

MASSACHUSETTS EYE AND EAR INFIRMARY

**APPLICATION FOR DETERMINATION OF NEED
FOR EXPANSION OF MAGNETIC RESONANCE
IMAGING**

JANUARY 24, 2017

BY

**MASSACHUSETTS EYE AND EAR INFIRMARY
243 CHARLES STREET
BOSTON, MA 02114**

A. DoN Application

INTRODUCTION

The purpose of the Massachusetts Determination of Need Application Kit is twofold. First, it is to provide applicants with a clear indication of the nature, scope and depth of preparations expected of them. Second, it is to provide DoN Program staff, as well as the Public Health Council, with the information necessary for fair and thorough evaluations. The kit should contribute to the speed, consistency, and predictability of reviews while increasing public involvement.

It should be noted that many of the questions presented in this kit are organized according to the factors found in 105 CMR 100.533. The questions listed under individual factors in the kit are intended to assist applicants and reviewers by gathering relevant information in a structured and convenient manner. Although questions are grouped by factors, the completed application will be viewed and evaluated in its entirety. Questions have been categorized in order to avoid unnecessary repetition of data requests rather than to limit the use of specific information to the evaluation of any particular factor or factors.

Since no general kit can be exhaustive in its data requests, it will remain the responsibility of applicants to provide all necessary information. Currently, it is often necessary for reviewers to request information not supplied in an applicant's original submission. Use of this kit is expected to substantially reduce, although not eliminate, the need for additional data requests. Statutory and regulatory changes may take place from time to time and may not be reflected in this kit. It is the duty of the applicant to be cognizant of such changes and to file an application consonant with such changes.

GENERAL INSTRUCTIONS

Enclosed is an application form for Determination of Need. In order to complete this form, it is necessary to read and comply with the Massachusetts Determination of Need Regulation 105 CMR 100.000. An unofficial version of the regulation may be found online at the DoN website (www.mass.gov/dph/don) or the official version may be obtained from the State House Bookstore, Boston, MA 02133, Telephone: (617) 727-2834 (<http://www.sec.state.ma.us/spr/sprcat/catidx.htm>).

Assistance in preparing applications is available from the Determination of Need Staff (617-624-5690).

CONTENTS OF APPLICATION

Please refer to 105 CMR 100.300-100.303 and 105 CMR 100.320-100.326 regarding the required contents of the application.

Please note that 105 CMR 100.350-100.354 substantially limits the right of applicants to alter applications or to provide additional information after an application has been submitted. Therefore, applicants should not file an application unless and until all important information is included.

Please note that if a filing fee is required (See 105 CMR 100.323) it must be submitted with the application, by check, payable to the **"Commonwealth of Massachusetts."**

Please see 105 CMR 100.306 which requires documentation as to ownership and zoning. Such documentation need only be submitted with the original copy and referenced in succeeding copies.

Newspaper Notice: Every applicant for Determination of Need is required to publish a notice of application, as prescribed in 105 CMR 100.330-100.332, in the legal notice section of the appropriate newspaper and an identical notice at least once in some other section as well. Refer to the regulation for details of publication. Please note that the final day to request a public hearing or to register as a ten taxpayer group (following the publication) must be on a business day. Please attach a true copy of the notices of publication with date of publication, as required under the above-referenced section, immediately after page 3 of general instructions.

No application will be accepted if the requirements of 105 CMR 100.306 and 100.320-100.326 are not met, and no application will be accepted if all relevant parts of the application kit are not complete.

PLEASE NOTE: The Determination of Need application kit asks applicants, in some cases, to supply answers on additional sheets. Where additional sheets are used, they should be clearly labeled with the factor name, question number (and page number) to which they pertain.

GENERAL INSTRUCTIONS

DISTRIBUTION OF COPIES

(105 CMR 100.300) Applicants must submit one complete original hard copy and one electronic copy in PDF format (or one original and two additional hard copies) to:

Department of Public Health
Determination of Need Program
99 Chauncy Street
Boston, MA 02111
Dph.don@massmail.state.ma.us

Applicants must also submit one hard copy (or electronic copy in PDF format) to the offices listed below. An updated list of contact persons with phone numbers and email addresses is available at the DoN website (www.mass.gov/dph/don) in the "Applications" section.

Department of Public Health
Regional Health Office
(See 100.300 for appropriate office)

Center for Health Information and
Analysis
501 Boylston Street
Boston, MA 02116

Division of Medical Assistance
Office of Acute and Ambulatory Care
100 Hancock Street
Quincy, MA 02171

Health Policy Commission
50 Milk Street, 8th Floor
Boston, MA 02109

MassHealth
1 Ashburton Place
Boston, MA 02108

If relevant under Section 100.152:

Executive Office of Elder Affairs
One Ashburton Place, 5th Floor
Boston, MA 02108

If relevant under Section 100.153:

Department of Mental Health
Division of Clinical & Professional Services/
Office of Policy Development
25 Staniford Street
Boston, MA 02114

FILING FEE AND COMPUTATION SHEET

Every applicant, other than a government agency, filing under M.G.L. c. 111, §25C is required to accompany the application with a filing fee as indicated below:

MAXIMUM CAPITAL EXPENDITURE: \$ 3,506,506 x .0020
= \$ 7,013 Filing Fee

Minimum Filing Fee is \$250.00, regardless of maximum capital expenditure.

Applicant must attach a check or money order made payable to the "**Commonwealth of Massachusetts**" in the amount indicated above. If applicant claims an exemption from the filing fee, state here why the applicant is exempt, citing the applicable section of the regulation.



THE FACE OF THIS DOCUMENT HAS A COLORED BACKGROUND NOT A WHITE BACKGROUND



Mass Eye and Ear
243 CHARLES STREET
BOSTON MA 02114

CITIZENS BANK
EXCHANGE PLACE 53 STATE ST
BOSTON MA 02109

2000020422
5-7017/2110

Date 01/20/2017

Pay Amount ***\$7,013.00***

Pay *****Seven thousand thirteen and xx/100 Dollar *****

To The
Order Of

COMM OF MASS
DETERMINATION OF NEED PROGRAM
99 CHAUNCY ST
BOSTON MA 02111

TWO SIGNATURES OVER \$50,000

THE BACK CONTAINS AN ARTIFICIAL WATERMARK. HOLD AT AN ANGLE TO VIEW.

⑈ 2000020422⑈ ⑆ 211070175⑆ 1303377230⑈

1. Face Sheet

FACE SHEET

- 1a. FILING DATE: January 24, 2017 1b. FILING FEE: \$ 7,013
2. HSA: IV 3. ☒ **REGULAR** or ☐ **UNIQUE APPLICATION** (Check one)
4. APPLICANT NAME: Massachusetts Eye and Ear Infirmary, Inc.
5. ADDRESS: 243 Charles Street, Boston, MA 02114
6. CONTACT PERSON: (Name) Brendan Russell (Title) Director of Clinical Services
(Mailing Address): 243 Charles St, Boston, MA 02114 (Telephone) 617-573-3339
Email: brendan_russell@meei.harvard.edu
- 7a. FACILITY NAME: Massachusetts Eye and Ear Infirmary
- 7b. LOCATION: 243 Charles Street, Boston, MA 02114
8. FACILITY TYPE (circle one):
1) **Acute Care Hospital** 2) Nursing Facility 3) Ambulatory Surgery Center
4) Chronic Disease/Rehabilitation Hospital 5) Other _____
9. TYPE OF OWNERSHIP (circle as appropriate):
1) **Private non-profit** 3) Public
2) Private for-profit 4) Other _____
10. BRIEF PROJECT DESCRIPTION (consistent with newspaper notice):
Expansion of MRI service through acquisition of 2nd MRI unit

11. PROJECT TYPE (check one or more as appropriate):
Substantial Change in Service – The addition or expansion of or conversion to a new technology, innovative service, or ambulatory surgery by acute care or non-acute care facilities regardless of whether the expenditure minimum is exceeded; non-acute care services provided by acute care hospitals; and any increase in bed capacity by a non-acute care facility totaling more than 12 beds to the licensed bed capacity of the entire facility.

Substantial Capital Expenditure – Any capital expenditure that is at or exceeds the DoN expenditure minimums for acute care, non-acute care (including nursing homes) facilities and clinics.

Original Licensure – Original licensure of hospitals or clinics providing ambulatory surgery. This includes an original license to be issued following a transfer of ownership.

FACE SHEET

12. BEDS INVOLVED IN THE PROJECT (select all that apply): **Not Applicable**

	Existing Number of Licensed Beds	Number of Additional Beds Requested	Number of Beds Replaced/Renovated
Acute			
Medical/Surgical			
Obstetrics (Maternity)			
Pediatrics			
Neonatal Intensive Care			
ICU/CCU/SICU			
Acute Rehabilitation			
Acute Psychiatric			
adult			
adolescent			
pediatric			
Chronic Disease			
Substance Abuse			
detoxification			
short-term intensive rehabilitation			
Skilled Nursing Facility			
Level II			
Level III			
Level IV			
Other (specify)			

13. MAXIMUM CAPITAL EXPENDITURE: \$3,506,506

14. ANNUAL INCREMENTAL OPERATING COST: \$309,549

15. COMMUNITY HEALTH SERVICES INITIATIVES EXPENDITURE (see Factor 9)

\$ 175,325.30

2. Affidavit of Truthfulness

AFFIDAVIT OF TRUTHFULNESS AND PROPER SUBMISSION

Massachusetts Eye and Ear Infirmary

(Name of Applicant)*

243 Charles Street, Boston, MA 02114

(Address of Applicant, Street, City/Town and Zip Code)

hereby makes an application for a Determination of Need under M.G.L. c. 111, §§25C or 51 and 105
 CMR 100.000 for

: _____ original licensure
 _____ substantial capital expenditure
 X substantial change in service

With respect to a: X hospital
 long term care facility
 ambulatory surgery center
 other (specify) _____

for the development of: Expansion of Magnetic Resonance Imaging Service
(Name of facility and/or program)

at the following address: 243 Charles Street, Boston, MA 02114
(Street, City/Town and Zip Code)

Type of Ownership:

City	State
County	X Private Nonprofit Organization

Proprietary: _____ Individual Corporation _____ Partnership
 X

with the following estimated capital expenditure (105 CMR 100.020)

\$ 3,506,506

*All persons participating in joint venture DoN applications (e.g., applications with two or more corporations) should be aware that each person who comprises the "applicant" will have to be named on the license. In addition, any subsequent changes in ownership of any person comprising the licensee will require compliance with the relevant change of ownership procedures.

All joint venture applicants should carefully evaluate the effect these requirements will have on their future activities.

AFFIDAVIT OF TRUTHFULNESS AND PROPER SUBMISSION continued

I, the undersigned, certify that:

1. I have read 105 CMR 100.000, the Massachusetts Determination of Need Regulation.
2. I have read this application for Determination of Need including all exhibits and attachments, and the information contained therein is accurate and true.
3. I have submitted the required copies of this application to the Determination of Need Program and to all relevant agencies (see below¹) as required.
4. I have caused notices to be published as required by 105 CMR 100.330-100.332. The notices, true copies of which are enclosed, were published in the

Boston Herald

(Name of Newspaper)

on

January 20, 2017

(Date of Publication)

on

(Name of Newspaper)

(Date of Publication)

5. The applicant is, or will be, the eventual licensee of the facility.

Signed on the 18th day of January, 2017, under the pains and penalties of perjury.

For Corporation:

[Signature]

and

Chief Executive Officer

Chairman of the Board

Partnership:

All Partners

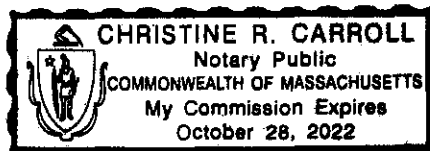
Limited Partnership:

General Partner

Trust:

All Trustees

FORM MUST BE NOTARIZED IN THE SPACE PROVIDED BELOW:



[Signature]

Notary Signature

¹Copies of the application have been submitted as follows:

- ☒ Department of Public Health
- ☒ Regional Health Office
- ☒ Division of Medical Assistance (MassHealth)
- ☒ Health Policy Commission

- ☒ Center for Health Information and Analysis
- ☐ Executive Office of Elder Affairs*
- ☐ Department of Mental Health**

*Only if the project relates to long term care

**Only if project relates to mental health

AFFIDAVIT OF TRUTHFULNESS AND PROPER SUBMISSION continued

I, the undersigned, certify that:

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2. I have read this application for Determination of Need including all exhibits and attachments, and the information contained therein is accurate and true.
3. I have submitted the required copies of this application to the Determination of Need Program and to all relevant agencies (see below¹) as required.
4. I have caused notices to be published as required by 105 CMR 100.330-100.332. The notices, true copies of which are enclosed, were published in the

Boson Herald

(Name of Newspaper)

on

January 30, 2017

(Date of Publication)

on

(Name of Newspaper)

(Date of Publication)

5. The applicant is, or will be, the eventual licensee of the facility.

Signed on the 23rd day of January, 2017, under the pains and penalties of perjury.

For Corporation:

Chief Executive Officer

and

[Signature]

Chairman of the Board

Partnership:

All Partners

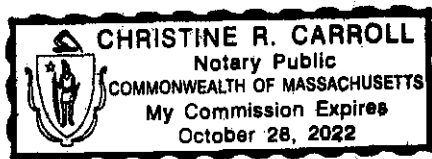
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- ☐ Executive Office of Elder Affairs*
- ☐ Department of Mental Health**

*Only if the project relates to long term care

**Only if project relates to mental health

3. Newspaper Notice

DONATE YOUR CAR

**Wheels For
Wishes** Benefiting

**100% Tax
Deductible**

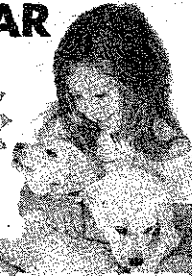
**Make-A-Wish®
Massachusetts
and Rhode Island**

*Free Vehicle/Boat Pickup ANYWHERE
*We Accept All Vehicles Running or Not

WheelsForWishes.org

Call: (857) 400-9595

*Wheels For Wishes is a DBA of Car Donation Foundation

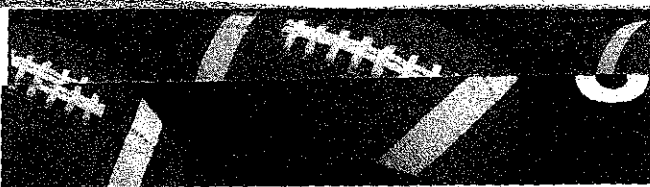


Public Announcement Concerning Massachusetts Eye and Ear Infirmary

On or about January 24, 2017, Massachusetts Eye and Ear Infirmary, with a principal place of business at 243 Charles Street, Boston, MA 02114, intends to file an application ("Application") with the Massachusetts Department of Public Health ("Department") to obtain a Determination of Need for the expansion of its magnetic resonance imaging ("MRI") services through the acquisition of a second MRI unit ("Project"). The estimated capital expenditure for the Project is \$3,506,506. The Project involves a total of 2,211 gross square feet ("GSF") of renovation. Any ten taxpayers of Massachusetts may register in connection with the Application by February 23, 2017, or thirty (30) days after the Application has been filed with the Department or notice of the same has been published in the newspaper, whichever is later. If requested, a public hearing shall be ordered on the Application at the request of any ten taxpayers made in writing, not later than February 13, 2017, or twenty (20) days after the date of filing or publication date, whichever is later. Such registrations or requests for public hearing shall be sent to the **Department of Public Health, Determination of Need Program, Attention: Program Director, 250 Washington Street, Boston, MA 02108**. The Application may be inspected at such address and at the Metro Boston Regional Health Office located at The Massachusetts Hospital School, 5 Randolph Street, Canton, MA 02021.

www.bostonherald.com

BOSTON HERALD FRIDAY, JANUARY 20, 2017



It's a great time

Print • Dig

For adv

617-619

COB/LIQUOR LICENSE

COB/LIQUOR

LICENSING BOARD FOR THE CITY
Wednesday Hearing Notice
January 19, 2017

BULLY BOY DISTILLERS, LLC

PUBLIC NOTICE

DESIGNER SELECTION

Architects and engineers are at
DSB Project List # MERGEFIELD
dated MERGEFIELD Date January
describing MERGEFIELD No.
Designer Selection Board project
available at www.mass.gov

DESIGNER SELECTION

PUBLIC NOTICE

STATE OF VERMONT
CHITTENDEN COUNTY

IN RE: L.C.
VERMONT SUPERIOR COURT
FAMILY DIVISION 20
DOCKET NO. 303-11-1

NOTICE OF HEARING
TO: John Cavalari, Jr., father of
hereby notified that a hearing
the termination of all your par
L.C. will be held on February
11:00 a.m., at the Superior
Court, Family Division, Chitt
32 Cherry Street, Burling
05401. You are notified to
in connection with this case.

Hon. Kirstin K. Schoonover
Superior Court Judge
Date: 1/13/17

NOTICE IS HEREBY
ON THE APPLICATION
Iron Mountain OF 32 George St. Li
TO BE A PUBLIC HEARING
WITHIN AND FOR THE
OF Roxbury, Mass. in
FOR THE PURPOSE OF CONSIDERING
GENERAL WAREHOUSE PROPERTY
PROVIDED IN CHAPTER
MASSACHUSETTS GEN
PM

PUBLIC INTERVIEW AT THE
At 9:00 a.m., on Friday, Janu
Governor's Council will inter
Byrne of Dorchester who has
by the Governor for the post
Justice of the Chelsea Dist
County Division. Persons who
favor or opposition should no
Executive Secretary to the
184, State House, Boston, M

LEGAL NOTICES

LEGAL NOTICES

LEGAL NOTICES



MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

100 SUMMER ST.. SUITE 1200

Chief Administrator and Acting General Manager of the MBTA
January 20, 2017



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Notification of Trade Certification

The U.S. Department of Labor has determined that Citizens Bank, NA, Citizens Financial Group, Infrastructure Services Division, in Medford, MA has been adversely impacted by increased imports. The subject firm has been certified for (TAA) Trade Adjustment Assistance benefits as of 12/09/2016.

As a result, affected workers totally or partially separated from employment on or after 10/01/2015 and before 12/09/2018 may be eligible to receive weekly cash benefits; financial assistance for remedial or vocational training programs; travel allowances to and from training; job search expenses; relocation allowances; Reemployment Trade Adjustment Assistance (RTAA), Health Coverage Tax Credit (HCTC) and other reemployment services such as resume preparation, employment counseling and job referrals.

For information about these benefits, all workers should inquire and apply at Career Source, Cambridge, 186 Alewife Brook Parkway, Suite 310 Cambridge, MA 02138 or their nearest One-Stop Career Center. Information about Career Center services is available at <http://www.mass.gov/lwd/employment-services> or by calling (617) 626-6007.

Jan 13, 20

For convenient home delivery
Boston Herald, call (800)

RETURN OF PUBLICATION

I, the undersigned, hereby certify under the pains and penalties of perjury, that I am employed by the publishers of the *Boston Herald* and the following Public/Legal announcement was published in two sections of the newspaper on January 20, 2017 accordingly:

- 1) "Public Announcement Concerning Massachusetts Eye and Ear Infirmary" page 46,
Legal Notice Section.

(check one) ☒ Size two inches high by three columns wide
☐ Size three inches high by two columns wide

- 2) "Public Announcement Concerning Massachusetts Eye and Ear Infirmary" page
16 Main News Section.

(check one) ☒ Size two inches high by three columns wide
☐ Size three inches high by two columns wide

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Mary Hallahan
Signature

Mary Hallahan
Name

Legal Advertising Representative
Title

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4. Applicant Information

APPLICANT INFORMATION

1. List all officers, members of the board of directors, trustees, stockholders, partners, and any other individuals who have an equity or otherwise controlling interest in the application. With respect to each of these persons, please give his or her address, principal occupation, position with respect to the applicant, and amount, if any, of the percentage of stock, share of, partnership or other equity interest. (Answer on additional sheet). **Exhibit A**
2. Have any of the individuals listed ever been convicted of any felony or ever been found in violation of any local, state or federal statute, regulation, ordinance, or other law which arises from or otherwise relates to that individual's relationship to a health care facility? **No**
3. For all individuals listed, list all other health care facilities, within or without the Commonwealth in which they are officers, directors, trustees, stockholders, partners, or in which they hold an equity interest. **Not Applicable**
4. State whether any of these individuals presently have, or intend to have, any business relationship, including but not limited to: supply company, mortgage company, etc., with the applicant. **No**
5. If the applicant is a corporation, please attach a copy of your articles of incorporation to this section of your application. **Exhibit B**
6. Indicate here the applicant's representative in regard to this application:

Brendan Russell

Name

617-573-3339

Telephone

Director of Clinical Services

Title

Brendan_russell@meei.harvard.edu

Email

Massachusetts Eye and Ear Infirmary
Facility/ Organization

243 Charles Street

Boston, MA 02114

Address (Street, Town/City, and Zip Code)

All written and oral communications will be directed accordingly.

