When a Medicare ACO patient is admitted to a SNF, the Transition Nurse Case Manager works closely with the SNF Care Team to manage their care via weekly Medicare Team meetings, telerounds and bedside visits with patients. Patients are managed closely for appropriate length of stay and readmission avoidance. When the patient is ready for discharge, the Transition Case Manager works closely with Mass General Brigham Home Care to ensure a smooth transition home. Once the patient is discharged home, the case manager verifies the patient is receiving home care services and confirms any follow up appointments and facilitates transportation to those appointments.

- **Variation:** The Variation Team provides analytic and reporting resources to show clinicians across MGH how they are performing compared to each other, and how they are performing over time, in a variety of areas. Variation reporting is used by the MGPO and the Departments of MGH as a medical management tool.
- **Virtual Visits:** This program provides a real time, synchronous telemedicine modality between a patient and provider, using secure, HIPAA compliant, video software.

Through the Proposed Project, MGH will continue to offer these programs to patients, thereby ensuring improved quality outcomes for patients and overall patient experience. For all patients, access to these services will allow them to receive appropriate and timely care in the right care setting. By providing access to these PHM strategies, MGH provides holistic care, which in turn ensures higher quality outcomes, satisfaction, and continuity for patients.

D. Assessing the Impact of the Proposed Project

To assess the impact of the Proposed Project, MGH proposes the following quality metrics and reporting schematic that will measure patient satisfaction, access and quality of care. The measures are discussed below:

Inpatient Beds

1. **Patient Experience/Satisfaction – Care Coordination:** Patients that are satisfied with care are more likely to seek additional treatment when necessary. MGH staff will review ratings of satisfaction with the care coordination of inpatient services via NRC Health Survey scores. Due to the efficiencies created with the Proposed Project, including co-location of services and the improvements that will allow for increased team-based care in the Centers of Excellence model, MGH anticipates that inpatients will report favorably on care coordination among their providers.

Measure: The Applicant will collect and provide data related to the overall satisfaction of the coordination of care between doctors and nurses provided as follows: (a) Satisfaction rate for patients receiving inpatient service; (b) Patient response rate with a breakdown of respondents by race; and (c) Any policy changes instituted as a result of the Applicant's evaluation of lower ratings.

Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

2. **Patient Experience/Satisfaction – Room Environment – Noise:** Patients that are satisfied with care are more likely to seek additional treatment when necessary. MGH staff will review ratings of satisfaction with the quietness of inpatient rooms via NRC Health Survey scores. Due to the increased number of private rooms, MGH anticipates that inpatient satisfaction ratings will improve.

Measure: The Applicant will collect and provide data related to the overall satisfaction of the noise level around the patient's room at night provided as follows: (a) Satisfaction rate for patients receiving inpatient service; (b) Patient response rate with a breakdown of respondents by race; and (c) Any policy changes instituted as a result of the Applicant's evaluation of lower ratings.

Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

3. **Catheter-Associated Urinary Tract Infection (CAUTI):** MGH will review the incidence of CAUTI across its ICU and medical/surgical patients. Due to increased efficiencies and improved care coordination, MGH anticipates that it will perform well on this quality measure.

Measure: The Applicant will collect and provide data using the publicly reported CAUTI Standardized Infection Ratio from the National Healthcare Safety Network.

Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

4. **Inpatient Falls with Injury:** MGH will review the incidence of inpatient falls resulting in injury. Due to increased efficiencies and improved care coordination, MGH anticipates that it will perform well on this quality measure.

Measure: The Applicant will collect and provide data using the NDNQI measure as follows: the number of falls per 1,000 inpatient days resulting in a "minor" or greater category of injury.

Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

5. **ED Boarding:** This measure reviews the amount of time a patient must wait in the ED for a medical/surgical, cancer or cardiac inpatient bed prior to being admitted to MGH. Due to increased inpatient bed capacity, MGH anticipates that ED boarding time will be reduced.

Measure: The Applicant will collect and provide data related to the ED boarding time for inpatients.

Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

6. **Lost Transfers:** This measure reviews the instances of clinically accepted patients who were ultimately not admitted to MGH, resulting in a lost transfer. Lost transfers are often due to lack of inpatient bed capacity. Due to increased inpatient bed capacity through the Proposed Project, MGH anticipates that lost transfers will be reduced, ensuring MGH can continue to be a regional resource for high-acuity patients presenting to community hospitals.

Measure: The Applicant will collect and provide data related to lost transfers.

Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

7. **Blocked Beds:** This measure reviews the instances of closed beds due to patient incompatibility. The high number of semi-private rooms leads to the closure of 30-50 beds per day due to patient incompatibility. Through the Proposed Project, the Hospital will increase its proportion of private rooms, thereby reducing the instances that beds are closed.

Measure: The Applicant will provide data on the average number of closed beds per month.

Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

The Cancer Center

1. **Patient Experience/Satisfaction:** Patients that are satisfied with care are more likely to seek additional treatment when necessary. The Applicant is in the process of changing its patient survey vendor and the exact survey questions for the cancer service have not yet been determined. Due to increased capacity, enhanced care coordination, and co-location of services, patient satisfaction will improve.

Measure: This measure will be provided upon implementation of the Proposed Project.

Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

2. **ED Avoidance:** The Proposed Project seeks to reduce avoidable emergency department utilization through increased outpatient capacity at the Cancer Center. Due to this increased outpatient capacity, MGH anticipates that the number of avoidable ED visits by Cancer Center patients will decrease, with a corresponding increase in number of urgent care visits will increase, in furtherance of the Proposed Project's objective of providing care in the most appropriate setting.

Measure: Number of urgent care visits by patients with a cancer diagnosis.

Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

3. **Wait Times:** The Proposed Project seeks to ensure timely access to cancer care. Due to increased outpatient capacity and expanded hours for cancer services, the Applicant anticipates that wait times for new patient appointments at the Cancer Center will decrease.

Measure: Number of days for a new patient to be scheduled for an initial appointment at the Cancer Center.

Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

The Heart Center

The Applicant proposes to collect and report on the following measures related to the cardiovascular outpatient component of the Proposed Project.

1. **Patient Experience/Satisfaction:** Patients that are satisfied with care are more likely to seek additional treatment when necessary. The Applicant is in the process of changing its patient survey vendor and the exact survey questions for the cardiac service have not yet been determined. Due to increased capacity, enhanced care coordination, and co-location of services, MGH anticipates that patient satisfaction will improve.

Measure: This measure will be provided upon implementation of the Proposed Project.

Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

2. **Disease Prevention and Management:** Disease prevention and early intervention often results in better health outcomes and lower overall health care costs. Accordingly, MGH will review cardiovascular disease ("CVD") prevention and management program offerings to its patient panel and monitor the participation rate in these programs.

Measure: The Applicant will report on programs or initiatives designed to either reduce risk factors for CVD and/or assist the Patient Panel in managing their CVD. This shall include:

- a. Program description and length (if applicable)
- b. Program recruitment (if applicable) and number reached out to
- c. Total number of participants
- d. Percentage of participants from racial/ethnic minority groups
- e. Any outcomes measured

Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

- 3. Disease Prevention and Management:** Disease prevention and early intervention often results in better health outcomes and lower overall health care costs. Accordingly, MGH will review cardiovascular disease prevention and management program offerings to the broader community and monitor the participation rate in these programs.

Measure: The Applicant will report on program initiatives designed to either reduce risk factors for CVD and/or assist the broader community in managing their CVD. This shall include:

- a. Program description and length (if applicable)
- b. Program recruitment (if applicable) and number reached out to
- c. Total number of participants
- d. Percentage of participants from racial/ethnic minority groups
- e. Any outcomes measured

Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

Addition of Advanced Imaging Services: CT, MRI, PET/CT, PET/MR

The Applicant proposes to collect and report on the following measures for each of the advanced imaging modalities in the Proposed Project.

- 1. Patient Experience/Satisfaction:** Patients that are satisfied with care are more likely to seek additional treatment when necessary. The Applicant is in the process of changing its patient survey vendor and the exact survey questions for the radiology service have not yet been determined. Due to increased imaging capacity and co-location of imaging with other health care services, MGH anticipates that patient satisfaction will improve.

Measure: This measure will be provided upon implementation of the Proposed Project.

Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

- 2. Clinical Decision Support (“CDS”):** MGH will review providers’ use of the American College of Radiology (“ACR”) Clinical Decision Support Tool “ACR Select” for Adult imaging orders (or any subsequent CDS). MGH anticipates that it will continue to perform well with respect to ensuring unnecessary imaging is not provided.

Measure: The Applicant will collect and provide data related to the use of CDS as follows: (a) data showing yearly changes in “low utility” or “marginal utility” orders; and (b) percentage of provider response to alerts provided by ACR Select (or any subsequent CDS).

Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

- 3. Important Finding Alert (“IFA”):** MGH will review the percentage of scans that triggered an IFA that the radiologist conducted a critical value report.

Measure: The Applicant will collect and provide the following data: (a) % of IFAs where a critical value report was indicated; (b) % of critical value reports radiologists performed over the total number of IFAs; and (c) any policy changes instituted as a result of increasing critical value reporting.

Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH 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 Project's 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.

To ensure health equity to all patients, including those deemed underserved, the Proposed Project will have a positive impact on the accessibility of MGH's services for poor, medically indigent, and/or Medicaid eligible individuals. MGH does not discriminate based on ability to pay or payer source and this commitment will continue following implementation of the Proposed Project. Over the past decade, MGH has launched a variety of diversity initiatives to address healthcare disparities, increase the percentage of employees from underrepresented groups, build trust among individuals of diverse backgrounds and evaluate the Hospital's progress. One such initiative involves ensuring patients can communicate with their providers in their preferred language. In federal fiscal year 2019, MGH completed all 196,098 interpreter services requests utilizing face-to-face, video remote, and telephonic sessions. Given the extent of MGH's diversity initiative efforts, MGH was recently named one of the nation's top ten hospitals and health systems on diversity issues by Diversity Inc., a publication that monitors best practices in the field. With these goals and MGH's commitment to increasing the number of employees from underrepresented groups, the Hospital's staff represent various races and ethnicities. Through the Proposed Project, patients will have access to culturally competent staffing through a clinical staff representative of various races and ethnicities.

A. #123Equity Pledge Campaign

Mass General Brigham hospitals, including MGH, participate in the American Hospital Association's #123Equity Pledge Campaign. This Campaign seeks to eliminate health and health care disparities that exist for racially, ethnically and culturally diverse individuals, and identifies areas for leaders to focus on to ensure high-quality, equitable care for everyone. Specifically, the Campaign requires hospital leaders to accelerate progress in the following areas: (1) Increasing the collection and use of race, ethnicity, language preference and other socio-demographic data; (2) Increasing cultural competency training; (3) Increasing diversity in leadership and governance; and (4) Improving and strengthening community partnerships. Specific ways in which MGH has

accelerated progress in these areas is addressed below in conjunction with culturally appropriate care and language access. This Campaign will support MGH staff's ability to ensure equal access to the benefits created by the Proposed Project.

B. Culturally Appropriate Care and Language Access

Mass General Brigham, and specifically MGH, has adopted the Culturally and Linguistically Appropriate Service ("CLAS") standards set forth by the U.S. Department of Health and Human Services Office of Minority Health. MGH leadership is committed to cultural and linguistic equity and has supported the adoption of the CLAS standards in the following ways, as divided into the six categories provided in DPH's guide to CLAS, "*Making CLAS Happen: Six Areas for Action*".

Foster Cultural Competence

In compliance with the #123Equity Pledge Campaign and the CLAS standards, MGH strives to provide effective, understandable, and respectful care with an understanding of patients' cultural health beliefs and practices and preferred languages. To this end, the Hospital has arrangements to offer ongoing education and training in culturally and linguistically appropriate areas for staff at all levels and across all disciplines. As a standard part of orientation for all MGH staff, the Hospital has integrated a training on interpreter services policies, when to use an interpreter and the procedures for accessing interpreter services, and the concepts and practices of culturally and linguistically appropriate healthcare delivery, including issues pertinent to Limited English Proficiency ("LEP") and deaf and hard of hearing ("DHH") patients. In addition, MGH offers appropriate on-going training for its staff. For example, in federal fiscal year 2019, MGH conducted numerous trainings, including a presentation to the Cancer Center Infusion Team on implicit bias and working with LEP persons, and presentations to the Radiology & Inclusion Committee and Cardiovascular Rehab Center providing an overview of interpreter services and best practices on using medical interpreters. The Norman Knight Nursing Center for Clinical and Professional Development ("KNC") provides continuing education programs for nurses on topics such as cross-cultural communication, health disparities, LGBT care, multicultural perspectives on mental health, disabilities, and diversity in childbearing to name a few.

In addition, MGH developed the interprofessional curriculum, *Providing Safe, Effective Care for Patients with Limited English Proficiency*. This program addresses the evidence of disparities and high rate of medical errors for patients with LEP, provides training on concrete skills for working with professional interpreters as integral members of the care team, and explores how systems of care can be improved for patients with LEP. Following a successful pilot program in 2014, the module was implemented as part of the MGPO's mandatory training requirements in fiscal years 2016 and 2017 for physicians, researchers, trainees, physician assistants, nurse practitioners, and ambulatory nurses. A total of 6,914 Mass General employees have been trained as of October 2018. In 2017, the program was adapted for broader implementation throughout the Mass General Brigham system and is assigned to providers, frontline staff, and non-patient facing employees based on the content that is most relevant to their roles.

Build Community Partnerships

MGH partners with community members in a variety of ways to address health disparities in the community. The MGH Multicultural Advisory Committee ("MAC") consists of community members including patients, family members, religious leaders, community leaders, business leaders, and reflects the racial and ethnic demographics of Boston and the MGH health center communities. The MAC provides advice on minority patients' experience of care at MGH; minority communities'

perceptions of MGH as a provider and as a community member; and reviews new and existing programs or initiatives aimed at addressing disparities at MGH. MGH's Patient and Family Advisory Council ("PFAC") includes staff, patients, and family members that are representative of the community, and assists leaders with designing, implementing, and evaluating policies, practices and services to ensure cultural and linguistic appropriateness and improve the health of underserved populations in the community. In addition, LEP and DHH patients have been incorporated into the general PFAC committees whereas previously there were different groups.

Finally, the Applicant notes that MGH is a member of three separate collaborative Community Health Needs Assessment ("CHNA") Processes in Boston, North Suffolk (Chelsea, Revere, and Winthrop), and Everett-Malden. These collaborations comprised several stakeholders including hospitals, community organizations, health centers, and local health departments for the purposes of providing deeper engagement of key community and organizational stakeholders; enhancing alignment of defined priorities and strategies; maximizing allocation of resources; and coordinating implementation strategies for collective impact and healthier communities.

Collect and Share Diversity Data

MGH, like all member hospitals of Mass General Brigham, uses Epic as its EHR. The Epic platform allows MGH to collect better, more detailed patient demographic data, including race, ethnicity, language preference and other socio-economic data. All patients are asked about their demographic data at the time of registration and this information is then added to the patient's EHR. Informed by the patient data collected through Epic, MGH has implemented and/or participated in several initiatives to meet the goals of the #123Equity Pledge Campaign and ensure all patients receive equitable care. Below are some examples.

- **Annual Report on Equity in Healthcare Quality ("ARHEQ")** – The AREHQ is a yearly report that is disseminated to over 500 clinical leaders across MGH, presented to the MGH Board and General Executive Council (among 18 other leadership committees) every year, and is made available on the MGH intranet and publicly available on the internet. The Report provides an analysis of our patient demographics, where they receive care, and key quality measures stratified by patient race, ethnicity, and language proficiency. In sum, it serves as the foundation for identifying disparities on a yearly basis, and then building strategies to address them. It also reports on the progress of initiatives currently addressing disparities at MGH.
- **Emergency Department Interpreter Pilot Program** – To address timely access to and increase ED usage of interpreters, particularly in critical moments such as provision of medication and at discharge, MGH is testing a program to station a Spanish interpreter in the ED during peak hours Monday through Friday. The outcomes of this pilot will provide the substance for future publications and provide evidence of need for permanently stationing an interpreter for a shift in the ED.
- **EHR Resources** – MGH is continually assessing its need for additional interpreter service resources. Accordingly, MGH's Department of Equity and Inclusion is working with the Applicant's Department of Quality and Patient Experience to examine options for increasing the number of translated materials available in the EHR for providers to provide to patients upon discharge or for test preparation.

Benchmark: Plan and Evaluate

MGH's Center for Community Health Improvement ("CCHI") is responsible for conducting regular assessments of community health assets and needs and using the results to plan and implement services that respond to the cultural and linguistic diversity of MGH's patient population. In CCHI's annual report, staff track the success of MGH's CLAS programs and services. CCHI also engages each of the communities through a comprehensive community health needs assessment and develops programs with a strategic goal of addressing those issues/disparities.

To track and measure success, MGH's Disparities Solutions Center and the Center for Quality & Safety have created a "disparities dashboard" of core measures that are reviewed regularly. MGH also conducts patient satisfaction and outcome surveys specifically targeting diverse populations. Measures of equitable care and patient satisfaction, including data, such as disease screening rates, are integrated in performance improvement initiatives. Results of these surveys are presented to leadership and staff throughout the organization including to the members of the MGH Diversity and Inclusion Committee.

Reflect and Respect Diversity

To meet the goals of the #123Equity Pledge Campaign and support the CLAS standards, MGH has implemented and/or participated in a variety of initiatives to address disparities, increase the percentage of employees from underrepresented groups, increase diversity in leadership and governance, build trust among people of diverse backgrounds, and create an inclusive environment that values differences in race, ethnicity, national origin, linguistics, gender identity and expression, sexual orientation, age, physical and mental ability, sociological background, and religious and spiritual characteristics. Examples of MGH's initiatives include: (1) MGH's Human Resources Department works with all departments in the recruitment of staff from diverse backgrounds and groups and trains managers on how best to achieve this goal; (2) MGH's Diversity and Inclusion Committee is responsible for setting and guiding the diversity strategy, as well as identifying, supporting and funding key diversity needs; (3) MGH's Multicultural Affairs Office ("MAO") promotes recruitment, retention and advancement of students, physicians and researchers who are underrepresented in medicine; (4) MGH's Disparities Solution Center and the Center for Quality and Safety measure quality improvements, addressing issues raised by racial and ethnic disparities; and (5) MGH has hosted a number of public sessions for its Stand Against Racism program, which has initiated dialogue on a number of topics and has provided the impetus for the Hospital to address recruitment strategies and provide culturally sensitive care training sessions.

Further, to ensure diversity is a key and routine component of Trustee selection, specific diversity focused criteria have been added to the Trustee evaluation tool used to guide evaluation and selection of potential Trustees to the Board. Dr. Slavin and other board members reach out to potential Trustee candidates of diverse backgrounds to fill upcoming vacancies. To ensure that the growth in board diversity is sustainable over time, they are also developing and cultivating relationships for future Board selection.

Finally, MGH supports the ongoing leadership development of diverse staff through their participation in various Employee Resource Groups such as The Association of Multicultural Members of Mass General Brigham, The Office for Women's Careers, The LGBT Committee, The Committee on Latino Initiatives, The Chinese Staff and Scientists Association, and The Employees with Disabilities Resource Group. MGH regularly sponsors employee participation in high impact external leadership development and networking programs aimed at diverse

employees, including The Partnership,¹⁹⁶ Get Connected,¹⁹⁷ and institutional membership within the Institute for Diversity in Health Management.¹⁹⁸ MGH provides funding for several fellowships aimed at promoting diversity, including the MAO Minority Faculty Development Award Program, the Clinical Leadership Collaborative for Diversity in Nursing program, the Diversity Nursing Fellowship Program, and the MGH Administrative Fellowship. MGH also funds and supports several initiatives to support the development of diverse staff, including English to Speakers of Other Languages (“ESOL”) Classes, the Association of Multicultural Professionals scholarship program, and the Support Services Grant Program.

Ensure Language Access

MGH is committed to assisting LEP and DHH patients in receiving quality health care. MGH has in place a Language Access and Assistive Services Plan, which embodies all the CLAS Standards. Staff within each of the areas in the Proposed Project have received training on how, when and what modality to use to access language assistance for LEP or DHH patients. With any change in the configuration of a particular area, MGH’s Medical Interpreter Services is engaged in a “walkthrough” of the area to ensure that an appropriate infrastructure is in place, so all patients have access to language assistance services. Clinicians are then trained by Interpreter Services on the best practices for accessing language assistance services.

With respect to the process for ensuring language access, MGH Interpreter Services uses a custom designed web-based real-time scheduling system, ISTS (Interpreter Services Tracking System). This system is integrated with the Hospital’s registration and scheduling systems. All interpreter requests and completions are recorded in this system. A request for an interpreter is either entered manually into ISTS (through a request made by telephone from a clinical area or from a patient or family member) or downloaded automatically from the Hospital’s scheduling system. Upon registration, each patient is asked “In what language do you prefer to discuss your healthcare?” If a patient self-identifies as preferring to use a language other than English, then interpreter services are offered. In federal fiscal year 2019, MGH received 196,098 interpreter services (“IS”) requests, and completed 100% of those requests utilizing face-to-face, video remote, and telephonic sessions. The top five IS languages requested were Spanish, Portuguese-Brazilian, Arabic, Chinese-Mandarin, and Haitian-Creole.

With respect to services offered, MGH provides access to interpreter and translation services via several modalities at no cost to MGH’s LEP and DHH patients at all points of clinical contact. For LEP patients, MGH provides access to 65 staff interpreters covering approximately 13 languages, 48 per diem interpreters covering approximately 15 languages, as well as contract interpreters. In the event an in-person interpreter is not available, MGH provides access to qualified interpreters skilled in 50+ languages via phone (CyraCom or Language Line Solutions) or video remote units (CyraCom). For patients that are DHH, sign language interpreter services are offered through a full-time staff interpreter and 11 per-diem interpreters, or, when in-person interpreters are not available or upon patient request, through the use of video remote units (CyraCom) which allow for visual access to an interpreter. MGH makes every effort to publicize the availability of these services throughout MGH’s campus and on its website. Moreover, patient information documents are translated and available in multiple languages, ensuring equal access to important patient information.

¹⁹⁶ THE PARTNERSHIP, INC., <http://www.thepartnershipinc.org>.

¹⁹⁷ GET KONECTED!, http://www.getkonnected.com/?page_id=745.

¹⁹⁸ DIVERSITY CONNECTION, <http://www.diversityconnection.org>.

The Applicant notes that the Hospital's interpreter services follow closely the recommendations of the Department, including those set forth in the guide entitled "Best Practice Recommendations for Hospital-Based Interpreter Services," and all interpreters are trained and certified in interpretation and MGH policies. Moreover, in compliance with other DoN approvals issued to the Applicant, DPH's Office of Health Equity ("OHE") is actively reviewing the interpretation and language access programs available at each Mass General Brigham institution. MGH will implement any recommendations made by OHE as part of this process. These services, which are currently available at MGH and will continue to be in place following implementation of the Proposed Project, further health equity by ensuring that all patients have meaningful access to robust health services, including inpatient, oncology and cardiovascular outpatient, cardiovascular surgery, and radiology services regardless of any language limitations.

C. United Against Racism Initiative

In light of the recent nationwide movement to address racism and oppression, the Applicant's leadership has made a commitment to examine and work to eliminate the many impacts that racism has on the Applicant's patients and employees. Through this commitment, the Applicant has launched the **United Against Racism** initiative, which includes a roadmap for achieving equality within the Applicant's system and eliminating racism and oppression faced by the Applicant's patients, communities, and staff. Key elements of the **United Against Racism** plan focuses on addressing racism through the lens of patient care, leadership and culture across the Applicant's system, and through partnerships with the communities, and organizations within the community, that Applicant serves.

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.

The Proposed Project seeks to expand timely access inpatient, cardiovascular and oncologic care. By providing patients with enhanced access to these services, patient wait times for admission will improve. Timely treatment often ensures fewer complications, leading to reduced emergency department visits and hospitalizations and improved health outcomes. Moreover, expedited access to care may lead to a reduction in disease/condition-related complications, such as pain, depression, worsening of conditions and a reduced ability to participate in activities that directly impact a patient's quality of life. MGH will continue to stratify its quality and satisfaction measures to ensure there is no decrease in these measures. If MGH finds that differences exist, the Hospital will develop remediation strategies, such as its navigator programs.

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.

A. Care Linkages

To ensure continuity of care, improved health outcomes and quality of life, MGH staff will continue existing formal processes for linking patients with their primary care physicians and community providers for follow-up care, as well as case management/social work support to ensure patients

have access to resources around social determinant of health (“SDoH”) issues. Providing patients with linkages to these necessary services prevents unnecessary readmissions, ensures appropriate care management and provides the patient with the resources for improving underlying issues that impact health. Moreover, patients will benefit from MGH’s well-developed population health management strategies, including care coordination and care delivery alternatives aimed at improving patient experience and outcomes.

MGH has several integrated care programs to ensure continuity of care and care integration. In addition to programs, such as eConsult and Shared Decision-Making, MGH assists patients with linkages to care and SDoH through care managers who follow-up with patients after ambulatory procedures. These care managers follow-up with patients telephonically to provide medication reconciliation and coordinate care with clinicians to optimize recovery. Moreover, and as discussed, MGH also offers several alternatives to emergency department care for patients through PMOU, a program that provides home-based urgent care for patients experiencing at-risk medical events believed to be treatable with enhanced home care. Accordingly, these efforts and initiatives ensure patients are appropriately linked to care integration resources.

Cardiac Care Linkages

To ensure care continuity for MGH’s Heart Center, MGH has a robust communication system with its patients’ primary care and community-based physicians before, during, and after care is provided at MGH. These communications include dissemination of patient care plans, diagnostic and procedure reports, and diagnostic images for studies performed at MGH when applicable. The Heart Center has a dedicated staff nurse in the role of the Network Development and Integration Director, as well as Physician Ambassadors, who receive feedback from and manage relationships with community providers. With respect to ensuring patients of the Heart Center are linked to appropriate community resources, MGH places a strong focus on heart disease prevention. MGH has dedicated cardiovascular clinics at each of its community-based sites: MGH Chelsea, MGH North Shore, MGH Revere, and MGH Waltham. MGH also has a dedicated Cardiovascular Disease Prevention Center, which provides extensive screening and prevention education, conducts research on improvement of preventive measures, and trains preventive cardiology specialists. The Cardiovascular Disease Prevention Center additionally houses the cardiac rehabilitation and peripheral vascular disease rehabilitation programs, where clinicians provide education on controlling and monitoring cardiovascular risk factors. Staff additionally help place patients in community-based rehabilitation programs when appropriate. Recently, MGH developed the Cardiovascular Genetics Program aimed at screening patients for cardiovascular disease based on genetic disposition. The program provides genetic screening of patients and their family members, interprets test results, and provides personalized treatment strategies to help patients live longer, healthier lives.

Cancer Care Linkages

To ensure patients within MGH’s Cancer Center are linked to appropriate community resources to address SDoH, MGH has established an equity and diversity program, focused on vulnerable patient populations that frequently have higher mortality cancer rates, such as minority, low-income and immigrant populations. Through this equity and diversity program, a nurse navigator collaborates with new patient access staff and referring institutions to support patients through the cancer treatment continuum, providing linkages to necessary social supports. The nurse navigator also is charged with increasing patient participation in clinical trials through broad-based educational programs for support staff, patient navigators, and physicians. Moreover, the nurse navigator will partner with MGH-specific programs and initiatives to assess barriers and improve

education for cancer care, including the MGH CARE Research Center and the Center for Community Health Improvement. For example, in partnership with MGH CARES, the Cancer Center engages in community-based educational events such as town halls, community health center screenings and health fairs in the community. To this end, the nurse navigator places a strong focus on cancer screening compliance, ensuring patients are receiving regular mammograms, colonoscopy and other screening exams and diagnostic procedures to promote early cancer detection. Specifically, the Center for Innovation in Early Cancer Detection focuses on developing new cancer-detecting technologies with the goal of improving early cancer detection and treatment, leading to increased survival rates. Additionally, the Cancer Center has a longstanding collaboration with Mattapan Community Health Center, where education sessions are provided to physicians and nurses, and funding was provided to include a breast health navigator at the health center. Finally, the Cancer Care Equity Program strives to raise awareness about and provide access to clinical trials through community outreach and education, financial assistance, and patient navigation.

B. Social Determinants of Health Screening and Linkage Programs

Currently, each of the Applicant's acute care hospitals has a screening and referral program for the social determinants of health ("SDoH"). While variation exists amongst the hospitals as to the populations that are screened and the logistics for screening at a minimum, all of the 133 MGB primary care practices that are participating in the MassHealth Accountable Care Organization ("ACO") Program screen patients for SDoH needs.

The Applicant and MGH have been thoughtful about the implementation of a universal SDoH screening program, recognizing that there is a limited amount of capacity within the community-based organizations that patients will be "linked" to for services and understanding a staggered approach to implementation is best, so that available community resources are not overwhelmed by referrals.

All Mass General Brigham hospitals and practices currently conducting SDoH screens utilize a similar screening tool. This tool explores eight domains of SDoH needs (housing, food insecurity, violence, etc.), inquiring if patients have issues with any of the domains and whether they would like assistance. Logistically, screens are conducted via iPads that are linked to the electronic health record ("EHR") system, Epic. If the hospital or practice is not on the Epic system, the screening tool is available in an alternate electronic form via iPads or on a paper-based form. The SDoH screening tool is currently available in eight different languages – the most common languages spoken by the Applicant's patients.

SDoH screens are tracked in a patient's EHR in the Epic system. Tracking includes whether a SDoH screen was conducted, if there were positive responses indicating the patient needs assistance, and if the patient was provided with written support materials ("Tip Sheets") or referred to a support person. Moreover, case managers and other staff assisting patients with SDoH needs include notes in the Epic system as to where the patient is in the process of accessing resources to address his/her SDoH needs. Currently, the Applicant is working to implement a data exchange system with external community-based partners that will enable hospitals and providers to understand the final disposition of the patient if referred to an external organization for support.

When a patient has a positive SDoH screen, staff at each hospital or practice, such as a social worker or community health worker, follow-up with the patient. These staff members confirm that a request for assistance has been made by the patient. Upon confirmation, the staff member may assist the patient directly or refer the patient to a community-based organization that may be able

to provide specific services or supports. The patient's SDoH need(s) and circumstances determine the intensity of follow-up that is provided.

Currently, the Applicant's staff are collecting data utilizing the information that is provided in Epic to better understand the SDoH needs of its patients, including information on the most common SDoH needs, and if those SDoH needs vary by geography, ethnicity and race, or other demographic factors. These data inform staff about the demand for community-based resources in specific geographies, allowing staff to understand if these organizations need additional capacity to help patients. The Applicant and MGH staff want to ensure that the most vulnerable patients can access services more quickly than patients that may currently have stability.

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.

Since a broad range of input is valuable in the planning of a project, the Applicant has committed itself to carrying out a diverse consultative process with individuals at various levels of local, state and federal government regarding the Proposed Project. The following agencies, authorities, and individuals are some of those consulted/to be consulted as the Proposed Project continues to progress. Please note that some of these consultations relate to a larger scope of work (e.g., the City of Boston's required Article 80 review processes for the Hospital's Institutional Master Plan ("IMP") and Draft Project Impact Report ("DPIR")/Draft Environmental Impact Report ("DEIR") submissions). Accordingly, while these consultations provide the opportunity for engagement and consultation around the Proposed Project, they also cover a larger scale of work, certain components of which are outside the scope of this Application.

- **Local-Level Consultation**

- City of Boston Mayor Martin Walsh
- Yissel Guerrero, Maria Lanza, Eddie McGuire, Shanice Pimentel, and John Romano, Mayor's Office of Neighborhood Services
- Marty Martinez, Chief of Boston's Office Health and Human Services
- Boston City Council: City Councilor Josh Zakim; City Councilor Kenzie Bok; and City Councilor Ed Flynn
- Boston Planning and Development Agency ("BPDA"), including Director Brian Golden and Development Review Staff – The applicant meets with the BPDA and various city commissions referenced below, every three weeks concerning the Proposed Project. These meetings began in September 2020.
- Various City Commissions: Boston Civic Design Commission; Boston Landmarks Commission; Boston Public Improvement Commission; Boston Parks Commission; Boston Zoning Commission; Boston Employment Commission; Boston Water and Sewer Commission; Boston Public Safety Commission Committee on Licenses; Boston Air Pollution Control Commission
- Boston Transportation Department
- Boston Public Works Department
- Boston Inspectional Services Department
- Interagency Green Building Council

- **State-Level Consultation**

- Governor Charlie Baker
- Attorney General's Office
- Marylou Sudders, Secretary of Executive Office of Health and Human Services
- Department of Public Health: Lara Szent-Gyorgyi, Director, Determination of Need Program; Margo Michaels, former Director, Determination of Need Program; Rebecca Rodman, Deputy General Counsel; and Ben Wood, Director, Office of Community Health Planning and Engagement and Jennica Allen, Office of Community Health Planning and Engagement
- MassHealth: Steven Sauter, Director, Acute Hospital Program, MassHealth Office of Providers and Plans; and Zhao Zhang, Deputy Chief Financial Officer, MassHealth
- Health Policy Commission
- Various Other Executive Departments: Executive Office of Energy and Environmental Affairs (MEPA Office), including Department of Environmental Protection, Department of Conservation and Recreation, and Department of Energy Resources.
- Massachusetts Water Resources Authority
- Massachusetts Bay Transportation Authority
- Massachusetts Historical Commission
- Legislative Branch: State Representative Robert DeLeo, Speaker of the House; State Representative Jay Livingstone; State Representative Aaron Michelwitz; State Senator Karen Spilka, Senate President; State Senator Sal DiDomenico; and State Senator Joseph Boncore

- **Federal-Level Consultation**

- Legislative Branch: United States Representative Joseph Kennedy; United States Representative Stephen Lynch; United States Representative Ayanna Pressley; United States Senator Ed Markey; and United States Senator Elizabeth Warren
- Environmental Protection Agency
- Federal Aviation Administration

F1.e.i Process for Determining Need/Evidence of Community Engagement:
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.

Based upon the growing demand by MGH's patient panel for cancer and cardiac services, and the capacity constraints and aged infrastructure of existing buildings, MGH developed a plan to construct a new bed tower to provide added capacity and more comprehensive care through the addition of exam rooms, inpatient beds, operating rooms, and imaging modalities. To ensure community engagement around the Proposed Project, MGH's leadership sought to define its community broadly and engage community stakeholders, patients, family members and staff that may be impacted by the Proposed Project to obtain feedback and answer questions. Specifically, MGH's community engagement efforts focused on soliciting feedback on the need for the

Proposed Project as well as feedback on the design, layout and experience of the Proposed Project to maximize the Hospital's ability to meet patient demand, provide superior patient satisfaction, and promote high-quality outcomes. These engagement efforts are described below.

A. Meetings with Abutters and Community Groups

To ensure appropriate community engagement, MGH has presented the Proposed Project at several public meetings with local neighborhood and community groups. Overall, these meetings provided the opportunity to engage and solicit feedback from numerous abutters and community groups regarding the need for the Proposed Project and the planned construction related thereto. Details regarding several of these meetings are discussed below.

- **West End Civic Association (“WECA”)** – Founded in the early 2000s, WECA is a membership-based neighborhood organization of over 100 residents and businesses dedicated to preserving and enhancing quality of life in the West End Community. WECA’s volunteer members work to address concerns related to zoning and licensing, traffic and parking, neighborhood cleanliness, and safety by engaging the community and governmental agencies in dialogues to ensure the community’s interests are acknowledged and protected. Based on this, the Mayor’s Office of Neighborhood Services determined WECA was an ideal group for MGH to engage for purposes of the Proposed Project. Accordingly, Sally Mason Boemer, Senior Vice President of Administration & Finance, along with a number of other MGH representatives met with WECA’s Board on January 10, 2019 and also held an open meeting with WECA members on May 9, 2019 and December 3, 2020 to provide information on the Proposed Project, its design aesthetics and construction, and impact on the neighborhood. Overall, the meetings provided WECA members with an opportunity to provide feedback, voice any concerns, and ensure that the development of the Proposed Project enhances the quality of life of, and does not adversely affect, West End residents. Representatives from MGH will return to meet with WECA members again once the IMP and DPIR/DEIR have been filed.
- **Beacon Hill Civic Association (“BHCA”)** – Established in 1922, the BHCA is a volunteer organization comprised of persons, businesses, and nonprofit organizations interested in preserving and enhancing the character and quality of life on Beacon Hill. As an organization, the BHCA acts as an advocate for Beacon Hill residents and maintains its focus on zoning, licensing, traffic, parking, and neighborhood cleanliness. Monitoring citywide developments that impact the neighborhood and planning community-building events are among BHCA’s major activities. Given the focus of the BHCA, the Mayor’s Office of Neighborhood Services requested that Hospital leadership engage the group regarding the Proposed Project. Accordingly, MGH and NBBJ representatives, including Sally Mason Boemer, MGH’s Senior Vice President of Administration & Finance, met with BHCA’s Board on January 15, 2019, participated in a BHCA-sponsored community forum attended by approximately 60 local neighborhood residents on March 12, 2019, and again met with members of the BHCA on January 24, 2020 and November 18, 2020. At these meetings, the MGH/NBBJ representatives presented a summary of the Proposed Project, answered questions from the audience, and responded to comments made by members and neighbors in attendance. Members/residents expressed overarching support for the goals of the Proposed Project but did voice some concern about the impact on the neighborhood. While most of the concerns focused on topics outside the scope of this Application (e.g., traffic, pedestrian and bicyclist safety, etc.), MGH nonetheless continues to take these concerns into consideration, thoughtfully exploring new and innovative approaches to respond to the concerns raised and work productively with the BHCA for the successful completion of the Proposed Project with minimal interference and

benefits for residents. To these ends, a follow-up meeting will be scheduled with the BHCA once the IMP and DPIR/DEIR have been filed.

- **Downtown North Association (“DNA”)** – The DNA is a not-for-profit coalition that represents the business, institutional, professional, hospitality and residential interests in the mixed-use community of the North Station area and the West End. The purpose of the DNA is to encourage and contribute to the continued economic, social, and physical revitalization and redevelopment of the Downtown North/West End community. Given that the DNA provides a forum to facilitate conversations among members regarding proposed development and its impact on the community, the Mayor’s Office of Neighborhood Services requested that the Hospital meet with the DNA as part of its community outreach efforts around the Proposed Project. Accordingly, Sally Mason Boemer, Senior Vice President of Administration & Finance, and a representative from MGH Real Estate presented to an open meeting of the DNA on March 20, 2019 and November 23, 2020 to provide information on the need for the Proposed Project, its design and construction, and the impact on the Downtown North/West End community. Overall, the meetings provided DNA members with an opportunity to provide feedback, voice any concerns, and a platform to work collaboratively with the Applicant to ensure that the Proposed Project will influence and facilitate a more cohesive and successful Downtown North/West End community. Representatives from MGH will return to meet with the DNA again once the IMP and DPIR/DEIR have been filed.
- **Boston Preservation Alliance (“BPA”)** – The BPA is an independent, nonprofit organization that brings people and organizations together to influence the future of Boston’s historic buildings, landscapes, and communities. Located on the site of the Proposed Project are three buildings that are listed on the Massachusetts Historic Commission’s Inventory of Historic and Archaeological Assets of the Commonwealth. The existing historic buildings are functionally obsolete for hospital use, including clinical, research and administrative or support functions. Given the historic designation of the existing buildings on the Proposed Project site, discussions between MGH Real Estate personnel and the BPA occurred on 4 separate dates in 2019 and 2020 (March 19, 2019, November 19, 2019, February 7, 2020 and February 27, 2020). Though outside the scope of this Application, the Applicant notes that in consideration of BPA’s request, MGH engaged with the Boston Landmarks Commission and the BPA in extensive studies to alternatives to demolition of the buildings, including reuse, relocation and leaving or relocating facades or parts of buildings. Based on this analysis, MGH determined that retention or relocation of the existing buildings would not allow the Hospital to meet the functional or operational goals of the Proposed Project in a number of ways and would add extraordinary costs ranging from \$38M to retain the facades to \$177M to relocate the buildings. The BPA will continue to review and comment on the Proposed Project on an ongoing basis until all final City and State approvals are received and the Hospital will continue to respond to any feedback received from the BPA accordingly.

The Applicant also met with the following local community groups and abutters regarding the Proposed Project:

- Esplanade Riverfront Pavilion Project (meeting held December 9, 2020)
- Massachusetts Eye and Ear Infirmary (meeting held December 14, 2020)
- Museum of African American History (meetings held on September 18, 2020; December 7, 2020; December 28, 2020; and January 7, 2021)
- Old West Church (meeting held December 14, 2020)

- The Liberty Hotel (meeting held on December 18, 2020)
- West End Community Center (meeting held on January 8, 2021)
- West End Museum (meetings held October 24, 2020 and December 4, 2020)
- Wyndham Hotel (meeting held November 20, 2020)

B. Engagement of the Hospital's Community Advisory Board ("CAB")

The MGH CAB was established to provide oversight and advise on the Attorney General and DoN community engagement, Community Health Initiative ("CHI"), and Community Health Improvement Planning ("CHIP") processes and priorities. MGH's CAB is comprised of 19 diverse members from Boston, Charlestown, Chelsea and Revere that meet the required constituencies designated by the Department for a DoN CHI. Appendix 3 includes a full membership list of the CAB as of 2019. These individuals work with Joan Quinlan, MPA, Vice President for Community Health at MGH and Leslie Aldrich, Executive Director of the Center for Community Health Improvement ("CCHI") at MGH, and are tasked with the following general responsibilities:

- Reviewing and giving input to MGH on its overall community health agenda;
- Reviewing and giving input to MGH on its annual community benefit filing with the Attorney General; and
- Guiding MGH on identifying health priorities and strategies based upon the needs identified in the Community Health Needs Assessment ("CHNA") and with appropriate engagement of partners/residents from targeted communities and transparent processes for CHIs that are part of DoN filings with the Department.

Based on these responsibilities, leadership determined it was appropriate to engage the CAB with respect to Proposed Project. Accordingly, on March 19, 2019, Sally Mason Boemer, Senior Vice President of Administration & Finance, and O'Neill Britton, MD, MGH's Chief Medical Officer, met with the CAB to present an overview of the Proposed Project design and need, highlighting the need to modernize the MGH campus to deliver state-of-the-art care, meet growing demand for care, increase the number of single inpatient rooms, organize care for patient convenience and accessibility, and remain a vital resource for the community and accommodate patient surges from disease or disaster. The Presenters also provided information regarding the associated regulatory process, explained the community asset associated with the Proposed Project (e.g., funding for community programs, economic/job benefits, and preserving the legacy and history of Boston's West End), and made themselves available to answer any questions. Overall feedback from the meeting was positive with no concerns voiced.

C. Engagement of the Hospital's Patient and Family Advisory Councils ("PFACs")

Overview of MGH's PFACs

Finally, the Applicant engaged several of the Hospital's PFACs around the Proposed Project. MGH formed its first PFAC in 1999 and since that time several additional PFACs have formed, including the following: General PFAC; Ambulatory Practice of the Future Care Alliance; Cancer Center PFAC; ED PFAC; Heart and Vascular PFAC; MassGeneral Hospital for Children Family Advisory Council ("FAC"); and Pediatric Oncology FAC. The various PFACs are comprised of dedicated patients and family members who have experienced many different aspects of care, as well as key stakeholders from the Hospital staff. All of MGH's PFACs bring together such patients,

family members, staff and clinicians in an ongoing effort to integrate, elevate and promote the patient and family voice in the development of programs, services and strategic initiatives, and to improve care and the patient and family experience. Members lend their expertise by participating in regular PFAC meetings and hospital committees, reviewing materials, and providing feedback in a variety of other ways, such as through focus groups, workshops, and forums. Overall, the Hospital's PFACs serve as a primary way for MGH to realize the opening words of its mission statement: "Guided by the needs of our patients and families."

Focus Group, Workshop, and Public Space Design Forum Engagement Activities

PFAC engagement around the Proposed Project was mainly through focus groups and workshops facilitated by NBBJ, the architects for the Proposed Project, with the goal of soliciting input on designing the Proposed Project to meet the needs of all MGH populations. Specifically, MGH sought to inform the design of the new building by gaining an understanding of what matters most to patients, family members, and staff, as well as what is unique to MGH stakeholders based on the patient population, culture and region that requires prioritization in the building's design. These focus groups and workshops provided an environment to facilitate discussion and catalyze change through highly engaging and interdisciplinary activities. Following the focus groups and workshops, all comments and feedback were amalgamated into a report that informed the design of the Proposed Project based on the specific needs of the MGH population.

In terms of focus groups, separate meetings were held with PFAC members, staff, and physicians across the Cancer Center, Heart Center, and the Hospital overall. These focus group meetings established an understanding of the current state of experience at MGH; identified themes for patient, family and staff experience needs; and gathered suggestions and aspirations for the future state of experience for all stakeholders. Such focus group meetings were conducted as follows:

- Focus group engaging members of MGH's Heart and Vascular PFAC on December 4, 2018; this meeting was attended by 11 PFAC members and 2 staff members.
- Focus group engaging members of MGH's Cancer Center PFAC on December 12, 2018; this meeting was attended by 12 PFAC members and 6 staff members.
- Focus group engaging members of MGH's General PFAC on January 2, 2019; this meeting was attended by 20 PFAC members and 6 staff members.
- Focus group engaging members of MGH's staff groups on January 2 and 3, 2019 (Outpatient Oncology, Outpatient Heart, Inpatient Oncology, Inpatient Heart); these meetings were attended by 60 staff members.

With regard to the workshops, MGH hosted two idea-generating experience design workshops, one on February 11, 2019 and another on March 11, 2019. These workshops were attended, respectively, by 24 and 44 attendees including PFAC members, staff and leadership. During the first workshop, participants progressed through three activities – (1) Experience Statements, (2) "How Might We," and (3) Storyboard – to generate design opportunities and start to visualize how solutions can work holistically. Experience statements were analyzed for themes and compiled into master statements, and ideas from "How Might We" were analyzed to generate "Must Do" design criteria and design ideas for the second workshop. During the second workshop, teams composed of patient, family and staff-built models around 10 key spaces in the Hospital using persona, problem statements, design criteria, and select design ideas generated from the first workshop. Models from the second workshop were translated into sketches highlighting key

design elements and design implications were sorted into different levels of design (e.g., programming and planning, design, and people/process/technology).

In addition to the above focus groups and workshops, the Applicant also conducted additional engagement efforts throughout the design process including holding public space design forums by the Public Space Committee. These forums were held on January 28, 2020 and February 25, 2020, and included chosen representative from the General PFAC, Cancer Center PFAC, and Heart and Vascular PFAC. These PFACs were selected given the Proposed Project's focus on cancer and cardiac services as well as the addition of exam rooms, inpatient beds, operating rooms, and imaging modalities. Overall, these activities were undertaken to ensure that the Proposed Project was informed by and designed to meet patient panel need.

Presentation to the PFAC

Finally, the Applicant notes that the Proposed Project was presented to the Cancer Center PFAC on December 12, 2018 and to the Heart and Vascular PFAC in January 2020. Leadership determined it was appropriate to engage these specific PFACs as they represent MGH's widely used cancer and cardiac services, both of which are main components of the Proposed Project. The purpose of these presentations was to inform the PFACs regarding the various Proposed Project components, the need for and design of the Proposed Project, and the public health value associated with the Proposed Project. Overall feedback from both meetings was very positive and supportive. There were no concerns expressed by either group.

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".

To ensure sound community engagement throughout the development of the Proposed Project, the Applicant and MGH took the actions detailed in Factor F1.e.i. For materials related to these activities, please refer to Appendix 3, which includes meeting agendas, minutes, presentations, etc. In addition, for transparency and to ensure appropriate awareness within the community about the Proposed Project, the Applicant published a legal notice associated with the Proposed Project in the Boston Herald and posted a copy of such legal notice prominently on the Mass General Brigham and MGH websites. Moreover, the Boston Globe published an article on January 22, 2019 concerning the Proposed Project. Finally, as is outlined at Factor F1.d, the Applicant consulted various government officials and agencies with relevant licensure certification, or other regulatory oversight of the Proposed Project. Overall, these actions were taken to bring awareness to patients, families, local residents, resident groups, and agencies and officials, and to provide an opportunity for stakeholders to comment on the Proposed Project.

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. Cost Containment:
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 goals for cost containment in Massachusetts include providing lower-cost care alternatives without sacrificing quality and ensuring that health care costs remain below the State's healthcare cost growth benchmark. The Institute for HealthCare Improvement's Triple Aim seeks to (1) Improve patient experience; (2) Reduce the per capita costs of healthcare; and (3) Improve the health of populations overall. The cost reduction component of the Triple Aim "encourages health care organizations to find ways to reduce the cost of the care they provide, while at the same time increasing quality, as well as identifying at-risk populations and addressing the health concerns of the community."¹⁹⁹

To address the cost of care, the Applicant has developed system-wide population health management efforts. As discussed more fully in Section F.1.a.iii, the Applicant and MGH have certain strategic initiatives and PHM programming in place to provide lower cost care alternatives to patients. One such strategic initiative aimed at reducing the cost of care by ensuring patients have access to care in the most appropriate setting at lower costs when indicated by patient acuity is the Community Hospital Transfer Program ("CHTP"). CHTP allows ED clinicians at MGH to directly admit qualifying patients to Newton-Wellesley Hospital's ("NWH") inpatient units, leveraging available capacity within the system for patients in need of lower acuity, community-based care. Once a patient is transferred to NWH through the CHTP, clinical information is maintained in the Applicant's shared electronic health record ("EHR") system, Epic. The CHTP is one way that the Applicant is managing PHM efforts and eliminating capacity constraints in the academic medical centers ("AMCs"), such as MGH. This program not only provides access to lower acuity patients access to care in a lower cost setting, it also is aimed at ensuring that the highest acuity patients needing tertiary and quaternary services have timely access to such care. Timely access to care for critically ill patients can result in cost avoidance when patients receive diagnosis and treatment without delays caused by capacity constraints. By providing care in the appropriate setting, the Applicant and its hospitals work to ensure that *all* patients have access to cost-effective care regardless of acuity.

With respect to the Proposed Project, MGH will be able to provide timely access to care for patients in need of quaternary and tertiary care that is not available elsewhere in the region. The focus and efficiencies gained by co-location of services, additional inpatient and private room capacity and improved staffing patterns allowed by the Centers of Excellence approach fully support cost containment and the most effective and patient-responsive use of resources. MGH's Heart Center and the Cancer Center provide many unique services that are not available in a community hospital setting. By situating these centers in one main location, team-based care will be more easily achieved, allowing for more efficient staffing patterns, reduction in duplication of

¹⁹⁹ Abby Norman, *An Overview of the Triple Aim*, VERY WELL HEALTH (Mar. 1, 2020), <https://www.verywellhealth.com/triple-aim-4174961>.

services, and improved throughput. As a result, the Proposed Project will create efficiencies in care delivery, high quality outcomes, and ultimately, the avoidance of costs through operational efficiencies and lower administrative costs. Further, by expanding access to inpatient capacity, MGH ED clinicians will be able to focus on emergent patients instead of expending ED resources on boarder patients who require higher intensity inpatient care.

**F2.b. Public Health Outcomes:
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 improved access to timely services in the most appropriate setting. By creating additional inpatient private room capacity, the throughput issues in the ED and PACUs by lack of sufficient inpatient beds will be alleviated. With additional private rooms, the current bed block issues will be remediated allowing for admitted patients to spend less time boarding in the ED and PACUs and thus being cared for in the appropriate setting. When patients are in the most appropriate setting, health outcomes improve.

Expanded access to inpatient beds will allow ED clinicians to focus on emergent patients instead of having to spend significant time tending to patients who require inpatient care that are awaiting a bed. As a result, patients who present to the ED that do not require inpatient admission can be treated in a more timely manner and discharged, which results in improved health outcomes as patients who must wait for long periods for care in the ED are more likely to deteriorate or require additional care than if treated in a timely manner. This also may reduce the number of patients who leave without being treated as clinicians can provide care more quickly. Accordingly, all ED patients will benefit from the ability to admit patients more quickly, thus resulting in improved health outcomes for patients seeking care in MGH's regardless of acuity.

With respect to PACU patients, those requiring admission to an inpatient bed for extended recovery will be moved to the inpatient unit in a timely manner, allowing for care to be provided in the most appropriate setting for the patient's care needs. To this point, research indicates that prolonged waiting hours in the PACU because of inpatient bed shortage may worsen patient outcomes and increase both length of stay and mortality, particularly in the case of critically ill surgical patients who require an ICU bed.²⁰⁰ The creation of additional inpatient private room capacity will not only help to remediate these issues and improve outcomes for patients requiring transfer from the PACU to the more appropriate inpatient unit setting, but will also impact the quality of care of other post-operative patients by decreasing the workload of PACU nurses, reducing the slowdown of the surgical schedule created by the PACU backlog, and addressing overall capacity strain which is well-established as being associated with dissatisfaction and worse health outcomes for hospitalized patients.²⁰¹ Through the creation of private rooms in existing facilities, access to care will improve for outcomes for patients recovering from surgery.

²⁰⁰ Y.U. Bing-Hua, *Delayed Admission to Intensive Care Unit for Critically Surgical Patients is Associated with Increased Mortality*, 208 AM. J. OF SURGERY 268 (2014), <https://www.ncbi.nlm.nih.gov/pubmed/24480235>; Jose L. Pascual et al., *There's No Place Like Home: Boarding Surgical ICU Patients in Other ICUs and the Effect of Distances from the Home Unit*, 76 J. TRAUMA AND ACUTE CARE SURGERY 1096 (2014), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4156017>; A. Ziser et al., *The Postanaesthesia Care Unit as a Temporary Admission Location Due to Intensive Care and Ward Overflow*, 88 BRITISH J. OF ANAESTHESIA 577 (2002), available at [https://bjanaesthesia.org/article/S0007-0912\(17\)36485-1/fulltext](https://bjanaesthesia.org/article/S0007-0912(17)36485-1/fulltext).

²⁰¹ Carl O. Eriksson et al., *The Association Between Hospital Capacity Strain and Inpatient Outcomes in Highly Developed Countries: A Systematic Review*, 32 J. OF GENERAL INTERNAL MED. 686 (2017), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5442002>; Sharifa Bashir Lalani et al., *Prolonged-Stay Patients in the*

In addition, the Proposed Project will provide expanded and improved care coordination for patients with cancer and cardiovascular disease, including lifesaving and life-prolonging services and therapies in a collaborative environment, as well as access to population health management programming focused on improving health outcomes. Through the Proposed Project, MGH's Cancer Center and Heart Center will provide expanded access to an array of services in one location, including inpatient care, outpatient care, and imaging services required for proper diagnosis and treatment of cancer and cardiovascular disease.

The ability to offer a continuum of services in one location furthers the provision of patient-centered care. The co-location of services required for the treatment of cardiac disease and cancer will result in timely initial diagnosis. Outside of the exam room, MGH's Center for Innovation in Early Cancer Detection is focused on developing new cancer-detecting technologies. By bringing together dedicated scientists and clinicians from MGH, Harvard Medical School, and the entire Boston bio-medical community, the Center seeks to pair cancer detection technologies with clinical resources – with the goal of improving early cancer detection and treatment, leading to increased cures for patients around the world. Moreover, as clinicians work in a team-based environment, patients can be matched to the most appropriate treatment quickly and begin such treatment, ultimately avoiding costs associated with delays in both initial diagnosis and treatment. For example, the Cancer Center operates multi-disciplinary disease centers that provide a 4-5-hour appointment for new patients with all cancer specialty disciplines present (medical oncologist, surgery, radiation oncologist). During this visit, a unified treatment plan can be developed in a single session, allowing patients to begin treatment more quickly than if multiple appointments occurred over days to weeks. This positively impacts patient satisfaction, as well as outcomes. This approach to care will lead to improved health outcomes for patients, and ultimately improved morbidity and mortality rates for patients within Massachusetts.

Finally, MGH will be able to continue its role as a regional resource for patients in need of critical care services that are not available locally. With adequate inpatient beds, the Hospital will be better positioned to accept transfer patients from other hospitals that are unable to provide the level of care required. In addition, through the design of the building, MGH will be able to sustain disasters and ensure health outcomes for patients are not negatively impacted. In conclusion, the Proposed Project provides opportunities to ensure access and thus increased positive public health outcomes for not only its patient panel, but for the Commonwealth.

F2.c. Delivery System Transformation:

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.

A. Linking Patients with Social Determinant of Health Needs to Necessary Services

MGH's long term goal is to implement a universal social determinant of health ("SDoH") screening program for all patients. To this end, the Hospital is a member of the Boston Area Hospital Collaboration on the Social Determinants of Health ("Collaboration"). The Collaboration is

PACU: A Review of the Literature, 28 J. PERIANESTHESIA NURSING 151 (2013), available at http://aerfree.com/wp-content/uploads/2017/06/Prolonged-stay-Patients-in-the-PACU-A-review-of-the-literature-Feb-11_2017.pdf.

comprised of Boston hospitals and seeks to establish a consistent screening tool for evaluating individual and family SDOH needs across institutions and implementing best practices for referrals to community services. To that end, the Collaboration engaged Health Resources in Action (“HRiA”) in 2017 to facilitate a process to: (1) identify common SDOH screening questions that will allow hospitals to meet MassHealth ACO requirements; and (2) explore pooling data for collaborative projects, such as a joint community health needs assessments. HRiA is examining the SDOH measures that the institutions already collect; facilitating a consensus-building process for data collection on similar SDOH domains; conducting key informant interviews; and examining workflow and referral pathways for data capture and referral to social services. Next steps include assessing options and best practices for social needs screening workflows, building consensus on common social needs screening questions, and ensuring that the Collaboration’s plans align with MassHealth ACO requirements. Based on information from the Collaboration, the Applicant and MGH are being thoughtful about the implementation of a universal SDOH screening program, recognizing that there is a limited amount of capacity within the community-based organizations that patients will be “linked” to for services and understanding a staggered approach to implementation is best, so as to not overwhelm the available community resources.

The primary responsibility for SDOH screening is with a patient’s primary care physician (“PCP”) office as the PCP’s role is to manage care for their patients. However, recognizing that instances may occur at the Hospital where patients request assistance or appear to need assistance with SDOH needs, the Hospital has a process in place to address the needs of such patients. One common access point for patients at MGH is the ED. Within the ED, navigators complete an initial chart review on all MassHealth ACO patients seeking services (including a review of all completed SDOH screen(s) found within the Applicant’s electronic health record system, Epic). After reviewing the chart for SDOH screens, an ED navigator approaches these patients to discuss potential SDOH needs if there is not a prior screen in the record, to determine if they have any additional SDOH needs and whether their current needs are being met. Navigators probe on similar domains as the SDOH screening tool, such as food and housing insecurity, childcare, a lack of health insurance, lack of employment, etc., and refer patients to internal and external programs and community-based organizations. Post-patient-discharge, ED navigators follow-up telephonically with patients around referrals and connections to primary care and specialty clinics.

In addition, MGH has resources within the Hospital’s ED to address the needs of specific patient populations. For example, those patients diagnosed with a substance use disorder (“SUD”) are provided with access to a Recovery Coach. These coaches assist SUD patients with accessing outpatient treatment, providing emotional support and advocacy, as well as addressing housing, transportation, educational and legal needs. It is also important to note, that almost all of the MGH Emergency Medicine physicians are now X-Waivered, and along with nurse practitioners specially trained in addiction medicine, can refer patients to the MGH Bridge Clinic for longitudinal treatment of opioid addiction.

MGH also offers the Violence Intervention Advocacy Program (“VIAP”) in the ED. VIAP provides direct services to victims of community violence (patients with stab wounds, gunshot wounds and assaults). The mission of the Program is to assist victims of violence to recover from physical and emotional trauma and empower these patients with skills, services and opportunities, so they may return to their communities, make positive impact in their lives, strengthen others who have been affected by violence and contribute to building safer and healthier communities.

With respect to specialty visits, MassHealth ACO patients referred to these services by their PCP. If a SDOH is known at the time of referral, the PCP’s staff will work the patient to address any needs. For example, if a MassHealth ACO patient does not have transportation to or from a

specialty appointment, the PCP staff will ensure a patient has a voucher and that transport is scheduled. In addition, if on the day of an appointment a patient makes his/her ongoing needs known to staff within a specialty clinic, a social worker or community health worker will assist the patient. The staff member may assist the patient directly or refer the patient to a community-based organization that may be able to provide specific services or supports. The patient's SDOH need(s) and circumstances determine the intensity of follow-up that is provided. These patients also are referred to their PCP for further assistance with SDOH needs.

All SDOH screens are tracked in a patient's EHR in the Epic system. Tracking includes whether a SDOH screen was conducted, if there were positive responses indicating the patient needs assistance, and if the patient was provided with written support materials ("Tip Sheets") or referred to a support person. Moreover, case managers and other staff assisting patients with SDOH needs may provide notes in the Epic system as to where the patient is in the process of accessing resources to address his/her SDOH needs.

B. Delivery System Transformation through Anchor Strategies

The Applicant and MGH also are committed to impacting social SDOH by implementing an anchor institution strategy in implementing the Proposed Project. During the early 2000s, "more universities and hospitals in cities began to act more strategically and intentionally about how they deployed a broad range of their intellectual, social and financial assets to improve opportunities and outcomes for lower-income communities and populations." The term 'anchor institutions' emerged to identify organizations that were making these commitments."²⁰² The Applicant and MGH are members of the national Healthcare Anchor Network. The Hospital president, accompanied by a board member, attended one of their meetings last summer for hospital leadership, indicating the real and meaningful commitment to this approach.

The Applicant has made two anchor investments to date, one in housing in Chelsea and one in food access. As part of the Proposed Project, MGH is committing to intentionally apply the Hospital's long-term, place-based economic power in partnership with its priority communities to mutually benefit the long-term well-being of both. By leveraging MGH's business practices around inclusive, local hiring and workforce development, local and diverse sourcing, and place-based investing, MGH seeks to address underlying causes of poor health by investing in the social and economic well-being of the communities the Hospital serves, making MGH an anchor institution. By making anchor investments in priority communities and becoming an anchor institution, MGH will address up-stream causes for down-stream health issues, ultimately improving health status.

With respect to the Proposed Project, MGH has begun planning anchor efforts through the creation of both management and trustee level committees. These strategies take time to develop and implement so planning even before DoN approval is essential to success. The special trustee committee on anchor strategies is charged with overseeing the anchor strategies for the Proposed Project, setting goals and holding management accountable. The committee has met three times to become educated on strategies and best practices from around the country. The management committee is led by the senior vice president for administration and finance, with membership including the Hospital president, general contractors and vice presidents of equity as well as community health. The Hospital has studied other local projects that were developed with an Anchor strategy including the Encore Casino construction project for guidance in developing

²⁰² See, e.g., *Anchor Institutions*, COMMUNITY-WEALTH.ORG, <https://community-wealth.org/strategies/panel/anchors/index.html#:~:text=Anchor%20institutions%20are%20nonprofit%20institutions,anchor%20institutions%20to%20local%20economies>.

planning and measures for the Hospital's strategy. In addition, the Hospital has engaged a consultant from the Encore project to provide guidance on issues around construction workforce diversity. Already, the Hospital is committed to partnering with apprenticeship programs to meet the ambitious construction trades hiring goals for City of Boston residents that represent people of color and women. MGH also will strive to meet the state guidelines of contracting with 10% women and minority owned businesses and subcontractors and will provide business development support to help meet that goal. Finally, MGH is committed to hiring for new positions and employee turnover associated with the transition to the new building in accordance with the Hospital's anchor strategies. Accordingly, MGH is committed to making this building project a focal point for launching its Anchor Program.

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 construction of the Proposed Project will include 482 inpatient beds, representing 94 net new beds, of which 54 beds will be medical/surgical and 40 will be ICU beds; the relocation and expansion of certain oncology and cardiovascular outpatient services, including exam rooms and infusion bays; relocation and expansion of cardiovascular operating rooms, for a total of 24 cardiovascular operating rooms and 3 small procedure rooms; and the acquisition of two CT units, two MRI units, two PET/CT units, and one PET/MR unit to support the services included in the Proposed Project.

Quality: The Proposed Project, through additional private inpatient rooms and co-location of diagnostic and treatment imaging with inpatient and outpatient services, will allow MGH patients to receive timely and appropriate high-quality care.

Efficiency: The design of the Proposed Project is focused on facilitating co-location and team-based care, creating efficiencies in care delivery. The co-location of services in the same physical space will allow for more efficient staffing patterns, reduced duplication of services, and greater efficiencies for patients, such as improvements in wait times for diagnostic testing and physician interactions. The expansion of services through the Proposed Project will also lead to improved throughput in locations across MGH's campus, such as the ED.

Capital Expense: The construction of the Proposed Project represents a cost-effective project to address the needs of the Applicant's patient panel and ensure MGH has the capacity to carry out its role within the Commonwealth. The Proposed Project design is the result of a long-term master strategic planning and design process informed by clinical staff and a skilled team of healthcare architects, in addition to evidence-base literature, industry standards, and the voice of patients.

Operating Costs: The Hospital projects that operating costs will increase by \$350M due in part to increased volume associated with the Proposed Project.

List alternative options for the Proposed Project:**Option 1**

Alternative Proposal: One alternative for the Proposed Project would be to forego the construction of Proposed Project and continue to operate MGH's main campus without any changes.

Alternative Quality: This alternative would not provide patients with access to updated facilities and the now industry standard of single patient rooms, which will continue to impact ED boarding issues, inpatient lengths of stay, and patient satisfaction. ED capacity and associated patient boarding times in the ED and PACUs would not be addressed and would continue to increase over time. The continued lack of sufficient inpatient capacity also would exacerbate the problem of lost transfers of high-acuity patients from community hospitals, resulting in further delays in care. This option would not address current and future patient demand for cancer, cardiovascular, surgical, and imaging services and would not allow MGH to shift patient care to the proper location to take advantage of team-based and other co-location benefits.

Alternative Efficiency: Limited operational efficiencies will be gained through this alternative. Moreover, most of the patient care would continue to be provided in MGH's oldest buildings with outdated infrastructure, therefore not providing the space and efficiencies of the Proposed Project.

Alternative Capital Expenses: Although this alternative would not be associated with any capital expenses, the cost efficiencies gained through the Proposed Project would not be achieved.

Alternative Operating Costs: There would be no change in current operating costs.

Option 2

Alternative Proposal: MGH considered approximately eight alternative design options to the Proposed Project, none of which matched the superior quality and efficiencies that will be achieved through the Proposed Project. Alternative design options included construction and renovation of MGH's current buildings in various combinations and configurations. In addition, projects of lesser scope than the Proposed Project were explored but were insufficient to meet the needs of MGH's patient panel, especially with respect to its cancer and cardiac patient panel.

Alternative Quality: None of the alternative options that were explored provided the space, capacity, and modalities necessary to fully implement the Centers of Excellence models of care for Cancer and Cardiovascular services, which contribute to improved patient experience and better overall health outcomes. For example, some alternatives would have caused significant operational disruption, would require separation of ambulatory care, or the location would be disconnected from core services, thereby defeating the purpose of the overarching Proposed Project goals and high quality attained through physically centralized Centers of Excellence and co-located services.

Alternative Efficiency: The alternatives considered resulted in insufficient flexibility and inefficiencies. None of the alternative projects would have resulted in greater efficiencies than the Proposed Project, and most showed little added value in terms of efficiency or quality. Moreover, many of the alternatives would require substantial relocations to accommodate construction and would not result in completion of all phases of construction for approximately 15 years.

Alternative Capital Expenses: The alternatives considered by MGH resulted in capital expenses of approximately \$4,250,000,000 or greater.

Alternative Operating Costs: Many variables would have affected the operating costs for each alternative combination of existing and new spaces. Many of the alternatives would have resulted in fewer efficiencies than the Proposed Project as they would not be able to offer the space necessary to implement each component of the Proposed Project, resulting in more fragmented care. Accordingly, operating costs for the alternatives ranged significantly, many of the options resulting in higher operating costs than the Proposed Project.

Appendix 3

Factor 1 Supplemental Information

Appendix 3A

Patient Panel Information

Table 1: MGB Patient Panel

	FY17		FY18		FY19		FY20 YTD	
	Count	%	Count	%	Count	%	Count	%
MGB Total	1,408,587		1,504,625		1,528,359		634,989	
Gender								
Female	820,910	58.3%	874,793	58.1%	883,913	57.8%	379,809	59.8%
Male	587,404	41.7%	629,708	41.9%	644,286	42.2%	255,110	40.2%
Other/Unknown	273	0.0%	124	0.0%	160	0.0%	70	0.0%
Age								
0-17	147,325	10.5%	166,985	11.1%	179,388	11.7%	59,815	9.4%
18-64	859,511	61.0%	919,998	61.1%	948,501	62.1%	374,338	59.0%
65+	401,551	28.5%	417,605	27.8%	400,441	26.2%	200,785	31.6%
Unknown	200	0.0%	37	0.0%	29	0.0%	51	0.0%
Race								
American Indian or Alaska Native	1,656	0.1%	1,946	0.1%	2,045	0.1%	828	0.1%
Asian	58,502	4.2%	62,723	4.2%	66,601	4.4%	26,468	4.2%
Black or African American	81,341	5.8%	83,703	5.6%	85,627	5.6%	34,562	5.4%
Hispanic/Latino	22,089	1.6%	20,631	1.4%	19,630	1.3%	9,697	1.5%
Native Hawaiian or Other Pacific Islander	1,122	0.1%	1,128	0.1%	1,117	0.1%	362	0.1%
Other/Unknown	213,833	15.2%	234,921	15.6%	232,058	15.2%	77,918	12.3%
White	1,030,044	73.1%	1,099,573	73.1%	1,121,281	73.4%	485,154	76.4%
Patient Origin								
HSA_1	14,505	1.0%	91,115	6.1%	100,146	6.6%	42,253	6.7%
HSA_2	48,209	3.4%	49,775	3.3%	52,353	3.4%	19,171	3.0%
HSA_3	94,206	6.7%	97,683	6.5%	101,785	6.7%	36,203	5.7%
HSA_4	629,721	44.7%	647,990	43.1%	682,126	44.6%	303,527	47.8%
HSA_5	213,793	15.2%	205,407	13.7%	174,459	11.4%	71,305	11.2%
HSA_6	246,147	17.5%	243,319	16.2%	244,000	16.0%	109,872	17.3%
Outside of MA	155,790	11.1%	163,517	10.9%	167,835	11.0%	51,168	8.1%
Unknown/In MA but not in HSA 1-6 ¹	6,216	0.4%	5,819	0.4%	5,655	0.4%	1,490	0.2%

FY data is pulled as of January 7, 2020

Notes:

- 1) Includes 'Unknown' and 'In MA but not in HSA 1-6' for confidentiality due to regulations around data with counts <11.
- 2) MGB data systems utilize multiple source that are continuously refined and refreshed over time that prevent the patient counts from tying exactly between filings. Accordingly, between June 2018 and December 2019, staff further refined the data collection processes leading to an increase of no more than 1% in overall patient counts for the syster
- 3) Source: SAM Patients Served tables that use data from the Integration, Patient Financials, Payer, and Epic source marts.

4) Entities include:

The General Hospital Corporation d/b/a Massachusetts General Hospital
Brigham and Women's Hospital
Newton Wellesley Hospital
North Shore Medical Center
Brigham and Women's Faulkner Hospital
Martha's Vineyard Hospital¹
Nantucket Cottage Hospital¹
Cooley Dickinson Hospital¹
Massachusetts Eye and Ear Infirmary²
Spaulding Rehabilitation Hospital³
McLean Hospital¹
Massachusetts General Physicians Organization
Brigham and Women's Physicians Organization
North Shore Physicians Group
Newton Wellesley Medical Group
Cooley Dickinson PHO¹
Mass General Brigham Community Physicians⁴

1. Only includes post-Epic data.

2. Outpatient post-Epic data only. Does not include inpatient data.

3. Telehealth, MGB Mobile Observation Unit, Home Hospital (HH) programs for GH and BWH, Stay Connected with GH, Lifeline, CareSage programs not included.

4. Pre-Epic non-risk patients not included.

Table 2: MGH Patient Panel

	FY17		FY18		FY19		FY20YTD	
	Count	%	Count	%	Count	%	Count	%
MGH Total	563,967		566,405		588,833		292,603	
Gender								
Female	312,523	55.4%	312,491	55.2%	324,496	55.1%	163,385	55.8%
Male	251,403	44.6%	253,885	44.8%	264,292	44.9%	129,162	44.1%
Other/Unknown	41	0.0%	29	0.0%	45	0.0%	56	0.0%
Age								
0-17	71,122	12.6%	75,430	13.3%	83,570	14.2%	40,946	14.0%
18-64	330,154	58.5%	331,096	58.5%	344,316	58.5%	165,260	56.5%
65+/Unknown ¹	162,691	28.8%	159,879	28.2%	160,947	27.3%	86,397	29.5%
Race								
American Indian or Alaska Native	570	0.1%	616	0.1%	655	0.1%	334	0.1%
Asian	28,599	5.1%	29,653	5.2%	31,196	5.3%	15,858	5.4%
Black or African American	30,470	5.4%	29,842	5.3%	31,052	5.3%	15,413	5.3%
Hispanic/Latino	4,620	0.8%	4,347	0.8%	4,014	0.7%	2,211	0.8%
Native Hawaiian or Other Pacific Islander	288	0.1%	292	0.1%	316	0.1%	156	0.1%
Other/Unknown	78,124	13.9%	84,547	14.9%	92,813	15.8%	42,131	14.4%
White	421,296	74.7%	417,108	73.6%	428,787	72.8%	216,500	74.0%
Patient Origin								
HSA_1	6,710	1.2%	7,265	1.3%	8,047	1.4%	3,748	1.3%
HSA_2	18,234	3.2%	18,388	3.2%	21,166	3.6%	9,050	3.1%
HSA_3	32,804	5.8%	33,147	5.9%	34,955	5.9%	16,970	5.8%
HSA_4	268,230	47.6%	274,345	48.4%	285,507	48.5%	155,208	53.0%
HSA_5	56,336	10.0%	48,942	8.6%	47,294	8.0%	21,875	7.5%
HSA_6	100,052	17.7%	97,986	17.3%	102,623	17.4%	51,296	17.5%
Outside of MA	78,649	13.9%	83,688	14.8%	86,743	14.7%	33,643	11.5%
Unknown/In MA but not in HSA 1-6 ²	2,952	0.5%	2,644	0.5%	2,498	0.4%	813	0.3%

FY data pulled as of January 14, 2020

Notes:

1) Includes '65+' and 'Unknown' for confidentiality

2) Includes 'Unknown' and 'In MA but not in HSA 1-6' for confidentiality

3) Source: SAM Patients Served tables that use data from the Integration, Patient Financials, Payer, and Epic source marts.

4) Entities include: The General Hospital Corporation d/b/a Massachusetts General Hospital, and Massachusetts General Physicians Organization

Appendix 3B

Evidence of Community Engagement

Appendix 3B1

Beacon Hill Civil Association Meeting Materials



MASSACHUSETTS
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Beacon Hill Civic Association Public Meeting: *MGH IMP and Cambridge Street Project*

March 12 2019





- **MGH Introduction and Welcome** **MGH**
- **Overview of IMP & Article 80 Review Process and Schedule** **MGH**
- **MGH existing and proposed IMP boundaries** **MGH**
- **Why does MGH need a new clinical building** **MGH**
- **Proposed Project overview** **MGH**
- **Question and Answers Period** **MGH**



Sally Mason Boemer, Senior Vice President of Administration and Finance

- **David Hanitchak, Vice President Real Estate**

Project Team

- | | |
|--|------------------------------|
| • Development Consultant: | Leggat McCall |
| • Architect: | NBBJ |
| • Permitting Consultant: | Epsilon Associates |
| • Legal Counsel: | Goulston & Storrs |
| • Transportation Consultant/Civil Engineer: | VHB |



- **Letter of Intent (LOI) submitted on** **1/23/19**
- **IMP Project Notification Form/Article 80 Project Notification Form** **2/20/19**
- **Public Comment Period Open** **2/20/19**
- **Public Comment Period Conclusion** **3/22/19**
 - Public Comments should be submitted to:
Katelyn Sullivan, Senior Project Manager
Boston Planning & Development Agency
One City Hall Square, Boston MA, 02201
- **Draft Project Impact Report (DPIR)** **TBD**
- **For more information on the IMP & Article 80 process please see the link below:**
 - <http://www.bostonplans.org/projects/development-projects/mgh-clinical-and-campus-services-building>

MGH Existing IMP Boundaries



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MGH Proposed IMP Boundaries



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Modernize the MGH campus to deliver state-of-the-art care

- To offer rapidly evolving technologies and treatments to our patients (locally, nationally and internationally)
- To attract preeminent clinicians and trainees and advance medical science

Meet the growing demand for care

- To address Emergency Department overcrowding often due to the lack of an inpatient bed
- To ensure MGH can accept transfers of very sick patients from community hospitals

Increase the number of single inpatient rooms

- To support the healing process (quality, privacy when communicating with the care team, space for families to participate in care, and a less stressful and quieter environment).

Organize care for patient convenience and accessibility

- To consolidate related services into centers of excellence where patients can receive care from co-located teams for greater staff efficiency and patient convenience

Sustainability and resiliency

- To remain a vital resource for the city and community and accommodate patient surges from disease or disaster (weather or mass casualty)

Preserve MGH as a community asset for the next 200 years

Proposed Main Campus Development Site



MASSACHUSETTS
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Proposed Project Overview



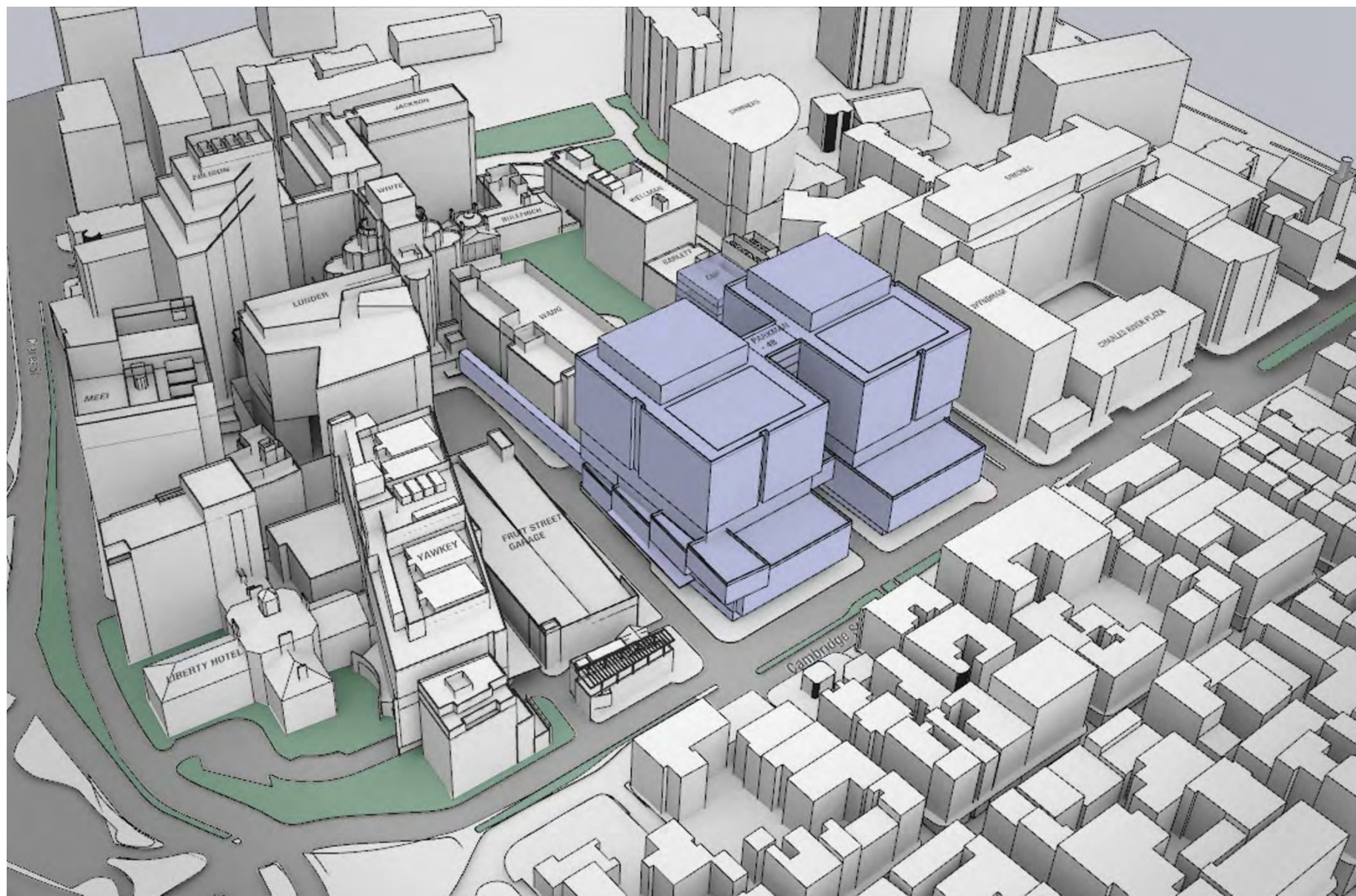
MASSACHUSETTS
GENERAL HOSPITAL



Proposed Project Overview



MASSACHUSETTS
GENERAL HOSPITAL



Proposed Project - Conceptual Rendering



MASSACHUSETTS
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Proposed Project - Conceptual Rendering



MASSACHUSETTS
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Proposed Project - Conceptual Rendering



MASSACHUSETTS
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Proposed Project - Conceptual Rendering



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Funding important programs

- Through DPH fees and City linkages, investment in a new building will mean significant funding for important programs throughout the community.

Improving the quality of life in our neighborhood

- A well-designed, attractive new facility along Cambridge Street will fill the gap left by underutilized space and improve the street with new/expanded retail activity and urban environment

Economic benefits

- Construction of the new facility will provide about 4,500 construction jobs during the six years to complete the building, and will mean more permanent jobs once the facility opens

Sustainability and resiliency

- The new building will be designed for sustainability and energy conservation, and will target LEED Gold as a minimum
- The resiliency of the building is planned to allow continuous operability of all critical services during a catastrophic event

Preserving the legacy and history of Boston's West End

- The MGH Russell Museum of Medical History and Innovation will help preserve and showcase the story of the West End through rotating exhibits, and sponsoring presentations as part of its community programming; recognition of the neighborhood will be installed in the public space of the new building



Key Milestone dates

- **Public Comment Period Open** **2/20/19**
- **Public Comment Period Conclusion** **3/22/19**

Public Comments should be submitted to:

Katelyn Sullivan, Senior Project Manager
Boston Planning & Development Agency
One City Hall Square, Boston MA, 02201
[REDACTED]

- **Draft Project Impact Report (DPIR)** **TBD**

Appendix 3B2

Community Advisory Board Meeting Materials and Membership List



MASSACHUSETTS
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CENTER FOR COMMUNITY
HEALTH IMPROVEMENT

MGH Community Advisory Board

March 19, 2019

Agenda

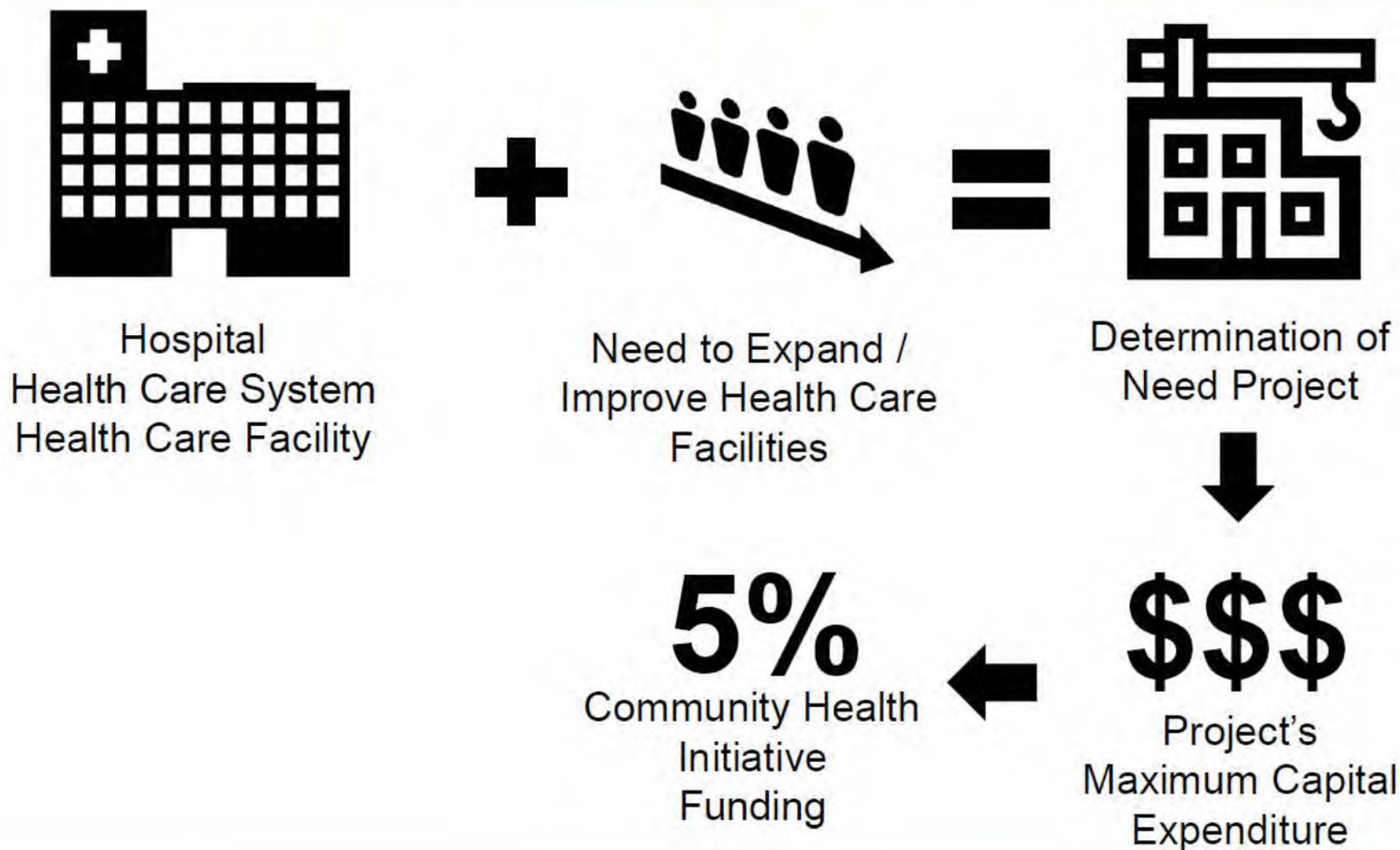
- Welcome and Introductions
- [REDACTED]
- Future Major New DoN: MGH New Building Review – Sally Mason Boemer
Sr. VP of Administration & Finance, O'Neill Britton, MD, Chief Medical
Officer
- [REDACTED]
- [REDACTED]
- Discussion & Feedback:
 - [REDACTED]
 - [REDACTED]

Charge to the Community Advisory Board

- To review and give input to Massachusetts General Hospital on its overall community health agenda
- To review and give input to MGH on its annual Community Benefit filing with the MA Attorney General
- To guide MGH on identifying priorities with appropriate community input and transparent process for community health initiatives that are part of Determination of Need Filings with the Department of Public Health



Determination of Need: Community Health Initiative

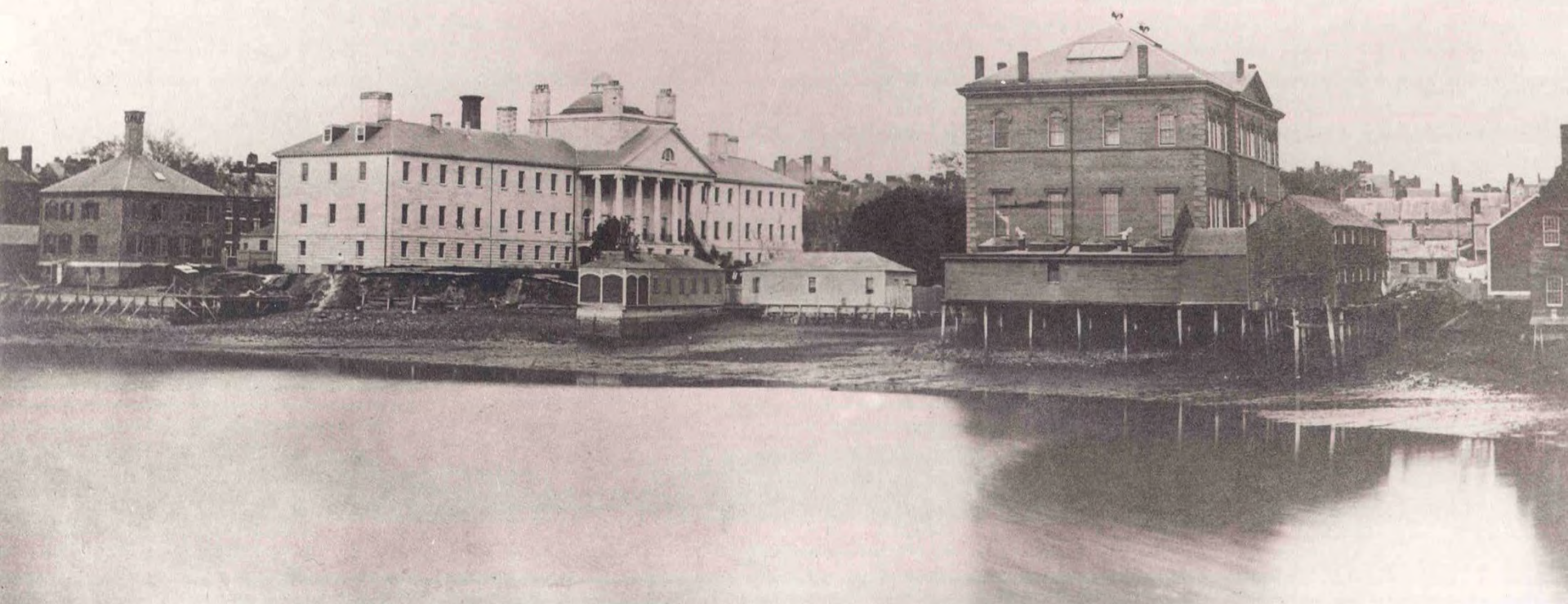




MASSACHUSETTS
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Cambridge Street Project Preliminary Planning

January 2019





Modernizing the MGH campus to deliver state-of-the-art care

- To offer rapidly evolving technologies and treatments to our patients (locally, nationally and internationally)
- To attract preeminent clinicians and trainees and advance medical science

Meeting the growing demand for care

- To address Emergency Department overcrowding often due to the lack of an inpatient bed
- To ensure MGH can accept transfers of very sick patients from community hospitals

Increasing the number of single inpatient rooms

- To support the healing process (quality, privacy when communicating with the care team, space for families to participate in care, and a less stressful and quieter environment).

Organizing care for patient convenience and accessibility

- To consolidate related services into centers of excellence where patients can receive care from co-located teams for greater staff efficiency and patient convenience

Sustainability and resiliency

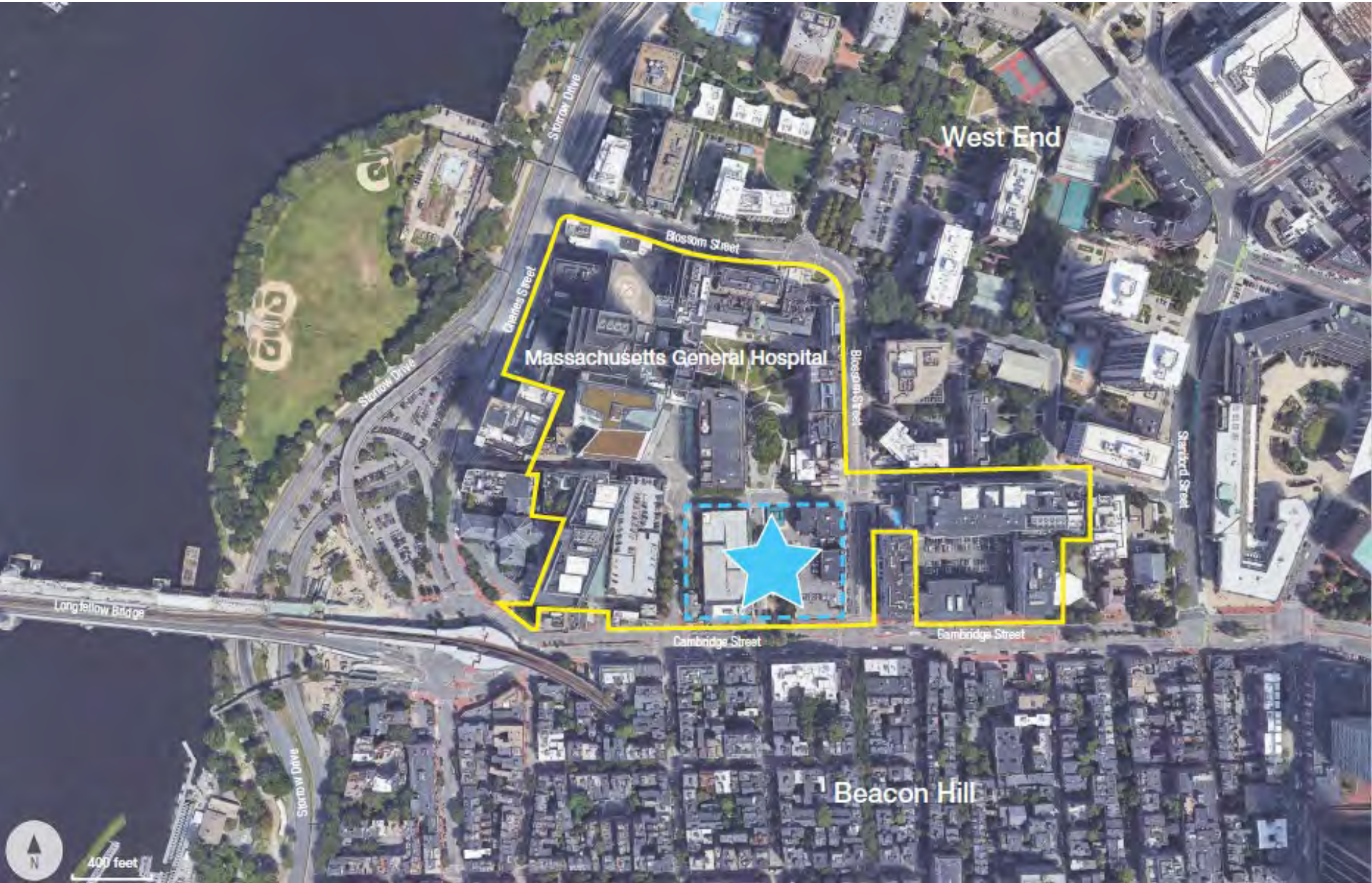
- To remain a vital resource for the city and community and accommodate patient surges from disease or disaster (weather or mass casualty)

Preserving MGH as a community asset for the next 200 years

Proposed Development Site



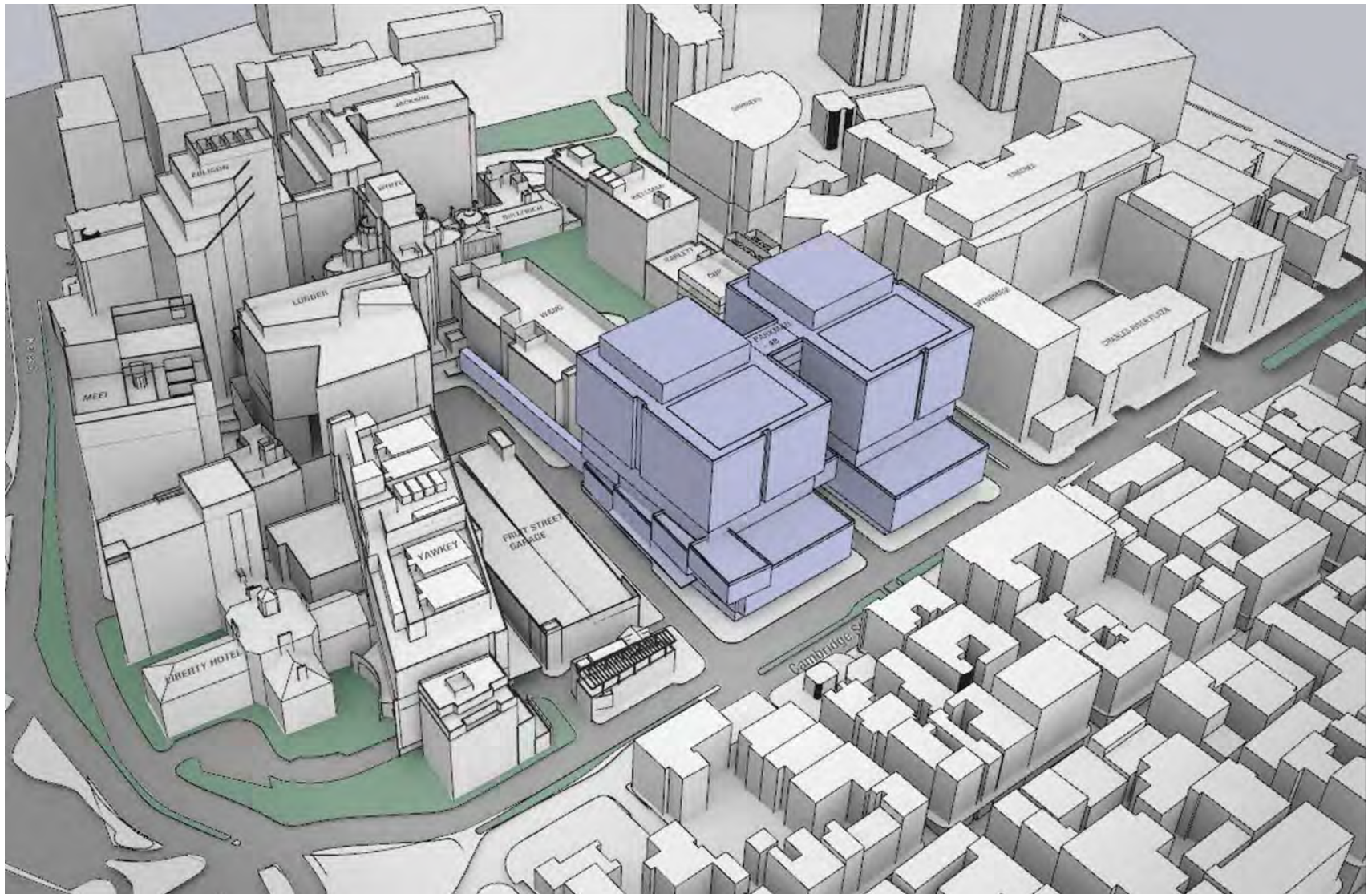
MASSACHUSETTS
GENERAL HOSPITAL



Proposed Project Overview



MASSACHUSETTS
GENERAL HOSPITAL





Funding important programs

- Through DPH fees and City linkages, investment in a new building will mean significant funding for important programs throughout the community.

Economic benefits

- Construction of the new facility will provide about 4,500 construction jobs during the six years to complete the building, and will mean more permanent jobs once the facility opens

Improving the quality of life in our neighborhood

- A well-designed, attractive new facility along Cambridge Street will fill the gap left by underutilized space and improve the street with new/expanded retail activity and urban environment

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- The new building will be designed for sustainability and energy conservation, and will target LEED Gold as a minimum
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- The MGH Russell Museum of Medical History and Innovation will help preserve and showcase the story of the West End through rotating exhibits, and sponsoring presentations as part of its community programming; recognition of the neighborhood will be installed in the public space of the new building



- MGH plans to file the Institutional Master Plan Notification Form in early 2019 and assumes processes required for building approvals will move along in parallel
 - Large project review, Historic Commission, DPH/DON, etc.
- In addition, MGH is launching a capital campaign as philanthropy will be a major source of funding for the project
- Consistent with goal of leveraging private investment for a public good
 - Sustaining/advancing preeminent role of life sciences in Boston
 - Creating employment opportunities in construction and health care sector
 - Expanding on financial and social commitment to community programs for the underserved
 - Improving the quality of life in our neighborhood
 - Preparing for future weather and/or mass casualty events

Community Health Needs Assessment (CHNA)

Boston CHNA-CHIP Collaborative

**Shape the future of
Boston's Community Health!**



The Boston CHNA-CHIP Collaborative

2,500+ Surveys

36 Interviews

10 Focus Groups

Top 5 health concerns of the community (so far):

- Housing quality / affordability
- Alcohol/drug abuse/addiction/overdose
- Mental health
- Community violence
- Environment (e.g., air quality, traffic, noise, climate change)

North Suffolk iCHNA/CHIP

1,400+ Surveys

~45 Interviews

~30 Focus Groups

Top 5 health concerns of the community (so far):

- Alcohol/Drug Use /Addiction/Overdose
- Environment (e.g., air quality, traffic, noise, climate change)
- Mental Health (anxiety, depression, etc.)
- Housing Quality / Affordability
- Aging Problems (like arthritis, falls, hearing/vision loss)



This is a project of the North Suffolk Public Health Collaborative

North Suffolk Public Health Collaborative
- an initiative of the communities of Revere, Chelsea and Winthrop



WE NEED YOU!

Let's make
Revere,
Chelsea, and
Winthrop
Healthy for
everyone!

Revere, Chelsea, and Winthrop are coming together to look at the strengths, challenges, and public health needs of our communities and region.

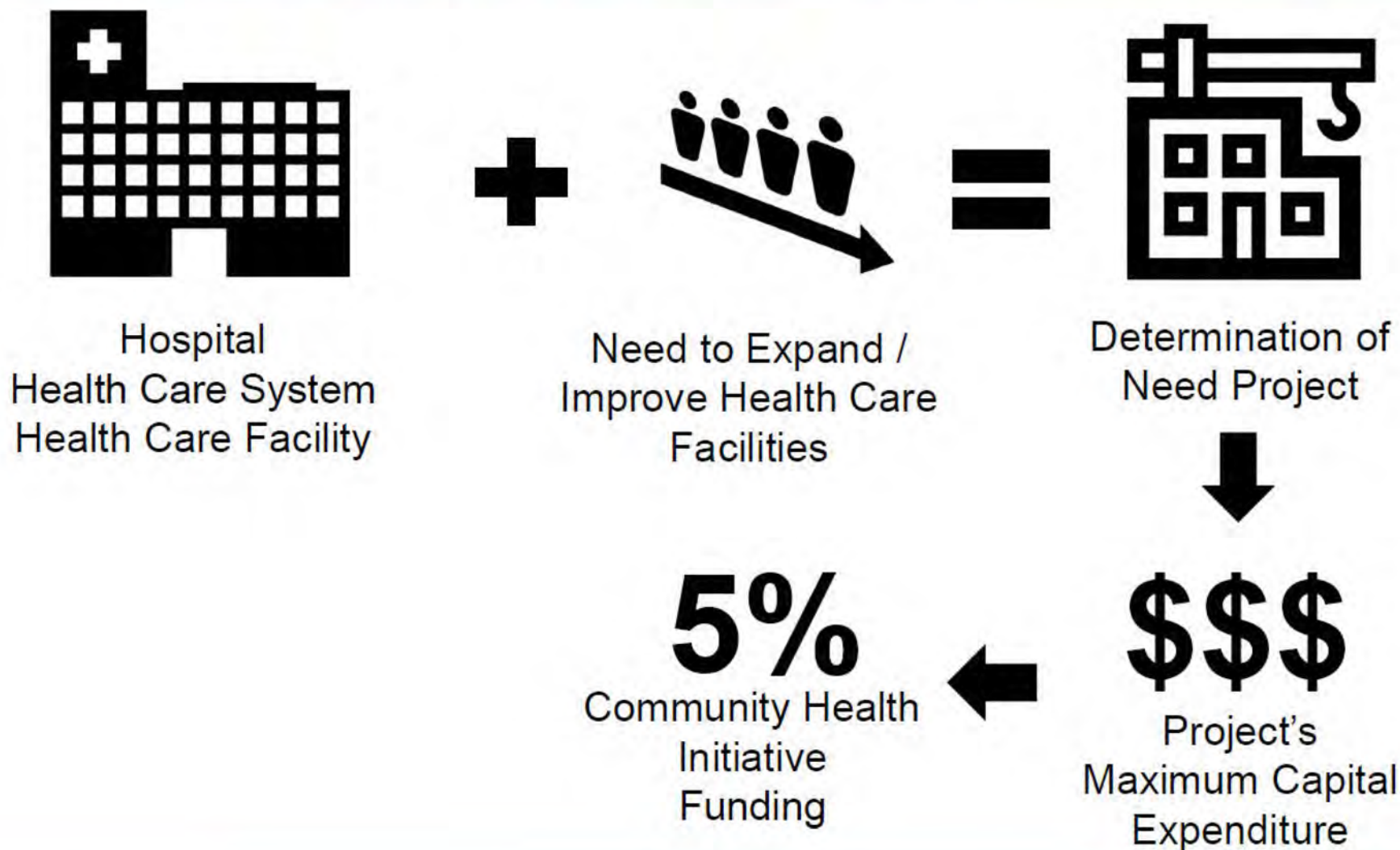
With this information, we can find solutions that work for everyone. But, we need you to share your opinion with us!

Visit www.northsuffolkassessment.org for complete details. You could win a \$50 gift card to Market Basket.

Determination of Need



Determination of Need: Community Health Initiative



DoN

April, 2019

- **Electrophysiology Lab and PT & OT Clinic Renovations, Pet MR, Endoscopy & Emergency Department**
 - Maximum Capital Expenditure: \$113,153,508.00
 - Community Health Initiative: \$ \$5,657,675.40 (5% of Maximum Capital Expenditure)
 - CHI Administrative Fee to be retained by MGH: \$113,153.51 (2% of the CHI monies)
 - Overall CHI Money – less the Administrative Fee: \$5,544,521.89
-
- **Local Funding**
 - CHI Funding for Statewide Initiative: \$1,386,130.47(25% of CHI monies – less the admin fee)
 - CHI : \$4,158,391.42 (75% of CHI monies – less the Admin Fee and Evaluation)
 - Evaluation Monies to be retained by MGH: \$415,839.14 (up to 10% of the CHI Local Funding).
- *TOTAL AVAILABLE FOR LOCAL CHI - \$4,158,391.42**

DoN Funding Requirement Summary

	CHI Amount	Health Priority Selection*	Community Engagement	RFP Process	Admin / State Cost	Timing of Funds Disbursement
Tier 1	<\$500,00	Consult Current CHNA/CHIP, Local Health Authority and Community Benefit Board	Self-Assessment & Stakeholder Assessment Forms	Public funding plan OR RFP process If conducting a RFP process, the RFP must be released within 3 months of approved Notice of DoN	Up to 4% of CHI amount 10% to Statewide Initiatives	Within 3 months of approved Notice of DoN OR Release of RFP within 3 months of approved Notice of DoN
Tier 2	\$500,000 - \$4M	CHI Advisory Committee shall consult the CHNA/CHIP to complete the Health Priority Strategy Form	Self-Assessment & Stakeholder Forms OR Self-Assessment and Stakeholder Assessment Forms, as well as Community Engagement Plan Form	Allocation Committee to conduct a RFP process to be completed <u>within 6 months of an approved Notice of DoN</u>	Up to 3% of CHI amount 25% to Statewide Initiatives	Within 6 months of an approved Notice of DoN OR upon completion of RFP Process.
Tier 3	\$4M+	CHI Advisory Committee shall consult the CHNA/CHIP to complete the Health Priority Strategy Form	Self-Assessment & Stakeholder Assessment Forms AND Community Engagement Plan Form	Allocation Committee to conduct a RFP process to be <u>completed within 12 months of an approved Notice of DoN.</u>	Up to 2% of CHI amount 25% to Statewide Initiatives	Within 12 months of an approved Notice of DoN OR upon completion of the RFP Process

** Pooled funding is now an option for all funds subject to DPH approval*

Health Priorities Must Be Addressed

The Advisory Committee is charged with selecting areas for funding that impact DoN Health Priorities and choose strategies with a focus on the current EOHHS/DPH issues.

DoN Health Priorities

- Social Environment
- Built Environment
- Housing
- Violence and Trauma
- Employment
- Education

EOHHS/DPH Focus Issues

- Substance Use Disorders
- Housing
Stability/Homelessness
- Mental Illness and Mental
Health
- Chronic Disease with a focus
on Cancer, Heart Disease and
Diabetes

**Massachusetts General Hospital
Community Advisory Board Members**

Name	Organization	Geographic Area Represented
1. Amy O'Hara	Captain, City of Revere Police Department	North Suffolk - Revere
2. Barry Keppard	Public Health Director, Metropolitan Area Planning Council	North Suffolk
3. Prabal Chakrabarti	Senior Vice President, Federal Reserve Bank of Boston	Boston
4. Dan Cortez	Community Engagement Specialist, City of Chelsea Police Department	North Suffolk - Chelsea
5. Dimple Rana	Director of Healthy Community Initiatives, City of Revere	North Suffolk - Revere
6. Gladys Vega	Executive Director, La Colaborativa	North Suffolk - Chelsea
7. Grace Lichaa	Director of Healthy Lifestyles, Boys & Girls Clubs of Boston	Boston
8. Jennifer Lo	Director of Office of Health Equity, Boston Public Health Commission	Boston
9. Kim Hanton	Chief of Staff, City of Revere	North Suffolk – Revere
10. Lori D'Alleva	Director of Education, Charlestown Adult Education	Boston - Charlestown
11. Manny Lopes	CEO, East Boston Neighborhood Health Center	Boston – East Boston
12. Rafael Mares	Executive Director, The Neighborhood Developers	North Suffolk
13. Roseann Bongiovanni	Executive Director, Chelsea Green Roots	North Suffolk - Chelsea
14. Tom Ambrosino	City Manager, City of Chelsea	North Suffolk - Chelsea
15. Nancy Martinez	President, Charlestown Resident Alliance	Boston - Charlestown
16. Dianne Curtain	Head Start Director, Community Action Programs Inter-City, Inc.	North Suffolk
17. Dr. Richard Harris	Assistant Dean & Director, Northeastern University	Boston
18. Shawn Brown	Executive Director, Becoming a Man (BAM) Boston	Boston

Appendix 3B3

Patient and Family Advisory Council Meeting Materials

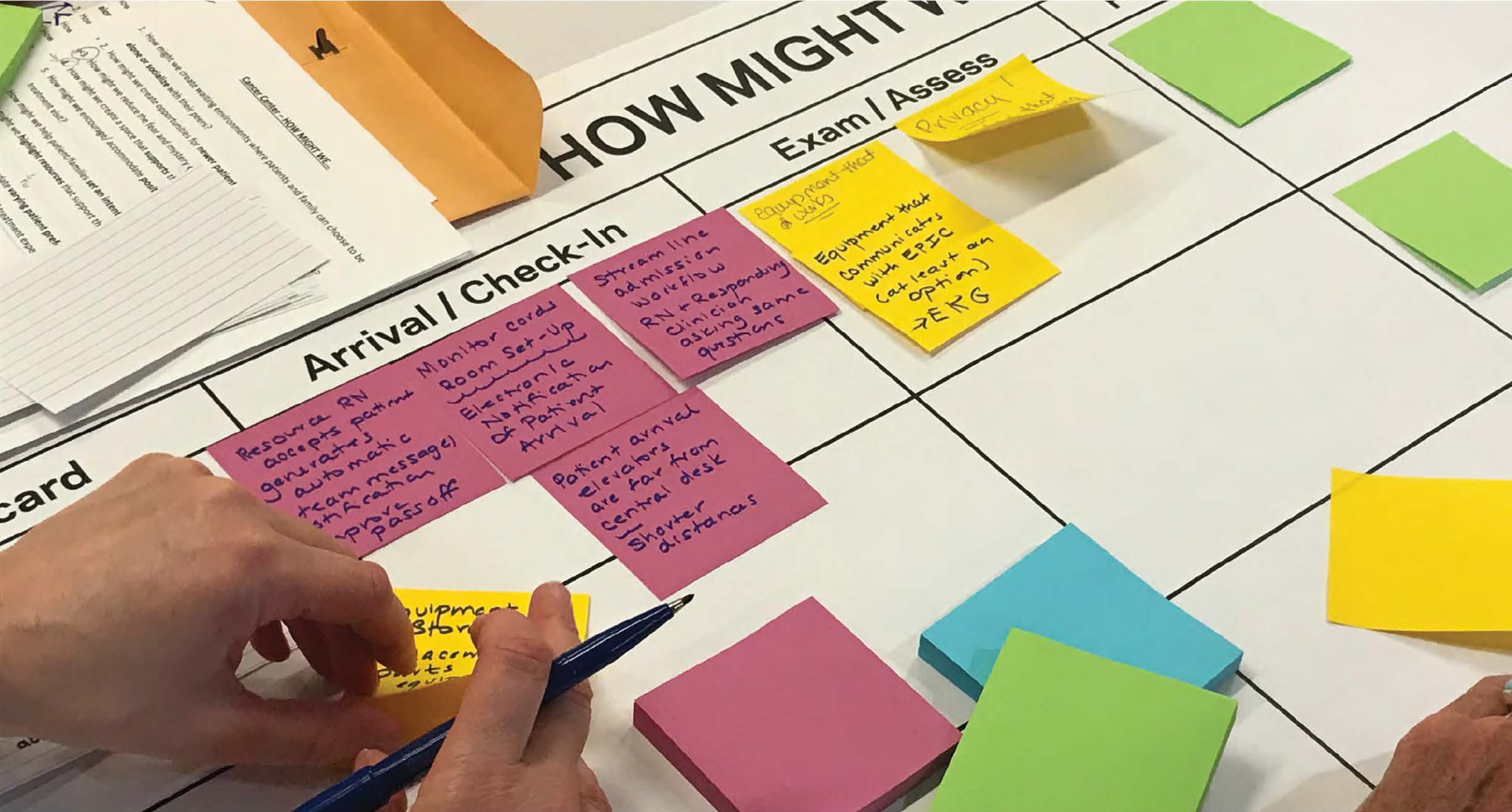
Presentation to PFAC and Staff

MGH Heart and Vascular PFAC (December 4, 2018)

MGH Cancer Center PFAC (December 12, 2018)

MGH General PFAC (January 2, 2019)

MGH Staff Groups (January 2 and 3, 2019)



EXPERIENCE DESIGN IMPLEMENTATION GUIDE

MGH CAMBRIDGE STREET PROJECT | APR 8, 2019

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Staff Needs..... p.10

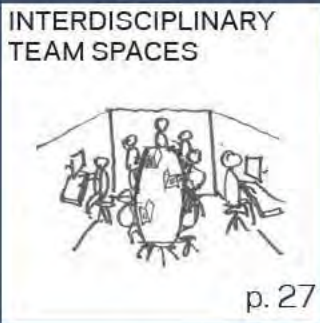
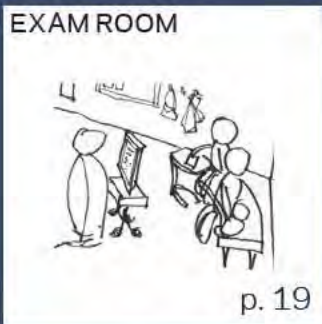
Part Two

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Key Building Blocks



INTRODUCTION

An understanding of the relationship between human-centered design and the experience of stakeholders within the healthcare environment is ever-evolving. For architects and designers, the existing body of knowledge is underpinned by best practices including FGI Guidelines, standards for environmental health and wellness, and evidence-based design. Now that reimbursement and patient satisfaction are tied together, it is even more important to incorporate design features that enhance the patient experience.

The NBBJ Experience Design (XD) team has engaged members of MGH's dedicated staff and seasoned Patient Family Advisory Councils to take a deeper dive into experience for all stakeholders: patients, families, visitors, physicians, clinicians, and staff.

Our effort here is not to reinvent the wheel, but to leverage the Cambridge Street Project (CSP) to:

1. Understand, out of the many design strategies, what matters most; what is most unique to MGH stakeholders as a result of the patient population, culture, and region that requires prioritization.
2. Build on previous knowledge coalesced by PFACs and others to catalyze change through highly engaging and interdisciplinary activities.

This report is the culmination of engagement activities facilitated through the lens of individual experiences by MGH patients, family members, staff, physicians, and leadership. A series of focus groups and workshops generated data that led to specific sets of needs for patients, family, and staff that the Cambridge Street Project must address.

The intent of this Experience Design Implementation Guide is to be a tool for the design team such that the design of the CSP may respond to the specific needs of all MGH populations. MGH leadership may also find this document useful as they work to operationalize process improvements aimed at enriching the stakeholder experience.

HOW TO

Part One of this document features the ethnographic aspects of the Experience Design Process. XD participants generated aiming statements that are meant to be lampposts for the design of staff experience and patient/family experience throughout the life of the project. The Patient & Family Needs and Staff Needs provide the "reasons why". Users of this guide should think of the Needs as equations to solve, and utilize them to prioritize design decisions.

Part Two reports XD findings as Design Implications for key building blocks of the facility. Implications are organized into categories: Programming and Planning; Design; and Opportunities for People, Process, and Technology Interventions. Listings for Programming, Planning, and Design may be used as checklists. Note that all implications, including those phrased as *considerations*, are based on the needs of that population and on direct stakeholder feedback. Interventions listed in the Opportunities sections should be referenced during ongoing coordination with MGH leadership and user groups to explore staffing, process, and technology innovations to further enhance a more holistic and seamless experience.

Part Three provides photographic documentation of workshop activities that contributed to the entirety of this document. Please note that the content of this document encompasses the full breadth of XD information captured during PreDesign, including PFAC Focus Groups, Staff Focus Groups, Generative Workshops, and experience-related data collected during Operational Planning meetings.

EXECUTIVE SUMMARY

Key Findings

Hundreds of design implications and opportunities are outlined in this report; organized by patient space or staff space, and further divided into key building blocks. All findings can generally be categorized into the following families of solutions, ranging from the most basic to the most aspirational. While these categories apply to all stakeholders in grander terms, some apply more to staff than patients, or vice versa. All categories are central to experience, and are therefore, not ranked.

1. **Patient and Staff Safety** - Staff expect the physical environment to support safe, quality care to patients. They need the environment to support their personal physical safety by enabling safe patient handling and by operationalizing effective security. Emotional safety for patients and staff is integral to preventing isolation while supporting good care team relationships.
2. **Integrated** - The healthcare journey feels confusing and disjointed to most patients. Coordinated, efficient care enhances staff experience while improving the quality of patient experience. All staff (even those not designated to a particular unit) needs equal ability to communicate, collaborate, seek social support and learn.
3. **Respite and Nourishment** - Staff are better able to provide safe, efficient, and welcoming care when they are fueled physically and mentally. This is also true for family care partners who often tend to the non-nursing care when present.
4. **Calm** - An atmosphere that emanates calm enables staff to conduct focused work critical to patient care while aiding sleep and rest that patients need to heal.
5. **Supportive** - through:
 - **Dignity** - Designing for physical limitations, not being forgotten, privacy, and hospitality.
 - **Reassurance** - Providing familiarity, consistency, reducing fear of the unknown, normalcy.
6. **Compassionate** - Leveraging design to honor intimacy and facilitate human connections.
7. **Welcoming** - Communicating a desire to help, offering face-to-face interactions, positive distractions, choice, and calm. Treating transitions with sensitivity.
8. **Personalization** - Anticipating and acting on the unique needs and preferences of every stakeholder, providing sense of control, choice of privacy, and communication in understandable ways.

Key Building Block Highlights

ENTRY LOBBY & MAIN CIRCULATION



Human interaction at entry points conveys welcome and reassurance. Provide access to information and resources to reduce anxiety and be responsive to physical limitations of patients and visitors.

CHECK-IN & WAITING



Positive distraction and transparency are critical at these transitions. Enhance connection to the care team, provide guidance for the upcoming journey and accommodate preferences re: community vs. privacy.

PATIENT RESOURCE CENTER



Provide a system for push and pull of information and resources based on the unique needs of every patient. Consider opportunities to enrich community and support whole person health.

EXAM ROOM



Support patient dignity, and reassurance with face-to-face communication. Address isolation and boredom of waiting by providing positive distraction, physical comfort and the ability to interact with "the world outside."

INFUSION



Emotions and preferences vary from visit to visit. Accommodate full spectrum of preferences from intimate privacy to social support through community. Dedicate space and resources for care partners.

INPATIENT ROOM



Positive patient/family experience can be inspired through normalcy. Provide additional level of control and amenity so occupants can operate independently, gather as a family, or work as a team.

CHECK-OUT & SCHEDULING



Check-out and scheduling should feel like forward progress. Eliminate waits or provide value-add amenities in subwaiting. Prioritize privacy for patients and space for their loved ones at check-out desk.

INTERDISCIPLINARY TEAM SPACES



Provide variety of workspace that facilitates quiet/focused, consult, and team work both centrally located and distributed in corridors as appropriate.

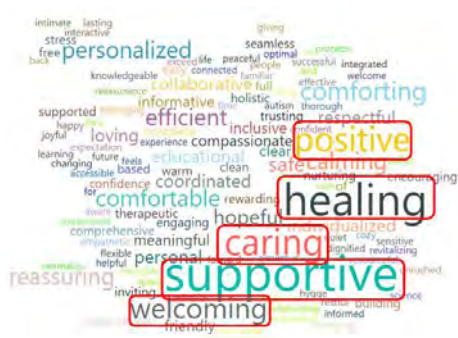
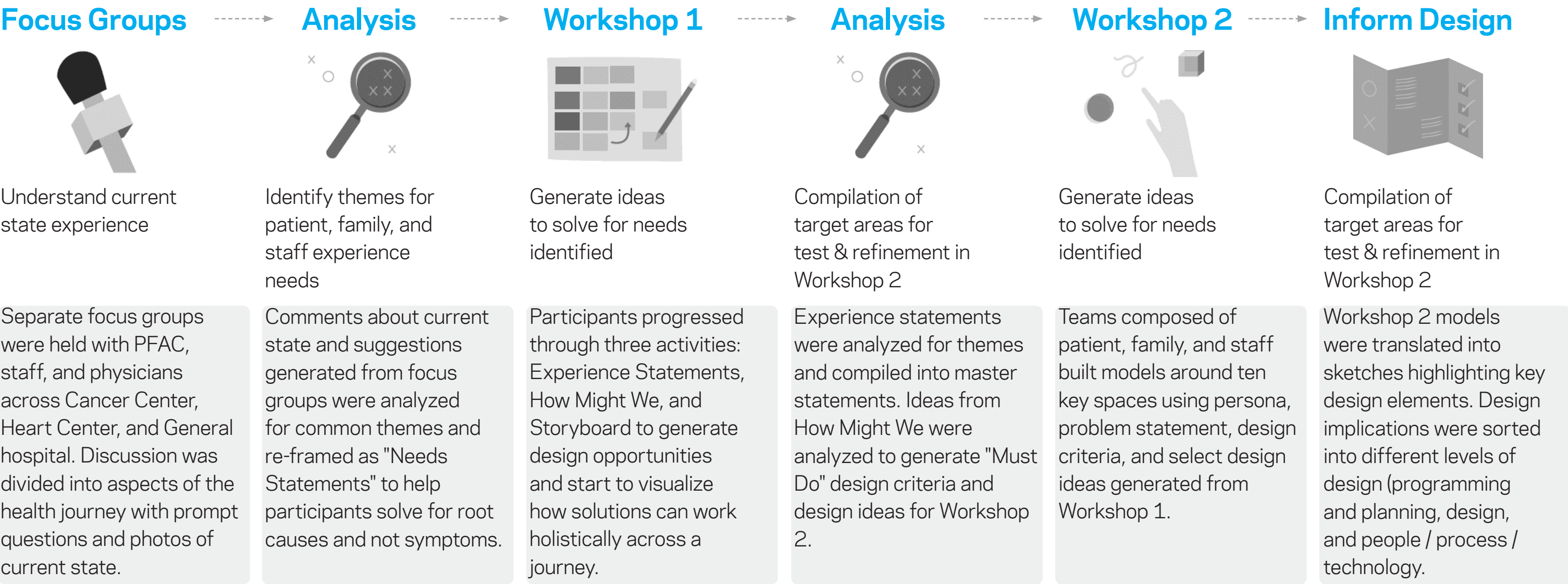
STAFF LOUNGE



Provide dedicated space separate from patient/family flow to allow staff an off-stage respite to eat, socialize, or relax. Atmosphere should communicate calm while also allowing a connection to the outside world.

PROCESS OVERVIEW

The Experience Design team conducted a series of focus groups, workshops with patients, families, and staff. These sessions established an understanding of current state experience and gathered aspirations for future state experience.



PART ONE: NEEDS & ASPIRATIONS

EXPERIENCE STATEMENTS

There are many ways to paint the ideal experience. Participants generated 90+ descriptors for patient & family and 60+ descriptors for staff experience. A single guiding statement was generated through analysis of descriptor recurrence and ranking to inform generative design activity. Regularly revisiting planning and design outcomes against these statements is recommended to stay true to the vision created by experience design workshop participants.



Patient & Family Experience

Create a **supportive** and **compassionate** experience for patients and their loved ones that facilitates a **welcoming** and **personalized** journey that is underpinned by **integrated care***



Staff Experience

MGH supports a **safe** and **positive** work experience that fosters **collaboration**, facilitates **efficient** workflows, and provides moments of **calm**.

*All workshop participants stressed the importance of coordinated, efficient, seamless, safe, collaborative, and comprehensive care as the baseline expectation that leads to positive experience. "Integrated" is selected as the umbrella for all these qualities.

PATIENT & FAMILY NEEDS



1 Social Support and Face-to-Face Communication

Patients and loved ones need to experience strong human connections. Social support from loved ones, their community of peers, care team members, and every interaction at MGH can alleviate isolation and promote recovery. Face-to-face communication with care team members is critical.

"I was impressed with so many people being there that were **focused on me**, and it was a good feeling." - Patient

"It was hard to be comforting. If we had been in a two-person or three-person couch it could've been body to body, you know, **able to put your arm around her**." - Caregiver

2 Information and Resources

Patients and loved ones need access to information and resources along the continuum of care to reduce anxiety and enable engagement in care.

"...Ultimately as a caregiver, you want to do something, and **do something quickly**. You're looking for answers, you're looking for as much as you can get so that you can begin to do something to help out." - Family member

"... The physical space of ... the hub, was known as the resource room... **the sharing of information** that went on there, and the communication of that was something that doesn't get captured in any sort of ... the charting flow" - Patient

3 Dignity

Patients and loved ones need to feel respected and retain their dignity throughout the care journey.

"...**Better johnnies!** ... When was the last time those were redesigned? They're kind of degrading, especially for me. Plus it's really hard to put them on and fasten them." - Patient

"They're kind of hustling so much that it's like, 'Wait a minute, I drove two hours to get here and I'm paying... **can't we talk a little bit?**'" - Patient

4 Familiarity, Consistency, and Routine

Patients and loved ones need familiarity, consistency, and routine throughout the continuum of care to provide safety and reassurance.

"I've got a whole system down because I'm here all the time." - Patient

"There's a **rhythm and a sequence** that adds, through every encounter, **a routine and a stability** and a predictability around how your day is going to flow. And that **helps you to manage** when the unexpected happens." - Patient

5 Reliable Communications and Waiting

Patients and loved ones need clear and reliable communications regarding length and purpose of waiting to ease the fear and anticipation of the patients' status or condition.

"**I found it really frightening**. I really had to psych myself up... and don't let me have to wait because I'm already anxious. It can be overwhelming at times." - Patient

To me, it was actually the ability to get away from the waiting room and to have **confidence that I'm going to be contacted**." - Family member

6 Reassurance

Patients and loved ones need reassurance at every touchpoint and encounter in the journey.

"It's not just the space, but I think it's **how people treat you when you arrive**." - Patient

"When I left they said, 'Oh now you have to go check out, but you'll have to do this and do this, and do this.' **The first time I went I was really kind of lost**." - Patient

7 Calming Environment

Patients and loved ones need a calming environment that promotes rest and wellness through all five senses to reduce overwhelm and anxiety.

"**All this noise that's going on**, a TV is blaring and I'm panicking because I'm going to have this very serious surgery and I want nothing but quiet." - Patient

"To help with the wait there needs to be eye candy or something that's changing - that you kind of get wrapped-up in... motion, color.. And sounds too." - Patient

8 Families' Needs

Patients and loved ones need to feel reassured that you will take care of their families' needs when they cannot.

"In the summertime they **have such a nice outside area** where you can go when the weather's nice... and still be close." - Family member

"Some sort of comfort zone, comfort foods, or comfort nutrition... to share with whoever comes with you; that they can have something they can count on too. **A sense of normalcy, to be able to have something**." - Patient

PATIENT & FAMILY NEEDS

9 Community and Privacy

Patients and loved ones need the support of community at times, and at other times, require privacy and quiet. Needs for the first 1-2 (diagnosis) visits differ drastically from post-diagnosis visits.

"The very first day when I went in there, 'Do not talk to me.' I want to be in a chair, my back against the wall... I don't want to be chatty with some group. **I'm terrified, so just leave me alone.**" - Patient

"I just pretty quickly felt like I had entered a world that was not a world any of us wanted to be in, and yet, there's this real grace and beauty to the way I felt at MGH; this way of **treating community.**" - Patient

10 Ritual and Distraction

Patients and loved ones need opportunities for positive distraction and ritual to reduce anxiety, promote recovery, enable productivity, and support overall wellbeing.

"We stop at the chapel every single time. If it was a good appointment, we usually go back before we leave." - Patient

"There are **little routines that we do**, usually. I don't have anything to eat or drink ahead of time, but he'll always get his coffee... just to calm everybody down, because it's very anxious coming in." - Patient

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11 Responsive to Physical Limitations

Patients and loved ones need environments and resources that are responsive to their physical limitations. How do we treat the patient when we're not treating them?

"By the time I walked to two or three places, I was in a wheelchair the rest of the day." - Patient

"I really am not at all sure that ERs and other places are given training for treating patients with dementia." - Caregiver

STAFF NEEDS



1 Safe Patient Care

To provide safe, patient-centered care to the best of their ability in all care environments.

"We also accompany patients outside of the patient room. Our lives would be easier if we are able to know how far we've walked and have **ability to sit the patient down when needed.**"

2 Efficiency

Efficient processes that reduce repetitive tasks and extra steps.

"I hate having to log-in constantly. Just having the ability to **badge in or use finger print** would make my life so much easier."

3 Focus

The ability to do focused work outside of point-of-care environments.

"When I'm doing meds, I really need to concentrate and it stresses me out when I **accidentally pay attention** to another conversation or when someone approaches."

To easily communicate information to patients and their loved ones during and in-between interactions.

4 Communicate

The ability to manage mass communication to staff in a way that is flexible, professional, and visible.

"My job would be easier if I have **more space to write down** what I need to tell the patient when they are not in condition to talk. Perhaps a larger surface or a smart board."

"We have **made up signs all over the place** and it's unprofessional and feels cluttered. It would be great if we have a way to manage ad-hoc signs."

5 Safety

To feel physically and emotionally safe and secure for their patients and themselves in all settings.

"I feel unsafe with the panic button we have. Have something **physical and reachable.**"

"I am very nervous that there isn't a **call button close by.** Walking the patient in stairwells is part of the regimen. What if he or she falls?"

6 Intimacy

To communicate with patients and loved ones in a way that honors the intimacy needed for sensitive situations.

"I don't like to talk down to patients and would love to be able to **sit at eye-level.**"

The current arrangement [of exam room] doesn't allow me to **sit knee to knee** and worsens both my and the patient's experience."

7 Equal access

Equal access to technology and resources between disciplines and across teams.

"It's **harder for me to communicate** and collaborate with the nurses on the unit because I don't have a Voalte phone."

8 Learn

To collaborate and communicate with immediate and extended team members for knowledge-sharing, mentoring and social support.

"It's **frustrating we don't have a space to really talk.** Especially somewhere away from patients and family. Some of our conversation is not appropriate to have near patients. It's also distracting."

STAFF NEEDS



9 Balance

The ability manage hospitality-like service without impacting efficiency of patient care.

“Food service can’t always be there and we need to *put away the tray to take care of patients*. When you are busy, you might just put dirty trays on the sink and that’s an **eyesore for visitors**”

10 Respite

Physical, mental, and emotional respite away from patients and their loved ones.

“I don’t really have a place to go right now to reset. When I’m on a “break” I’m really not because family could see me and I feel obligated to help. **I can’t truly relax. I feel exhausted and drained.**”

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11 Nourishment

Physicians and Staff need easy access to nourishment from their primary work area.

“Sometimes I just need to have some coffee and **can’t afford the time** to go downstairs. We need to have something close by.”

PART TWO: DESIGN IMPLICATIONS

ENTRY LOBBY & MAIN CIRCULATION



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CHECK-IN & WAITING



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PATIENT RESOURCE CENTER



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EXAM ROOM



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INFUSION



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INPATIENT ROOM



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CHECK-OUT & SCHEDULING



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INTERDISCIPLINARY TEAM SPACES



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STAFF LOUNGE



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PATIENT AND VISITOR EXPERIENCE

The health journey of the patient or visitor begins well before the first time they arrive on campus. However, first impressions and lasting opinions of the care and service at MGH are significantly developed as a result of micro-interactions with the built environment. Anticipating the needs of patients and visitors through space and amenities helps to express the empathy that contributes to whole person health and wellness. Line items in the following section highlight areas of opportunity suggested by patients and family members to insert comfort, familiarity, and normalcy into an experience often fraught with stress, anxiety and confusion.

Implications for Programming and Planning

- Provide access to information via face-to-face communications at information hubs to support positive first impressions and wayfinding
- Public spaces that offer choice and positive distraction through varied seating arrangements, amenity space, and opportunities for personalization
- Places for kids to play and be safe. Color, art, positive distraction
- Locate patient and family spaces next to windows wherever possible to experience the benefits of nature and natural light
- Provide access to outdoors with seating options, walking paths and eating areas to allow opportunities for fresh air, relaxation, de-escalation, etc.
- Incorporate the ability for patients to independently adjust their environments, i.e. lighting and temperature (low vision, light sensitivity) (patients are almost always cold)
- Make lactation rooms available to public use
- Resources for family that provide some normalcy and support the wellbeing of care partners: family shower facility, laundry area, exercise room, luggage storage, on-campus sleeping rooms for out-of-town family members
- Convenient conference space on every bed floor for family conferences and private consults
- Small “waiting” areas distributed throughout the building for families coping with grief
- The ability for patients to have their hair washed/trimmed/styled, whether in their patient room, a salon, or barbershop supports patient comfort and confidence
- Nourishment areas on bed floors that can be accessed by patients and family members for basic beverages and light snacks
- Incorporate alcoves along inpatient corridors to move hallway discussions out of the main traffic flow. Adding a bench or small corner work surface would add flexibility for use by care team, patients, or guests
- Provide family respite space on bed floors, outside of patient rooms
- Consider activity-based patient lounges on bed floors to accommodate programs such as art therapy
- Provide a retail pharmacy on-site for family members’ use and filling prescriptions prior to departure (from outpatient visits or inpatient stays)

Implications for Design

- Wayfinding system that ties together place-making, landmarks, design, technology and signage for intuitive navigation by patients and guests. Consider the needs of individuals with low vision when

selecting colors and determining mounting heights. Clarity from the parking garage/elevators to primary circulation is critical

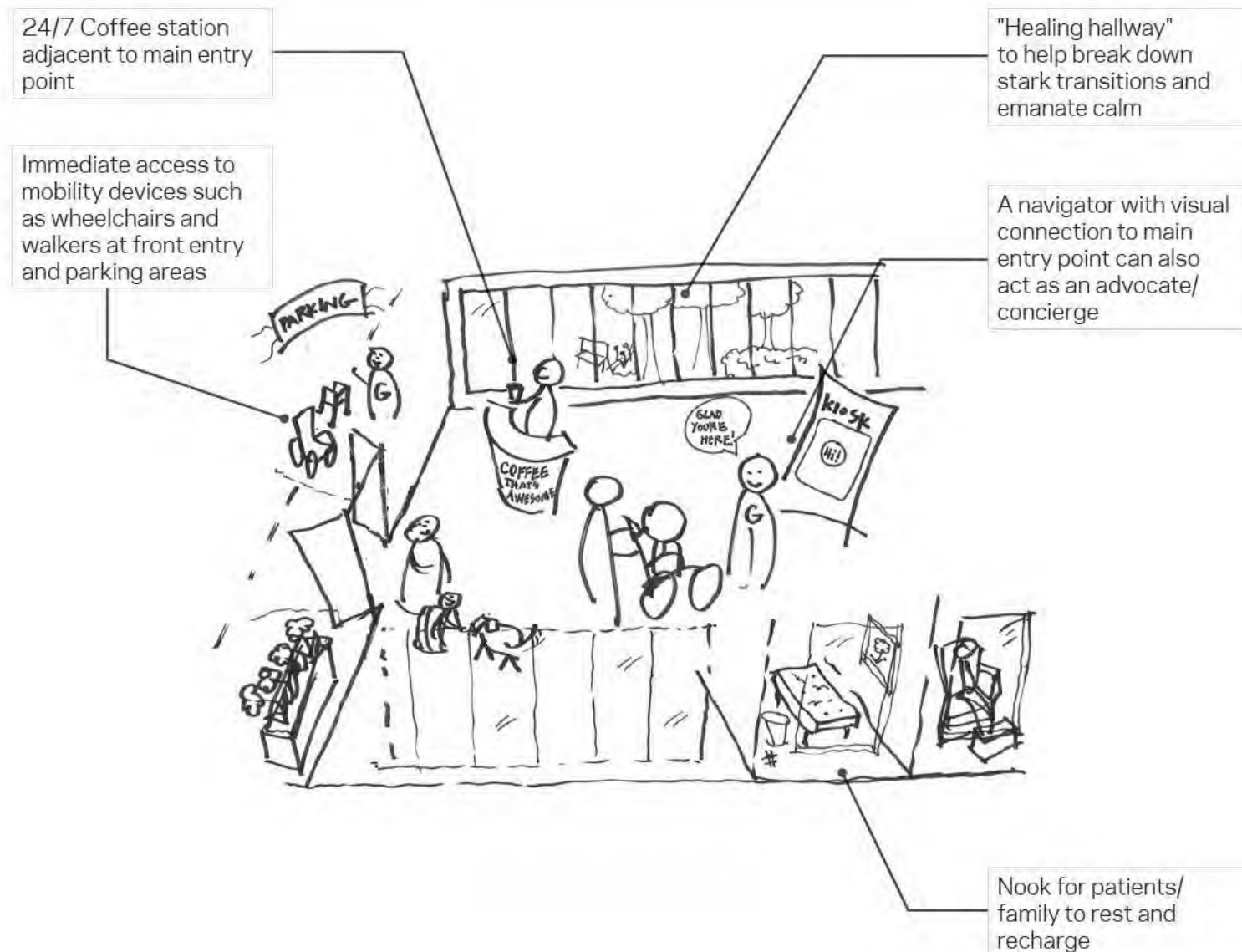
- Digital/ multi-sensory art installations in waiting areas occupies the mind and helps pass time
- Distribute areas for charging of personal devices with access from comfortable seating as well as active waiting areas. Avoid “spaghetti stations” with cords coming out of a single point. These often do not allow individuals to be near to their device, or use while charging
- Apply Universal Design principles throughout the facility to accommodate all individuals with equity and consideration. Explore opportunities to support the unique needs of persons living with spectrum disorders or dementia
- Public toilet rooms with contrasting finishes at floor, counters and walls to assist navigation for individuals with low vision
- Consider how furnishings help or hinder the ability for loved ones to provide support through the element of human touch. I.e. a sofa that allows a loved one to hold and a patient to be held
- Simple gestures such as water bottle filling stations make it easy for family and guests to stay hydrated during long days with their loved ones while potentially reducing the spread of germs

Opportunities for Technology, Process, and People Interventions

- Assign each patient a greeter prior to their visit to campus
- Valet at entry and places to wait for ride-shares (Uber/Lyft) (valets should be able to drive standard transmission too)
- Greeters in parking garages to assist patients with wayfinding and mobility needs
- Offer cell-phone-free zones in waiting areas for dedicated quiet space
- Provide headsets for music or meditation in a quiet room setting
- Offer a variety of healthy food options; from multiple venues to offer variety for patients and family, especially during long stays

ENTRY LOBBY & MAIN CIRCULATION

The arrival and entry sequence sets the tone for patient and family experience. Entry points, lobbies, and main circulation spaces impact the health journey before, during, and after every visit to campus. Therefore, it is critical for these first-impression spaces to communicate calming reassurance, reduce overwhelm and anxiety; enable seamless navigation; provide access to information in all languages; and respond to physical or developmental limitations of all stakeholders. Since staff also utilizes these spaces, appropriate levels of separation and interaction between staff and public should be examined. In addition, opportunities for enriching staff experience should be explored.