Attachment/Exhibit

A.

MASSACHUSETTS EYE AND INFIRMARY
BOARD OF DIRECTORS

Dewalt Ankeny
18514 East Picacho Road
Rio Verde, AZ 85263

Robert Atchinson
Co-founder, Adage Capital Management
115 Commonwealth Avenue
Boston, MA 02116

Jim Carlisle
Managing Director, Thomas H. Lee Partners
5 Commonwealth Park
Boston, MA 02481

Charles de Gunzburg
Partner, First Spring Corporation
499 Park Avenue
New York, NY 10022-1240

John Fernandez
President, Massachusetts Eye and Ear Infirmary
5 Otis Street
Needham, MA 02492

Harvey Freishtat
85 Williston Road
Brookline, MA 02445

Wycliffe Grousbeck
President, Boston Celtics
226 Causeway Street
Boston, MA 02114

Eugene Hill
Founder, SV Life Sciences
3310 Kingsley Court
Pebble Beach, CA 93953

Lyle Howland
Secretary, Massachusetts Eye and Ear Infirmary
Founder, Howland Enterprises
81 Beacon Street
Boston, MA 02108

Diane E. Kaneb
140 Orchard Avenue
Weston, MA 02493

Robert Knapp
Partner, Ironsides Partners
62 Mount Vernon Street
Boston, MA 02108-1302

Jonathan Kutchins
Managing Director, The Exeter Group
28 Exeter Street
Boston, MA 02116

Thomas Lauer
9 Arlington Street, Suite TH
Boston, MA 02116

Joan W. Miller, MD
Chief of Ophthalmology, Massachusetts Eye and Ear Infirmary
40 Westland Avenue
Winchester, MA 01980

Annette Nova
51 Highland Street
Cambridge, MA 02138

William Roman
181 Marlborough Street, #3
Boston, MA 02116

Jonathan Uhrig
Treasurer, Massachusetts Eye and Ear Infirmary
Founder/Partner, MTS Capital LLC
183 Ridgeway Road
Weston, MA 02493

D. Bradley Welling, MD
Chief of Otolaryngology, Massachusetts Eye and Ear Infirmary
125 Rutledge Road
Belmont, MA 02478

Attachment/Exhibit

B

Chap. 91 Acts of 1826

Commonwealth of Massachusetts

In the year of Our Lord One thousand eight hundred and twenty
seven

An Act to incorporate the Massachusetts Charitable Eye and
Ear Infirmary

Section 1st Be it enacted by the Senate and House of Represent-
atives in General Court Assembled and by the authority of the
same. That John Welles, Benjamin Joy, Robert G. Shaw, Samuel
H. Walley, Edward Tuckerman, Lucius M. Sargent, Bryant P. Til-
den, Edward H. Robbins, Junior, James C. Merrill and Charles
P. Curtis Esquires, with Edward Reynolds and John Jeffries
physicians, all of the City of Boston, together with their
associates, be and they are hereby incorporated and made a
body politic, for the purpose of gratuitously relieving and
curing diseases of the Eye and Ear, and of enabling poor per-
sons afflicted with such diseases to submit to a course of
Medical treatment for the same, by the name of "the Massachu-
setts Charitable Eye and Ear Infirmary"; and that they, their
associates and successors, shall have perpetual succession by
the said name, and shall have power to make by laws for the
preservation and advancement of said Institution, not repug-
nant to the Constitution and laws of this Commonwealth. Sec-
tion 2^d. Be it further enacted, That the said Corporation be,

and it is hereby authorized and empowered to make, appoint and have a common seal, and is hereby made liable to be sued, and enabled to sue and defend in its corporate capacity, in any of the Courts of Record in this Commonwealth: and is hereby licensed and empowered to make purchases and to receive grants, devises and donations of real estate to the amount not exceeding Thirty thousand Dollars and personal estate to an amount not exceeding Seventy Thousand Dollars. Section 3^d Be it further enacted, That the said Corporation shall meet at Boston, on the last Thursday of October annually for the purpose of choosing by ballot twelve Managers, a Secretary, and a Treasurer; and public notice of the time and place of holding such meeting, shall be given once at least, in two of the Newspapers published in Boston, seven days before the day of meetings; and votes may, at all elections, be given in person or by proxy. Section 4th. Be it further enacted, that the business of said Managers shall be to appoint surgeons, and when they deem it expedient, an apothecary of said Infirmary, to provide medicines and surgical instruments; to distribute money among poor patients, to defray expenses of board whilst under treatment; and to regulate all other affairs of the Institution: any three of said Managers shall constitute a quorum; and all legal instruments, which they shall make and execute, shall when signed by their President or Chairman, and sealed with their Common Seal, bind the said Corporation, and

be valid in law; Section 5th Be it further enacted, That Edward Tuckerman Esquire, be, and he is hereby authorized, by public notice, in two of the Boston Newspapers to call the first meeting of said Corporation, at such time and place, as he shall judge proper: at which meeting the said Corporation shall have all the power vested in them at their stated annual meetings in October, but the officers then chosen, shall not continue in office longer than the next meeting in October, unless reelected. Section 6th Be it further enacted. That this Act may be amended or repealed at the pleasure of the Legislature.

d

In House of Representatives February 22. 1827
This Bill having had three several readings passed to be enacted

William C. Jarvis, Speaker

d

In Senate Feby 22. 1827.

This Bill having had two several readings passed to be enacted.

John Mills, President

February 23 1827

Approved

Levi Lincoln

The Commonwealth of Massachusetts

Office of the Secretary

Boston, September 23, 1908.

av
A true copy.

Witness the Great Seal of The Commonwealth.

Harbert H. Bryntun
Deputy Secretary. Secretary.
HKB

558

1873.—CHAPTERS 133, 134, 135.

Real estate not
exceeding \$50,
000.

SECTION 2. Said corporation for the purpose aforesaid, may hold real estate to an amount not exceeding fifty thousand dollars.

SECTION 3. This act shall take effect upon its passage.

Approved March 29, 1873.

Ch. 133.

AN ACT TO AUTHORIZE THE CITY OF FITCHBURG TO FUND ITS FLOATING DEBT, AND TO ISSUE ADDITIONAL BONDS.

Be it enacted, &c., as follows:

May borrow
money to fund
floating debt,
and for municipal
purposes.

SECTION 1. The city council of the city of Fitchburg may borrow such sums of money as shall be necessary for funding the present floating debt incurred in the construction of sewers and drains, in supplying said city with water, and for other municipal purposes, and may further borrow money from time to time, to an amount not exceeding two hundred thousand dollars, for municipal purposes. All expenditures and indebtedness heretofore incurred by said city for sewers, drains and water, are confirmed; and said city council may issue the notes, bonds or certificates of indebtedness of said city, bearing interest payable semi-annually, and redeemable at such times as they shall direct, for all sums of money borrowed under authority of this act.

Expenditures
for drains
and water
conferred.

SECTION 2. This act shall take effect upon its passage.

Approved March 29, 1873.

Ch. 134.

AN ACT AMENDING AN ACT TO INCORPORATE THE MASSACHUSETTS CHARITABLE EYE AND EAR INFIRMARY.

Be it enacted, &c., as follows:

Two additional
managers to be
appointed by
governor and
council.

The governor, with the advice and consent of the council, shall annually appoint two additional managers of the Massachusetts Charitable Eye and Ear Infirmary, to hold office for one year from the last Thursday of October in each year.

Approved March 29, 1873.

Ch. 135.

AN ACT TO INCORPORATE THE TRUSTEES OF THE SIGMA PHI SOCIETY OF WILLIAMS COLLEGE.

Be it enacted, &c., as follows:

Corporation.

Name and pur-
pose.Powers and
duties.

SECTION 1. William R. Dimmock, Eugene M. Jerome, William T. R. Marvin, their associates and successors, are made a corporation by the name of the Trustees of the Sigma Phi Society of Williams College, for the purpose of holding and managing the real estate and personal property of the Sigma Phi Society of Williams College; with the powers and subject to the duties, liabilities and restrictions set forth in the general laws which now are or

may hereaf-
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SECTION
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The Commonwealth of Massachusetts

DEPARTMENT OF CORPORATIONS AND TAXATION

Respectfully represents the Massachusetts Charitable Eye and Ear Infirmary, of 243 Charles Street, Boston, Massachusetts, a corporation established for a purpose specified in section 2 of Chapter 180 of the General Laws, and acts in amendment thereof and in addition thereto:

First, that said corporation desires a change in its name, and is unable to comply with the provisions of section 10 of Chapter 155 of the General Laws, for the reason that under the By-Laws "The Corporation shall consist of all persons who have been or may be Managers; of all persons, not disapproved by the Managers, who have given or subscribed, or may give or subscribe, fifty dollars and upwards, or any article or property of the value of fifty dollars and upwards, to the Institution; and all such persons shall be life members of the Corporation. The annual payment of any sum, not less than one dollar, by any person not disapproved by the Managers, shall constitute the subscriber a member," and, as the Infirmary has kept no record of the names and addresses of its members, it was impossible to obtain the consent of two-thirds of the persons legally qualified to vote in meetings of the Corporation as required under Section 10 of Chapter 155 of the General Laws. A special meeting of the Corporation was called for May 11, 1924 to act on this matter and notice of the meeting was published in the Boston Evening Transcript on May 5 and in the Boston Herald on May 4, 1924.

Second, that a list of the officers and stockholders or members of the corporation, so far as they are known, with their addresses is hereby appended.

Third, that said corporation desires that its name be changed to

MASSACHUSETTS EYE AND EAR INFIRMARY

Fourth, that at a meeting of said corporation held on May 12, 1924, at 4.00 p.m., it was voted by the stockholders or members to petition the Commissioner of Corporations and Taxation for a change of name.

Fifth, that so far as is known the change of name petitioned for is approved by the stockholders or members of the corporation.

Wherefore, the Massachusetts Charitable Eye and Ear Infirmary petitions that its name be changed to Massachusetts Eye and Ear Infirmary

under authority of the provisions of Section 11, Chapter 180 of the General Laws.

Dated at Boston
day of May 1924

E. H. Bradford

President

J. C. Howe

Manager
Deputy

The Commonwealth of Massachusetts.

Suffolk, ss. Boston, May 17, 1924.
Then personally appeared the above-named E. H. Bradford, President,
and J. C. Howe, Manager, and made oath that the statements in the above petition subscribed by them are true.

Before me,

Leslie Langille

My commission expires
My Commission Expires
May 24, 1925.

Notary Public

Secretary of the State

RECEIVED

MAY 1 7 1964

SECRETARY'S OFFICE

James C. Brown
17 June 64
1964

RECEIVED
SECRETARY'S OFFICE
MAY 1 1964

Post to the office of the Secretary of the

General Assembly

General Assembly

General Assembly

Change of Name

James C. Brown
17 June 64
1964

RECEIVED

The Commonwealth of Massachusetts

OFFICE OF THE SECRETARY OF STATE
ONE ASHBURTON PLACE, BOSTON, MA 02108

Michael Joseph Connolly, Secretary

FEDERAL IDENTIFICATION

NO. 115049

RESTATED ARTICLES OF ORGANIZATION

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 restated articles of organization. The fee for filing this certificate is \$30. Make check payable to the Commonwealth of Massachusetts.

We, Ephraim Friedman
William F. Spang,, President/Vice President, and
Clerk/Assistant Clerk of

Massachusetts Eye and Ear Infirmary

(Name of Corporation)

located at 243 Charles Street, Boston, MA 02118

do hereby certify that the following restatement of the articles of organization of the corporation was duly adopted at a meeting held on March 18, 19 86, by vote of 1 members ~~xxxxxx stockholders~~ being at least two thirds of its members 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 thereon):

1. The name by which the corporation shall be known is:-

Massachusetts Eye and Ear Infirmary

2. The purposes for which the corporation is formed are as follows:-

See attached sheets 2A, and 2B.

NOTE: If provisions for which the space provided under Articles 2, 3 and 4 is not sufficient additions should be set out on continuation sheets to be numbered 2A, 2B, etc. Indicate under each Article where the provision is set out. Continuation sheets shall be on 8 1/4" x 11" paper and must have a left-hand margin 1 inch wide for binding. Only one side should be used.

3. If the corporation has more than one class of members, the designation of such classes, the manner of election or appointment, the duration of membership and the qualification and rights, including voting rights, of the members of each class, are as follows:—

There is only one class of members.

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

See attached sheets 4A and 4B.

RESTATED
ARTICLES OF ORGANIZATION
OF
MASSACHUSETTS EYE AND EAR INFIRMARY

PARAGRAPH 2

The purpose for which the corporation is formed is the establishment and maintenance of a hospital facility for the purpose of caring for the sick and injured, improving and maintaining health and preventing disease and specializing in Ophthalmology and Otolaryngology and in furtherance thereof, but without limiting the generality of the foregoing:

- (a) providing inpatient, outpatient and ambulatory services and medical and surgical services for the diagnosis and treatment of patients, associated services may be maintained as needed;
- (b) carrying on educational programs in the specialties of the hospital for the purpose of training medical and paramedical personnel in the care of the sick and injured, and/or promoting health and preventing disease;
- (c) promoting and carrying on scientific research related to the problems of health and disease in the specialties of the hospital;
- (d) participating in any activity designed and carried on to promote the general health of the community with particular reference to the specialties of the hospital; and
- (e) without sacrificing its commitment to treat persons of low income without regard to such persons' ability to pay therefor, treating persons of all backgrounds.

In connection with such purpose and in addition to the powers conferred upon it by Chapter 180 of the General Laws, the corporation shall have the following specific powers:

- (i) to solicit and to accept gifts of money, securities, and real and personal property and interests therein, to invest and reinvest the funds of the corporation without being limited as to the kind or amount of any investment, and to lend money at such rates of interest as the corporation may deem advisable;

- (ii) to retain or distribute any assets (whether real or personal property or interests therein) received or acquired by the corporation and to administer such assets, together with any income therefrom, with full power or disposition and control, unless otherwise limited by the terms and conditions applicable to specific gifts, devises, or bequests made to and accepted by the corporation;
- (iii) to adopt and change, from time to time, such rules in the nature of by-laws for the regulation or the administration of the corporation as the corporation may deem advisable;
- (iv) to carry out the purpose of the corporation alone, as a partner or participant, or otherwise in conjunction with other exclusively charitable, scientific, literary, or educational organizations;
- (v) to perform and do, either directly or indirectly, and either alone, as a partner or participant, or otherwise in conjunction with other persons and organizations of every kind and nature, all other acts and things incidental to or in furtherance of the accomplishment of the purpose of the corporation; and
- (vi) to have and exercise all powers specified in Section 9 of Chapter 156B of the General Laws or any successor provisions to said Section, except the power to purchase, receive, take, or otherwise acquire, own, hold, sell, lend, exchange, transfer or otherwise dispose of, pledge, use and otherwise deal in and with its own shares as set forth in paragraph (m) thereof.

All of the foregoing powers shall be exercisable by the corporation solely in accordance with (i) the purpose of the corporation, (ii) the provisions of Chapter 180 or any other Chapter of the General Laws, and (iii) the provisions set forth in paragraph 4 of these Restated Articles of Organization.

RESTATED
ARTICLES OF ORGANIZATION
OF
MASSACHUSETTS EYE AND EAR INFIRMARY

PARAGRAPH 4

I. The corporation shall be organized and operated exclusively for one or more purposes as set forth in section 501(c)(3) of the Internal Revenue Code of 1954, as now in force or as hereafter amended or any successor provisions thereof (hereinafter, "the Code"), and so that contributions to it shall be charitable contributions within the meaning of section 170(c) of the Code, and in furtherance thereof:

- (i) the corporation shall refrain from exercising any powers in such manner as to disqualify the corporation from federal income tax exemption under section 501(a) of the Code as an organization described in section 501(c)(3) of the Code;
- (ii) no part of the net earnings of the corporation shall inure or be payable to or for the benefit of any private shareholder or individual (including, without limitation, any member, director, officer or employee of the corporation);
- (iii) no part of the activities of the corporation shall consist of carrying on propaganda or otherwise attempting to influence legislation except to the extent permitted by sections 501(c)(3) and 501(h) of the Code;
- (iv) the corporation shall not, directly or indirectly, 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;
- (v) the corporation shall not have objectives or engage in activities which characterize it as an "action" organization as defined in Treasury Regulations §1.501(c)(3)-1(c)(3), as presently promulgated or as hereafter amended;
- (vi) upon dissolution, the assets of the corporation shall be distributed for one or more exempt purposes specified in section 501(c)(3) of the Code and shall not be distributed to any private shareholder or individual (including, without limitation, any member, director, officer or employee of the corporation); and
- (vii) all contributions and gifts made by a corporation to this corporation and the net earnings thereof shall be used only within the United States and its possessions, and all contributions and gifts, from

whatever source, and the net earnings thereof shall be used solely for the purpose for which this corporation is created.

II. Notwithstanding any other provisions of these Articles of Organization, during such periods, if any, as the corporation is classified as a "private foundation" as defined in section 509(a) of the Code, the corporation:

- (i) shall distribute its income for each taxable year at such time and in such manner as not to subject the corporation to tax under section 4942 of the Code; and
- (ii) shall not engage in any act of self-dealing as defined in section 4941(d) of the Code; shall not retain any excess business holdings as defined in section 4943(c) of the Code; shall not make any investments in such manner as to subject the corporation to tax under section 4944 of the Code; and shall not make any taxable expenditures as defined in section 4945(d) of the Code.

III. Meetings of the members may be held anywhere within the United States.

IV. The Bylaws of the corporation shall provide for a Board of Managers of the corporation and in accordance with Chapter 134 of the Acts of 1873, the governor, with the advice and consent of the council, shall annually appoint two managers to the board to hold office for one year.

.. "We further certify that the foregoing restated articles of organization effect no amendments to the articles of organization of the corporation as heretofore amended, except amendments to the following articles
Articles 2 and 4

("If there are no such amendments, state "None".)

IN WITNESS WHEREOF AND UNDER THE PENALTIES OF PERJURY, we have hereto signed our names this

18 day of March in the year 19 86

Ephraim Friedman President / ~~Vice President~~ x
Ephraim Friedman
William F. Spang Clerk / ~~Assistant Clerk~~ x
William F. Spang

38948

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RECEIVED
1986 MAR 20 10:51
CORPORATION

THE COMMONWEALTH OF MASSACHUSETTS

RESTATED ARTICLES OF ORGANIZATION

(General Laws, Chapter 180, Section 7)

I hereby approve the within restated articles of organization and, the filing fee in the amount of \$30.00 having been paid, said articles are deemed to have been filed with me this 20th day of March 1986

Michael Joseph Connolly

MICHAEL JOSEPH CONNOLLY

Secretary of the Commonwealth

State House, Boston, Mass.

TO BE FILLED IN BY CORPORATION

PHOTO COPY OF RESTATED ARTICLES OF ORGANIZATION TO BE SENT

TO: Nicole Laccetti Rives, Esq.
Rackemann, Sawyer & Brewster
One Financial Center
Boston, MA 02111

COPY

The Commonwealth of Massachusetts

MICHAEL J. CONNOLLY

FEDERAL IDENTIFICATION

Secretary of State

NO. 000115049

ONE ASHBURTON PLACE, BOSTON, MASS. 02108

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 \$10.00 as prescribed by General Laws, Chapter 180, Section 11C(b). Make check payable to the Commonwealth of Massachusetts.

We, Ephraim Friedman, M.D.

, President/Vice President, and

Barbara F. Katz, Assistant Secretary

, Clerk of the Court

Massachusetts Eye and Ear Infirmary, Inc.
(Name of Corporation)

Name
Approved

located at 243 Charles Street, Boston, MA 02114

do hereby certify that the following amendment to the articles of organization of the corporation was duly adopted at a meeting held on October 27, 1987, by vote of nine members/ shareholders, being at least two thirds of its members 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 thereon):

Amend Article Four by adding the following:

c ☐

P.C.