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Implications for Programming and Planning

- Incorporate **clear wayfinding** to/from parking
- Provide **immediate access to mobility devices** such as wheelchairs and walkers at front entry and in parking areas
- Provide **clear direction to assistive resources** and for individuals requiring visual, audio, and translation assistance. Storage for assistive devices needed
- Help transition users from overwhelm to joy and calm through areas or **stations that support therapy pets**
- Provide a **navigator position with visual connection** to the front doors. This role could help patients and families understand where they need to go, but also act as an advocate and concierge for whatever the patient / family member may need
- 24/7 access to **good coffee and healthy refreshments** with close adjacency to main entry point and waiting areas
- Position **amenities for nutrition, wellness, social, and spiritual support** toward main entry point for ease of wayfinding, and to contribute to positive rituals and routines
- Incorporate **areas or short-stay rooms for private discussion and phone conversations**
- Incorporate areas for quiet respite adjacent to main entry, circulation and/or waiting spaces
- Incorporate **areas for visiting children to safely play** with positive distractions that assuage fear and anxiety related to visiting family members

Implications for Design

- The “front door” of the facility should **emanate calm**. Consider exterior and interior landscape, “healing hallway”, and other ways to break down stark transitions
- Incorporate **Universal Design** characteristics throughout, and most especially in all public areas, circulation and wayfinding systems
- Entry design that is calming to the nerves and senses
- **Bring the outdoors in**, create interior “gardens” and “healing hallways” and/or walls
- Provide avenues for **direct access to the outdoors**, where possible
- Ability for patients, visitors, and staff to **charge personal devices** from everywhere
- Consider **tiered lighting** controls in appropriate rooms that are adjustable to occupant and furnishings that support a posture of repose
- Provide wayfinding and amenities that allow people of **all cultures and ethnicities to feel welcome**
- Incorporate furniture that **allows patients and loved ones to sit side-by-side**, such as a sofa or settee to benefit from the comforting aspects of human touch
- **Locate screens at eye-level** to seating for comfort and ergonomics
- Consider ways to **avoid or manage blind corners**, such as parabolic mirrors
- Carefully **curate locations for artwork**, stationary and kinetic, that serve as positive distractions as well as **landmarks** for wayfinding

Opportunities for Technology, Process, and People Interventions

- Post a greeter at self-park areas
- Assign a greeter to each patient prior to/at admission or entry
- Multi-modal kiosks in main entry area or other tech-based method to decrease wait times while supporting the patient and family experience by:
 - Automatically informing MGH departments that their patients have arrived on campus so that they can personalize aspects of their experience and prepare rooms and resources for their use. (i.e. Advanced notice to pharmacy/ IV Prep, Clinic Check-ins, Patient Resource Center/ Disabilities Services, Transport, Valet)
 - Show patient expected wait times as they walk in and before they traverse to their destination so that they can adjust plan as necessary. This might be especially helpful for patients (and care partners of patients) living with disabilities
 - Display facility map and travel route to patient’s destination
 - Accommodates use by individuals with limited mobility, low vision, hearing impairment, language barriers
 - Displays answers to frequently asked questions
- Consider having some powered wheelchairs for patients or family members to use during their visit
- At food-based amenities, include multi-lingual staff members to assist ESL (English as Second Language) individuals with ordering

CHECK-IN / WAITING

Patients and loved ones may experience the full spectrum of emotions within check-in and waiting areas throughout their continuum of care. Check-in staff are known for building strong relationships with patients, and in turn, patients look forward to seeing their friendly, familiar faces. Patients notice and appreciate quality service and attention to detail from these individuals, especially on days they are experiencing negative emotions such as fear, isolation, and anxiety. Check-in and waiting areas must honor intimacy and privacy while also enabling community and social support. Touchpoints should accommodate physical limitations, offer opportunities for personalization and provide amenities that enable positive rituals. Add value to this point in the health journey via positive and productive distractions that focus on supporting the fragile mental state of patients during their first few visits.

Clearly communicate wait times

Check-in desks to provide visual and acoustic privacy while communicating compassionate welcome. Consider organic shapes that "hug" an individual and incorporating nature to simulate the therapeutic benefits of healing gardens

Develop design strategies for "the wall" between waiting and assessment areas that add transparency, incorporate positive distraction and minimize the physical transition of passing from one zone to another

Additional wait time screen

Resource / education desk to provide information and additional support. Place in location with high visibility increases access

Healthy snack station

Variety of seating for different sized groups

Area that displays images of care teams to build familiarity and welcome patients

Re-frame the "wall" as an informational wall to draw attention away from it as the barrier between waiting and the clinical space

Colored light indicators to signal availability of check-in desk

Entry to clinical space oriented to be out of sight of waiting area as much as possible (perhaps using quiet area's wall as a barrier) to not draw attention to patients entering and exiting the clinical space

Quiet area with individual (but movable) seating. Area surrounded by walls with gaps for entry. Door is not recommended to reduce the notion of segregation. Enhance acoustic privacy with water feature or other methods

Locate waiting areas adjacent to exterior windows and views where possible. Direct/ open access to corridors can improve wayfinding. Ensure that areas can be secured after hours to protect PHI and equipment

Implications for Programming and Planning

- **Waiting area open to public corridor** and exterior windows to allow open feeling. Provide security measures to check-in areas and equipment as required during off-hours (e.g. retractable wall)
- Provide a **clear and identifiable area upon entry before check-in desks** to house a patient navigator or greeter. Human interaction is important in the first steps of the journey to communicate welcome and respect. This person can also direct patients and family to the clinic if pre-checked-in or to resources in the area
- **Check-In desks should be oriented length-wise** to provide various levels of accessibility and privacy
- Provide **variety of seating options** to accommodate preferences for privacy and community
- Consider **co-locating ancillary testing services** with clinic spaces so that patients don't have to make multiple stops before they leave campus (blood draw, POC testing, Holter monitor checks, EKG). Minimize back and forth travel between clinic and waiting area
- Locate a **resource center / genius bar** central to the area to provide equal access to patients from check-in or waiting. It can also act as a self-serve genius bar with literature, computers, print station for patient education
- **Clinical space entry oriented to be out of sight** of waiting area as much as possible (perhaps using quiet area's wall as a barrier) to not draw attention to patients entering and exiting the clinical space. "Not in the line of fire"

Implications for Design

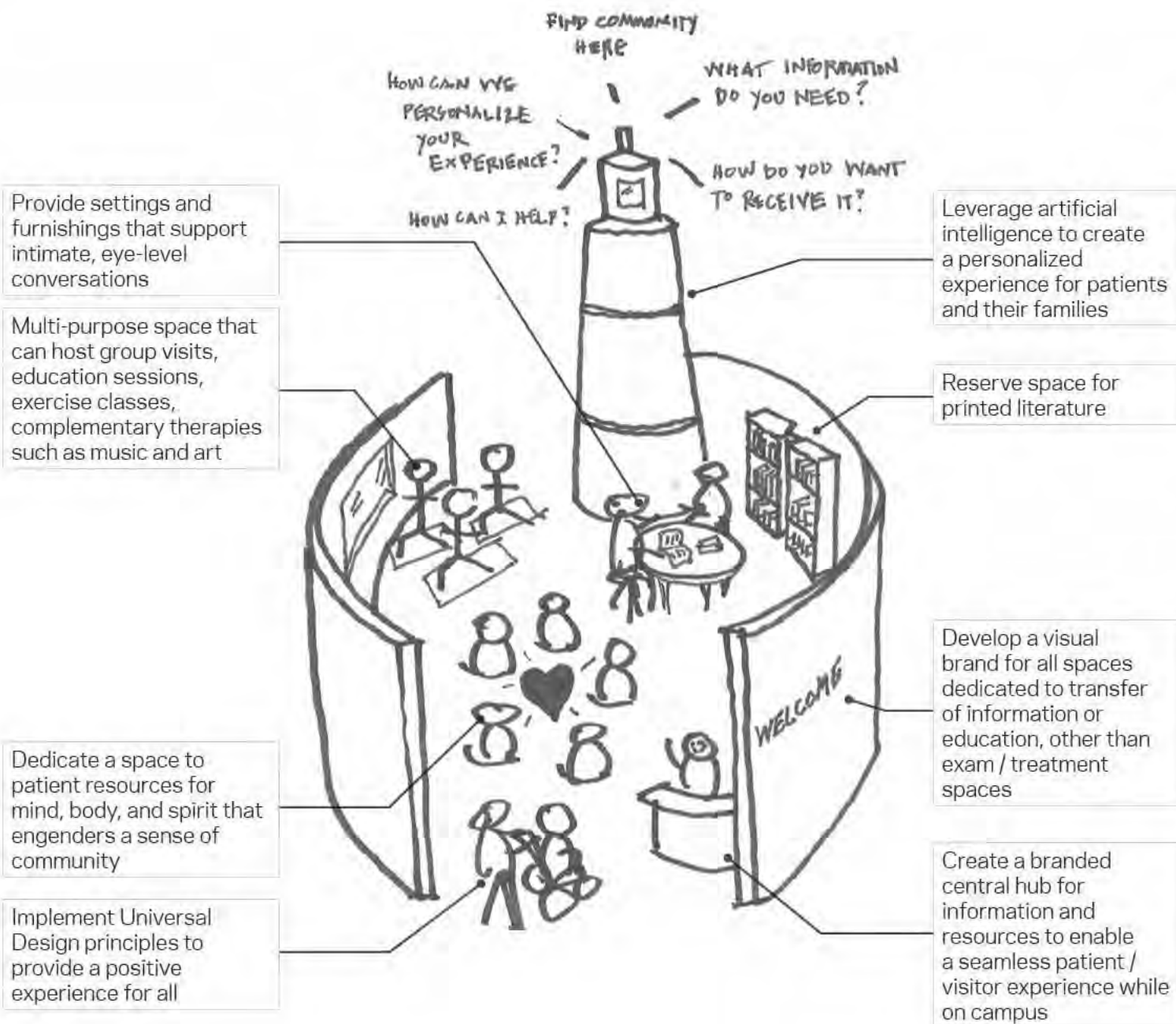
- Consider **check-in desk shapes, arrangements, or physical barriers** (perhaps with nature) around each patient to communicate a respect for intimacy, privacy, and welcome
- Consider materials and methods to **acoustically disguise noise and private discussions**, such as natural sounds or white noise
- Include **artwork** throughout, including **three-dimensional** media that engage the viewer
- Include seating options that allow individuals to **sit side-by-side** and benefit from the healing aspects of human touch
- Consider ways to **add transparency to the wall** between the check-in/waiting area and the clinical area to reduce the fear and mystery of patients' first visits. For instance, though not practical in this situation, a wall entirely made of a tropical fish tank would add positive distraction and transparency at the same time
- Engage lighting strategies that **provide equal light levels on both sides** of the waiting room "wall" to avoid a perception that patients are going from the light (check-in/waiting) to dark (assessment and treatment area)
- Resource desk can be circular to signal equal access from both sides of the area
- **Integrate nature**, such as living walls, into the check-in environment to evoke a healing garden
- **Avoid glare, fluorescent lighting**; incorporate adjustable LED lighting with higher light levels for task areas and lower light levels for relaxation
- **Wheelchair-height accessibility** at check-in desks and the Resource Center / Genius Bar
- **Access to power outlets/USB ports** for charging devices from all areas of passive and active seating
- Incorporate ways to **partition-off areas** in waiting room based on quiet vs. community preferences. Careful as not to provide too much separation (i.e. doors) such that areas are segregated into "haves" and "have-nots"
- **Water/movement features** in relaxing portion of waiting room sectioned-off from other area to drown out other noise and activity

Opportunities for Technology, Process, and People Interventions

- Create a digital solution that brings up pictures of your care team as you check-in
- Consider a pager-type system, or a device to call patients when they are ready to be brought back to the clinical area
- Post monitors that give waiting times for each provider at check-in and waiting
- Create a customer-friendly conversation template for interactions with patients at welcome and check-in
- Furnish complimentary healthy snacks in waiting with options for all dietary restriction. Consider offering snacks at check-in desks to build human connection and better control consumption
- Signal lights (red and green) at entry to let patients in queue know when the next available check-in booth is available – preserve privacy
- Resource center / Genius bar with computer/ipad terminals and printer to print out information
- In addition to power at seats, provide a centrally located charging station for patient/family without cords
- Informational/Entertainment wall/ monitors with traffic, weather, and educational information

PATIENT RESOURCE CENTER

The new approach to a resource room takes a universal, multi-specialty approach to information access. This multi-pronged strategy blends a (1) physical presence on campus for patients and family who seek knowledge or community with a (2) high-tech vision of pushing information out to patients based on their individualized needs and preferences, and (3) smaller scale hubs at high-visibility entry points and waiting areas for in-person inquiries regarding on-campus assistive device options, wayfinding, and general information.



Implications for Programming and Planning

- Explore opportunities for a physical space that engenders a **sense of community** amongst patient populations. Provide flexible/ multi-purpose space that accommodates group education, fitness classes, art therapy, access to digital and analog information, information regarding support programs, integrative and complementary medicine and social workers
- Consider a physical space that acts as a **resource hub** for patients requiring assistance and/or devices for mobility, low-vision, hearing impairment, and translation
- Locate a **central information hub** with high visibility from main entry points for basic information, customer service and wayfinding
- Consider **kiosks and "Genius Bars" throughout campus** and convenient to visitor use
- Accommodate **storage of physical resources** such as hearing aids, reading glasses, iPads, or other personal digital devices, with a **distribution point** that is convenient and visible to patients and visitors
- Accommodate **space for a librarian or health educator** to have intimate, eye-level conversations that is supported by technology for viewing images and information

Implications for Design

- Develop a **consistent visual brand** connecting central resource hubs with satellite outposts around the medical center so that they are easily identifiable to all
- Provide a space that is **accessible** for levels of mobility and assistive devices
- Incorporate signage and wayfinding that are clear and visible for persons living with **disabilities** or who **do not understand English**

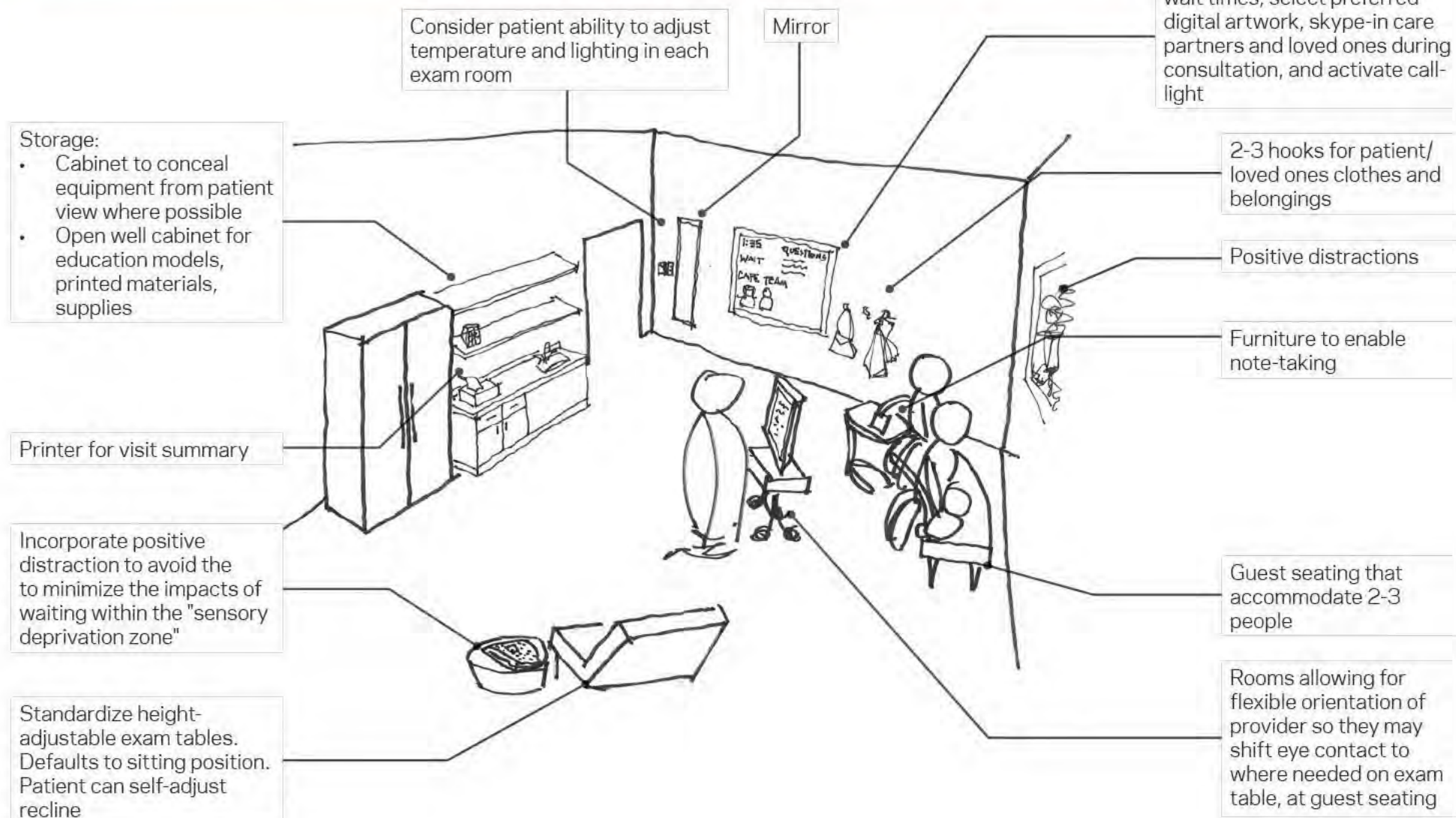
Opportunities for Technology, Process, and People Interventions

- Study opportunities for patient/family **access to information** in a manner that is **personalized** to their needs and preferences at any point in the health journey
- **Capture within the medical record** the patients' needs and preferences for communication, visitors, information, diet, spiritual care, assistive devices, language, etc and **operationalize application** into aspects of outpatient/inpatient stay
- Consider resources that spearheads **information gathering and dispersal** for patients related to their health condition, resources available at MGH, and complementary and integrative options for holistic care and wellbeing
- Consider **routine tours** for new (Cancer) patients that outline support resources and identify key facilities and amenities on a return visit after their diagnosis visit; not that same day
- Innovation: Consider a solution for **shareable personal devices** (like iPads) that provide instant, personalized information throughout campus, both inpatient and outpatient spaces
- Innovation: For use as part of the scheduling process, create a survey tool or process prior to patients' initial appointment/visit to MGH that captures particular needs and preferences Patients might be prompted to provide information regarding:
 - Preferences on how and where they like to receive information (what medium)
 - Preference to have information pushed directly to them
 - Particular personal support services required (translation, visual impairment, mobility)
- Innovation: As part of the scheduling process, develop a script to alert patients of available support services relative to their condition. This information is sourced via AI; matching the diagnosis/history from the medical record
- Innovation: Leverage AI to push information to patients that is personalized and relevant to their own health journey, as well as pull preferences for future personalization

EXAM ROOM

The Exam Room of the future must accommodate safe, quality care with a focus on patient education and engagement. Traditional clinical process and space may cause patients to feel that they are waiting in a sensory deprivation chamber as they await their provider. Uncomfortable gowns, sterile decor and the absence of positive distraction gives a patient nothing to do but wonder how long they will have to wait. An ideal exam experience will revolve around patient comfort, familiarity, and empowerment. A setting that enables patients to be an active participant in their care can increase comprehension and retention while building strong relationships with the care team. A face-to-face dynamic engenders mutual respect for truly person-centered care.

Special consideration should be given to the types of visits conducted in an Exam Room. For visits involving delicate conversations with patients and a loved one, the use of a small consult room provides the intimacy this situation deserves. For multi-disciplinary treatment planning sessions and family conferences, consider a conference-like setting where patients and providers are around the table together as if they were teammates.



Implications for Programming and Planning

- An exam room is not appropriate for all types of outpatient visits from a patient experience perspective. Incorporate **consultation rooms of various sizes** that allow providers to communicate sensitive information in an intimate setting. Give the patient "a seat at the table" in multi-disciplinary treatment planning sessions to inspire hope, confidence, and empowerment for their journey ahead. Smaller rooms should accommodate 4 - 5 people; treatment planning can range from 8 - 12+ people, depending on number of specialists and family members present. Incorporate technology to virtually include remote team/family members into discussions.
- Provide **seating for three** people in exam rooms so patients do not have to sit on the exam table if they bring two family members to their visit. Alternatively, provide two chairs with space for a third, and nearby folding or stacking chairs to bring in when needed
- Consider furnishing a fraction of the exam rooms with **treatment recliners in lieu of exam tables** for improved patient experience for visits not requiring an exam
- Provide **doors wide** enough to easily accommodate stretchers and wheelchairs. Consider a sliding door or swinging door with a leaf to minimize impact of door swing on the room design
- Provide **storage** cabinets to conceal equipment from patient view, as appropriate
- Supply storage: Consider a base cabinet with 2 drawers & 2 doors; open upper shelving; counter space for prep and hand-washing sink. Open wall cabinets provide flexibility for educational models, printed materials and supplies, should the room change service lines in the future
- Consider **privacy curtains**; patients welcome this level of privacy when they are accompanied by a loved one but wish a higher degree of bodily privacy
- Consider including a small number of rooms that have **additional square footage** for larger families, with space for an additional guest chair. Three chairs for family/patients
- Arrange the room and furniture to enable patients and family members to **take notes** during their visit
- Provide **quiet documentation space** for physicians proximate to exam rooms

Implications for Design

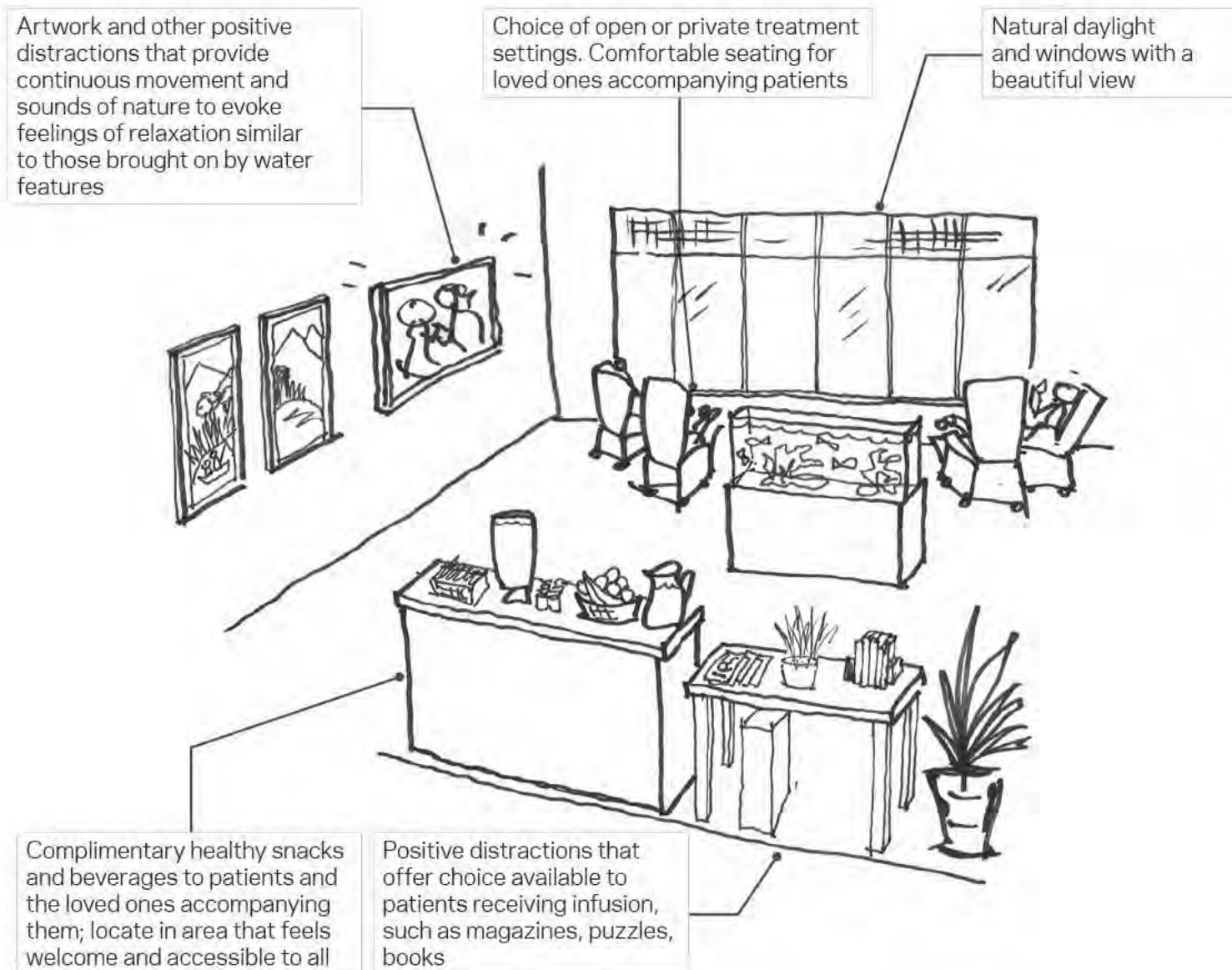
- **Temperature controlled by patient** in every exam room
- Furnishings and layout that **supports face-to-face, eye-level conversations** between patient, family, and care team members
- Provide areas for **patient clothes and bag storage**. It is not unusual for two guest chairs to be occupied, and the coat hook is used for a winter coat. Provide a minimum of three hooks, within the patient zone, and consider other surfaces such as a small end table or shelf, where patient belongings can be stowed off of the floor
- Thoughtful placement of wall-mounted accessories and information so that there is **nothing behind patient's back/head**
- Incorporate **positive distractions** into the exam room via artwork, digital screens where patients can choose their own art, music, interactive education, reading materials
- Provide outlets for **charging of personal devices** by guest chairs and exam table. Consider a shelf or surface for devices to be placed while charging
- Consider **color** for the wall surfaces in the exam room to reduce the sterile "hospital" feeling commonly associated with white
- Design an **adjustable lighting** scheme that provides patients with controls for preferences
- Include a **full height mirror** to allow patient to check appearance before leaving room
- Run exam room walls to deck for rooms that honor patient privacy

Opportunities for Technology, Process, and People Interventions

- **Standardize on high-low exam tables** for ideal flexibility, accessibility needs, and patient safety
- Provide a **large adjustable monitor** on wall for provider to share images and information with patient
- Incorporate a **workstation on wheels** rather than fixed documentation area so provider and care team members can move around room to have face to face conversations with patients and family. This WOW can also push images to the large wall monitor for easy sharing
- Consider what level of **patient education materials** should be placed in every room, and best storage solution for selected materials
- Include **speakers and music** selection system for patients while waiting
- **Improved Johnnies** that promote patient comfort and dignity
- Innovation: Large wall monitor (with adjustable mounting hardware) could be a touch screen that acts as an **interactive communication tool** between patients/families waiting in the exam room with the "world outside". Bring up self-serve educational material, view wait times, select preferred digital artwork, Skype-in care partners and loved ones during consultation
- Innovation: If patient has been waiting longer than what is shown on screen, patient can press a button that lights up a green or yellow **light outside the room to alert staff**
- Innovation: Design or locate an **exam table that starts in chair position** that a patient can easily sit down in (and not simply a typical exam table with back reclined). Provide controls for back reclining that can be accessed by patient (recline only; not height, which would be adjustable by care team only)
- Innovation: **AI voice-activated** software in every room allows occupants to ask a question out loud, and AI records the list of questions to be addressed when provider enters room. Or for more generic content, AI can push automatic education content to monitor for occupants to view while waiting for provider to enter
- Innovation: Convert some or all walls into large digital screens where images or colors can be projected according to patient/ family preferences

INFUSION

Patient and family choice and preferences are amplified in infusion because of extended time spent in one place. Many of the design precepts for Waiting areas are applicable to Infusion: provide choice of treatment space with varied levels of privacy; create opportunities for patients to socialize and build community; incorporate natural light, views to outdoors and positive distractions; and include space for loved ones to accompany the patient during treatment. Patients choosing [or requiring] a private treatment room are at risk for feelings of isolation and fear of being forgotten. Visibility to care team members, proximity to open infusion, and views to outdoors are important tenets to ensure a positive patient experience. It is critical to recognize that patients may choose a different setting for infusion at each visit, based on their physical, social and emotional needs on that particular day.



Implications for Programming and Planning

- Infusion areas that provide patients with a **choice of open or private treatment** setting, depending on their feelings, which may vary per visit
- Consider arrangements of open infusion areas that allow for patients to socialize with one another
- Consider **adjacencies between private infusion rooms and nurse work areas** that prevent patients feeling isolated
- Consider providing **direct access to the outdoors** from the infusion area where patients might take a walk through a healing garden or get some fresh air
- Consider **adjacency of blood draw** to infusion / infusion waiting to cut down on patient travel distances

Implications for Design

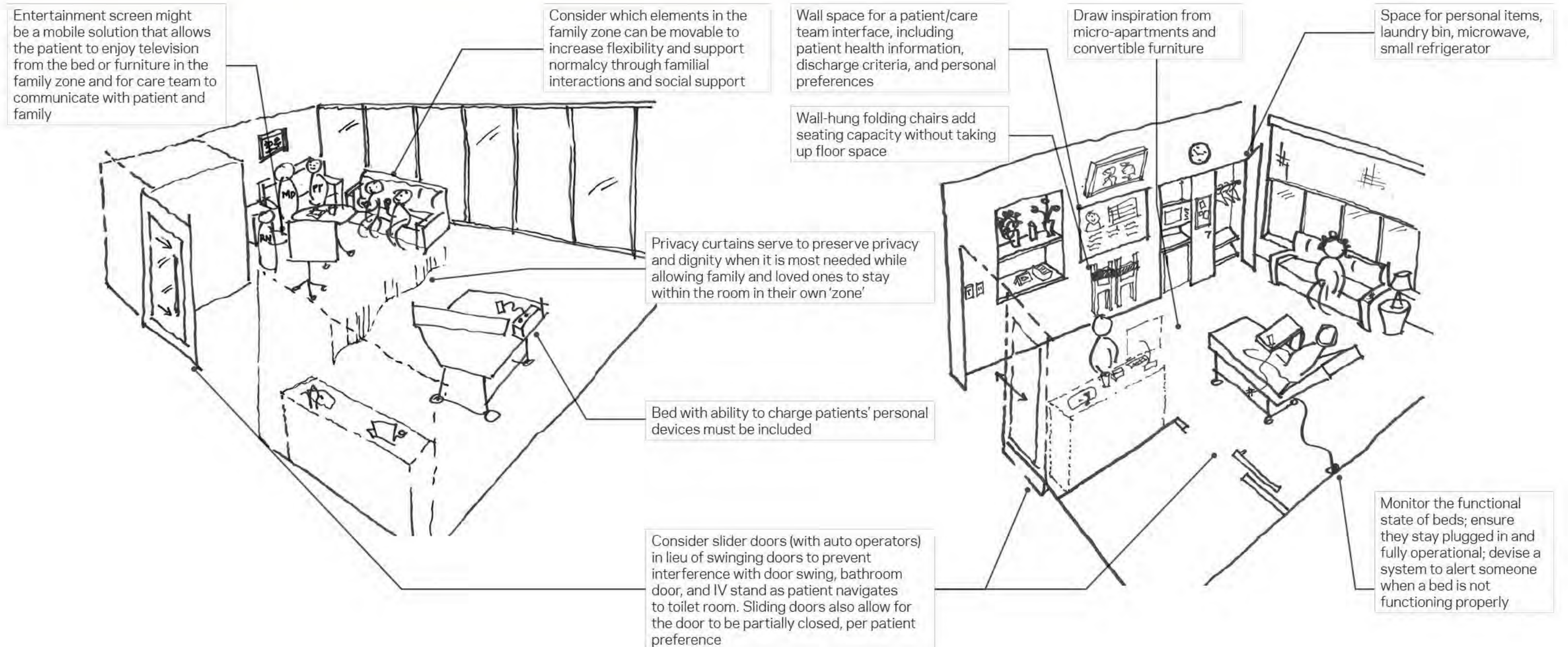
- Create a **calming, spa-like** atmosphere with colors, textures, lighting, and furnishings that soothe the senses. Incorporate adjustable lighting and give patients control over the lighting in their immediate treatment area. Provide window treatments that control glare, while allowing view. Consider window treatments with room darkening capabilities, especially in private infusion rooms
- Provide access to **charging** ports at each infusion station and in waiting areas
- Private infusion rooms should have **windows** where possible
- Consider **positive distractions** that provide continuous movement and sounds of nature to evoke feelings of relaxation similar to those brought on by water features
- Display **artwork**
- **Natural daylight and windows** with a beautiful view
- Consider **design features on the ceiling** plane so that patients can lay back and still have a pleasant focal point, such as Sky Factory back-lit panels or suspended kinetic artwork
- Provide comfortable **seating for loved ones** accompanying patients, who may be there for many hours. In private infusion rooms, consider lounge seating or recliner

Opportunities for Technology, Process, and People Interventions

- Positive **distractions that offer choice** available to patients receiving infusion, such as magazines, puzzles, books. Consider locating in a central area to promote patient interaction for those who want the chance to socialize
- Consider location and options for TV to accommodate those that wish to watch, and those that want quiet; perhaps with headphones that can connect to TV or music
- Offer complimentary **healthy snacks and beverages** to patients and the loved ones accompanying them; locate in area that feels welcome and accessible to all
- **Manage patient expectations** when assigning to a private room if this does not match their current acuity or preference. Patients and family members can feel isolated or feel anxious about being placed in the "sick" room if they are not feeling particularly unwell

INPATIENT ROOM

Patients expect the modern patient room to support healing, recovery, and access to high-quality care. Seasoned patients and families now realize that a true healing environment is one that promotes normalcy and a sense of control so they can build the hope and confidence needed to fully recover and transition to their new normal at home. As such, patient rooms should offer possibilities for patients and their loved ones to comfortably interact with features of the room as they might at home. Create opportunities for those everyday micro-interactions experienced at home in the living room, kitchen table, work space and bedroom. Maximize flexibility in furnishings and fit-out to enable personalization of space and eye-level communications between patients, loved ones, and care team members.



Implications for Programming and Planning

- Provide more rooms (than current state) with the ability to **convert from positive pressure to negative pressure** to accommodate swings in census
- Maximize **access to daylight and views**
- Orient **towards exterior windows** to maximize healing aspects of natural light and views to nature with a balance for staff visibility
- Include **wide doorways** to support ease of patient transport
- Include **wall space for a patient/care team interface**, including patient health information, discharge criteria, and personal preferences
- Study **furniture arrangements in the family zone** to support normalcy and extended family presence. Could there be two sofas instead of one? Could there be comfortable lounge seating for guests instead of smaller scale guest chairs? What helps family members feel most comfortable so that they can spend the time needed to help their loved one heal?
- Consider which **elements in the family zone can be movable** to increase flexibility and support normalcy through familial interactions and social support. Sleeper sofas can be safely fitted with casters. Lightweight stacker or folding chairs hung from wall peg can more flexibly accommodate extra guests without usurping the additional footprint the majority of the time
- Consider a (mobile?) **work table** for eating and playing games with family members or working on one's laptop. Flip-top tables may enable more flexibility
- Provide space for a **laundry bin** for patients that will have soiled clothing separate from linens
- Consider designing a place for a **microwave** in the patient room so patients can control what they eat, and when. This might become a more frequently-used item by patients staying at the hospital for an extended period of time
- Consider designing a place for a small **refrigerator** to support family's nutrition needs and items permitted to patients
- Consider **flexibilities needed for future robotics**

Implications for Design

- Consider including **more than one code blue button** in the room to support patient and staff safety
- Provide doors/hardware that are **quiet-operation**. Consider door styles that enable patients to partially open a patient door
- Consider **slider doors** (with auto operators) in lieu of swinging doors to prevent interference with door swing, bathroom door, and IV stand as patient navigates to toilet room. Sliding doors also allow for the door to be partially closed, per patient preference
- Consider **automated door** operators for patient room and toilet room doors that are quiet-operation
- Provide furniture to create a true '**family zone**' within the room that is identifiable from the 'staff zone.' Considerations should be given for the ability to sit with the patient while they're in bed, as well as in a more normal setting for seating when they are able to ambulate. Provide options that are comfortable but adjustable so that guests can sit in same direction as patient (to watch television) or face patient for eye-level conversation
- Specify exterior glazing that provides maximum views without sacrificing privacy re: views into the windows
- Provide **window treatments** that provide glare reduction and room darkening capabilities. Wire automated controls for window treatments to pillow speaker for independent control by patients

when they are alone in their room – ensure that operation of window treatments is as quiet as possible

- To prevent clutter on over-bed tables, nurse work areas, window sills, etc.; provide **space for patient belongings**, including clean clothes, soiled laundry, personal devices, hearing aids/glasses, luggage, and family belongings. Include hooks or other options that keep items from being placed on floor to prevent the spread of germs. Include a system for storing patient valuables; perhaps a safe or lockable drawer
- Utilize space efficiently through creative storage solutions that support normalcy experienced in a home setting. Draw **inspiration from Micro-apartments** and convertible furniture
- **Privacy curtains** serve to preserve privacy and dignity when it is most needed while allowing family and loved ones to stay within the room in their own 'zone'
- Provide **ceiling lifts** in all patient rooms that go from the patient bed to the toilet room and to the hallway without transferring to an intermediate lift
- Design rooms to be **sound proof** to protect privacy and sleep quality
- Brand the interior design of patient rooms so they look distinctly different from other room types in the facility to support wayfinding and familiarity
- Provide room **numbering** signage that is easily **identifiable from the corridor** that allows for simple wayfinding without having to look at the doorway, thereby compromising privacy
- Provide **toilet room** finishes that have **medium to high-contrast** to allow individuals with low-vision to understand the difference in planes, i.e. Floor plane to countertop plane, or wall plan and door
- Provide **zoned lighting** that gives patients and family control over the fixtures in each zone, as well as adjustability within zones
- Consider how patients might be able to **personalize** the decoration of their patient room; especially during extended stays
- Innovation: Explore opportunities for **concealed wall storage** that free up floor space for increased flexibility
- Innovation: Integrate **do-not-disturb controls into room signage** to signify when a procedure is taking place

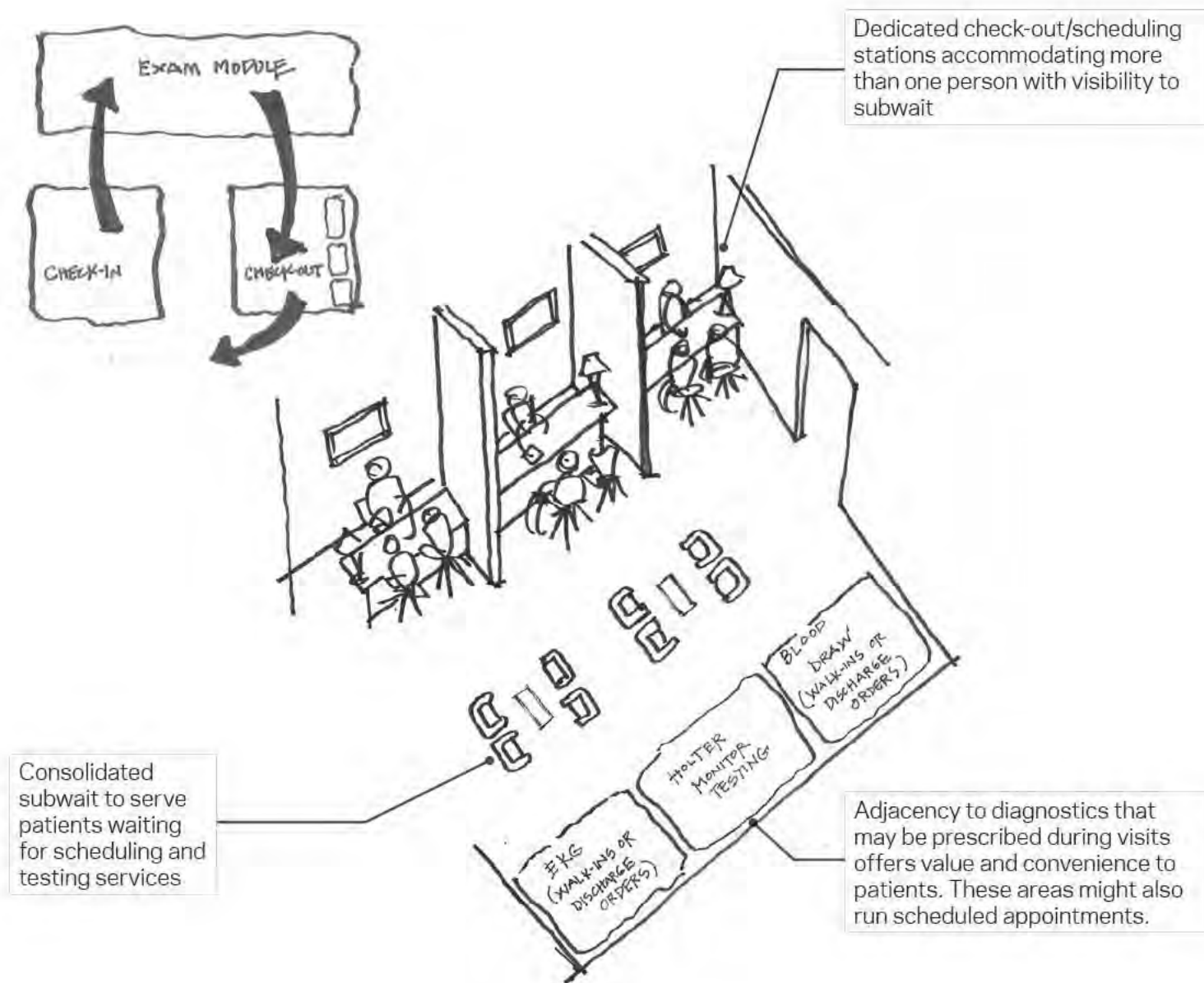
Opportunities for Technology, Process, and People Interventions

- Consider ways that care team members might have discussions with patients from lounge seating arrangement or adjustable bed, providing **comfortable face to face conversations** and conveying that patients are an equal part of the care team
- Dedicate the over-bed table for patient’s personal use; provide a **separate surface for bedside use** by care team members
- Innovation: Consider how **cameras might be used for observation** so orientation of patient bed prioritizes views to the outdoors
- Provide an option for family members to **order room service** to the patient room
- Provide ready **access to heated blankets and towels**
- Consider methods to **honor spiritual care** and religious preferences within the patient room
- Room records **voice-activated commands** by care team for data entry, order entry, medical record
- Room operates with voice-activated commands by patient
- Consider how the **entertainment screen might be a mobile solution** that allows the patient to enjoy television from the bed or furniture in the family zone
- Provide **high-tech patient beds** with lots of capabilities. USB and plugs for charging patients’ personal devices must be included
- Monitor the **functional state of beds**; ensure they stay plugged in and fully operational; devise a system to alert someone when a bed is not functioning properly
- Devise a **wireless system for alarms** to eliminate beeping at patient bedside, interrupting sleep and inhibiting relaxation
- Include **access to music** with patient controls on pillow speaker
- Innovation: Design a touchscreen solution that allows the care team to **get to know patients preferences** “WHO are they?” visitors, discharge plans, mobility, religion, etc.; in addition to accessing their health record and patient education. This device could also be accessed by patients and family for information related to their health record, discharge criteria, resources on campus, or information on their care team members
- Innovation: **Single source remote** or pillow speaker that provides patients with a sense of control over their environment: temperature of room, privacy indicator above door, adjustment of window treatments and lighting, nurse call system that conveys urgency level of request, entertainment within room, music and white noise, privacy curtain or e-glass in doors, smartboard to access electronic health record
- Innovation: Standardize on a patient **bed that sits up into a comfortable recliner-type chair** so that patients can more comfortably look at family members

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CHECK-OUT

The scheduling of follow-up appointments and diagnostics is a complex process for patients in specialty care. This final touchpoint in the outpatient experience is integral to patients' continued health and healing. The check-out setting must take measures to accommodate a level of acoustic and visual privacy, and leave patients feeling empowered, rather than confused. Process and space should be designed to reduce or eliminate intermediate waits, and where waiting is required, consider opportunities for education and positive distraction.



Implications for Programming and Planning

- Create Check-out/ Scheduling stations that **honor visual and acoustic privacy** of patient while allowing visual access by staff member to adjacent patient spaces and traffic flow.
- Check-out/ Scheduling Station: Accommodate a single staff person facing **two guest chairs** across a work surface at eye-level height
- Consider **adjacency** of check-out/ scheduling areas **to additional services** that a patient might be prescribed on their discharge summary: Phlebotomy, Holter monitor checks, Point-of-Care Testing, EKG. These room types schedule walk-in visits as well. A **consolidated subwait** area could be monitored by check-out personnel and serve patients waiting for scheduling as well as testing services
- Where possible place **inpatient and outpatient elements of disease centers in close proximity** to one another for enhanced patient experience
- The subwaiting and Check-out/Scheduling area can be **located separately but adjacent to Check-in/Waiting to facilitate a linear patient flow** [Check-in to Exam/Treatment to Check-out/Scheduling]. Adjacency to the Check-in location for supplemental testing services would support efficient operations while maintaining a visual to waiting patients. Multiple patient flows can be accommodated, but keeping the flow linear and progressing is key. Avoid sending patients back out to the main waiting room until their entire health journey that day is complete

Implications for Design

- Arrangement of walls, fixtures, and furnishings to **support acoustic and visual privacy**
- Address **staff safety**, i.e. panic buttons at each staff station
- Furnishings and layout should support **face-to-face, eye-level** conversations between patient, family, and care team members
- If a Discharge Subwaiting area is programmed, furnish with comfortable seating to **accommodate all levels of mobility**, occasional tables, and positive distraction through artwork, reading material, etc.

Opportunities for Technology, Process, and People Interventions

- Text notifications or pager-type device system for patients in subwaiting
- Monitors posted with approximate wait times in patients' position in the queue
- Standard customer service template for the check-out/scheduling interaction

CLINICAL WORKPLACE EXPERIENCE

The built environment, processes and policies in place, and access to technology all have meaningful impacts on worker well-being and the staff experience. Physicians, clinicians, and staff are most fulfilled when they feel that they are able to perform their job to the best of their ability, and this is often impacted by inefficiencies and workarounds as a result of outdated space. Aspects of the clinical workplace, mentioned below, support and enable employees to provide safe and efficient care, encourage learning and collaboration, and support the mind, body, and spirit of every individual that represents Massachusetts General Hospital.

Implications for Programming and Planning

- Provide **increased number of staff bathrooms per floor/clinic**. Productivity and quality of experience suffer each time an individual is required to wait in line for a staff bathroom. Locate bathrooms away from direct patient view but still close to primary work flow to avoid time associated with long travel distances. Consider adding a privacy indicator to door hardware
- Include a **small respite space on every bed floor** that is dedicated for personal respite or relaxation. From time to time, health care professionals need a short amount of time to recover from a difficult situation or support a coworker in need. Consider furnishing with 1-2 lounge chairs or a recliner; a small end table, wall hook, soothing finishes, and reflective artwork. An adjustable lighting scheme with dimmable down lights and a table lamp will add to the ambience of this room. Adding accessories such as noise cancelling headphones, plugs for charging devices, and on-demand music system will support relaxation and recovery
- Create **staff zones on every floor** that co-locate the staff locker room, staff toilet/shower, staff lounge, and a meeting space adjacent to one another to support familiar staff routines and efficient flows. Ensure that doors to staff toilet/shower and locker room are accessed from corridor, and not from within the staff lounge to prevent extra noise, traffic, and odors from cluttering the lounge
- Consider **central placement of fire stairs**. Staff members frequently take stairs to avoid time and congestion associated with waiting for the elevator. A central stair increases efficiency for all providers and staff, reduces elevator load, and is a big staff-satisfier
- Provide at least two **lactation rooms** per bed floor. Incorporate technology for electronic reservations. Include a comfortable chair, small sink, work surface, computer, and task chair. Nursing moms have requested the ability to work while using this room. Lactation rooms convey respect to staff and are typically a satisfier for management as well, as workarounds usually involve a bathroom or borrowing someone's office
- Incorporate **alcoves along inpatient corridors** is one way to move hallway discussions among staff or with family members out of the traffic flow. Adding a bench or small corner work surface could add additional flexibility
- Improve **visualization of the patient from corridor** and team work areas for increased patient safety
- **Collaboration happens at many scales**. Include spaces for 10 people in open work areas and rooms that accommodate up to 40 people for training and conference. Incorporate alcoves or conversation rooms for private 2-person conversations. Space for family conferences (min. 8 people) is critical for every patient floor. Include multi-purpose space on the unit for teaching and training

- Locate areas for **collaboration central to the bed floors** so that care team members do not have to travel excessive distances to utilize the space
- Provide **touch down spaces** for the multi-disciplinary team to work together away from their home base and to reduce back-and-forth
- Provide **adequate number of computer workstations** for all team members, including providers, caregivers, residents, case management, social workers, pharmacists, therapists, students
- Provide **staff showers** at each floor to encourage people to bike/ run to work
- **Staff locker rooms**: Design lockers to accommodate winter clothes and boots. Adjacency to staff toilet/ shower and Staff Lounge is ideal to supporting daily staff routines.
- Create areas for **secure storage of staff belongings** for students, residents, and other individuals who do not have a dedicated locker on the floor to prevent clutter in shared spaces and theft
- Provide **amenities for staff health and wellness**, including fitness areas, multi-purpose classroom space, and healing gardens that are only for staff use (no access by patients and guests)
- Add **water bottle filling stations** for staff use
- Provide **secured nourishment rooms** for staff access as well as nourishment stations that can be accessed by patients and family members
- See *Interdisciplinary Work* and *Staff Lounge* for implications related to these room types

Implications for Design

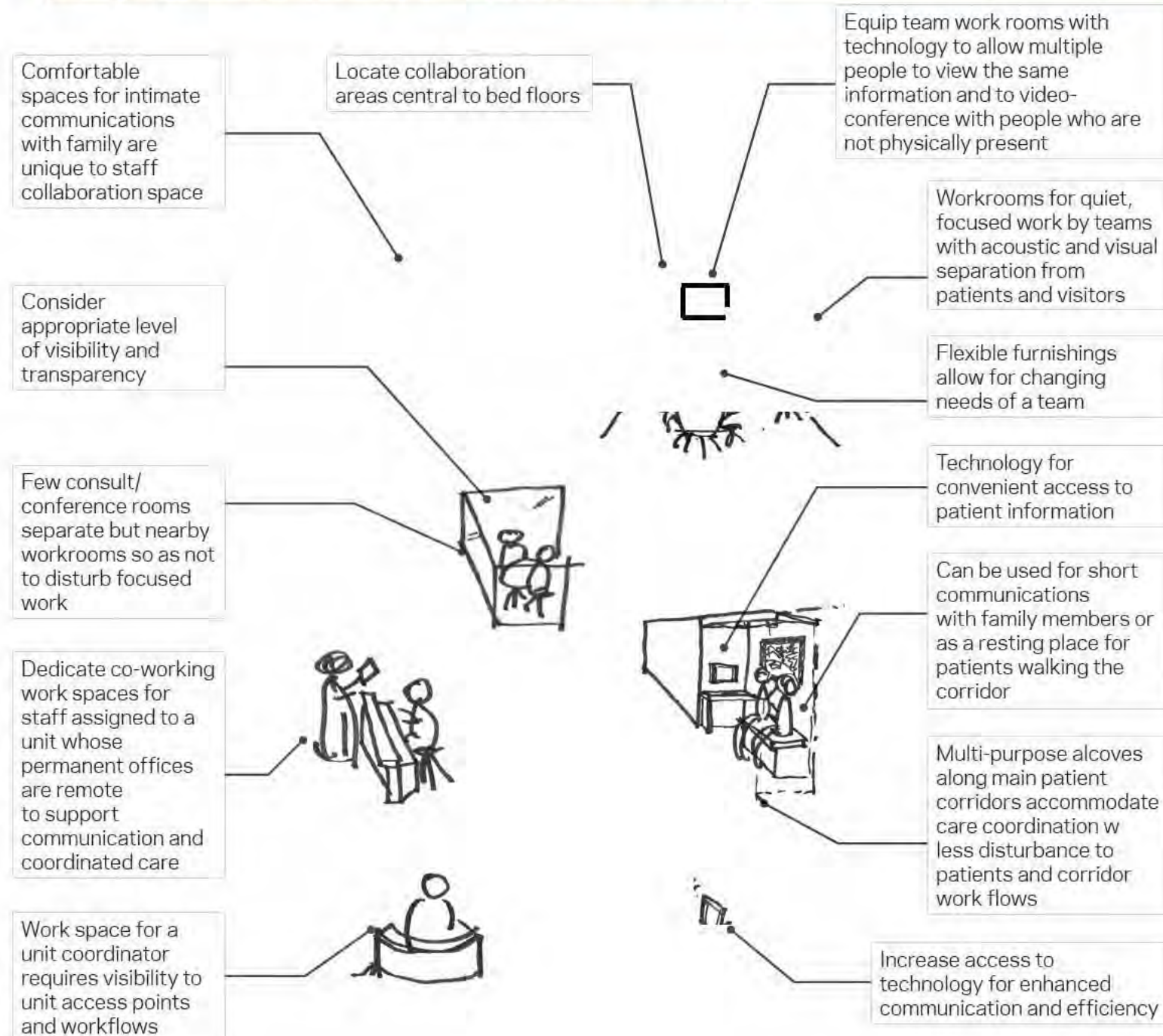
- Incorporate **flexible furnishings** that allow options for large group, small team, and individual focused work
- In conference, meeting, and training spaces, provide **finishes to maximize acoustic performance** and reduce echo, which interferes with conference calls and telehealth conversation
- Consider **parabolic mirrors** or other method to manage blind corners and prevent collisions
- Consider **foot controls for handwashing sinks**; discuss pros and cons of infection prevention and operations with owner

Opportunities for Technology, Process, and People Interventions

- Equip **all care team members with Voalte phones** to enable better communication and coordinated care, especially for staff whose permanent offices are located off-floor
- Consider introducing **complimentary coffee and water stations** on every unit to accommodate basic staff needs and preserve staff satisfaction
- Placing **panic buttons inside fire stairs** would contribute to staff's perceptions of personal safety, and carry the added benefit of patient safety, as stairs are often used as a physical therapy intervention with patients
- Devise a **system for communicating information to all employees** that avoids ad-hoc posting of paper signs
- Improve **infection prevention education** and compliance
- Develop secure areas and/or **processes for tracking patient belongings** [scanning and tracking?]

INTERDISCIPLINARY TEAM SPACES

It is essential for the environment to support a range of work settings to effectively provide the highest level of interdisciplinary care. A mix of flexible teaming spaces and quiet areas will allow care team members to accomplish focused work, care planning, teaching/learning, and consultation. The workplace must also foster professional wellbeing via opportunities for peer mentoring and social support. Equal access to technology (e.g. Voalte phones) equips all team members with the communication tools they need to collaborate with colleagues near and far while optimizing response times and reducing time spent hunting for people. Increased visualization to colleagues help to build collegiality and team rapport by creating moments of serendipity.



Implications for Programming and Planning

- Provide **alcoves** that have easy access immediately off of the main patient corridors for care team members to communicate without disturbing patients or the workflows of the corridor. Provide technology for access to patient information in all alcoves
- Include multiple **different sizes of consult & conference rooms** on the bed floors for private 2-person conversations, family conferences, and larger training sessions
- Increase the number of available computers and/or **dedicated flex spaces** to support productivity
- Plan for **team work rooms for quiet, focused work** that are assigned to sub-groups, i.e. residents, nursing/social services, other clinical support staff. These work rooms should be in close proximity to a central nurse/documentation station, but with acoustic and visual separation from the visitors and patients
- In close **proximity to the workrooms should be a few consult/conference rooms** where groups can meet without disturbing the people in the workrooms

Implications for Design

- Workrooms and consult/conference rooms should be **equipped with technology** to allow multiple people to view the same information and to video-conference to people who are not physically present
- Incorporate **flexible furnishings** that allow options for large group, small team, and individual focused work
- Provide dedicated **co-working touchdown spaces** for staff assigned to a unit with permanent offices housed in other buildings/floors to support communication and coordinated care
- Include access to **natural light and views** where possible
- Consider **appropriate levels of visibility** and transparency for each type of collaboration area
- Design corridor alcoves flexibly to enable care team collaboration, but also for short communications with family members, or for resting places for patients as they walk in the corridors

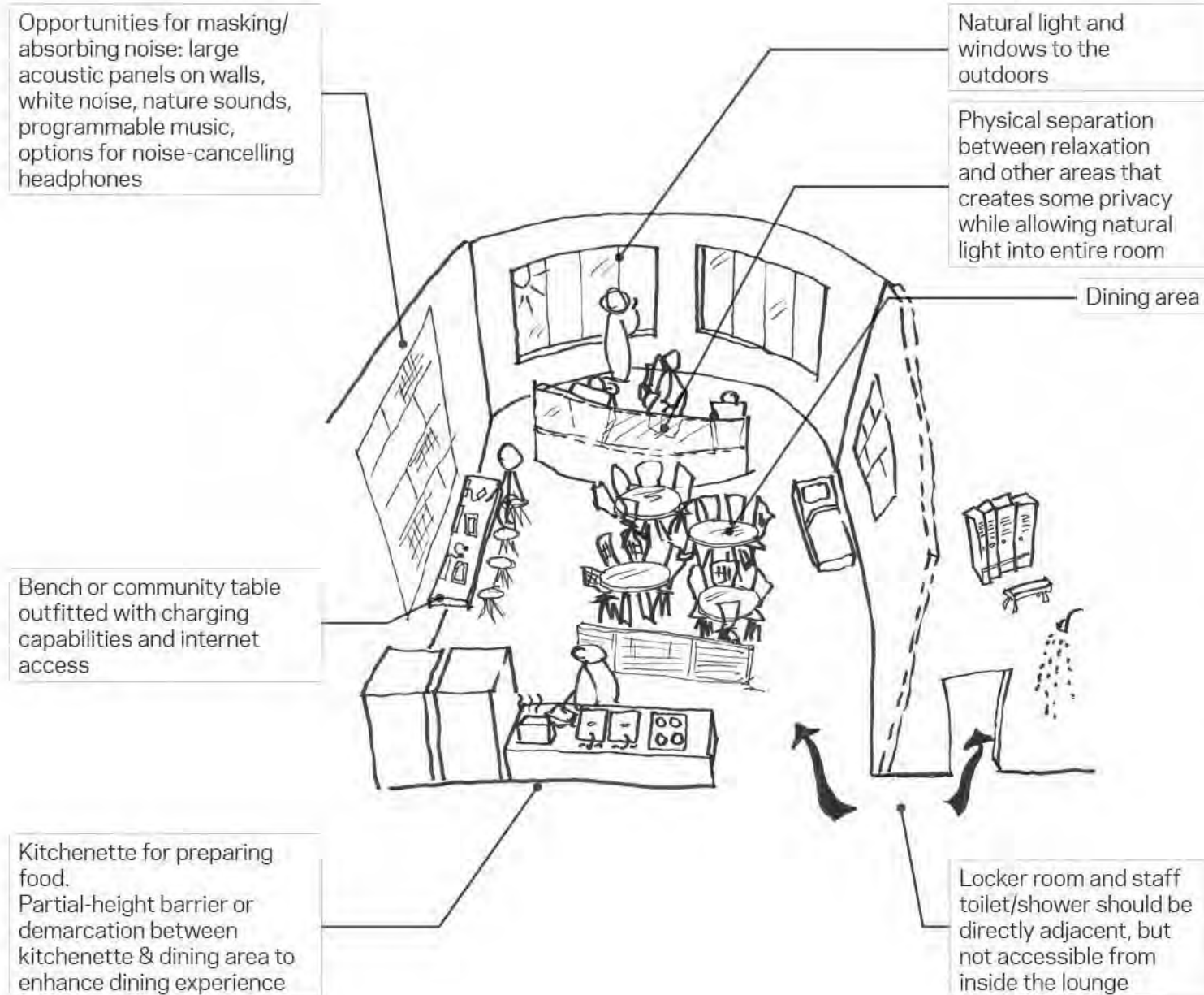
Opportunities for Technology, Process, and People Interventions

- Provide Voalte phones/**technology to 100% of care team members** to improve communication, reduce steps traveled to find people, streamline the number of software/apps staff use to communicate, and ensure equitable staff experience
- Equip **all collaboration spaces with technology** that allows people to access patient health information, enables multiple people to view the same information at the same time, and that supports video-conferencing and virtual meetings

STAFF LOUNGE

"If you are not well, we are not well" - Patient

Staff requires dedicated space to step away from the unit (and patient and family) to socialize during break hours, mentor one another, offer social support, prepare food, connect with the outside world, and truly relax. While the lounge needs to accommodate many active functions including preparing food, eating, working and entertainment, the need for staff to enjoy moments of sensory respite must be satisfied. The adjacency of the lounge to other staff support spaces will make this a successful component of the daily staff routine while supporting health and wellness.



Implications for Programming and Planning

- **Separate spaces** for preparing food, dining, Internet/entertainment, making private phone calls, and relaxation
- Furnish relaxation area with comfortable lounge seating that allows staff to take a brief rest, respite, elevate feet, or recline. Consider seating that has higher backs or sides for increased privacy and sensory respite from other activities. Include occasional tables to set drinks and personal belongings. Consider a partition or barrier between dining area and relaxation area
- **Natural light** and windows to the outdoors
- **Kitchenette:** Minimum 2 microwaves and 2 refrigerators, coffee machine with hot water tap, minimal storage for disposable plates and flatware, condiments, departmental
- Include a **bench or community table** outfitted with charging capabilities and internet access
- **Locker room and staff toilet/shower should be directly adjacent, but not accessible from inside** the lounge. Access to toilets and lockers from inside the lounge increases distracting noise, traffic, and odors; decreasing the calming environment desired for lounge. These adjacencies support staff routine and efficiency: arrive for work, drop personal belongings, put lunch in fridge, grab a drink, head to your post
- Consider incorporating **curved** walls or furnishings that evoke a softer, supportive space

Implications for Design

- Study opportunities for **masking/absorbing noise:** large acoustic panels on walls, white noise, nature sounds, programmable music, options for noise-canceling headphones
- Explore how soothing aspects achieved with **water features or kinetic art** can be incorporated into relaxation area; with or without an actual water feature
- Provide **adjustable lighting that is zoned** and separately switched for each activity zone. Include aesthetically pleasing fixtures and dimming capabilities
- Provide a **physical separation** between relaxation and other areas that creates some privacy while allowing natural light into entire room
- Incorporate a color scheme that is soothing to the senses for a **spa-like feel** rather than bright and energizing. Staff report that they would like this space to be a **low-stimulation** area
- Include places to charge personal devices in all zones of room
- Provide walls/doors that create a soundproof room where occupants of lounge can be **protected from all alarms**
- Consider a **partial-height barrier** or demarcation between kitchenette & dining area to enhance dining experience
- **Acoustic panels** on walls to soften noise from dining area/ people on phone calls
- Consider specifying lounge chairs or **furniture that "wrap around you"** to create a private space for phone calls and rest
- **Residential-type open bookshelves** within the relaxation area to project a comfortable ambiance

Opportunities for Technology, Process, and People Interventions

- Tablets, headphones for TV, internet access, individual entertainment that does not disturb others
- Provide coffee stations on each unit to support worker productivity and staff experience
- Devise a **system for wireless alerts** so that staff lounge and relaxation areas can be alarm-free zones

PART THREE: APPENDIX

Please reference *Experience Design Guideline - Appendix*

WORKSHOP 1



p. 03

MAD LIB (EXPERIENCE STATEMENT)



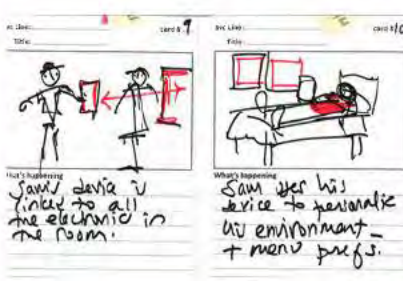
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HOW MIGHT WE



p. 06

STORYBOARD



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WORKSHOP 2



p. 29

INTERNAL CHARRETTE



p. 41

THANK YOU

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Appendix 4

Factor 4 Supplemental Information

Appendix 4A

Independent CPA Analysis

**Mass General Brigham
Incorporated**

**Analysis of the Reasonableness of
Assumptions Used For and
Feasibility of Projected Financials of
Mass General Brigham Incorporated
For the Years Ending September 30, 2021
Through September 30, 2030**

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January 14, 2021

Ms. Meredith Wasko
Mass General Brigham Incorporated
399 Revolution Drive STE 645
Somerville, MA 02145

RE: Analysis of the Reasonableness of Assumptions and Projections Used to Support the Financial Feasibility and Sustainability of the Proposed Construction of the Massachusetts General Hospital Cambridge Street Building in Boston, MA.

Dear Ms. Wasko:

I have performed an analysis of the financial projections prepared by Mass General Brigham Incorporated (“Mass General Brigham” or “the Company”; formerly Partners HealthCare System, Inc.) detailing the projected operations of Mass General Brigham including the projected operations of Massachusetts General Hospital Cambridge Street Building (“the Cambridge Street Building”) in Boston, MA. This report details my analysis and findings with regards to the reasonableness of assumptions used in the preparation and feasibility of the projected financial information of Mass General Brigham as prepared by the management of Mass General Brigham (“Management”). This report is to be included by Mass General Brigham in its Determination of Need (“DoN”) Application – Factor 4(a) and should not be distributed or relied upon for any other purpose.

I. EXECUTIVE SUMMARY

The scope of my analysis was limited to the ten-year consolidated financial projections (the “Projections”) prepared by Mass General Brigham as well as the actual operating results for Mass General Brigham for the fiscal years ended 2019 and 2020 (“Base Budget”), 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 with regards to the impact of capital projects involving and ancillary to the Cambridge Street Building in Boston, MA.

The impact of the proposed capital projects at the Cambridge Street Building which are the subject of this DoN application, represent a relatively insignificant component of the projected operating revenues (approximately 2%) and financial position (approximately 6%) of Mass General Brigham for Fiscal Year 2030. As such, I determined that the Projections are not likely to result in a scenario where there are insufficient funds available for capital and ongoing operating costs necessary to support the ongoing operations of Mass General Brigham. Therefore, it is my opinion that the Projections are financially feasible for Mass General Brigham as detailed below.

II. RELEVANT BACKGROUND INFORMATION

Refer to Factor 1 of the application for description of proposed capital projects at the Cambridge Street Building and the rationale for the expenditures.

III. SCOPE OF REPORT

The scope of this report is limited to an analysis of the Projections, Base Budget 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 with regards to the impact of certain capital projects involving and ancillary to the Cambridge Street Building. My analysis of the Projections and conclusions contained within this report are based upon my detailed review of all relevant information (see Section IV which references the sources of information). I have gained an understanding of Mass General Brigham and the Cambridge Street Building, through my review of the information provided as well as a review of Mass General Brigham website, annual reports, and the DoN application.

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 plan is not likely to result in insufficient “funds available for capital and ongoing operating costs necessary to support the proposed project without negative impacts or consequences to [Mass General Brigham’s] existing patient panel” (per Determination of Need, Factor 4(a)).

This report is based upon historical and prospective financial information provided to me by Management. If I had audited the underlying data, matters may have come to my attention that would have resulted in my using amounts that differ from those provided. Accordingly, I do not express an opinion or any other assurances on the underlying data presented or relied upon in this report. I do not provide assurance on the achievability of the results forecasted by Mass General Brigham because events and circumstances frequently do not occur as expected, and the achievement of the forecasted results are dependent on the actions, plans, and assumptions of management. I reserve the right to update my analysis in the event that I am provided with additional information.

IV. PRIMARY SOURCES OF INFORMATION UTILIZED

In formulating my opinions and conclusions contained in this report, I reviewed documents produced by Management. The documents and information upon which I relied are identified below or are otherwise referenced in this report:

1. Ten-Year Pro-Forma Statements (Projections) for the fiscal years ending 2021 through 2030, provided on December 15, 2020 and updated January 8, 2021;
2. Projected income statements for the Cambridge Street Building for the fiscal years ending 2025 through 2030, provided on December 15, 2020;
3. DoN Projections (income statements, capital and debt service) for the fiscal years 2021 (budget) through 2030, provided December 15, 2020;
4. Multi-Year Financial Framework of Mass General Brigham Incorporated for the fiscal years ending 2021 through 2025 prepared for Mass General Brigham Finance Committee as of December 3, 2020;

5. Schedule of Estimated Total Capital Expenditure (Factor 4 Form F4a.ii) provided December 29, 2020;
6. Cambridge Street Building Project Presented for Capital Approval to the Partners Finance Committee, prepared as of September 27, 2019;
7. Audited Financial Statements of Mass General Brigham Incorporated and Affiliates as of and for the years ended September 30, 2020 and 2019;
8. Company website – <https://www.massgeneralbrigham.org>;
9. Various news publications and other public information about Mass General Brigham;
10. Determination of Need Application Instructions dated March 2017; and
11. Draft Determination of Need Factor 1, provided December 29, 2020 and updated on January 14, 2021.

V. REVIEW OF THE PROJECTIONS

This section of my report summarizes my review of the reasonableness of the assumptions used and feasibility of the Projections. The Projections are delineated between five categories of revenue and six general categories of operating expenses of Mass General Brigham as well as other nonoperating gains and losses for the Company. The following table presents the Key Metrics, as defined below, of Mass General Brigham which compares the results of the Projections for the fiscal years ending 2021 through 2030 to Mass General Brigham historical results for the fiscal year ended 2020.

(\$ in thousands)	MGB, as					
	reported	Change in Key Metric of pro forma results compared to prior year				
	2020	2021	2022	2023	2024	2025
EBIDA (\$)	584,250	500,504	137,579	30,719	21,721	126,975
EBIDA Margin (%)	4.2%	3.0%	0.3%	-0.2%	-0.3%	0.3%
Operating Margin (%)	-2.5%	3.5%	0.6%	-0.2%	-0.1%	0.3%
Total Margin (%)	1.9%	-1.3%	4.7%	0.1%	0.0%	0.4%
Total Assets (\$)	25,040,363	71,241	689,081	1,200,355	1,220,792	1,246,369
Total Net Assets (\$)	10,620,294	155,092	945,571	1,304,979	1,156,679	1,196,120
Unrestricted Cash Days on Hand (days)	324.5	(27.9)	(17.9)	2.3	1.5	1.9
Unrestricted Cash to Debt (%)	189.8%	-7.6%	8.5%	15.0%	10.2%	10.7%
Debt Service Coverage (ratio)	4.3	(0.7)	0.6	2.7	0.3	0.3
Debt to Capitalization (%)	44.1%	-0.8%	-3.6%	-3.5%	-2.1%	-2.0%

	Change in Key Metric of pro forma results compared to prior year				
	2026	2027	2028	2029	2030
EBIDA (\$)	61,063	57,895	150,856	66,491	44,688
EBIDA Margin (%)	-0.1%	-0.1%	0.3%	-0.1%	-0.1%
Operating Margin (%)	0.1%	0.0%	0.1%	0.1%	0.0%
Total Margin (%)	0.0%	0.0%	0.0%	0.0%	-0.1%
Total Assets (\$)	1,341,521	1,464,482	1,460,442	1,507,224	1,585,030
Total Net Assets (\$)	1,259,581	1,389,972	1,384,417	1,433,169	1,516,850
Unrestricted Cash Days on Hand (days)	1.8	2.2	(1.3)	(4.1)	2.4
Unrestricted Cash to Debt (%)	10.9%	11.5%	7.5%	5.5%	11.9%
Debt Service Coverage (ratio)	1.1	(0.1)	(0.4)	0.1	(0.0)
Debt to Capitalization (%)	-1.7%	-1.7%	-1.5%	-1.4%	-1.3%

The Key Metrics fall into three primary categories: profitability, liquidity, and solvency. Profitability metrics, such as EBIDA, EBIDA Margin, Operating Margin, Total Margin, and Debt Service Coverage Ratio are used to assist in the evaluation of management performance in how efficiently resources are utilized. Liquidity metrics, such as Unrestricted Days Cash on Hand and Unrestricted Cash to Debt, measure the quality and adequacy of assets to meet current obligations as they come due. Solvency metrics, such as Debt to Capitalization and Total Net Assets, measure the company's ability to service debt obligations. Additionally, certain metrics can be applicable in multiple categories.

The following table shows how each of the Key Metrics are calculated.

Key Metric	Definition
EBIDA (\$)	(Earnings before interest, depreciation and amortization expenses) - Income (loss) from operations + interest expense + depreciation expense + amortization expense
EBIDA Margin (%)	EBIDA expressed as a % of total operating revenues. $EBIDA / \text{total operating revenues}$
Operating Margin (%)	$\text{Income (loss) from operations} / \text{total operating revenues}$
Total Margin (%)	$\text{Excess (deficit) of revenues over expenses} / \text{total operating revenues}$
Total Assets (\$)	Total assets of the organization
Total Net Assets (\$)	Total net assets of the organization (includes unrestricted net assets and donor restricted net assets)
Unrestricted Cash Days on Hand (days)	$(\text{Cash and equivalents} + \text{investments} + \text{current portion investments limited as to use} + \text{investments limited as to use} - \text{externally limited funds}) / ((\text{Total operating expenses} - \text{depreciation \& amortization}) / \text{YTD days})$
Unrestricted Cash to Debt (%)	$(\text{Cash and equivalents} + \text{investments} + \text{current portion investments limited as to use} + \text{investments limited as to use} - \text{externally limited funds}) / (\text{Current portion of long-term obligations} + \text{long-term obligations})$
Debt Service Coverage (ratio)	$(\text{Excess (deficit) of revenues over expenses} + \text{depreciation expense} + \text{amortization expense} + \text{interest expense}) / (\text{Principal payments} + \text{interest expense})$
Debt to Capitalization (%)	$(\text{Current portion of long-term obligations} + \text{long-term obligations}) / (\text{Current portion of long-term obligations} + \text{long-term obligations} + \text{unrestricted net assets})$

1. Revenues

The only revenue category on which the proposed capital projects would have an impact is net patient service revenue. Therefore, I have analyzed net patient service revenue identified by Mass General Brigham in both their historical and projected financial information. Based upon my analysis of the projected results from Fiscal Year 2021 through Fiscal Year 2030, incremental revenue from the proposed capital projects represents approximately 0.642% (about 7 tenths of 1%) of Mass General Brigham operating revenue beginning in FY 2025 to 1.795% (about 1.8%) in FY 2030. The first year in which revenue is present for the proposed capital project is FY 2025.

It is my opinion that the revenue growth projected by Management reflects a reasonable estimation based primarily upon the Company's historical operations before taking into account the financial impact of the COVID-19 pandemic in Fiscal Year 2020.

3. Operating Expenses

I analyzed each of the categorized operating expenses for reasonableness and feasibility as it relates to the projected revenue items. I reviewed the actual operating results for Mass General Brigham for the fiscal years ended 2019 and 2020 in order to determine the impact of the proposed capital projects at the Cambridge Street Building on the consolidated entity and in order to determine the reasonableness of the Projections for the fiscal years 2021 through 2030. Based upon my analysis of the projected results from Fiscal Year 2021 through Fiscal Year 2030, the incremental operating expenses for proposed capital projects represent approximately 0.614% (about 6 tenths of 1%) of Mass General Brigham operating expenses in FY 2025 to 1.721% (about 1.7%) in FY 2030. The first year in which operating expenses are presented for the proposed capital project is FY 2025.

It is my opinion that the growth in operating expenses projected by Management reflects a reasonable estimation based primarily upon the Company's historical operations before taking into account the financial impact of the COVID-19 pandemic in Fiscal Year 2020.

4. Nonoperating Gains/Expenses and Other Changes in Net Assets

The final categories of Mass General Brigham Projections are various nonoperating gains/expenses and other changes in net assets. The items in these categories relate to investment account activity (realized and unrealized), philanthropic and academic gifts, benefit plan funded status, fair value adjustments and other items. Because many of these items are unpredictable, nonrecurring, or dependent upon market fluctuations, I analyzed the nonoperating activity in aggregate. I did review the philanthropy projected with regards to this project which appears reasonable when compared to other significant philanthropic campaigns made by Mass General Brigham in the past. Based upon my analysis, there were no nonoperating expenses projected for the proposed capital projects at the Cambridge Street Building. Accordingly, it is my opinion that the pro-forma nonoperating gains/expenses and other changes in net assets are reasonable.

5. Capital Expenditures and Cash Flows

I reviewed Mass General Brigham capital expenditures and cash flows in order to determine whether Mass General Brigham anticipated reinvesting sufficient funds for technological upgrades and property, plant and equipment and whether the cash flow would be able to support that reinvestment.

Based upon my discussions with Management and my review of the information provided, I considered the current and projected capital projects and loan financing obligations included within the Projections and the impact of those projected expenditures on Mass General Brigham cash flow. Based upon my analysis, it is my opinion that the pro-forma capital expenditures and resulting impact on Mass General Brigham cash flows are reasonable.

VI. FEASIBILITY

I analyzed the projected operations for Mass General Brigham and the changes in Key Metrics prepared by Management as well as the impact of the proposed capital projects at the Cambridge Street Building upon the Projections and Key Metrics. In performing my analysis, I considered multiple sources of information including historical and projected financial information for Mass General Brigham. It is important to note that the Projections reflect changes in accounting standards which were adopted in Fiscal Year 2020, such as changes in lease accounting and compensation – retirement benefits accounting.

Ms. Meredith Wasko
Mass General Brigham Incorporated
January 14, 2021
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Since the impact of the proposed capital projects at the Cambridge Street Building which are the subject of this DoN application, represents a relatively insignificant portion of operating revenues (approximately 2%) and financial position (approximately 6%) of Mass General Brigham, I determined that the Projections are not likely to result in insufficient funds available for capital and ongoing operating costs necessary to support the proposed projects. Based upon my review of the Projections and relevant supporting documentation, I determined the projects and continued operating surplus are reasonable and based upon feasible financial assumptions. Therefore, the proposed capital projects at the Cambridge Street Building are financially feasible and within the financial capability of Mass General Brigham.

Respectively submitted,

A handwritten signature in black ink that reads "Bernard L. Donohue, III, CPA". The signature is written in a cursive, flowing style.

Bernard L. Donohue, III, CPA

Appendix 4B

Factor 4.a.i Capital Costs Chart

Factor 4: Financial Feasibility and Reasonableness of Expenditures and Costs													
Applicant has provided (as an attachment) a certification, by an independent certified public accountant (CPA) as to the availability of sufficient funds for capital and ongoing operating costs necessary to support the Proposed Project without negative impacts or consequences to the Applicant's existing Patient Panel.													
F4.a.i Capital Costs Charts:													
For each Functional Area document the square footage and costs for New Construction and/or Renovations													
Add/Del Rows	Functional Areas	Present Square Footage		Square Footage Involved in Project				Resulting Square Footage		Total Cost		Cost/Square Footage	
		Net	Gross	New Construction		Renovation		Net	Gross	New Construction	Renovation	New Construction	Renovation
	Cambridge Street Project (CSP)												
	Levels 8-13 - Inpatient Acute	-	-	353,484	436,815	-	-	353,484	436,815	\$577,174,320	\$0	\$1,321.32	\$0.00
	Level 7 - ICU	-	-	64,969	80,079	-	-	64,969	80,079	\$128,723,151	\$0	\$1,607.45	\$0.00
	Level 6 - Staff Amenities ¹	-	-	2,822	2,822	-	-	2,822	2,822	\$2,800,868	\$0	\$992.51	\$0.00
	Level 5 - Ambulatory Infusion, Conference/Education	-	-	59,770	88,669	-	-	59,770	88,669	\$115,471,871	\$0	\$1,302.28	\$0.00
	Level 4 - Ambulatory Clinics, Conference/Education	-	-	80,553	104,452	-	-	80,553	104,452	\$129,400,885	\$0	\$1,238.86	\$0.00
	Level 3 - Procedural Platform	-	-	79,110	107,032	-	-	79,110	107,032	\$215,455,148	\$0	\$2,013.00	\$0.00
	Level 2 - Procedural Platform, Imaging	-	-	68,697	106,893	-	-	68,697	106,893	\$217,982,542	\$0	\$2,039.26	\$0.00
	Level 1 - Lobby, Public Programs, Loading Dock	-	-	51,508	89,693	-	-	51,508	89,693	\$88,912,030	\$0	\$991.29	\$0.00
	Level B2 - Clinical Support Services	-	-	64,179	108,228	-	-	64,179	108,228	\$96,974,952	\$0	\$896.02	\$0.00
	Level B2, 1, 6, PH - Mechanical	-	-	152,641	186,809	-	-	152,641	186,809	\$121,830,798	\$0	\$652.17	\$0.00
	Bulfinch Tunnel	-	-	12,806	15,607	-	-	12,806	15,607	\$40,713,538	\$0	\$2,608.67	\$0.00
	White Bridge	-	-	5,126	7,036	-	-	5,126	7,036	\$17,037,869	\$0	\$2,421.53	\$0.00
	Bulfinch Tunnel to White Renovations	498	498	-	-	498	498	498	498	\$0	\$591,449	\$0.00	\$1,187.65
	White Bridge Connection to White Lobby Renovations	5,673	5,673	-	-	5,673	5,673	5,673	5,673	\$0	\$4,923,808	\$0.00	\$867.94
	CSP Project Subtotal: (calculated)	6,171	6,171	995,665	1,334,135	6,171	6,171	1,001,836	1,340,306	\$1,752,477,972	\$5,515,257	\$18,084.36	\$893.74
	Other Renovations												
	Homeless Clinic GRJ1	1,700	1,850	-	-	1,700	1,850	1,700	1,850	\$0	\$1,710,938	\$0.00	\$924.83
	Emergency dept. convert bays to negative pressure All	2,200	2,500			2,200	2,500	2,200	2,500	\$0	\$1,600,000	\$0.00	\$640.00
	Yawkey Oncology Pharmacy	3,000	3,300			3,000	3,300	3,000	3,300	\$0	\$7,726,988	\$0.00	\$2,341.51
	Podiatry office to exam conversion	300	360			300	360	300	360	\$0	\$78,000	\$0.00	\$216.67
	OR Flooring	150	170	-	-	150	170	150	170	\$0	\$46,162	\$0.00	\$271.54
	Molecular Pathology Lab Space Renovation	200	225	-	-	200	225	200	225	\$0	\$72,270	\$0.00	\$321.20
	BG 10 IV: Convert Storage Room to PICC Treatment Room	280	300	-	-	280	300	280	300	\$0	\$135,506	\$0.00	\$451.69
	Induction Room Renovations	480	500	-	-	480	500	480	500	\$0	\$225,844	\$0.00	\$451.69
	HLD and Cleaning - ORs	430	450	-	-	430	450	430	450	\$0	\$406,519	\$0.00	\$903.38
	HLD and Cleaning - Danvers MOB	700	750	-	-	700	750	700	750	\$0	\$704,557	\$0.00	\$939.41
	IR: Replace: High Powered C-arm - Ellison 2	450	500	-	-	450	500	450	500	\$0	\$842,288	\$0.00	\$1,684.58
	Lunder 6 Renovation	512	640	-	-	512	640	512	640	\$0	\$1,313,162	\$0.00	\$2,051.82
	IR: Renovation: Room 6 - Gray/Bigelow 2	450	500	-	-	450	500	450	500	\$0	\$3,636,489	\$0.00	\$7,272.98
	PET: Renovation: PET Production - Bulfinch Edward's Basement	480	600	-	-	480	600	480	600	\$0	\$4,658,939	\$0.00	\$7,764.90
	Other Renovations Subtotal: (calculated)	11,332	12,645	-	-	11,332	12,645	11,332	12,645	\$0	\$23,157,662	\$0.00	\$1,831.37
	Total: (calculated)	17,503	18,816	995,665	1,334,135	17,503	18,816	1,013,168	1,352,951	\$1,752,477,972	\$28,672,919	\$18,084.36	\$2,725.11

¹Level 6 Staff Amenities are on a floor with Mechanical. GSF is counted with the Mechanical spaces, so this is shown as equal to Net.

Appendix 5

Factor 6 Community Health Initiative Supplemental Information

Appendix 5A

Community Health Initiative Narrative

The Massachusetts General Hospital – Cambridge Street Determination of Need Community Health Initiative Narrative

Part 1. Community Health Initiative Monies

The breakdown of Community Health Initiative (“CHI”) monies for the Proposed Project at the Massachusetts General Hospital (“MGH” or the “Hospital”) is as follows:

- Maximum Capital Expenditure: \$1,880,774,238
 - Community Health Initiative: \$94,038,711.90 (5% of Maximum Capital Expenditure)
 - CHI Administrative Fee to be retained by MGH: \$1,880,774.29 (2% of the CHI monies)
 - Overall CHI Funding – less the Administrative Fee: \$92,157,937.61
-
- CHI Funding for Statewide Initiative: \$23,039,484.40 (25% of Overall CHI Funding)
 - CHI Local Funding: \$69,118,453.21 (75% of Overall CHI Funding)
 - Evaluation Monies to be retained by MGH: \$6,911,845.32 (10% of the CHI Local Funding).
 - CHI Local Funding for Distribution: \$62,206,607.89 (75% of Overall CHI less the Evaluation Monies).

Part 2. CHI Activities for DoN # PHS-19040915-HE

a. Community Engagement

Background & Committee Review

The MGH Center for Community Health Improvement (“CCHI”) has a long-standing commitment as the “backbone” of community engagement in the neighborhoods it serves. CCHI provides staff, evidence-based practices, evaluation, and fundraising support. Together with the communities, CCHI has achieved impressive gains in reducing teen alcohol consumption, promoting Narcan distribution by first responders, accelerating college graduation among urban youth and successfully addressing social determinants of health, such as housing and food.

CCHI’s plan for the next decade is to take lessons learned to scale to create greater impact. To help move the work forward, MGH’s Community Advisory Board (“CAB”) was established in 2018 to provide oversight to all community health efforts at the Hospital. To ensure appropriate and meaningful membership MGH onboarded CAB members over a 12-month period and convened meetings on at least a quarterly basis to keep members apprised of internal MGH Community Health updates, including the Community Health Needs Assessment (“CHNA”) and Improvement Plan (“CHIP”) process, and the Determination of Need (“DoN”) application. MGH solicited feedback from CAB members at every meeting on how it approaches each of the initiatives mentioned which was incorporated into MGH’s processes.

MGH’s CAB is currently comprised of eighteen members from Boston (including Charlestown and East Boston) and the North Suffolk region (including Chelsea, Revere, Winthrop) that meet the required constituencies designated by the Department of Public Health for a DoN – CHI.

Particular attention was given to ensure balanced representation of members from North Suffolk and Boston. CCHI staff continue to keep the CAB up to date on the processes being undertaken by the Boston CHNA-CHIP Collaborative and the North Suffolk Public Health Collaborative in addition to MGH Community Health updates.

As outlined in the CAB's charter, the CAB is tasked with reviewing the DoN sub-regulatory guidelines, outlining roles and responsibilities for the group, and reviewing current CHNAs and CHIPs to determine health priorities for the CHI. Prior to beginning priority and strategy selection for the CHI, the CAB outlined principles for additional community engagement and general funding priorities. Community stakeholders outside the CAB informed the CHNA-CHIP processes for both Boston and North Suffolk. Both reports indicated similar needs around affordable housing, behavioral health, economic stability and mobility, and access to health, social, childcare services. During this process, community stakeholders emphasized that racial and ethnic health disparities should be addressed in each of these areas. The CAB utilized these reports to inform its priority and strategy selection of this recent DoN. Internal stakeholders were regularly updated on the CAB's process and priorities and strategies selected, especially MGH's Board and Executive Committees on Community Health.

To ensure funds are allocated to the priorities and strategies chosen by the CAB, MGH created an Allocation Committee in the Spring of 2020. The Allocation Committee is comprised of representatives (CAB members, hospital leaders, municipal and community-based organization leaders, and content experts) from Boston and North Suffolk who are free from conflicts of interest, and who employ the principles and guidelines drafted by the CAB to create applications based on the funding mechanisms chosen. The Allocation Committee discusses and drafts application questions, determines selection criteria and scoring, reviews and weighs applications, and selects applicants for funding. The Allocation Committee has been invaluable in the DoN process offering sound advice and suggestions on how to best engage and solicit residents throughout the process. Moving forward, the same amount of time spent working with the CAB to build their capacity will be spent with the Allocation Committee to ensure they are supported and engaged throughout the DoN process.

Communication & Outreach

MGH recognizes keeping the community informed of all aspects of the DoN process is essential. Transparency is essential to building trust and facilitating engagement from communities and key stakeholders. Informing communities about who is involved in the process, how and what decisions are made, as well as the funding opportunities available is vital.

CAB and Allocation Committee feedback is needed to ensure notice of funding opportunities reach a wide audience of community organizations. Based on recent Allocation Committee feedback, MGH established a list of smaller community-based organization contacts to promote DoN Awards.

MGH also published press releases of both funding opportunities, and later, notice of awardees, to the hospital and CCHI websites and distributed to a mailing list of 2,000 CCHI contacts (including smaller organizations mentioned above). Press releases were shared on multiple CCHI social media channels (Facebook, Instagram, Twitter, WhatsApp) which included social media channels of various MGH coalitions including a number of Boston Coalitions which MGH supports. Progress of grantees' projects will be shared similarly throughout the years.

Capacity Building

Capacity building of the CAB and Allocation Committee, as well as grantees, is a priority to help ensure equity and excellence in all DoN processes. Building capacity is done with education and outreach by continually receiving feedback from members on their needs and then working to meet these needs so they can be fully engaged. An example of this is when MGH CCHI staff introduced the affordable housing investment option to the Allocation Committee. Members were asked what they needed to make informed decisions and decided they wanted to learn about the broader mechanics of affordable housing. To do this, MGH engaged the Metropolitan Advisory Council (MAPC) to provide an affordable housing primer to all Allocation members as well as reading materials.

Process Improvement

MGH recently contracted with an external evaluation consultant who will conduct a process evaluation of our most recent DoN process. As part of the evaluation process, key informant interviews with a sample of applicants who were not funded will be conducted to assess potential disparities in outreach. Based on responses, the consultant will provide recommendations for engaging the community in the future. This information will be shared with the CAB and Allocation Committee as part of MGH's quality improvement process.

Within the next quarter, the CAB will also engage in a gap analysis, as required by the charter, to understand which community segments were missing from the pool of applicants. This will inform the CAB's recommendations for prioritizing missing community segments in future funding opportunities.

Along the same vein, MGH is considering engaging in an analysis of submitted proposals from this past funding opportunity to better understand the outstanding needs of organizations. This may inform community engagement approaches and strategies selected as part of the next DoN.

DPH Assistance

The Allocation Committee noted that it could be helpful to know which organizations have received recent DoN funds across the state to help elevate equity in the decision-making process. Therefore, it would be helpful for DPH create a bank of applicants receiving DoN funds and share the aggregate data with the systems responsible for allocating funds equitably to the community. Similarly, DPH's assistance in connecting Holders to content experts would be helpful. MGH would also appreciate DPH's assistance in identifying state- and city-wide Community Health activities that connect to the priorities and strategies that the CAB will choose as part of the next DoN process.

b. Applications and Upstream Approaches

Prior to determining the funding process, the CAB received an upstream/systems change primer from the Department of Public Health. Additionally, MGH's facilitator from Health Resources in Action ("HRIA") assisted CAB members with refining the selected strategies upon completion of that primer.

The Allocation Committee used this information to ensure that all applicants articulate what type of impact the proposed project would have on upstream policies and systems. These elements were weighted significantly (20% and 25% respectively) on applicant proposals. As a result, all seven grantees have a systems-change component as part of their projects, necessitating communication with macro-level systems to change policies that improve the lives of their participants and community members.

Request for Proposals

In order to make the application process more inclusive and increase participation, both the CAB and Allocation Committee determined a smaller application would be preferable. This resulted in a two-page Letter of Inquiry (“LOI”) and a 5-page Request for Proposal (“RFP”) if selected. MGH held a virtual Bidder’s Conference and Technical Assistance session in advance of application deadlines and utilized these sessions as a space for prospective applicants to ask questions and troubleshoot strategies. A review of upstream approaches was also built into these sessions to allow applicants to talk through and get feedback on their ideas.

An on-line submission portal was created for applicants. Some applicants, however, reported barriers to using an online submission portal when submitting their LOIs. As a result, MGH decided to conduct the second application phase via e-mail to reduce barriers to RFP submission. MGH will review and create an application submission process that is equitable for all.

Racial Justice

MGH used the Racial Justice Framework to form the CAB’s charter and to guide the selection of priorities and strategies by CAB members. MGH, however, recognizes the opportunity to integrate the framework more intentionally throughout each phase of the next CHI process. The racial justice framing questions help create an engaged discussion with CAB members and guide the mission of the DoN process.

Leveraging Ongoing Activities

The 2019 MGH CHNA-CHIP report, which was the result of broad community participation from Boston and North Suffolk residents, outlined the health needs that directly determined the DoN Health Priorities. During the past DoN process, the CAB and Allocation Committee discussed the value of a collective impact approach and explicitly discussed the option for pooling funds as a potential method for carrying out proposed strategies. With collaboration being a priority for Allocation Committee members, they prioritized asking all applicants about their community partners and if and where other funds have been obtained to carry out their goals. It was emphasized during the Bidders’ Conference that collaborating with others and leveraging other funds to carry out the work would yield greater benefit to participants and community members.

Administrative Funds

Administrative funds were utilized to compensate the external facilitation consultant, HRiA, who worked with MGH to help plan and facilitate meetings with clear goals and objectives, build the CAB and Allocation Committee members capacity around upstream/structural approaches to health equity, organize materials, and create a scoring infrastructure and a ranked choice selection process to ensure equity in all selection processes.

Part 3. Lessons Learned from DoN # PHS-19040915-HE

At the conclusion of this DoN process, the CCHI implementation team conducted two retrospective conversations with individuals involved in the DoN process— one amongst MGH staff and one with the external facilitator. The following feedback and recommendations were given.

Constructive feedback/Recommendations

- Lengthen the allocation timeframe so that it is not so compressed.
- Conduct mitigation planning to help prepare for various amounts of potential applications and thus the workload of Allocation Committee members. Utilize this understanding to estimate time requirements for Allocation member recruiting.
- Lengthen the application solicitation phase and augment the amount of technical assistance meetings provided to assist in applicant capacity building and further increase small organization representation.
- Build in greater information sharing to CAB members once the allocation process has started; brainstorm unique ways to keep the community informed.
- Work with the CAB to employ a framework for equitable geographical distribution of DoN funds to inform decision-making.
- Utilize proposal summary sheets (tip sheets) for Allocation members to reference during decision-making.
- Supply additional materials to prepare for content expert presentations.
- Increase resident representation on CAB and/or Allocation Committee to achieve greater community voice. Consider onboarding needs of residents vs. organizational leaders.
- Establish procedures for scenarios when consensus cannot be reached during applicant selection.

Positive feedback

- Strong composition of the CAB and Allocation Committee yielded diverse perspectives, commitment to the process, and ability to navigate potentially contentious issues.
- DoN funding decisions were solely made by those of the CAB and Allocation Committee.
- Onboarding materials were clear and concise with clear understanding of roles.
- Emphasis was placed on elevating the community voice and a collective impact approach throughout the CAB & Allocation Committee processes.
- Members who were unable to attend CAB or Allocation Committee meetings were given a detailed re-cap of prior meetings and decisions.
- There was diverse representation on the CAB and Allocation Committees.
- Attention was paid to geographical balance of CAB members and Allocation Committee reviewing groups, and division of applications for review.

Part 4. Planning for the Cambridge St DoN CHI

As MGH begins planning for this DoN CHI, we will be guided by the feedback described above in conjunction with the ongoing evaluation process to identify areas of weakness and will intentionally and continuously work to incorporate changes into the process. We will integrate the Racial Justice Framing questions into critical junctures of this planning process and in implementation (with CAB and Allocation members). Special meetings with CAB members may be used to cover additional topics, including but not limited to equity and how to utilize it as a framework for their decision-making.

MGH sees the biggest opportunities for broader community engagement in understanding what needs have not been addressed or need more resources and how residents feel they can contribute to decisions making. MGH CCHI strives to be innovative in its approach and will explore adding a resident-led investment stream, bringing on additional subject matter experts in selected health priority areas, building in more robust feedback loops with the community, hiring a community facilitator to assist with implementation of community engagement plans and to relay information from community groups on outstanding areas of need in Boston and North Suffolk.

MGH aspires to reach collaborative and community-led levels of engagement through soliciting advice and recommendation on all components of the CHI, including priority and strategy selection and implementation. MGH is also exploring a resident-led funding contingent which would place decision-making with community residents.

In an effort to continue to improve upon community engagement efforts, MGH recognizes there is a need to maintain regular communication with the community and all stakeholders. MGH would like to create opportunities for more community members to participate in or influence decision making by adding members to the CAB that are neighborhood residents in the required constituencies and creating a sub-committee to the Allocation Committee comprised solely of residents (i.e., a resident-led funding stream). MGH would also like to add leadership building, particularly among resident members of the CAB. To this end, MGH is seeking to recruit more residents to participate in our CAB and plans to add six to eight more members from Boston and North Suffolk. In addition, we may expand the CAB charter to cover internal issues of equity in addition to the DoN process. We are also considering formalizing the role of the Allocation Committee bringing both the CAB and Allocation Committee members together for certain meetings.

MGH will continue to participate in the Boston CHNA/CHIP Collaborative as a steering committee member. Through its membership, MGH CCHI will participate in collaborative meetings and identify areas where impact can be achieved through collaboration.

One of our intentions for the upcoming DoN is to facilitate a conversation with the CAB about investing in specific geographies. We may explore using a hardship index indicator or social vulnerability score as a potential data to assist CAB with decision-making.

Lastly, given the size of this CHI, we are exploring new options for how to best use administrative funds. In addition to uses that have worked in the past, such as a hiring a

facilitator for the CAB and Allocation Committee, MGH would also like to explore utilizing these resources to create public relations and community engagement specialist roles; contract with content advisors on priority areas under CAB and Allocation consideration; and utilize consultants to advise on community engagement processes to move MGH's work towards a "Community-Lead" model.

Appendix 5B

CHNA/CHIP Self-Assessment Form and Addendum



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: DoN Application Type:

What CHI Tier is the project? ☐ Tier 1 ☐ Tier 2 ☒ Tier 3

1. DoN Applicant Information

Applicant Name:

Mailing Address:

City: State: Zip Code:

2. Community Engagement Contact Person

Contact Person: Title:

Mailing Address:

City: State: Zip Code:

Phone: Ext: E-mail:

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):

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 but 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 CHNA-CHIP Collaborative	1	Boston CHNA/CHIP Steering Committee		
 	North Suffolk Public Health Collaborative CHNA/CHIP	1	North Suffolk Steering Committee		
 	Everett-Malden CHNA Collaborative	1	The Massachusetts General Hospital Cambridge Health Alliance, MelroseWakefield Healthcare		

5. CHNA Analysis Coverage

Within the 2019 MGH CHNA Process, 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

Boston CHNA-CHIP Collaborative and North Suffolk Public Health Collaborative:

Transportation:

Boston residents (34%) rely on public transportation to get to work, health appointments, their children's schools, or for help from social service or other organizations. It's essential to their health and livelihoods. However, transportation options in Boston have limitations: CHNA participants expressed concern about cost, timeliness, and access, especially for the elderly, those with limited English proficiency, or those who live in neighborhoods with limited transportation options. Bostonians spend an average of 11% of their household income on transportation expenses.

More information regarding transportation may be found on pages 11, 15, 21, 25, 26 and 43 in various sections throughout the CHNA.

Obesity and Food Insecurity:

Access to fresh and affordable healthy food is a particular problem in some neighborhoods in Boston. While more affluent neighborhoods were described as having substantial access to healthy food, lower income neighborhoods, most commonly communities of color, were described as having few grocery stores and a prevalence of fast food and convenience stores. Quantitative data indicate that nearly one in five Boston residents reported being food insecure, in that it was sometimes or often true that the food they have purchased did not last and they did not have money to get more. Experiences with food insecurity varied by population group. In aggregated 2013, 2015, and 2017 BBRFSS data, Latino (39.1%) and Black (34.5%) residents were significantly more likely than White residents (10.7%) to report being food insecure as were foreign-born residents compared to U.S. born residents. Food insecurity and lack of access to fresh and affordable healthy food is associated with obesity. At the neighborhood level, the percent of adults in Mattapan (71%), Hyde Park (65%), Dorchester (63-65%), West Roxbury (64%), East Boston (63%), and Roslindale (63%) who were obese, or overweight was significantly higher than the rest of Boston.

On the Boston Youth Risk Behavior Survey, one-third of Boston high school youth (33%) reported being obese or overweight in 2013-2017. Similar to patterns for adults, a significantly higher proportion of Latino (37%) and Black (36%) high school youth reported being obese or overweight than White high school youth (23%).

More information regarding food insecurity may be found on pages 5, 7, 10, 11, 13, 16, 20, 30, 34, 41, 54 and 56.

5.2 Education

Boston CHNA-CHIP Collaborative:

There are also disparities in education. Forty-eight percent (48%) of all Boston residents have a college degree or higher; however, rates vary substantially across race and ethnicity: Whites (70%), Asians (57%), Latinos (21%), and Blacks (20%). In the Boston Public Schools (BPS), nearly 42% of students identify as Latino and 32% as Black, and many school-age children have special needs that affect their educational achievement. BPS data show that 76% of students have "high needs," meaning they are low-income, English Language Learners, and/or have a disability.

More information regarding education in Boston may be found on pages 5, 7, 10, 11, 13, 15, 16, 18, 19, 21, 26 and 30 of the CHNA.

North Suffolk Public Health Collaborative:

According to MA DESE, North Suffolk has higher rates of high school dropout. In 2017-2018, the statewide high school dropout rate was 2%, compared to Chelsea's (7%) and Winthrop's (4%). Revere's high school dropout rate was the same as the statewide rate. In 2018 Revere and Winthrop had high school graduation rates similar to the state's (88%), whereas Chelsea had a much lower high school graduation rate of 67%. For rising seniors of the 2017-2018 school year, the most common plan after graduation for both Chelsea and Revere youth was attending a two-year public college, and their second most common plan was attending a four-year

public college. For Winthrop youth, the most common plan after graduation was to attend a four-year private college and their second most common plan was to attend a four-year public college. These differences indicate a substantial disparity in aspirations for higher education between Chelsea and Revere youth on the one hand, and Winthrop youth on the other.

From 2012 to 2016 ACS data, 88% of Chelsea residents did not have a college degree compared to 67% of Revere residents and 35% of Winthrop residents.

More information regarding education in the North Suffolk communities may be found on pages 31, 34-35, 53 and 56 in the CHNA.

5.3 Employment

Boston CHNA-CHIP Collaborative:

The average income in Boston is \$62,021, but the range is large and there are disparities—from \$27,952 in Dorchester to \$170,152 in South Boston. In four neighborhoods—Dorchester, Fenway, Roxbury, and the South End—25-37% of residents live below the federal poverty level. Median income is highest for Whites (\$98,317) and lowest for Latinos (\$36,998). One interviewee summarized, “Real wages have been going down for low income people [for decades]. This is at the heart of all of it: people have no time because they are working four jobs to get the same salary they used to get from one [job]. If you can’t rest, how can you be healthy? The sleep and the downtime are fundamental, and people have less of it. Some people have to work 70 hours to make ends meet.”

Roxbury (44%), Fenway (40%), parts of Dorchester (02121 and 02125 zip codes—36%), and the South End (31%) had the highest proportion of households with incomes below \$25,000. The percentages of households receiving food stamps (known as SNAP—Supplemental Nutrition Assistance Program) across Boston neighborhoods ranges from a low of 5.7% in Back Bay to a high of 34% in parts of Dorchester and 32% in Roxbury. Many residents struggle to meet basic needs, while non-White more than White CHNA respondents described struggles with credit card debt, housing costs, medical bills, child care, and more.

Boston’s unemployment rate is deceptive. In 2018, overall unemployment was 3.0%; however, it was significantly higher in Roxbury (12%), Dorchester (11%), Fenway (10%), and Mattapan (11%). The health care and education sectors are Boston’s largest employers with substantial growth, but CHNA participants noted challenges in securing employment in these and other industries due to required education credentials, online applications that are challenging for those with limited technical knowledge, and a criminal record. According to the American Community Survey, nearly one-third of Boston residents 16 years or older are employed in education, health care, or social assistance industries; followed by professional, scientific, and management jobs; and administrative and waste management services positions (industry categories are pre-defined by the U.S. Census).

CHNA participants recommended reducing employment barriers by addressing minimum education requirements, valuing the lived experience of applicants, and increasing youth employment opportunities.

Employment information for Boston may be found on pages 10, 11, 19-21, 26 and 30 of the CHNA.

North Suffolk Public Health Collaborative:

In the 2019 North Suffolk Community Survey, 23% of all respondents selected poverty as a top health concern, a marked change from the 2014 and 2015 surveys when poverty was not a top five health concern. In 2019, 38% of Chelsea survey respondents and 28% of Revere survey respondents identified poverty among their most important health issues. People living in poverty are more likely to have worse health outcomes. Participants suggested more and better employment and educational opportunities to support higher incomes and cultivate a more financially stable community.

The working-age population is defined as individuals between the ages of 15 and 64. Based on ACS 2012-2016 data, 91% of Chelsea, 86% of Revere, and 82% of Winthrop residents are considered working age. Despite this, unemployment rates for Winthrop (4.9%), Chelsea (5.6%), and Revere (7%) are better or near state average (6.3%). Many focus group members and key informants commented that many people have multiple jobs, many part-time and without benefits. The majority of households have children, but 44% of Chelsea, 38% of Revere, and 29% of Winthrop survey respondents with children ages 5-12 reported difficulty finding after-school programs. Without appropriate child care access, families risk access to just one income since one parent becomes the caretaker.

Employment information for the North Suffolk communities may be found on page 34 of the CHNA.

5.4 Housing

Boston CHNA-CHIP Collaborative:

Boston is known for its high cost of housing. CHNA participants across neighborhoods consistently

stated that the rising cost of housing in Boston is a major day-to-day concern and leaves few resources for other needs. The cost of a single-family home rose by 48% between 2011-2016. Among renters, Blacks, Latinos, and Asians are significantly more likely to spend 30% or more of their income on housing compared to all Boston renters. The availability of affordable housing has dropped considerably between 1996-2016. More than 39% of all new housing permits in 1996 were affordable, compared to only 18% in 2016. Almost 20% of CHNA survey respondents (19.5%) reported trouble paying their rent or mortgage. For some groups the rate was much higher, including respondents who were Black (29.4%), Latino (27.1%), Non-binary/transgender (42.3%), those with some college or a certificate program (34.2%), LGBTQ individuals (24%), and the parent of a child under age 18 (23.7%).

The pressures of housing stability and affordability are intense and are associated with poor physical and mental health outcomes, as well as disruptions in work, school, and day care arrangements. Poor housing quality can have direct negative health impacts including respiratory conditions such as asthma due primarily to poor indoor air quality, cognitive delays in children from exposure to neurotoxins (e.g., lead), and accidents and injuries as a result of structural deficiencies.

There are other impacts. CHNA participants noted that high housing costs are especially difficult for people with low or fixed incomes, such as seniors and residents who work low-wage jobs. Those who are undocumented and non-English-speaking are especially vulnerable. One focus group participant shared, "The people who live here do not have access to the new apartments coming up in East Boston. How are we supposed to access rents that are \$2,000-3,000 and maintain a life?"

In Boston in 2018, an estimated 6,188 residents were homeless, and nearly one-third of homeless households included at least one child. Those with behavioral health issues and/or SUDs, LGBTQ youth, seniors, immigrants, those with a criminal record, single mothers, and survivors of trauma are most vulnerable to homelessness. The number of homeless persons has remained relatively consistent between 2015-2018, with modest variation in racial composition.

Gentrification, long waiting lists for housing assistance (up to ten years for public housing), discrimination, and overcrowding are part of daily life for the poor and near-poor. Families struggle to meet basic needs, make credit card payments, or pay medical bills. Access to quality education and training programs is essential for economic mobility but limited by poor preparation in substandard educational systems in poor areas. For those at housing risk, the absence of a safe and secure home can affect every other dimension of their lives.

CHNA respondents called for increasing opportunities for home ownership and the assets it brings in non-White communities, and for mitigating the impact of gentrification and displacement.

Housing information on Boston may be found on pages 18 and 19 of the CHNA.

North Suffolk Public Health Collaborative:

Like Boston, data across the three communities (Chelsea, Revere and Winthrop) demonstrate strong concern about housing and its impact on health. The table above shows high rates of housing crowding (greater than one person per room), particularly in Chelsea but also in Revere. Chelsea and Revere survey respondents rated housing as a top concern, with substantial increases in 2019 over prior assessments. For both communities, housing was among the top five health concerns. While housing was not one of the top five health concerns among Winthrop residents, it did rise in the ranking of top ten concerns.

According to the American Community Survey (ACS) data from 2012 to 2016, approximately 38% of all housing units in Massachusetts were renter-occupied. By contrast, rates of renter-occupied housing units were higher than the state rate in all three communities: 74% in Chelsea, 52% in Revere, and 43% in Winthrop.

Renting can be stressful. Focus group participants described necessary repairs, such as broken doors left undone and negligence by landlords in making any improvements at all. According to ACS data from 2012-2016, the majority of renters in Chelsea, Revere, and Winthrop are people of color (Hispanic/Latino, Black/African American, Asian, Multi-race and/or other race, American Indian, and Pacific Islander). Chelsea-based community health workers (CHWs) described "slumlords" who do not maintain adequate housing conditions for their tenants. Their patients who are immigrants are reluctant to complain due to their immigration status, thus remaining trapped in substandard conditions.

Unaffordable housing increases risk of eviction and gentrification. According to the ACS 2012-2016 data, 37% of all households in Massachusetts—renter and owner—were cost burdened (meaning they pay 30-50% of their monthly income on housing). In North Suffolk, residents in Chelsea (41%), Revere (51%) and Winthrop (47%) indicated they are cost burdened.

Rising costs increase fears of foreclosure, eviction, and homelessness. The figure below shows the eviction rates, calculated by Eviction Lab, which tracks and calculates eviction rates across the country from 2008 to 2016 in Massachusetts, Chelsea, Revere, and Winthrop.

Within the three communities of North Suffolk, there are peaks in eviction rates in 2012 and 2015. In 2016 the rates in Revere and Winthrop decrease, while in Chelsea, eviction rates increase significantly. There are disparities in fears of eviction. Compared to 11% of non-Hispanic/Latino survey respondents, 23% of Hispanic-Latino survey respondents fear they will be evicted or foreclosed due to lack of rent or mortgage payment. Survey respondents in Revere (44%), Chelsea (30%), and Winthrop (23%) expressed fear of homelessness in the next year. The MA Department of Elementary and Secondary Education estimates that in the 2017-2018 school year, there were 463 homeless youth in Chelsea (including those doubled up with others), 191 in Revere, and 14 homeless youth in Winthrop.

The lack of quality and affordable housing makes healthy behaviors and lifestyles difficult to sustain. A young focus group participant said, "If people could spend more time at home rather than working to afford their housing, they would be able to spend more time meal prepping, eating healthier foods, and connecting with the community."

Fifty-six percent of survey respondents across Chelsea, Revere, and Winthrop defined a healthy community as one with affordable housing.

Housing information for the North Suffolk communities may be found on pages 32-34 of the CHNA.

5.5 Social Environment

Boston CHNA-CHIP Collaborative and the North Suffolk Public Health Collaborative:

Social Environment and Access to Care: CHNA participants recommended increasing help for navigation of the complex health care system and delivering culturally sensitive and linguistically appropriate services to diverse groups. They suggested improving collaboration and information sharing between medical providers and service agencies, especially with the spread of accountable care organizations; pursuing multi-year funding to allow for adequate response to crises and opportunities while building capacity in the health care system; and, long-term renewable leases for nonprofits and social service agencies strained by rising operating costs.

Social Environment and Mental Health: Participants in all focus groups were concerned about mental health. Depression and anxiety were discussed as concerns for those in recovery, current substance users, youth, elders, and veterans. Trauma was cited as an issue, especially among recent immigrants and refugees. Focus group participants said that though North Suffolk residents are dealing with intense stress and pressure, mental health concerns are generally not taken seriously.

Participants talked about the feeling of social isolation and its impact on the mental health with concern about isolation among the elderly and Muslim communities. One person said that Muslims stay in their own group and are isolated from the larger community. Elders also tend to live alone. ACS data from 2012 to 2016 indicate that Chelsea, Revere, and Winthrop all have higher percentages of individuals age 65 and older who live alone compared to statewide (45% in Chelsea, 34% in Revere, and 38% in Winthrop versus 30% in MA).

While 46-50% of North Suffolk survey respondents rated their satisfaction with social activities and relationships as "very good" or "excellent," focus groups from all communities discussed the desire for more activities that bring the community together. One participant from Revere mentioned that Revere needs more activities that bring all of Revere together across age, race, and ethnicity to reduce the social isolation and promote social and emotional well-being.

Social Environment for Elders: Only 11% of Boston's population is over 65, compared to 15% for the state. However, nearly 40% of the elderly live alone, compared to Massachusetts (30%). In Boston, stress, anxiety, social isolation, and depression were the most frequently cited mental health challenges among Boston's elderly residents. Participants spoke of co-occurring issues, the most common being hoarding disorder. One key informant explained, "You'll see instances when organizations rally together to clean the home of seniors [who are hoarders]. Then we'll come back 6 months later, and their conditions are right back where they were and it's because they haven't left their house or spoken to anyone in weeks." Thirty-four percent of elders in Boston have depression and 24% have an anxiety disorder. Compared to the state (9%), 20% of Boston elders live below the poverty line.

In North Suffolk, there was concern among the elderly and key informants around social isolation, depression, and access to services. Winthrop (17%) and Revere (14%) have higher elderly populations than Chelsea (9%). However, 19% of elders in Chelsea live below the poverty line, compared to Revere (13%) and Winthrop (10%). Additionally, a high number of elders live alone in Chelsea (45%), Revere (34%), and Winthrop (38%) than in Massachusetts overall (30%).

For more information on the social environment in Boston and the North Suffolk communities see pages: 26, 36 and 43.

5.6 Violence and Trauma

Boston CHNA-CHIP Collaborative and the North Suffolk Public Health Collaborative:

In Boston, community violence was the most frequently discussed type of violence in focus groups, namely in the neighborhoods of Dorchester, Mattapan, Roxbury, Chinatown, and East Boston. When Boston CHNA survey respondents were asked how safe they considered their neighborhoods to be, 25% described their neighborhood as unsafe or extremely unsafe. Twice as many respondents from Roxbury (50%), Mattapan (49%), and Dorchester (45%) described their neighborhood as unsafe or extremely unsafe. One in five Boston CHNA survey respondents described gunshots in the neighborhood (22%) and feeling unsafe when alone on the street at night (19%) as serious problems.

For North Suffolk community violence and safety were a concern in Chelsea and Revere, although there were mixed perceptions. A few focus group participants mentioned that there are certain areas in Chelsea and Revere that many people perceive as unsafe but stated that they don't feel unsafe overall; a couple of elder focus group participants stated that Chelsea feels a lot safer now than it did before. In addition, when asked if they feel safe in their community, one participant said no because of racism and community violence such as shootings. On the North Suffolk community survey, there was a slight difference between non-Hispanic (86%) and Hispanic (82%) when asked if they felt safe in their community.

Additional information on violence and trauma for all communities may be found on pages 41 and 53 of the CHNA.

5.7 The following specific focus issues

a. Substance Use Disorder

Boston CHNA-CHIP Collaborative:

CHNA participants discussed the co-occurrence of behavioral health issues with SUDs, including opioid use disorder (OUD) and trauma. Together these challenges are among the leading causes of disability in the U.S. In 2016, unintentional opioid overdose accounted for 69% of all accidental deaths, with rates highest among Latinos, followed by Whites. Increases in opioid overdose mortality leveled off between 2013-2016, with an alarming exception among Latinos. Data released from the Massachusetts Department of Public Health during the writing of this report does suggest some good news, though. Between 2017 and 2018, Boston saw an 8.5% decrease in the number of opioid-related overdose deaths, from 198 to 181, respectively.

CHNA respondents report that access to help is limited by stigma, culture, language, cost, and provider competency in treating immigrant communities. They recommended investing in more behavioral health support in public schools, reducing cultural stigma linked to behavioral health services, and recruiting behavioral health clinicians who reflect the diversity of Boston. One key informant illustrated these barriers by sharing, "There is far too little access to treatment programs, and those that do exist are not linguistically and culturally competent."

Additional information on substance use disorders in Boston may be found on pages 23-25 of the CHNA.

North Suffolk Public Health Collaborative:

The number of opioid-related overdose deaths continues to be a concern. According to the MA Registry of Vital Records and Statistics, in 2013 the number of opioid-related overdose deaths were: Chelsea (7), Revere (15), and Winthrop (2). The numbers of opioid-related deaths have been variable, with highs of 18 (Chelsea), 27 (Revere), and 10 (Winthrop) between 2014-2017. However, data released from the Massachusetts Department of Public Health during the writing of this report does suggest some good news. Between 2017 and 2018, all three communities saw a decrease in the number of opioid related overdose deaths (Chelsea 14 to 10; Revere 24 to 15; Winthrop 11 to 7), while the state saw a slight increase (1,981 to 1,995). While these numbers are promising, the crisis of addiction persists.

In 2014, Massachusetts' heroin overdose hospitalization age-adjusted rate increased to 105 per 100,000. That year in Chelsea the rate was 116.7 per 100,000, 171.7 in Revere, and 87.2 in Winthrop. The rates have been variable over time.

Focus group and key informant interview respondents cited obstacles to receiving care for SUDs. Stigma is a major impediment to getting help. In discussions in Revere and Winthrop, respondents said that shame and a desire for privacy limit openness about challenges with substances, even when evidence is obvious such as visible needles. Youth in Revere

described individuals who do not get help, masking the issue until the crisis grows and creating additional problems.

For those who have accepted the need for help, there is a shortage of accessible and affordable providers. Among Hispanic/Latino survey respondents, 24% stated a need for more accessible SUDs services, compared to 0.7% of non-Hispanic/Latino survey respondents. Demand is high for help for SUDs that is culturally and linguistically relevant.

Access to care becomes even more complicated by intersections across social determinants; SUDs and behavioral health challenges often coexist. For example, in 2017 MA Bureau of Substance Abuse Services (BSAS) enrollment data show that among those seeking SUDs treatment, 33% in Chelsea, 22% in Revere, and 18% in Winthrop were homeless at enrollment. Further, BSAS data indicate that 39% each of residents in Chelsea and Revere, and 47% of residents in Winthrop received prior mental health treatment before currently seeking care. These same data also show prior-year needle use among those enrolled in treatment among Chelsea (41%), Revere (51%), and Winthrop (39%) residents.

Substance Use Disorders Among Youth:

There are some reassuring data about youth substance use in North Suffolk, although there are a few areas of concern, and the perception of use among youth is in some cases higher than the actual use.

Marijuana - Youth focus group participants expressed that the legalization of marijuana has created a perception of lower risk from marijuana use compared to other drugs. One young participant stated, "Since marijuana has been legalized, kids have been using it more... like it's fun."

- Chelsea and Revere YRBS data show that 5% of middle schoolers used marijuana in the past 30 days, compared to 2% statewide. The Winthrop data show that 10% of Winthrop combined middle school and high school youth reported using marijuana within the past 30 days.

- On the other hand, North Suffolk high school students are using marijuana less often than MA high school youth: 19% of Chelsea high school students and 18% of Revere high school students reported using marijuana in the past 30 days, compared to 24% of high school youth statewide.

Vaping - Another growing concern for youth is the increased use of electronic vapor products, known as vaping. Health and school officials have stated that underage vaping is an epidemic, with addiction among younger teens to nicotine potentially causing harm to developing brains. Youth focus group participants mentioned that the increase in vaping is a huge concern for them. Students openly vape on school property and in front of teachers. A Revere student reported that she saw a student take a hit from a JUUL during class while the teacher was looking at him because he was able to hide the JUUL in his sweatshirt. Youth indicated that they don't think JUUL is harmful or addictive since "Everyone is doing it."

Alcohol - Youth alcohol use in North Suffolk is somewhat higher than state average for middle school, and lower for high school. Four percent of middle school youth statewide reported drinking alcohol in the past 30 days compared to 8% youth in Chelsea and Revere middle school youth, and 20% of combined Winthrop middle and high school youth. Among high school students, 31% statewide reported drinking alcohol in the past 30 days compared to 26% of Chelsea high school students and 21% of Revere high school youth.

Additional information on substance use disorders in the North Suffolk communities may be found on pages 38-39 of the CHNA.

b. Mental Illness and Mental Health

Boston CHNA-CHIP Collaborative:

The CHNA showed widespread concern about behavioral health challenges among families, friends, and neighbors. Stress, anxiety, and depression were the most frequently-cited behavioral health issues among Boston residents, especially those who identify as LGBTQ, low-income, women, renters, seniors, children, immigrants, communities of color, and the unemployed. Data show persistent sadness (12%) among Boston adults. Rates are higher among Blacks (14%), Latinos (17%), Boston Housing Authority (BHA) residents (20%), renters and those receiving rental assistance (26%), those with less than a high school education (22%), LGBTQ individuals (17%), those earning less than \$25,000 (21%), and those who are unemployed (25%).

The data for those with persistent anxiety are also concerning, with high rates for Boston adults (21%), women (24%), people with low income (28%), young people ages 18-24 (24%), and the unemployed (33%). Boston's Youth Risk Behavior Survey (YRBS) data show concerning trends in children and youth: nearly one-third of BPS high school students report persistent sadness, with higher rates among female and LGBTQ students.

Other influences on behavioral health cited by CHNA participants included unstable housing; parental incarceration, especially of Black and Latino men who are thereby not present in the home; and, domestic violence. Immigrants and communities of color were described as especially vulnerable to behavioral health concerns due to limited English language skills, cultural norms, and stigma related to seeking mental health services.

Additional information on mental health for Boston's neighborhoods may be found on pages 21-23 of the CHNA.

North Suffolk Public Health Collaborative:

In Chelsea, Revere, and Winthrop residents face rising rates of behavioral health challenges and substance use disorders (SUDs). These are often connected, and many residents struggle with both. Overall in the three communities, 74% of all survey respondents selected alcohol/drug use/addiction/overdose as their top health concerns, and 45% identified mental health as one of the top three health concerns. Mental health increased significantly as a concern from 2015 to 2019, rising from the 5th most important issue to the 3rd.

Participants in all focus groups were concerned about mental health. Depression and anxiety were discussed as concerns for those in recovery, current substance users, youth, elders, and veterans. Trauma was cited as an issue, especially among recent immigrants and refugees. Focus group participants said that though North Suffolk residents are dealing with intense stress and pressure, mental health concerns are generally not taken seriously.

Participants talked about the feeling of social isolation and its impact on the mental health with concern about isolation among the elderly and Muslim communities. One person said that Muslims stay in their own group and are isolated from the larger community. Elders also tend to live alone. ACS data from 2012 to 2016 indicate that Chelsea, Revere, and Winthrop all have higher percentages of individuals age 65 and older who live alone compared to statewide (45% in Chelsea, 34% in Revere, and 38% in Winthrop versus 30% in MA).

While 46-50% of North Suffolk survey respondents rated their satisfaction with social activities and relationships as "very good" or "excellent," focus groups from all communities discussed the desire for more activities that bring the community together. One participant from Revere mentioned that Revere needs more activities that bring all of Revere together across age, race, and ethnicity to reduce the social isolation and promote social and emotional well-being.

Youth struggle with social and emotional issues as well. The 2015 and 2017 Youth Risk Behavior Survey (YRBS) data in Chelsea and Revere, the 2018 Winthrop Prevention Needs Assessment (PNA), and the 2017 MA Youth Health Survey all indicate that North Suffolk middle and high school youth reported feeling sad or hopeless for two weeks at higher percentages than middle and high school youth across Massachusetts, with a particularly notable rate among Chelsea High School students.

The need for culturally competent mental health care is great and growing. There is a lack of culturally and linguistically competent mental health providers and resources. Compared to 15% of non-Hispanic/Latino survey respondents, 20.8% Hispanic/Latino survey respondents rated their mental health as "poor" or "fair." Focus group participants expressed a belief that some races and cultures do not think that mental health concerns affect them. If people are feeling sad, it's something that they should just get over. They further commented that for some residents of color or those from different cultures, "Depression is for white people." (See facing page for survey results.)

Overall, there is a disheartening scarcity of mental health services. A focus group participant said that long wait times for mental health care appointments have caused some to threaten suicide in order to expedite care. But, as one focus group participant mentioned, "No one should have to say, 'I'm going to kill myself' in order to get services."

Statewide, 9% of middle school youth and 12% of high school youth have seriously considered suicide. In North Suffolk the data are deeply concerning, especially for middle school youth. Among middle school youth, 20% in Chelsea and 18% in Revere have seriously considered suicide. Among high school youth, 13% in Chelsea and 8% in Revere report seriously considering suicide. Winthrop's combined data for middle school and high school youth show 14% reported seriously considering suicide.

Additional mental health information on North Suffolk may be found on pages 34-37 of the CHNA.

c. Housing Stability / Homelessness

Boston CHNA-CHIP Collaborative:

In Boston in 2018, an estimated 6,188 residents were homeless, and nearly one-third of homeless households included at least one child. Those with behavioral health issues and/or SUDs, LGBTQ youth, seniors, immigrants, those with a criminal record, single mothers, and survivors of trauma are most vulnerable to homelessness. The number of homeless persons has remained relatively consistent between 2015-2018, with modest variation in racial composition.

Gentrification, long waiting lists for housing assistance (up to ten years for public housing), discrimination, and overcrowding are part of daily life for the poor and near-poor. Families struggle to meet basic needs, make credit card payments, or pay medical bills. Access to quality education and training programs is essential for economic mobility but limited by poor preparation in substandard educational systems in poor areas. For those at housing risk, the absence of a safe and secure home can affect every other dimension of their lives.

CHNA respondents called for increasing opportunities for home ownership and the assets it brings in non-White communities, and for mitigating the impact of gentrification and displacement.

Information on housing stability and homelessness in Boston may be found on pages 18 and 19 of the CHNA.

North Suffolk Public Health Collaborative:

Unaffordable housing increases risk of eviction and gentrification. According to the ACS 2012-2016 data, 37% of all households in Massachusetts—renter and owner—were cost burdened (meaning they pay 30-50% of their monthly income on housing). In North Suffolk, residents in Chelsea (41%), Revere (51%) and Winthrop (47%) indicated they are cost burdened.

Rising costs increase fears of foreclosure, eviction, and homelessness. The figure on page 33 shows the eviction rates, calculated by Eviction Lab, which tracks and calculates eviction rates across the country from 2008 to 2016 in Massachusetts, Chelsea, Revere, and Winthrop. Within the three communities of North Suffolk, there are peaks in eviction rates in 2012 and 2015. In 2016 the rates in Revere and Winthrop decrease, while in Chelsea, eviction rates increased significantly.

There are disparities in fears of eviction. Compared to 11% of non-Hispanic/Latino survey respondents, 23% of Hispanic-Latino survey respondents fear they will be evicted or foreclosed due to lack of rent or mortgage payment. Survey respondents in Revere (44%), Chelsea (30%), and Winthrop (23%) expressed fear of homelessness in the next year. The MA Department of Elementary and Secondary Education estimates that in the 2017-2018 school year, there were 463 homeless youth in Chelsea (including those doubled up with others), 191 in Revere, and 14 homeless youth in Winthrop.

The lack of quality and affordable housing makes healthy behaviors and lifestyles difficult to sustain. A young focus group participant said, "If people could spend more time at home rather than working to afford their housing, they would be able to spend more time meal prepping, eating healthier foods, and connecting with the community."

Fifty-six percent of survey respondents across Chelsea, Revere, and Winthrop defined a healthy community as one with affordable housing.

Information on housing stability and homelessness in the North Suffolk communities may be found on pages 32-34 of the CHNA.

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

Boston CHNA-CHIP Collaborative and the North Suffolk Public Health Collaborative:

Data show that cancer, heart disease, diabetes, and other chronic diseases are drivers of mortality in Boston and North Suffolk communities. There are significant racial and ethnic disparities in these conditions that result in higher mortality rates. For example, the age-adjusted mortality rate per 100,000 is higher in Chelsea (963.8), Revere (734), and Winthrop (928.7) than the Massachusetts rate (668.9). Likewise, Charlestown (758.2), Dorchester (737), East Boston (759), Hyde Park (840.4), and Roxbury (769.9) are higher than Boston's age-adjusted mortality rate per 100,000 (702.5).

Access to high quality health care—such as that offered at Mass General Hospital—is critical to preventing and treating

these conditions. However, medical treatment alone is not enough to eliminate these inequities. Social and economic factors contribute up to 80% toward health status. Issues such as access to safe and affordable housing, healthy food, quality education, and employment opportunities impact health.

That is why MGH's CHNA focuses on the social and economic factors that are such powerful influencers of health status. Health care alone cannot be responsible for solving these societal problems. However, health care can play a leadership role in convening and collaborating with business, government, and other sectors to create innovative solutions to complex and longstanding problems.

Information on chronic diseases may be found on pages 7, 10, 13 and 52 of the CHNA.

6. Community Definition

Specify the community(ies) identified in the Applicant's 2019 MGH CHNA Process

Add/Del Rows	Municipality	If engagement occurs in specific neighborhoods, please list those specific neighborhoods:
<input type="checkbox"/> + <input type="checkbox"/> -	Boston	
<input type="checkbox"/> + <input type="checkbox"/> -	Charlestown	
<input type="checkbox"/> + <input type="checkbox"/> -	Chelsea	
<input type="checkbox"/> + <input type="checkbox"/> -	Dorchester	
<input type="checkbox"/> + <input type="checkbox"/> -	East Boston	
<input type="checkbox"/> + <input type="checkbox"/> -	Mattapan	
<input type="checkbox"/> + <input type="checkbox"/> -	Revere	
<input type="checkbox"/> + <input type="checkbox"/> -	Roxbury	
<input type="checkbox"/> + <input type="checkbox"/> -	Winthrop	

7. Local Health Departments

Please identify the local health departments that were included in your 2019 MGH CHNA Process. Indicate which of these local health departments were engaged in this 2019 MGH CHNA Process. For example, this could mean participation on an advisory committee, included in key informant interviewing, etc. (Please see page 24 in the Community Engagement Standards for Community Health Planning Guidelines <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
<input type="checkbox"/> <input type="checkbox"/>	Boston	Boston Public Health Commission	Margaret Reid		Ms. Reid was part of the Boston CHNA-CHIP Steering Committee, as well as a member of the Secondary Data Committee; Dan Dooley of BPHC was the Co-Chair of the Secondary Data Committee; Triniese Polk of BPHC was the Co-Chair of the Community Engagement Committee.
<input type="checkbox"/> <input type="checkbox"/>	Chelsea	Chelsea Health & Human Services	Luis Prado		Mr. Prado was a Steering Committee member of the North Suffolk Public Health Collaborative.
<input type="checkbox"/> <input type="checkbox"/>	Chelsea	Chelsea Board of Health	Dean Xerras		Mr. Xerras was a Steering Committee and Sub-Committee member of the North Suffolk Public Health Collaborative.
<input type="checkbox"/> <input type="checkbox"/>	Revere	Revere Board of Health	Eric Weil		Mr. Weil was a Steering Committee member of the North Suffolk Public Health Collaborative.
<input type="checkbox"/> <input type="checkbox"/>	Winthrop	Winthrop Board of Health	Susan Maguire		Ms. Maguire was a Steering Committee and Sub-Committee member of the North Suffolk Public Health Collaborative. Additionally, Meredith Hurley, the Director of Public Health was a Steering Committee member of the North Suffolk Public Health Collaborative.

8. CHNA / CHIP Advisory Committee

Please list the community partners involved in the CHNA/CHIP Advisory Committee that guided the 2019 MGH CHNA Process. (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
<input type="checkbox"/>	Municipal Staff	City of Revere	Dianne Collella			
<input type="checkbox"/>	Education	School Committee	Carol Tye	Former Superintendant		
<input type="checkbox"/>	Housing	The Neighborhood Developers	Ann Houston	Executive Director		
<input type="checkbox"/>	Social Services	North Suffolk Mental Health	Kim Haton	Director of Addiction Services		

Add/Del Rows	Sector Type	Organization Name	Name of Primary Contact	Title in Organization	Email Address	Phone Number
	Planning + Transportation	Revere Beautification Committee	Carol Haney			
	Private Sector/ Business	Cooking Matters	Michelle Camiel			
	Community Health Center	MGH Revere Healthcare Center	Roger Pasinski	Medical Director		
	Community Based Organizations	Chelsea Collaborative	Roseann Bongovanni	Executive Director		
<input type="checkbox"/> <input type="checkbox"/>	Local Public Health Departments/Boards of Health	City of Revere	Carol Donovan	Revere Public Health Nurse		
<input type="checkbox"/> <input type="checkbox"/>	Private Sector	Resident	Selene Erazo	Resident		
<input type="checkbox"/> <input type="checkbox"/>	Education	Revere Public Schools	Megan Fidler Carey	Afterschool Coordinator		
<input type="checkbox"/> <input type="checkbox"/>	Additional municipal staff (such as elected officials, planning, etc.)	City Council	Ira Novoselsky	City Councilor		
<input type="checkbox"/> <input type="checkbox"/>	Additional municipal staff (such as elected officials, planning, etc.)	Revere Police Department	Amy O'Hara	Captain		
<input type="checkbox"/> <input type="checkbox"/>	Housing	Chelsea District Court	Judy Lawler	Drug Court		
<input type="checkbox"/> <input type="checkbox"/>	Local Public Health Departments/Boards of Health	City of Revere/Revere on the Move	Dimple Rana	Director of Health Community Initiatives		
<input type="checkbox"/> <input type="checkbox"/>	Social Services	FKO Afterschool	Tania Buck			
<input type="checkbox"/> <input type="checkbox"/>	Additional municipal staff (such as elected officials, planning, etc.)	City of Revere	Julia Newhall	SUDI		
<input type="checkbox"/> <input type="checkbox"/>	Additional municipal staff (such as elected officials, planning, etc.)	City of Chelsea	Tom Amrbrosino	City Manager		
<input type="checkbox"/> <input type="checkbox"/>	Additional municipal staff (such as elected officials, planning, etc.)	Chelsea Police Department	Dave Betz			
<input type="checkbox"/> <input type="checkbox"/>	Education	Chelsea Public Schools	Mary Bourque	Superintendent		
<input type="checkbox"/> <input type="checkbox"/>	Social Services	Chelsea, Revere, Winthrop Elder Services	Jim Cunningham			
<input type="checkbox"/> <input type="checkbox"/>	Social Services	Soldier's Home	Cheryl Poppe			
<input type="checkbox"/> <input type="checkbox"/>	Regional Planning and Transportation agencies	City of Chelsea Department of Planning and Development	John DePriest	Director of Planning & Development		
<input type="checkbox"/> <input type="checkbox"/>	Housing	Chelsea Housing Authority	Paul Nowiki			
<input type="checkbox"/> <input type="checkbox"/>	Private Sector	Cataldo Ambulance	Molly Lawrence			
<input type="checkbox"/> <input type="checkbox"/>	Local Public Health Departments/Boards of Health	City of Chelsea	Luis Prado	Director, Health & Human Services		

<input type="checkbox"/> <input type="checkbox"/>	Community-based organizations	Chelsea Collaborative	Sylvia Ramirez	Workforce Development Manager		
<input type="checkbox"/> <input type="checkbox"/>	Community-based organizations	CAPIC	Bob Repucci	Executive Director		
<input type="checkbox"/> <input type="checkbox"/>	Community-based organizations	Project Bread	Scott Richardson			
<input type="checkbox"/> <input type="checkbox"/>	Community-based organizations	CAPIC Head Start	Joanne Stone-Lisbon			
<input type="checkbox"/> <input type="checkbox"/>	Additional municipal staff (such as elected officials, planning, etc.)	City of Chelsea	Francisco Toro	Veteran's Services		
<input type="checkbox"/> <input type="checkbox"/>	Social Services	Salvation Army	Maryanne Winship			
<input type="checkbox"/> <input type="checkbox"/>	Community health centers	MGH WIC	Tara McCarthy			
<input type="checkbox"/> <input type="checkbox"/>	Community health centers	MGH Chelsea Healthcare Center	Mary Lyons Hunter	Unit Chief Mental Health		
<input type="checkbox"/> <input type="checkbox"/>	Community-based organizations	Chelsea Community Garden	Margaret Carsley			
<input type="checkbox"/> <input type="checkbox"/>	Community health centers	MGH Charlestown Healthcare Center	Jean Bernhardt	Administrative Director		
<input type="checkbox"/> <input type="checkbox"/>	Private Sector	Corcoran Realty	Miles Byrne			
<input type="checkbox"/> <input type="checkbox"/>	Community health centers	Charlestown NewHealth	Peggy Carolan	Public Affairs Coordinator		
<input type="checkbox"/> <input type="checkbox"/>	Education	BHA Charlestown Adult Education	Lori D'Alluva	Director of Education		
<input type="checkbox"/> <input type="checkbox"/>	Private Sector	Kids Cooking Green	Lori Deliso & Rosie Wall			
<input type="checkbox"/> <input type="checkbox"/>	Community-based organizations	The Kennedy Center	Crystal Galvin	Director of Community Services		
<input type="checkbox"/> <input type="checkbox"/>	Additional municipal staff (such as elected officials, planning, etc.)	Aid to Rep Dainel Ryan	Sean Getchell			
<input type="checkbox"/> <input type="checkbox"/>	Community-based organizations	Charlestown Recovery House	Tommy Howard			
<input type="checkbox"/> <input type="checkbox"/>	Community-based organizations	Special Townies	Deborah Hughes			
<input type="checkbox"/> <input type="checkbox"/>	Community health centers	Spaulding Rehabilitation Hospital	Rebecca Kaiser	Chief of Staff		
<input type="checkbox"/> <input type="checkbox"/>	Social Services	The Kennedy Center	Terry Kennedy	Executive Director		
<input type="checkbox"/> <input type="checkbox"/>	Community-based organizations	Charlestown Boys & Girls Club	John Kiloran			
<input type="checkbox"/> <input type="checkbox"/>	Social Services	The Gavin Foundation	John McGahan			
<input type="checkbox"/> <input type="checkbox"/>	Additional municipal staff (such as elected officials, planning, etc.)	Boston Municipal Court	William McNicholas			
<input type="checkbox"/> <input type="checkbox"/>	Community-based organizations	Charlestown Boys & Girls Club	Pete Nash	Director		

<input type="checkbox"/> <input type="checkbox"/>	Community-based organizations	St. Mary's Catherine of Siena Parish	James Ronan	Father		
<input type="checkbox"/> <input type="checkbox"/>	Community-based organizations	YMCA	Steve Telesmanick			
<input type="checkbox"/> <input type="checkbox"/>	Social Services	Charlestown Recovery House	Jim Travers			
<input type="checkbox"/> <input type="checkbox"/>	Social Services	Chelsea Episcopal Church	Rev. Sandra Whitley	Rev		
<input type="checkbox"/> <input type="checkbox"/>	Community health centers	MGH Chelsea	Dean Xerars	Medical Director		
<input type="checkbox"/> <input type="checkbox"/>	Community health centers	East Boston Neighborhood Health Center	Joanna Cataldo	EASTIE Director		
<input type="checkbox"/> <input type="checkbox"/>	Community health centers	Ruggiero Memorial Funeral Home	Joseph Ruggiero	Owner		
<input type="checkbox"/> <input type="checkbox"/>	Education	East Boston High School	Jane B. Simpson, R.N	East Boston High School Nurse		
<input type="checkbox"/> <input type="checkbox"/>	Social Services	Coordinates Counseling	Emma Uppal, MSW	Therapist		
<input type="checkbox"/> <input type="checkbox"/>	Social Services	Marty Pino Community Center (BCYF)	Joseph Weddleton	Administrative Coordinator		
<input type="checkbox"/> <input type="checkbox"/>	Additional municipal staff (such as elected officials, planning, etc.)	City of Revere	Elle Baker	Neighborhood Organizer		
<input type="checkbox"/> <input type="checkbox"/>	Additional municipal staff (such as elected officials, planning, etc.)	City of Revere Mayors Office	Miles Lang Kennedy	Assistant to Revere Mayor		
<input type="checkbox"/> <input type="checkbox"/>	Community health centers	Revere CARES Coalition	Kitty Bowman	Revere CARES Director		
<input type="checkbox"/> <input type="checkbox"/>	Community health centers	Healthy Chelsea Coalition	Melissa Dimond	Healthy Chelsea Director		
<input type="checkbox"/> <input type="checkbox"/>	Community health centers	Healthy Chelsea Coalition	Dan Cortez	Health Chelsea SUDs Manager		
<input type="checkbox"/> <input type="checkbox"/>	Community health centers	The Charlestown Substance Abuse Coalition	Sarah Coughlin	CSAC Director		
<input type="checkbox"/> <input type="checkbox"/>	Private Sector	Resident/CSAC Coalition Member	Elaine Donovan	Resident		
<input type="checkbox"/> <input type="checkbox"/>	Education	Chelsea Public Schools	Kim Huffer	Social Worker		

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

For Tier 2 DON CHI Applicants: The CHI Advisory Committee is tasked with helping select DoN Health Priorities based on the CHNA / CHIP unless the Applicant is directed by DPH to conduct additional community engagement. If so, the advisory committee's role is to guide that additional work.