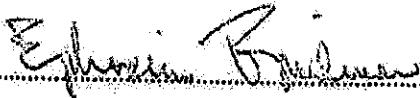
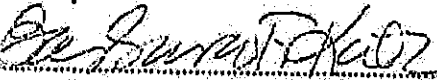
Note: If the space provided under any article or item on this form is insufficient, additions shall be set forth on separate 8 1/2 x 11 sheets of paper leaving a left hand margin of at least 1 inch for binding. Additions to more than one article may be continued on a single sheet so long as each article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

(over)

No officer or manager shall be personally liable to the corporation or its member for monetary damages for breach of fiduciary duty as an officer or a manager notwithstanding any provision of law imposing such liability: provided, however, that this provision shall not eliminate the liability of an officer or a manager, to the extent that such liability is provided by applicable law, (i) for any breach of the officer's or manager's duty of loyalty to the corporation or its member, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, or (iii) for any transaction from which the officer or manager derived an improper personal benefit. This provision shall not eliminate the liability of an officer or a manager for any act or omission occurring prior to the date upon which this provision becomes effective. No amendment to or repeal of this provision shall apply to or have any effect on the liability or alleged liability of any officer or manager for or with respect to any acts or omissions of such officer or manager occurring prior to such amendment or repeal;

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
2nd day of December, in the year 1987.


..... President/Vice President

..... ~~George S. Kato~~
Assistant
Secretary

5. Standing to Make Application

STANDING TO MAKE APPLICATION

Pursuant to 105 C.M.R. 100.306 of the Department of Public Health's Determination of Need ("DoN") regulations, attached please find documentation evidencing the Applicant's standing to make this DoN Application.

Exhibit A

Evidence of Ownership

Exhibit B

Evidence of Zoning

Attachment/Exhibit

A

The Commonwealth of Massachusetts, acting through its Metropolitan District Commission, for consideration paid, grants to Massachusetts Eye and Ear Infirmary, a Massachusetts corporation with its principal place of business in Boston, Suffolk County, Massachusetts, with quitclaim covenants, a certain parcel of land situated in said Boston in the County of Suffolk and Commonwealth of Massachusetts, bounded and described as follows:

NORTHWESTERLY by land of the Grantor herein known as Charles Street, one hundred twenty-five and 25/100 (125.25) feet,
 NORTHEASTERLY by the same, two and 51/100 (2.51) feet,
 SOUTHEASTERLY by land of the Grantee herein, one hundred twenty-five and 25/100 (125.25) feet, and
 SOUTHWESTERLY by land of the Grantor herein known as Charles Street, two and 51/100 (2.51) feet.

being a rectangular parcel of land containing three hundred fourteen (314) square feet more or less and being shown on a plan entitled "Plan of Land in Boston - Mass., * * * Feb. 17, 1969, William S. Crocker, Inc., Civil Engineers & Surveyors, 566 Atlantic Ave., Boston, Mass.," being plan accession number 45645-V.T. to be recorded herewith.

In addition to the land herein conveyed, the Grantor herein grants an easement for support and foundation purposes to the Grantee herein in the six (6) locations adjacent to the granted premises and shown on the aforesaid plan. Said foundation easement is appurtenant to the land herein conveyed and the land presently of the Grantee herein as shown on said plan.

IN WITNESS WHEREOF the said Commonwealth of Massachusetts has caused these presents to be executed in its name and on its behalf by a majority of its said Metropolitan District Commission, including the Commissioner, who do, therefore, hereunto set their hands and seals, without, however, incurring any possible personal liability by reason of the execution hereof, or of any-

thing herein contained, this 6th day of March, 1969.

COMMONWEALTH OF MASSACHUSETTS

By: Howard Whitmore, Jr. Commissioner

John P. Haggerty
Vincent P. O'Brien Associate

Joseph L. Green Commissioners

Being a majority of the
Metropolitan District Commission

COMMONWEALTH OF MASSACHUSETTS

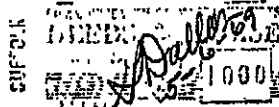
Suffolk, ss. March 6, 1969.

Then personally appeared the above-named HOWARD WHITMORE, JR.
Commissioner as aforesaid, and acknowledged the foregoing instru-
ment to be his free act and deed and the free act and deed of the
Commonwealth of Massachusetts,

before me

Richard J. Zurbach
Notary Public

My commission expires



the fifth day of August A.D. 1896. at which a quorum was present and acting the within instrument having been first read, it was on motion Noted that the Treasurer Charles Henry Parker be and he hereby is authorized to sign seal with the corporate seal acknowledge and deliver in the name and behalf of said bank unto the Massachusetts General Hospital the instrument which has just been read releasing from mortgage given by Charles F. Munroe dated December 3. 1895 and recorded with Suffolk Deeds L. 2324. p. 563 a parcel of land on the northeasterly corner of Charles Street and Fruit Street in Boston measuring two hundred feet on Charles Street and one hundred and fifty feet on Fruit Street and in the form as read or in such other form and for such consideration as he may see fit. A true copy from the records Attest Herbert Magoun Clerk. August 16. 1896. at one o'clock P. M. *Revised Entered and Engraved.*

Wm. H. [Signature]

Mass. Genl.
Hospt.
To-

Mass. Charitable
Eye & Ear
Infirmary

Know all Men by these Presents That the Massachusetts General Hospital a corporation duly established by law in Boston in the County of Suffolk and Commonwealth of Massachusetts in consideration of one dollar and other valuable consideration paid by the Massachusetts Charitable Eye and Ear Infirmary a corporation duly established by law in said Commonwealth the receipt whereof is hereby acknowledged do hereby grant remise release and forever quit-claim unto the said Massachusetts Charitable Eye and Ear Infirmary a certain parcel of land in said Boston bounded and described as follows viz: Westerly by Charles Street there measuring two hundred feet, southerly by Fruit Street one hundred and fifty feet, easterly by a line parallel with Charles Street two hundred feet, and northerly by a line parallel with Fruit Street one hundred and fifty feet. See for title deed from George F. Parkman to Charles F. Munroe and deed from said Munroe to grantor both dated December 3. 1895 recorded L. 2324. p. 561 and L. 2325 p. 62. of Suffolk Deeds respectively. See plan by Aspinwall and Lincoln dated August 6. 1896 to be recorded herewith To have and hold the above released premises with the rights easements and

appurtenances thereto belonging to the said Massachusetts Charitable Eye and Ear Infirmary, its successors and assigns to their use and behoof forever. And the said grantor for itself and its successors doth covenant with the said grantee its successors and assigns that the premises are free from all incumbrances made by it and that it will and its successors shall warrant and defend the same to the said grantee its successors and assigns forever against the lawful claims and demands of all persons claiming by through or under it but against none other. In witness whereof the said Massachusetts General Hospital hath caused its corporate seal to be hereto affixed and these presents to be executed in its behalf by Charles H. Dalton its President and Franklin Haven its Treasurer approved by a majority of its Board of Trustees this fourth day of August in the year of our Lord eighteen hundred and ninety six. The Massachusetts General Hospital by C. H. Dalton President Franklin Haven Treasurer and the corporate seal. Approved. Wm Endicott Jr, Henry S. Howe, Charles W. Bennis, Henry P. Walcott, Edmund Doughty, N. Thayer, George Wigglesworth Majority of Board of Trustees Signed sealed and delivered in presence of H. S. Patten Commonwealth of Massachusetts Suffolk ss Boston August 5th 1896. Then personally appeared the above named Franklin Haven Treasurer of the Massachusetts General Hospital and acknowledged the above instrument to be the free act and deed of said corporation. Before me Alonzo P. Weeks Justice of the Peace. August 10, 1896. above o'clock P. M. Received Entered and Examined.

Wm Endicott Jr

Commonwealth of Massachusetts.

I hereby certify that the following is a just and true account with all just credits given of the amount due me for labor performed and furnished actually used in the erection of a building situated on a lot of land in Boston in said Commonwealth which lot is described as follows: Northeasterly on Peter Parley Street sixty feet southeasterly by lot numbered thirteen (13) on a plan by J. Edwin Jones Surveyor dated May 20, 1893 and recorded with Suffolk Deeds at the end of book 2131 one hundred and five and ninety four hundred feet. Southwesterly

Robertson et
by
Hill

See

2397 p. 564

Attachment/Exhibit

B



Boston Inspectional Services Department

December 23, 2016

Massachusetts Eye & Ear

Mr. John Fernandez, President and CEO

243 Charles Street

Boston, MA 02114

Re: Zoning -Massachusetts Eye & Ear 243 Charles Street, Boston

Dear President Fernandez:

In response to your inquiry regarding the zoning status for the areas where Massachusetts Eye & Ear is located at 243 Charles Street, Ward 3, Boston Proper. Please be advised that the property is appropriately zoned for use as a Licensed Health Care Facility with a Legal Use or Occupancy / Hospital in the City of Boston, Commonwealth of Massachusetts.

Sincerely,

A handwritten signature in black ink, appearing to read "Gary P. Moccia".

Gary Moccia, P.E.

Deputy Commissioner, Inspector of Buildings

B. Project Summary

APPLICATION NARRATIVE (PROJECT SUMMARY)

Please *briefly* describe the proposed project in the space indicated below. Detailed information is requested elsewhere in the application under the Factors Applied in Determination of Need. All applicants are required to provide an Application Narrative.

A. Health Planning Process

The Applicant conducts both annual and long term planning processes. Included in these planning processes is an imaging service line review to evaluate long terms needs of the MRI service, such as the addition and expansion or replacement of existing services. As a result of these processes, the Applicant identified a need for additional MRI services at the Hospital. It worked diligently to identify the most effective means of meeting the increased demand.

B. Health Care Requirements

The Applicant determined that significant need exists to expand MRI services at the Hospital. This assessment was based on an evaluation of historical demand experienced by the Applicant's one (1) fixed unit, the expanding clinical applications of MRI and the historical and projected population trends in the Applicant's service area. Additionally, as further detailed in Factor 2, the Applicant's existing unit is operating in excess of 90% capacity, demonstrating the need to operate an additional unit. Based on these factors, the implementation and operation of an additional MRI unit at the hospital is necessary.

C. Operational Objectives

The Applicant's Project fulfills the operational objectives of the Department's Guidelines. The Applicant will continue to staff its MRI service to ensure the provision of quality care and efficient use of resources demonstrated by the staffing pattern of the service found at Schedule C of Factor 6. In addition, the service is under the direction of a physician responsible for the clinical operation of the service and who is on-site at least fifty percent (50%) of the time that patients are undergoing scans. Related support services are available on-site at the Hospital to assist physicians in making an efficient and accurate diagnosis. Moreover, the Applicant provides educational and training opportunities in MRI to its staff and employees, as well as to individuals outside of the organization. Finally, the Applicant's Oversight Committee was formed to review the appropriateness of the services provided on a semiannual basis.

D. Standards Compliance

The Applicant's MRI service will operate a 3.0 Tesla fixed MRI unit. The unit is fully compliant with all equipment and related facility requirements. Furthermore, the unit has proven safe and effective for clinical use by the U.S. Food and Drug Administration. The related facility improvements will meet all regulatory requirements, and the MRI service will be licensed by the Department.

E. Reasonableness of Expenditures and Financial Feasibility

As further demonstrated in Factor 6, the proposed Project represents a cost-effective solution for meeting the identified need for additional MRI services at the Hospital. The Project is reasonable and within the Applicant's financial capability. Moreover, the Project was designed to ensure the

APPLICATION NARRATIVE (PROJECT SUMMARY)

delivery of quality services at the lowest reasonable cost. The MCE related to the Project is \$3,506,506.

F. Relative Merit

In developing the proposed Project, the Applicant examined alternatives to meet the continued demand for access to MRI services for its patients. The Applicant considered taking no action and referring outpatients to other providers for MRI services. In addition, the Applicant assessed the possibility of increasing the hours of operation of its existing MRI unit. In reviewing the available alternatives, the Applicant assessed the financial feasibility and quality of services that would result from the implementation of each option. After a careful review of the alternatives, the Applicant determined that the Project, as proposed, represents the most clinically appropriate and financially feasible means of addressing the need for MRI services for the residents of its service area.

IV. Conclusion

The Applicant demonstrates the Project's compliance with the requirements of 105 CMR 100.000 et seq., as well as those set forth in the Department's Guidelines and the DoN Application Kit. The Project addresses and identified need for MRI services in the Applicant's service area and represents the most cost effective and efficient means of meeting this identified need. Accordingly, the Department's approval of this application will allow the Applicant to continue to meet its patients' needs for MRI services, improving the quality and effectiveness of health care in the service area.

Attachment/Exhibit

A



The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC HEALTH

HOSPITAL LICENSE

In accordance with the provisions of the General Laws, Chapter III, Sections 51-56 inclusive, and the regulations promulgated, thereunder, a license is hereby granted to:

Massachusetts Eye and Ear Infirmary

Name of Applicant

for the maintenance of Massachusetts Eye and Ear Infirmary at 243 Charles Street, Boston, MA 02114

and satellites as listed below. The license is valid until September 1, 2018 subject to revocation or

suspension, either wholly or with respect to a specific service or specific services, or a part or parts thereof.

<u>HOSPITAL SERVICES</u>	<u>SERVICES LICENSED TO DELIVER INDICATED BY AN X</u>	<u>BEDS</u>	<u>SATELLITES</u>
Medical/Surgical	X	22	North Suburban Center One Montvale Avenue, 5th Floor Stoneham, MA 02180
Pediatric Service	X	19	Massachusetts Eye & Ear at East Bridgewater One Compass Way, Suite #100 East Bridgewater, MA 02333
			Massachusetts Eye and Ear Quincy (Annex) 500 Congress Street, Suite #1C Quincy, MA 02169
TOTAL NUMBER OF BEDS		<u>41</u>	
Ambulatory Care Services	X		
Emergency Services	X		

Commissioner of Public Health

LICENSE No 2167

September 2, 2016
Date Issued

POST CONSPICUOUSLY



The Commonwealth of Massachusetts
DEPARTMENT OF PUBLIC HEALTH
HOSPITAL LICENSE

In accordance with the provisions of the General Laws, Chapter III, Sections 51-56 inclusive, and the regulations promulgated, thereunder, a license is hereby granted to:

Massachusetts Eye and Ear Infirmary

Name of Applicant

for the maintenance of **Massachusetts Eye and Ear Infirmary** at **243 Charles Street, Boston, MA 02114**

and satellites as listed below. The license is valid until **September 1, 2018** subject to revocation or suspension, either wholly or with respect to a specific service or specific services, or a part or parts thereof.

SATELLITES (IF APPLICABLE)

#	Name of Satellite	Street Address	Floor/Suite	City or Town	Zip Code	Type of Services	
						Outpatient	Inpatient
4	Massachusetts Eye and Ear Infirmary	54 Baker Avenue Extension	3rd Floor, Suite #303	Concord, MA	01742	X	
5	Massachusetts Eye and Ear Infirmary at Joslin	Beetham Eye Clinic 1 Joslin Place	Ground Floor	Boston, MA	02215	X	
6	Massachusetts Eye and Ear at Longwood	800 Huntington Avenue		Boston, MA	02115	X	
7	MEEI Vestibular Center at Braintree Rehabilitation Hospital	250 Pond Street	1st Floor	Braintree, MA	02184	X	
8	Massachusetts Eye and Ear Infirmary - Southern New England Retina Associates	30 Man Mar Drive	Suite #2	Plainville, MA	02762	X	

LICENSE No **2167**

September 2, 2016
Date Issued

POST CONSPICUOUSLY

C. Factors Applied

FACTORS APPLIED IN DETERMINATIONS OF NEED

Factor 1

FACTOR 1: HEALTH PLANNING PROCESS

1.1 Please provide a brief description of the annual planning process used by your institution, including the decision to undertake the proposed project. (Answer on a separate sheet)

Massachusetts Eye and Ear Infirmary ("Applicant" or "Hospital") conducts an annual planning process to evaluate the efficiency and effectiveness of the services that it provides in meeting the health care needs of the residents in its primary service area. The planning process involves the participation of the Applicant's employees, managers, patients, Board of Trustees, and physicians. In addition, the Applicant evaluates statistical information regarding demand, need, trends, and advances in the services it provides.

The Applicant is a forty-one (41) bed specialty academic medical center that serves as a teaching affiliate of Harvard Medical School. There are over 180 physicians on the medical staff. Many of the Applicant's programs and services are provided in connection with its wide-ranging research and educational missions. In addition, the Applicant's medical staff are also involved in the community to offer services. Input received as a result of the Hospital's community presence and its research and teaching missions enhances the Applicant's ability to conduct thorough planning processes.

The Applicant's MRI service currently operates one (1) fixed unit. Through its institutional planning process, as well as regular meetings of the radiology department, the Applicant identified the need for the availability of additional MRI services at its main campus. The addition of the second fixed unit will allow the Applicant to decrease the current excessive waiting time, which is three (3) weeks for most patients and up to three (3) months for pediatric patients, who require anesthesia, to more acceptable levels. The addition of a second MRI unit at the Hospital will allow it to provide imaging services in a more efficient and effective manner and greatly improve patient access to specialty MRI imaging and diagnoses.

The Applicant consulted with various representatives of the Department relative to this application. In addition, it sought input from providers in its service area that use the MRI service. Consistent with the requirements of Factor 1 of the Determination of Need ("DoN") Magnetic Resonance Imaging Guidelines ("Guidelines"), the primary objective of these consultations was to assure that the service was needed and that it would not result in the unnecessary duplication of services. Additionally, as evidenced by letters support included in this Application, the Applicant's Project demonstrates sufficient support from area health care providers as required by the Guidelines.

FACTOR 1: HEALTH PLANNING PROCESS

- 1.2 Did you consult with other providers in the primary service area of this project about the relationship of this project to existing or planned operations at their institutions?

YES X NO

- 1.2a If your answer to question 1.2 was "NO", please explain below why you did not consult with other providers.

- 1.2b. If your answer to question 1.2 was "YES", please supply the name and titles of persons with whom you consulted and results of the consultation. (use separate sheet if necessary)

Planning related to the Project involved a variety of consultations with providers and various bureaus and divisions within the Department. Additionally, the Applicant consulted with physicians affiliated with the Hospital that rely on MRI services as a diagnostic tool to complement their practice. The following individuals were consulted regarding this project:

- Mark A Varvares, MD, FACS, Associate Chair, Department of Otolaryngology, Mass. Eye and Ear
- Joseph F. Rizzo III, MD, Director, Department of Neuro-Ophthalmology, Mass. Eye and Ear
- Eric H. Holbrook MD, Division Chief, Department of Rhinology, President of the Medical Staff, Mass. Eye and Ear
- Michael J. McKenna, MD, Otology, Neuro-Otology, and Skull Base Surgery, Mass. Eye and Ear
- James A. Brink, MD, Radiologist-in-Chief, Massachusetts General Hospital
- Annie W. Chan, MD, Radiation Oncology, Massachusetts General Hospital

For further indication of support for this project and the results of the consultations, please refer to the letters of support provided at **Exhibit: Letters of Support**. Based on these consultations, the Applicant determined that the Project, as proposed, will not duplicate any existing services in its service area. Moreover, the Project will improve access to MRI services for patients of both Mass. Eye and Ear, as well as Massachusetts General Hospital.

FACTOR 1: HEALTH PLANNING PROCESS

- 1.3 Since a broad range of inputs is valuable in the planning of a project, applicants are encouraged to undertake a diverse consultative process. Please indicate which, if any, of the following agencies or groups you consulted in the development of this application.

Determination of Need Program (DPH) YES ☒ NO ☐

Date(s) January, 2017

Contact Person(s) Nora Mann

Department of Mental Health (for mental health projects) YES ☐ NO ☐ N.A. ☒

Date(s) _____

Contact Person(s) _____

Executive Office of Elder Affairs (for projects with special significance for elders) YES ☐ NO ☐ N.A. ☒

Date(s) _____

Contact Person(s) _____

EOHHS Office of Acute and Ambulatory Care YES ☒ NO ☐ N.A. ☐

Date (s) January, 2017

Contact Person(s) Steven Sauter

Other Relevant Agencies or Parties YES ☒ NO ☐ N.A. ☐

Name (s) MassHealth

Date(s) January, 2017

Contact Person(s) David Garbarino

Name (s) _____

Date(s) _____

Contact Person(s) _____

Factor 2

FACTOR 2: HEALTH CARE REQUIREMENTS

2.1 How will this project affect accessibility of services for the prospective patients who are poor, medically indigent and/or Medicaid eligible?

The proposed Project will ensure continued access to MRI services in the Applicant's service area. Accessibility of services for prospective patients who are poor, medically indigent and/or Medicaid eligible will not be adversely affected in the event of approval of this Project. The Applicant will continue to treat all patients regardless of ability to pay, consistent with the Applicant's published Patient Financial Assistance Policy. All cases that present for MRI services will be considered and accepted according to clinical treatment protocols, regardless of payor status. The Applicant will maintain data relative to payor and nonpayor sources and maintain records of volume and care from each source annually, and such reports will be available to the department upon request.