For Tier 3 DON CHI Applicants: The CHI Advisory Committee is to select DoN Health Priorities based on, **but not exclusive to**, the CHNA / CHIP. This includes the additional community engagement that must occur to develop the issue priorities.

Add/Del Rows	Sector Type	Organization Name	Name of Primary Contact	Title in Organization	Email Address	Phone Number
	Municipal Staff	City of Chelsea	Tom Ambrosino	City Manager		
	Education	Revere Public Schools	Josh Vidala	Assistant Superintendent		
	Housing	Opportunity Communities	Rafael Mares	CEO		
	Social Services	North Suffolk Mental Health	Kim Hanton	Director of Addiction Services		
	Planning + Transportation	Metro. Area Planning Council	Barry Keppard	Public Health Director		
	Private Sector/ Business	Fed. Reserve Bank Boston	Prabal Chakrabarti	Senior Vice President		
	Community Health Center	East Boston Neigh. HC	Many Lopes	CEO		
	Community Based Organizations	Boys and Girls Club of Boston	Grace Lichaa	Director of Healthy Lifestyles		
<input type="checkbox"/> <input type="checkbox"/>	Local Public Health Departments/Boards of Health	City of Chelsea HHS	Luis Prado	Director, Health & Human Services		
<input type="checkbox"/> <input type="checkbox"/>	Additional municipal staff (such as elected officials, planning, etc.)	City of Chelsea Police Dept.	Dan Cortez	Community Engagement Specialist		
<input type="checkbox"/> <input type="checkbox"/>	Additional municipal staff (such as elected officials, planning, etc.)	City of Revere Police Dept.	Amy O'Hara	Captain		
<input type="checkbox"/> <input type="checkbox"/>	Education	Charlestown Adult Education	Lori D'Alluva	Director of Education		
<input type="checkbox"/> <input type="checkbox"/>	Local Public Health Departments/Boards of Health	North Suffolk Public Health Cc	Jeff Stone	Director		
<input type="checkbox"/> <input type="checkbox"/>	Education	Charlestown Adult Ed. Center	Lori D'Alluva	Director of Education		
<input type="checkbox"/> <input type="checkbox"/>	Social Services	Community Action Programs	Dianne Curtin	Head Start Director		
<input type="checkbox"/> <input type="checkbox"/>	Housing	Charlestown Resident, Bunker	Nancy Martinez	President, Tenants of Bunker Hill Development		
<input type="checkbox"/> <input type="checkbox"/>	Community-based organizations	Chelsea Green Roots	Roseann Bongiovanni	Executive Director		
<input type="checkbox"/> <input type="checkbox"/>	Community-based organizations	Chelsea Collaborative	Gladys Vega	Executive Director		
<input type="checkbox"/> <input type="checkbox"/>	Local Public Health Departments/Boards of Health	Boston Public Health Commis	Jennifer Lo	Director, Office of Heath Equity		
<input type="checkbox"/> <input type="checkbox"/>	Local Public Health Departments/Boards of Health	City of Revere	Dimple Rana	Director of Health Community Initiatives		

9. Engaging the Community At Large

Thinking about the extent to which the community has been or currently is involved in the 2019 MGH CHNA Process, 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
<input checked="" type="checkbox"/> Assess Needs and Resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Please describe the engagement process employed during the "Assess Needs and Resources" phase.	See the attached addendum.					
<input checked="" type="checkbox"/> Focus on What's Important	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Please describe the engagement process employed during the "Focus on What's Important" phase.	See the attached addendum.					
<input checked="" type="checkbox"/> Choose Effective Policies and Programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Please describe the engagement process employed during the "Choose Effective Policies and Programs" phase.	See the attached addendum.					
<input checked="" type="checkbox"/> Act on What's Important	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Please describe the engagement process employed during the "Act on What's Important" phase.	See the attached addendum.					
<input checked="" type="checkbox"/> Evaluate Actions	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Please describe the engagement process employed during the "Evaluate Actions" phase.	See the attached addendum.					

10. Representativeness

Approximately, how many community agencies are currently involved in 2019 MGH CHNA Process within the engagement of the community at large?

59 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)?

5,146 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.

The communities assessed are socially, economically, racially and ethnically diverse. Both Collaboratives sought to engage diverse communities and respect diverse viewpoints. To this end, the Collaborative sought to work with community-based organizations that work with diverse populations in terms of income levels, race, ethnicity, age and gender.

Primary data collection via broadly distributed multilingual (up to seven languages) community surveys with 4,298 total respondents; 39 focus groups with 350 community residents in English, Spanish, Chinese, and Haitian Creole; and, 73 key informant interviews with organizational, government, and community leaders.

To maximize participation and ensure that diverse populations were engaged in the CHNAs, the community surveys for both Collaboratives were administered on-line and via hard copy in multiple languages (seven languages total). Additionally, 39 focus groups with 350 community residents were held with diverse individuals representing various groups in English, Spanish, Chinese and Haitian Creole. For example, the Boston CHNA-CHIP Collaborative carried out the following focus groups with diverse individuals including:

- Female low-wage workers (e.g. housekeepers, child care workers, hotel service workers, etc.)
- Male low-wage workers (e.g. janitorial staff, construction, etc.)
- Seniors (ages 65+) with complex, challenging issues (e.g. homebound, medical complications)
- Residents who are housing insecure (no permanent address or close to eviction)
- Latino residents in East Boston (in Spanish)
- LGBTQ youth and young adults at risk of being homeless
- Immigrant parents of school age children (5-18 years)
- Survivors of violence; mothers who have been impacted by violence
- Parents who live in public housing in Dorchester
- Chinese residents living in Chinatown (in Chinese)
- Haitian residents living in Mattapan (in Haitian Creole)
- Residents in active substance use recovery
- Additional focus group with notes provided: Chinese residents living in Chinatown

These focus groups were designed specifically to reach populations that do not typically respond to surveys, so their perspectives could be obtained.

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.

For the 2019 MGH CHNA, staff used both a grass tops and grassroots approach. In regard to grass tops efforts, staff ensured that "varied and representative sectorial diversity were present to encourage innovation, build and enhance pre-existing work, provide sufficient representation and understand the levers by which population health could be improved." Consequently, many individuals from diverse groups were included in the overall strategy, data collection and engagement aspects of the CHNA, including school districts, public health departments, community-based organizations, clinical groups, private sector entities, municipal representatives, etc. By collaborating with these individuals from diverse groups, new perspectives were provided on all areas of the needs assessment processes.

Additionally, Collaboratives also used a grassroots approach engaging the public whenever possible, but specifically in large public prioritization meetings (with over 100 people included) to determine the needs of the City of Boston and its various neighborhoods, as well as the North Suffolk communities.

To your best estimate, of the people engaged in 2019 MGH CHNA Process number of individuals.

approximately how many: Please indicate the

Number of people who reside in rural area

0

Number of people who reside in urban area

5,146

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?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Who decides the strategic direction of the engagement process?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Who decides how the financial resources to facilitate the engagement process are shared?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Who decides which health outcomes will be measured to inform the process?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

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*.

Focus groups, interviews and surveys were conducted with the community at large and publicized by the Boston CHNA/CHIP Collaborative, the North Suffolk Public Health Collaborative, and their members. As stated, surveys were translated into multiple languages and focus groups and interviews with non-English speaking residents were conducted in the common language of choice. Community focus groups were open to the public and had childcare, food and translation services available to reduce barriers to participation. Finally, and most importantly, all major decisions for both Collaboratives were made in open, public and highly participatory meetings. For example, when determining priorities for the Boston CHNA/CHIP Collaborative, this process occurred at a meeting of 125 people with each individual voting on what they thought were the largest priorities.

13. Formal Agreements

Does / did the 2019 MGH CHNA Process 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

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	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Written Objectives	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clear Expectations for Partners' Roles	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clear Decision Making Process (e.g. Consensus vs. Voting	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conflict resolution	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conflict of Interest Paperwork	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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: 01/08/2021 2:53 pm

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 MGH CHNA Process
- B) Applicant: Mass General Brigham Incorporated
- C) A link to the DoN CHI Stakeholder Assessment

Section 9: Engaging the Community at Large – Thinking about the extent to which the community has been or currently is involved in the 2019 MGH CHNA Process, 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>).

Background Information:

To ensure that MGH's outreach activities and programs are meeting the health needs of the community, staff from MGH's – Center for Community Health Improvement ("CCHI") continue to participate in robust community health needs assessment ("CHNA") and community health improvement plan ("CHIP") processes, including the Boston CHNA-CHIP Collaborative and the North Suffolk Public Health Collaborative CHNA/CHIP processes.

The Boston CHNA-CHIP Collaborative: In Boston, a first-ever citywide collaborative formed that included every Boston teaching hospital, the Boston Public Health Commission, community health centers, and community-based organizations (see Steering Committee members, Appendix B of the CHNA Report). The process was facilitated and guided by Health Resources in Action ("HRiA"), a non-profit public health consulting group in Boston. The Conference of Boston Teaching Hospitals acted as the "backbone" organization for the CHNA and CHIP, providing infrastructure support. As a member of the Boston CHNA-CHIP Collaborative steering committee, MGH assisted in guiding the entire process, including data gathering, analysis, prioritization, and strategy development. The Boston CHNA was completed in Fall 2019 and the CHIP finalized in February 2020.

The North Suffolk Public Health Collaborative: In North Suffolk (Chelsea, Revere, and Winthrop), city and town leaders formed the North Suffolk Public Health Collaborative to increase their collective impact on improving health. Like Boston, the Collaborative was comprised of area hospital systems, health centers, local health departments, and community-based organizations (see Appendix C of the CHNA Report for a complete list of participants). MGH co-led the North Suffolk CHNA process, overseeing data collection, analysis, and reporting. MGH also provided technical support for the design of focus groups, key informant interviews, and survey questions. This CHNA was finalized in Fall 2019 and the CHIP was finalized in early 2020.

The Boston CHNA-CHIP Collaborative:

To carry out robust CHNA and CHIP processes, the Boston CHNA-CHIP Collaborative created a formal administrative infrastructure with a larger Steering Committee comprised of leadership from each participating organization (see Appendix A of the CHNA Report). The Collaborative's Steering Committee provided strategic direction and policy for the CHNA-CHIP processes. Moreover, the Steering Committee managed work plans and the accountability of all work groups. The Operations Committee was charged with addressing issues within the CHNA-CHIP processes that required immediate attention and providing direction and oversight to administrative staff. The Collaborative also formed three sub-committees/work groups to the Steering Committee ("work groups"), including:

- **Community Engagement Work Group:** This work group was responsible for developing a sound community engagement strategy to assess the needs and resources of the various neighborhoods within Boston. This work group also was tasked with providing input on primary data collection methods, as well as providing support and logistics for primary data collection.
- **Secondary Data Work Group:** This work group was tasked with providing guidance on a secondary data approaches and indicators for the CHNA. This group also was responsible for fostering connections with key networks and groups to provide relevant data for the CHNA.
- **Implementation Planning (CHIP) Work Group:** Members of this work group were responsible for working with HRiA to develop an overall CHIP that selected effective policies and procedures and acted on the health priorities that are important for Boston.

To ensure proper oversight of these processes, MGH's Community Benefits Committee and later its Community Advisory Board ("CAB") were kept abreast of developments around the Boston CHNA-CHIP Collaborative's activities, strategies and work group progress by Joan Quinlan, MPA, Vice President for Community Health at MGH and the Co-Chair of the Implementation Planning Work Group and Leslie Aldrich, Executive Director of CCHI at MGH and a Steering Committee Member.

The vision of the Boston CHNA-CHIP Collaborative is "A healthy Boston with strong communities, connected residents and organizations, coordinated initiatives, and where every individual has an equitable opportunity to live a healthy life." To implement this vision, the Collaborative's Mission is "To achieve sustainable positive change in the health of Boston by collaborating with communities, sharing, knowledge, aligning resources and addressing root causes of health inequities." The Collaborative achieves this mission by engaging with the community to:

- Conduct a joint CHNA for Boston every three years discussing the social, economic, and health needs and assets in the community;
- Develop a collaborative CHIP for Boston to address issues identified as top priority and identify opportunities for shared investment;
- Implement efforts together (where aligned) and track individual organizational activities where appropriate;
- Monitor and evaluate CHIP strategies for progress and impact to continuously inform implementation;
- Communicate about the process and results to organizational leadership, stakeholders, and the public throughout the assessment, planning and implementation time period;
- Monitor and evaluate Collaborative structure and processes to continuously improve effectiveness and results.

Given these goals, as well as the required structure of the CHNA-CHIP processes outlined in the Department of Public Health's Community Engagement Standards for Community Health Planning Guideline, the Collaborative's CHNA assessed the needs and resources of Boston's neighborhoods and focused on what is important through a prioritization process. Additionally, the CHIP allows the Collaborative to choose effective policies and programs in terms of health priorities and act on what is important by implementing programs that address the DoN health priorities and the Executive Office of Health and Human Services ("EOHHS") focus areas.

North Suffolk Public Health Collaborative

The North Suffolk Public Health Collaborative developed a CHNA and CHIP for the cities of Revere, Chelsea, and Winthrop by bringing together chief executives, municipal leaders, community-based organizations, community coalitions, residents, and health care providers to review the needs of the communities. Through this CHNA and CHIP process, the partners gathered primary and secondary data with a focus on the social determinants of health to describe regional and community needs and themes. The Collaborative focused on policies, systems and environmental changes that could be implemented or scaled to address community needs.

To coordinate the CHNA/CHIP processes, the North Suffolk Public Health Collaborative developed an administrative infrastructure with a Steering Committee and Sub-Committees. The Sub-Committees, included:

- Instrument Review Sub-Committee: Tasked with reviewing survey and focus group/interview instruments from the Boston CHNA-CHIP Collaborative processes. Additionally, the group made suggestions on how to change the instruments to make them specific to North Suffolk communities.
- Community Outreach Sub-Committee: Charged with survey distribution and focus group coordination, arranging community forums and supporting communication efforts.
- Data Analysis Sub-Committee: Tasked with collating all collected data and highlighting common data trends.
- Report Writing Sub-Committee: Tasked with guiding the report writing, including what should be highlighted.
- Implementation Plan and Measures of Success Sub-Committee: Assisted in guiding the CHIP. Additionally, helps identify measures of success over the next three years.

Danelle Marable from CCHI assisted in leading the North Suffolk CHNA and CHIP processes and Leslie Aldrich serves as a member of the Steering Committee for North Suffolk.

Similar to the Boston CHNA-CHIP Collaborative's processes, the North Suffolk CHNA assessed the needs and resources of its target communities, focusing on what is important through a prioritization process. Additionally, the CHIP allows North Suffolk to choose effective policies and programs in terms of health priorities, and act on what is important by implementing programs that address the DoN health priorities and the Executive Office of Health and Human Services ("EOHHS") focus areas.

The CHNA stages of engagement are outlined below.

Assess the Needs and Resources:

To assess the needs and resources with MGH's priority communities of Boston, Charlestown, Chelsea, Dorchester, East Boston, Mattapan, Revere, Roxbury, and Winthrop – MGH, the Boston CHNA/CHIP Collaborative and the North Suffolk Public Health Collaborative carried out the following activities:

In each Collaborative, participants engaged community organizations, local officials, schools, health care providers, the business and faith communities, residents, and others in an approximately year-long process, tailored to unique local conditions, to better understand the health issues that most affected communities and the assets available to address them. The key methods of the CHNA included:

- Primary data collection via broadly distributed multilingual (up to seven languages) community surveys with 4,298 total respondents; 39 focus groups with 350 community residents in English, Spanish, Chinese, and Haitian Creole; and, 73 key informant interviews with organizational, government, and community leaders.
- Review of secondary data from multiple city, state, and national sources including the U.S. Census, the Massachusetts Department of Public Health, the Boston Public Health Commission, and the Behavioral Risk Factor Surveillance System (BRFSS).
- Rigorous data analysis, including reviewing differences among certain populations, specifically youth and elderly, as well as by race and ethnicity.
- A highly participatory process. In Boston that meant the public was invited to three separate meetings attended by 75-150 people each to guide the process design, review data, select priorities, and develop strategies.

Accordingly, for this phase, MGH reached the “Collaborate” level of engagement.

Focus on What’s Important:

The Boston CHNA-CHIP Collaborative ensured that Collaborative members were focused on the most important health needs of Boston’s diverse populations by having members of the public (and Steering Committee) participate in a prioritization meeting where they ranked health priorities based on specific criteria, including the priority’s relevance, appropriateness, impact and feasibility. Approximately 125 people attended this public meeting to provide input. A similar process occurred with the North Suffolk Public Health Collaborative CHNA.

The guiding principles for the Boston CHNA-CHIP and North Suffolk Public Health Collaboratives were to reduce racial and ethnic health disparities. In all communities, social determinants of health emerged as top priorities, as up to 80% of health status is determined by the social and economic conditions where we live and work. These determinants include access to stable, secure, and quality housing; a job that pays a living wage; healthy food; quality educational opportunities; and, connected and safe communities. Notably, this is the first CHNA ever in which housing and economic issues rose to the top of the list.

The health priorities that emerged across communities and have been adopted as MGH’s priorities were strongly aligned and include:

- Safe, affordable, and stable housing;
- Economic and financial stability and mobility, including living wage jobs and educational pathways;
- Behavioral health, including substance use disorders (SUDs) with an emphasis on youth and families; and
- Access to health, social, and childcare services.

Based on past assessments and historical commitments, MGH has also selected the following priorities:

- Community/intimate partner violence and safety;
- Obesity and food insecurity;
- Elder/aging health issues; and
- Chronic disease with cancer, diabetes focus.

Accordingly, for this phase, MGH reached the “Collaborate” level of engagement.

Choose Effective Policies and Programs and Act on What’s Important:

Based on the selected health priorities, the Collaboratives developed CHIPs, and based on these plans, MGH developed its own CHIP. The CHIP includes the noted priority areas for action with aspirational goals, measurable objectives, strategies to address the goals, and metrics to define success. MGH’s CHIP aims to identify opportunities for partnership, new ideas, and leveraging existing efforts to enhance collective impact. Priority areas are based on consensus building and participatory decision making.

For these phases, MGH reached the “Collaborate” level of engagement.

Evaluate Actions:

MGH will evaluate progress on its CHIP goals annually.

For these phases, MGH will reach the “Consult” level of engagement.

Section 14: Formal Agreement Specifics – Thinking about your MOU or other formal agreements, does it include any provisions or language about the processes.

Both of the Collaboratives had MOUs that governed their CHNA/CHIP process. The responses on the Form are for both MOUs.

Appendix 5C

Community Engagement Form and Addendum



Massachusetts Department of Public Health

Determination of Need

Community Health Initiative

Community Engagement Plan

Version: 8-1-2017

The Community Engagement Plan is intended for those Applicants with CHIs that require further engagement above and beyond the regular and routine CHNA/CHIP processes. For further guidance, please see the *Community Engagement Standards for Community Health Planning Guidelines* and its appendices for clarification around any of the following terms and questions.

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

Approximate DoN Application Date: DoN Application Type:

Applicant Name:

What CHI Tier is the project? ☐ Tier 1 ☐ Tier 2 ☒ Tier 3

1. Community Engagement Contact Person

Contact Person:

Title:

Mailing Address:

City:

State:

Zip Code:

Phone:

Ext:

E-mail:

2. Name of CHI Engagement Process

Please indicate what community engagement process (e.g. the name DoN CHI Initiative associated with the CHI amount) the following form relates to. This will be used as a point of reference for the following questions.
(please limit the name to the following field length as this will be used throughout this form):

3. CHI Engagement Process Overview and Synergies with Broader CHNA /CHIP

Please briefly describe your overall plans for the CHI engagement process and specific how this effort that will build off of the CHNA / CHIP community engagement process as is stated in the *DoN Community-Based Health Initiative Planning Guideline*.

4. CHI Advisory Committee

In the CHNA/CHIP Self Assessment, you listed (or will list) the community partners that will be involved in the CHI Advisory Committee to guide the MGH Cambridge Street DoN - 2021 CHI Proc. As a reminder:

For Tier 2 DON CHI Applicants: The CHI Advisory Committee is tasked with helping select DoN Health Priorities based on the CHNA / CHIP unless the Applicant is directed by DPH to conduct additional community engagement. If so, the advisory committee's role is to guide that additional work.

For Tier 3 DON CHI Applicants: The CHI Advisory Committee is to select DoN Health Priorities based on, **but not exclusive to**, the CHNA / CHIP. This includes the additional community engagement that must occur to develop the issue priorities.

5. Focus Communities for CHI Engagement

Within the MGH Cambridge Street DoN - 2021 CHI , please specify the target community(ies), please consider the community(ies) represented in the CHNA / CHIP processes where the Applicant is involved.

Add/Del Rows	Municipality	If engagement occurs in specific neighborhoods, please list those specific neighborhoods:
<input type="checkbox"/> + <input type="checkbox"/> -	Charlestown	
<input type="checkbox"/> + <input type="checkbox"/> -	Chelsea	
<input type="checkbox"/> + <input type="checkbox"/> -	Dorchester	
<input type="checkbox"/> + <input type="checkbox"/> -	East Boston	
<input type="checkbox"/> + <input type="checkbox"/> -	Mattapan	
<input type="checkbox"/> + <input type="checkbox"/> -	Revere	
<input type="checkbox"/> + <input type="checkbox"/> -	Roxbury	
<input type="checkbox"/> + <input type="checkbox"/> -	Winthrop	

6. Reducing Barriers

Identify the resources needed to reduce participation barriers (e.g., translation, interpreters, child care, transportation, stipend). For more information on participation barriers that could exist, 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>

Staff from the Massachusetts General Hospital – Center for Community Health Improvement (“CCHI”) have reviewed Appendix A to the Community Engagement Standards from the Community Health Planning Guideline to understand participation barriers to community engagement. Consequently, to reduce barriers within this CHI process, CCHI staff will implement the following strategies:

1. For public meetings, such as a Bidders Conferences associated with a Request for Proposal (“RFP”) process, MGH staff will ensure meeting spaces are close to public transportation and have accessible free parking. Moreover, MGH will ensure that public meetings are “family friendly,” allowing for children and elders to come to the meetings. Interpreter services, for the most common languages spoken in the target communities also will be available upon request and when necessary.
2. Any and all RFPs associated with the CHI will be available electronically on the MGH CCHI web site and via hard copy available in the CCHI office.
3. The RFP Announcement will be translated into Spanish and published in appropriate Spanish-language print media.
4. CCHI staff, in conjunction with the Community Advisory Board (“CAB”), will ensure that any alternative transparent funding processes also reduce barriers to participation.

These combined steps will ensure a reduction in participation barriers.

7. Communication

Identify the communication channels that will be used to increase awareness of this project or activity:

To ensure awareness around community engagement activities, MGH - CCHI staff will continue to utilize e-mail communication to share information with partners and the community. In regard to the community-at-large, CCHI staff will utilize coalition distribution lists and web sites, the CCHI newsletter and various forms of social media (Facebook, Instagram and Twitter) to update the public on community engagement activities. CCHI staff also will elicit the assistance of CAB members to communicate information to the general public directly.

Finally, all opportunities for engagement will be posted to the CCHI web site under a special DoN/Community Engagement tab, which is

currently under construction. All efforts will be made to publish materials in multiple languages, specifically those languages most commonly spoken in the targeted communities.

8. Build Leadership Capacity

Are there opportunities with this project or activity to build community leadership capacity?

☒ Yes ☐ No

If yes, please describe how.

Through the Boston CHNA-CHIP Collaborative community health improvement plan ("CHIP") and the North Suffolk Public Health Collaborative CHIP, efforts were successfully made to create a shared leadership model by encouraging diverse leaders to facilitate meetings and guide the implementation work. Community leaders were asked to lead work groups, ensuring appropriate implementation of specific initiatives. These efforts ensured greater accountability and allowed for a truly community-driven process. Through the proposed CHI, CCHI staff will continue to explore ways that engagement efforts may be community-driven.

9. Evaluation

Identify the mechanisms that will be used to evaluate the planning process, engagement outcome, and partner perception and experience:

MGH CCHI will work with an evaluator to identify appropriate outcome and process metrics to evaluate the planning process, engagement, partner perception and experience, as well as the impact of the CHI funding.

Some of the evaluation work will include surveying CAB members based upon a survey tool developed by the UMass Donahue Institute around their perceptions of the process.

10. Reporting

Identify the mechanisms that will be used for reporting the outcomes of this project or activity to different groups within the community:

Residents of Color

MGH CCHI staff will submit press releases to local newspapers that reach communities of color, as well as post information on Facebook, Instagram, coalition websites, and community pages that are viewed by diverse groups. Additionally, CCHI staff will identify and recruit champions in communities of color to serve as ambassadors and repost information to their networks.

Residents who speak a primary language other than English

MGH CCHI staff will submit press releases to local newspapers that reach non-English speaking residents, as well as post information on Facebook, Instagram, coalition websites, and community pages that are viewed by diverse groups. Additionally, CCHI staff will identify and recruit champions that speak English as a second language to serve as ambassadors and repost information to their networks - some of these champions will be CCHI staff members.

Aging population

MGH CCHI staff will submit updates to local organizations working with older adults for inclusion in newsletters, as well as post information on Facebook, Instagram, coalition websites, and community pages that are viewed by diverse groups. Additionally, CCHI staff will identify and recruit senior champions to serve as ambassadors and repost information to their networks. MGH CCHI staff also will ask local Senior Centers to post information to their distribution lists.

Youth

MGH CCHI staff will post information on Facebook, Instagram, coalition websites, and community pages that are viewed by youth. Additionally, MGH CCHI staff will ask youth champions, often from existing coalition youth groups, to serve as ambassadors and repost information to their networks. CCHI staff also will work with schools to ensure appropriate information is conveyed to students.

Residents Living with Disabilities

MGH CCHI staff will submit updates to local organizations working with residents that have disabilities, as well as post information on Facebook, Instagram, coalition websites, and community pages that are viewed by diverse groups. MGH CCHI staff also will ensure organizations serving residents with disabilities are on the coalition distribution lists, so they receive all communications as well.

GLBTQ Community

MGH staff will submit information to organizations that work with LGBTQ community members and post information on Facebook, Instagram, coalition websites, and community pages that are viewed by diverse groups. CCHI staff will ensure members of the LGBTQ community are on coalition distribution lists, so these individuals receive all communications.

Residents with Low Incomes

MGH CCHI staff will submit updates to community groups that work with residents that are underserved and/or considered low income. CCHI staff also will post information on Facebook, Instagram, coalition websites, and community pages that are viewed by diverse groups. In the communities of Chelsea, Revere, Charlestown and East Boston, CCHI staff will work with public housing advocates to help provide information.

Other Residents

MGH CCHI staff will discuss with the CAB any additional groups that should be aware of the project outcomes. Once these groups are identified, CCHI staff will submit press releases to local newspapers and send updates to community groups that work with the noted groups. CCHI staff also will post information on Facebook, Instagram, coalition websites, and community pages that are viewed by diverse groups.

11. Engaging the Community At Large

Which of the stages of a CHNA/CHIP process will the MGH Cambridge Street DoN - 2021 CHI P focus on? Please describe specific activities within each stage and what level the community will be engaged during the MGH Cambridge Street DoN - 2021 CHI P . While the step(s) you focus on are dependent upon your specific community engagement needs as a result of your previous CHNA/CHIP work, for tier 3 applicants the CHI community engagement process must at a minimum include the "Focus on What's Important," "Choose Effective Policies and Programs" and "Act on What's Important" stages. (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
<input checked="" type="checkbox"/> Assess Needs and Resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Please describe the engagement process employed during the "Assess Needs and Resources" phase.	Please see attached addendum.					
<input checked="" type="checkbox"/> Focus on What's Important	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Please describe the engagement process employed during the "Focus on What's Important" phase.	Please see attached addendum.					
<input checked="" type="checkbox"/> Choose Effective Policies and Programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Please describe the engagement process employed during the "Choose Effective Policies and Programs" phase.	Please see attached addendum.					
<input checked="" type="checkbox"/> Act on What's Important	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Please describe the engagement process employed during the "Act on What's Important" phase.	Please see attached addendum.					
<input checked="" type="checkbox"/> Evaluate Actions	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Please describe the engagement process employed during the "Evaluate Actions" phase.	Please see attached addendum.					

12. Document Ready for Filing

When the document is complete, click on "document is ready to file". This will lock in the responses, and Date/Time stamp the form. To make changes to the document, un-check the "document is ready to file" box. Edit the 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: 01/08/2021 2:58 pm

E-mail submission to DPH

Addendum Revised Community Engagement Plan Form

Section 3: Please briefly describe your overall plans for the CHI engagement process and specify how this effort will build off of the CHNA/CHIP community engagement process as is stated in the *Determination of Need (“DoN”) Community -Based Health Initiative Planning Guideline*.

The Massachusetts General Hospital’s Trustee Committee on Community Health (“MGH Trustee Committee”) advises the Hospital, as well as the MGH – Center for Community Health Improvement (“CCHI”) leadership on focal points of community health. The MGH Trustee Committee is tasked with: (1) Reviewing and approving the Community Health Needs Assessment (“CHNA”) and Community Health Improvement Plan (“CHIP”) and their results; (2) Advising on strategies and programming; (3) Serving as ambassadors of the Hospital’s community health agenda within MGH, as well as local communities; and (4) Where appropriate, assisting with the identification and cultivation of funding opportunities.

MGH’s Community Advisory Board (“CAB”) works with Joan Quinlan, MPA, Vice President for Community Health at MGH and Leslie Aldrich, Executive Director of CCHI at MGH. Ms. Quinlan and Ms. Aldrich report to the MGH Trustee Committee on the progress of the CAB with Determination of Need (“DoN”) – Community Health Initiatives (“CHIs”). The CAB is charged with the following duties: (1) To review and give input to MGH on its overall community health agenda; (2) To review and give input to MGH on its annual Community Benefit filing to the Massachusetts Attorney General; and (3) To guide MGH on identifying priorities with appropriate community input and transparent processes for community health initiatives that are part of Determination of Need filings with the Department of Public Health.

Moreover, MGH has an Executive Committee on Community Health (“ECOCH”). ECOCH is comprised of internal community health champions across multiple departments and is tasked with promoting community health improvement and ensuring health equity. ECOCH leverages the four components of MGH mission’s: (1) patient care, (2) teaching, (3) research and (4) community health to address community health improvement. To improve health across populations and ensure race equity, ECOCH has a focus on social and economic determinants of health, access to care for low-income patients and collaborating with MGH’s Diversity and Inclusion Committee around issues of race and racism.

MGH also places an emphasis on community engagement through community coalitions. Within MGH’s historically targeted communities of Charlestown, East Boston, Revere & Chelsea, CCHI serves as the backbone to four multi-sector coalitions using a collective impact framework. Additionally, CCHI staff also support four additional Boston Coalitions. Hospital staff work in the noted communities and convene local stakeholders, as well as community residents in assessing the health needs of the communities and developing policy, system and program solutions. In these instances, CCHI acts as a community convener and facilitator, implementing best practices, providing evaluation support, and accessing a range of resources in the community to ensure accurate processes.

For its current CHNA, MGH partnered with other members of the Conference of Boston Teaching Hospitals (“COBTH”), as well as other healthcare providers and organizations to conduct two comprehensive and collaborative CHNA/CHIP processes. The first process was conducted by the Boston CHNA-CHIP Collaborative (“Collaborative”) and the second process was carried out by the North Suffolk Public Health Collaborative (“North Suffolk”).

Boston CHNA-CHIP Collaborative

The Boston CHNA-CHIP Collaborative comprises a number of stakeholders, including nine teaching hospitals, community organizations, health centers and the Boston Public Health Commission. This group was formed to undertake the first city-wide CHNA and CHIP for the City of Boston. This innovative Collaborative aims to achieve the benefits of broad partnership around a Boston-based CHNA and CHIP, including deeper engagement of key community and organizational stakeholders; enhanced alignment of defined priorities and strategies; maximum allocation of resources; coordination of implementation strategies for collective impact and a healthier Boston.

To carry out robust CHNA and CHIP processes, the Boston CHNA-CHIP Collaborative created a formal administrative infrastructure including a Steering Committee comprised of leadership from each participating organization – with hospitals having less than 50% of the seats on the Committee to ensure greater community participation. The Collaborative's Steering Committee provided strategic direction and policy for the CHNA-CHIP processes. Moreover, the Steering Committee managed work plans and the accountability of all work groups. The Operations Committee was charged with addressing issues within the CHNA-CHIP processes that required immediate attention and providing direction and oversight to administrative staff. The Collaborative also formed three sub-committees/work groups to the Steering Committee ("work groups"), including:

- **Community Engagement Work Group:** This work group was responsible for developing a sound community engagement strategy to assess the needs and resources of the various neighborhoods within Boston. This work group also was tasked with providing input on primary data collection methods, as well as providing support and logistics for primary data collection.
- **Secondary Data Work Group:** This work group was tasked with providing guidance on a secondary data approaches and indicators for the CHNA. This group also was responsible for fostering connections with key networks and groups to provide relevant data for the CHNA.
- **Implementation Planning (CHIP) Work Group:** Members of this work group were responsible for working with Health Resources in Action ("HRiA"), the Collaborative's third party evaluator and convener for the CHNA, to develop an overall CHIP that chose effective policies and procedures and acted on the health priorities that were important for Boston.

To ensure proper oversight of these processes, MGH's CAB, as well as the MGH Trustee Committee were kept abreast of developments around the Boston CHNA-CHIP Collaborative's activities, strategies and work group progress by Joan Quinlan, who served on the Boston CHNA-CHIP Steering Committee and was the Co-Chair for the Community Health Improvement Plan Work Group, as well as Leslie Aldrich and Danelle Marable from CCHI, who also served on various Boston CHNA-CHIP Collaborative work groups.

The vision of the Boston CHNA-CHIP Collaborative is "A healthy Boston with strong communities, connected residents and organizations, coordinated initiatives, and where every individual has an equitable opportunity to live a healthy life." To implement this vision, the Collaborative's Mission is "To achieve sustainable positive change in the health of Boston by collaborating with communities, sharing, knowledge, aligning resources and addressing root

causes of health inequities.” The Collaborative achieves this mission by engaging with the community to:

- Conduct a joint CHNA for Boston every three years discussing the social, economic, and health needs and assets in the community;
- Develop a collaborative CHIP for Boston to address issues identified as top priority and identify opportunities for shared investment;
- Implement efforts together (where aligned) and track individual organizational activities where appropriate;
- Monitor and evaluate CHIP strategies for progress and impact to continuously inform implementation;
- Communicate about the process and results to organizational leadership, stakeholders, and the public throughout the assessment, planning and implementation time period;
- Monitor and evaluate Collaborative structure and processes to continuously improve effectiveness and results.

Given these goals, as well as the required structure of the CHNA-CHIP processes outlined in the Department of Public Health’s *Community Engagement Standards for Community Health Planning Guideline*, the Collaborative’s CHNA *assessed the needs and resources* of Boston’s neighborhoods and *focused on what’s important* through a prioritization process. Additionally, the CHIP allowed the Collaborative to *choose effective policies and programs* in terms of health priorities and *act on what’s important* by implementing programs that address the DoN health priorities and the Executive Office of Health and Human Services (“EOHHS”) focus areas.

North Suffolk Public Health Collaborative

North Suffolk developed a CHNA and CHIP for the cities of Revere, Chelsea and Winthrop by bringing together chief executives, municipal leaders, community-based organizations, community coalitions, residents, and health care providers to review the needs of the communities. Through this CHNA and CHIP process, the partners gathered primary and secondary data with a focus on the social determinants of health to describe regional and community needs and themes. North Suffolk focused on policies, systems and environmental changes that could be implemented or scaled to address community needs.

To coordinate the CHNA/CHIP processes, North Suffolk developed an administrative infrastructure with a Steering Committee and Sub-Committees. The Sub-Committees, included:

- Instrument Review Sub-Committee: Tasked with reviewing survey and focus group/interview instruments from the Boston CHNA-CHIP Collaborative processes. Additionally, the group made suggestions on how to change the instruments to make them specific to North Suffolk communities.
- Community Outreach Sub-Committee: Charged with survey distribution and focus group coordination, arranging community forums and supporting communication efforts.
- Data Analysis Sub-Committee: Tasked with collating all collected data and highlighting common data trends.
- Report Writing Sub-Committee: Tasked with guiding the report writing, including what should be highlighted.

- Implementation Plan and Measures of Success Sub-Committee: Assisted in guiding the CHIP. Additionally, helps identify measures of success over the next three years.

Danelle Marable from CCHI assisted in leading the North Suffolk CHNA and CHIP processes and Leslie Aldrich serves as a member of the Steering Committee for North Suffolk.

Similar to the Boston CHNA-CHIP Collaborative's processes, the North Suffolk CHNA *accessed the needs and resources* of its target communities, *focusing on what's important* through a prioritization process. Additionally, the CHIP allows North Suffolk to choose *effective policies and programs* in terms of health priorities and act on what's important by implementing programs that address the DoN health priorities and the Executive Office of Health and Human Services ("EOHHS") focus areas. Accordingly, this Community Engagement Plan focuses on each of the aforementioned stages of the CHNA-CHIP processes.

Section 11: Engaging the Community at Large. Which of the stages of a CHNA/CHIP process will the MGH 2019 CHI focus on? Please describe specific activities within each stage and what level the community will be engaged during the MGH 2019 CHI. While the step(s) you focus on are dependent upon your specific community engagement needs as a result of your previous CHNA/CHIP work, for tier 3 applicants the CHI community engagement process must at a minimum include the "Focus on What's Important," "Choose Effective Policies and Programs" and "Act on What's Important" stages.

Described below are the methods that MGH employed to meet each of the stages of the CHNA/CHIP processes, as well as the associated level of engagement for each stage.

A. Assess Needs and Resources

To assess the needs and resources of the targeted populations, the Boston CHNA-CHIP Collaborative and North Suffolk conducted the following primary and secondary data collection efforts:

- Community surveys: Primary data collection via broadly distributed multilingual (up to seven languages) community surveys with 4,298 total respondents; 39 focus groups with 350 community residents in English, Spanish, Chinese, and Haitian Creole; and, 73 key informant interviews with organizational, government, and community leaders.
- Review of secondary data from multiple city, state, and national sources including the U.S. Census, the Massachusetts Department of Public Health, the Boston Public Health Commission, and the Behavioral Risk Factor Surveillance System (BRFSS).
- Rigorous data analysis, including reviewing differences among certain populations, specifically youth and elderly, as well as by race and ethnicity.
- A highly participatory process. In Boston that meant the public was invited to three separate meetings attended by 75-150 people each to guide the process design, review data, select priorities, and develop strategies.

Accordingly, MGH met the "Collaborate" level of engagement for the *Assess Needs and Resources* component of engagement by conducting community meetings, focus groups, key informant interviews and community surveys.

B. Focus on What's Important

The Boston CHNA-CHIP Collaborative ensured that Collaborative members were focused on the most important health needs of Boston's diverse populations by having members of the public (and Steering Committee) participate in a prioritization meeting where they ranked health priorities based on specific criteria, including the priority's relevance, appropriateness, impact and feasibility. Approximately 125 people attended this public meeting to provide input. A similar process occurred with the North Suffolk CHNA.

The guiding principle for the Boston and North Suffolk collaboratives was to reduce racial and ethnic health disparities. In all communities, social determinants of health emerged as top priorities, as up to 80% of health status is determined by the social and economic conditions where we live and work. These determinants include access to stable, secure, and quality housing; a job that pays a living wage; healthy food; quality educational opportunities; and, connected and safe communities. Notably, this is the first CHNA ever in which housing and economic issues rose to the top of the list.

The health priorities that emerged across communities and have been adopted as MGH's priorities were strongly aligned and include:

- Safe, affordable, and stable housing;
- Economic and financial stability and mobility, including living wage jobs and educational pathways;
- Behavioral health, including substance use disorders (SUDs) with an emphasis on youth and families; and
- Access to health, social, and child care services.

Based on past assessments and historical commitments, MGH has also selected the following priorities:

- Community/intimate partner violence and safety;
- Obesity and food insecurity;
- Elder/aging health issues; and
- Chronic disease with cancer, diabetes focus.

Accordingly, for this phase, MGH reached the "Collaborate" level of engagement.

C. Choose Effective Policies and Procedures

Based on the selected health priorities, both Collaboratives developed CHIPs. The CHIPs include priority areas for action with aspirational goals, measurable objectives, strategies to address the goals, and metrics to define success. The CHIPs aim to identify opportunities for partnership, new ideas, and leveraging existing efforts to enhance collective impact. Priority areas are based on consensus building and participatory decision making. Feedback also was sought from MGH's Trustee Committee, CAB members, faculty members and other staff in regard to the health priorities and focus areas.

MGH will utilize its CHIP activities, as well as the Collaboratives' ongoing CHIP activities to further engage stakeholders in this CHI process. By assessing the synergies that exist between MGH's CHIP and the Collaboratives' overall CHIPs with the CHI priorities and processes, the hospital may ensure additional engagement with diverse groups. Furthermore, MGH will engage its four coalitions (previously discussed) in discussions around choosing effective policies and

procedures and acting on what is important. This engagement will allow stakeholders to participate in the CHI process, ensuring they have a voice in how CHI funding is spent.

For this phase, MGH will reach the “Collaborate” level of engagement.

D. Act on What’s Important

To ensure the MGH is acting on appropriate health priorities while carrying out the CHI process, the hospital will take the following steps:

- Hold regular meetings of the CAB: This Committee is tasked with providing input on the CHNA/CHIP processes. Additionally, the CAB will determine innovative strategies beyond a request for proposal (“RFP”) process to disburse funds.
- Develop an Allocation Committee: This Committee is charged with facilitating a transparent RFP process, as well as implementing the CAB’s innovative strategies for disbursing funds to selected organizations.
 - This Committee is tasked with developing a sound solicitation process including a Bidders Conferences that allows MGH to provide potential applicants with information on the RFP. Additionally, the Allocation Committee will ensure that technical assistance resources are available during the RFP process. The Allocation Committee also will ensure there are no conflicts of interest with the distribution of funds.
 - This Committee will review innovative strategies, other than a solicitation process, and determine how these strategies may be implemented.
- Continue to engage various community stakeholders and organizations, so these groups have a “voice” in the CHI process. This engagement will occur through CHIP activities, as well as engagement of established community coalitions.

For this phase, MGH will also work with local leaders to be part of the process and will mobilize community groups around monies for specific priorities/strategies.

For the procurement aspect of this phase, MGH will reach the “Collaborate” level of engagement. Additionally, for the CHI implementation aspect of this phase, where CHI funds are distributed to organizations and CHI projects are implemented, MGH will again reach the “Collaborate” level of engagement. Finally, in regard to the disclosure process by CAB members to disclose conflicts of interest, MGH will reach the “Involve” level of engagement.

E. Evaluate Actions

MGH will work with an internal or external evaluator to collaborate with the Hospital on the CHI process. The evaluation team will be tasked with monitoring and evaluating the community partners on an ongoing basis and reporting progress to MGH on CHI activities on an annual basis. Post-review, these reports will be submitted to the Department of Public Health.

For this phase, MGH will reach the “Consult” level of engagement.

Appendix 5D

Community Health Needs Assessment



2019

A photograph of a man and a woman in a garden. The man, on the left, is wearing a camouflage baseball cap, sunglasses, and a blue and white checkered shirt. He is looking towards the right. The woman, on the right, has short dark hair and is wearing a dark blue shirt. She is looking up and to the left with a slight smile. They are standing in front of a garden with green plants and small red flowers. In the background, there is a wooden fence and an American flag on a pole.



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MASSACHUSETTS GENERAL HOSPITAL

ENTRANCE

EMERGENCY

EXECUTIVE SUMMARY

Introduction

Since opening its doors in 1811, Mass General has understood that the role—and the responsibility—of the hospital is to attend to the needs of all, especially those who find access to health care difficult. The founders wrote, “...when in distress, every man is our neighbor.”

Today we recognize that access to health care is necessary but not sufficient to achieving good health. Social and economic factors—like equitable access to employment, healthy food, quality education, and affordable housing—play a critical role in overall health. These are often referred to as the Social Determinants of Health (SDoH). They are compounded by significant racial and ethnic inequities in health status.

Health care cannot tackle these issues alone and must partner with other sectors as a strategy for improving health, reducing cost, and achieving racial and ethnic health equity. Since 1995, Mass General’s Center for Community Health Improvement (CCHI) has done just that. We have partnered with neighboring communities to advance our shared vision of safe, thriving, and healthy neighborhoods. We have identified priorities and developed strategies based on highly participatory Community Health Needs Assessments (CHNAs). This is the 2019 Mass General CHNA, our first that is collaborative with other health care providers and extends into additional communities.

New, Collaborative Community Health Needs Assessments

The report reflects four new and innovative developments:

1. Mass General participated for the first time ever in three collaborative Community Health Needs Assessment (CHNA) processes in Boston, North Suffolk (Chelsea, Revere, and Winthrop), and Everett-Malden. Previously, Mass General—and most providers—conducted assessments independently. The goal of collaboration is to develop coordinated strategies as well as solutions that can achieve results.
2. The communities identified housing quality and affordability and economic stability and mobility, important social determinants of health, among their top four priorities for the first time ever. Substance use disorder remains a top priority, with the new addition of mental health.
3. Mass General has a historical commitment to the communities of Chelsea, Revere, and Charlestown where we have health centers. But, because we are part of the Boston CHNA Collaborative, we will also include the neighborhoods in Boston with the greatest disparities—Roxbury, Dorchester, Mattapan and East Boston, among others—as neighborhoods of focus.
4. For the first time, Mass General is including additional information on communities where we have licensed health care facilities, including Waltham, Newton, Danvers, and Concord.

Regulatory Requirements

The Affordable Care Act requires health care institutions to conduct CHNAs every three years in communities where they have licensed facilities, submit the report to the Internal Revenue Service, and post the report publicly on the hospital website by the last day of the fiscal year in which the CHNA is conducted (September 30 for Mass General). The Massachusetts Attorney General has a similar requirement. A Community Health Improvement Plan (CHIP) detailing how the hospital will engage with the community to address the prioritized issues must be completed and posted by February 15. (For updates on past implementation plans, see Appendix A.)

While each collaborative will have a CHNA and CHIP, Mass General is required by law to also have its own. This report is the Mass General Community Health Needs Assessment, based on the work of the collaboratives. For more information and full access to the Boston and North Suffolk reports please go to bostonchna.org and www.northsuffolkassessment.org.

While we are required to conduct CHNAs and CHIPs, we are also allowed to prioritize which communities and issues to focus on as long as there is a clear rationale. Therefore, we have determined that Mass General will focus on the communities with the greatest health disparities in Boston and the North Suffolk communities.

The Community Collaborations

In Boston, a first-ever citywide collaborative formed that includes every Boston teaching hospital, the Boston Public Health Commission, community health centers, and community-based organizations (see steering committee members, Appendix B). The process was facilitated and guided by Health Resources in Action (HRiA), a non-profit public health consulting group in Boston. The Conference of Boston Teaching Hospitals acted as the “backbone” organization, providing infrastructure support. As a member of the Boston Collaborative steering committee, Mass General helped guide the entire process, including data gathering, analysis, prioritization, and strategy development.

In North Suffolk (Chelsea, Revere, and Winthrop), city and town leaders formed the North Suffolk Public Health Collaborative (NSPHC) to increase their collective impact on improving health. Like Boston, the Collaborative was made up of area hospital systems, health centers, local health departments, and community-based organizations (Appendix C). Mass General co-led the North Suffolk CHNA process, overseeing data collection, analysis, and reporting. Mass General also provided technical support for the design of focus groups, key informant interviews, and survey questions.

In Everett-Malden we joined with two healthcare providers to conduct a rapid CHNA. Mass General acted as co-coordinator with Cambridge Health Alliance and Melrose-Wakefield HealthCare, developing a survey instrument and focus group guide, assisting with data collection and analysis, and piloting a new CHNA framework called THRIVE, a tool for engaging communities in understanding impacts on health and how to respond. In four towns west of Boston (Concord, Danvers, Newton, and Waltham) where MGH has outpatient facilities, we reviewed data and confirmed the health needs reported in each hospital’s CHNA.

The Methods

In each collaborative, participants engaged community organizations, local officials, schools, health care providers, the business and faith communities, residents, and others in an approximately year-long process, tailored to unique local conditions, to better understand the health issues that most affect communities and the assets available to address them. The key methods of the CHNA included:

- Primary data collection via broadly distributed multilingual (up to seven languages) community surveys with 4,298 total respondents; 39 focus groups with 350 community residents in English, Spanish, Chinese, and Haitian Creole; and, 73 key informant interviews with organizational, government, and community leaders.
- Review of secondary data from multiple city, state, and national sources including the U.S. Census, the Massachusetts Department of Public Health, the Boston Public Health Commission, and the Behavioral Risk Factor Surveillance System (BRFSS).

- Rigorous data analysis, including reviewing differences among certain populations, specifically youth and elderly, as well as by race and ethnicity.
- A highly participatory process. In Boston that meant the public was invited to three separate meetings attended by 75-150 people each to guide the process design, review data, select priorities, and develop strategies.

The Priorities

The guiding principle for the Boston, North Suffolk, and Everett-Malden collaboratives is to reduce racial and ethnic health disparities. In all communities, social determinants of health emerged as top priorities, as up to 80% of health status is determined by the social and economic conditions where we live and work. These determinants include access to stable, secure, and quality housing; a job that pays a living wage; healthy food; quality educational opportunities; and, connected and safe communities. Notably, this is the first CHNA ever in which housing and economic issues rose to the top of the list.

The health priorities that emerged across communities and have been adopted as Mass General priorities were strongly aligned and include:

- Safe, affordable, and stable housing.
- Economic and financial stability and mobility, including living wage jobs and educational pathways.
- Behavioral health, including substance use disorders (SUDs) with an emphasis on youth and families.
- Access to health, social, and child care services.

Based on past assessments and historical commitments, Mass General has also selected the following priorities:

- Community/intimate partner violence and safety.
- Obesity and food insecurity.
- Elder/aging health issues.
- Chronic disease with cancer, diabetes focus.

Both collaboratives, as well as Mass General, are now preparing a Community Health Improvement Plan (CHIP) to be completed by February 15, 2020, that outlines goals and objectives in support of the priorities and provides detailed strategies, plans, and timetables for achieving them.

Conclusion

Building upon 24 years of partnering with local communities, Mass General now has new opportunities to work with communities across the region to improve health.

The data from all the communities were notable in showing that, despite varying demographics and resources, communities struggle to prevent and treat mental health challenges and improve access to health and social services. In all of Suffolk County these issues are exacerbated by a lack of affordable and available housing and concentrations of poverty. We believe that our new collaboration and impending CHIPs will enable us to use our collective voice, resources, and strategies to make lasting and positive health impacts.



MASS GENERAL 2019 COMMUNITY HEALTH NEEDS ASSESSMENT

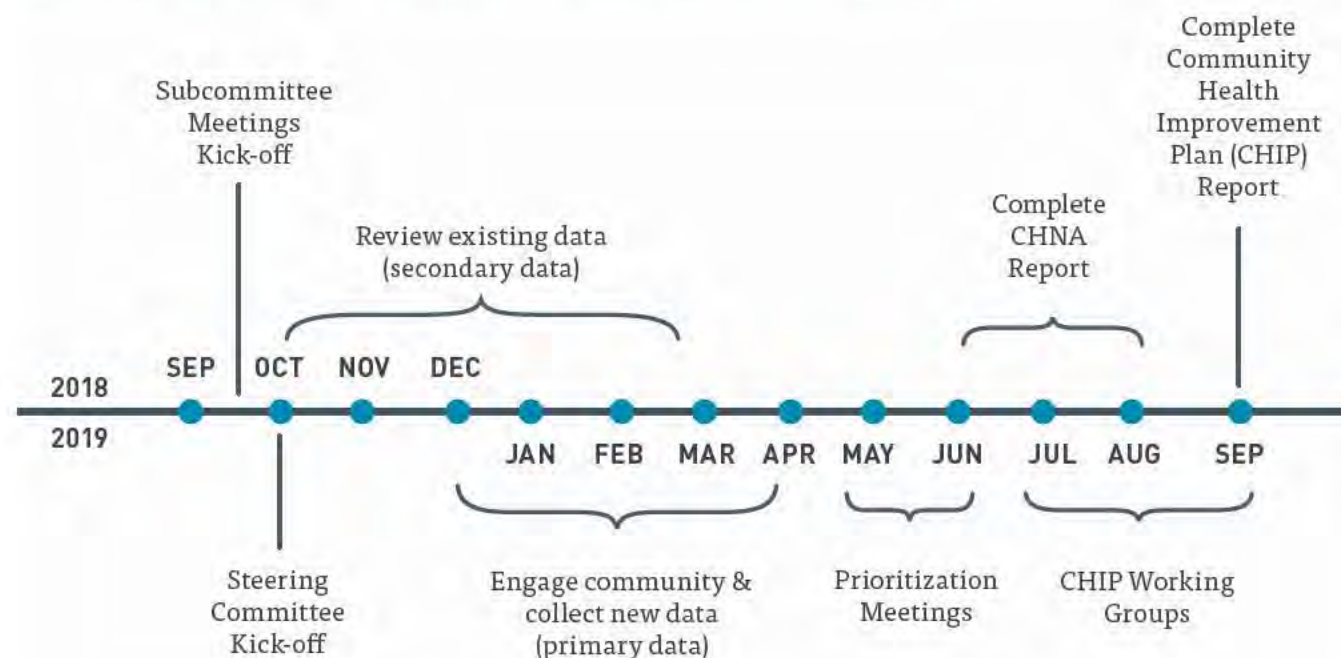
Community Collaboratives, CHNAs, and CHIPs

Mass General joined in 2018 with other member hospitals of the Conference of Boston Teaching Hospitals (COBTH) www.cobth.org to create Boston's first city-wide health collaborative to conduct a Community Health Needs Assessment. We also co-led a regional community health needs assessment in the North Suffolk region (Chelsea, Revere, and Winthrop). And, in 2019 we joined the first health care CHNA collaborative established in Everett-Malden. This report brings together the findings of these collaborative processes and is Mass General's CHNA to be approved by hospital governance by the end of the fiscal year (September 30, 2019).

The Affordable Care Act requires healthcare institutions to conduct CHNAs in any community where they have a licensed facility. Thus, in 2019, in four towns north and west of Boston, MGH connected with other health systems, reviewed the data and health priorities identified in their 2018 CHNAs and determined if MGH's existing programming, relationships and/or resources addressing multiple health priorities could be leveraged and shared. The priorities identified in the towns' CHNAs ranged from access to health care, to behavioral health and substance use disorders, aging, cancer, domestic violence, and the well-being of adolescents.

Community Health Improvement Plans (CHIPs) are being developed in all these communities. Each CHIP will contain detailed strategies to address the prioritized needs that have been identified and the resources needed to implement them. These include possibilities for policy and system changes and new programs. Mass General's CHIP must be completed by the 15th day of the fifth month after the end of the taxable year (February 15).

Timeline of the Boston and North Suffolk CHNA Collaborative Process



The Social Determinants of Health

Data show that cancer, heart disease, diabetes, and other chronic diseases are drivers of mortality in Boston and North Suffolk communities. There are significant racial and ethnic disparities in these conditions that result in higher mortality rates. For example, the age-adjusted mortality rate per 100,000 is higher in Chelsea (963.8), Revere (734), and Winthrop (928.7) than the Massachusetts rate (668.9). Likewise, Charlestown (758.2), Dorchester (737), East Boston (759), Hyde Park (840.4), and Roxbury (769.9) are higher than Boston's age-adjusted mortality rate per 100,000 (702.5).

Access to high quality health care—such as that offered at Mass General Hospital—is critical to preventing and treating these conditions. However, medical treatment alone is not enough to eliminate these inequities. Social and economic factors contribute up to 80% toward health status. Issues such as access to safe and affordable housing, healthy food, quality education, and employment opportunities impact health.

That is why this report focuses on the social and economic factors that are such powerful influencers of health status. Health care alone cannot be responsible for solving these societal problems. But health care can play a leadership role in convening and collaborating with business, government, and other sectors to create innovative solutions to complex and longstanding problems.

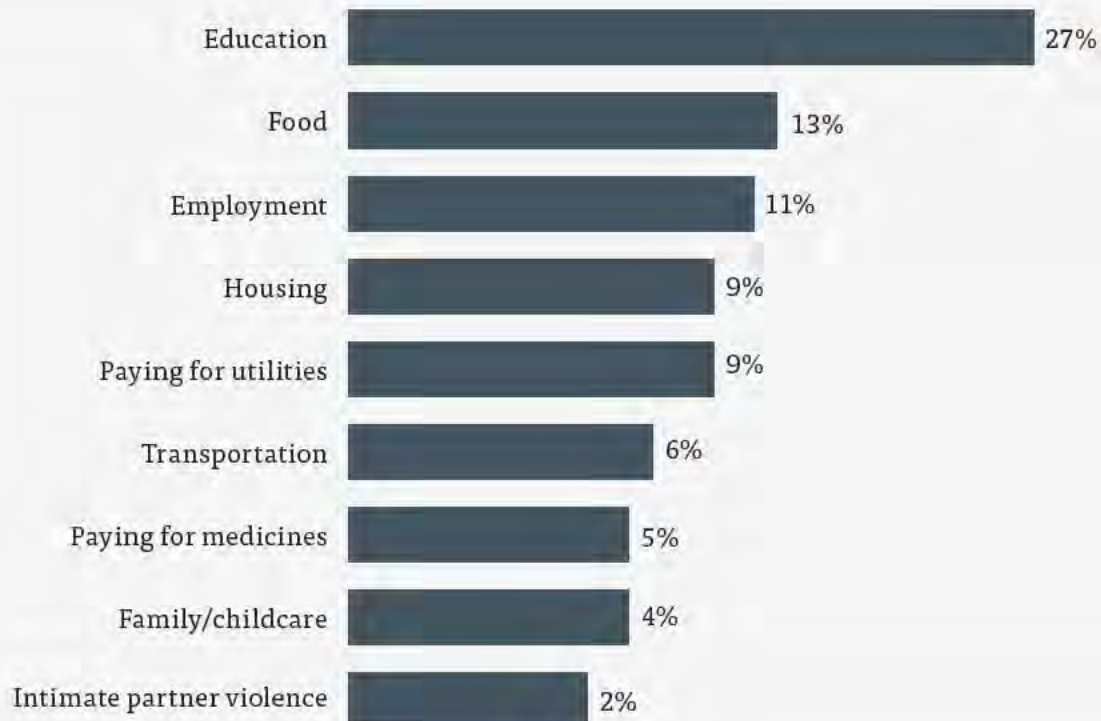


Mass General Patients and Social Determinants of Health

Mass General patients report experiencing significant challenges with social and economic determinants. As part of the Medicaid Accountable Care Organization (ACO) contract, all primary care practices must screen MassHealth patients for the social determinants of health. The screening questionnaire covers 9 different domains. If patients screen positive, they are referred to the appropriate resources. In the figure below, education, food, employment, and housing are the domains that patients screen positive for the most.

% Screened [+] on the SDOH Questionnaire for MGH Patients by Domain

July 1, 2018 - June 30, 2019

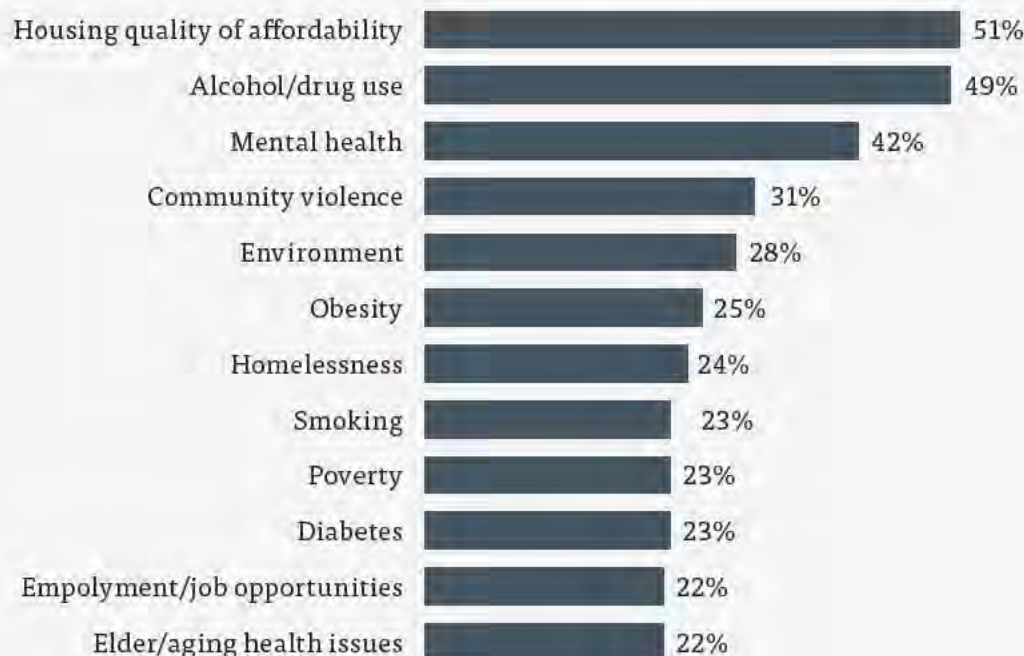


DATA SOURCE: Data Source: Partners HealthCare Enterprise Database Warehouse, accessed 8/22/19

Introduction to the Priorities: Quality of Life Survey Results

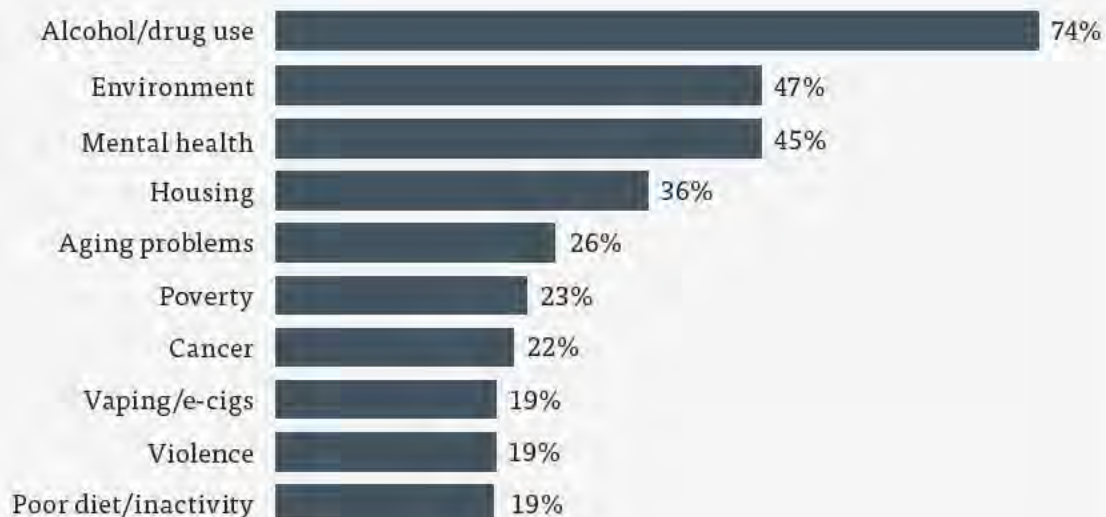
Below are charts representing survey results on the most important concerns in Boston and North Suffolk. Of note are significant differences in the concerns, particularly housing (50.5% Boston v. 36% North Suffolk) and alcohol/drugs (49% Boston v. 74% North Suffolk). This data was considered, along with primary data and community processes, in determining the final priorities.

% Boston CHNA Survey Respondents Reporting Top Most Important Concerns in Their Community/Neighborhood That Affect Their Community's Health (N=2,053), 2019



DATA SOURCE: Boston CHNA Community Survey, 2019

% North Suffolk CHNA Survey Respondents Reporting Top Most Important Concerns in Their Community/Neighborhood That Affect Their Community's Health (N=1,827), 2019



DATA SOURCE: North Suffolk CHNA Community Survey, 2019

Mass General Priorities from the CHNA Collaboratives

The following pages outline the data, both primary and secondary, that led to the chosen priorities of the Boston and North Suffolk CHNA Collaboratives. Mass General is a proud participant of these collaboratives, and a guiding principle of the community health work is to listen to, collaborate, and learn from the communities we work with. Thus, the health priorities of Mass General Community Health are:

- Safe, affordable, and stable housing.
- Economic and financial stability and mobility, including living wage jobs and educational pathways.
- Behavioral health, including substance use disorders (SUD), with an emphasis on youth and families.
- Access to health, social, and child care services.
- Community/intimate partner violence and safety.
- Obesity and food insecurity.
- Elder/aging health issues.
- Chronic disease with cancer, diabetes focus.

A NOTE ABOUT DATA:

Secondary data sources will differ in the upcoming sections between Boston and North Suffolk as different sources are available for different periods of time. For example, the Boston Public Health Commission conducts a Behavioral Risk Factor Survey every other year which provides rich data on healthcare access and behavioral that is not available for North Suffolk communities.



BOSTON

Overview

Boston's health care sector plays a prominent role in the health and economic status of the entire city and region. Its 9 hospitals and 22 neighborhood-based community health centers, located in all of Boston's 23 neighborhoods, facilitate access to care and add more than 150,000 jobs to the economy. Community health centers care for populations that are diverse in income, race, ethnicity, age, and gender, and address the social determinants of health.

Boston's Collaborative was formed in 2018 as the first city-wide effort to comprehensively understand the health needs of its residents. The Collaborative encompassed all of the city's neighborhoods, was managed by a 19-member CHNA-CHIP Collaborative Steering Committee (the Boston Collaborative), and involved over 100 members that formed the broadest possible array of stakeholders from health centers to hospitals, the Boston Public Health Commission, education, community development, social service organizations, the faith-based community, and, perhaps most importantly, the true experts about challenges to good health—residents who contributed their first-hand knowledge, experience, and ideas for improving the health of the city and the people who live there.

Health Resources in Action (HRiA), a non-profit public health consulting organization, facilitated and supported the Collaborative. The Conference of Boston Teaching Hospitals provided “backbone” or infrastructure support.

The Boston CHNA sought to understand health inequities from a wide perspective across race and ethnicity, gender identity, income, and neighborhood. The work of the Boston Collaborative is guided by the following principles and shared values:

- **Equity:** Focus on inequities that affect health with an emphasis on race and ethnicity.
- **Inclusion:** Engage diverse communities and respect diverse viewpoints.
- **Data driven:** Be systematic in our process and employ evidence-informed strategies to maximize impact.
- **Innovative:** Implement approaches that embrace continuous improvement, creativity, and change.
- **Integrity:** Carry out our work with transparency, responsibility, and accountability.
- **Partnership:** Build trusting and collaborative relationships between communities and organizations to foster sustainable, community-centered change.

The Boston Collaborative prioritized an inclusive process for engaging the community to provide input about the communities' needs, strengths, and opportunities. In particular, the CHNA used a variety of approaches to seek input from individuals and groups that typically are unlikely to participate in such a process due to language, lack of transportation, responsibility for children, age, behavioral health issues, substance use disorders (SUDs), physical limitations, or other barriers. The CHNA process was designed to be inclusive with almost 300 people attending three separate participatory community meetings including a kick-off, prioritization, and strategy development.

Data were gathered from primary and secondary sources. Primary sources included:

- A community survey, completed by 2,404 individuals reached through 91 organizations, administered online and in-person in seven languages.
- 13 focus groups with a total of 104 community residents.
- 45 interviews with organizational, government, and community leaders.

Secondary data were gathered from city, state, and national sources including the U.S. Census, the Massachusetts Department of Public Health, the Boston Public Health Commission, and the Behavioral Risk Factor Surveillance System (BRFSS).

In order to gain the fullest possible understanding about impacts on health, particularly the social determinants of health, an exhaustive list of considerations, from education, to race, ethnicity, culture, and language diversity, to income, food insecurity, green space, community cohesion, and more were addressed. After an inclusive review and assessment of the data, the Collaborative used a careful rating system to identify the priorities that would then form the city's Community Health Improvement Plan (CHIP).

In April 2019 the CHIP working group, co-chaired by a Mass General representative, created prioritization criteria:

- **Burden:** How much does this issue affect health in Boston?
- **Equity:** Will addressing this issue substantially benefit those most in need?
- **Impact:** Can working on this issue achieve both short-term and long-term change?
- **Feasibility:** Is it possible to address this issue given infrastructure, capacity, and political will?
- **Collaboration:** Are there existing groups across sectors willing to work together on this issue?

The prioritization process had several stages. First, a 16-page draft executive summary of the CHNA report was sent to over 150 organizations and individuals along with an online survey which asked participants to rate 9 key issues on the above criteria. Next, over 100 community residents and organizational staff across a multitude of sectors attended a three-hour meeting to consider all of the input and choose the priorities. The Boston CHNA-CHIP Collaborative Steering Committee refined those priorities.

The priorities identified in the Boston CHNA from public sources, surveys, focus groups, community meetings, and key informant interviews are:

- Safe and stable housing (affordability, quality, ownership, gentrification, displacement).
- Financial security and mobility (jobs, income, education, training).
- Behavioral health including SUDs.
- Access to health, social services, and child care.

The CHNA and the subsequent development of a Community Health Improvement Plan (CHIP) have provided a structure for including more voices at the table, from hospitals to community residents to community development corporations, leading to more accurate identification of the health and social needs in the city, and sharing of the ideas, solutions, and resources that comes with increasing trust among diverse constituents.

For Mass General, the process was a welcome opportunity to work as a true partner among many. It's a learning process that is both important and fruitful, and a journey that allows us to more fully do our part to improve the health and well-being of the diverse communities we serve.

The Boston Context

The Boston CHNA focuses on those with the greatest health disparities. With a population of nearly 670,000, Boston is experiencing rapid population growth—about 8% in just the past ten years. The city expects this trend to continue to include a total anticipated population of 723,500 residents by 2030. Boston is a young city; about one-third of residents are under age 24. It's also diverse and becoming more so, including residents who are Black (23%), Latino (20%), and Asian (10%). It has a large immigrant community; most immigrant residents were born in the Caribbean or Asia, and one-third speak a language other than English at home, primarily Spanish. Some groups are concentrated in certain neighborhoods with a greater number of Black residents in Mattapan, Dorchester, Roxbury, and Hyde Park; more Latinos (the group with the greatest growth in recent years) living in East Boston; and, more Asians living in the South End, Fenway, and Allston/Brighton.