2.2 Describe below and on additional sheet(s) your need analysis for this project including any special conditions for consideration. If your analysis is inconsistent with the relevant need methodology or criteria of Determination of Need Guidelines, please explain on the additional sheet(s) why you believe your methodology is more appropriate. Long-term care applications should show how they meet the criteria for bed replacement and/or substantial renovation of beds or the facility, consistent with the *May 25, 1993 Determination of Need Guidelines for Nursing Facility Replacement and Renovation*.

I. Introduction

The Applicant is a forty-one (41) bed specialty academic medical center whose main campus is located in Boston, along with seventeen (17) affiliated sites in Massachusetts and Rhode Island. The Applicant provides clinical care primarily on an outpatient basis (90% of patient service revenues). The Hospital is also a teaching affiliate of Harvard Medical School, one of the world's premier leaders in medical education and training. As a specialty teaching and research facility, the Applicant serves a broad regional service area, covering most of eastern Massachusetts, but attracting patients from all over the world.

The Applicant maintains active adult and pediatric services treating conditions of the eyes, ears, nose, throat, head and neck. The Applicant performs over 20,000 major surgeries annually in its twelve (12) operating rooms located on its main campus. The Applicant maintains a five (5) room Surgicenter at its main campus and a four (4) room Surgicenter at its location in the Longwood Medical Area of Boston for minor surgical procedures. Additionally, the Applicant staffs forty-one (41) inpatient beds and a 24/7 Emergency Department, New England's only 24/7 designated eye trauma center. A copy of the Applicant's license is provided at Exhibit A of the Project Summary.

As part of its radiology department, the Applicant offers a range of diagnostic imaging services with a focus on studies of the head and neck, whose anatomy require very high resolution images for diagnosis and treatment. Due to the growing number of applications in the field of diagnostic medicine generally and the evolution of head and neck cancers specifically, MRI is a critical component of the Applicant's diagnostic imaging complement. The Applicant has long provided quality MRI services to its patients. Its service currently includes one (1) MRI unit.

II. Population Related Demand

In determining that sufficient demand exists for the addition of a second MRI unit at the Hospital, the Applicant reviewed population growth trends for its service area. This review included an analysis of

FACTOR 2: HEALTH CARE REQUIREMENTS

historic trends and future population projections to determine whether there is sufficient population-based need for the Project. Based on these population trends, the Applicant determined that the demand for the additional MRI unit will continue to grow.

A. Service Area Defined

As a specialty hospital treating patients throughout the community, the Center for Health Information Analysis does not define the Applicant's PSA. The Applicant defined its primary service area ("PSA") based on patient origin data maintained by the Applicant for fiscal year 2015. The Applicant defined its PSA as the counties of Massachusetts, New Hampshire, and Rhode Island, which account for 92% of the Applicant's major surgical procedures. The specific counties and the number patients originating from them are detailed below. As the table illustrates, the Applicant serves a broad service area comprised mainly of the counties of eastern Massachusetts, southern New Hampshire, and northern Rhode Island.

MASSACHUSETTS EYE AND EAR PSA

STATE	COUNTY	PROCEDURES	PERCENT	CUMULATIVE
MA	MIDDLESEX	5,583	27.8%	27.8%
	SUFFOLK	3,269	16.3%	44.1%
	NORFOLK	2,792	13.9%	58.0%
	ESSEX	1,891	9.4%	67.5%
	PLYMOUTH	1,453	7.2%	74.7%
	WORCESTER	798	4.0%	78.7%
	BRISTOL	763	3.8%	82.5%
	BARNSTABLE	362	1.8%	84.3%
	HAMPDEN	120	0.6%	84.9%
	BERKSHIRE	60	0.3%	85.2%
	HAMPSHIRE	57	0.3%	85.5%
	FRANKLIN	39	0.2%	85.7%
	DUKES	36	0.2%	85.8%
	NANTUCKET	20	0.1%	85.9%
NH	ROCKINGHAM	344	1.7%	87.7%
	HILLSBOROUGH	270	1.3%	89.0%
	STRAFFORD	80	0.4%	89.4%
	MERRIMACK	76	0.4%	89.8%
	CARROLL	37	0.2%	90.0%
	GRAFTON	36	0.2%	90.1%
	CHESHIRE	28	0.1%	90.3%
	BELKNAP	26	0.1%	90.4%
	COOS	8	0.0%	90.5%
	SULLIVAN	1	0.0%	90.5%
RI	PROVIDENCE	168	0.8%	91.3%
	KENT	49	0.2%	91.5%
	NEWPORT	44	0.2%	91.8%
	WASHINGTON	37	0.2%	91.9%
	BRISTOL	22	0.1%	92.1%
OTHER	OTHER COUNTIES	1,594	7.9%	100.0%

FACTOR 2: HEALTH CARE REQUIREMENTS

B. Population Trends

In evaluating the need for the expansion of its MRI service, the Applicant reviewed historical and projected population data for its PSA. This data demonstrates the Applicant's PSA has experienced steady growth, which is expected to continue through 2030. The data further demonstrates a demographic shift to an older population. In 2015, state population estimates indicate that there were 9,169,419 residents in the Applicant's PSA. This represents a 3% increase from the 2010 census when the population of the Applicant's PSA was 8,916,666. This growth trend is supported by the population projection of 9,815,798 by 2030. This is a 6% increase over 2015.

PSA POPULATION GROWTH TRENDS FOR MA, NH AND RI

STATE	CENSUS 2010	PROJECTION 2015	% INCREASE 2010-2015	PROJECTION 2030	% INCREASE 2015-2030
MASSACHUSETTS	6,547,629	6,792,591	4%	7,231,126	6%
NEW HAMPSHIRE	1,316,470	1,330,501	1%	1,402,878	5%
RHODE ISLAND	1,052,567	1,046,327	-1%	1,070,677	2%
TOTAL	8,916,666	9,169,419	3%	9,704,681	6%

III. Increasing Application of MRI

In addition to increased demand for MRI at the Hospital based on the population of the Applicant's service area, the stresses on the MRI resources at the Hospital arise from several additional factors. First, the anatomy in the head and neck region is very complex, requiring very high resolution imaging often with longer imaging times than traditional uses of MRI imaging. Second, there are an increasing number of patients with diseases of the head and neck seeking care at the Hospital requiring these complex imaging capabilities. Finally, there is a trend to move cases typically imaged with computed tomography to non-ionizing modalities, such as ultrasound and magnetic resonance to avoid the use of radiation, thereby increasing demand for MRI. This is particularly evident in disciplines that care for young children.

The region of the head and neck is the most anatomically complex region of the body. Abnormalities of some of the smallest structures make a major difference in determining an approach for treatment of patients with head and neck disease. In the temporal bone, for instance, the cochlea measures approximately 6mm in maximum dimension. Subtle changes of less than 1mm make a difference in approaches to cochlear implantation. Preoperative identification of the eighth cranial nerve is part of the planning procedure. This nerve is normally approximately .5 mm in size. These evaluations are performed with high resolution MRI requiring specialized sequences requiring longer scan times.

Head and neck cancer spreads by many routes. One of the most subtle routes is perineural spread where a malignancy can use the nerve as a conduit to carry the tumor into and through the skull base. The nerves are very small. The second division of the trigeminal is approximately 3mm in size and the facial nerve approximately half as large. Branches of these nerves are even smaller. The margin of the tumor as it follows these nerves is one of the most important parameters used to determine radiation planning. Precision imaging of these structures is complicated by the complex structure of the skull base with close proximity of fat, fluid, bone, and air. An image distortion referred to as a susceptibility artifact due to the close proximity of such disparate substances can completely obscure subtle abnormalities leading to incomplete evaluation of the tumor. These important issues often add to the time required to scan the patient in comparison to traditional MRI imaging performed in acute care settings.

FACTOR 2: HEALTH CARE REQUIREMENTS

The number of cases of head and neck cancers evaluated at the Hospital continues to grow. This disease has changed in the last decade and that has created the need for additional magnetic resonance imaging at the Hospital. The human papilloma virus (HPV) is responsible for a form of cancer that involves the oral pharynx and neck. This form of cancer behaves somewhat differently than the type of head and neck cancer that was prevalent in the past. The HPV related cancer has become much more common. Thankfully, the prognosis of these patients is better than that of the previous forms of head and neck cancers that were routinely treated at our institution and many of the cases are followed for much longer periods of time. This condition, however, requires additional interval comparative scans adding significantly to the volume of cases being imaged by magnetic resonance imaging.

In order to address the increased number of patients being treated and followed with head and neck cancer the Hospital has added two full time cancer surgeons to its staff. This substantially improves the ability of the institution to care for these patients, but also adds to the demand for scanner time in order for those surgeons to assess patients for treatment.

In recent years, there has been a strong movement to reduce the amount of radiation that a patient receives. This is particularly important in children where long term adverse effects are possible as the child grows into adulthood. To address this concern, there has been an attempt to move patients from computed tomography to magnetic resonance imaging if the clinical question can be answered as easily without exposing the child to even very low amounts of radiation. Many of these children require sedation or general anesthesia, adding significantly to the time required to complete the scan. For instance, the standard of care in the last several years for children being evaluated for cochlear implantation is to perform an MRI. Five years ago, most children had CT rather than MRI. This patient population is scanned under anesthesia. As a result, the additional number of scans and the increased time needed to perform pediatric studies adds significantly to the need for a second MRI unit at the hospital.

Overall, the neuro-otology and neuro-ophthalmology divisions at the Hospital continue to grow, adding new staff to take care of increasing numbers of patients. Both of these services rely very heavily on high resolution MRI imaging in order to identify potentially very small lesions pushing on very small nerves. Subtle changes in the signal (appearance) of the nerves may indicate significant disease. Although surgery is offered to some of these patients, alternative therapies are often suggested or the patient may be followed with interval scanning to determine if the lesion will grow. All of these factors have increased the number of patients for whom MRI scans are requested.

An additional scanner would greatly improve the Hospital's ability to accommodate increased demand. As therapeutic strategies become more sophisticated, the Hospital requires improved access for its patients to advanced specialized MRI imaging. Not only do these patients require very specialized high resolution scans as part of their initial diagnostic assessment, but more and more patients require additional scans to continually assess the adequacy of therapy. An additional MRI unit at the Hospital will allow it to meet the increased clinical demand and continue to improve and expand the use of MRI in this very specialized field. Both of these goals will substantially improve the care that the Hospital can provide to its patients.

FACTOR 2: HEALTH CARE REQUIREMENTS

IV. MRI Related Demand

In addition to the growing population and increasing uses of MRI, the Applicant reviewed the historical demand for its MRI services, which consists of one (1) fixed MRI unit. As the chart below illustrates, the demand for the applicant's MRI service has consistently increased over time.

Year	Scans	% Increase
2014	4,098	
2015	4,138	0.98%
2016	4,264	3.04%

Due to this growing demand for its MRI services, the Applicant's patients began to experience wait times to receive a scan appointment. To accommodate this increase in demand, the Applicant began to schedule patients on Sundays and extended its hours of operation during the week to 8:00 pm. Despite these accommodations, patients continue to wait up to three weeks for an MRI scan.

The Applicant's current MRI service capacity is based on its operation of one (1) fixed MRI unit. This unit is currently available from 6:30 a.m. to 8:00 p.m. Monday through Friday and from 7:00 a.m. to 7:00 p.m. on Saturdays and Sundays. The unit's availability is consistent with the outpatient nature of the services provided at the Hospital, specifically, to patients with serious vision problems and to head and neck cancer patients who are often receiving other treatments and services on the same day as their MRI scan. Coordination of MRI services with other services is critical to providing safe and quality care for the patients of the Hospital. Urgent requests do arise and are accommodated, which can result in operations extending as late as 8:00 pm.

The Applicant reserves two days each month to perform scans on pediatric patients that require anesthesia, a resource intensive endeavor that requires coordination between radiology, anesthesia, and nursing. These scans can take twice as long as a scan performed on an adult patient, causing the unit to be unavailable and precluding the department from scheduling other patient scans. Urgent requests on these days are accommodated as necessary, but can jeopardize the timeliness of the scheduled pediatric scans. This pediatric population currently experiences wait times of up to three months.

The overall average scan time for the unit is approximately 55 minutes per scan, with an additional five (5) minutes devoted to room turnover and related administrative functions. To determine the available annual hours of operation of the MRI service, the Applicant estimated the annual downtime. At least 1 day per year is devoted to preventative maintenance and quality assurance activities, during which time patient scans are not scheduled. In addition, the Applicant's service has 9 holidays on which the MRI unit is not operated.

Current Operating Capacity for Service (FY 2016)	
A. Actual Number of Scans	4,264
B. Average Hours per Scan	0.974
C. Annual Scan Hours (BxA)	4,151
D. Average Available Hours per Year	4,248
E. % Operating Capacity (C/D)	98%

*1 Fixed unit: (12x7), reduced by 12 hours of downtime and 108 holiday hours = 4,248 hours for 1 unit

FACTOR 2: HEALTH CARE REQUIREMENTS

The Applicant considered a variety of factors in projecting the future need for its MRI service. The most critical factor was the steadily increasing demand for additional MRI services that it has experienced in recent years. The growing demand affirmed the Applicant's conclusion that additional MRI capacity is required at the Hospital. In addition, the Applicant determined that the most clinically effective and efficient means of meeting this need was to request the addition of a second unit to the service. This is because of the coordinated and specialized services that the Applicant's patients require for safe, high quality care.

Considering the demand for increased capacity, as well as projected population growth for its service area, the Applicant developed the following projections for the number of scans that will be performed by its MRI service for the four year period of fiscal years 2017 through 2020.

Year	Scans	% Increase
2017	6,139	43.97%
2018	6,839	11.40%
2019	6,916	1.13%
2020	6,996	1.15%

Upon the addition of the second unit at the Hospital's main campus, the Applicant's service will have the requisite capacity to address accrued demand for additional scanning and expand the days reserved for pediatric patients requiring anesthesia. The Applicant proposes that it will continue to operate the existing unit from 6:30 a.m. to 8:00 p.m. Monday through Friday and from 7:00 a.m. to 7:00 p.m. on Saturdays and Sundays. Initially, the new unit will operate from 6:30 a.m. to 6:30 p.m. Monday through Friday. The service will continue its current operating parameters of approximately one hour per scan including room turnover and the downtime per year is expected to be the same as previously experienced.

Projected Operating Capacity for Service (FY 2020)	
A. Actual Number of Scans	6,870
B. Average Hours per Scan	0.974
C. Annual Scan Hours (BxA)	6,688
D. Average Available Hours per Year	6,748
E. % Operating Capacity (C/D)	99%

*1 Fixed unit: (12x7), 4,368 hrs per year, reduced by 12 hours of downtime and 108 holiday hours = 4,248 hours for 1 unit

*1 Fixed unit: (10x5), 2,600 hrs per year reduced by 10 hours of downtime and 90 holiday hours = 2,500 hours for 1 unit

As the table above indicates, the projected volume for the service including the second MRI will meet the minimum DoN standard of 90% operating capacity when fully operational in 2020. In fact, it will be at 97% capacity in 2018.

FACTOR 2: HEALTH CARE REQUIREMENTS

IV. Conclusion

In summary, the Applicant operates an active and specialized health care organization focused on providing mostly outpatient care for patients with disorders of the eyes, ears, nose, throat, head and neck. The demand for its MRI services has consistently increased over time. As the increase in demand began to cause an adverse effect in patient care with extensive wait times, and the requirement for patients to undergo scans concurrent with other services provided at the Hospital, the Applicant recognized that it could provide more efficient and effective MRI services that meet its growing demand by adding a second unit to its service.

As demonstrated through this Factor 2 discussion, the Applicant has supported its significant need for the expansion of its MRI service through the addition of a second unit. The historical level of demand, and accrued wait time for MRI services, supports the Applicant's projections relative to future demand for the MRI service. The need for the addition of this second unit is further confirmed by the projected population growth for the Applicant's service area. Finally, the constantly expanding use of MRI scanning in the diagnosis and treatment of disorders of the head and neck regions demonstrates that MRI will continue to be a critical tool for effective treatment. Expanding the MRI service will allow the Applicant to provide the most clinically effective services to its patients in an efficient manner.

The Applicant has demonstrated full compliance with the Guidelines in this Factor 2 and other Factors in the DoN kit. The applicant's existing MRI unit has been operating at above 90% capacity. The approval of this application will assure that the Applicant will have sufficient capacity to meet the needs of its patients for increased access to MRI services.

FACTOR 2: HEALTH CARE REQUIREMENTS

2.3: Statistical Data--Routine Inpatient Services **NOT APPLICABLE**

Complete only for those routine inpatient cost centers, as specified by the *Hospital Uniform Reporting Manual***, in which you are requesting a change.

	(1)	(2)	(3)	(4)	(5)	(6)
	Cost Center	Licensed Weighted Average Bed Capacity	Occupancy Rate	Average Length of Stay	Number of Discharges	Number of Patient Days
1						
2	20 Actual (A)					
3	20 (A)					
4	20 (A)					
5						
6	20 (P ₁)*					
7	20 (P ₁)					
8	20 (P ₁)					
9	20 (P ₁)					
10						
11	20 (P ₂)*					
12	20 (P ₂)					
13	20 (P ₂)					
14	20 (P ₂)					
15						
16						
17	20 Actual (A)					
18	20 (A)					
19	20 (A)					
20						
21	20 (P ₁)*					
22	20 (P ₁)					
23	20 (P ₁)					
24	20 (P ₁)					
25						
26	20 (P ₂)*					
27	20 (P ₂)					
28	20 (P ₂)					
29	20 (P ₂)					
30						
31						
32	20 Actual (A)					
33	20 (A)					
34	20 (A)					
35						
36	20 (P ₁)*					
37	20 (P ₁)					
38	20 (P ₁)					
39	20 (P ₁)					
40						
41	20 (P ₂)*					
42	20 (P ₂)					
43	20 (P ₂)					
44	20 (P ₂)					

*Note: P₁ assumes project is approved and P₂ assumes project is denied.

**Hospital Uniform Reporting Manual is available at <http://www.mass.gov/chia/docs/p/hospital-reports/hospital-uniform-reporting-manual.pdf>.

FACTOR 2: HEALTH CARE REQUIREMENTS

2.4: Statistical Data--Routine Inpatient Services **NOT APPLICABLE**

Complete only for those routine inpatient cost centers, as specified by the Division of Health Care Finance and Policy Uniform Reporting Manual**, in which you are requesting a change.

	(1)	(2)	(3)	(4)	(5)	(6)
	Cost Center	Licensed Weighted Average Bed Capacity	Occupancy Rate	Average Length of Stay	Number of Discharges	Number of Patient Days
1						
2	20 Actual (A)					
3	20 (A)					
4	20 (A)					
5						
6	20 (P ₁)*					
7	20 (P ₁)					
8	20 (P ₁)					
9	20 (P ₁)					
10						
11	20 (P ₂)*					
12	20 (P ₂)					
13	20 (P ₂)					
14	20 (P ₂)					
15						
16						
17	20 Actual (A)					
18	20 (A)					
19	20 (A)					
20						
21	20 (P ₁)*					
22	20 (P ₁)					
23	20 (P ₁)					
24	20 (P ₁)					
25						
26	20 (P ₂)*					
27	20 (P ₂)					
28	20 (P ₂)					
29	20 (P ₂)					
30						
31						
32	20 Actual (A)					
33	20 (A)					
34	20 (A)					
35						
36	20 (P ₁)*					
37	20 (P ₁)					
38	20 (P ₁)					
39	20 (P ₁)					
40						
41	20 (P ₂)*					
42	20 (P ₂)					
43	20 (P ₂)					
44	20 (P ₂)					

*Note: P₁ assumes project is approved and P₂ assumes project is denied.

**Hospital Uniform Reporting Manual is available at <http://www.mass.gov/chia/docs/p/hospital-reports/hospital-uniform-reporting-manual.pdf>.

Factor 2: HEALTH CARE REQUIREMENTS, continued

2.5: Statistical Data--Major Ancillary Services

Complete only for those routine inpatient cost centers, as specified by the *Hospital Uniform Reporting Manual***, in which you are requesting a change.

	(1) Service	(2) Standard Units of Measure	
1	Surgical Services	*	
2	20 Actual (A)		
3	20 (A)		
4	20 (A)		
5			
6	20 (P ₁)*		
7	20 (P ₁)		
8	20 (P ₁)		
9	20 (P ₁)		
10			
11	20 (P ₂)*		
12	20 (P ₂)		
13	20 (P ₂)		
14	20 (P ₂)		
15			
16	Radiology Diagnostic	* Scans	
17	2014 Actual (A)	4,098	
18	2015 (A)	4,138	
19	2016 (A)	4,264	
20			
21	2017 (P ₁)*	6,139	
22	2018 (P ₁)	6,839	
23	2019 (P ₁)	6,916	
24	2020 (P ₁)	6,966	
25			
26	2017 (P ₂)*	4,264	
27	2018 (P ₂)	4,264	
28	2019 (P ₂)	4,264	
29	2020 (P ₂)	4,264	
30			
31	Laboratory		
32	20 Actual (A)		
33	20 (A)	*	
34	20 (A)		
35			
36	20 (P ₁)*		
37	20 (P ₁)		
38	20 (P ₁)		
39	20 (P ₁)		
40			
41	20 (P ₂)*		
42	20 (P ₂)		
43	20 (P ₂)		
44	20 (P ₂)		

* On this line, column 2, state the standard unit of measure as specified by the *Hospital Uniform Reporting Manual*. Note: Use copies of this sheet as needed.

**Hospital Uniform Reporting Manual is available at <http://www.mass.gov/chia/docs/p/hospital-reports/hospital-uniform-reporting-manual.pdf>.

Attachment/Exhibit

A



MRI Clinical Oversight Committee

**June 23, 2016, 7:00 a.m.
Radiology (Dr. Curtin's Office)**

Attendees:

Hugh D. Curtin, MD, Chief of Radiology, Mass. Eye and Ear
Mark A Varvares, MD, FACS, Associate Chair, Department of Otolaryngology, Mass. Eye and Ear
Annie W. Chan, MD, Radiation Oncology, Massachusetts General Hospital (attended via phone)

Absent:

Joseph F. Rizzo III, MD, Director, Department of Neuro-Ophthalmology, Mass. Eye and ear

Notes:

1. No reported concerns with MRI protocols.
2. Reviewed MRI exam volume and current operational capacity concerns.
3. Discussed problems with coordinating MRI with same day clinical scheduling.
Importance to patients of a distance particularly cancer patients that have difficulty travelling.
4. Reviewed draft drawings for a second MRI room and discussed plans to move forward with submitting a DoN application with DPH.
5. Meeting adjourned, but noted the need to discuss upcoming MRI educational opportunities at Grand Rounds and Tumor Board.

Factor 3

FACTOR 3: OPERATIONAL OBJECTIVES

- 3.1 If this application proposes establishment of a new health service at your institution, do you have evidence of the clinical effectiveness of this new service? Please provide relevant documentation.

The Applicant does not propose the addition of a new health service at the Hospital. The Application is for an expansion of an existing approved MRI service.

- 3.2 Briefly describe quality assurance mechanisms that will be used to assess the appropriateness of the health service proposed in this project.

The Applicant has a number of established mechanisms in place to assess the appropriateness of the MRI service proposed in this Application. These mechanisms include the provision of appropriate staffing levels and support services to ensure efficient and effective use of resources, the review of quality and appropriateness of the service by a Clinical Oversight Committee ("Committee"), the availability of ongoing training and education of staff to maintain quality MRI services and the use of MRI equipment that has been proven safe and effective for clinical use. The use of these quality assurance mechanisms, described in further detail below, ensures the Applicant provides clinically effective and efficient MRI services. In addition, to guarantee the availability of quality services to all patients, the scheduling of all patients is based solely on clinical protocols and without consideration of the patient's ability to pay.

Staffing

The Applicant's MRI service is staffed in compliance with the Guidelines to provide quality care and efficiently utilize resources. The MRI service is supervised by a Medical Director responsible for the clinical operation of the service. Attached as Exhibit A is the Medical Director's CV. In accordance with Measure 1 of the Guidelines, the Medical Director's responsibilities include the taking and interpreting of scans and overseeing patient screening. The Medical Director has the requisite experience required by the Guidelines, including education in physics instrumentation and MRI clinical applications.

In full compliance with Measure 2 of the Guidelines, the Applicant's MRI service is staffed by qualified Board-certified radiologists that maintain the appropriate training and familiarity with the diagnostic use and interpretation of cross-sectional images of the anatomical regions under examination. The radiologists also screen patient requests for MRI services. A Board-certified radiologist is on-site a sufficient amount of time to allow the radiologist to participate in the regular screening of patients for scans.

As required by Measure 3, qualified radiologists are on-site at least 50% of the time that scans are performed. The scheduling of non-routine patients or patients that require the presence of a physician takes into account the availability of a radiologist on-site. As a result, a radiologist is also present whenever a patient requires non-routine imaging protocols or may require the attention of a physician. A physician

FACTOR 3: OPERATIONAL OBJECTIVES

with less than six (6) months experience with MRI has his or her interpretations reviewed by the Medical Director.

The Applicant staffs its MRI service consistent with its historical practices and the requirements of the Guidelines. The staffing pattern for this service is detailed in Schedule C of Factor 6 and includes 6.24 full time equivalent employees. Specifically, as indicated by Measure 5, this staffing pattern allows the Applicant to meet the data collection requirements of the Department, as well as provide adequate technical and other support required by the MRI service. Any additional required technical and patient support is available during patient scanning as consistent with the Department's Guidelines.

Support Services

To provide for the most efficient diagnosis and consistent with Measure 1 of the Guidelines, the Applicant offers ready access to a full range of support services. These services include CT scanning, nuclear medicine and ultrasound. Such support services are available on-site at the Hospital's main campus. As the Applicant is a specialty hospital, it does not treat patients requiring angiography.

The Applicant employs active quality assurance monitoring functions, which are reviewed during the regularly occurring meetings of the radiology department. The Applicant's committee last met in June, 2016 and will hold at least semi-annual meetings thereafter. Membership includes representatives from at least two specialties other than radiology along with a physician from outside the Hospital. No Committee member will have an equity interest in the MRI service or in the Hospital. The Committee will review clinical protocols and appropriateness of clinical scans. Additionally, the Committee will develop educational programs and supervise the data and evaluation of MRI data.

Equipment

The Applicant's MRI service currently holds DoN approval for one (1) MRI unit. The new unit that is the subject of this Application is a Philips Ingenia 3.0T Omega fixed MRI unit. As required by Measure 1 of this standard of the Guidelines, all units are proven safe and effective for clinical use and hold pre-market approval from the U.S. Food and Drug Administration.

Education and Training

Consistent with Measures 1 and 2 of this standard, the Applicant offers a number of ongoing education and training programs for staff and other providers in the community. All MRI service staff receive initial training in the equipment and proper procedures and protocols for the service. MRI technical staff receive training in scanning, protocols, anatomy and MR physics. Technologists are met with at least monthly. CPR training is provided to all technologists. The Applicant also offers educational opportunities for physicians in the community so that they may become familiar with the general applications of MRI.

FACTOR 3: OPERATIONAL OBJECTIVES

- 3.3 Does your institution have written referral arrangements pertaining to services covered in this application with other health care providers in the primary service area of this project? (Nursing and rest homes' applicants should have an agreement with at least one acute care hospital and one home health organization).

YES _____(Please give brief descriptions of these referral arrangements)

NO X (Please explain why you do not have referral arrangements)

The applicant currently provides MRI services to its patients and service area.

Note: In addition to the above measures, all projects must meet the operational objectives of relevant service-specific guidelines.

Attachment/Exhibit

A

Updated: December 23, 2016

Name: HUGH D. CURTIN, M.D.

Office Address: Massachusetts Eye and Ear Infirmary, Department of Radiology,
243 Charles Street, Boston, MA 02114

Home Address: 268 Wellesley Avenue, Wellesley, MA 02481

Work Phone: (617) 391-5971

Work Email: hdcurtin@meei.harvard.edu

Work Fax: (617) 573-3490

Place of Birth: Canton, New York

EDUCATION:

1968 B.Sc. St. Michael's College, University of Toronto, Ontario, Canada
1972 M.D. Upstate Medical Center (SUNY Upstate Medical University)
Syracuse, NY
1999 MA (Hon) Harvard University

POSTDOCTORAL TRAINING:**Internships and Residencies:**

1972 - 1973 Intern in Medicine, University of Pittsburgh, Presbyterian
University Hospital, Pittsburgh, PA
1973 - 1976 Resident in Radiology (Chief Resident in Radiology, 1975-1976),
University of Pittsburgh, Presbyterian University Hospital,
Pittsburgh, PA

Clinical and Research Fellowships:

05/1979 - 10/1979 Clinical Fellow in Head and Neck Radiology, Foundation
Ophtalmologique, Adolphe de Rothschild, Paris, France
09/1998 - 10/1998 Japan Society for the Promotion of Science Short Term Invitation
Fellowship for Research in Tokyo, Japan

LICENSURE AND CERTIFICATION:

1973	Pennsylvania License Registration
1976	American Board of Radiology
1995	Massachusetts License Registration
1997	Maine License Registration
1999	CAQ Neuroradiology

ACADEMIC APPOINTMENTS:

1977 - 1983	Assistant Professor of Radiology, University of Pittsburgh
1983 - 1988	Associate Professor of Radiology, University of Pittsburgh
1988 - 1995	Professor of Radiology and Otolaryngology, University of Pittsburgh
1998 - 1999	Associate Professor of Radiology, Harvard Medical School, Boston, MA
1999 - Present	Professor of Radiology, Harvard Medical School, Boston, MA

HOSPITAL APPOINTMENTS:

1976 - 1977	Staff Radiologist, Department of Radiology, Ostra Sjukhuset, Barnklinikerna, Goteborg, Sweden
1977 - 1995	Staff Radiologist, Department of Radiology, Presbyterian University Hospital, Pittsburgh, PA
1979 - 1990	Director of Radiology, Department of Radiology, Eye and Ear Hospital, Pittsburgh, PA
1990 - 1995	Director of Radiology, Eye and Ear Institute Pavilion, Montefiore Hospital, Pittsburgh, PA
1995 - Present	Chair of Radiology, Massachusetts Eye and Ear Infirmary, Boston, MA
1995 - Present	Radiologist, Massachusetts General Hospital, Boston, MA
2005 - Present	Radiologist, Brigham and Women's Hospital, Boston, MA

AWARDS AND HONORS:

1995	Fellow, American College of Radiology
1995	Biography written by Michael Huckman, M.D. and published in AMERICAN JOURNAL OF NEURORADIOLOGY
1999	Juan Tavares 80th birthday party, Head Table
2002	Distinguished Service Award , The American Board of Radiology in recognition of devoted and unselfish service
2003	Jack Wittenberg Teaching Award , MGH Department of Radiology. Teacher of the year award, Nomination and selection by radiology residents for contributions made to the education of the radiology residents.
2003	Presidential Citation American Academy of Otolaryngology - Head and Neck Surgery.

2007	William Montgomery Teaching Award , Teacher of the year award, Department of Otolaryngology and Laryngology, Nomination and selection by ENT residents for contributions made to education of the ENT residents.
2008	Nova Scotia Association of Radiologists , Honorary member.
2005 - 2016	Boston's " 100 Top Docs ", Boston Magazine.
2009	Gold Medal Award Winner , American Society of Head and Neck Radiology.
2012	Distinguished Alumnus Award , Upstate Medical University

MAJOR COMMITTEE ASSIGNMENTS:

Dental and Medical School:

1985 -	Thesis Committee, School of Dental Medicine, University of Pittsburgh
1987 - 1995	Clinical Faculty Appointments/Promotions Committee, School of Medicine, University of Pittsburgh, PA

Hospital:

1979 - 1991	Executive Committee, Eye and Ear Hospital, Pittsburgh, PA
1981 - 1991	Utilization Review Committee, Eye and Ear Hospital, Pittsburgh, PA
1983 - 1985	Radiation Safety Committee, Chairman, Eye and Ear Hospital, Pittsburgh, PA
1985 - 1995	Promotions Committee, Department of Radiology, University of Pittsburgh, PA
1986 - 1991	Research Committee, Department of Radiology, University of Pittsburgh, PA
1986 - 1995	Medical Advisory Board, Central Imaging Services, Inc. (University of Pittsburgh)
1986 - 1995	MRI Project Committee, Central Imaging Services, Inc. (University of Pittsburgh)
1987 - 1995	Users and Management Committees, Central Imaging Services, Inc. (University of Pittsburgh)
1987 - 1995	Credentials and Cancer Committees, Eye and Ear Hospital, Pittsburgh, PA
1987 - 1995	Long Range Plan Coordination Committee, Central Imaging Services, Inc. (University of Pittsburgh)
1995	Research Committee, Massachusetts Eye and Ear Infirmary
1995	Professional Services Review Committee, Massachusetts Eye and Ear Infirmary (2000 Chair)
1996	Development Committee, Massachusetts Eye and Ear Infirmary
2000	Quality Council Committee, Chairman, Massachusetts Eye and Ear Infirmary

Miscellaneous Committees:

1998	Writing Committee, "Renewal of Certification Study Guide in Otolaryngology and Head and Neck Surgery" edited by Jack L. Gluckman, M.D. and published by the American Academy of Otolaryngology and Head and Neck Surgery Foundation, Inc., Kendall Hunt Publishing Co., Iowa, 1998
1999 - 2002	American Board of Radiology (ABR) Neuroradiology CAQ Recertification Exam Committee (3 Year Appointment)
2000	Ad Hoc Search Committee for Director, Division of Neuroradiology, Children's Hospital
2000 - 2001	Promotions Committee, Ad Hoc Committee Brigham & Women's/Harvard School of Dental Medicine, Dana-Farber Cancer Institute
2002	Ad hoc Evaluation Committee for the evaluation of Dr. Dimitri Azar for appointment as Professor of Ophthalmology at MEEI and Schepens Eye Research Institute
2003	Ad hoc Committee for Professor of Ophthalmology to serve as Director of Neuroophthalmology Service at MEEI
2003	Ad hoc Committee – HMS special panel
2004	Ad hoc Committee – HMS search for a Professor of Oral Medicine, Infection and Immunity to be appointed as Head of the Dept. of Oral Medicine, Infection and Immunity at Harvard School of Dental Medicine
2004	Ad hoc Committee, Chair – HMS Professor Appointment
2005	Ad hoc Evaluation Committee member – BIDMC Radiological Society of North America Radiographics Neuroradiology Panel
2013	Ad hoc Committee for Chief of ENT Department, Massachusetts Eye and Ear Infirmary

**MEMBERSHIPS, OFFICES, AND COMMITTEE ASSIGNMENTS
IN PROFESSIONAL SOCIETIES:**

1979 - 1995	Pittsburgh Roentgen Society (Secretary 1985 -1987; Vice President 1987 - 1988; President Elect 1988 - 1989; President 1989 - 1990)
1983	Radiological Society of North America (Refresher Course Committee 1996), Program committee, Presiding Officer of the Scientific Poster Session Neuroradiology (Head & Neck) 2001; 2002 Neuroradiology/Head & Neck Subcommittee of Program Committee (reappointment); Scientific Program Committee, 2002, 2005 RSNA 2006 Self-Assessment Module SAM course, Task Force on Oncologic Imaging Therapies 2006-2009; Refresher Course Committee, 2007-2012; Track Committee, 2008-2012
1983	American Society of Head and Neck Radiology

(Chairman, Education Committee and Member of Nominating Committee 1990 - 1994; and Vice-President 1989 - 1990 and 1993 - 1994; Treasurer 1991 - 1993; President Elect 1994 - 1995; **President** 1995 - 1996); Publications Committee 1997-1998; Rules Committee 1999-2001. 2003-2004 Ad Hoc International Relations Committee. ASHNR Publications Committee for 2003-2004. Ad Hoc International Relations Committee 2004-2005. Ad Hoc International Relations Committee 2005-2006. Ad Hoc International Relations Committee and ASHNR ACR Alternate Councilor 2006-2007.

- 1983 **American College of Radiology**
(Head and Neck IV Syllabus Committee 1989 - 1993; Alternate Councilor from Pennsylvania 1994; and Convocation of Fellowship - September 12, 1995), Alternate Councilor 2005-2006
- 1984 - 1995 **Pennsylvania Radiological Society** (Nominating Committee 1990 - 1993)
- 1985 - 1995 **Pennsylvania Medical Society**
- 1985 **American Medical Association**
- 1985 - 1995 **Allegheny County Medical Society**
- 1987 **The Association of University Radiologists**
- 1987 **American Roentgen Ray Society**
- 1989 **North American Skull Base Society**
(Founding Member 1989, Education Committee and Executive Committee President Elect 1993 - 1994; **President** 1994 - 1995) Board of Directors 1992-1998
- 1991 **Eastern Neuroradiological Society**
(Chairman of Membership Committee 1992 - 1993); Rules Chairman 1998-1999; Membership Committee 1999-2001
- 1992 **American Society of Neuroradiology**
(Publication Committee - Deputy Editor, Ex Officio 1993-1997; (Head and Neck Representative - Executive Committee and Program Committee, and Standards for Practice Subcommittee of the Clinical Practice Committee 1996-1997, Research Committee 1996-), Abstract Reviewer for 40th Annual Meeting ASNR 2002; Abstract Reviewer for ASNR 45th Annual Meeting 2006; #5DCoding & Reimbursement subcommittee of Clinical Practice Committee 2002-2008; Gold Medal Award Committee, Senior Member 2004-2007; Symposium NER - Speaker (May 2005);

Gold Medal Award Committee, Chair (2006); Gold Medal Award Committee, Chair (2011)

1997 **New England Roentgen Ray Society**

2000 - Present **American Board of Radiology, MOC Examination Committee**

EDITORSHIP:

1992 – 1997 **Head and Neck Editor - American Journal of Neuroradiology**

EDITORIAL BOARDS:

1984 - 1985 Advisory Editorial Board, Radiology
 1985 - 1995 Associate Editor, Radiology
 1992 - Present Clinical Radiology Editor, Otology
 1992 - Present Clinical Radiology Editor, American Journal of Otolaryngology
 1993 - Present Editorial Board; Deputy Editor, Head and Neck Editor, (1993-1997)
 American Journal of Neuroradiology
 1993 - Present Editorial Board, Skull Base (formerly Skull Base Surgery)
 1998 - Present Editorial Board, The Seminars in Ultrasound, CT and MRI
 2000 - Present Consultant, To The Editor Radiology

Reviewer Assignments:

American Journal of Neuroradiology
American Journal of Radiology
American Journal of Otolaryngology
Annals of Otolaryngology
Journal of Computer Assisted Tomography
Journal of Magnetic Resonance Imaging
Laryngoscope
Otology
Radiographics
Skull Base Surgery
European Journal of Radiology

RECOGNITION OF REVIEW SERVICE

October 1996 **Radiology Editor's Recognition Award** for reviewing
 December 1998 with Special Distinction in recognition of outstanding
 December 1999 service as a reviewer of scientific manuscripts submitted
 2000-2008 for publication in *Radiology*
 December 1997 **Radiographics Editor's Certificate of Recognition** for
 December 1998 outstanding service to the Radiological Society of
 December 1999 North America and Radiographics in the review of

December 2000 **scientific and *infoRAD* exhibits** at the annual meeting and scientific assembly

December 1997 **Radiographics Editor's Certificate of Recognition** for outstanding service to the Radiological Society of North America and *Radiographics* in the **review of manuscripts** submitted for publication

December 1998

December 1999

December 2000

2005

2006

2006 **European Journal of Radiology/European Journal of Radiology Extra** Editor's Recognition Award for reviewing

Sociedad Argentina de Radiologia, Consulting Member, National Consulting Committee, Revista Argentinian de Radiologia

MAJOR RESEARCH INTERESTS:

Head and Neck Imaging

RESEARCH GRANTS:

05/1990 - 04/1995 **National Institute of Dental Research**
TMD: Treatment of TMD. A multi-axial approach. Principal Investigator: Thomas E. Rudy, Ph.D. Co-Principal Investigator: Dennis C. Turk, Ph.D., Co-Investigators: Hussein Zaki, D.D.S., M.S., Hugh D. Curtin, M.D. (2 R01 DE07514-05A1), Effort 5%.

05/1991 - 08/1995 **National Institute of Health**
Comparative Imaging of Cancer Metastases to Neck Nodes. Principal Investigator: Hugh D. Curtin, M.D. (1001CA54016-01) Effort 10-15%.