Total Population, by Boston and Neighborhood, 2008-2012 and 2013-2017			
	2008-2012	2013-2017	% population change 2012 to 2017
Boston	619,662	669,158	8.0%
Allston/Brighton	61,159	63,270	3.5%
Back Bay	51,735	55,635	7.5%
Charlestown	17,052	18,901	10.8%
Dorchester (02121, 02125)	58,797	63,733	8.4%
Dorchester (02122, 02124)	75,304	79,717	5.9%
East Boston	41,680	46,655	11.9%
Fenway	52,897	54,267	2.6%
Hyde Park	29,219	33,084	13.2%
Jamaica Plain	36,866	39,435	7.0%
Mattapan	27,335	29,141	6.6%
Roslindale	30,370	32,819	8.1%
Roxbury	37,454	43,871	17.1%
South Boston	34,452	39,866	15.7%
South End	34,395	34,777	1.1%
West Roxbury	27,163	28,505	4.9%

DATA SOURCE:

U.S. Census, American Community Survey 5-Year Estimates, 2008-2012 and 2013-2017

NOTE:

Neighborhoods as defined by Boston Public Health Commission; Back Bay includes Back Bay, Beacon Hill, Downtown, North End, and West End; South End includes South End and Chinatown; Boston population count includes some areas that are not covered by neighborhood definitions per ZCTAs

Racial and Ethnic Distribution, by Boston and Neighborhood, 2013-2017					
	Asian	Black	Latino	White	Other
Boston	9.4%	22.7%	19.4%	44.9%	3.6%
Allston/Brighton	17.7%	4.9%	11.7%	61.7%	8.6%
Back Bay	10.6%	4.1%	6.8%	76.1%	2.4%
Charlestown	7.2%	5.8%	11.8%	73.2%	2.0%
Dorchester (02121, 02125)	6.7%	44.8%	24.6%	17.5%	6.5%
Dorchester (02122, 02124)	9.9%	49.0%	14.8%	21.6%	4.7%
East Boston	3.8%	2.6%	57.4%	32.6%	3.7%
Fenway	18.3%	5.6%	12.9%	60.0%	3.2%
Hyde Park	2.1%	42.2%	27.1%	25.1%	3.4%
Jamaica Plain	6.7%	10.6%	21.8%	56.8%	4.0%
Mattapan	NA	77.2%	15.0%	4.2%	2.8%
Roslindale	2.2%	21.4%	24.5%	48.9%	3.0%
Roxbury	8.3%	40.8%	27.3%	20.0%	3.7%
South Boston	4.8%	5.9%	10.2%	77.5%	1.6%
South End	23.0%	11.7%	16.6%	45.8%	2.8%
West Roxbury	6.7%	5.6%	7.9%	77.8%	2.0%

DATA SOURCE:

U.S. Census, American Community Survey 5-Year Estimates, 2013-2017

NOTE:

Neighborhoods as defined by Boston Public Health Commission; Back Bay includes Back Bay, Beacon Hill, Downtown, North End, and West End; South End includes South End and Chinatown; Latino includes residents who identify as Latino regardless of race and racial categories include residents who do not identify as Latino; Other includes American Indian and Alaska Native, Native Hawaiian and Other Pacific Islander, Some other race, and Two or more races; NA denotes where data not presented due to insufficient sample size

There are also disparities in education. Forty-eight percent (48%) of all Boston residents have a college degree or higher; however, rates vary substantially across race and ethnicity: Whites (70%), Asians (57%), Latinos (21%), and Blacks (20%). In the Boston Public Schools (BPS), nearly 42% of students identify as Latino and 32% as Black, and many school-age children have special needs that affect their educational achievement. BPS data show that 76% of students have “high needs,” meaning they are low-income, English Language Learners, and/or have a disability.

CHNA survey respondents described many strengths in their communities and neighborhoods. The top five strengths cited across ethnicities are:

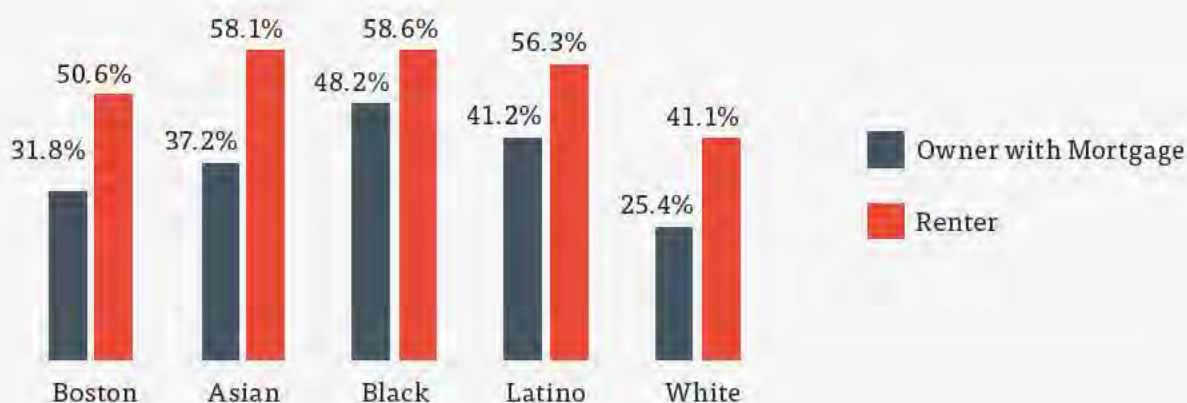
- My community has people of many races and cultures.
- My community is close to medical services.
- People speak my language.
- My community has good access to resources.
- People are proud of their community.

Improving health: The Boston CHNA Priorities

Housing

Boston is known for its high cost of housing. CHNA participants across neighborhoods consistently stated that the rising cost of housing in Boston is a major day-to-day concern and leaves few resources for other needs. The cost of a single-family home rose by 48% between 2011-2016. Among renters, Blacks, Latinos, and Asians are significantly more likely to spend 30% or more of their income on housing compared to all Boston renters. The availability of affordable housing has dropped considerably between 1996-2016. More than 39% of all new housing permits in 1996 were affordable, compared to only 18% in 2016. Almost 20% of CHNA survey respondents (19.5%) reported trouble paying their rent or mortgage. For some groups the rate was much higher, including respondents who were Black (29.4%), Latino (27.1%), Non-binary/transgender (42.3%), those with some college or a certificate program (34.2%), LGBTQ individuals (24%), and the parent of a child under age 18 (23.7%).

% Housing Units Where 30% or More of Income Spent on Monthly Housing Costs by Housing Tenure, by Boston and Race/Ethnicity, 2017



DATA SOURCE: U.S. Census, American Community Survey 1-Year Estimates, 2017

The pressures of housing stability and affordability are intense and are associated with poor physical and mental health outcomes, as well as disruptions in work, school, and day care arrangements. Poor housing quality can have direct negative health impacts including respiratory conditions such as asthma due primarily to poor indoor air quality, cognitive delays in children from exposure to neurotoxins (e.g., lead), and accidents and injuries as a result of structural deficiencies.

There are other impacts. CHNA participants noted that high housing costs are especially difficult for people with low or fixed incomes, such as seniors and residents who work low-wage jobs. Those who are undocumented and non-English-speaking are especially vulnerable. One focus group participant shared, “The people who live here do not have access to the new apartments coming up in East Boston. How are we supposed to access rents that are \$2,000-3,000 and maintain a life?”

In Boston in 2018, an estimated 6,188 residents were homeless, and nearly one-third of homeless households included at least one child. Those with behavioral health issues and/or SUDs, LGBTQ youth, seniors, immigrants, those with a criminal record, single mothers, and survivors of trauma are most vulnerable to homelessness. The number of homeless persons has remained relatively consistent between 2015-2018, with modest variation in racial composition.

Gentrification, long waiting lists for housing assistance (up to ten years for public housing), discrimination, and overcrowding are part of daily life for the poor and near-poor. Families struggle to meet basic needs, make credit card payments, or pay medical bills. Access to quality education and training programs is essential for economic mobility but limited by poor preparation in substandard educational systems in poor areas. For those at housing risk, the absence of a safe and secure home can affect every other dimension of their lives.

CHNA respondents called for increasing opportunities for home ownership and the assets it brings in non-White communities, and for mitigating the impact of gentrification and displacement.

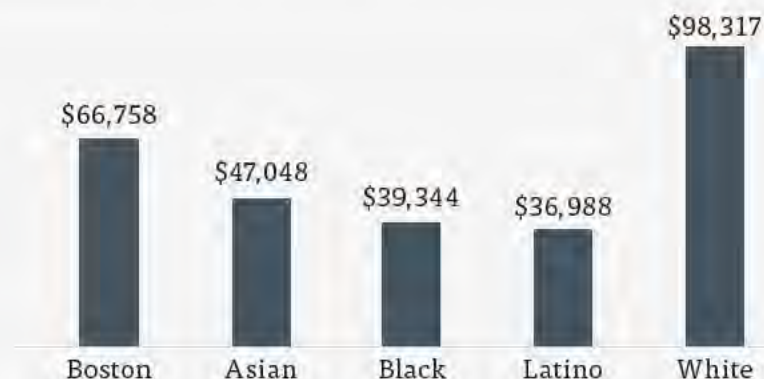
Financial Security and Mobility

The average income in Boston is \$62,021, but the range is large and there are disparities—from \$27,952 in Dorchester to \$170,152 in South Boston. In four neighborhoods—Dorchester, Fenway, Roxbury, and the South End—25-37% of residents live below the federal poverty level. Median income is highest for Whites (\$98,317) and lowest for Latinos (\$36,998). One interviewee summarized, “Real wages have been going down for low income people [for decades]. This is at the heart of all of it: people have no time because they are working four jobs to get the same salary they used to get from one [job]. If you can’t rest, how can you be healthy? The sleep and the downtime are fundamental, and people have less of it. Some people have to work 70 hours to make ends meet.”

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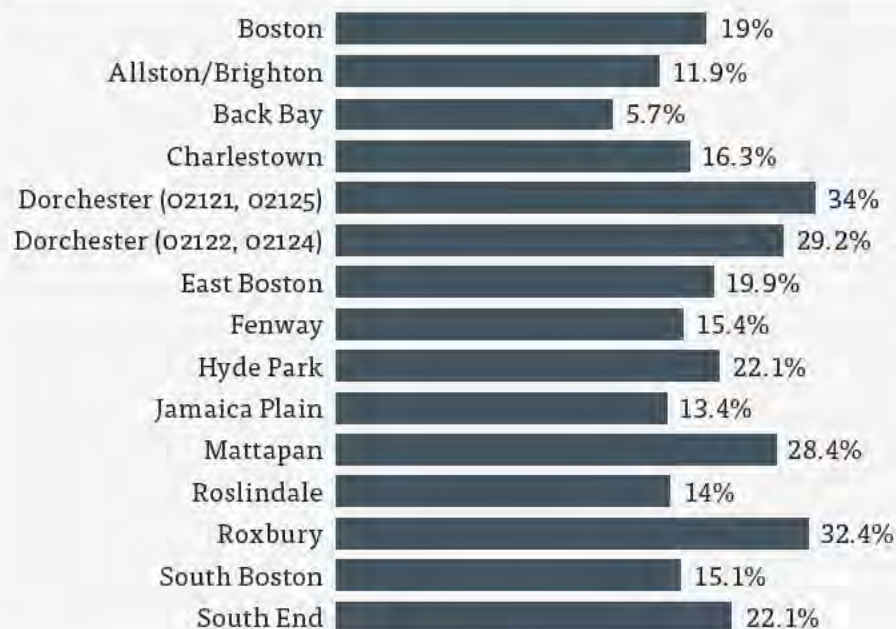
Median Household Income, by Boston and Race/Ethnicity, 2017



DATA SOURCE:
U.S. Census, American Community
Survey 1-Year Estimates, 2017

Roxbury (44%), Fenway (40%), parts of Dorchester (02121 and 02125 zip codes—36%), and the South End (31%) had the highest proportion of households with incomes below \$25,000. The percentages of households receiving food stamps (known as SNAP—Supplemental Nutrition Assistance Program) across Boston neighborhoods ranges from a low of 5.7% in Back Bay to a high of 34% in parts of Dorchester and 32% in Roxbury.

% Households Receiving Food Stamps/SNAP Benefits by Boston and Neighborhood, 2013-2017

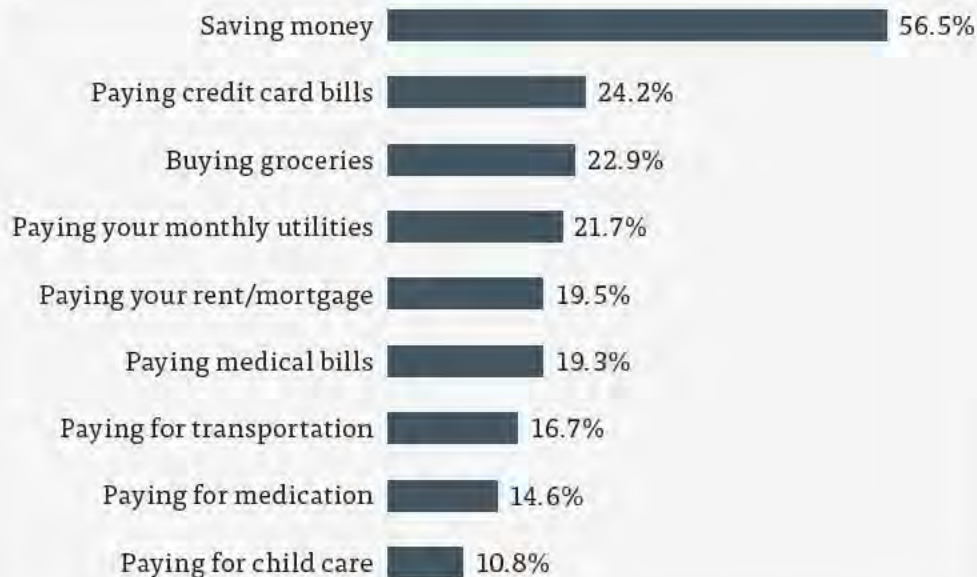


DATA SOURCE:
U.S. Census, American Community
Survey 5-Year Estimates, 2013-2017

NOTE:
Neighborhoods as defined by
Boston Public Health Commission;
Back Bay includes Back Bay, Beacon
Hill, Downtown, North End, and
West End; South End includes
South End and Chinatown

Many residents struggle to meet basic needs, while non-White more than White CHNA respondents described struggles with credit card debt, housing costs, medical bills, child care, and more.

% Boston CHNA Survey Respondents Reporting Having Trouble with Finances, by Type of Finances, 2019



DATA SOURCE:
Data Source: Boston CHNA
Community Survey, 2019

NOTE:
Percentage calculations do not
include respondents who selected
"don't know/prefer not to answer"

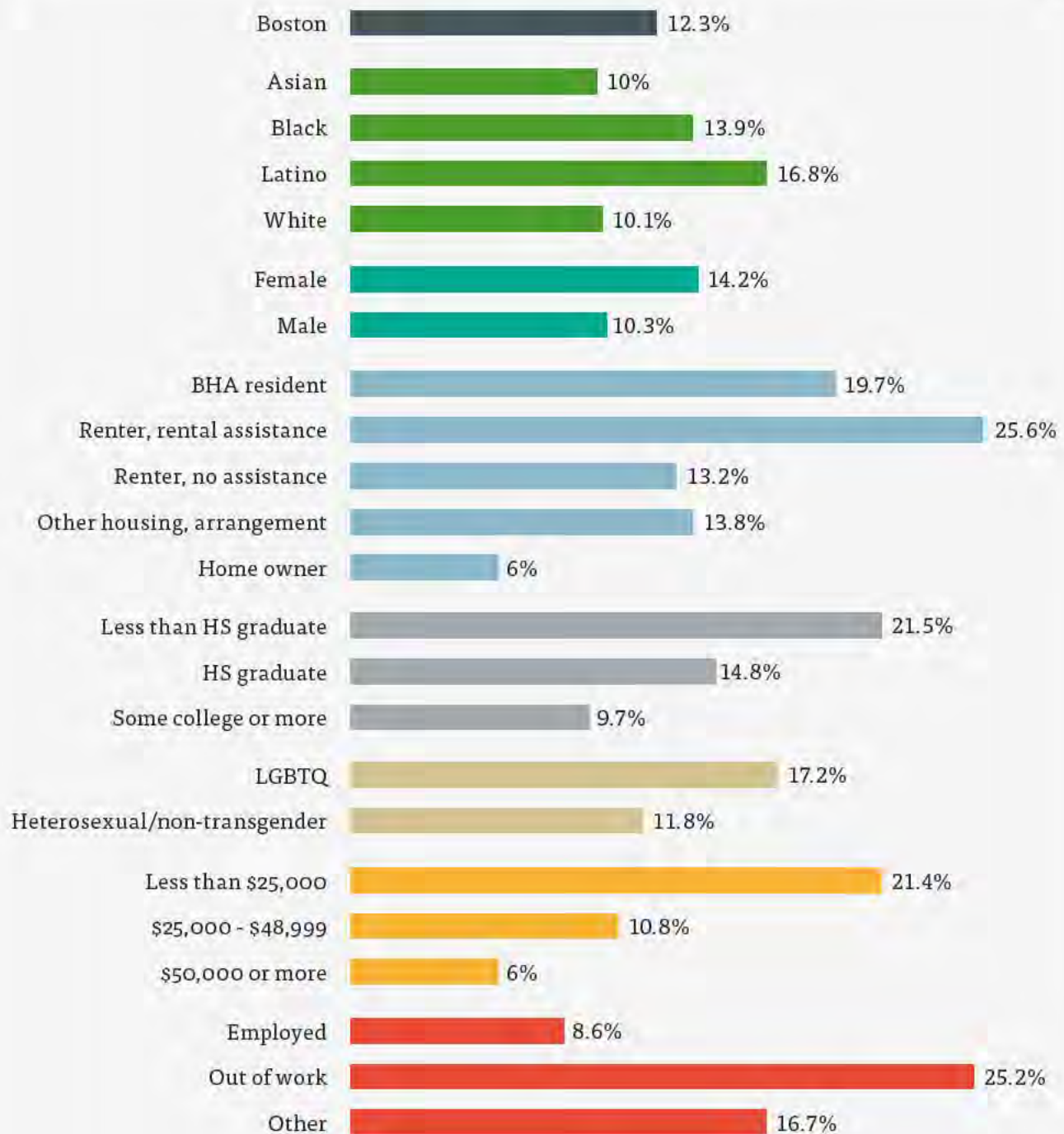
Boston's unemployment rate is deceptive. In 2018, overall unemployment was 3.0%; however, it was significantly higher in Roxbury (12%), Dorchester (11%), Fenway (10%), and Mattapan (11%). The health care and education sectors are Boston's largest employers with substantial growth, but CHNA participants noted challenges in securing employment in these and other industries due to required education credentials, online applications that are challenging for those with limited technical knowledge, and a criminal record. According to the American Community Survey, nearly one-third of Boston residents 16 years or older are employed in education, health care, or social assistance industries; followed by professional, scientific, and management jobs; and administrative and waste management services positions (industry categories are pre-defined by the U.S. Census).

CHNA participants recommended reducing employment barriers by addressing minimum education requirements, valuing the lived experience of applicants, and increasing youth employment opportunities.

Behavioral Health Including Substance Use Disorders

The CHNA showed widespread concern about behavioral health challenges among families, friends, and neighbors. Stress, anxiety, and depression were the most frequently-cited behavioral health issues among Boston residents, especially those who identify as LGBTQ, low-income, women, renters, seniors, children, immigrants, communities of color, and the unemployed. Data show persistent sadness (12%) among Boston adults. Rates are higher among Blacks (14%), Latinos (17%), Boston Housing Authority (BHA) residents (20%), renters and those receiving rental assistance (26%), those with less than a high school education (22%), LGBTQ individuals (17%), those earning less than \$25,000 (21%), and those who are unemployed (25%).

% Adults Reporting Persistent Sadness, by Boston and Selected Indicators, 2013, 2015, and 2017 Combined



DATA SOURCE:

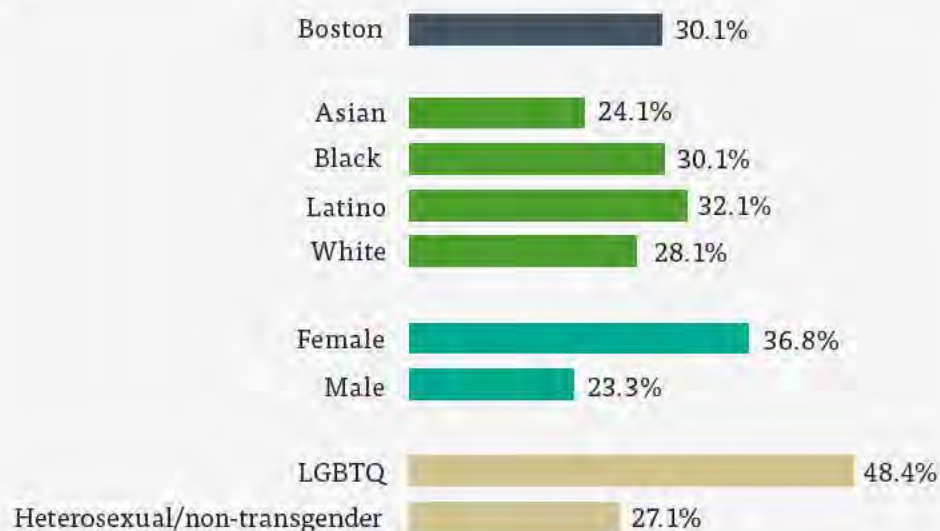
Boston Public Health Commission, Boston Behavioral Risk Factor Surveillance System, 2013, 2015, and 2017 combined

NOTES:

Persistent sadness is defined as feeling sad, blue, or depressed for more than 15 days within the past 30 days; Bars with pattern indicate reference group for its specific category; Asterisk (*) denotes where estimate was significantly different compared to reference group within specific category ($p < 0.05$); Error bars show 95% confidence interval

The data for those with persistent anxiety are also concerning, with high rates for Boston adults (21%), women (24%), people with low income (28%), young people ages 18-24 (24%), and the unemployed (33%). Boston's Youth Risk Behavior Survey (YRBS) data show concerning trends in children and youth: nearly one-third of BPS high school students report persistent sadness, with higher rates among female and LGBTQ students.

% Boston Public High School Youth Reporting Persistent Sadness, by Boston and Selected Indicators, 2013, 2015, and 2017 Combined



DATA SOURCE:

Centers for Disease Control and Prevention and Boston Public Schools, Youth Risk Behavior Survey, 2013, 2015, and 2017 combined

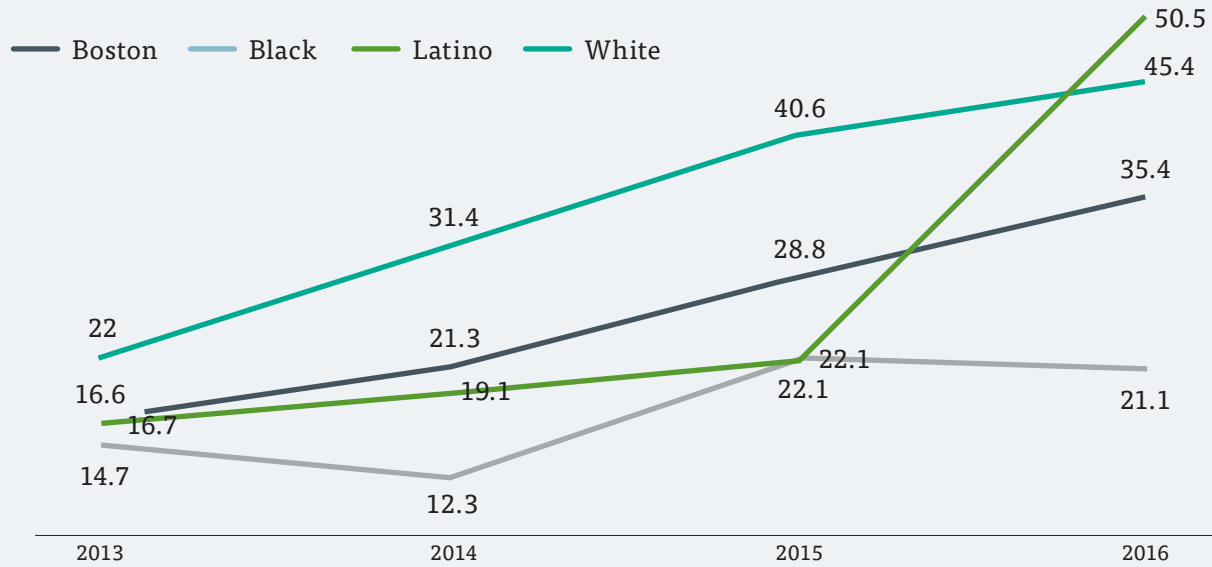
NOTE:

Students were asked in the past 12 months if they felt sad or hopeless every day for 2 weeks or more; Bars with pattern indicate reference group for its specific category; Asterisk (*) denotes where estimate was significantly different compared to reference group within specific category ($p < 0.05$); Error bars show 95% confidence interval

Other influences on behavioral health cited by CHNA participants included unstable housing; parental incarceration, especially of Black and Latino men who are thereby not present in the home; and, domestic violence. Immigrants and communities of color were described as especially vulnerable to behavioral health concerns due to limited English language skills, cultural norms, and stigma related to seeking mental health services.

Participants discussed the co-occurrence of behavioral health issues with SUDs, including opioid use disorder (OUD) and trauma. Together these challenges are among the leading causes of disability in the U.S. In 2016, unintentional opioid overdose accounted for 69% of all accidental deaths, with rates highest among Latinos, followed by Whites. Increases in opioid overdose mortality leveled off between 2013-2016, with an alarming exception among Latinos. Data released from the Massachusetts Department of Public Health during the writing of this report does suggest some good news, though. Between 2017 and 2018, Boston saw an 8.5% decrease in the number of opioid-related overdose deaths, from 198 to 181, respectively.

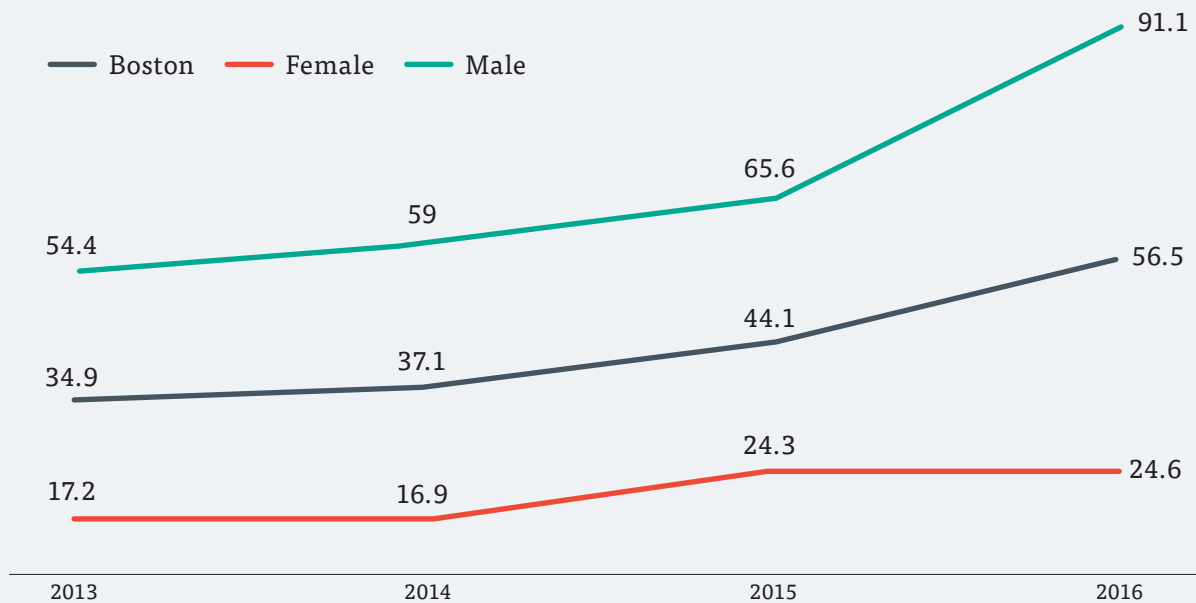
Unintentional Opioid Overdose Mortality Rate, by Boston and Race/Ethnicity, Age-Adjusted Rate per 100,000 Residents 12 Years and Over, 2013-2016



DATA SOURCE: Data Source: Massachusetts Department of Public Health, Boston resident deaths, 2013-2016

There is also substantial and concerning gender difference in the substance misuse mortality rate.

Substance Misuse Mortality Rate, by Boston and Gender, Age-Adjusted Rate per 100,000 Residents 12 Years and Over, 2013-2016



DATA SOURCE: Massachusetts Department of Public Health, Boston resident deaths, 2013-2016

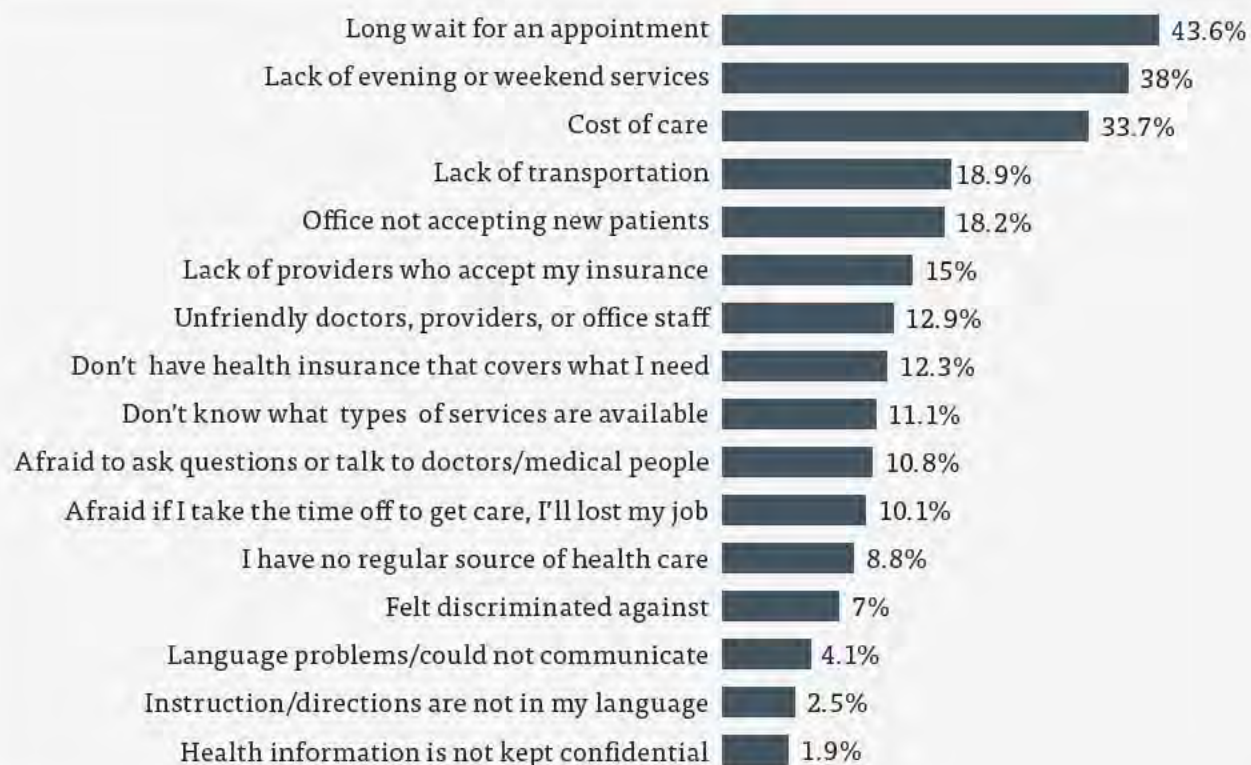
CHNA respondents report that access to help is limited by stigma, culture, language, cost, and provider competency in treating immigrant communities. They recommended investing in more behavioral health support in public schools, reducing cultural stigma linked to behavioral health services, and recruiting behavioral health clinicians who reflect the diversity of Boston. One key informant illustrated these barriers by sharing, “There is far too little access to treatment programs, and those that do exist are not linguistically and culturally competent.”

“There is far too little access to treatment programs, and those that do exist are not linguistically and culturally competent.”

Access to Health Care, Social Services, and Child Care

Across focus groups, interviews, and surveys CHNA respondents expressed satisfaction with their health care; the Boston Behavioral Health Risk Factor Surveillance System (BRFSS) survey results show that 80% of respondents identify at least one personal doctor. Nevertheless, they described barriers to care including language, navigating the health care system, understanding health care benefits, transportation, a lack of culturally sensitive approaches to care, and immigration status. In particular, CHNA participants spoke about the fear in undocumented or mixed status families that prevent family members from seeking care. CHNA respondents also cited long wait times for appointments (44%) and a lack of evening and weekend services (38%) that limit access to health care.

% Boston CHNA Survey Respondents Reporting Factors That Made It Harder for Them to Get Health Care Services They Needed in Past Two Years (N=1,014), 2019



DATA SOURCE: Boston CHNA Community, Survey, 2019

Homeless individuals, undocumented immigrants, and students indicated challenges accessing health care due to a lack of insurance. Homeless residents in focus groups specifically discussed the challenge of not having a permanent mailing address or the ability to access birth certificates as a barrier to insurance coverage. Under-insurance was also cited as a challenge to maintaining or regaining health.

CHNA participants recommended increasing help for navigation of the complex health care system and delivering culturally sensitive and linguistically appropriate services to diverse groups. They suggested improving collaboration and information sharing between medical providers and service agencies, especially with the spread of accountable care organizations; pursuing multi-year funding to allow for adequate response to crises and opportunities while building capacity in the health care system; and, long-term renewable leases for nonprofits and social service agencies strained by rising operating costs.

Access to child care

Data about access to child care for Boston residents is limited, prompting the City of Boston to include a survey on child care availability for children ages five and under in its 2019 census. For low-income working families, the cost of child care is a substantial barrier to financial security and employment opportunities, especially for single parents. CHNA participants reported having to work multiple jobs to afford child care and the impact on parenting, by limiting time with their children. Nearly one-quarter (23%) of parents with children under 18 reported difficulty paying for child care, with high rates as well among those age 25-44 (19%), those who have completed some college or a certificate program (20%), and those who are non-binary/transgender (19%).

Other challenges were cited, including long waiting lists for child care, especially for children under age three, and difficulties finding child care during the summer, school vacations, and on days when schools are closed for holidays or other reasons. Grandparents may be available to fill in, but at a cost if they need to miss work to do so. CHNA participants recommended subsidies for child care so that low-income parents can pursue education and training as steps toward economic mobility.

Transportation

Boston residents (34%) rely on public transportation to get to work, health appointments, their children's schools, or for help from social service or other organizations. It's essential to their health and livelihoods. However, transportation options in Boston have limitations: CHNA participants expressed concern about cost, timeliness, and access, especially for the elderly, those with limited English proficiency, or those who live in neighborhoods with limited transportation options. Bostonians spend an average of 11% of their household income on transportation expenses.





NORTH SUFFOLK

Overview

Three communities north of Boston—Chelsea, Revere, and Winthrop—joined together to assess their changing demographics and shared health needs and develop strategies to address them. In 2016, the Mayor, City Manager and Town Manager of Revere, Chelsea, and Winthrop, respectively, formed the North Suffolk Public Health Collaborative (NSPHC) with the assistance of the Metropolitan Area Planning Council. The NSPHC represents the three cities outside of Boston that comprise the remainder of Suffolk County. With funding from the three municipalities, the NSPHC hired a director to work with stakeholders across the three communities to implement shared activities.

The city leaders were committed to building on the community health needs assessments each community had conducted separately with Mass General since 1995. They believed the joint assessments would leverage their shared knowledge, experience, and resources immeasurably. Mass General's Center for Community Health Improvement (CCHI) joined to co-lead and manage the process.

A Steering Committee was formed comprised of municipal leaders and representatives of the three communities' health departments, human services providers, community residents, and other health providers in the area including Cambridge Health Alliance, Beth Israel Deaconess, East Boston Neighborhood Health Center, and Melrose-Wakefield HealthCare. The steering committee created a memorandum of understanding for participation and shared agreement of the roles, responsibilities, and deliverables for each member. The steering committee also established subcommittees to manage the primary components of the work including instrument review, community engagement, and data analysis. Work groups formed to design the CHIP initiatives that will address the assessment priorities.

The North Suffolk Collaborative created a shared vision to drive the community health assessment: Every individual in the region should have every opportunity to live a healthy life, and all public and private entities and community residents will work in continuous partnership to improve health outcomes for all.

Throughout, the North Suffolk Collaborative prioritized hearing from residents for whom the process may have been unfamiliar and/or may have seemed risky; for example, undocumented residents. Specific approaches were used to reach as many participants from as many groups as possible. The instrument review subcommittee prepared a list of such population groups and developed outreach plans to engage them in key informant interviews and focus groups. An interview with the three city leaders was aired on public access television, in English and Spanish, to inform community members about the assessment and to stress the importance of their participation.

Data were gathered from primary and secondary sources. The primary sources included:

- A community survey, completed by 1,827 individuals reached through 30 organizations, administered online and in-person in four languages (English, Spanish, Portuguese, and Arabic).
- 22 focus groups with a total of 212 community residents or those who work in the communities.
- 28 interviews with organizational, government, and community leaders.

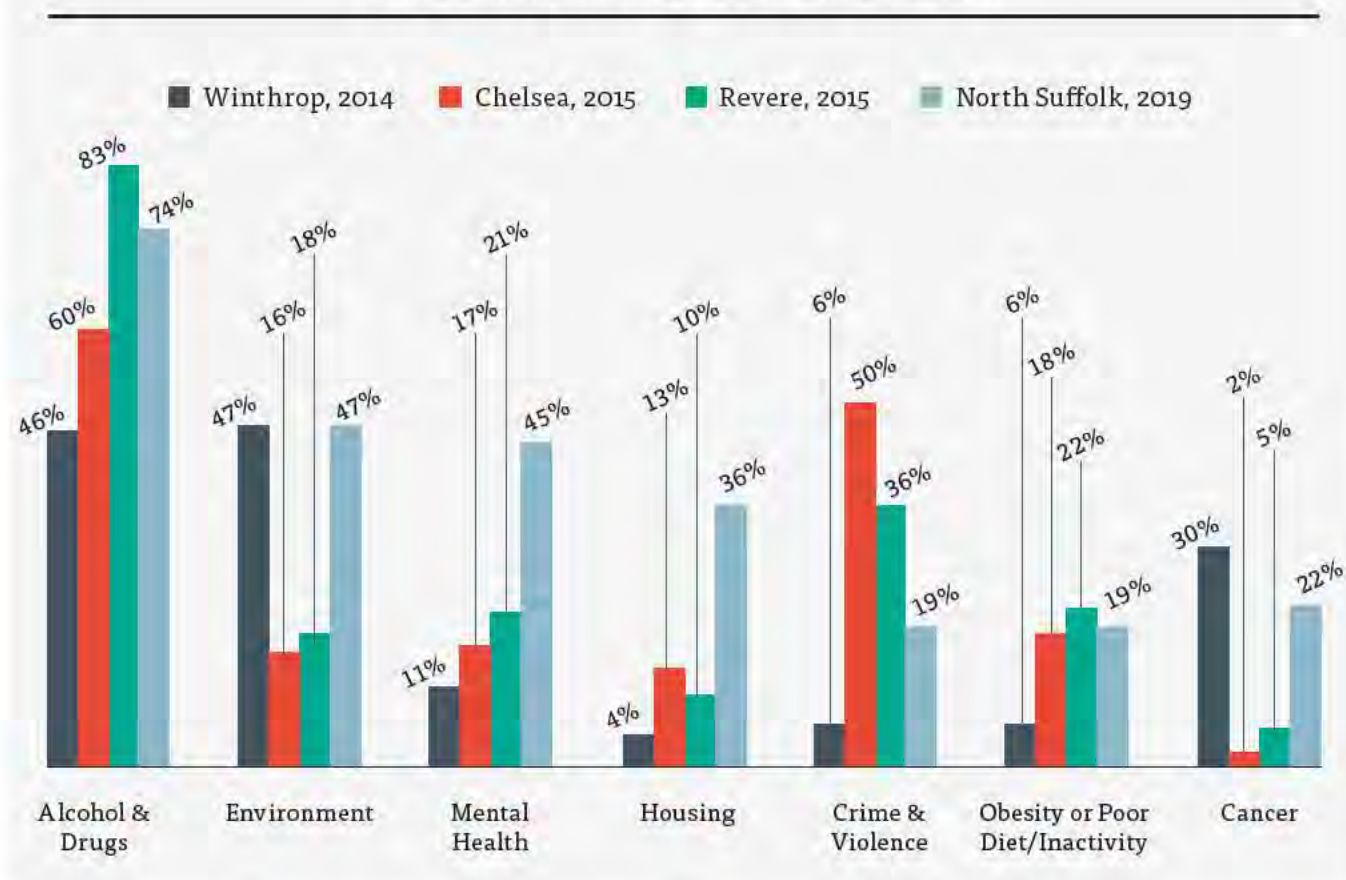
Secondary data were gathered from city, state, and national sources including the US Census, the MA Department of Public Health, the MA Department of Education, the local Youth Risk Behavior Survey (YRBS), the Prevention Needs Assessment (PNA), local police departments, and community-based organizations.

As in the Boston assessment, in order to gain the fullest understanding about impacts on health, particularly the social determinants of health, the CHNA addressed the widest possible range of contributors to health status—from education to racial, ethnic, cultural, and language diversity, to income, food insecurity, green space, community cohesion, and more. After an inclusive review and assessment of the data gathered, the North Suffolk Collaborative used a careful rating system to identify the priorities that would then inform the CHIP. The priorities are:

- Housing – including affordability, quality, stability, gentrification and displacement.
- Behavioral Health – including youth mental health and substance use disorders, especially for youth and families.
- Economic Stability and Mobility – including employment, job training and education.

Most notable in the review of data was the increase in concern by residents around housing and mental health. In the graph below, respondents to past CHNA community surveys did not rank mental health or housing very high on their list of concerns. However, in the 2019 community survey, these are in the top 4 concerns for the region. Also notable is the decrease in concern around crime and violence for Revere and Chelsea.

**Comparison of Past CHNA Top Health Concerns to
North Suffolk CHNA Top Health Concerns, 2019**



DATA SOURCE: Winthrop CHNA Community Survey, 2014; Chelsea and Revere CHNA Community Surveys, 2015; North Suffolk CHNA Community Survey, 2019

The North Suffolk Context

Chelsea, Revere, and Winthrop are small, changing cities, each contiguous to East Boston. Their populations range in size, race, ethnicity, rates of poverty and education, and English proficiency. Notably, there are higher rates of child poverty, percentage of the population living in poverty, percentage unemployed, and lower per capita income in Chelsea and Revere.

There are likewise disparities in rates of children living below 100% of poverty (29% in Chelsea, 23% in Revere, and 10% in Winthrop), and students graduating from high school or higher (65% in Chelsea, 82% in Revere, and 95% in Winthrop). There is increasing diversity in each community. Rates of foreign born residents are 44% (Chelsea), 34.9% (Revere), and 15.60% (Winthrop), and those with limited English proficiency among those age five and older are 42% (Chelsea), 24% (Revere), and 7% (Winthrop). Chelsea has by far the greatest percentage of Hispanic residents (64%) though Revere's (26%) and Winthrop's rates (8%) are rising.

Community Characteristics of Winthrop, Chelsea, Revere, and MA				
	Winthrop	Chelsea	Revere	MA
Population	17,962	37,581	53,095	6,705,586
Children living below 100% poverty	9.80%	28.50%	23.00%	14.8%
% High School graduate or higher	94.80%	65.40%	82.20%	89.8%
Percent Population Age 5+ with Limited English Proficiency	6.60%	42.40%	24.10%	8.9%
Foreign born	15.60%	44.00%	34.90%	15.50%
White	93.80%	48%	76%	74.30%
African American or Black	1.70%	5%	4%	7.10%
American Indian and Alaskan Native	0%	0%	0%	0.20%
Asian	1%	3%	6%	6%
Hispanic	8.30%	64.20%	26.40%	10.60%
Other Race	0.80%	7%	9%	4.20%
Two or More Races	2.70%	35%	5%	2.90%

Economic Hardship Index				
	Winthrop	Chelsea	Revere	MA
Economic Hardship Index	28.58	45.73	38.44	36.01
Components of the index:				
Per Capita Income	\$36,329	\$21,722	\$26,746	\$39,463
Percent not HS grad (over 25)	5.44	29.29	17.66	10.60
Percent unemployed (over 16)	4.92	5.58	6.95	6.31
Percent dependent (under 18 or over 65)	36.5	34.84	33.62	35.68
Percent in poverty (below FPL)	7.72	18.65	14.25	12.19
Percent Crowding (units with >1 person/room)	1.32	9.175	5.27	2.03
NOTES: The MA Hardship Index is a standardized index across all census tracts in Massachusetts. Higher scores indicate greater economic hardship.				

Despite the challenges residents face in these communities, there are many strengths the residents noted in the community survey as well as in focus groups.

Top 5 Strengths North Suffolk



DATA SOURCE: North Suffolk CHNA Community Survey, 2019

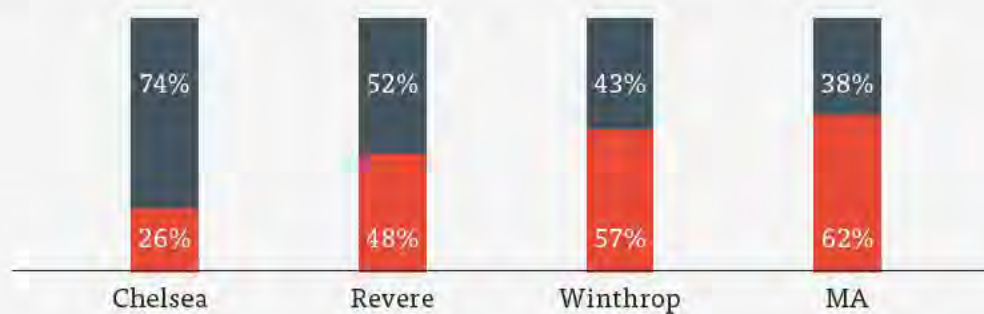
Improving Health: The North Suffolk CHNA Priorities

Housing

Like Boston, data across the three communities demonstrate strong concern about housing and its impact on health. The table above shows high rates of housing crowding (greater than one person per room), particularly in Chelsea but also in Revere. Chelsea and Revere survey respondents rated housing as a top concern, with substantial increases in 2019 over prior assessments. For both communities, housing was among the top five health concerns. While housing was not one of the top five health concerns among Winthrop residents, it did rise in the ranking of top ten concerns.

According to the American Community Survey (ACS) data from 2012 to 2016, approximately 38% of all housing units in Massachusetts were renter-occupied. By contrast, rates of renter-occupied housing units were higher than the state rate in all three communities: 74% in Chelsea, 52% in Revere, and 43% in Winthrop.

% Owner and Renter-Occupied Units, by State and by Community, ACS 2012-2016

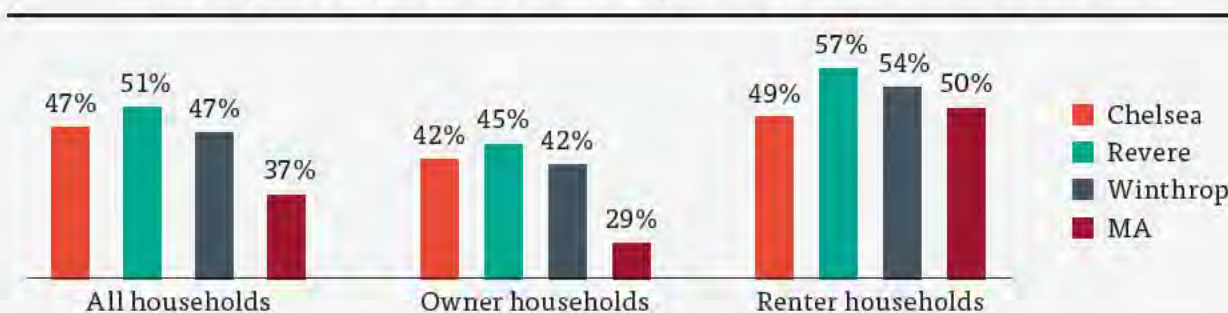


DATA SOURCE: American Community Survey (ACS), 2012-2016

Renting can be stressful. Focus group participants described necessary repairs, such as broken doors left undone and negligence by landlords in making any improvements at all. According to ACS data from 2012-2016, the majority of renters in Chelsea, Revere, and Winthrop are people of color (Hispanic/Latino, Black/African American, Asian, Multi-race and/or other race, American Indian, and Pacific Islander). Chelsea-based community health workers (CHWs) described “slumlords” who do not maintain adequate housing conditions for their tenants. Their patients who are immigrants are reluctant to complain due to their immigration status, thus remaining trapped in substandard conditions.

Unaffordable housing increases risk of eviction and gentrification. According to the ACS 2012-2016 data, 37% of all households in Massachusetts—renter and owner—were cost burdened (meaning they pay 30-50% of their monthly income on housing). In North Suffolk, residents in Chelsea (41%), Revere (51%) and Winthrop (47%) indicated they are cost burdened.

% Housing Units Where 30% or More of Income Spent on Monthly Housing Costs by Housing Tenure, by State and Community, 2012-2016

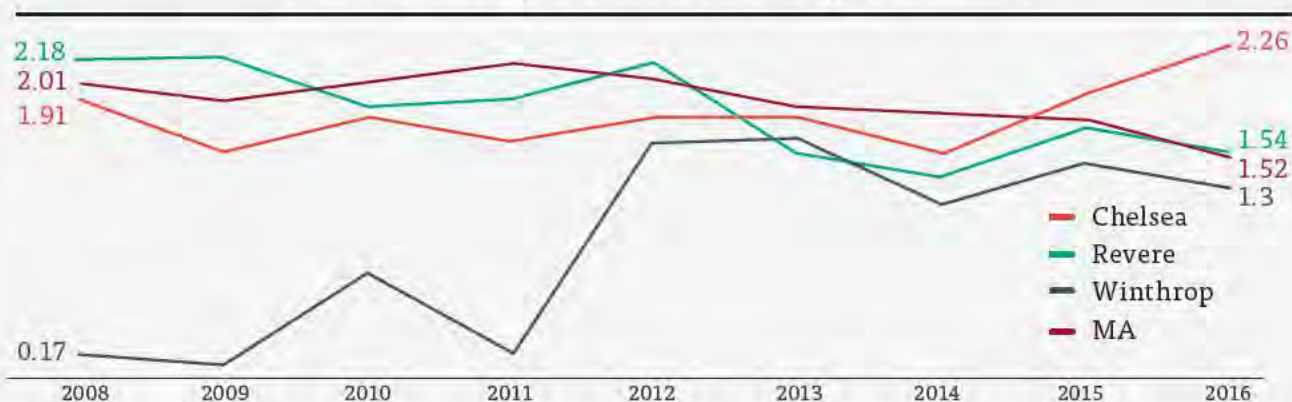


DATA SOURCE: American Community Survey (ACS), 2012-2016

Rising costs increase fears of foreclosure, eviction, and homelessness. The figure below shows the eviction rates, calculated by Eviction Lab, which tracks and calculates eviction rates across the country from 2008 to 2016 in Massachusetts, Chelsea, Revere, and Winthrop.

Within the three communities of North Suffolk, there are peaks in eviction rates in 2012 and 2015. In 2016 the rates in Revere and Winthrop decrease, while in Chelsea, eviction rates increase significantly.

Eviction Rate, by State and Community, 2008-2016



DATA SOURCE: Eviction Lab, <https://evictionlab.org/>

“If people could spend more time at home rather than working to afford their housing, they would be able to spend more time meal prepping, eating healthier foods, and connecting with the community.”

There are disparities in fears of eviction. Compared to 11% of non-Hispanic/Latino survey respondents, 23% of Hispanic-Latino survey respondents fear they will be evicted or foreclosed due to lack of rent or mortgage payment. Survey respondents in Revere (44%), Chelsea (30%), and Winthrop (23%) expressed fear of homelessness in the next year. The MA Department of Elementary and Secondary Education estimates that in the 2017-2018 school year, there were 463 homeless youth in Chelsea (including those doubled up with others), 191 in Revere, and 14 homeless youth in Winthrop.

The lack of quality and affordable housing makes healthy behaviors and lifestyles difficult to sustain. A young focus group participant said, “If people could spend more time at home rather than working to afford their housing, they would be able to spend more time meal prepping, eating healthier foods, and connecting with the community.”

Fifty-six percent of survey respondents across Chelsea, Revere, and Winthrop defined a healthy community as one with affordable housing.

Economic Stability and Mobility

In the 2019 North Suffolk Community Survey, 23% of all respondents selected poverty as a top health concern, a marked change from the 2014 and 2015 surveys when poverty was not a top five health concern. In 2019, 38% of Chelsea survey respondents and 28% of Revere survey respondents identified poverty among their most important health issues. People living in poverty are more likely to have worse health outcomes. Participants suggested more and better employment and educational opportunities to support higher incomes and cultivate a more financially stable community.

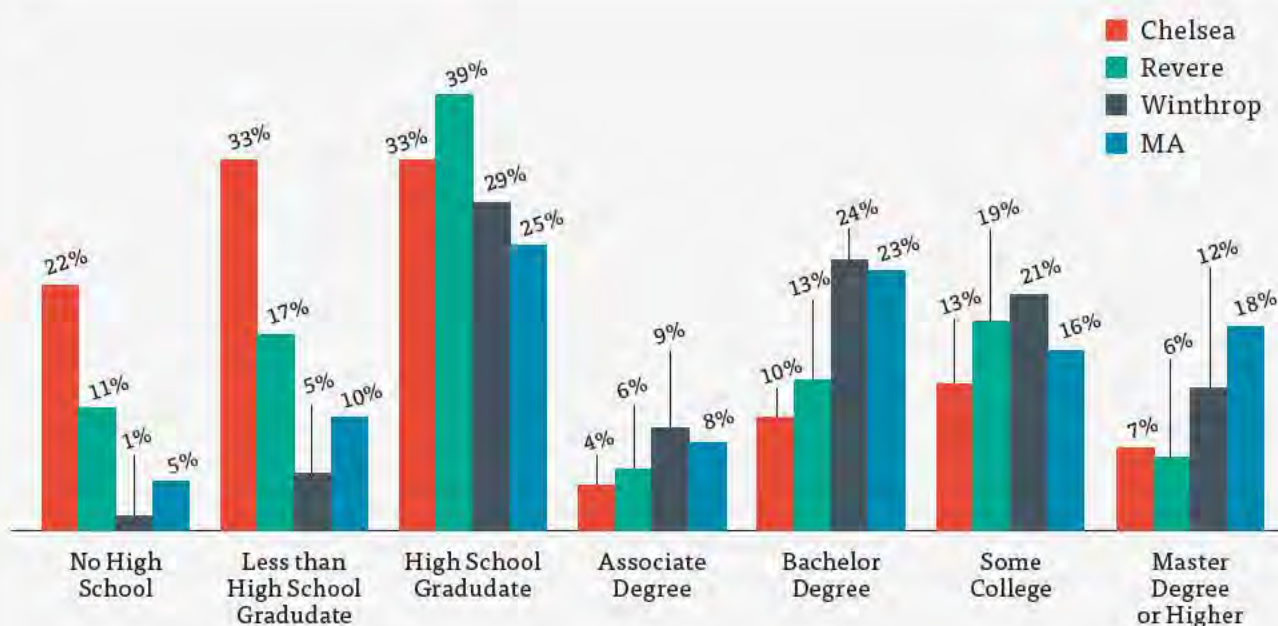
Employment: The working-age population is defined as individuals between the ages of 15 and 64. Based on ACS 2012-2016 data, 91% of Chelsea, 86% of Revere, and 82% of Winthrop residents are considered working age. Despite this, unemployment rates for Winthrop (4.9%), Chelsea (5.6%), and Revere (7%) are better or near state average (6.3%). Many focus group members and key informants commented that many people have multiple jobs, many part-time and without benefits. The majority of households have children, but 44% of Chelsea, 38% of Revere, and 29% of Winthrop survey respondents with children ages 5-12 reported difficulty finding after-school programs. Without appropriate child care access, families risk access to just one income since one parent becomes the caretaker.

Education: According to MA DESE, North Suffolk has higher rates of high school dropout. In 2017-2018, the statewide high school dropout rate was 2%, compared to Chelsea’s (7%) and Winthrop’s (4%). Revere’s high school dropout rate was the same as the statewide rate. In 2018 Revere and Winthrop had high school graduation rates similar to the state’s (88%), whereas Chelsea had a much lower high school graduation rate of 67%.

For rising seniors of the 2017-2018 school year, the most common plan after graduation for both Chelsea and Revere youth was attending a two-year public college, and their second most common plan was attending a four-year public college. For Winthrop youth, the most common plan after graduation was to attend a four-year private college and their second most common plan was to attend a four-year public college. These differences indicate a substantial disparity in aspirations for higher education between Chelsea and Revere youth on the one hand, and Winthrop youth on the other.

From 2012 to 2016 ACS data, 88% of Chelsea residents did not have a college degree compared to 67% of Revere residents and 35% of Winthrop residents.

Education Attainment, by State and Community, ACS 2012-2016



DATA SOURCE: American Community Survey (ACS), 2012-2016

Income: According to ACS 2012-2016 data, the median household income for MA was \$70,954. In North Suffolk, Winthrop's median household income was \$62,997, Revere's was \$51,482, and Chelsea's was \$49,614. Racial and ethnic income inequality statewide and in North Suffolk is significant. In MA Black or African American residents have a median household income of \$44,117. North Suffolk Black or African American residents have somewhat higher household incomes in Chelsea (\$46,000) and Revere (\$62,537).

The table on the next page displays the median household income by race/ethnicity in North Suffolk compared to statewide. Overall, income is much lower in North Suffolk than in Massachusetts. However, Black, and Multi-racial residents have higher incomes than their statewide counterparts.

Median Household Income by Race/Ethnicity, 2012- 2016				
	Chelsea	Revere	Winthrop	MA
Overall	\$49,164	\$51,482	\$62,997	\$70,954
Black	\$46,000	\$62,637	Not enough data	\$44,117
Asian	\$42,478	\$70,455	Not enough data	\$82,020
Latino	\$50,298	\$56,497	\$66,726	\$37,100
Multi-race	\$56,149	\$67,722	\$40,880	\$52,864
White Non-Hispanic	\$50,855	\$47,469	\$63,892	\$77,261
Some Other Race alone	\$35,938	\$68,073	Not enough data	\$35,169

Behavioral Health, Including Substances Use Disorders

In Chelsea, Revere, and Winthrop residents face rising rates of behavioral health challenges and substance use disorders (SUDs). These are often connected, and many residents struggle with both. Overall in the three communities, 74% of all survey respondents selected alcohol/drug use/addiction/overdose as their top health concerns, and 45% identified mental health as one of the top three health concerns. Mental health increased significantly as a concern from 2015 to 2019, rising from the 5th most important issue to the 3rd.

Participants in all focus groups were concerned about mental health. Depression and anxiety were discussed as concerns for those in recovery, current substance users, youth, elders, and veterans. Trauma was cited as an issue, especially among recent immigrants and refugees. Focus group participants said that though North Suffolk residents are dealing with intense stress and pressure, mental health concerns are generally not taken seriously.

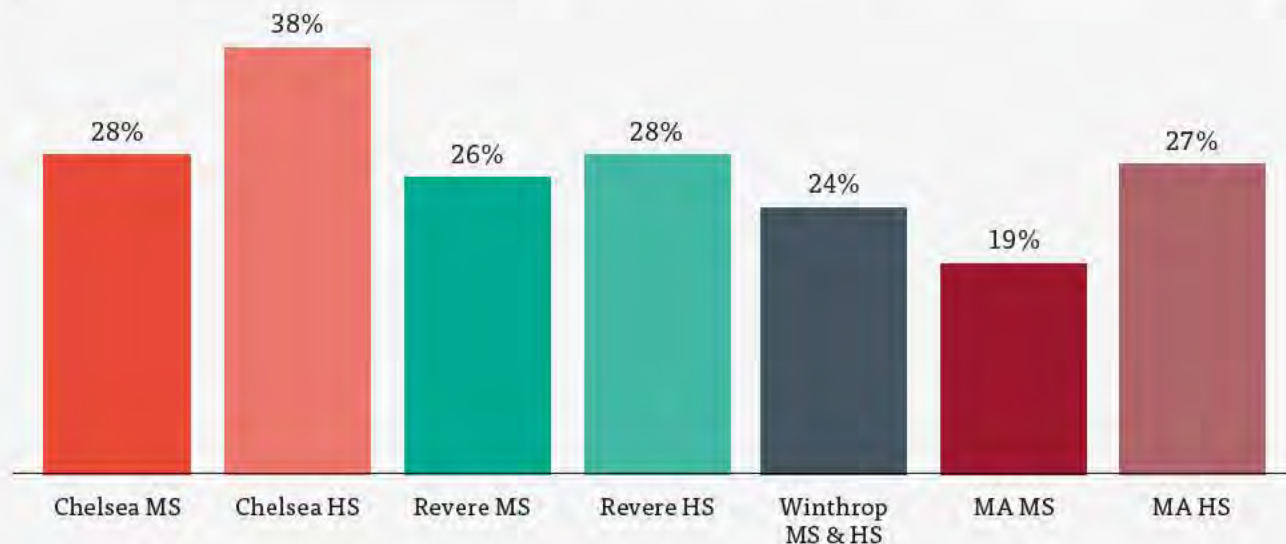
Participants talked about the feeling of social isolation and its impact on the mental health with concern about isolation among the elderly and Muslim communities. One person said that Muslims stay in their own group and are isolated from the larger community. Elders also tend to live alone. ACS data from 2012 to 2016 indicate that Chelsea, Revere, and Winthrop all have higher percentages of individuals age 65 and older who live alone compared to statewide (45% in Chelsea, 34% in Revere, and 38% in Winthrop versus 30% in MA).

While 46-50% of North Suffolk survey respondents rated their satisfaction with social activities and relationships as “very good” or “excellent,” focus groups from all communities discussed the desire for more activities that bring the community together. One participant from Revere mentioned that Revere needs more activities that bring all of Revere together across age, race, and ethnicity to reduce the social isolation and promote social and emotional well-being.

Youth struggle with social and emotional issues as well. The 2015 and 2017 Youth Risk Behavior Survey (YRBS) data in Chelsea and Revere, the 2018 Winthrop Prevention Needs Assessment (PNA), and the 2017 MA Youth Health Survey all indicate that North Suffolk middle and high school youth reported feeling sad or hopeless for two weeks at higher percentages than middle and high school youth across Massachusetts, with a particularly notable rate among Chelsea High School students.

The need for culturally competent mental health care is great and growing. There is a lack of culturally and linguistically competent mental health providers and resources. Compared to 15% of non-Hispanic/Latino survey respondents, 20.8% Hispanic/Latino survey respondents rated their mental health as “poor” or “fair.” Focus group participants expressed a belief that some races and cultures do not think that mental health concerns affect them. If people are feeling sad, it’s something that they should just get over. They further commented that for some residents of color or those from different cultures, “Depression is for white people.” (See facing page for survey results.)

% of Middle and High School Students Reporting Feeling Sad or Hopeless for Two Weeks, by State and Community, 2015, 2017, 2018



DATA SOURCE: 2015 Chelsea YRBS, 2017 Revere YRBS, 2018 Winthrop PNA, and 2017 MA Youth Health Survey

NOTES: Winthrop reported a combined Middle and High school percentage.

Overall, there is a disheartening scarcity of mental health services. A focus group participant said that long wait times for mental health care appointments have caused some to threaten suicide in order to expedite care. But, as one focus group participant mentioned, “No one should have to say, ‘I’m going to kill myself’ in order to get services.”

“No one should have to say, ‘I’m going to kill myself’ in order to get services.”

Statewide, 9% of middle school youth and 12% of high school youth have seriously considered suicide. In North Suffolk the data are deeply concerning, especially for middle school youth. Among middle school youth, 20% in Chelsea and 18% in Revere have seriously considered suicide. Among high school youth, 13% in Chelsea and 8% in Revere report seriously considering suicide. Winthrop’s combined data for middle school and high school youth show 14% reported seriously considering suicide.

Percent of Middle and High School Students Reporting Suicide Ideation

Blank boxes=did not ask on survey

	Chelsea		Revere		Winthrop	MA	
	MS	HS	MS	HS	Combined MS & HS	MS	HS
Seriously considered suicide	20%	13%	18%	8%	14%	9%	12%
Made suicide plan	11%		10%	7%	9%		10,9%
Attempted suicide		7%		5%	2%	4%	5%

Substance Use Disorders

The number of opioid-related overdose deaths continues to be a concern. According to the MA Registry of Vital Records and Statistics, in 2013 the number of opioid-related overdose deaths were: Chelsea (7), Revere (15), and Winthrop (2). The numbers of opioid-related deaths have been variable, with highs of 18 (Chelsea), 27 (Revere), and 10 (Winthrop) between 2014-2017. However, data released from the Massachusetts Department of Public Health during the writing of this report does suggest some good news. Between 2017 and 2018, all three communities saw a decrease in the number of opioid related overdose deaths (Chelsea 14 to 10; Revere 24 to 15; Winthrop 11 to 7), while the state saw a slight increase (1,981 to 1,995). While these numbers are promising, the crisis of addiction persists.

In 2014, Massachusetts' heroin overdose hospitalization age-adjusted rate increased to 105 per 100,000. That year in Chelsea the rate was 116.7 per 100,000, 171.7 in Revere, and 87.2 in Winthrop. The rates have been variable over time.

Focus group and key informant interview respondents cited obstacles to receiving care for SUDs. Stigma is a major impediment to getting help. In discussions in Revere and Winthrop, respondents said that shame and a desire for privacy limit openness about challenges with substances, even when evidence is obvious such as visible needles. Youth in Revere described individuals who do not get help, masking the issue until the crisis grows and creating additional problems.

For those who have accepted the need for help, there is a shortage of accessible and affordable providers. Among Hispanic/Latino survey respondents, 24% stated a need for more accessible SUDs services, compared to 0.7% of non-Hispanic/Latino survey respondents. Demand is high for help for SUDs that is culturally and linguistically relevant.

Access to care becomes even more complicated by intersections across social determinants; SUDs and behavioral health challenges often co-exist. For example, in 2017 MA Bureau of Substance Abuse Services (BSAS) enrollment data show that among those seeking SUDs treatment, 33% in Chelsea, 22% in Revere, and 18% in Winthrop were homeless at enrollment. Further, BSAS data indicate that 39% each of residents in Chelsea and Revere, and 47% of residents in Winthrop received prior mental health treatment before currently seeking care. These same data also show prior-year needle use among those enrolled in treatment among Chelsea (41%), Revere (51%), and Winthrop (39%) residents.

Substance Use Disorders Among Youth

There are some reassuring data about youth substance use in North Suffolk, although there are a few areas of concern, and the perception of use among youth is in some cases higher than the actual use.

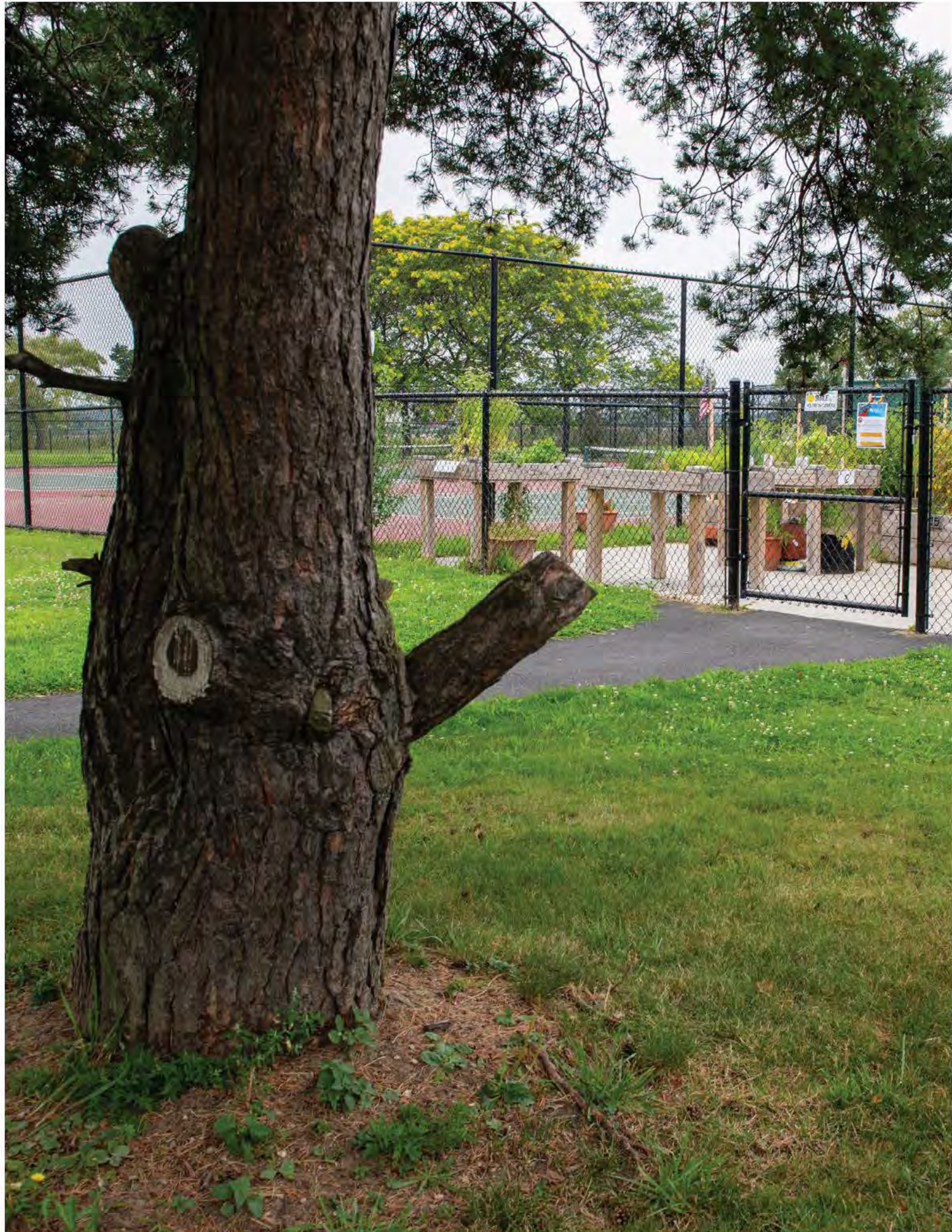
Marijuana - Youth focus group participants expressed that the legalization of marijuana has created a perception of lower risk from marijuana use compared to other drugs. One young participant stated, "Since marijuana has been legalized, kids have been using it more... like it's fun."