08/2005 - 12/2007 **R21 Phase II Clinical Trial**
Hugh D. Curtin, M.D. (Research Collaborator) A Phase II Study OF AZD2171 Therapy in Recurrent HNSCC

SELF REPORT OF TEACHING:

Local Contributions:

Medical/Dental School Courses and Lectures:

University of Pittsburgh Medical and Dental Schools:

1973 - 1976 Radiology Technology Anatomy Course - University of Pittsburgh Medical School

1976 - 1995 4th Year Radiology Elective – Facial Trauma Course - University of Pittsburgh Medical School

- 1982 Lecture (Radiography: Paranasal Sinuses) at the University of Pittsburgh, School of Dental Medicine, Pittsburgh, PA (November 29th)
- 1980 - 1995 Radiology Senior Elective with Tutorial and Film: University of Pittsburgh Medical School
- 1985 - 1993 First Year Medical Students, University of Pittsburgh, "Imaging and Anatomy" Course

Harvard Dental School:

- 1997 Lecturer at Orofacial Pain Course, Harvard Dental School (*October 9th*)

Massachusetts General Hospital

- 2002 Cox II Head and Neck Lecture (*June 14*)

Graduate Medical Courses/Seminars/Invited Teaching Presentations:

Residents and Fellows:

- 1980-1995 Imaging - Monthly lecture series for Otolaryngology residents at University of Pittsburgh
- 1980-1995 Multiple lectures, conferences and noon conferences for Radiology residents as part of the University of Pittsburgh's Radiology Residency Program
- 1995 Lecturer to Radiology residents and fellows from the Massachusetts General Hospital at Neuroradiology Mini-course, Boston, MA
- 1996 Board Review Sessions for residents in Radiology - from Massachusetts General Hospital, Brigham and Women's Hospital, BU Medical Center, Beth Israel Deaconess Medical Center, and other area teaching hospitals
- 1996 Lecturer at Introductory Summer Course for first year ENT residents at Massachusetts Eye and Ear Infirmary, Boston, MA
- 1996 Lecturer at Basic Sciences Course for Massachusetts Eye and Ear Infirmary Otolaryngology Residents, Boston, MA

MIT Speech and Hearing Graduate Students:

- 1997 Radiology Overview of Clinical Aspects of Speech and Hearing Course for 7 MIT Speech and Hearing Graduate Students.

Radiological Technologists:

- 1975 - 1976 Organized Anatomy Course for Radiologic Technologists, University of Pittsburgh
- 1991 Lecture ("Head and Neck Imaging") at the CT Technologist Symposium, Donegal, PA (*September 28th*)

Advisory and Supervisory Responsibilities in Clinical Setting:

- 1980-1995 Department of Radiology, University of Pittsburgh. Responsible for Residents from University of Pittsburgh, as well as residents rotating through head and neck division of the University of Pittsburgh from Allegheny General Hospital, Mercy Hospital, West Pennsylvania Hospital, and St. Francis Hospital. All residents from these programs spend at least a one-month rotation. In addition, supervision of neuroradiology fellow rotations as well as one fellow who did a one-year head and neck fellowship at the University of Pittsburgh during this period.
- 07/1995 Chief of Radiology, Massachusetts Eye and Ear Infirmary; Responsible for 25 residents (12 from Massachusetts General Hospital, 6 from Brigham and Women's Hospital and 7 from Beth Israel Deaconess Medical Center (one month rotations), in addition to residents from Mt. Auburn and University of Rhode Island (one month elective) and 16 Neuroradiology Fellows (12 from Massachusetts General Hospital and 4 from Brigham and Women's Hospital - one to two month rotations) during their rotations through Department of Radiology at Massachusetts Eye and Ear Infirmary.

Leadership Roles:**Hospital Committee Positions:**

- 07/1995 Member of Education Committee, Department of Radiology, Massachusetts General Hospital, Boston, MA
- 01/1999 Member of Board of Directors, Massachusetts Eye and Ear Associates
- 06/2000 Member of Information Systems Subcommittee, Massachusetts Eye and Ear Infirmary
- 2001 Chairman, Quality Council, Professional Services Review Committee
- 2011 **President/Chair**, Infirmary and Foundation Boards of Directors, Massachusetts Eye and Ear Associates

Professional Leadership Roles Related to Teaching:

- 1990 Organization of Head and Neck Syllabus for the American College of Radiology Annual Meeting, Laguna Niguel, CA (April 12th-13th)
- 1995 **Program Chairman and Chairman, Continuing Medical Education Committee** Sixth Annual Meeting of the North American Skull Base Society, February 18th-21st, 1995, Naples, Florida
- 1995 **Program Chairman** American Society of Head and Neck Radiology Annual Conference and Post Graduate Course, May 17th-21st, in Pittsburgh, Pennsylvania
- 1995 **Course Co-Director-Head and Neck Section** Harvard Postgraduate Course

- on Basic and Current Concepts in Neuro-radiology, Head and Neck Radiology, and Neuro-MRI, Boston, MA (held annually in late September or early October)
- 1996 **Course Co-Director - Special Course in Head and Neck Imaging.** Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois (1996-2004)
- 2004 **ABR Examiner in Category B Skull Base and ENT** Sub specialty in Neuroradiology (2005, 2006); Sub specialty examiner Nov. 2007, Jan. 2008, Nov. 2008, Jan. 2009
- 2005 **Otolaryngology Education Lecture Series** Massachusetts Eye and Ear Infirmary, Meltzer (May 31)
- 2008 **American Board of Radiology**, January 14-16 Tucson, AZ (Jan 14-16)
- 2008 **Radiology Society of North America** Highlights Course Orlando, (Feb 17-19)

REGIONAL, NATIONAL, AND INTERNATIONAL CONTRIBUTIONS:

Regional Presentations

Invited Presentations (Regional-Sweden):

- 1976 Introduction to Computed Tomography, Ostra Sjukhuset, Goteborg, Sweden

Presentations (Regional-Pennsylvania):

(Titles Upon Request)

- 1981 Broncho-Esophagology Course, University of Pittsburgh, Eye and Ear Hospital, Pittsburgh, PA (April 24th)
Clinical Evaluation of the Vestibular System Meeting, Hyatt House, Pittsburgh, PA (August 20th-22nd)
Current Approaches in Head and Neck Oncology Meeting, University of Pittsburgh School of Medicine, Pittsburgh, PA (September 11th)
Alumni Association of Eye and Ear Hospital of Pittsburgh, Otolaryngology Teaching Day, Sheraton Hotel, Pittsburgh, PA (April 2nd)
Clinical Evaluation of the Vestibular System Meeting, Hyatt House, Pittsburgh, PA (August 26th-29th)
- 1982 ENT Update meeting, Shadyside Hospital, Pittsburgh, PA (October 12th)
Shadyside Hospital, Pittsburgh, PA (November 9th)
University of Pittsburgh, School of Dental Medicine, Pittsburgh, PA (Nov 29th)
- 1983 Broncho-Esophagology Course, University of Pittsburgh, Eye and Ear Hospital, Pittsburgh, PA (March 18th-19th)
Prosthodontic Society Meeting of Western Pennsylvania, Pittsburgh, PA (June 6th)
Vestibular System: Clinical Testing, Diagnosis and Treatment Meeting, Pittsburgh, PA (August 18th-20th)
Three Rivers Dental Conference, Monroeville, PA (September 20th-22nd)

- 1984 Symposium on Etiology and Management of TMJ Disorders: A Multi-Disciplinary Approach at the Hyatt Regency Hotel, Pittsburgh, PA (*November 4th-6th*)
 Broncho-Esophagology Course, University of Pittsburgh, Eye and Ear Hospital, Pittsburgh, PA (*March 16th-17th*)
 The Vestibular System: Clinical Testing, Diagnosis and Treatment Meeting, Pittsburgh, PA (*August 23rd-25th*).
 Tumors of the Cranial Base: Diagnosis and Treatment Meeting, Pittsburgh, PA (*October 12th-14th*)
1985 St. George Oral Cancer Society Meeting, Pittsburgh, PA (*April 9th*).
 Vestibular System: Clinical Testing, Diagnosis and Treatment, Pittsburgh, PA (*August 9th-10th*)
 Surgical Anatomy and Techniques of the Temporal Bone Course, Pittsburgh, PA (*November 11th-15th*)
 1986 Vestibular System: Clinical Testing, Diagnosis, and Treatment Meeting, Hyatt Hotel, Pittsburgh, PA (*August 1st-2nd*)
 1987 Surgical Anatomy of the Temporal Bone Course University of Pittsburgh, Department of Otolaryngology, Pittsburgh, PA (*January 19th*)
 Department of Ophthalmology Conference, University of Pittsburgh, Pittsburgh, PA (*January 22nd*)
 Cranial Base Tumors: Diagnosis and Treatment, Western Psychiatric Institute and Clinic, Pittsburgh, PA (*November 21st*)
 1988 Seminars for the Practicing Physician, University of Pittsburgh, PA (*April 6th*)
 Ninth Annual Symposium, Allied Ophthalmic Personnel, Pittsburgh, PA (*April 22nd*)
 International Symposium on Cranial Base Surgery, Pittsburgh, PA (*September 13th-17th*)
 1990 Pittsburgh NMR Institute, Pittsburgh, PA (*October 16th*)
 Pittsburgh NMR Institute, Pittsburgh, PA (*April 18th*)
 Otolaryngology Alumni Teaching Day in conjunction with The Eye and Ear Institute, Pittsburgh, PA (*April 20th*)
 Otolaryngological Update in conjunction with the Eye and Ear Institute, Pittsburgh, PA (*May 18th*)
 Acoustic Neuroma Association Regional Symposium I, Pittsburgh, PA (*May 19th*).
 Cranial Base Surgery Practical Applications Workshop, Pittsburgh, PA (*June 29th-30th*)
 Pittsburgh NMR Institute, Pittsburgh, PA (*October 16th*)
 1991 CT Technologist Symposium, Donegal, PA (*September 28th*)
 1992 Advances and Controversies in Cranio-maxillofacial Surgery Continuing Education Course, Pittsburgh, PA (*April 4th-5th*)
 Cranial Base Microsurgery and Radiosurgery: A Practical Applications Workshop, Eye and Ear Institute, Pittsburgh, PA (*May 11th*)
 1993 Grand Rounds, University of Pittsburgh Medical Center Facial Nerve Center, Pittsburgh, PA (*October 26th*)
 1994 Surgical Anatomy of the Head and Neck Course, Eye and Ear Institute Pittsburgh, PA (*June 20th-24th*)
 Visiting Professor, University of Pittsburgh, PA (*October 12th*)

National and International Presentations:

- 1981 Invited presentation - Facial Pain: Multidisciplinary approach, Hot Springs, Virginia (September 30th- October 3rd)
- 1983 Invited presentation - Sixth Annual Update, Deer Valley, Utah (February 19th-20th)
- 1984 Invited presentation - Skeletal Radiology at the Point Meeting, Phoenix, Arizona, (March 17th-22nd)
Invited presentation – Sixteenth Annual Conference on Radiology in Otolaryngology and Ophthalmology, San Antonio, Texas (May 3rd-6th)
- 1985 - Invited presentation - Ear, Nose and Throat Diseases in Children: A 1985 Update, Palm Beach, Florida, (December 7th-11th)
- 1986 - Invited presentation - 17th Annual Conference and Postgraduate Course in Head and Neck Radiology of the American Society of Head and Neck Radiology, Seattle, Washington (May 15th-17th)
- Invited presentation - CT Technologist Seminar, General Electric Medical Systems, St. Louis, Missouri (July 26th)
- 1987 - Visiting Professor - Department of Radiology, Massachusetts General Hospital and Massachusetts Eye and Ear Infirmary, Boston, MA (February 18th-19th)
- Invited presentation - Skeletal Radiology at the Point Meeting Phoenix, Arizona (March 28th-April 2nd)
- Invited lecturer - Annual Postgraduate Course in Head and Neck Radiology, Milwaukee, Wisconsin (May 28th-31st)
- Invited speaker - Evoked Response Audiometry Biennial International Symposium, University of Virginia, Charlottesville, Virginia (August 24th-27th)
- Visiting Professor - Department of Radiology, West Virginia University, West Virginia (November 20th)
- Invited presentation - Ear, Nose, and Throat Disease in Children 1987 Update, Palm Beach, Florida (December 12th-16th)
- 1988 - Visiting Professor - Department of Radiology, Ohio State University, Columbus, Ohio (January 14th-15th)
- Visiting Professor - Department of Radiology, Thomas Jefferson University Hospital, Philadelphia, PA (February 16th-17th)
- Invited presentation - International Symposium on Skull Base Surgery, Pittsburgh, PA (September 13th-17th)
- Invited lecturer - Imaging Head & Neck, Focus on Neoplasia and Infections Diagnosis and Management, University of

- Tennessee (October 27th-28th)
 Visiting lecturer - Roswell Park Memorial Institute,
 Buffalo, NY (November 5th)
- Refresher Course - Radiological Society of North America Meeting, Chicago, Illinois (November 27th-December 2nd)
 - Invited lecturer - Ear, Nose, and Throat Diseases in Children: 1988 Update, Ft. Lauderdale, Florida (December 7th-11th)
- 1989
- Visiting professor - West Virginia Roentgen Society, West Virginia University, Morgantown, (January 11th)
 - Visiting professor - New York Roentgen Society, NY (March 20th)
 - Visiting professor - The University of Michigan, Ann Arbor Michigan (April 26th-29th)
 - Invited presentation - 20th Annual Conference and Postgraduate Course in Head and Neck Radiology, American Society of Head and Neck Radiology, Toronto, Ontario, Canada, (May 17th-21st)
 - Invited speaker - The American Academy of Otolaryngology Head and Neck Surgery, New Orleans, Louisiana (September 25th)
 - Invited speaker - General Electric's CT Medical Advisory Board Meeting, Milwaukee, Wisconsin (October 11th-13th)
 - Refresher course - Radiological Society of North America, Chicago, Illinois (November 30th)
- 1990
- Invited lecturer - First Annual Meeting of the North American Skull Base Society, Los Angeles, CA (February 19th)
 - Invited lecturer - 12th Annual Sisson Head and Neck Workshop, Steamboat Springs, Colorado (March 5th-9th)
 - Invited presentation - The NYU Medical Center's Post Graduate Course in Neuroradiology, New York, New York (April 2nd-5th)
 - Organization of head and neck syllabus for the American College of Radiology, Laguna Niguel, California (April 12th-13th)
 - Invited lecturer at the Neuro-Head and Neck Radiology Course, Washington, D.C. (September 14th)
 - Invited presentation - The American Academy of Otolaryngology-Head and Neck Surgery Meeting, New Orleans, Louisiana (September 25th)
 - Invited presentation - Neuroradiology, Head and Neck Radiology and Neuro-MRI Course, Boston, MA (October 1st-5th)
- 1991
- Visiting professor - Rhode Island Hospital/Brown University Providence, Rhode Island (January 7th)
 - Invited lecturer at The Medical College of Pennsylvania's Head and Neck Imaging: Into the 90's, Atlantic City, NJ (February 2nd)
 - Invited lecturer - John Hopkins Computed Tomography

- Workshop, Orlando, Florida (February 7th)
 - Visiting professor at The University of Connecticut Health Center, Farmington, CT (February 13th)
 - Invited lecturer - Second Annual Meeting of the North American Skull Base Society, Orlando, Florida (March 1st)
 - Invited presentation - American Society of Head and Neck Radiology, Boston, Massachusetts (April 6th)
 - Visiting professor - McGill University/The Montreal General Hospital, Montreal, Canada (April 8th-9th)
 - Invited presentation - 91st Annual Meeting of the American Roentgen Ray Society, Boston, MA (May 7th)
 - Invited presentation - 29th Annual Meeting of the American Society of Neuroradiology, Washington, D.C. (June 14th)
 - Invited presentation - Third Annual Meeting of the Eastern Neuroradiology Society, Newport, Rhode Island (September 14th)
 - Invited presentation - The International Congress of Head and Neck Radiology in Zurich, Switzerland (October)
 - Refresher Course - Annual Meeting of the Radiological Society of North America, Chicago, Illinois (November)
 - Invited presentation - NIH Consensus Development Conference: Acoustic Neuroma, Bethesda, Maryland (December 11th)
- 1992
- Invited lecturer - MR Imaging of the Brain, Spine, Head & Neck, Meeting, Hospital of the University of Pennsylvania, Maui, Hawaii (February 10th)
 - Invited lecturer - Third Annual Meeting of the North American Skull Base Society, Acapulco, Mexico (February 16th)
 - Invited lecturer - Head and Neck Imaging: Total Immersion, University of California School of Medicine (UCSF), Rancho Mirage, California (February 27th)
 - Visiting Professor - Greater Kansas City Radiologic Society and the Kansas City University Medical Center, Kansas City, Missouri (April 8th)
 - Invited lecturer - First International Skull Base Congress, Hannover, Germany (June 15th)
 - Invited lecturer - American Academy of Otolaryngology-Head and Neck Surgery, Washington, D.C. (September 17th)
 - Panel moderator - Scientific Session on Head and Neck at the Eastern Neuroradiological Society Fourth Annual Meeting Washington, D.C. (September 18th-20th)
 - Invited lecturer - 1992 Harvard Postgraduate Course: Basic and Current Concepts in Neuroradiology, Head and Neck Radiology and Neuro-MRI, Boston, MA (September 24th)
 - Visiting Professor - 13th Annual Harold C. Ochsner,

- M.D. Radiology Lecture, Methodist Hospital of Indiana, Indianapolis, Indiana (October 1st-2nd)
 - Invited lecturer - Plastic and Maxillofacial Surgery Panel Discussion at the American College of Surgeons Clinical Congress, 78th Annual Meeting, New Orleans, Louisiana (October 15th)
 - Invited lecturer - Maxillofacial Imaging Symposium at State University of New York at Buffalo School of Medicine and Biomedical Sciences and School of Dental Medicine, Buffalo, NY (October 23rd)
 - Refresher Course - Annual Meeting of the Radiological Society of North America (November)
 - Visiting professor - New York Roentgen Society, New York, New York (December 21st)
- 1993
- Visiting professor - New York Hospital, Cornell University Medical College, New York, NY (January 21st)
 - Invited lecturer - Computed Body Tomography, 1993, The Cutting Edge sponsored by Johns Hopkins Medical Institutions, Orlando, Florida (February 3rd-7th)
 - Moderator - General Sessions II and III at the Fourth Annual Meeting of the North American Skull Base Society, Scottsdale, Arizona (February 11th-14th)
 - Invited lecturer - University of Pennsylvania Medical Center's "MRI Update", Vail, Colorado, (March 29th-April 2nd)
 - Visiting professor - Columbia-Presbyterian Medical Center, New York, NY (April 28th-29th)
 - Invited lecturer - American Society of Head and Neck Radiology, Vancouver, British Columbia (May 13th-16th)
 - Invited lecturer - Harvard Medical School's "Basic and Current Concepts in Neuroradiology and Head and Neck Radiology and Neuro-MRI", Boston, MA (September 23rd)
 - Visiting professor - West Penn Hospital, Pittsburgh, PA (September 29th)
 - Visiting professor - University of California San Francisco, San Francisco, CA (October 14th-15th)
 - Refresher Courses at the Annual Meeting of the Radiological Society of North America, Chicago, Illinois (November 28th-December 3rd)
- 1994
- Review course - Head and neck and spine. 46th Annual Meeting of the Los Angeles Radiological Society, Los Angeles, CA (January 28th-30th).
 - Invited lecturer - North American Skull Base Society Meeting, Orlando, Florida (February 18th-23rd)
 - Invited lecturer - Eighth Annual MRI Conference, Phoenix, Arizona (March 13th-16th)

- Invited presentation - American Roentgen Ray Society's Annual Meeting, New Orleans, Louisiana (April 24th-29th)
 - Invited presentation - American Society of Neuroradiology 32nd Annual Meeting, Nashville, Tennessee (May 2nd-5th)
 - Invited presentation - Radiological Diagnostic Oncology Group Meeting, Arlington, VA (May 22nd-24th)
 - International Congress of Head and Neck Radiology, Washington, D.C. (June 15th-19th).
 - Visiting professor - Harvard Medical School, Massachusetts Eye and Ear Infirmary, Department of Otolaryngology, Boston, MA (June 30th)
 - Eastern Neuroradiological Society Annual Meeting, Williamsburg, VA (September 16th-18th).
 - Harvard Medical School Postgraduate Course "Basic and Current Concepts in Neuroradiology and Head and Neck Radiology and Neuro-MRI", Boston, MA (October 3rd-7th)
 - American College of Surgeons, 80th Annual Clinical Congress Postgraduate Course, Chicago, IL (October 9th-14th)
 - Visiting professor - Chicago Radiology Society, Chicago, IL (October 20th)
 - Refresher Courses - Radiological Society of North America's Annual Meeting, Chicago, IL (November 27th-December 2nd)
- 1995
- North American Skull Base Society Meeting, Naples, Florida (February 17th-21st)
 - The New England Roentgen Ray Society Meeting, Boston, MA (September 15th)
 - Harvard Postgraduate Course on Basic and Current Concepts in Neuroradiology, Head and Neck Radiology, and Neuro-MRI Boston, MA (September 18th-22nd)
 - Moderator - Head and Neck Papers, Eastern Neuroradiological Society Seventh Annual Meeting, Niagara-on-the-Lake, Ontario, Canada (October 7th-8th)
 - Refresher Courses and Invited presentation - 81st Scientific Assembly and Annual Meeting of the RSNA, Chicago, Illinois (November 26th - December 1st)
 - MGH Neuroradiology Minicourse at MGH, Boston, MA (December 13th)
- 1996
- Basic Sciences Course for MEEI Otolaryngology Residents at MEEI, Boston, MA (January 26th)
 - Netherlands Society for Radiology Sandwich Course (February 13th-16th).
 - Advances in the Management of Head and Neck Cancer Meeting, Boston, MA (March 15th)
 - Lecture - Veterans Administration Hospital, Boston (March 27th)
 - Radiologic Diagnostic Group Meeting, RDOG III, IV, V in Arlington, Virginia. (April 22nd)

- Dept. of Radiological Sciences, at University of California, Irvine Medical Center, Orange, CA, and Orange County Radiological Society, Orange, California (April 23rd)
 - American Society of Head and Neck Radiology Annual Meeting at Beverly Hills Hotel, Los Angeles, CA (April 27th)
 - Grand Rounds Lecture– Oral and Maxillofacial Service, MGH (May 1st)
 - Visiting Professor - Beth Israel Hospital, Dept. of Radiology two conferences (May 9th)
 - Invited lecturer and presentation - 34th Annual Meeting of the American Society of Neuroradiology, Seattle, Washington (June 29th-July 2nd)
 - Fourth International Conference on Head and Neck Cancer in Toronto, Canada (July 28th)
 - Introductory Summer Course for first year ENT Residents at MEEI, Boston, MA (September 3rd).
 - Moderator - Eastern Neuroradiological Society Meeting in Mystic, Connecticut (October 6th)
 - Post Graduate Course on Basic and Current Concepts in Neuroradiology and Head and Neck Radiology, and Neuro-MRI in Boston, MA (October 7th-11th).
 - Update: Brain, Spine, neurovascular and ENT Imaging Course, New York (October 19th-20th).
 - International Symposium: Head & Neck Radiology 1996 in Kumamoto, Japan (October 24th-25th).
 - Visiting Professor - Nihon University School of Dentistry at Matsudo, Matsudo, Japan (October 28th)
 - Co-Director - Special Course in Head and Neck Imaging (8 Sessions) and Invited lecturer - 82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America in Chicago, Illinois (December 1st-6th)
- 1997
- Invited lecturer - 21st Annual Big Sky Radiology Conference at Big Sky, Montana (February 2nd-5th)
 - Invited lecturer - 13th Annual Computed Tomography Cutting Edge Course in Orlando, Florida (February 6th-9th)
 - Invited lecturer -16th Annual Comprehensive Update in Neuroradiology and Head and Neck Radiology, Orlando, Florida (February 15th-19th)
 - Visiting Professor - Brown University, Providence, Rhode Island (March 3rd)
 - Invited presentation - 2nd Annual Advances in the Management of Head and Neck Malignancies Course, Boston (March 14th)
 - Invited presentation - 8th Annual Meeting of the North American Skull Base Society, Little Rock, Arkansas (March 21st-25th)
 - Invited presentation - International Diagnostic Course in Davos, Switzerland (April 5th-11th)
 - Invited presentation - American Roentgen Ray Society Meeting in Boston (May 4th-9th)

- Invited presentation - Joint Annual Meeting of the American Society of Neuroradiology and the American Society of Head and Neck Radiology, Toronto, Ontario (May 15th-22nd)
 - Visiting Professor - Mercy Hospital, Portland, Maine (June 5th)
 - MGH Radiology Minicourse Course at the Massachusetts Eye and Ear Infirmary (June 20th)
 - Invited presentation - Ninth Annual Meeting of the Eastern Neuroradiological Society in New York (September 21st)
 - Post Graduate Course on Basic and Current Concepts in Neuroradiology and Head and Neck Radiology, and Neuro-MRI in Boston (September 15th-19th)
 - Visiting lecturer - Geneva, Switzerland (October)
 - Orofacial Pain Course Sponsored by Harvard School of Dental Medicine (October 9th)
 - Invited presentation – 1997 International Congress of Head and Neck Radiology, Strasbourg, France (October 16th)
 - X Curson Internacional Diagnostico por Imagen del Oido, Barcelona, Spain (October 21st)
 - CT/MRI Update: 1997 Course sponsored by Brigham and Women's Hospital (October 29th)
 - Grand Rounds at Mt. Auburn Hospital (November 13th)
 - Refresher Course - Radiological Society of North America Meeting in Chicago, Illinois (November 30th-December 5th).
- 1998
- 50th Annual Midwinter Radiologic Conference at the Regal Los Angeles Biltmore, Los Angeles, CA (January 16th-17th)
 - Workshop - 4th Annual Computed Tomography Cutting Edge Course in Orlando, Florida (February 5th-8th)
 - Invited Panelist - 9th Annual Meeting of the North American Skull Base Society combined with the 1998 Joint Meeting of the Japanese Society for Skull Base Surgery, the Korean Skull Base Society, and the North American Skull Base Society in Kamuela, Hawaii (February 13th-17th)
 - Grand Rounds at Department of Otolaryngology, Boston University School of Medicine (March 4th)
 - Buffalo Radiological Society Meeting at University of Buffalo, New York (March 9th)
 - D.C. Metropolitan Radiological Society Meeting, in Washington, D.C. (March 26th)
 - Annual Meeting of the American Society of Head and Neck Radiology in Phoenix, Arizona (April 1st-5th)
 - 9th Annual Meeting of the American Society of Emergency Radiology in St. Petersburg, Florida (April 5th-9th)
 - Speech and Hearing Course at MEEI (April 14th)
 - Head and Neck Mini-Course, MGH (April 27th-May 8th)
 - XVI Symposium Neuroradiologicum in Philadelphia, PA (May 15th-17th)
 - Moderator - 36th Annual Meeting of the American Society of Neuroradiology in Philadelphia, PA (May 17th-21st)

- Introductory Summer Otology Course, Massachusetts Eye and Ear Infirmary (July 27th)
 - Radiology held in Boston (September 14th-18th)
 - Short term invitation fellowship for research in Japan sponsored by the Japan Society for the promotion of Science at Showa University School of Dentistry and Dental University, Faculty of Dentistry and Kumamoto University Faculty of Medicine in Japan 39th Scientific Assembly and Annual Meeting of the Japanese Society for Oral and Maxillofacial Radiology (September 29-October 12th)
 - Special lecturer - Annual Meeting of the Japanese Society of Head and Neck Radiology at the Keio Plaza Hotel in Tokyo (October 5th)
 - Mount Sinai 1998 Update: Brain, Spine, Neurovascular & ENT Imaging in New York City (October 14th-18th)
 - Annual Harvard Post Graduate Course in Neuroradiology and Head and Neck MRI/CT Update 1998 in Boston (October 28th)
 - Refresher Course - Annual Meeting of the Radiological Society of North America, Chicago, Illinois (December 3rd).
- 1999
- Invited lecturer - Radiology Residents, MGH Minicourse, (January 21st)
 - Invited speaker - Head and Neck and Neuroradiology Course in Panama (January 22nd)
 - Invited speaker - ENT Neuro Course in Kuwait (March 1st & 2nd)
 - Invited speaker - Neuro/ENT Imaging: Review and Update, Boca Raton, Florida (March 13th & 14th)
 - Invited speaker - Pre-Congress Meeting of the Royal College of Radiologists of Thailand for the 50th Anniversary of the Bhumidol Abulyadej Hospital in Bangkok, Thailand (March 17th)
 - Invited speaker - Grand Annual Meeting of the Royal College of Radiologists of Thailand (March 18th-20th)
 - Invited lecturer - Radiology Resident Board Review Session, Boston Medical Center, Boston, MA (March 31st)
 - Invited lecturer - Residents at MGH Radiology Minicourse (Head and Neck Series) (April 12th-23rd)
 - Invited speaker - Annual Meeting of the American Roentgen Ray Society, New Orleans (May 10th)
 - Invited speaker and Moderator - Joint Annual Meeting of the American Society of Neuroradiology and the American Society of Head and Neck Radiology, San Diego, California. (May 24th)
 - Refresher Course – American Society of Neuroradiology, San Diego (May 25th)
 - Panelist - 10th Annual Meeting of the North American Skull Base Society in Chicago, Illinois (May 29th).
 - Introductory Summer Otology Course for ENT Residents at MEEI (July 26th)
 - Annual Harvard Post Graduate Course in Neuroradiology and Head and Neck Radiology held in Boston (October 4-8)
 - 1999 Mt. Sinai Update: Brain, Spine, Neurovascular & ENT Imaging (October 15th-16th)
 - MRI/CT Update 1999 in Boston (October 27th)

- Minicourse in Radiology for Residents from MGH & BWH, Boston, MA (November 8th-19th)
 - Refresher Course – Radiological Society of North America Annual Meeting, Chicago, Illinois (November 28th-December 3rd)
- 2000
- Co-Moderator Scientific Session – CT 2000 Symposium in Starnberg, Germany (January 19th-23rd)
 - John Hopkins Hospital Meeting in Orlando, Florida (February 17th-20th)
 - Invited lecturer – High Altitude/Masters in Otolaryngology Meeting in Vail, Colorado (February 21st-25th)
 - Invited lecturer - Craniofacial Tumor Session, North American Skull Base Society, Scottsdale, AZ (March 17-20)
 - Invited lecturer – 32nd International Diagnostic Course in Davos Switzerland, daily presentation of two seminars (March 26-31)
 - Invited Focus Session Moderator, American Society of Neuroradiology, Atlanta, GA (April 7)
 - Invited lecturer – St. Louis University, Sancte Lecture, St. Louis, MO (April 11)
 - Invited lecturer – Radiology Residents Board Review, BI/Deaconess, & Mt. Auburn at BIDMC, Boston, MA (Apr 18)
 - Invited moderator – American Society of Head and Neck Radiology and European Society of Head and Neck Radiology, Washington, DC (May 5)
 - Invited lecturer – American Roentgen Ray Society, Washington, DC (May 9)
 - Invited lecturer – Residents at MGH Radiology Minicourse, Boston, MA (May 24)
 - Keynote speaker – International Conference on Head and Neck Cancer, San Francisco, CA (July 29-Aug.1)
 - Invited lecturer – Eastern Neuroradiological Society, Stowe, VT, (August 27)
 - Invited presenter and moderator – Annual Harvard Post Graduate Course in Neuroradiology and Head and Neck Radiology, Boston, MA (Oct 5 & 6)
 - Invited speaker and moderator – Brigham and Women's Hospital, MRI Update 2000, Boston, MA (Oct 12)
 - Invited speaker – New England Medical Center, Grand Rounds, Boston, MA (Dec 7)
- 2001
- Invited lecturer – 26th Annual Big Sky Conference Big Sky, Montana (Feb. 4-7)
 - Invited presentation – Neuro/ENT Imaging: Review and Update Naples, FL (March 19-22)
 - Moderator and presenter, American Society of Neuroradiology Boston, MA (April 23rd & 24th)
 - Invited speaker and moderator – ASNR, Hynes Convention Ctr. Boston, MA (Apr. 24-27)
 - Invited lecturer – Special featured lecture, 21st International Congress of Radiology, Buenos Aires, Argentina (Sept. 4-8)
 - ENRS Annual Meeting 2001, Bolton Landing, NY (Sept. 20-23)
 - Moderator and lecture – Harvard Medical School Post Graduate Course, Program Director Head & Neck Radiology, Swissotel, Boston (Oct. 1-5)

- Invited lecturer – XV International Congress of Head and Neck Radiology, Kumamoto, Japan (Oct 18-19)
 - Invited Visiting Professor for Radiology Grand Rounds, 1st E. Ralph Heinz
 - Invited Lecturer – Mount Sinai 2000 Update: Brain, Spine, Neurovascular & ENT Imaging, New York, NY (Oct 21-22)
 - Invited CAQ examiner – American Board of Radiology, Louisville, KY (Nov 4-6)
 - Invited speaker Refresher courses, RSNA, Chicago, IL (Nov. 28, 29)
 - Refresher Course – 2000 Radiological Society of North America Annual Meeting, Chicago, IL (Nov 26-Dec 1)
- 2002
- Invited speaker – Johns Hopkins Computed Body Tomography 81st Annual Computed body Tomography 2002, Orlando, FL (Feb 14, 15)
 - Invited Lecturer – MGH/B&W Mini Course (Feb 27-Mar 5)
 - Invited speaker – International Institute for Continuing Medical Education, Neuroradiology Head & Neck Imaging, Naples, FL (March 20, 21)
 - Invited speaker – 2nd International Symposium on Multidetector CT 2002, Starnberg, Germany (April 19)
 - Lecturer – ASNR 40th Annual Meeting, Vancouver, BC, Canada (May 16)
 - Invited speaker – Eastern Neuroradiology Society 14th Annual Mtg Charlevoix, Quebec, Canada (August 23-25)
 - Invited speaker - ASHNR 36th Annual Meeting and Symposium Cleveland, OH (Sept. 11-15)
 - Visiting Professor – Hitchcock Medical Center, Lebanon, NH (Sept 24)
 - Program Director, Invited speaker, moderator, Harvard Medical School, Dept. of Continuing Education Basic and Current Concepts in Neuroradiology Head and Neck Radiology, Cambridge, MA (Oct.3&4)
 - Invited speaker – Mt. Sinai 2002 Updates, New York, NY (October 16)
 - Invited speaker – RUSH CT MR Imaging 92nd Annual Course, Dr. Huckman. Chicago, IL (October 31)
 - Invited speaker – Reconstruction and Wound Healing Problems in H&N Surgery, Dr Fabian's Course, Meltzer Auditorium, MEEI (Nov. 1)
 - Invited Speaker, Presiding Officer, Refresher Courses RSNA, Chicago, IL (Dec 1-6)
- 2003
- Invited Speaker and Moderator– Neuroradiology in Paradise, Maui, Hawaii (Jan. 19-24)
 - Johns Hopkins “Computed Body Tomography 2003: The Cutting Edge”, Orlando, FL (Feb. 13-16)
 - Invited lecturer – MGH/BWH Minicourse Boston (Feb 24-March 8)
 - Invited lecturer – Sinai Neuroradiology and Head and Neck Imaging, Naples, FL (March 17-20)
 - Invited Visiting Professor, Western Pennsylvania Hospital Pittsburgh, PA (April 15 & 16)

- Invited Speaker, Focus Session Moderator, Reviewer ASNR 41st Annual Meeting Updates and New Techniques in Head and Neck Imaging, Washington, DC (April 6-May 1)
 - Update in Otology and Otologic Surgery for the General Otolaryngologist (Dr. Nadol's course) "Imaging in Otology" Meltzer Auditorium – MEEI, Boston (June 13)
 - Invited Speaker, 16th International Congress of Head and Neck Radiology Frankfurt, Germany (Sept 4-6)
 - Invited Lecturer and Moderator, Harvard Medical School, Department of Continuing Education, Cambridge, MA (Sept 25 & 26)
 - Invited Speaker ASHNR California, (Oct. 1-5)
 - Invited Speaker Mt. Sinai, NY, (Oct. 9-12)
 - Invited Lecturer, Dolan lecture Iowa, (Nov. 3-4)
 - Invited Lecturer, Imaging Film Panel, RSNA Chicago, IL (Nov 30-Dec 5)
- 2004
- Invited lecturer – Mexican Society of Radiology & Imaging XXVIII annual course, Mexico City (February 4-8)
 - Invited lecturer – Partners MGH/BWH Minicourse Boston, (Feb. 23-Mar. 5)
 - Invited lecturer – International Institute for CME, Inc., Neuro/ENT Imaging: Review & Update (Johns Hopkins) Naples, FL (March 15-18)
 - Invited lecturer – DAVOS 36th International Diagnostic course Davos, Switzerland (March 26-April 3)
 - Invited speaker - Eastern Neuroradiological Society (ENRS) Boston (Aug. 20-22)
 - Invited lecturer – 3rd Head and Neck Congress of the Chinese Society of Radiology, Zhengzhou City, Henan, China (Sept 12-20)
 - Harvard Medical School, Dept. of Continuing Education, Basic and Current Concepts in Head and Neck Radiology, Cambridge, MA (Sept. 30-Oct 1)
 - Invited speaker/moderator, Harvard Medical School/Brigham and Woman's Hospital, MRI/CT update, Boston, MA (October 17)
 - Visiting Professor – University of Wisconsin-Madison, Wisconsin (Nov. 18-19)
 - Refresher courses – Radiological Society of North America (RSNA) Annual Meeting, Chicago, IL (Nov 18-Dec 3)
- 2005
- Invited Lecturer – Johns Hopkins Computed Body Tomography, The Cutting Edge, Orlando, FL (February 17-20)
 - Invited Lecturer – Partners MGH/BWH Minicourse, Boston, (Feb 21-March 4)
 - Invited Lecturer – Neuro/ENT Imaging: Review and Update. Naples, FL (March 14-17)
 - Invited Speaker - Neuroradiology Course-Head and Neck, Rio de Janeiro (March 19)
 - Invited Speaker – North American Skull Base Society Toronto (April 7-10)
 - Invited Speaker – ASNR 43rd Annual Meeting (abstract reviewer) NER Foundation Symposium Toronto, Faculty and Symposium Moderator (May 22-27)
 - Invited Lecturer – University of Texas, MD Anderson Cancer Ctr. Visiting Professor for Ya-Yen Lee Memorial Lecture series

- (July 19-21)
 - Invited Speaker Eastern Neuroradiological Society (ENRS)
Ottawa, Ontario, Canada (August 25-27)
 - Invited Speaker – American Society of Head & Neck Radiology (ASHNR) 39th
Annual Meeting and Symposium, San Francisco, CA (September 21-25)
 - Invited Speaker and Moderator, Harvard Medical School, Department of
Continuing Education (Sept. 26- 30)
 - Invited Lecturer – Radiology in the Black Forest, Baden-Baden, Germany
(October 2-9)
 - Invited Speaker – Mt. Sinai 2005 Update, New York (October 20-23)
 - Invited Speaker – CT-MR Course, Chicago, IL (Oct 24)
 - Invited Speaker and Moderator MRI/CT Update post graduate course, Boston
Marriott Copley Place (Oct. 26)
 - Refresher courses – Radiological Society of North America (RSNA) Annual
Meeting, Chicago, IL (Nov 17-Dec 2)
- 2006
- Invited Speaker – Radiological Society of the Netherlands, Sandwich Course
Head and Neck (Feb 14-17)
 - Invited Speaker – North American Neuro-Ophthalmology Society Annual
Meeting. Expert Neuroradiologist for the Walsh Session, Tucson, AZ (Feb 26)
 - Invited Speaker – MEEI ENT Chiefs' Rounds, Boston, MA (Mar 1)
 - Invited Lecturer – Neuro/ENT Imaging: Review and Update Naples, FL
(Mar 10-16)
 - Invited Lecturer - MGH Mini Course, Boston (March 13-27)
 - Invited Visiting Professor – Tufts-New England Medical Center, (April 11)
 - Invited Lecturer – BWH/MGH Radiology Review, Boston Marriott
Neuroradiology lecture (April 13)
 - Invited speaker – Comprehensive Care of Laryngeal Cancer HMS/MEEI
Boston (May 4)
 - Invited Speaker – ENT Harvard Medical School CME Update in Otology and
Otolgic Surgery, Boston, MA (June 10)
 - Invited Speaker – MEEI Resident and Fellow Graduation, Boston, MA (June 15)
 - Invited Speaker, Oral Surgery Grand Rounds, MGH, Boston, MA (July 19)
 - Invited Speaker – Eastern Neuroradiological Society, Cambridge, MA (Aug 24)
 - Invited Lecturer - Harvard Medical School, Department of Continuing Education
Cambridge, MA (September 28 & 29)
 - Invited Lecturer- ASHNR Annual Meeting, Scottsdale, AZ (October 1)
 - Invited Lecturer – Mt. Sinai 2006 Update: Brain, Spine, Neurovascular & ENT
Imaging New York, NY (October 12)
 - Invited Speaker - BWH, MRI/CT Update, Cambridge, MA (October 25)
 - Invited Visiting Professor- University of Virginia, Radiology Grand Rounds
(October 26 & 27)
 - Refresher Courses – Radiological Society of North America (RSNA)
Annual Meeting, Chicago, IL (November 26-December 1)
- 2007
- Invited Visiting Professor, Brown University, RI Hospital, Radiology Grand