- Chelsea and Revere YRBS data show that 5% of middle schoolers used marijuana in the past 30 days, compared to 2% statewide. The Winthrop data show that 10% of Winthrop combined middle school and high school youth reported using marijuana within the past 30 days.
- On the other hand, North Suffolk high school students are using marijuana less often than MA high school youth: 19% of Chelsea high school students and 18% of Revere high school students reported using marijuana in the past 30 days, compared to 24% of high school youth statewide.

Vaping - Another growing concern for youth is the increased use of electronic vapor products, known as vaping. Health and school officials have stated that underage vaping is an epidemic, with addiction among younger teens to nicotine potentially causing harm to developing brains. Youth focus group participants mentioned that the increase in vaping is a huge concern for them. Students openly vape on school property and in front of teachers. A Revere student reported that she saw a student take a hit from a JUUL during class while the teacher was looking at him because he was able to hide the JUUL in his sweatshirt. Youth indicated that they don't think JUUL is harmful or addictive since "Everyone is doing it."

Alcohol - Youth alcohol use in North Suffolk is somewhat higher than state average for middle school, and lower for high school. Four percent of middle school youth statewide reported drinking alcohol in the past 30 days compared to 8% of youth in Chelsea and Revere middle school youth, and 20% of combined Winthrop middle and high school youth. Among high school students, 31% statewide reported drinking alcohol in the past 30 days compared to 26% of Chelsea high school students and 21% of Revere high school youth.

"Since marijuana has been legalized, kids have been using it more... like it's fun."



OTHER HEALTH CONCERNS IN BOSTON AND NORTH SUFFOLK

Although not selected as priorities by their respective collaboratives, there are additional health issues of concern for the residents of Boston and North Suffolk, particularly community violence and safety, obesity and food insecurity, and elder/aging health issues.

Community Violence and Safety

In Boston, community violence was the most frequently discussed type of violence in focus groups, namely in the neighborhoods of Dorchester, Mattapan, Roxbury, Chinatown, and East Boston. When Boston CHNA survey respondents were asked how safe they considered their neighborhoods to be, 25% described their neighborhood as unsafe or extremely unsafe. Twice as many respondents from Roxbury (50%), Mattapan (49%), and Dorchester (45%) described their neighborhood as unsafe or extremely unsafe. One in five Boston CHNA survey respondents described gunshots in the neighborhood (22%) and feeling unsafe when alone on the street at night (19%) as serious problems.

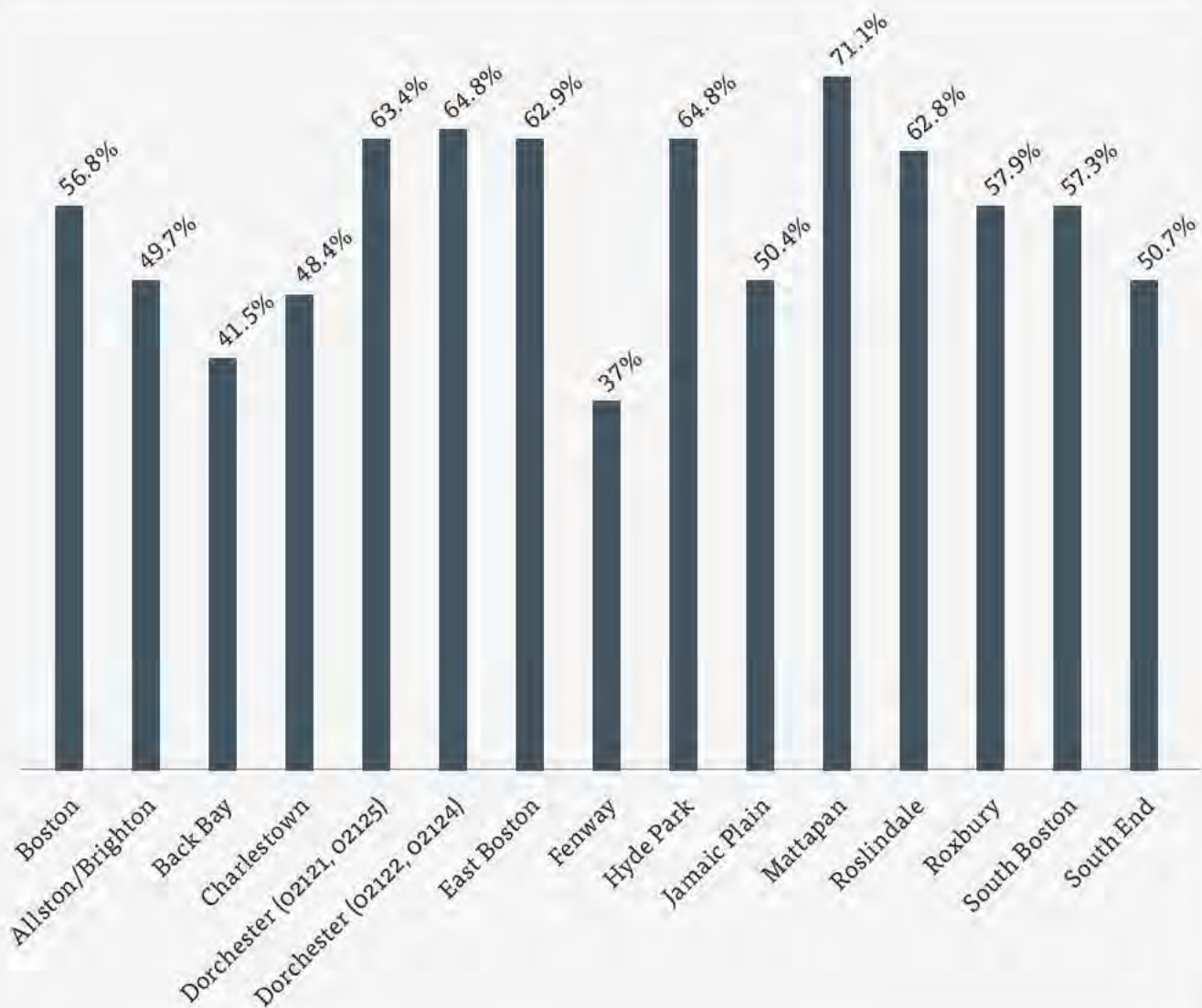
For North Suffolk community violence and safety were a concern in Chelsea and Revere, although there were mixed perceptions. A few focus group participants mentioned that there are certain areas in Chelsea and Revere that many people perceive as unsafe but stated that they don't feel unsafe overall; a couple of elder focus group participants stated that Chelsea feels a lot safer now than it did before. In addition, when asked if they feel safe in their community, one participant said no because of racism and community violence such as shootings. On the North Suffolk community survey, there was a slight difference between non-Hispanic (86%) and Hispanic (82%) when asked if they felt safe in their community.

Obesity and Food Insecurity

Access to fresh and affordable healthy food is a particular problem in some neighborhoods in Boston. While more affluent neighborhoods were described as having substantial access to healthy food, lower income neighborhoods, most commonly communities of color, were described as having few grocery stores and a prevalence of fast food and convenience stores. Quantitative data indicate that nearly one in five Boston residents reported being food insecure, in that it was sometimes or often true that the food they have purchased did not last and they did not have money to get more. Experiences with food insecurity varied by population group. In aggregated 2013, 2015, and 2017 BBRFSS data, Latino (39.1%) and Black (34.5%) residents were significantly more likely than White residents (10.7%) to report being food insecure as were foreign-born residents compared to U.S. born residents. Food insecurity and lack of access to fresh and affordable healthy food is associated with obesity. At the neighborhood level, the percent of adults in Mattapan (71%), Hyde Park (65%), Dorchester (63-65%), West Roxbury (64%), East Boston (63%), and Roslindale (63%) who were obese, or overweight was significantly higher than the rest of Boston.

On the Boston Youth Risk Behavior Survey, one-third of Boston high school youth (33%) reported being obese or overweight in 2013-2017. Similar to patterns for adults, a significantly higher proportion of Latino (37%) and Black (36%) high school youth reported being obese or overweight than White high school youth (23%).

% Adults Reporting Obesity or Overweight, by Boston and Neighborhood, 2013, 2015, and 2017 Combined



DATA SOURCE:

Boston Public Health Commission, Boston Behavioral Risk Factor Surveillance System, 2013, 2015, and 2017 combined

In North Suffolk there is great concern around childhood obesity. Many focus group participants and key informants touched upon rising obesity rates in Chelsea and Revere, especially because of easy access to fast food restaurants. Participants mentioned people turn to fast food restaurants when they are hungry because the food is cheaper, and the portions are larger; this particularly helps when trying to feed a family on a budget. This finding was notably present among multicultural populations. Similarly, Winthrop focus group participants mentioned the lack of grocery stores that provide access to healthy foods, as there is only one grocery store in town that is expensive and has a limited variety. In addition to discussing the need to access healthier foods, a couple of focus group participants mentioned that learning healthy eating habits was important to improve the health of the community. In the table on the next page, all grades in the Chelsea, Revere, and Winthrop public schools have a higher percentage of overweight and obese students than Massachusetts.

Percent of Overweight or Obese Public School Students				
Grade	Chelsea (2018-19 school year)	Revere (2018-19 school year)	Winthrop (2014-15 school year)	Massachusetts (2014-15 school year)
1st Grade	Revere	42%	35%	28%
4th Grade	Winthrop	52%	37%	34%
7th Grade	Massachusetts	44%	37%	34%
11th Grade	49%	41%	36%	33%

Elder/Aging Health Issues

Only 11% of Boston's population is over 65, compared to 15% for the state. However, nearly 40% of the elderly live alone, compared to Massachusetts (30%). In Boston, stress, anxiety, social isolation, and depression were the most frequently cited mental health challenges among Boston's elderly residents. Participants spoke of co-occurring issues, the most common being hoarding disorder. One key informant explained, "You'll see instances when organizations rally together to clean the home of seniors [who are hoarders]. Then we'll come back 6 months later, and their conditions are right back where they were and it's because they haven't left their house or spoken to anyone in weeks." Thirty-four percent of elders in Boston have depression and 24% have an anxiety disorder. Compared to the state (9%), 20% of Boston elders live below the poverty line.

In North Suffolk, there was concern among the elderly and key informants around social isolation, depression, and access to services. Winthrop (17%) and Revere (14%) have higher elderly populations than Chelsea (9%). However, 19% of elders in Chelsea live below the poverty line, compared to Revere (13%) and Winthrop (10%). Additionally, a high number of elders live alone in Chelsea (45%), Revere (34%), and Winthrop (38%) than in Massachusetts overall (30%). In the figures below, elders in North Suffolk communities' have higher rates of depression and anxiety than Massachusetts. Elders also have a harder time with transportation. In focus groups, elders mentioned that the MBTA RIDE needs to improve since many people rely on it to access services, but people end up waiting for it for a long time.

"You'll see instances when organizations rally together to clean the home of seniors [who are hoarders]. Then we'll come back 6 months later, and their conditions are right back where they were and it's because they haven't left their house or spoken to anyone in weeks."

**% of 65+ with Depression
by State and Community, 2015**



**% of 65+ with Anxiety Disorders
by State and Community, 2015**



DATA SOURCE: 2018 MA Healthy Aging Community Profile-Tufts Health Plan Foundation,
<https://mahealthyagingcollaborative.org/data-report/explore-the-profiles/community-profiles/>



EVERETT-MALDEN

Mass General has a primary care practice in Everett and therefore collaborated with Cambridge Health Alliance (CHA) and Melrose-Wakefield HealthCare (MWHC) to conduct a joint CHNA of Malden and Everett.

The health systems are piloting a new CHNA framework called THRIVE. THRIVE enables communities to determine how to improve health and safety and promote health equity. It is an approach for understanding how structural drivers, such as racism, influence the social/cultural, physical/built, and economic/educational environments. THRIVE is also a tool for engaging community members and practitioners in assessing the status of community determinants of health, prioritizing them, and taking action to make changes in order to improve health, safety, and health equity. (<https://www.preventioninstitute.org/tools/thrive-tool-health-resilience-vulnerable-environments>).

MWHC was in the midst of conducting a 2019 CHNA for the nine communities in its service area, and it provided the data already collected in surveys and interviews, as well as secondary data. Together, the Everett-Malden CHNA collaborative created a short survey and focus group guide to gain a deeper understanding of the priority concerns for these two communities. This short, rapid CHNA process produced 68 surveys and data from four focus groups over three weeks. The process is ongoing as the Everett-Malden's CHNA prioritizes health concerns and prepares its CHIP. Currently, the same familiar regional health concerns are rising to the top for Everett and Malden: housing, economic stability and mobility, behavioral health, and access to care and other services.



TOWNS WEST OF BOSTON

Mass General has licensed facilities in four towns north and west of Boston—Concord, Danvers, Newton, and Waltham. Each community has a local health care provider that must also conduct its own CHNA. To avoid over-assessment of residents, Mass General received permission from each health care institution to use their 2018 CHNA data. Mass General supplemented each CHNA by conducting an interview with the current Community Benefit manager of each provider.

The priorities identified in the towns' CHNAs ranged from access to health care, to behavioral health and substance use disorders, aging, cancer, domestic violence, and serving adolescents at risk.

Concord

The town of Concord has a population of 19,271 that is served by Emerson Hospital, a 179-bed institution located in Concord with more than 300 primary care physicians and specialists that serve 300,000 people in 25 towns. Mass General has a satellite Cancer Center at Emerson Hospital. In 2018, Emerson Hospital conducted a CHNA that prioritized the following health needs:

- Lack of transportation options
- The growing aging population
- Mental health
- At-risk adolescents
- Cancer
- Domestic violence

Transportation: Emerson Hospital has very limited accessibility, solely via motor vehicles. There is no public transportation that travels directly through the service area. Highways surround the hospital, and there are few sidewalks.

At-risk adolescents: There are almost 50,000 adolescents living in the hospital service area, about 75% of whom have experienced or witnessed bullying. Concerns about youth mental health issues are high due to stress levels, cyber-bullying, and pressures to fit in.

The growing aging population: About 37,000 people in the Emerson Hospital service area are above the age of 65. This group is expected to increase by 25% over the next five years, making it the fastest growing population in the area. As people age and can no longer drive, there are few options for affordable public transportation. Aging seniors are isolated without nearby family. Their isolation can be accompanied by a decline in mental health and dependency on alcohol or prescription medications, which can lead to falls and broken bones.

Cancer: Cancer is the leading cause of death in Emerson Hospital's service area. Breast and prostate cancer are the two most common cancers locally. The Mass General Cancer Center's joint program with Emerson Hospital brings together experienced cancer specialists, leading-edge technology, and the latest treatment options for Concord-area residents, located right at the hospital.

Mental health: In surveys, middle and high school students revealed that they are worried about peers who might commit suicide. About a fifth of students said that they were told by one of their peers that they were planning a suicide, but did not tell an adult about it. Further, approximately 15% of residents within the service area reported 15 or more days of suffering from poor mental health, an increase from the 2015 CHNA. In a key informant interview, Emerson Hospital's Manager of Community Benefit and Events discussed these priorities, as well as youth vaping. Emerson is currently working with the high school in Concord to address this issue. The full Emerson Hospital report can be found at: www.emersonhospital.org/EmersonHospital/media/PDF-files/2018-Community-Health-Needs-Assessment.pdf

Danvers

The town of Danvers is a primary service community for the North Shore Medical Center (NSMC), a member of Partners HealthCare and the largest medical provider on the North Shore. NSMC has a hospital in Salem and ambulatory care sites and offices throughout the service area. The Mass General/North Shore Medical Center for Outpatient Care is located in Danvers and offers day surgery, comprehensive cancer services, primary care, and specialty care.

The priorities in the NCMC's 2018 CHNA are:

- Behavioral health.
- Health care access.
- Health care environment and trust, including culturally sensitive approaches to care.

Behavioral health: Key areas of need identified through the 2018 CHNA included mental health issues (including depression, trauma, and stress); substance use disorders (including use of opioids, alcohol, marijuana, and vaping); co-occurring disorders; gaps in treatment; and stigma.

Health care access: Key areas of need identified through the CHNA included accessibility (transportation, access to after-hours care, access to specialty care); health insurance and cost; and the need for expanded care coordination and navigation services.

Health care environment and trust: The areas of need that were identified included providing culturally-sensitive approaches to care (including training and retaining a diverse healthcare workforce) and providing services in multiple languages.

A key informant interview with the Manager of Community Benefit at North Shore Medical Center indicated these health concerns are still a priority for their services area, including Danvers. The full North Shore Medical Center report can be found at: https://nsmc.partners.org/about_nsmc/commitment_to_community

Newton

Newton is in the service area of Newton-Wellesley Hospital, a 265-bed comprehensive medical center affiliated with Partners HealthCare. Cancer is the leading cause of death in Newton. Breast, colorectal, and lung cancer are the most common cancers in the area. Mass General Cancer Center has a joint program with Newton-Wellesley Hospital that brings together experienced cancer specialists, leading-edge technology, and the latest treatment options for Newton-area residents for care in a facility located right at Newton-Wellesley Hospital.

The priorities identified in Newton-Wellesley Hospital's 2018 CHNA are:

- Mental health.
- Substance use.
- Access to care.

Mental health: Concerns about mental health focused particularly on the elderly, immigrants, and low-income residents. According to youth risk surveys, a higher percent of middle school youth in Waltham, Natick, and Wellesley reported suicide ideation than the average statewide.

Substance use: Opioids were the substance of greatest concern reported in the CHNA, particularly substance use among seniors, as well as use among youth. Participants working with youth reported that vaping has substantially increased in recent years.

Access to care: Access to care was a concern, expressed particularly in connection with cost and insurance, navigating the health care system, behavioral health, cultural competency, and transportation. The Newton-Wellesley Hospital CHNA can be found here: www.nwh.org/about-us/community-health-assessment

Waltham

Waltham is in the service area of Newton-Wellesley Hospital, a 265-bed comprehensive medical center affiliated with Partners HealthCare. Newton-Wellesley's CHNA included Waltham. Mass General also has a large ambulatory care facility in Waltham, offering primary and specialty care.

The priorities listed above for Newton are relevant for Waltham, with one additional priority. A recent review of the data revealed a disparity in high school graduation rates among Waltham students when compared to other communities in Newton-Wellesley's catchment area. While the four-year graduation rate for the other communities (Natick, Newton, Wellesley, and Weston) ranges from 95-99%, the 2016-2017 four-year graduation rate in Waltham was 84% and its dropout rate was nearly twice that of Massachusetts. Furthermore, graduation rates and dropout rates among Hispanic/Latino students and English Language Learners were far worse. The Newton-Wellesley Hospital CHNA can be found here: www.nwh.org/about-us/community-health-assessment





CONCLUSION

In 2018-2019, Massachusetts General Hospital worked actively with community collaboratives in Boston and five communities in the surrounding region to rigorously assess their health needs and identify priorities for reducing health disparities. The process expanded our connections across sectors to achieve shared goals and to address the social and economic factors—the social determinants of health—that have enormous influence over health.

There is substantial congruity in the priorities identified in the participating communities. Across income levels, families are affected by such challenges as behavioral health concerns and substance use disorders. However, there are important differences. Neighborhoods with lower incomes and greater diversity are the most powerfully and negatively affected in these and other areas, particularly housing, education, and access to a broad range of services and supports. At Mass General, our primary focus will be on these communities if we are to successfully work with partners to improve health status and eliminate racial and ethnic disparities across the entire region. This is the next challenge as we create strategies to address these priorities in the Community Health Improvement Plan.

APPENDIX A:

Update on Past Implementation Plans

Mass General last completed Community Health Needs Assessment and Implementation Plans in 2015 and 2016. The 2015 report was a general CHNA in Revere, Chelsea, and Charlestown. The 2016 report focused on youth substance use and mental health issues in Revere, Chelsea, and all of Boston, including Charleston and East Boston. Below are highlights of the work that has been accomplished since 2015 that support MGH's Community Health Improvement Plans (CHIP). For full reports, please see submissions to the Massachusetts Attorney General Community Benefit office. (<https://massago.onbaseonline.com/massago/1801CBS/annualreport.aspx>)

Priority Area: Substance Use (2015)			
Goal from 2015 & 2016 Implementation Plan	Description of Activity, Service, or Program	Comment on Activity, Service, or Program	Progress, Impact, and Outcomes
<p>Provide “backbone support” to multi-sector coalitions using a collective impact model to make policy, systems and environmental changes to reduce youth substance use and prevent opioid overdoses and deaths.</p> <p>Transform care for those with substance use disorders by reducing stigma and developing a chronic disease management model of care that spans from the community to the bedside.</p>	<p>MGH CCHI supports multi-sector coalitions in the communities of Revere, Chelsea, Charlestown and East Boston.</p> <p>Recovery coaches, who are similar to community health workers for addiction, are assigned to each of our health centers, Boston Health Care for the Homeless, and high utilizers in the ED. They are paired with MGH patients who have been diagnosed with a substance use disorder.</p> <p>The Kraft Center launched the Care Zone Van, a mobile health program in partnership with the Boston Health Care for the Homeless Program, combines harm reduction, clinical services including medication-assisted treatment (MAT), data hotspotting, and mobility to bring addiction services to Boston's most vulnerable residents living with substance use disorder (SUD).</p>	<p>MGH provides staff, space, budget, strategic planning, communications, and evaluation services to sustain the coalitions in order to engage the communities to identify needs and work towards solutions.</p> <p>The Mass General SUDs initiative was designed to improve the quality, clinical outcomes and value of addiction treatment for all MGH patients with SUDs while simultaneously reducing the cost of their care.</p>	<p>In 2016, MGH began a partnership with East Boston Neighborhood Health Center to support the EASTIE Coalition, focused on youth substance use prevention; this support positioned them in 2018 to be awarded a Drug-Free Communities Grant of \$125,000 for 5 years.</p> <p>In 2015, Healthy Chelsea expanded its focus to include youth substance use; in 2017 they were awarded a Drug-Free Communities Grant, with same funds as above.</p> <p>In FY2018 the Charlestown community navigator worked with over 202 clients in recovery or struggling with addiction. The Navigator also collaborates with the Charlestown Drug Court; in FY18, 18 people were active.</p> <p>In FY18, 637 patients were served by 9 Mass General Recovery Coaches. In the 6th months before and 6 months after recovery coach engagement, there was a 44% increase in outpatient visits and a 25% decrease in inpatient admissions.</p> <p>The Care Zone van had almost 7,000 contacts in its first year.</p>

Violence and Public Safety (2015)			
Goal from 2015 & 2016 Implementation Plan	Description of Activity, Service, or Program	Comment on Activity, Service, or Program	Progress, Impact, and Outcomes
<p>Support police departments and community organizations in their efforts to reduce violence by advocating for and collaborating on evidence-based strategies.</p> <p>Continue to support MGH-based violence intervention programs.</p>	<p>Mass General and Healthy Chelsea are members of the Chelsea Thrives collaborative, which works to decrease crime and increase feelings of safety in Chelsea.</p> <p>Chelsea Thrives launched the Chelsea HUB, a police-led initiative made up of designated staff from community and government agencies that meet weekly to address specific situations regarding clients facing elevated levels of risk, and develop immediate, coordinated, and integrated responses through mobilization of resources.</p> <p>Through hospital and community programs like HAVEN (Helping Abuse & Violence End Now) and VIAP (Violence Intervention Advocacy Program), we address intimate partner and community violence and assist victims with physical and emotional recovery, empowering them to make positive changes in their lives.</p> <p>In June 2019, Mass General launched the Center for Gun Violence Prevention dedicated to advancing the health and safety of children and adults through injury and gun violence prevention research, clinical care, education and community engagement.</p>		<p>There are 25 participating agencies who come together voluntarily for the Chelsea HUB. To date over 450 family crisis situations have been reviewed resulting in referrals to needed services.</p> <p>HAVEN worked with 652 survivors in FY18.</p> <p>VIAP worked with 74 patients who were victims of community violence.</p> <p>The Center launched a simulation case-based training program for incoming interns, to curb the problem of gun violence in the United States.</p> <p>The Center will continue the efforts of the MGH Gun Violence Prevention Coalition, a multidisciplinary group including MGH nurses, administrators, physicians, social workers and physical/occupational therapists. The group has collaborated closely with several state organizations since 2015 to develop guidance for clinicians to talk to patients about gun safety.</p>

Healthy Eating, Active Living, and Food Insecurity (2015)

Goal from 2015 & 2016 Implementation Plan	Description of Activity, Service, or Program	Comment on Activity, Service, or Program	Progress, Impact, and Outcomes
<p>Provide “backbone support” to multi-sector coalitions using a collective impact model to make policy, systems and environmental changes to increase access to affordable, healthy foods and physical activity.</p> <p>Screen for and provide resources to patients who are struggling with food insecurity.</p>	<p>MGH CCHI supports multi-sector coalitions in the communities of Revere and Chelsea.</p> <p>MGH Chelsea patients are regularly screened for food insecurity. Those who screen positive meet with a community health worker who will refer the patient to food resources. MGH Chelsea also runs a food pantry 2 days a week.</p>	<p>MGH provides staff, space, budget, strategic planning, communications, and evaluation services to sustain the coalitions in order to engage the communities to identify needs and work towards solutions.</p>	<p>One hundred and twenty (120) participants attended two Chelsea Healthy & Affordable Food (CHAF) summits, strengthening partnerships and formulating action steps. Under the stewardship of Healthy Chelsea, the group is working toward greater coordination with community partners to yield systemic, community-wide solutions that tackle hunger and create greater access to healthy and affordable food.</p> <p>Healthy Chelsea, in collaboration with GreenRoots, is planning to launch a mobile market in FY2020.</p> <p>Revere CARES, in collaboration with Revere on the Move, supports the Revere Farmers Market, 3 community gardens, and has hosted workshops on bees and composting. 30 youth took a field trip to Natick Community Farms.</p> <p>In FY18, 178 families attended the food pantry at the Health Center, which distributed over 111,618 pounds of food.</p>

Mental Health & Trauma (2015)			
Goal from 2015 & 2016 Implementation Plan	Description of Activity, Service, or Program	Comment on Activity, Service, or Program	Progress, Impact, and Outcomes
<p>Create and support existing community-wide learning collaboratives with agencies and leaders to build trauma-informed communities that promote resiliency in young children and families.</p> <p>Train MGH staff on understanding the effects and recognizing the symptoms of trauma, and ensure staff do not re-traumatize patients. Additionally, ensure that staff are supported to avoid secondary trauma or re-traumatization themselves.</p>	<p>In collaboration with Chelsea Thrives and the Chelsea Police Department, Health Chelsea is working to make Chelsea a trauma-sensitive city with the help of a \$1 million grant from the U.S. Department of Justice's Safe and Thriving Communities program.</p> <p>Part of the grant from the U.S. Department of Justice's Safe and Thriving Communities program is to train MGH Chelsea staff in trauma sensitive care.</p>		<p>212 staff from the school, youth serving organizations, and the city participated in 8 trainings in Chelsea designed to build the community's capacity to respond to trauma, increase community resilience, and adopt trauma sensitive practices and policies for the city.</p> <p>See above.</p>

Social Determinants of Health (Housing, Education, Environment) (2015)

Goal from 2015 & 2016 Implementation Plan	Description of Activity, Service, or Program	Comment on Activity, Service, or Program	Progress, Impact, and Outcomes
<p>Continue to screen and provide connections to resources for MGH patients.</p> <p>Build and strengthen partnerships with community agencies that address the social determinants of health and work towards solutions.</p> <p>Continue to expose and inspire youth to Science, Technology, Engineering, and Math (STEM) subjects, health and wellness, college readiness, and careers by strengthening and growing the MGH Youth Programs.</p>	<p>MGH Chelsea continues to provide the Food for Families program, which screen patients for food insecurity, connects them to resources, and offers a food pantry two days a week.</p> <p>MGH Chelsea partnered with the CONNECT program at the Neighborhood Developers to address housing crises experienced by patients from MGH Chelsea, called the Health Starts at Home program.</p> <p>MGH Youth Programs' mission is to provide youth (grades 3-college) with academic, life, and career skills that will expand and enhance their educational and career options.</p>	<p>We have been able to expand the food pantry from one day a week to two, and hope to expand to more days.</p> <p>With the new Medicaid ACO contract that Partners HealthCare has entered into, there are numerous social services partnerships that will be created to refer patients who screen positive for specific social determinants of health..</p>	<p>In FY18, Food for Families worked with 131 patients, completing 192 SNAP applications. The food pantry also served 178 families and distributed over 111,000 pounds of food.</p> <p>In FY18, more caregivers enrolled in HSAH rated their own health as Excellent or Very Good at the 12-month follow-up than at baseline (40.9% at 12-month follow-up vs. 31.8% at baseline.)</p> <p>In FY18, 1,081 youth (grades 3-college) were served in the MGH Youth Programs across all core and non-core programs.</p> <p>In FY18, 100% of MGH Youth Scholars graduated from high school, 96% matriculated to college, and 73% persisted in college. A total of 92 Youth Scholars Alumni are currently enrolled in college, and as of May 2019, 49 have graduated.</p>

Prevent and reduce adolescent substance use and mental health issues, 2016

Goal from 2015 & 2016 Implementation Plan	Description of Activity, Service, or Program	Comment on Activity, Service, or Program	Progress, Impact, and Outcomes
<p>Increase job shadowship programs and youth jobs.</p> <p>Enhance adult capacities for informal and formal mentorships and communication with youth.</p> <p>Collaborate with organizations to advocate for age-appropriate youth activities in each community.</p>	<p>In addition to the MGH Youth Programs, each MGH coalition has youth groups that provide shadowships and summer jobs.</p> <p>In 2019, MGH CCHI started a partnership with the Big Brothers Big Sisters of Massachusetts Bay to pilot increasing the number of adult mentors from our communities. The goal is to recruit between 20 and 30 adults.</p>	<p>EASTIE has recently started a Peer Leadership Group with 12 youth in the summer of 2019</p> <p>37 students the Donald McKay school in East Boston in 7th and 8th grade participated in LifeSkills.</p>	<p>In FY18, MGH Youth Programs provided 250 students with summer jobs.</p> <p>In FY18, MGH Youth Programs provided 250 students with summer jobs.</p> <p>In FY18, Revere CARES, Healthy Chelsea, and The Charlestown Coalitions had a total of 88 students in its youth groups. All of these youth are exposed to careers through shadowships and summer jobs.</p>

Prevent and reduce adolescent substance use and mental health issues, 2016 (Cont'd from p. 57)

Goal from 2015 & 2016 Implementation Plan	Description of Activity, Service, or Program	Comment on Activity, Service, or Program	Progress, Impact, and Outcomes
<p>Engage youth as part of each community coalition.</p> <p>Increase coping skills of youth and adults to positively manage and reduce stress.</p> <p>Collaborate with schools and organizations to incorporate a curriculum that addresses substance use and mental well-being.</p>	<p>Coalitions in Revere, Chelsea, Charlestown, and East Boston all have robust steering committees with partners from multiple sectors across each community. The coalitions regularly advocate for age-appropriate youth activities.</p> <p>Each coalition has youth groups composed of high school students who learn to advocate for important issues, volunteer at community events, and learn about different public health topics, such as obesity, food insecurity, and substance use.</p> <p>Each coalition supports activities that teach youth what stress does to the body and how it can affect health.</p> <p>The Charlestown Coalition, EASTIE, and Healthy Chelsea all provide LifeSkills curriculum to youth either during school or out-of-school time.</p> <p>Collaborate with schools and organizations to incorporate a curriculum that addresses substance use and mental well-being.</p>		<p>Big Brothers Big Sisters has assigned an outreach coordinator to work with Healthy Chelsea and The Charlestown Coalitions to recruit mentors.</p> <p>Healthy Chelsea and EASTIE collaborate with local organizations to host annual soccer tournaments. The Charlestown Coalition collaborates with the local YMC to host an annual basketball tournament. In FY18, Revere CARES, Healthy Chelsea, and The Charlestown Coalitions has a total of 88 students in its youth groups.</p> <p>Revere CARES youth hosted a "Self Care Fair" in which 300 students participated in yoga, hip-hop dance, and learned how stress affects the body.</p> <p>The Charlestown Coalition educated 136 youth on the effects of stress on health and ways to manage stress. 37 students the Donald McKay school in East Boston in 7th and 8th grade participated in LifeSkills.</p> <p>96 students in Charlestown participated in a combined LifeSkills/Stay in Shape program.</p> <p>Healthy Chelsea assisted the Chelsea Public Schools in obtaining a grant from the Mass Attorney General's Office to provide LifeSkills during school time.</p> <p>30 Revere middle school students participated in the TOPS and Voices curricula.</p>

APPENDIX B:

Boston CHNA-CHIP Collaborative Steering Committee and Subcommittee Members

Steering Committee	
Organization	Name
Beth Israel Deaconess Medical Center	Nancy Kasen (co-chair)
Boston Children's Hospital	Ayesha Cammaerts
Boston Health care for the Homeless	Denise De Las Nueces
Boston Medical Center	Jennifer Fleming
Boston Public Health Commission	Margaret Reid
Brigham and Women's Faulkner Hospital	Tracy Mangini Sylven
Brigham and Women's Hospital	Wanda McClain
Community representative and Jamaica Plain Neighborhood Development Corporation	Ricky Guerra
Community Labor United	Sarah Jimenez
Dana-Farber Cancer Institute	Magnolia Contreras
Fenway Health	Carl Sciortino (co-chair)
Health Leads	Laurita Kaigler-Crawlle
Madison Park Development Corporation	Jeanne Pinado
Massachusetts Eye and Ear	Erin Duggan
Massachusetts General Hospital	Joan Quinlan
Massachusetts League of Community Health Centers	Mary Ellen McIntyre
Tufts Medical Center	Sherry Dong
Uphams Corner Health Center	Daniel Joo
Urban Edge	Robert Torres

Subcommittee Members:		
Organization	Name	Membership
American Diabetes Association	Albert Whitaker	Community Engagement- Member
American Heart Association	Cherelle Rozie	Community Engagement- Member
BACH	Jamiah Tappin	Community Engagement- Member

Subcommittee Members (Cont'd from p. 58):

Organization	Name	Membership
Beth Israel Deaconess Medical Center	Nancy Kasen	Secondary Data- Member
Blue Cross Blue Shield - Massachusetts	Charlotte Alger	Secondary Data- Member
Boston Children's Hospital	Urmi Bhaumik	Secondary Data- Member
Boston Children's Hospital	Ayesha Cammaerts	Secondary Data- Member
Boston Medical Center	Jennifer Fleming	Community Engagement- Member
Boston Public Health Commission	Dan Dooley	Secondary Data- Co-Chair
Boston Public Health Commission	Margaret Reid	Secondary Data- Member
Boston Public Health Commission	Triniese Polk	Community Engagement- Co-Chair
Bowdoin Street Health Center	Alberte Atine-Gibson	Secondary Data- Member
Boys and Girls Club of Boston	Grace Lichaa	Community Engagement- Member & Secondary Data- Member
Brigham and Women's Hospital	Michelle Keenan	Secondary Data- Member
Brigham and Women's Hospital- Faulkner	Tracy Mangini Sylven	Community Engagement- Member
City Life Vida Urbana	Mike Leyba	Community Engagement- Member
Dana-Farber Cancer Institute	Magnolia Contreras	Community Engagement- Co-Chair & Secondary Data- Member
East Boston Social Center	Gloria Devine	Community Engagement- Member
East Boston Social Center	Lisa Melara	Community Engagement- Member
Fenway Health	Matan Benyishay	Secondary Data- Member
Fenway Health	Sean Cahill	Secondary Data- Member
Harvard School of Public Health	Maynard Clark	Community Engagement- Member
Health Care Without Harm	Jen Obadia	Community Engagement- Member
Health Care Without Harm	Paul Lipke	Secondary Data- Member
MA Department of Public Health	Halley Reeves	Secondary Data- Member
Madison Park Development Corp.	Jeanne Pinado	Community Engagement- Member
Madison Park Development Corp.	Kay Mathew	Community Engagement- Member
Massachusetts Eye and Ear	Erin Duggan	Secondary Data- Member

Subcommittee Members (Cont'd from p. 59):

Organization	Name	Membership
Massachusetts General Hospital	Danelle Marable	Community Engagement- Member
Massachusetts General Hospital	Leslie Aldrich	Community Engagement- Member
Massachusetts General Hospital	Sarah Wang	Community Engagement- Member
Massachusetts General Hospital- Center for Community Health Improvement	Kelly Washburn	Secondary Data- Member
Massachusetts General Hospital- Center for Community Health Improvement	Sonia Iyengar	Community Engagement- Member & Secondary Data- Member
Massachusetts League of Community Health Center	Mary Ellen McIntyre	Secondary Data- Member
NAMI – PPAL (Parent/Professional Advocacy League)	Monica Pomare	Community Engagement- Member
Partners Health care	Tavinder Phull	Secondary Data- Co-Chair
Peer Health Exchange	Uchenna Ndulue	Secondary Data- Member
The Family Van	Millie Williams	Secondary Data- Member
The Family Van	Rainelle White	Community Engagement- Member
Tufts Medical Center	Sherry Dong	Community Engagement- Member
Tufts Medical Center	Stephen Muse	Secondary Data- Member
Upham's Corner Health Center	Dan Joo	Secondary Data- Member
Urban Edge	Robert Torres	Community Engagement- Member
Urban Edge	Sahar Lawrence	Secondary Data- Member
Women's Health Unit - BMC	Jennifer Pamphile	Community Engagement- Member

APPENDIX C:

North Suffolk iCHNA Collaborative Steering Committee and Subcommittee Members

Streeting Committee	
Organization	Name
City Manager of Chelsea	Tom Ambrosino
Mayor of Revere	Brian Arrigo
Town Manager of Winthrop	Austin Faison
Beth Israel Deaconess Medical Center	Kelly Orlando
Cambridge Health Alliance	Kathy Betts
CAPIC	Bob Repucci
Chelsea Health and Human Services	Luis Prado
Chelsea Board of Health	Dean Xerras
City of Revere SUDI Office	Julia Newhall
East Boston Neighborhood Health Center	Michael Mancusi
Healthy Chelsea	Jennifer Kelly
Massachusetts General Hospital	Leslie Aldrich
MGH Revere	Roger Pasinski
Melrose-Wakefield HealthCare	Eileen Dern
Mystic Valley Elder Services	Dan O'Leary
North Suffolk Mental Health Association	Kim Hanton
The Neighborhood Developers	Rafael Mares
Revere Board of Health	Eric Weil
Revere Cares	Sylvia Chiang
Revere Healthy Communities Initiative	Dimple Rana
Winthrop Board of Health	Susan Maguire
Winthrop Director of Public Health	Meredith Hurley
Winthrop CASA	LeighAnn Eruzione

Subcommittee Members:	
Organization	Name
Beth Israel Deaconess Medical Center	Tanya Leger
CAPIC	Bob Repucci

Subcommittee Members (Cont'd from p. 61):

Organization	Name
CAPIC	Kerry Wolfgang
CAPIC	Gladys Agneta
CAPIC	Lee Nugent
Cambridge Health Alliance	Renee Cammarata Hamilton
Cambridge Health Alliance	Jean Granick
Chelsea Board of Health	Dean Xerras
Chelsea Collaborative	Glays Vega
Chelsea Collaborative	Sylvia Ramirez
Chelsea Collaborative	Dini Paulino
Chelsea Police Department	Dan Cortez
Chelsea Thrives	Vicente Sanabria
City of Chelsea	Paula McHatton
City of Chelsea	Tom Ambrosino
City of Revere, SUDI office	Julia Newhall
City of Revere	Robert Marra
Beth Israel Deaconess Medical Center	Tanya Leger
East Boston Neighborhood Health Center	Joanna Cataldo
East Boston Neighborhood Health Center	Brett Phillips
For Kids Only	Briana Flannery
GreenRoots	Roseann Bongiovanni
Healthy Chelsea	Maddy Herzog
Healthy Chelsea	Jen Kelly
Healthy Chelsea	Ron Fishman
Healthy Chelsea	Ryan Barry
Massachusetts General Hospital	Joan Quinlan
MGH Revere	Roger Pasinski
Metropolitan Area Panning Council	Barry Keppard
Metropolitan Area Panning Council	Mark Fine
Metropolitan Area Panning Council	Sharon Ron
Mystic Valley Elder Services	Shawn Middleton

Subcommittee Members (Cont'd from p. 62):

Organization	Name
Mystic Valley Elder Services	Lauren Reid
The Neighborhood Developers	Mary Coonan
The Neighborhood Developers	Vanny Huot
Revere CARES	Sylvia Chiang
Revere Healthy Communities Initiative	Dimple Rana
Revere Resident	Dhriti Dhawan
Winthrop Board of Health	Susan Maguire
Winthrop CASA	LeighAnn Eruzione
Winthrop Resident	Deanna Faretra
WIC	Gisabel Horta
Vitra Health	Romina Wilmot



MASSACHUSETTS
GENERAL HOSPITAL

**CENTER FOR COMMUNITY
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Appendix 5E

Community Health Implementation Plan



MASSACHUSETTS
GENERAL HOSPITAL

CENTER FOR COMMUNITY
HEALTH IMPROVEMENT

2019-2020

COMMUNITY HEALTH IMPLEMENTATION PLAN



Executive Summary

Introduction

A Community Health Implementation Plan (CHIP) is a road map to address community-identified public health challenges identified through the Community Health Needs Assessment (CHNA), (www.massgeneral.org/cchi/), both conducted triennially. This report is the 2019-2022 CHIP for Massachusetts General Hospital.

The Mass General 2019 CHNA and CHIP are based on our participation in two first ever collaborative processes in Boston and North Suffolk (Chelsea, Revere, and Winthrop). In each collaborative, participants engaged community organizations, local officials, schools, health care providers, the business and faith communities, residents, and others in an approximately year-long process. The process was tailored to unique local conditions, to better understand the health issues that most affect communities and the assets available to address them.

Boston and North Suffolk have conducted their own CHNAs and CHIPs that can be found here: www.BostonCHNA.org and www.northsuffolkassessment.org. Hospitals are required by regulators (MA Attorney General, IRS) to produce their own CHNA and CHIP, approved by a governing board of the institution. Mass General used the Boston and North Suffolk implementation plans as guidance for its own and engaged content experts to complete the CHIP.

The Priorities

The guiding principle for the Boston and North Suffolk collaboratives is to achieve racial and ethnic health equity. In all communities, social determinants of health emerged as top priorities, as up to 80% of health status is determined by the social and economic conditions where we live and work. Notably, this is the first CHNA ever in which housing and economic issues rose to the top of the list.

The health priorities that emerged across communities and have been adopted as Mass General priorities were strongly aligned and include:

- Safe, affordable, and stable housing.
- Economic and financial stability and mobility, including living wage jobs and educational pathways.
- Behavioral health, including substance use disorders (SUDs) with an emphasis on youth and families.
- Access to health, social, and child care services.

Based on past assessments and historical commitments, Mass General will also continue to address the following priorities:

- Community/intimate partner violence and safety.
- Healthy eating, Active living, and Food Insecurity.
- Elder/aging health issues.
- Chronic disease prevention and management.

The Communities and Strategies

Mass General will continue its commitment and engagement in the communities of Revere, Chelsea, Charlestown, East Boston, and the youth of Boston. Joining with other hospitals through the Conference

of Boston Teaching Hospitals (COBTH) and the Boston CHNA-CHIP Collaborative, Mass General will also engage in the neighborhoods of Boston with the greatest health disparities, notably Roxbury, Dorchester, and Mattapan.

In addition to expanding its work around improving access to care, promoting educational attainment, and partnering with communities to build a culture of health, Mass General will engage in new initiatives that get to the root causes of poor health outcomes. Notable initiatives will include:

Housing

Community-wide Approaches

- *Anchor Investments* – The Partners HealthCare system has already made an initial anchor investment of \$1.5 million in partnership with the Local Initiatives Support Corporation (LISC) and the Community Economic Development Assistance Corporation (CEDAC) to preserve 32 units of affordable housing in Chelsea.
- *Permanent Supportive Housing* - The system has also made a \$1 million investment in the Mayor's Boston's Way Home plan to build permanent supportive housing for chronically homeless individuals.

We will look to make additional Anchor investments and advocate for public policies that preserve and create affordable housing, such as those in the [Massachusetts Principles for Healthy and Affordable Housing](#).

Patient Approaches

- *Health Starts at Home* – MGH Chelsea participated in an initiative funded by the Boston Foundation to test novel approaches for increasing housing stability and evaluating the impact on health. We screened families in our pediatric practice and referred those who were housing unstable to CONNECT, a partnership of six agencies that works on housing and financial stability. We found that mothers reported significantly less depression and anxiety as a result of the intervention, both connected to better health outcomes for the child. Our partnership recently received a grant from the Kresge Foundation for \$320,000 to continue this work.
- *Medical/Legal Partnership* – For 15 years, MGH Chelsea has partnered with the Lawyers for Civil Rights. A lawyer sits in the community health department two days a week and provides services for patients referred by physicians for housing and benefits issues. Each year, the attorney has assisted approximately 100 people to gain, maintain, or improve the quality of their housing.

Our goal is to extend both Health Starts at Home and our Medical Legal Partnership programs to all MGH health center patients.

Economic Security and Mobility

Community-wide Approaches

- *Anchor Institution* – Mass General, along with the Partners HealthCare system, is committed to becoming an Anchor Institution which means we will harness our economic activity in hiring, purchasing, building and investing to benefit low-resourced communities and communities of

color. This is a powerful tool for addressing social and economic determinants of health, such as jobs and economic development.

- *Community Coalitions* – Revere CARES has partnered with the City of Revere, CONNECT, and the Chelsea Collaborative to form the Good Jobs Coalition, and they are receiving technical assistance from the Catapult Lab. Through this coalition, they will develop a comprehensive regional workforce development plan. The Catapult Lab is an initiative of The Boston Foundation, Jewish Vocational Services, and SkillWorks to build the next generation of workforce development solutions.

Patient Approaches

- Partner with Financial Opportunity Centers – CONNECT helps people obtain sustainable living wage jobs and achieve financial health, offering services like financial education and credit building, tax preparation, housing assistance, job search, public benefits, and adult basic education in one location. CONNECT and other organizations like it achieve real results for patients and community members.

We plan to expand our partnerships with financial opportunity centers similar to CONNECT in Chelsea.

Behavioral Health/Substance Use Disorder

Community-wide and Patient Approaches

- We will partner with others to invest in increasing the pipeline of behavioral health workers who reflect the diversity of the community and in increasing community-based peer support and services to connect residents to behavioral health care. We will build capacity in community-based organizations by training community health workers to provide peer support and we will improve access to existing services.

Conclusion

We are excited to implement this improvement plan with our community and health care partners over the next 3 years and to use our collective voices, resources, and strategies to make lasting and positive health improvements.

Safe, Affordable and Stable Housing

Rationale: Data from the American Community Survey show that at least 50% of renters in Boston and North Suffolk are cost burdened, defined as spending at least 30% of their income on housing. The stresses and pressures created by housing instability and lack of affordability are associated with poor physical and mental health outcomes, as well as disruptions in work, school, and day care arrangements. Poor housing quality can have direct negative health impacts including respiratory conditions such as asthma due to poor indoor air quality, cognitive delays in children from exposure to neurotoxins (e.g., lead), and accidents and injuries because of structural deficiencies.

These effects are experienced most powerfully by people with low or fixed incomes, such as seniors and residents who work low-wage jobs, and those who are undocumented and non-English-speaking.

Goal: Ensure safe, stable, healthy, equitable, affordable housing solutions.		
Objective 1: Advocate for policies and make investments that increase and preserve affordable housing across Greater Boston.		
	Strategy 1	Strategy 2
	Direct resources, including but not limited to investments, grant, loans, and other financial instruments, towards community development corporations and other non-profit developers to construct or preserve affordable housing.	Advocate and support policies that protect tenants, offer rental support, and preserve and increase affordable housing at the local and state level. This includes supporting the Massachusetts Principles for Healthy and Affordable Housing .
<i>Population(s):</i>	Those experiencing housing instability	People experiencing housing instability or homelessness
<i>Potential New Resources:</i>	<ul style="list-style-type: none"> Anchor Investment Determination of Need Community Health Improvement Funds (DoN CHI) 	
<i>Current Initiatives:</i>	<ul style="list-style-type: none"> Anchor Investment in Chelsea with local community development corporations to preserve affordable housing Contribution to Boston's Way Home, the Mayor's initiative to end veteran and chronic homelessness in Boston by creating permanent supportive housing 	<ul style="list-style-type: none"> Charlestown Coalition advocacy with Boston Housing Authority around status of current Bunker Hill Housing residents during and after redevelopment Healthy Chelsea advocacy and support for local public and affordable housing projects Revere CARES advocacy and support for local public and affordable housing projects
<i>Collaborations:</i>	<ul style="list-style-type: none"> Local Initiatives Support Corporation (LISC) Community Development Corporations Healthy Neighborhood Equity Fund Boston teaching hospitals 	<ul style="list-style-type: none"> Other Area Hospitals/Health Systems Massachusetts Public Health Association
<i>Expected Outcomes:</i>	Increased/preserved affordable housing units	Policies that support safe, affordable housing
<i>Data Source:</i>	Investment/grantee reports	Local and state reports

MGH Community Health Implementation Plan

Objective 2: Implement and expand programs that stabilize or create access to affordable housing for Mass General health center patients.				
	Strategy 1	Strategy 2	Strategy 3	
	Support Medical-Legal Partnerships within the Mass General HealthCare Centers.	Screen and assess Mass General health center primary care patients for housing instability and connect to partners who provide services including financial and housing counseling.	Invest in housing navigation to support MGH inpatients who are chronically homeless to connect with housing resources.	
<i>Population(s):</i>	Patients needing legal advocacy to obtain housing/preserve tenancy	Patients experiencing housing instability	Patients who are chronically homeless or at risk of homelessness	
<i>Potential New Resources</i>	Philanthropy	Hospital Investment/philanthropy	Hospital investment	
<i>Current Initiatives:</i>	<ul style="list-style-type: none"> MGH Chelsea Legal Initiative for Care (LINC), partnership with Lawyers for Civil Rights for housing and benefits Partnerships with Harvard Law students for immigration status at MGH Chelsea 	<ul style="list-style-type: none"> Early Childhood Home Visitors Health Starts at Home (originally funded by The Boston Foundation and now Kresge in partnership with The Neighborhood Developers) Medicaid ACO Flexible Services Charlestown Family Support Circle Healthy Chelsea Family Navigator 	ED navigator	
<i>Collaborations:</i>	<ul style="list-style-type: none"> Lawyers for Civil Rights Harvard Law School 	<ul style="list-style-type: none"> The Neighborhood Developers, a community development corporation CONNECT, a financial services center CAPIC, an anti-poverty agency 	<ul style="list-style-type: none"> City of Boston, Mayor's Initiative to End Chronic Homelessness Housing and shelter providers 	
<i>Expected Outcomes:</i>	Increased housing stability/access	<ul style="list-style-type: none"> Increased housing stability Improved health outcomes for Health Starts at Home participants 	<ul style="list-style-type: none"> Increased housing stability Decreased inappropriate health care utilization Improved health outcomes 	
<i>Data Source:</i>	Program data	Program data	Program data	

Economic and Financial Stability and Mobility

Rationale: There is significant income inequality in Boston. The median income in Boston is \$62,021, but the range is wide— \$27,952 in Dorchester to \$170,152 in South Boston, and the disparities are significant. Whites have the highest median income (\$98,317) while Latinos the lowest (\$36,998). In four

MGH Community Health Implementation Plan

neighborhoods—Dorchester, Fenway, Roxbury, and the South End—25-37% of residents live below the federal poverty level. One interviewee summarized, “Real wages have been going down for low income people [for decades]. This is at the heart of all of it: people have no time because they are working four jobs to get the same salary they used to get from one [job]. If you can’t rest, how can you be healthy? Some people have to work 70 hours to make ends meet.”

In the 2019 North Suffolk Community Survey, 23% of all respondents selected poverty as a top health concern, a marked change from the 2014 and 2015 surveys when poverty was not in the top five. In 2019, 38% of Chelsea survey respondents and 28% of Revere survey respondents identified poverty among their most important health issues. People living in poverty are more likely to have worse health outcomes.

Goal: Promote economic stability and mobility and reduce the wealth gap among residents, staff, and youth.			
Objective 1: Collaborate with and convene organizations to address workforce development, maximize income and benefits, and increase financial literacy and asset building.			
	Strategy 1		Strategy 2
	Work with community partners in North Suffolk to develop and implement a community-wide workforce development initiative to increase job stability.		Partner with and support financial and economic mobility programs to increase financial stability for patients and residents.
<i>Population(s):</i>	People who are low-income, immigrants and refugees, and/or low-skilled		People who are low-income, immigrants and refugees, and/or low-skilled
<i>Potential New Resources</i>	<ul style="list-style-type: none"> Hospital Anchor Investments DoN CHI MGH Center for Community Health Improvement 		<ul style="list-style-type: none"> Hospital Anchor Investments DoN CHI CCHI
<i>Current Initiatives:</i>	<ul style="list-style-type: none"> Revere CARES is engaged in a workforce development initiative with CONNECT and the City of Revere, with technical assistance through Project Catapult at the Boston Foundation 		<ul style="list-style-type: none"> Partnership with CONNECT to build economic security Volunteer Income Tax Assistance (VITA) Early Childhood Home Visitors using the EMPATH model of financial mobility
<i>Collaborations:</i>	<ul style="list-style-type: none"> CONNECT Jewish Vocational Services The Neighborhood Developers Cities of Chelsea and Revere Chelsea Collaborative 		<ul style="list-style-type: none"> CONNECT Budget Buddies Compass EMPATH Other Economic Stability programs
<i>Expected Outcomes:</i>	<ul style="list-style-type: none"> Increased income Increased full-time, benefitted employment 		<ul style="list-style-type: none"> Increased income Increased savings
<i>Data Source:</i>	Census Bureau Department of Labor Statistics		Program Data

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Objective 2: Develop anchor programs and partnerships to hire, train and promote low to moderate income residents of Boston, North Suffolk and support local businesses.

	Strategy 1	Strategy 2
	Adopt innovative workforce development strategies at MGH to train and develop low-and moderate-income Boston residents.	Adopt innovative procurement strategies at MGH using Anchor Institution principles to support local minority and women-owned businesses.
<i>Population(s):</i>	New and Current Mass General Staff who are low and moderate-income residents of Boston and North Suffolk	Local Minority/Women-owned Business Enterprises from Anchor communities
<i>Potential New Resources</i>	Cambridge Street Building Linkage dollars (\$1.3M)	Hospital Anchor Investments
<i>Current Initiatives:</i>	<ul style="list-style-type: none"> Incumbent worker training (ESOL, GED, etc.) Partners in Career and Workforce Development 	<ul style="list-style-type: none"> Partners Purchasing Diversity Initiative Anchor strategies
<i>Collaborations:</i>	<ul style="list-style-type: none"> Cities of Boston, Chelsea, and Revere Job training agencies 	Chamber of Commerce
<i>Expected Outcomes:</i>	Increased employment	Increased revenue into minority/anchor communities through purchasing for locally owned businesses
<i>Data Source:</i>	Program Data	Program Data

Objective 3: Build on existing youth programs to offer opportunities to promote educational attainment, develop leadership skills, and gain career exposure and experience.

	Strategy 1	Strategy 2	Strategy 3
	Expand the Mass General Youth Programs (3rd grade through college) to more youth residing in our target communities to support college readiness and explore partnership opportunities for youth not college-bound.	Provide summer jobs to at least 250 youth every year at Mass General and assist 40 youth in Chelsea, Revere, and Charlestown to find employment with other employers.	Strengthen Mass General's Coalition Youth Groups to provide paid internships to develop leadership and advocacy skills to at least 100 youth.
<i>Population(s):</i>	Youth	Youth	Youth
<i>Potential New Resources</i>	<ul style="list-style-type: none"> Philanthropy Hospital Investments 	<ul style="list-style-type: none"> Philanthropy Hospital Investments 	<ul style="list-style-type: none"> Philanthropy Hospital Investments
<i>Current Initiatives:</i>	<ul style="list-style-type: none"> Mass General Youth Scholars, a program that exposes 1,000 youth grades 3 through college to careers in science and medicine. 	<ul style="list-style-type: none"> Mass General Youth Summer Jobs Program Revere Youth Leadership Council Revere Power of Know Youth Group 	<ul style="list-style-type: none"> Revere Youth Leadership Council Revere Power of Know Youth Group Healthy Chelsea Youth Food Movement Group

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			<ul style="list-style-type: none">• Healthy Chelsea Youth Food Movement Group• Healthy Chelsea Teen Action Project• Charlestown Turn it Around Youth Group	<ul style="list-style-type: none">• Healthy Chelsea Teen Action Project• Charlestown Turn it Around Youth Group
Collaborations:		<ul style="list-style-type: none">• Boys and Girls Clubs of Boston• Becoming A Man (BAM)• Accelerated College Experience (ACE)	<ul style="list-style-type: none">• Private Industry Council• Cities of Chelsea and Revere	<ul style="list-style-type: none">• Revere Public Schools• Chelsea Public Schools• Boston Public Schools
Expected Outcomes:		<ul style="list-style-type: none">• Increased college persistence and graduation• Increased career exposure• Increased leadership and advocacy skills	Increased job readiness skills	<ul style="list-style-type: none">• Increased career exposure• Increased leadership and advocacy skills• Increased resiliency
Data Sources:		Program Data	Program Data	Program Data

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 Behavioral Health, including Substance Use

Rationale: The CHNA identified widespread concern about behavioral health challenges among families, friends, and neighbors. Stress, anxiety, and depression were the most frequently-cited behavioral health issues among Boston and North Suffolk residents, especially those who identify as LGBTQ, low-income, women, renters, seniors, children, immigrants, communities of color, and the unemployed. Many community organizations mentioned the need to increase resiliency and healthy coping mechanisms in youth.

Participants discussed the co-occurrence of behavioral health issues with SUDs, including opioid use disorder (OUD) and trauma. Together these challenges are among the leading causes of disability in the U.S. In 2016, unintentional opioid overdose accounted for 69% of all accidental deaths, with rates highest among Latinos, followed by Whites.

CHNA respondents report that access to help is limited by stigma, culture, language, cost, and provider competency in treating communities of color, particularly immigrant communities. They recommended investing in more behavioral health support in public schools, reducing cultural stigma linked to behavioral health services, creating community-based access through peer support, and recruiting behavioral health clinicians who reflect the diversity of the communities. One key informant illustrated these barriers by sharing, “There is far too little access to treatment programs, and those that do exist are not linguistically and culturally competent.”

Goal: Promote social and emotional wellness by fostering resilient communities and building equitable, accessible, and supportive systems of care.				
Objective 1: Increase the pipeline of culturally appropriate behavioral health workers (licensed and community-based) and increase services in traditional and non-traditional settings.				
	Strategy 1	Strategy 2	Strategy 3	
	Establishing scholarship opportunities for racially, ethnically & linguistically diverse students to obtain education and training for behavioral health roles and recruit behavioral health clinicians who reflect the diversity of the community.	Pilot programs or partner with existing organizations that train community health workers in community-based settings to provide support and connect community members to behavioral health care.	Partner with school systems, health centers, and youth- and family-focused programs to provide resiliency curriculum and behavioral health support.	
<i>Population(s):</i>	Culturally and linguistically diverse students seeking behavioral health careers	Residents of Roxbury, Dorchester, Mattapan, Chelsea, Revere, Charlestown, East Boston	Boston, Chelsea, Revere, Winthrop public school students, parents, faculty	
<i>Potential New Resources</i>	<ul style="list-style-type: none"> System Investment Governor’s health care legislation DoN CHI 	<ul style="list-style-type: none"> System Investment DoN CHI IRIS Database 	<ul style="list-style-type: none"> System Investment Philanthropy DoN CHI 	

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<i>Current Initiatives:</i>				Chelsea and Revere School-Based Health Centers
<i>Collaborations:</i>		Local colleges	<ul style="list-style-type: none">Massachusetts Department of Mental HealthNorth Suffolk Mental Health AssociationOther behavioral health agencies	<ul style="list-style-type: none">Public schoolsCommunity organizationsMass League of Community Health Centers
<i>Expected Outcomes:</i>		Increased number of diverse behavioral health workforce in Boston	<ul style="list-style-type: none">Increased alternative pathways to an array of community based BH servicesIncreased access to servicesIncreased knowledge on trauma and resources available	<ul style="list-style-type: none">Improved access to careIncreased resilient communities and youth
<i>Data Sources:</i>		Program Data	Program Data	Youth Risk Behavior Survey
Objective 2: Support multi-sector community coalitions to convene stakeholders to identify and advocate for policy, systems, and environmental changes to increase resiliency, reduce youth substance use, and prevent opioid overdoses and deaths.				
		Strategy 1	Strategy 2	Strategy 3
		Building Community and Organizational Capacity - Increase the capacity of communities and organizations to respond to the behavioral health needs of youth and families by convening municipalities, organizations, and residents to identify opportunities to support a culture of health.	Advocate for policies - Create or amend policies that support youth resiliency and decrease or mitigate factors that lead to substance use.	Educate - Continue to provide opioid overdose prevention and harm reduction education to those struggling with addiction, families, and medical providers in Greater Boston and provide substance use prevention education and early intervention, particularly around marijuana, vaping, and opioids to parents and youth.
<i>Population(s):</i>		Community residents Community organizations	Community youth and families	People with substance use disorders Community youth and families
<i>Potential New Resources</i>		Philanthropy	<ul style="list-style-type: none">PhilanthropyGrants	Philanthropy
<i>Current Initiatives:</i>		<ul style="list-style-type: none">Healthy Chelsea CoalitionThe Charlestown CoalitionEASTIE CoalitionRevere CARES Coalition	<ul style="list-style-type: none">Healthy Chelsea CoalitionThe Charlestown CoalitionEASTIE CoalitionRevere CARES Coalition	<ul style="list-style-type: none">Healthy Chelsea CoalitionThe Charlestown CoalitionRevere CARES CoalitionMGH Vaping initiative

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	<ul style="list-style-type: none"> SAPC Regional Grant Boston Substance Use Prevention Collaborative 	<ul style="list-style-type: none"> MGH Vaping initiative Boston Substance Use Prevention Collaborative 	<ul style="list-style-type: none"> EASTIE Coalition Boston Substance Use Prevention Collaborative
<i>Collaborations:</i>	Multiple community and municipal agencies	Multiple community and municipal agencies	Multiple community and municipal agencies
<i>Expected Outcomes:</i>	<ul style="list-style-type: none"> Increased resources received in the communities Increased stakeholders involved Increased policy or system changes 	<ul style="list-style-type: none"> Increased youth resiliency Decreased substance use Increased mental health indicators 	<ul style="list-style-type: none"> Reduction in opioid overdoses and deaths Reduction in hospitalizations Increase in treatment admissions
<i>Data Sources:</i>	Program Data	Youth Risk Behavioral Survey	Program Data Data from Mass DPH on opioid deaths, treatment admissions, hospitalizations

Objective 3: Reducing stigma for those with substance use disorder and support the MGH chronic disease management model of care that spans the continuum of care from inpatient to the community.

	Strategy 1	Strategy 2
	Sustain and expand Substance Use Disorders initiative across the hospital and MGH health centers.	Sustain and expand mobile addiction program, identify areas at high risk for overdose, provide harm reduction services and initiate MAT for people with SUDs.
<i>Population(s):</i>	MGH patients with SUDS	Those with a substance use disorder on the streets with a focus on opioids
<i>Potential New Resources</i>	Philanthropy/grants	MA DPH RFP to spread to 2 to 3 additional communities
<i>Current Initiatives:</i>	<ul style="list-style-type: none"> Mass General SUDs Initiative – ACT (inpatient), Bridge, Hope (pregnant and new moms), Primary Care SBIRT screening, SUDs screening in Behavioral Health, jails 	Kraft Center for Community Health mobile addiction services van
<i>Collaborations:</i>	<ul style="list-style-type: none"> City of Boston Nashua Street Jail Boston Health Care for the Homeless Program South Bay House of Corrections 	<ul style="list-style-type: none"> Boston Health Care for the Homeless Program Boston Public Health Commission's AHOPE Program Grayken Center for Addiction Medicine at Boston Medical Center GE Foundation Bridge Over Troubled Waters RIZE Massachusetts

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			<ul style="list-style-type: none"> MA Department of Public Health
<i>Expected Outcomes:</i>	<ul style="list-style-type: none"> Decreased addiction severity Reduction in length of stay and 30-day readmission to the hospital Decreased overdose, particularly in the post-incarceration period 		<ul style="list-style-type: none"> Lower mortality from opioid overdose More engaged in treatment Harm reduction results in fewer medical complications of addiction
<i>Data Sources:</i>	Program Data		Program Data City & State Overdose Data

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Accessing Services (Healthcare, Childcare, Social Services)

Rationale: Across focus groups, interviews, and surveys CHNA respondents expressed satisfaction with their health care; the Boston Behavioral Health Risk Factor Surveillance System (BRFSS) survey results show that 80% of respondents identify at least one personal doctor. Nevertheless, they described barriers to care including language, navigating the health care system, understanding health care benefits, transportation, a lack of culturally sensitive approaches to care, and immigration status. In particular, CHNA participants spoke about the fear in undocumented or mixed status families that prevent family members from seeking care. CHNA respondents also cited long wait times for appointments (44%) and a lack of evening and weekend services (38%) that limit access to health care.

Goal: Ensure all Mass General patients have access to coordinated and equitable health and family support services and resources to support overall health.

Objective 1: Increase the capacity of health services to provide culturally and linguistically relevant care and expand access to those services.

	Strategy 1	Strategy 2	Strategy 3	Strategy 4
	Increase the capacity of Mass General community health centers and other health care organizations to reduce barriers to care for patients through community health workers, navigators, and other outreach programs.	Reduce barriers to timely cancer screening and follow-up cancer care through culturally appropriate navigation and innovative programs.	Support families with children up to age 5 to develop nurturing relationships and healthy child development.	Continue to work with Partners HealthCare Center for Population Health to support implementation of community health workers across the system to support patients in the Medicaid Accountable Care Organization.
<i>Population(s):</i>	Patients with complex health and social needs	High-risk community health center patients who need cancer screening or care	Families with children under 5 with complex health and social needs	ACO patients with complex health and social needs
<i>Potential New Resources</i>	<ul style="list-style-type: none"> Hospital Investment Grants Philanthropy State and Federal Funding 	<ul style="list-style-type: none"> Hospital Investment Philanthropy Grants 	<ul style="list-style-type: none"> Hospital Investment Philanthropy Grants State and Federal Funding 	<ul style="list-style-type: none"> Hospital and System Investment Medicaid ACO
<i>Current Initiatives:</i>	<ul style="list-style-type: none"> MGH Chelsea Community Health Improvement Team Programs 	<ul style="list-style-type: none"> Cancer Navigation Program Trefler Program for Cancer Care Equity Implementation Science Center for 	<ul style="list-style-type: none"> MGH Revere Healthy Steps MGH Revere Parents as Teachers MGH Chelsea Healthy Families America 	<ul style="list-style-type: none"> Partners CHW Collaborative MGH CCHI and health centers

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	<ul style="list-style-type: none"> • Revere & Chelsea School-Based Health Centers • MGH Community Health Associates • Boston HealthCare for the Homeless Program 	<ul style="list-style-type: none"> • Cancer Control Equity (ISCCCE) • Komen Foundation Cancer Navigation Program 	<ul style="list-style-type: none"> • MGH Chelsea Healthy Steps • Healthy Chelsea Early Childhood Network 	
<i>Collaborations:</i>	Numerous community organizations	<ul style="list-style-type: none"> • Harvard T.H. Chan School of Public Health • Massachusetts League of Community Health Centers • 31 community health centers across MA 	<ul style="list-style-type: none"> • MA Department of Public Health • Healthy Families America • Raising a Reader • EMPATH • Chelsea/Revere Family Network 	MA Department of Public Health
<i>Expected Outcomes:</i>	<ul style="list-style-type: none"> • Increased arrival rates to appointments • Increased medical compliance • Increased care coordination • Increased funding to deliver equitable, culturally relevant care 	<ul style="list-style-type: none"> • Increased arrival rates to appointments • Increased timely cancer screenings • Increased early detection of cancer • Increased follow through in cancer care • Increased adoption of proven-effective interventions for cancer screening and prevention in community health settings • Increased equity in cancer care and outcomes 	<ul style="list-style-type: none"> • Decreased child abuse and neglect • Increased parent-child attachment • Child(ren) achieving developmental milestones • Increased connection to care and community resources • Decreased maternal depression 	<ul style="list-style-type: none"> • Number of CHWs • Number of trainings
<i>Data Sources:</i>	Program Data	Program Data	Program Data	Program Data

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Objective 2: Assist older and disabled adults who live in three buildings near Mass General in Boston's West End and Beacon Hill in maintaining independence as they age in place by identifying social and health related needs and providing nursing, social work, and resource intervention.	
	Strategy 1
	Ensure seniors and disabled adults in three buildings near hospital have access to coordinated health and support services and resources to support overall health and age in place.
Population(s):	Low-income older and disabled adults who live in three local buildings
Potential New Resources	Cambridge Street DoN CHI
Current Initiatives:	Connect to Wellness, an outreach team of nurse, social worker, and resource specialist who spend a day a week in each building offering individual and group services
Collaborations:	Preservation of Affordable Housing, Rogerson Communities, HallKeen
Expected Outcomes:	<ul style="list-style-type: none"> • Reduced inappropriate utilization for MGH patients • Better chronic disease management • Connection to supportive benefits and resources • Preserve tenancy and build social connection
Data Sources:	Program Data

Community/ Intimate Partner Violence and Safety

Rationale: In Boston, community violence was the most frequently discussed type of violence in focus groups, namely in the neighborhoods of Dorchester, Mattapan, Roxbury, Chinatown, and East Boston. When Boston CHNA survey respondents were asked how safe they considered their neighborhoods to be, 25% described their neighborhood as unsafe or extremely unsafe. Twice as many respondents from Roxbury (50%), Mattapan (49%), and Dorchester (45%) described their neighborhood as unsafe or extremely unsafe. One in five Boston CHNA survey respondents described gunshots in the neighborhood (22%) and feeling unsafe when alone on the street at night (19%) as serious problems.

There is very little quantitative data available on interpersonal or domestic violence. In 2018, the Boston Police Department served a total of 1,921 restraining orders, ranging from 386 in Roxbury and 368 in Mattapan to 2 in Charlestown. However, it is well known that intimate partner violence is underreported.

Goal: Promote policies, systems, and programs to achieve safety in communities and homes.		
Objective 1: Reduce injuries and deaths related to violence and promote safety in the home and in the community through clinical care and education, community engagement, advocacy, and research.		
	Strategy 1	Strategy 2
	Provide intimate partner and community violence intervention programs to Mass General patients and community residents.	Prevent firearm-related violence and promote safety in the homes and communities of the patients we serve.
<i>Population(s):</i>	Patients experiencing intimate partners violence (IPV) and/or community violence	Patients and communities affected by gun violence
<i>Potential New Resources</i>	Philanthropy	Philanthropy
<i>Current Initiatives:</i>	<ul style="list-style-type: none"> HAVEN, for those experiencing intimate partner violence VIAP, for survivors of community violence PACT, for child witnesses to violence 	Center for Gun Violence Prevention
<i>Collaborations:</i>	<ul style="list-style-type: none"> Boston Police Department Chelsea Police Department Many other community organizations 	<ul style="list-style-type: none"> Boston Police Department Chelsea Police Department Many other community organizations
<i>Expected Outcomes:</i>	<ul style="list-style-type: none"> Increased access to resources Increased arrival rates to appointments Decreased trauma Increased resiliency 	<ul style="list-style-type: none"> Increase in number of physicians and other health professionals trained in screening for weapon safety in the homes and counseling in gun safety
<i>Data Sources:</i>	Program Data	Program Data

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Healthy Eating, Active Living, and Food Insecurity

Rationale: Access to fresh and affordable healthy food is a growing problem in some neighborhoods in Boston and North Suffolk communities, with lower income neighborhoods, most commonly communities of color, having few grocery stores and a high prevalence of fast food and convenience stores. Data indicate that nearly one in five Boston residents reported being food insecure, meaning that they ran out of food and funds to purchase more over the course of the month. Experiences with food insecurity varied by population group. In aggregated 2013, 2015, and 2017 BBRFSS data, Latino (39.1%) and Black (34.5%) residents were significantly more likely than White residents (10.7%) to report food insecurity as were foreign-born residents compared to U.S. born residents. Food insecurity and lack of access to fresh and affordable healthy food is associated with obesity. At the neighborhood level, the percent of adults in Mattapan (71%), Hyde Park (65%), Dorchester (63-65%), West Roxbury (64%), East Boston (63%), and Roslindale (63%) who were obese or overweight was significantly higher than the rest of Boston.

Goal: End hunger and reduce obesity in Boston and North Suffolk.

Objective 1: Increase healthy eating and active living by advocating for systems changes, increasing opportunities for physical activity, and providing healthy food resources to patients and community residents.

	Strategy 1	Strategy 2
	Support policy, systems, programs, and environmental changes to increase access to affordable, healthy foods and physical activity in communities and school environments.	Screen for and provide resources to patients who are struggling with food insecurity.
<i>Population(s):</i>	Community residents	Patients who are experiencing food insecurity
<i>Potential New Resources</i>	Philanthropy DoN CHI	Philanthropy Grants
<i>Current Initiatives:</i>	<ul style="list-style-type: none"> • Healthy Chelsea Initiatives: Holiday School Food Project, School Food partnership, Hunger Network, and advocacy work • Revere on the Move Farmers Markets and Food Economy work • Stay in Shape program to educate youth on healthy eating and active living • BOKS Program, physical activity before school 	<ul style="list-style-type: none"> • MGH Chelsea Food for Families • MGH Chelsea Food Pantry • MGH Revere Food Pantry • First 1,000 Days • Shopping Matters • Stay in Shape
<i>Collaborations:</i>	<ul style="list-style-type: none"> • Cities of Chelsea and Revere • Greater Boston Food Bank • Chelsea public schools • Other community organizations 	<ul style="list-style-type: none"> • Greater Boston Food Bank • Other community organizations
<i>Expected Outcomes:</i>	<ul style="list-style-type: none"> • Increased healthy eating, especially among youth • Increased physical activity 	Decreased food insecurity
<i>Data Sources</i>	Program Data Youth Risk Behavior Survey	Program Data

Chronic Disease

Rationale: Data show that cancer, SUDs, asthma, diabetes, and other chronic diseases are drivers of mortality in Boston and North Suffolk communities. There are significant racial and ethnic disparities in these conditions that result in higher mortality rates. For example, the age-adjusted mortality rate per 100,000 is higher in Chelsea (963.8), Revere (734), and Winthrop (928.7) than the Massachusetts rate (668.9). Likewise, Charlestown (758.2), Dorchester (737), East Boston (759), Hyde Park (840.4), and Roxbury (769.9) are higher than Boston's age-adjusted mortality rate per 100,000 (702.5).

Goal: Design strategies and programs to help improve health outcomes for those with chronic disease.	
Objective 1: Ensure high-risk patients with chronic disease (Diabetes, HIV, Hep C, Asthma, SUDs) receive access to coordinated health and support services, assistance with social determinants, medications, and other resources to better manage their disease.	
	Strategy 1
	Improve the health of high-risk patients with chronic disease through culturally appropriate navigation, resources, and supports.
<i>Population(s):</i>	High-risk community health center patients with diabetes, asthma, SUDs, Hep C, HIV
<i>Potential New Resources</i>	<ul style="list-style-type: none"> • Hospital Investment • Philanthropy • State and Federal Funding
<i>Current Initiatives:</i>	<ul style="list-style-type: none"> • Comprehensive Community Health Workers • MGH Chelsea Pediatric Asthma Program • Hepatitis C Navigation Program • HIV/AIDS Medical Case Management Program • Diabetes CHW pilot • Mass General SUDs Initiative (see Behavioral Health) • Adult and Pediatric Integrated Care Management Programs (iCMP) • Live Tobacco Free
<i>Collaborations:</i>	<ul style="list-style-type: none"> • City of Boston • Mass League of Community Health Centers • Many other organizations
<i>Expected Outcomes:</i>	<ul style="list-style-type: none"> • Increased arrival rates to appointments • Decreased disease burden • Increased medication adherence • Increased care coordination • SDOH's addressed
<i>Data Sources:</i>	Program Data

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Current Mass General Programming by Priority Area

Current Program	Safe & Affordable Housing	Financial & Economic Stability and Mobility	Behavioral Health, including Mental Health and Substance Use	Access to Care	Community Violence & Safety	Obesity & Food Insecurity	Elder/Aging Issues	Chronic disease with cancer, diabetes focus
Boston Health Care for the Homeless Program (BHCHP) at MGH				✓				
Boston Substance Use Prevention Collaborative			✓	✓				
Cancer Navigation Program				✓			✓	✓
Charlestown Coalition			✓		✓			
Charlestown Family Support Circle		✓	✓	✓				
Charlestown Turn it Around Youth Group		✓	✓		✓			
Chelsea High School Based Health Center			✓	✓	✓	✓		
Chelsea Immigrant and Refugee School Program			✓	✓	✓			
Chelsea Teen Action Project Youth Group		✓	✓					
Chelsea Youth Food Movement		✓				✓		
Comprehensive Community Health Worker Program	✓	✓	✓	✓		✓	✓	✓
Connect to Wellness	✓			✓			✓	
EASTIE Coalition			✓	✓	✓			
Healthy Chelsea Coalition		✓	✓	✓	✓	✓		
Healthy Chelsea Early Childhood Network				✓				
Helping Abuse and Violence End Now (HAVEN)				✓	✓			
Hepatitis C Program			✓	✓				✓
Living Tobacco Free			✓	✓				✓

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Current Program	Safe & Affordable Housing	Financial & Economic Stability and Mobility	Behavioral Health, including Mental Health and Substance Use	Access to Care	Community Violence & Safety	Obesity & Food Insecurity	Elder/Aging Issues	Chronic disease with cancer, diabetes focus
Mayor's Way Home Investment	✓							
MGH Chelsea Food for Families				✓		✓		
MGH Chelsea Health Starts at Home	✓	✓	✓	✓				
MGH Chelsea Healthy Steps Program				✓				
MGH Chelsea Healthy Families America	✓	✓	✓	✓	✓			
MGH Chelsea Legal Initiatives for Care (LINC)	✓	✓		✓				
MGH Chelsea Medical Interpreter and Community Health Workers				✓				
MGH Chelsea Pediatric Asthma Program				✓				✓
MGH Chelsea Police Action Counseling Team (PACT)				✓	✓			
MGH Chelsea Refugee Health Assessments			✓	✓				
MGH Vaping Initiative				✓				
MGH Youth Programs & Youth Scholars		✓	✓					
Office Based Addiction Treatment Program			✓	✓				✓
Revere Adolescent Health Initiative			✓	✓	✓	✓		
Revere CARES Coalition		✓	✓			✓		
Revere Family Planning Program				✓				
Revere Health Leadership Council		✓	✓					
Revere Healthy Steps for Young Children	✓	✓	✓	✓	✓	✓		

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Current Program	Safe & Affordable Housing	Financial & Economic Stability and Mobility	Behavioral Health, including Mental Health and Substance Use	Access to Care	Community Violence & Safety	Obesity & Food Insecurity	Elder/Aging Issues	Chronic disease with cancer, diabetes focus
Revere High School Based Health Center			✓	✓	✓	✓		
Revere on the Move		✓				✓		
Revere Parents as Teachers	✓	✓	✓	✓	✓	✓		
Revere Power of Know Afterschool Clubs		✓	✓					
Revere Youth Zone			✓	✓		✓		
SAPC Regional Substance Abuse Prevention Collaborative			✓					
Stay in Shape Program			✓	✓	✓	✓		
Trefler Cancer Care Equity Program				✓			✓	✓
Violence Intervention Advocacy Program (VIAP)				✓	✓			

Collaborators

Name	Description	Communities
Accelerated College Experience (ACE)	Teaches students to take ownership of their academic experience by setting their own high standard of personal and academic excellence as measured by achieving a GPA of 3.0 or higher in college.	Greater Boston
Becoming a Man	Helps young men of color navigate difficult circumstances that threaten their future.	Boston
Boston Health Care for the Homeless Program	Provides or assures access to the highest quality health care for all homeless individuals and families in the Greater Boston area.	Greater Boston
Boston Private Industry Council (PIC)	An organization that strengthens Boston's communities and its workforce by connecting youth and adults with education and employment opportunities that align with the needs of area employers.	Boston
Boston Public Health Commission's AHOPE Program	City of Boston's harm reduction program offering needle exchange and naloxone education and distribution.	Boston
Boston's Way Home	A City of Boston initiative to end chronic homelessness.	Boston
Boys and Girls Clubs of Boston	Provides safe and affordable places for children and teens during out-of-school time.	Greater Boston
Bridge Over Troubled Waters	Provides effective and innovative services to runaway, homeless and high-risk youth, helps youth avoid a lifetime of dependency on social services, guides youth towards self-sufficiency, and enables youth to transform their lives and build fulfilling, meaningful futures.	State-wide
Budget Buddies	Provides financial coaching for women with low-income.	Greater Boston
Chelsea/Revere Family Network	A state funded child and family support program serving families with children from the prenatal stage up to eight (0-8) years old.	Chelsea, Revere
Chelsea Collaborative	Empowers residents to enhance the social and economic health of the community and its people; and to hold institutional decision makers accountable to the community.	Chelsea, Revere
Community Action Programs, Inter City (CAPIC)	A private, non-profit corporation designated to identify and eradicate the root causes of poverty in Chelsea, Revere and Winthrop.	Chelsea, Revere, Winthrop
Compass Working Capital	Provides financial coaching for people with low-income.	Greater Boston
CONNECT	CONNECT offers the services of five agencies working to improve the financial mobility of low-income families.	Chelsea, Revere
EMPATH	Provides financial coaching for people with low-income.	Greater Boston
GE Foundation	The philanthropic organization of GE committed to transforming communities and shaping the diverse workforce of tomorrow.	State-wide

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Name	Description	Communities
Grayken Center for Addiction Medicine at Boston Medical Center	Offers innovative treatment, education, and research programs.	State-wide
Greater Boston Food Bank	The largest hunger-relief organization in New England and among the largest food banks in the country.	Greater Boston
HallKeen Management	Property management company for affordable multi-family, assisted living, and mixed-use properties	Greater Boston
Harvard Law School	Provides volunteer law students to fight discrimination through legal action, education, and advocacy.	Greater Boston
Harvard T.H. Chan School of Public Health	Brings together dedicated experts from many disciplines to educate new generations of global health leaders and produce powerful ideas that improve the lives and health of people everywhere.	State-wide
Healthy Families America	One of the leading family support and evidence-based home visiting programs in the United States. We believe early, nurturing relationships are the foundation for healthy development.	Nation-wide
Healthy Neighborhood Equity Fund	Provides capital and strategy to invest in affordable housing.	State-wide
Jewish Vocational Services (JVS)	Empowers individuals from diverse communities to find employment and build careers, while partnering with employers to hire, develop, and retain productive workforces.	Greater Boston
Lawyers for Civil Rights	Fosters equal opportunity and fights discrimination on behalf of people of color and immigrants through legal action, education, and advocacy.	State-wide
Local Initiatives Support Corporation (LISC)	Provides capital and strategy to invest in affordable housing.	Nation-wide
MA Department of Public Health	Promotes the health and well-being of all residents by ensuring access to high-quality public health and healthcare services, and by focusing on prevention, wellness, and health equity in all people.	State-wide
Mass League of Community Health Centers	Promotes population health equity for all through leadership and programs supporting community health centers and members in achieving their goals of accessible, quality, comprehensive, and community responsive health care.	State-wide
Massachusetts Department of Mental Health	The State Mental Health Authority, assures and provides access to services and supports to meet the mental health needs of individuals of all ages; enabling them to live, work and participate in their communities.	State-wide
Massachusetts Public Health Association	A statewide membership organization that promotes a healthy Massachusetts through advocacy, education, community organizing, and coalition building.	State-wide
Nashua Street Jail	Jail located in Boston for pre-trial detainees.	Suffolk County

MGH Community Health Implementation Plan

Name	Description	Communities
North Suffolk Mental health Association	Providing mental health services to individuals, and especially children, in relatively under-served communities.	Revere, Chelsea, Winthrop, Boston
Preservation of Affordable Housing	A national nonprofit organization whose mission is to preserve, create and sustain affordable, healthy homes that support economic security and access to opportunity for all.	Nation-wide
Raising a Reader	Helping families with children from birth to age eight develop, practice and maintain home literacy habits essential for school and life success.	Nation-wide
RIZE Massachusetts	An independent nonprofit foundation working to end the opioid epidemic in Massachusetts and reduce its devastating impact on people, communities, and economy.	State-wide
Rogerson Communities	Provides housing and health care for elders and low-income individuals and families.	Greater Boston
South Bay House of Corrections	A jail in Suffolk County.	Suffolk County
The Neighborhood Developers	A community development corporation that preserves and builds affordable housing and builds the social connectedness of residents.	Chelsea, Revere, Everett

Appendix 6

Affiliated Parties Form



Massachusetts Department of Public Health

Determination of Need

Affiliated Parties

Version: DRAFT
3-15-17

DRAFT

Application Date: 01/21/2021 Application Number: MGB-20121612-HE

Applicant Information

Applicant Name: Mass General Brigham Incorporated

Contact Person: Andrew Levine Title: Attorney


Phone: 6175986700 Ext: E-mail: alevine@barrettsingal.com

Affiliated Parties

1.9 Affiliated Parties:

List all officers, members of the board of directors, trustees, stockholders, partners, and other Persons who have an equity or otherwise controlling interest in the application.

Add/ Del Rows	Name (Last)	Name (First)	Mailing Address	City	State	Affiliation	Position with affiliated entity (or with Applicant)	Stock, shares, or partnership	Percent Equity (numbers only)	Convictions or violations	List other health care facilities affiliated with	Business relationship with Applicant
<input type="checkbox"/> <input type="checkbox"/>	Finucane	Anne Marie	20 Trapelo Road	Lincoln	MA	Mass General Brigham Incorporated	Director		0%	No	CVS (MinuteClinic) in Rhode Island (Director)	Yes
<input type="checkbox"/> <input type="checkbox"/>	Fish	John	776 Boylston Street, PH2A	Boston	MA	Mass General Brigham Incorporated	Director		0%	No		Yes
<input type="checkbox"/> <input type="checkbox"/>	Hockfield	Susan	4 Berkeley Place	Cambridge	MA	Mass General Brigham Incorporated	Director		0%	No		No
<input type="checkbox"/> <input type="checkbox"/>	Holman, III	Albert	29A Chestnut Street	Boston	MA	Mass General Brigham Incorporated	Director		0%	No		No
<input type="checkbox"/> <input type="checkbox"/>	Kaplan	James	32 Cart Path Road	Weston	MA	Mass General Brigham Incorporated	Director		0%	No		No
<input type="checkbox"/> <input type="checkbox"/>	Klibanski, M.D.	Anne	800 Boylston Street, Suite 1150	Boston	MA	Mass General Brigham Incorporated	Director/Officer		0%	No		No
<input type="checkbox"/> <input type="checkbox"/>	Kraft	Jonathan	One Patriot Place	Foxborough	MA	Mass General Brigham Incorporated	Director		0%	No	The General Hospital Corporation (Trustee)	No
<input type="checkbox"/> <input type="checkbox"/>	Markell	Peter	73 Churchill Street	Milton	MA	Mass General Brigham Incorporated	Officer		0%	No		No
<input type="checkbox"/> <input type="checkbox"/>	Martignetti	Carl	164 Chestnut Hill Road	Chestnut Hill	MA	Mass General Brigham Incorporated	Director		0%	No		No
<input type="checkbox"/> <input type="checkbox"/>	Patrick	Diane	472 Beacon Street, Apartment 2	Boston	MA	Mass General Brigham Incorporated	Director		0%	No		No
<input type="checkbox"/> <input type="checkbox"/>	Reeve	Pamela	35 Swan Road	Winchester	MA	Mass General Brigham Incorporated	Director		0%	No		No

Add/ Del Rows	Name (Last)	Name (First)	Mailing Address	City	State	Affiliation	Position with affiliated entity (or with Applicant)	Stock, shares, or partnership	Percent Equity (numbers only)	Convictions or violations	List other health care facilities affiliated with	Business relationship with Applicant
 	Salim, M.D.	Ali	75 Francis Street, A-2-L-1	Boston	MA	Mass General Brigham Incorporated	Director		0%	No		No
 	Schoen	Scott	51 Essex Road	Chestnut Hill	MA	Mass General Brigham Incorporated	Director		0%	No		No
 	Sperling	Scott	4 Moore Road	Wayland	MA	Mass General Brigham Incorporated	Director/Officer		0%	No		Yes
 	Thorndike	Alexander	215 Warren Street	Brookline	MA	Mass General Brigham Incorporated	Director		0%	No		No
 	York	Gwill	16 Fayerweather Street	Cambridge	MA	Mass General Brigham Incorporated	Director		0%	No		No
 	Atchinson	Robert	115 Commonwealth Ave.	Boston	MA	Mass General Brigham Incorporated	Director		0%	No		No
 	Ives	David	5 Cherry Hill Street	West Newbury	MA	Mass General Brigham Incorporated	Director		0%	No		No
 	Ragon	Phillip	8 Follen Street	Cambridge	MA	Mass General Brigham Incorporated	Director		0%	No		Yes
 	Goggin	Maureen	730 Adams Street, Apartment #1	Dorchester	MA	Mass General Brigham Incorporated	Officer		0%	No		No

Document Ready for Filing

When 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 Determination of Need" button.

This document is ready to file:

☐

Date/time Stamp:

E-mail submission to
Determination of Need

Appendix 7

Change in Service Form



Massachusetts Department of Public Health

Determination of Need

Change in Service

Version: DRAFT
6-14-17

DRAFT

Application Number: MGB-20121612-HE

Original Application Date: 01/21/2021

Applicant Information

Applicant Name: Mass General Brigham Incorporated

Contact Person: Andrew Levine Title: Attorney

Phone: 6175986700 Ext: E-mail: alevine@barrettsingal.com

Facility: Complete the tables below for each facility listed in the Application Form

1 Facility Name: The General Hospital Corporation d/b/a Massachusetts General Hospital CMS Number: 220071 Facility type: Hospital

Change in Service

2.2 Complete the chart below with existing and planned service changes. Add additional services with in each grouping if applicable.

Add/Del Rows		Licensed Beds	Operating Beds	Change in Number of Beds (+/-)		Number of Beds After Project Completion (calculated)		Patient Days (Current/ Actual)	Patient Days Projected	Occupancy rate for Operating Beds		Average Length of Stay (Days)	Number of Discharges	Number of Discharges
		Existing	Existing	Licensed	Operating	Licensed	Operating			Current Beds	Projected		Actual	Projected
	Acute													
	Medical/Surgical	789	765	54	54	843	819	232,619	247,672	83%	83%	6.26	25,585	23,950
	Obstetrics (Maternity)									0%	0%			
	Pediatrics									0%	0%			
	Neonatal Intensive Care									0%	0%			
	ICU/CCU/SICU	101	101	40	40	141	141	37,868	40,319	103%	78%			
<input type="checkbox"/>										0%	0%			
	Total Acute	890	866	94	94	984	960	270,487	287,991	86%	82%	6.26	25,585	23,950
	Acute Rehabilitation									0%	0%			
<input type="checkbox"/>										0%	0%			
	Total Rehabilitation									0%	0%			
	Acute Psychiatric													

Add/Del Rows		Licensed Beds	Operating Beds	Change in Number of Beds (+/-)		Number of Beds After Project Completion (calculated)		Patient Days (Current/ Actual)	Patient Days Projected	Occupancy rate for Operating Beds		Average Length of Stay (Days)	Number of Discharges	Number of Discharges
		Existing	Existing	Licensed	Operating	Licensed	Operating			Current Beds	Projected		Actual	Projected
	Adult									0%	0%			
	Adolescent									0%	0%			
	Pediatric									0%	0%			
	Geriatric									0%	0%			
<input type="button" value="+"/> <input type="button" value="-"/>										0%	0%			
	Total Acute Psychiatric									0%	0%			
	Chronic Disease									0%	0%			
<input type="button" value="+"/> <input type="button" value="-"/>										0%	0%			
	Total Chronic Disease									0%	0%			
	Substance Abuse													
	detoxification									0%	0%			
	short-term intensive									0%	0%			
<input type="button" value="+"/> <input type="button" value="-"/>										0%	0%			
	Total Substance Abuse									0%	0%			
	Skilled Nursing Facility													
	Level II									0%	0%			
	Level III									0%	0%			
	Level IV									0%	0%			
<input type="button" value="+"/> <input type="button" value="-"/>										0%	0%			
	Total Skilled Nursing									0%	0%			

2.3 Complete the chart below if there are changes other than those listed in table above.

Add/Del Rows	List other services if Changing e.g. OR, MRI, etc	Existing Number of Units	Change in Number +/-	Proposed Number of Units	Existing Volume	Proposed Volume
<input type="checkbox"/> + <input type="checkbox"/> -	Addition of Infusion and Short Stay Bays (Units = Bays; Volume = Visits)	79	21	100	43,877	65,300
<input type="checkbox"/> + <input type="checkbox"/> -	Expansion of cardiovascular and small procedure rooms (Units = Rooms; Volume = Procedures)	17	10	27	42,092	44,651
<input type="checkbox"/> + <input type="checkbox"/> -	Acquisition of CT (Volume = Scans)	14	2	16	106,087	172,972
<input type="checkbox"/> + <input type="checkbox"/> -	Acquisition of MRI (Volume = Scans)	11	2	13	45,080	52,496
<input type="checkbox"/> + <input type="checkbox"/> -	Acquisition of PET/CT (Volume = Scans)	2	2	4	12,343	21,875
<input type="checkbox"/> + <input type="checkbox"/> -	Acquisition of PET/MR (Volume = Scans)	1	1	2	0	780

Document Ready for Filing

When 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 Determination of Need" button.

This document is ready to file:

☐

Date/time Stamp:

E-mail submission to
Determination of Need

Appendix 8

Notice of Intent

LEGAL NOTICES

LEGAL NOTICES

LEGAL NOTICES

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 Antonio Jarvis and Lucy Veiga to Mortgage Electronic Registration Systems, Inc., solely as nominee for American Mortgage, Inc., dated December 19, 2008, and recorded with the Suffolk County Registry of Deeds in Book 44347, Page 269, as affected by an assignment from Mortgage Electronic Registration Systems, Inc., to Bank of America, N.A., Successor by merger to BAC Home Loans Servicing, LP FKA Countrywide Home Loans Servicing, LP, dated January 31, 2012, and recorded with the Suffolk County Registry of Deeds in Book 49049, Page 279; assignment from Bank of America, N.A., Successor by merger to BAC Home Loans Servicing, LP FKA Countrywide Home Loans Servicing, LP, to Secretary of Housing and Urban Development, dated September 4, 2013, and recorded with the Suffolk County Registry of Deeds in Book 52864, Page 212; assignment from Secretary of Housing and Urban Development to Ventures Trust 2013-I-NH- by MCM Capital Partners, LLC, its Trustee, dated September 18, 2013, and recorded with the Suffolk County Registry of Deeds in Book 52864, Page 213; assignment from Ventures Trust 2013-I-NH by MCM Capital Partners, LLC, its Trustee to Wilmington Savings Fund Society, FSB, D/B/A Christiana Trust, Not Individually but as Trustee for Ventures Trust 2013-I-NH, dated October 6, 2017, and recorded with the Suffolk County Registry of Deeds in Book 58698, Page 205; assignment from Wilmington Savings Fund Society, FSB, D/B/A Christiana Trust, Not Individually but as Trustee for Ventures Trust 2013-I-NH to Wilmington Savings Fund Society, FSB, D/B/A Christiana Trust, Not Individually but as Trustee for Hilldale Trust, dated October 16, 2017, and recorded with the Suffolk County Registry of Deed in Books 58698, Page 213; and Assignment from Wilmington Savings Fund Society, FSB, D/B/A Christiana Trust, Not in its Individual Capacity but solely as Trustee for Hilldate Trust to Wilmington Savings Fund Society, FSB, as Owner Trustee of the Residential Credit Opportunities Trust V-D, dated September 11, 2019, and recorded with the Suffolk County Registry of Deeds in Book 61914, Page 60; 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 01:00 PM o'clock on January 21, 2021 at 77-79 Bloomfield Street, Dorchester, Suffolk County, Massachusetts, all and singular the premises described in said mortgage,

To wit:

The land with the buildings thereon, situated in that part of Boston, formerly Dorchester, being Lot 4 on a plan made by Morton & Quimby dated May 28, 1894, and recorded with the Suffolk Deeds Book 2203, end, bounded and described as follows:
SOUTHEASTERLY on Bloomfield Street, 50 feet;
SOUTHWESTERLY by Lot 3 on said plan, 92.13 feet;
NORTHWESTERLY by land of the heirs of Charles B. Pierce, 50 feet; and
NORTHEASTERLY by Lot 5 on said plan, 91.49 feet
Containing 4,590 square feet of land, more or less, according to said plan.
For title reference see Deed recorded with Suffolk District Registry of Deeds at Book 37938, Page 242.

For mortgagor's title see deed recorded at the above-named Registry of Deeds in Book 44347, Page 267.

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.

Wilmington Savings Fund Society, FSB, as Owner
Trustee of the Residential Credit Opportunities Trust V-D

Present Holder of said mortgage
By its attorneys,
WCG Law Group, PLLC
21 High Street, Suite 208B
North Andover, MA 01845
Jarvis, Antonio and Veiga, Lucy; 1412-FCI-1036;

Dec 31 Jan 7 14

LEGAL NOTICES

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Public Announcement Concerning a Proposed Health Care Project

Mass General Brigham Incorporated (“Applicant”) located at 800 Boylston Street, Suite 1150, Boston, MA 02199 intends to file a Notice of Determination of Need (“Application”) with the Massachusetts Department of Public Health for a substantial capital expenditure and substantial change in service by Brigham and Women’s Faulkner Hospital (“BWFH”) located at 1153 Centre Street, Boston, MA 02130. This Application includes the following: (A) construction of a 5-story addition to BWFH’s existing hospital facility that will contain the following: (1) 78 additional medical/surgical beds; (2) an 8-bed observation unit; (3) relocated and expanded endoscopy services, including one additional procedure room; (4) a magnetic resonance imaging (“MRI”) unit and certain relocated radiology services; and (5) shell space for future build out to accommodate clinical services; and (B) other renovation projects to improve existing services and facilities at the BWFH main campus (collectively, the “Proposed Project”). The total value of the Proposed Project based on the maximum capital expenditure is \$150,098,582. 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 February 20, 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, 6th Floor, Boston, MA 02108.

Jan 7

LEGAL NOTICES

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Public Announcement Concerning a Proposed Health Care Project

Mass General Brigham Incorporated (“Applicant”) located at 800 Boylston Street, Suite 1150, Boston, MA 02199 intends to file a Notice of Determination of Need (“Application”) with the Massachusetts Department of Public Health for a substantial capital expenditure and substantial change in service by The General Hospital Corporation d/b/a/ Massachusetts General Hospital (“MGH”) located at 55 Fruit Street, Boston, MA 02114. This Application includes the following: (A) construction of a new building that will contain the following: (1) 482 new private medical/surgical and intensive care unit (“ICU”) beds and with the corresponding closure of 388 existing semi-private beds, MGH will have a total of 94 additional licensed beds (54 additional medical/surgical; 40 additional ICU beds); (2) relocated and expanded outpatient oncology services; (3) 24 operating rooms; (4) two additional computed tomography (“CT”) units; (5) two additional magnetic resonance imaging (“MRI”) units; (6) two additional positron emission tomography-computed tomography (“PET/CT”) units; (7) one additional positron emission tomography-magnetic resonance (“PET/MR”) unit; and (B) other clinical services renovation projects at MGH’s main campus and licensed satellites (collectively, the “Proposed Project”). The total value of the Proposed Project based on the maximum capital expenditure is \$1,880,774,238. 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 February 20, 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, 6th Floor, Boston, MA 02108.

Jan 7

LEGAL NOTICES

LEGAL NOTICES

LEGAL NOTICES

PUBLIC ANNOUNCEMENT CONCERNING A PROPOSED HEALTH CARE PROJECT

Mass General Brigham Incorporated (“Applicant”) located at 800 Boylston Street, Suite 1150, Boston, MA 02199, intends to file an Application for Determination of Need (“Application”) with the Massachusetts Department of Public Health for a substantial change in service and substantial capital expenditure for the (i) construction and development of a freestanding ambulatory surgery center (“ASC”), clinic space, and the acquisition of 1 magnetic resonance imaging (“MRI”) unit and 1 computed tomography (“CT”) unit at 1400 West Park Drive, Westborough, MA 01581; (ii) construction and development of an ASC and the acquisition of 2 MRI units and 2 CT units at 100 Brigham Way, Westwood, MA 02090; and (iii) construction and development of an ASC, clinic space, and the acquisition of 2 MRI units and 2 CT units at 2 Hill Street, Woburn, MA 01801. The total value of the Proposed Project based on the maximum capital expenditure is \$223,724,658. 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 February 22, 2021, or 30 days from the filing date of the Application, whichever is later, by contacting the Department of Public Health, Determination of Need Program, 250 Washington Street, 4th Floor, Boston, MA 02108 or dph.don@state.ma.us.

Jan 7

PROBATE CITATIONS

PROBATE CITATIONS

Commonwealth of Massachusetts
The Trial Court Probate and Family Court
Suffolk Division
Docket No. SU20P2304EA
INFORMAL PROBATE PUBLICATION NOTICE
Estate of: Jeffrey T. Gauches
Date of Death: September 27, 2020 To all persons interested in the above captioned estate, by Petition of Petitioner Kathleen Gauches of South Glastonbury CT Kathleen Gauches of South Glastonbury CT has been informally appointed as the Personal Representative of the estate to serve without surety on the bond. The estate is being administered under informal procedure by the Personal Representative under the Massachusetts Uniform Probate Code without supervision by the Court. Inventory and accounts are not required to be filed with the Court, but interested parties are entitled to notice regarding the administration from the Personal Representative and can petition the Court in any matter relating to the estate, including distribution of assets and expenses of administration. Interested parties are entitled to petition the Court to institute formal proceedings and to obtain orders terminating or restricting the powers of Personal Representatives appointed under informal procedure. A copy of the Petition and Will, if any, can be obtained from the Petitioner.

Jan 7

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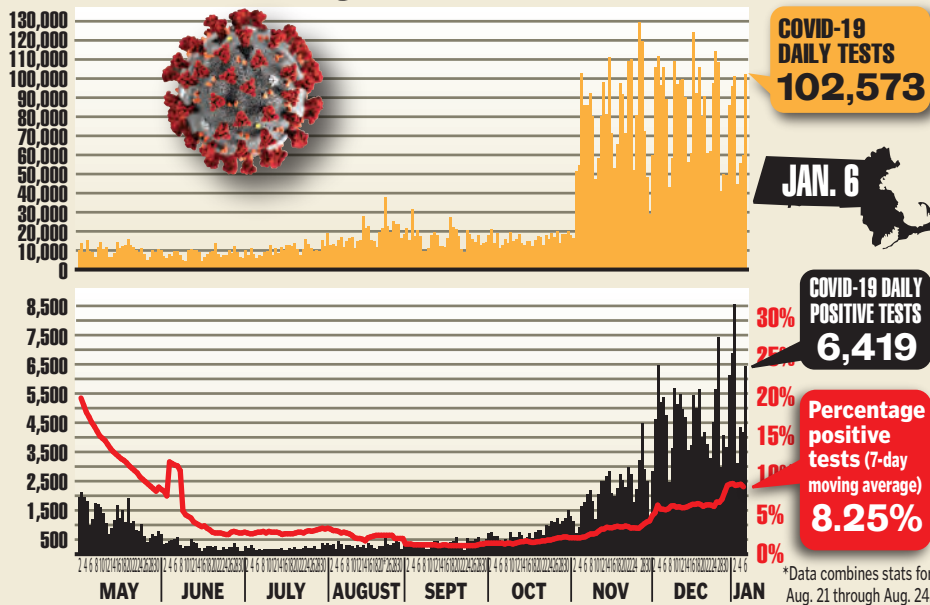
call 617-423-4545

THURSDAY, JANUARY 7, 2021

BOSTON HERALD

Virus tracking

Tracking coronavirus data in Massachusetts, according to daily reports from the state Department of Public Health.



Virus cases surge 6,419 — one of the highest single-day counts ever

By RICK SOBEY

Massachusetts health officials on Wednesday reported 99 new coronavirus deaths and 6,419 new cases, one of the highest single-day counts ever as cases surge in the wake of Christmas.

Wednesday's count of 6,419 cases comes after Tuesday's 4,178 cases and Monday's 4,358 cases. Last Thursday — the final day of 2020 — was the state's single-day record high of 6,887 new cases.

Wednesday's 99 new virus deaths and three new probable virus deaths bring the state's total COVID-19 death toll to 12,836. The seven-day average of daily deaths is now 51, a significant jump from 13 daily deaths in early October. The death average peaked with 175 daily deaths

in late April.

Of Massachusetts' 404,053 total recorded cases, at least 261,672 people have recovered. Health officials estimate there are 79,967 active cases across the state.

The seven-day weighted average of the state's positive test rate — removing higher education — has surged to 9.4%. The rate was 7.3% in the week before Christmas, and 1.7% at the start of September.

Statewide coronavirus hospitalizations on Wednesday went down by 12 patients, bringing the hospitalization total to 2,416.

The 2,416 patients is a significant increase from 436 patients at the start of November. The highest peak of Massachusetts' coronavirus hospitalizations was 3,965 on April 21.

Of the 12,836 total deaths in Massachusetts, 7,501 deaths have been reported in long-term care facilities.

The U.S. has recorded more than 359,000 coronavirus deaths and 21.2 million cases. The country's death toll and case count are the highest in the world.

CDC: Severe allergic reaction to vax is rare

By RICK SOBEY

Only 21 people out of the first 1.9 million recipients of the Pfizer coronavirus vaccine in the U.S. suffered a severe allergic reaction, the CDC reported Wednesday.

An anaphylaxis case after getting the Pfizer vax appears to be an extremely rare event, based on early safety monitoring, the Centers for Disease Control and Prevention said.

The majority of these severe allergic reactions (71%) happened within 15 minutes of receiving the shot.

Of the 21 anaphylaxis cases, 17 of the people have a documented history of allergies or allergic reactions, including to drugs or medical products, foods, and insect stings. Seven of the people had experienced an episode of anaphylaxis in the past, including one after getting a rabies vaccine and another after receiving an influenza (H1N1) vaccine.

Four of the patients were hospitalized, and 17 of the patients were treated in an

emergency department. No deaths from anaphylaxis were reported after receiving the Pfizer COVID-19 vaccine.

The allergic reaction data from the CDC comes after officials recently noted that the reactions could be tied to a chemical called polyethylene glycol, which is found in both the Pfizer and Moderna vaccines.

A Boston oncology doctor with a shellfish allergy experienced a severe allergic

reaction after he received Moderna's coronavirus vaccine at the end of December.

Because the FDA emergency use authorization for the Moderna COVID-19 vaccine was received one week later than the Pfizer vaccine, the CDC report on Wednesday focused on the Pfizer vaccine. An assessment of adverse events reported after receiving the Moderna COVID-19 vaccine will be forthcoming, the CDC said.

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Public Announcement Concerning a Proposed Health Care Project

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Public Announcement Concerning A Proposed Health Care Project

Mass General Brigham Incorporated ("Applicant") located at 800 Boylston Street, Suite 1150, Boston, MA 02199, intends to file an Application for Determination of Need ("Application") with the Massachusetts Department of Public Health for a substantial change in service and substantial capital expenditure for the (i) construction and development of a free standing ambulatory surgery center ("ASC"), clinic space, and the acquisition of 1 magnetic resonance imaging ("MRI") unit and 1 computed tomography ("CT") unit at 1400 West Park Drive, Westborough, MA 01581; (ii) construction and development of an ASC and the acquisition of 2 MRI units and 2 CT units at 100 Brigham Way, Westwood, MA 02090; and (iii) construction and development of an ASC, clinic space, and the acquisition of 2 MRI units and 2 CT units at 2 Hill Street, Woburn, MA 01801. The total value of the Proposed Project based on the maximum capital expenditure is \$223,724,658. 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 February 22, 2021, or 30 days from the filing date of the Application, whichever is later, by contacting the Department of Public Health, Determination of Need Program, 250 Washington Street, 4th Floor, Boston, MA 02108 or dph.don@state.ma.us.

Public Announcement Concerning a Proposed Health Care Project

Mass General Brigham Incorporated ("Applicant") located at 800 Boylston Street, Suite 1150, Boston, MA 02199 intends to file a Notice of Determination of Need ("Application") with the Massachusetts Department of Public Health for a substantial capital expenditure and substantial change in service by Brigham and Women's Faulkner Hospital ("BWFH") located at 1153 Centre Street, Boston, MA 02130. This Application includes the following: (A) construction of a 5-story addition to BWFH's existing hospital facility that will contain the following: (1) 78 additional medical/surgical beds; (2) an 8-bed observation unit; (3) relocated and expanded endoscopy services, including one additional procedure room; (4) a magnetic resonance imaging ("MRI") unit and certain relocated radiology services; and (5) shell space for future build out to accommodate clinical services; and (B) other renovation projects to improve existing services and facilities at the BWFH main campus (collectively, the "Proposed Project"). The total value of the Proposed Project based on the maximum capital expenditure is \$150,098,582. 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 February 20, 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, 6th Floor, Boston, MA 02108.

Appendix 9

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

Esther Kim
Partners HealthCare System, Inc.
800 Boylston Street, 11TH Floor
Boston, MA 02199

RE: ACO Certification

Dear Ms. Kim:

Congratulations! The Health Policy Commission (HPC) is pleased to inform you that Partners HealthCare System 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. Partners HealthCare System meets those criteria.

The HPC will promote Partners HealthCare System 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,

A handwritten signature in blue ink, appearing to read "David Seltz".

David Seltz
Executive Director

Appendix 10

Articles of Organization

The Commonwealth of Massachusetts

OFFICE OF THE MASSACHUSETTS SECRETARY OF STATE

MICHAEL J. CONNOLLY, Secretary

ONE ASHBURTON PLACE, BOSTON, MASSACHUSETTS 02108

ARTICLES OF ORGANIZATION

(Under G.L. Ch. 180)

ARTICLE I

The name of the corporation is:

MGH/BRIGHAM HEALTH CARE SYSTEM, INC.

ARTICLE II

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

- (i) To organize, operate and support a comprehensive health care system, including without limitation hospital and other health care services for all persons, and education and research for the prevention, diagnosis, treatment and cure of all forms of human illness: (ii) to improve the health and welfare of all persons: (iii) to operate for the benefit of and to support The Massachusetts General Hospital, The Brigham Medical Center, Inc., their respective affiliated corporations and such other charitable, scientific or educational organizations which are or are affiliated with teaching hospitals in the Greater Boston Area: and (iv) to carry on any other activity that may lawfully be carried on by a corporation formed under Chapter 180 of the Massachusetts General Laws which is exempt under section 501(c)(3) of the Internal Revenue Code.

93-349060

C ☐
P ☒
M ☐
R.A. ☐

P.C.

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

ARTICLE III

If the corporation has one or more classes of members, 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 designation of classes of members, if any, the manner of election or appointment, the term of office, and the qualifications and rights of members are set forth in the by-laws of the Corporation.

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 Continuation Sheets IV-A through IV-D attached hereto and incorporated herein by reference.

* 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.

MGH/BRIGHAM HEALTH CARE SYSTEM, INC.

IV. Other Lawful Provisions for Conduct and Regulation of the Business and Affairs of the Corporation, for its Voluntary Dissolution, and for Limiting, Defining and Regulating the Powers of the Corporation and of its Trustees and Members.

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 which would deprive it of exemption from federal income tax as an organization described in Section 501(c)(3) of the Internal Revenue Code.

4.2. The by-laws may authorize the trustees to make, amend or repeal the by-laws in whole or in part, except with respect to any provision thereof which by law, the articles of organization or the by-laws requires action by the members.

4.3. Meetings of the members may be held anywhere in the United States.

4.4. No trustee or officer of the corporation shall be personally liable to the corporation or its members for monetary damages for breach of fiduciary duty as such trustee 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 members, trustees or officers, or who serves at its request as a member, 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 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, to the extent that such matter relates to service at the request of the corporation for another organization or an employee benefit plan, 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; or (c) by a majority of the disinterested members entitled to vote, voting as a single class.

(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" member, 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, officer or member of this corporation, or any concern in which any such trustee, officer or member 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, member 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 either (i) by a majority of the trustees who are not so interested and to whom the nature of such interest has been disclosed, or (ii) by vote of a majority of each class of members of the corporation entitled to vote for trustees, at any meeting of members the notice of which, or an accompanying statement, summarizes the nature of such transaction and such interest. No interested trustee or member 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, director, 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 avoided by reason of any provisions of this paragraph 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 member, officer or trustee of the corporation or any individual; 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 as an organization described in 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 by-laws 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 pursuant to Massachusetts General Laws, Chapter 180, Section 11A, to The Massachusetts General Hospital and The Brigham Medical Center, Inc. if exempt from taxation as organizations described in Section 501(c)(3) of the Internal Revenue Code or, if both are not, to one or more organizations with similar purposes and similar tax exemption.

4.10. 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.

MGH/BRIGHAM HEALTH CARE SYSTEM, INC.

Continuation Sheet VII(b)

	Name	Residence or Post Office Address
<u>Officers</u>		
Vice-President	J. Robert Buchanan, M.D.	25 Commonwealth Avenue Boston, MA 02116.
President	H. Richard Nesson, M.D.	565 Boylston Street Brookline, MA 02146
Treasurer	Richard A. Spindler	210 Schoolmaster Lane Dedham, MA 02026
Clerk	David M. Donaldson	22 Weston Road Lincoln Center, MA 01773
<u>Trustees</u>		
	W. Gerald Austen, M.D.	163 Wellesley Street Weston, MA 02193
	Eugene Braunwald, M.D.	75 Scotch Pine Road Weston, MA 02193
	J. Robert Buchanan, M.D.	25 Commonealth Avenue Boston, MA 02116
	Francis H. Burr	44 Prince Street Beverly, MA 01915
	Ferdinand Colloredo-Mansfeld	Winthrop Street Hamilton, MA 01982

MGH/BRIGHAM HEALTH CARE SYSTEM, INC.

Continuation Sheet VII(b)

Name	Residence or Post Office Address
John H. McArthur	Fowler 10 Soldiers Field Boston, MA 02134
H. Richard Nesson, M.D.	565 Boylston Street Brookline, MA 02146
Richard A. Spindler	210 Schoolmaster Lane Dedham, MA 02026

ARTICLE V

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 below, have been duly elected.

ARTICLE VI

The effective date of organization of the corporation shall be the date of filing with the Secretary of the Commonwealth or if a later date is desired, specify date, (not more than 30 days after date of filing).

The information contained in ARTICLE VII is NOT a PERMANENT part of the Articles of Organization and may be changed ONLY by filing the appropriate form provided therefor.

ARTICLE VII

a. The post office address of the initial principal office of the corporation IN MASSACHUSETTS is:

c/o Ropes & Gray, One International Place, Boston, MA 02110

b. The name, residence and post office address of each of the initial directors and following officers of the corporation are as follows:

NAME	RESIDENCE	POST OFFICE ADDRESS
------	-----------	---------------------

President: See Continuation Sheet VII(b) attached hereto and incorporated herein by reference.

Treasurer:

Clerk:

Directors: (or officers having the powers of directors).

NAME	RESIDENCE	POST OFFICE ADDRESS
------	-----------	---------------------

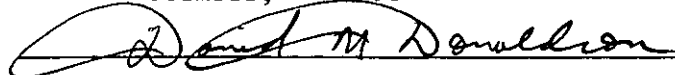
See Continuation Sheet VII(b) attached hereto and incorporated herein by reference.

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 of the corporation, if any, is:

I/We the below-signed INCORPORATORS 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 principal 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 names 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 9th day of December, 19 93



David M. Donaldson

Ropes & Gray
One International Place
Boston, MA 02110

NOTE: If an already-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 STATE
RECEIVED

1993 DEC 15 PM 1:39

CORPORATION DIVISION

449104

THE COMMONWEALTH OF MASSACHUSETTS

ARTICLES OF ORGANIZATION
GENERAL LAWS, CHAPTER 180

I hereby certify that, upon an examination of the within-written 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 \$35.00 having been paid, said articles are deemed to have been filed with me this 15TH day of December 1993.

Effective date

Michael Joseph Connolly

MICHAEL J. CONNOLLY
Secretary of State

A PHOTOCOPY OF THESE ARTICLES OF ORGANIZATION SHALL BE
RETURNED

TO: David M. Donaldson, Esq.

Ropes & Gray

One International Place, Boston, MA 02110

Telephone: (617) 951-7250

The Commonwealth of Massachusetts

MICHAEL J. CONNOLLY

Secretary of State

ONE ASHBURTON PLACE, BOSTON, MASS. 02108

FEDERAL IDENTIFICATION

NO. 000449109

ARTICLES OF AMENDMENT

General Laws, Chapter 180, Section 7

This certificate must be submitted to the Secretary of the Commonwealth within sixty days after the date of the vote of members or stockholders adopting the amendment. The fee for filing this certificate is \$15.00 as prescribed by General Laws, Chapter 180, Section 11C(b). Make check payable to the Commonwealth of Massachusetts.

H. Richard Nesson
We, David M. Donaldson

, President/~~Vice President~~ and
Clerk/~~Assistant Clerk~~ of

MGH/BRIGHAM HEALTH CARE SYSTEM, INC.

(Name of Corporation)

located at One International Place, Boston, MA 02110

do hereby certify that the following amendment to the articles of organization of the corporation was duly adopted at a meeting held on March 14, 1994, by vote of all members/

[illegible]

That the Articles of Organization of this corporation be and they hereby are amended to change the name of the corporation to "Partners HealthCare System, Inc."

Note: If the space provided under any article or item on this form is insufficient, additions shall be set forth on separate 8 1/4 x 11 sheets of paper leaving a left hand margin of at least 1 inch for binding. Additions to more than one article may be continued on a single sheet so long as each article requiring each such addition is clearly indicated.

The foregoing amendment will become effective when these articles of amendment are filed in accordance with Chapter 180, Section 7 of the General Laws 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.

IN WITNESS WHEREOF AND UNDER THE PENALTIES OF PERJURY, we have hereto signed our names this
18th day of March, in the year 1994

H. Richard Vesson

President/~~President~~

David M. Donelson

Clerk/~~Clerk~~

459052

SECRETARY OF STATE
RECEIVED

1994 MAR 18 PM 4:10

CORPORATION DIVISION

THE COMMONWEALTH OF MASSACHUSETTS

ARTICLES OF AMENDMENT

(General Laws, Chapter 180, Section 7)

I hereby approve the within articles of amendment
and, the filing fee in the amount of \$ 15
having been paid, said articles are deemed to have been
filed with me this 18th
day of March, 1994

Michael Joseph Connolly

MICHAEL J. CONNOLLY

Secretary of State

TO BE FILLED IN BY CORPORATION
PHOTO COPY OF AMENDMENT TO BE SENT

TO:

John E. Beard

Raper & Gray

One International Place, Boston 02110

Telephone

617-951-7411

Copy Mailed

The Commonwealth of Massachusetts

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

012
015

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

Examiner
PD

Name
Approved

We, Samuel O. Thier, M.D., *President / ~~xxxx President~~
and Ernest M. Haddad, Secretary / ~~xxxx Assistant Clerk~~
of Partners HealthCare System, Inc.
(Exact name of corporation)
located at 800 Boylston Street, Suite 1150, Boston, MA 02199
(Address of corporation in Massachusetts)

do hereby certify that these Articles of Amendment affecting articles numbered:
II and IV
(Number those articles 1, 2, 3, and/or 4 being amended)
of the Articles of Organization were duly adopted at a meeting held on May 4 1998, by vote of:
277 members, ~~xxxxxxxxxxxxxxxxxxxx directors, or xxxxxxxxxxxxxxxxxxxx shareholders~~

being at least two-thirds of its members/directors legally qualified to vote in meetings of the corporation ~~(or xxx
members/directors holding or representing by the holders of at least two-thirds of the capital stock having the
right to vote thereon)~~

1. Delete Article II and insert in place thereof the following:

Article II

(i) To organize, operate and support a comprehensive health care system, including without limitation hospital and other health care services for all persons, and education and research for the prevention, diagnosis, treatment and cure of all forms of human illness: (ii) to improve the health and welfare of all persons: (iii) to operate for the benefit of and to support The Massachusetts General Hospital, The Brigham Medical Center, Inc., The North Shore Medical Center, Inc., their respective affiliated corporations, such other hospitals, charitable, scientific or educational organizations, and their affiliated corporations that become affiliated with Partners HealthCare System, Inc.

C ☐
P ☐
M ☐
R.A. ☐

*Delete the inapplicable words.
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.

(collectively, the "Partners Affiliated Corporations") and such other charitable, scientific or educational organizations which are or are affiliated with teaching hospitals in the Greater Boston Area; and (iv) to carry on any other activity that may lawfully be carried on by a corporation formed under Chapter 180 of the Massachusetts General Laws which is exempt under Section 501(c)(3) of the Internal Revenue Code; and in furtherance of the foregoing purposes to:

(a) Serve as the controlling and coordinating organization for the Partners Affiliated Corporations in order to assure the consistency and appropriateness of their respective missions, activities, governance and administration;

(b) Solicit and receive devises of real property and grants, donations and bequests of money and other property to be used to further the foregoing purposes and those of the Partners Affiliated Corporations; and

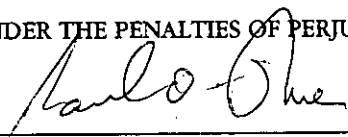
(c) Support the Partners Affiliated Corporations by loan, lease or donation of funds or other assets, by guaranty of obligations or by other action.

2. Delete Section 4.5. of Article IV.

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.

~~XXXXXX~~

SIGNED UNDER THE PENALTIES OF PERJURY, this 29TH day of MAY, 1998,



, *President ~~XXXXXX~~



Secretary

~~XXXXXX~~

THE COMMONWEALTH OF MASSACHUSETTS

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

I hereby approve the within Articles of Amendment and, the filing fee in
the amount of \$ 1500 having been paid, said articles are deemed
to have been filed with me this 2ND day of JUNE
19 98.

Effective date: _____



WILLIAM FRANCIS GALVIN
Secretary of the Commonwealth

TO BE FILLED IN BY CORPORATION
Photocopy of document to be sent to:

Ernest M. Haddad, Esq.

Partners HealthCare System, Inc.

800 Boylston Street, Ste. 1150

Boston, MA 02199

Telephone: (617) 278-1065

SECRETARY OF
THE COMMONWEALTH

98 JUN -2 AM 9:52

829710

The Commonwealth of Massachusetts

William Francis Galvin

Secretary of the Commonwealth

One Ashburton Place, Boston, Massachusetts 02108-1512

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

042

Examiner

Name _____
Approved _____

We, Samuel O. Thier, M.D., President / Vice President

and Ernest M. Haddad _____ Secretary
Clerk/Cashier/Clerk

of Partners HealthCare System, Inc.

(Exact name of corporation)

located at 800 Boylston Street, Suite 1150, Boston, MA 02199

(Address of corporation in Massachusetts)

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

II

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

of the Articles of Organization were duly adopted at a meeting held on May 3 19 99, by vote of:

293 members, xxxxxxxxxxxxxxxxxxxxxxxxxx directors, or xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx shareholders.

being at least two-thirds of its members/directors legally qualified to vote in meetings of the corporation (X), 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 thereon (X)

Delete Article II and insert in place thereof the following:

Article II

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

(i) To organize, operate, coordinate and support a comprehensive integrated health care delivery system (the “System”) that provides, without limitation, hospital, physician and other health care services for all persons and education and research for the prevention, diagnosis, treatment and cure of all forms of human illness; (ii) to improve the health and welfare of all persons; (iii) to serve as the controlling and coordinating organization for the System and its member institutions and entities including Brigham and Women’s/Faulkner Hospitals, Inc., The Massachusetts General Hospital, The North Shore Medical Center, Inc., Newton-Wellesley Health Care System, Inc., and such other hospital, physician, charitable, scientific, educational,

**Delete the inapplicable words.*

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.

C	<input type="checkbox"/>
P	<input type="checkbox"/>
M	<input type="checkbox"/>
R.A.	<input type="checkbox"/>

P.C.

660922

THE COMMONWEALTH OF MASSACHUSETTS

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

I hereby approve the within Articles of Amendment and, the filing fee in the amount of \$ 15.00 having been paid, said articles are deemed to have been filed with me this 26th day of May 19 99.

Effective date: _____



WILLIAM FRANCIS GALVIN
Secretary of the Commonwealth

TO BE FILLED IN BY CORPORATION
Photocopy of document to be sent to:

Mary LaLonde

Partners HealthCare System

Office of the General Counsel

50 Staniford St., 10th floor

Boston, MA 02114

Telephone: 617-726-5315

99 MAY 26 AM 9:24

RECORDED & INDEXED



The Commonwealth of Massachusetts
William Francis Galvin

Minimum Fee: \$15.00

Secretary of the Commonwealth, Corporations Division
One Ashburton Place, 17th floor
Boston, MA 02108-1512
Telephone: (617) 727-9640

Articles of Amendment

(General Laws, Chapter 180, Section 7)

Identification Number: 043230035

We, BRENT L. HENRY ___ President ☒ Vice President,

and MARY C. LALONDE ___ Clerk ☒ Assistant Clerk ,

of PARTNERS HEALTHCARE SYSTEM, INC.

located at: 800 BOYLSTON ST., SUITE 1150 BOSTON , MA 02199 USA

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

___ Article 1

☒ Article 2

___ Article 3

___ Article 4

(Select those articles 1, 2, 3, and/or 4 that are being amended)

of the Articles of Organization were duly adopted at a meeting held on 4/19/2016 , by vote of: 197 members, 0 directors, or 0 shareholders,

being at least two-thirds of its members/directors legally qualified to vote in meetings of the corporation (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 I

The exact name of the corporation, **as amended**, is:
(Do not state Article I if it has not been amended.)

ARTICLE II

The purpose of the corporation, **as amended**, is to engage in the following business activities:
(Do not state Article II if it has not been amended.)

THE PURPOSE OF THE CORPORATION IS TO ENGAGE IN THE FOLLOWING ACTIVITIES: (I) TO ORGANIZE, OPERATE, COORDINATE AND SUPPORT A COMPREHENSIVE INTEGRATED HEALTH CARE DELIVERY SYSTEM (THE "SYSTEM") THAT PROVIDES, WITHOUT LIMITATION, HOSPITAL, PHYSICIAN AND OTHER HEALTH CARE SERVICES FOR ALL PERSONS AND EDUCATION AND RESEARCH FOR THE PREVENTION, DIAGNOSIS, TREATMENT AND CURE OF ALL FORMS OF HUMAN ILLNESS; (II) TO IMPROVE THE HEALTH AND WELFARE OF ALL PERSONS AND TO CONDUCT AND SUPPORT EDUCATION, RESEARCH AND OTHER ACTIVITIES RELATING THERE TO, (III) TO SERVE AS THE CONTROLLING AND COORDINATING ORGANIZATION FOR THE SYSTEM AND ITS MEMBER INSTITUTIONS AND ENTITIES INCLUDING BRIGHAM AND WOMEN'S HEALTH CARE, INC., THE MASSACHUSETTS GENERAL HOSPITAL, NSMC HEALTHCARE, INC., NEWTON WELLESLEY HEALTH CARE SYSTEM, INC., PARTNERS COMMUNITY PHYSICIANS ORGANIZATION, INC., PARTNERS CONTINUING CARE, INC., NEIGHBORHOOD HEALTH PLAN, INC. AND SUCH OTHER HOSPITAL, PHYSICIAN, CHARITABLE, SCIENTIFIC, E

DUCATIONAL, RESEARCH AND OTHER INSTITUTIONS AND ENTITIES THAT ARE CONTROLL
ED, DIRECTLY OR INDIRECTLY, THROUGH SOLE CORPORATE MEMBERSHIP, STOCK OWNER
SHIP OR OTHERWISE, BY THE CORPORATION (COLLECTIVELY, THE "AFFILIATED ORGANIZ
ATIONS"); (IV) TO ASSIST AND SUPPORT THE AFFILIATED ORGANIZATIONS IN FULFILLING
THEIR RESPECTIVE PURPOSES, MISSIONS AND OBJECTIVES IN A MANNER CONSISTENT WI
TH THE PURPOSES, MISSIONS AND OBJECTIVES OF THE CORPORATION AND THE SYSTEM;
AND (V) TO CARRY ON ANY OTHER ACTIVITY THAT MAY LAWFULLY BE CARRIED ON BY A
CORPORATION FORMED UNDER CHAPTER 180 OF THE MASSACHUSETTS GENERAL LAWS
WHICH IS EXEMPT UNDER SECTION 501(C)(3) OF THE INTERNAL REVENUE CODE; AND IN F
URTHERANCE OF THE FOREGOING PURPOSES TO: (A) SOLICIT AND RECEIVE DEVICES OF R
EAL PROPERTY AND GRANTS, DONATIONS AND BEQUESTS OF MONEY AND OTHER PROPE
RTY TO BE USED TO FURTHER THE FOREGOING PURPOSES; AND (B) SUPPORT THE AFFILIAT
ED ORGANIZATIONS BY LOAN, LEASE OR DONATION OF FUNDS OR OTHER ASSETS; AND
(C) SUPPORT THE AFFILIATED ORGANIZATIONS BY GUARANTY OF THE OBLIGATIONS OF T
HE AFFILIATED ORGANIZATIONS OR BY OTHER ACTION.

ARTICLE III

A corporation may have one or more classes of members. ***As amended***, the designation of such classes, the manner of election or appointments, the duration of membership and the qualifications 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:

ARTICLE IV

As amended, 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 business entity, or of its directors or members, or of any class of members, are as follows:
(If there are no provisions state "NONE")

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 20 Day of April, 2016, BRENT L. HENRY , its ,
President / Vice President,
MARY C. LALONDE , Clerk / Assistant Clerk.**

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:

April 20, 2016 04:09 PM

A handwritten signature in black ink, reading "William Francis Galvin". The signature is written in a cursive, flowing style with a large initial 'W' and 'G'.

WILLIAM FRANCIS GALVIN

Secretary of the Commonwealth

IDENTIFICATION

no. 04-3230035

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

Name
Approved**ARTICLES OF AMENDMENT**
(General Laws, Chapter 180, Section 7)We, Anne Klibanski, M.D., *President / *Vice President,and Maureen Goggin, *Clerk / *Assistant Clerk,of Partners HealthCare System, Inc.,
(Exact name of corporation)located at 800 Boylston Street, Suite 1150, Boston, Massachusetts 02199,
(Address of corporation in Massachusetts)

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

I, II and IV

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

of the Articles of Organization were duly adopted at a meeting held on April 21, 2020, by vote of:347 members, _____ 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.

Delete Articles I, II and IV in their entirety and insert in place thereof the following:

Article I

The name of the corporation is:
Mass General Brigham IncorporatedC ☐
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.

Article II

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

2.1 To organize, operate, direct and coordinate a comprehensive, integrated healthcare delivery system comprising hospital, physician and other healthcare provider organizations, managed care and other health insurance organizations and other charitable, scientific, educational, research and community organizations (i) that are controlled directly or indirectly by the corporation (collectively, the "Affiliated Organizations") and (ii) with which the corporation and the Affiliated Organizations collaborate through clinical and care management, research and other affiliations and contractual arrangements (the "Collaborative Organizations").

2.2 To promote, sponsor, support, conduct and/or provide, either alone or in conjunction with the Affiliated Organizations and/or the Collaborative Organizations, (i) healthcare services to improve the health and welfare of all persons, regardless of their ability to pay; (ii) research for the prevention, diagnosis, treatment and cure of all forms of human illness; (iii) education and training for physicians and other healthcare providers; and (iv) programs and services that address the healthcare needs of the communities served by the corporation, the Affiliated Organizations and/or the Collaborative Organizations.

2.3 To assist and support the Affiliated Organizations and the Collaborative Organizations in fulfilling their respective missions and purposes including, without limitation, by lending, leasing and donating funds and other assets to, and by guaranteeing the obligations of, the Affiliated Organizations and/or the Collaborative Organizations.

2.4 To engage in any activity that may be lawfully carried on by a corporation that is formed under Chapter 180 of the Massachusetts General Laws ("MGL") and that is exempt from federal income tax under Section 501(a) of the Internal Revenue Code ("IRC") as an organization described in Section 501(c)(3) of the IRC.

Article IV

4.1. The corporation shall have in furtherance of its corporate purposes all of the powers specified in Section 6 of MGL Chapter 180 and in Sections 9 and 9A of MGL Chapter 156B (except those powers described in paragraph (m) of said Section 9). The corporation may carry on any operation or activity referred to in Article II of these Articles of Organization to the same extent as might an individual, either alone or in a partnership or 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 by the corporation in a manner inconsistent with MGL Chapter 180 or any other chapter of the MGL or with exemption from federal income tax under Sections 501(a) and 501(c)(3) of the IRC.

4.2. The bylaws of the corporation (the "Bylaws") may authorize the Board of Directors to make, amend or repeal the Bylaws in whole or in part, except with respect to any provision thereof which by law, these Articles of Organization or the Bylaws requires action by the members.

4.3. To the fullest extent permitted under Section 3 of MGL Chapter 180, no director or officer of the corporation shall be personally liable to the corporation or its members for monetary damages for breach of fiduciary duty as a director or officer notwithstanding any provision of law imposing such liability.

4.4. The corporation shall have the power to indemnify to the extent specified in the Bylaws (i) its members, directors, officers, employees, agents and volunteers, (ii) persons who serve at its request as a member, director, trustee or officer of another organization and (iii) persons who serve on its behalf in any capacity with respect to any employee benefit plan; provided that any such indemnity shall be limited to the extent necessary to protect the corporation's status as exempt from federal income tax under Sections 501(a) and 501(c)(3) of the IRC.

4.5. No part of the net assets or net earnings of the corporation shall inure to the benefit of, or be distributable to, any member, director, officer or employee of the corporation or to any other person; provided that the corporation shall be authorized and empowered (i) to pay reasonable compensation for services actually rendered and (ii) to make payments and distributions in furtherance of the corporation's purposes set forth in Article II hereof.

4.6 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 IRC. The corporation shall not participate or intervene (including the publishing or distributing of statements) in any political campaign on behalf of (or in opposition to) any candidate for public office.

4.7 It is intended that the corporation shall be entitled to exemption from federal income tax under Section 501(c)(3) of the IRC and shall not be a private foundation under Section 509(a) of the IRC. However, during any period of time in which the corporation is, or is deemed to be, a private foundation (as that term is defined in Section 509 of the IRC), notwithstanding any other provisions of these Articles of Organization or the Bylaws, the corporation shall at all times conduct its affairs as follows:

(i) 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 IRC; and

(ii) the corporation shall not (1) engage in any act of self-dealing (as defined in Section 4941(d) of the IRC); (2) retain any excess business holdings (as defined in Section 4943(c) of the IRC); (3) make any investments in such manner as to subject the corporation to tax under Section 4944 of the IRC; or (4) make any taxable expenditures (as defined in Section 4945(d) of the IRC).

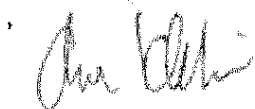
4.8 Upon the liquidation or dissolution of the corporation, after having paid (or made due provision for) all of the liabilities of the corporation, all of the remaining assets of the corporation shall be distributed pursuant to Section 11A of MGL Chapter 180 to Brigham Health, Inc. ("BH") (if at such time BH is exempt from federal income tax under Sections 501(a) and 501(c)(3) of the IRC) and to The Massachusetts General Hospital ("MGH") (if at such time MGH is exempt from federal income tax under Sections 501(a) and 501(c)(3) of the IRC); or, if at such time neither BH nor MGH is so exempt, such distributions shall be made to one or more of the Affiliated Organizations that are then exempt from federal income tax under Sections 501(a) and 501(c)(3) of the IRC.

4.9. All references herein (i) to the IRC or to any section thereof shall be deemed to refer to the IRC of 1986 as now in force or hereafter amended, or to the corresponding provisions of any subsequent federal income tax laws; and (ii) to the MGL or to any chapter or section thereof shall be deemed to refer to said MGL as now in force or hereafter amended, or to the corresponding provisions of any subsequent Massachusetts laws.

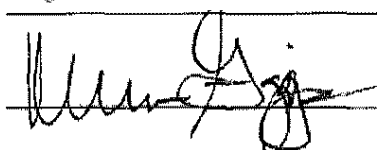
The foregoing amendment(s) will become effective when these Articles of Amendment are filed in accordance with General Laws, Chapter 180, Section 7 unless these articles specify, in accordance with the vote adopting the amendment, a *later* effective date not more than *thirty* days after such filing,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

Later effective date: May 1, 2020

SIGNED UNDER THE PENALTIES OF PERJURY, this 22nd day of April, 2020



, *President / *Vice President,



, *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:

April 23, 2020 04:14 PM

A handwritten signature in black ink, reading "William Francis Galvin". The signature is written in a cursive style with a large, stylized initial 'W'.

WILLIAM FRANCIS GALVIN

Secretary of the Commonwealth

Appendix 11

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: MGB-20121612-HE

Original Application Date: 01/21/2021

Applicant Name: Mass General Brigham Incorporated

Application Type: Hospital/Clinic Substantial Capital Expenditure

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~~^{*} 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~~^{*} this application for Determination of Need including all exhibits and attachments, and ~~certify 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~~^{**} 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);
10. Pursuant to 105 CMR 100.210(A)(3), I certify 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;~~
11. I have ~~read~~^{*} 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 that the Applicant has Sufficient Interest in the Site or facility; and
14. Pursuant to 105 CMR 100.705(A), I certify 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 ame

Anne Klibanski, MD

CEO for Corporation Name:

Signature:

01/12/2021

Date

Scott M. Sperling

Board Chair for Corporation Name:

Signature:

Date

*been informed of the contents of

**have been informed that

***issued in compliance with 105 CMR 100.00, the Massachusetts Determination of Need Regulation effective January 27, 2017 and amended December 28, 2018



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: MGB-20121612-HE

Original Application Date: 01/21/2021

Applicant Name: Mass General Brigham Incorporated

Application Type: Hospital/Clinic Substantial Capital Expenditure

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~~^{*} 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~~^{*} this application for Determination of Need including all exhibits and attachments, and ~~certify 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~~^{**} 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);
10. Pursuant to 105 CMR 100.210(A)(3), I certify 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;~~
11. I have ~~read~~^{*} 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 that the Applicant has Sufficient Interest in the Site or facility; and
14. Pursuant to 105 CMR 100.705(A), I certify 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

Anne Klibanski, MD

CEO for Corporation Name:

Signature:

Date

Scott M. Sperling

Board Chair for Corporation Name:

Signature:

01/12/2021

Date

*been informed of the contents of

**have been informed that

***issued in compliance with 105 CMR 100.00, the Massachusetts Determination of Need Regulation effective January 27, 2017 and amended December 28, 2018

Appendix 12

Filing Fee

DATE 01/11/2021				CHECK NO 0006300805	
VOUCHER INVOICE NUMBER	INVOICE DATE	PO NUMBER	GROSS AMOUNT	DISCOUNT	NET AMOUNT
30861265 FILING-FEES-12312020	12/31/2020		3,761,548.48	0.00	3,761,548.48
Please contact me when check is ready and I will have to pick up the c					
MM Client Services (617) 726-2142			TOTAL AMOUNT	DISCOUNT	NET AMOUNT
			3,761,548.48	0.00	3,761,548.48

To Remove Document Fold and Tear Along This Perforation

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT. CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM.

PARTNERS
HealthCare

Bank of America, N.A.
South Portland, ME

52-153
112 ME

DATE
01/11/2021

AMOUNT
\$3,761,548.48

PAY **Three Million Seven Hundred Sixty-One Thousand Five Hundred Forty-Eight and 48/100 DOLLARS**

TO THE ORDER OF **COMMONWEALTH OF MASSACHUSETTS
DEPT OF PUBLIC HEALTH, 250 WASHINGTON STREET
EXECUTIVE OFFICE OF HEALTH AND HUMAN SERVICES
BOSTON MA**

Peter K. Marshall

AUTHORIZED SIGNATURE
VOID IF NOT CASHED WITHIN 90 DAYS

See Reverse Side For Easy Opening Instructions

PARTNERS P.O. Box 9127
Boston, MA 02129-9127

COMMONWEALTH OF MASSACHUSETTS
DEPT OF PUBLIC HEALTH, 250 WASHINGTON STREET
EXECUTIVE OFFICE OF HEALTH AND HUMAN SERVICES
BOSTON MA 02108