- Rounds (January 8)
 - Invited Visiting Professor, 9th International MRI Course, Riyadh, Saudi Arabia (January 18-25)
 - Invited Lecturer – Johns Hopkins, Computed Body Tomography 2007: The Cutting Edge, Orlando, FL (February 15-16)
 - Invited Lecturer, NEOS Lecture- MEEI, Meltzer, Boston (Apr 13)
 - Invited Lecturer, BGH/BWH Radiology Review Course, Radisson Hotel, Boston (Apr 27)
 - Invited Speaker – ARRS Orlando, FL (May 9)
 - Invited Lecturer- Neuro/ENT Imaging: Review & Update, Naples, FL (May 13-15)
 - Invited Speaker, New England Medical Center, Craniofacial Pain Headache Center, Grand Rounds, (June 6)
 - Invited Lecturer – American Society of Neuroradiology Annual Meeting Chicago, IL (June 12, 13)
 - Invited Speaker, Eastern Neuroradiological Society, 19th Annual Meeting (Aug 23-25)
 - Invited Speaker, Garda Course Italy, Head and Neck Challenge (Sept 14-15)
 - Invited Lecturer, Harvard Medical School, Department of , Continuing Medical Education, Neuroradiology/Head & Neck Radiology, (Sept 27-28)
 - Invited Speaker, Advances and Challenges in Diagnostic Imaging, Rockport, ME (Oct.1-2)
 - Invited Lecturer, Mount Sinai 2007 Update: Brain, Spine, Neurovascular & ENT Imaging, New York, NY (Oct. 10-11)
 - Invited Speaker, Nihon University School of Dentistry, Landmarks of Head and Neck Cancer, Kashiwa, Chiba, Japan (Oct. 14-22)
 - Invited Speaker and Moderator, Brigham & Women's Hospital Course, MR/CT Update (Oct. 24)
 - Radiological Society of North America (RSNA) Annual Meeting, Chicago, IL (Nov. 25-30)
- 2008
- Invited Lecturer- IICME, Neuro ENT Imaging: Review and Update Naples, FL (March 17-20)
 - Invited Lecturer- The 40th International Diagnostic Course Davos DAVOS, Switzerland (March 29-April 5)
 - Invited Speaker- BWH/MGH Radiology Review, Boston, MA (April 11)
 - Invited Speaker-Head and Neck Cancer Update: 2008 – Dr. Deschler, Boston, MA (April 18)
 - Invited Lecturer - MGH Head and Neck Mini Course , Boston (Apr 28-May 5)
 - Invited Lecturer – ASHNR 42nd Annual Meeting, Toronto, Ontario, Canada (Sept 10-14)
 - Invited Presidential Lecturer- NASBS, World Congress Radiology of the Skull Base-Vancouver, BC, CA (Sept. 13)
 - Invited Speaker- Harvard Post Graduate Course, MGH/MEEI Neuroradiology Head and Neck Radiology (Sept 25)
 - Invited Lecturer- Mount Sinai Update 2008: Brain, Spine, Neurovascular &

- ENT Imaging New York, NY (Oct 16)
 - Invited Guest Speaker & Visiting Professor, Royal College Lecture
 - Honorary member to the Nova Scotia Association of Radiologists
 - Atlantic Radiology Conference, Halifax, Nova Scotia (Oct 17, 18)
 - Invited Speaker and Moderator-BWH Radiology Course-MRI/CT Update 2008
 - Boston, MA (Oct 29)
 - Radiological Society of North America Annual Meeting (RSNA), Refresher
 - Courses, *Radiographics* Neuroradiology Panelist to review Education Exhibits
 - (Nov 30-Dec 5)
- 2009
- University of Maryland, Grand Rounds Speaker, (Jan 20)
 - Invited Lecturer- MGH Head and Neck Mini Course, Boston, (March 16-27)
 - Invited Lecturer – Radiation Oncology, MGH, (March 18)
 - Invited Speaker – BWH/MGH Radiology Review, Boston, (March 20)
 - Guest Speaker – University of Michigan (March 14)
 - Invited Lecturer – iiCME, Neuro ENT: Review and Update, Naples, FL
 - (Mar 23-26)
 - John Clark Lecture – Yawkey (Apr 3)
 - Invited Lecturer and Moderator, Radiology International, Inc. Radiology in
 - Greece (May 15-17)
 - Invited Lecturer - MGH Head and Neck Mini Course, Boston (Apr 28-May 5)
 - Invited Speaker- Harvard Post Graduate Course, MGH/MEEI Neuroradiology
 - Head and Neck Radiology (Sept 25)
 - Guest Speaker – Mt. Sinai Update 2009: Brain, Spine, Neurovascular and ENT
 - Imaging (Oct. 2009)
 - Invited Lecturer and Moderator – North American Skull Base Society (Oct. 2009)
 - Invited Speaker and Moderator, North American Skull Base Society Meeting,
 - New Orleans, LA (Oct 15-18)
 - Invited Speaker and Moderator-BWH Radiology Course-MRI/CT Update 2009,
 - Boston, MA (Oct 28)
 - Invited Speaker and Moderator-BWH Radiology Course-MRI/CT Update 2009,
 - Boston, MA (Oct 29)
 - Invited Guest Speaker, The Buffalo Otolaryngological Society, Buffalo, NY,
 - (Nov. 2009)
 - Grand Rounds Guest Speaker, Department of Otolaryngology, Millard Fillmore
 - Gates Circle Hospital, Buffalo, NY (Nov. 2009)
 - Radiological Society of North America Annual Meeting (RSNA)
 - (Nov.–Dec. 2009)
- 2010
- Lecturer - BWH Head and Neck Mini Course, Boston (Feb 8 – May 5)
 - Invited Lecturer – Johns Hopkins, Computed Body Tomography 2007: The
 - Cutting Edge, Orlando, FL (February 11-14)
 - Invited Lecturer- IICME, Neuro ENT Imaging: Review and Update Naples, FL
 - (March 22-25)
 - Invited Speaker-Head and Neck Cancer Update:2010 – Dr. Deschler, Boston, MA
 - (April 10)

- Invited Guest Speaker - Grand Rounds, Beth Israel Deaconess Medical Center, Boston, MA (April 16)
- Grand Rounds Guest Speaker, Department of Radiology, Beth Israel Deaconess Medical Center, Boston, MA (April 2010)
- Invited Lecturer – Jornada Paulista de Radiologia (Sao Paulo Society of Radiology and Diagnostic Imaging (SPR)), Sao Paulo, Brazil (April/May 2010)
- Grand Rounds Guest Speaker, Department of Radiology, Baystate Medical Center, Springfield, MA (May, 2010)
- Grand Rounds Guest Speaker, Department of Otolaryngology, Massachusetts Eye and Ear Infirmary, Boston, MA (May, 2010)
- Invited Guest Speaker – Grand Rounds, Bay State Medical Center, Springfield, MA (May 6)
- Head and Neck Lecture Series Grand Rounds, Massachusetts Eye and Ear Infirmary, Department of Otolaryngology, Boston, MA (May 13)
- Invited Lecturer- MGH Head and Neck Mini Course, Boston (May 17 – 28)
- Invited Lecturer – Radiology International Inc.: Radiology in Berlin, Berlin, Germany (June, 2010)
- Invited Speaker – The Eastern Neuroradiological Society, 22 Annual Meeting, Washington, DC (Aug. 12-14)
- Program Director, Moderator, Lecturer – Neuroradiology Post Graduate Course, Head and Neck Radiology, Massachusetts General Hospital/Harvard Medical School, Cambridge, MA (September 23-24)
- Invited Speaker – Laryngology and Voice Surgery, Harvard Club, Boston, MA (September 25)
- Invited Speaker – American Society of Head and Neck Radiology, (ASHNR) Houston, TX (October 6-9)
- Radiological Society of North America (RSNA) Annual Meeting (Nov 29-Dec 3)

- 2011
- ABR MOC Neuroradiology Committee Meeting, Tucson, AZ (Jan 11-14)
 - Invited Lecturer – 64th National Annual Conference of Indian Radiological & Imaging Association, New Delhi, INDIA (Jan 26-Feb 5)
 - Visiting Professor, Lahey Clinic, Department of Radiology, Burlington, MA (Feb 8)
 - Visiting Professor, McGill University, Montreal, Canada (March 13-15)
 - Invited Presenter, Kuwaiti Delegation Visit @ MEEI, Boston MA (March 22)
 - Lecturer, MGH/BWH Radiology Review Postgraduate Course, Boston, MA (March 25)
 - Guest Speaker, MEEI Laryngology Disorders Update Course (May 19-20)
 - Lecturer, MGH Minicourse, Boston, MA (May 23, 26 & 27)
 - Keynote Speaker, Ontario Assoc of Radiologist Meeting, Toronto, ONT (May 27-30)
 - Invited Speaker, ASNR 49th Annual Meeting, Seattle, WA (June 4-9)
 - Lecturer, MGH Minicourse, Boston, MA (June 13-17)
 - Invited Speaker – American Society of Head and Neck Radiology (ASHNR), Coronado, CA (Sept 7-11)
 - Invited Speaker – Eastern Neuroradiological Society Meeting (ENRS), Chatham, MA (Sept 15-18)

- Program Director, Moderator, Lecturer – Massachusetts General Hospital, Harvard Medical School Neuroradiology Head and Neck Course, Boston, MA (Sept 22-23)
 - Guest Speaker, Mt. Sinai Update Meeting, New York Academy of Medicine, New York, NY (Oct. 13-16)
 - Visiting Professor, Russell Carman Lecturer & Grand Rounds Guest Speaker, St. Louis University School of Medicine, St. Louis, MO (Oct. 17-19)
 - Guest Speaker, MRI/CT Update HMS/BWH, Boston, MA (Oct. 21)
 - Invited Speaker, Refresher Course Committee, Radiological Society of North America 97th Annual Meeting, Chicago, IL (Nov. 27–Dec. 2)
- 2012
- ABR MOC Neuroradiology Committee Meeting, Tucson, AZ (Jan 11-13)
 - Guest Speaker, LARS 64th Annual Midwinter Conference, Los Angeles (Jan 21-22)
 - Invited Lecturer, University of Pittsburgh Grand Rounds, Pittsburgh, PA (Feb 23-24)
 - Guest Speaker, Neuro/ENT: Review & Update, Naples, FL (March 19-22)
 - Guest Speaker, 44th International Diagnostic Course, Davos, Switzerland (March 25-April 7)
 - RSNA Committee Refresher Course Meeting, Oakbrook, IL (April 12)
 - Invited Lecturer, Tufts Medical Center Grand Rounds, Boston, MA (May 17)
 - Guest Speaker, Johns Hopkins Conference, Las Vegas, NV (June 7-9)
 - Lecturer, MGH Minicourse, Boston, MA (June 25-July 6)
 - Invited Lecturer, AHNS 8th International Conference, Toronto, Ontario (July 21-25)
 - Visiting Professor, Chiang Mai University, Thailand (July 27-31)
 - Guest Speaker, AOCNR Conference, Bangkok, Thailand (August 1-3)
 - Invited Lecturer, Kaiser Neuroradiology Conference, Washington, DC (Sept 7-9)
 - Visiting Professor, Brown Medical School, Providence, RI (Sept 10)
 - Moderator, Lecturer, MGH Neuroradiology Course, Boston, MA (October 1-5)
 - Guest Speaker, ASHNR 46th Annual Meeting, Miami, FL (October 3-7)
 - Guest Speaker, Mt. Sinai Update Meeting, New York, NY (October 18-21)
 - Invited Lecturer, ENRS Annual Meeting, Montreal, Canada (October 26-27)
 - Invited Speaker, 25th Anniversary of the UPMC Center for Cranial Base Surgery, University of Pittsburgh, Pittsburgh, PA (November 16-17)
 - Invited Speaker, Refresher Course Committee, 98th RSNA Scientific Assembly & Annual Meeting, Chicago, IL (November 25-30)
 - Guest Speaker, NYU's Annual Head to Toe Imaging Conference, New York, NY (December 17-21)
- 2013
- Guest Speaker, 2013 Cancer Imaging & Radiation Therapy Symposium (ASTRO), Orlando, FL (February 7-9)
 - Guest of Honor, 23rd North American Skull Base Society (NASBS) Conference, Miami, FL (February 14-17)
 - Visiting Professor, Colorado Radiological Society, University of Colorado, Denver, CO (March 14-15)
 - Guest Speaker, 2013 Neuro/ENT: Review and Update Conference, Naples, FL (March 18-21)
 - Guest Speaker, 2013 Radiology International Venice Conference, Venice, ITALY

- (April 15-26)
 - Invited Speaker, Annual ASNR Conference, San Diego, CA (May 18-23)
 - Invited Speaker, 20th Annual Risa & Felix Fleischner Lecture, BIDMC, Boston, MA (June 13)
 - Guest of Honor, 20th Annual Risa & Felix Fleischner Graduation Dinner, BIDMC, Boston, MA (June 14)
 - Invited Speaker, 12th International Facial Nerve Symposium, Liberty Hotel, Boston, MA (June 28-July 1)
 - Invited Speaker, Harvard Medical School Head and Neck Course, Royal Sonesta, Cambridge, MA (Sept. 16-20)
 - Guest Speaker, ASHNR 47th Annual Meeting, Milwaukee, WI (Sept. 25-29)
 - Invited Speaker, MRI/CT Update Course Meeting, Boston, MA (Oct. 7-11)
 - Invited Speaker, Mt. Sinai Update Meeting, New York, NY (Oct. 17-20)
 - Guest Speaker, The Chinese Head and Neck Radiology Conference, Xian, China (Oct. 19-25)
 - Guest Speaker, Annual RSNA Meeting, Chicago, IL (Dec. 1-6)
- 2014
- Guest Speaker, John's Hopkins CT Meeting, Orlando, FL (Feb. 12-16)
 - Invited Speaker, 2014 Mt. Sinai Review & Update Course, Naples, FL (March 12-13)
 - Special Guest Speaker, Head & Neck Radiology Conference, Michigan State University, East Lansing, MI (March 15)
 - Lecturer, MGH Radiology Minicourse, Boston, MA (May 14-17)
 - Invited Speaker, 52nd Annual ASNR Meeting, Montreal, Quebec (May 16-23)
 - Guest Speaker, 2014 Irish Society of Neuroradiology Meeting, Dublin, Ireland (May 29-June 6)
 - Guest Speaker, 55th Annual Meeting of the Japanese Society for Oral and Maxillofacial Radiology, Tokyo, Japan (June 6-9)
 - Invited Speaker, 48th Annual ASHNR Meeting, Seattle, WA (Sept. 10-14)
 - Invited Speaker, Harvard Head & Neck Course, Boston, MA (Sept. 15-19)
 - Visiting Professor, Weill Cornell Medical College Grand Rounds, New York, NY (Oct. 15)
 - Invited Speaker, Mt. Sinai Update: Brain & Spine; New York, NY (Oct. 16-19)
 - Invited Speaker, 100th Annual RSNA Meeting, Chicago, IL (Nov. 30-Dec. 5)
- 2015
- Guest Speaker, Mt. Sinai Neuro/ENT: Review & Update; Naples, FL (March 6-13th)
 - Guest Speaker, Triological Society Neuroradiology Session, Hynes Convention Center, Boston, MA (April 24th)
 - Invited Speaker, 53rd Annual ASNR Meeting, Chicago, IL (April 25th-27th)
 - Visiting Professor, Yale New Haven Hospital, New Haven, CT (May 14th)
 - Lecturer, MGH Radiology Minicourse, Boston, MA (May 25th-June 5th)
 - Invited Speaker, 5th Annual IDKD Workshop, Beijing (June 3rd-12th)
 - Visiting Professor, University of Toronto (June 24th-26th)
 - Invited Speaker, 20th IADMFR Congress, Chile (August 25th-29th)
 - Invited Speaker, 49th Annual ASHNR Meeting, Naples, FL (Sept. 10th-14th)
 - Invited Speaker, Harvard Head & Neck Course, Boston, MA (Sept. 28th-Oct. 2nd)
 - Invited Speaker, Mt. Sinai Update, Brain & ENT, New York, NY (Oct. 14th-19th)

- Guest Lecturer, Head & Neck Course, Recife, Brazil (Nov. 4th-11th)
 - Invited Speaker, 101st Annual RSNA Meeting, Chicago, IL (Nov. 29th-Dec. 3rd)
- 2016
- Guest Lecturer, Society of Nuclear Medicine, Orlando, FL (Jan. 28th-30th)
 - Invited Speaker, 26th Annual NASBS Meeting, Scottsdale, AZ (Feb. 11th-13th)
 - Guest Speaker, 32nd Annual Johns Hopkins CT Course, Orlando, FL (Feb. 25th-28th)
 - Invited Speaker, Neuro/ENT Review & Update 2016, Naples, FL (March 14th-18th)
 - Guest Speaker, 48th International Diagnostic Course, Davos (April 3rd-8th)
 - Visiting Professor, Mayo Clinic, Rochester, MN (May 4th-6th)
 - Invited Speaker, 54th Annual ASNR Meeting, Washington, DC (May 20th-22nd)
 - Guest Speaker, MEEI Temporal Bone Course, Boston, MA (May 27th)
 - Lecturer, MGH Radiology Minicourse, Boston, MA (June 20th-July 3rd)
 - Invited Speaker, 28th Annual ENRS Conference, Quebec, Canada (August 11th-14th)
 - Invited Speaker, 50th Annual ASHNR Conference, Washington, DC (Sept. 7th-11th)
 - Invited Speaker, Harvard Head & Neck Course, Boston, MA (Sept. 19th-23rd)
 - Guest Speaker, Radiology International Meeting, Portugal (Sept. 23rd-Oct. 5th)
 - Invited Speaker, Mt. Sinai Update, Brain & ENT, New York, NY (Oct. 20th-23rd)
 - Invited Lecturer, DCMRS Course, Washington, DC (Oct. 27th)
 - Invited Speaker, 102nd Annual RSNA Meeting, Chicago, IL (Nov. 27th-Dec. 2nd)

Report of Scholarship

Publications:

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2. Effron MZ, Johnson JT, Myers EN, **Curtin HD**, Berry Q, Sigler B. Advanced carcinoma of the tongue: management by glossectomy without laryngectomy. Arch Otolaryngol 1981; 107(11):694-697.
3. May M, Fria TJ, Blumenthal F, **Curtin HD**. Facial paralysis in children: differential diagnosis. Otolaryngol Head Neck Surg 1981; 89(5):841-848.
4. **Curtin HD**, Wolfe P, Schramm V. Orbital roof blow-out fractures. AJNR 1982; 3:531-534 and AJR 1982;139(5):969-972.
5. Schramm VL, **Curtin HD**, Kennerdell JS. Evaluation of orbital cellulitis and results of treatment. Laryngoscope 1982; 92(7):732-738.
6. **Curtin HD**. Evaluation of the internal auditory canal using metrizamide with pluridirectional tomography. Radiology 1982; 144(1):115-120.
7. **Curtin HD**, Vignaud J, Bar D. Anomaly of the facial canal in a monndini malformation with recurrent meningitis. Radiology 1982; 144(2):335-341.

8. **Curtin HD**, Gallek L. Table for decubitus tomography during positive contrast studies of the internal auditory canal. *Radiology* 1982; 144(3):683-685.
9. **Curtin HD**, Wolfe P, May M. Malignant external otitis: CT evaluation. *Radiology* 1982; 145(2):383-388.
10. Gallia LJ, Johnson JT, Myers EN, **Curtin HD**. Pigmented villonodular synovitis of the temporomandibular joint: a case report. *Otolaryngol Head Neck Surg* 1982; 90:691-692.
11. **Curtin HD**, Williams R, Gallia LJ, Myers EN. Pigmented villonodular synovitis of the temporomandibular joint. *Comput Radiol* 1983; 7(4):257-260.
12. Roppolo HMN, Latchaw RE, Meyer JD, **Curtin HD**. Normal pituitary gland: 1. macroscopic anatomy - CT correlation. *AJNR* 1983; 4:927-935.
13. Beckford N, Johnson JT, **Curtin HD**. When fever develops after laryngectomy. *J Respir Dis* 1983; 4:45-47.
14. **Curtin HD**, Wolfe P, Synderman N. The facial nerve between the stylomastoid foramen and the parotid: Computed tomographic imaging. *Radiology* 1983; 149:165-169.
15. **Curtin HD**. Metrizamide canalography in the frontal projection. *Rev Laryngol Otol Rhinol (Bord)* 1983; 104(5):401-402.
16. **Curtin HD**, Wolfe P, Gallia L, May M. Unusually large nasopalatine cyst: CT findings (case report). *JCAT* 1984; 8(1):139-142.
17. Rothfus WE, **Curtin HD**. Extraocular muscle enlargement: a CT review. *Radiology* 1984; 151:677-681.
18. Rothfus WE, **Curtin HD**, Slamovits TL, Kennerdell JS. Optic nerve sheath enlargement: a differential approach based on high-resolution CT morphology. *Radiology* 1984; 150:409-415.
19. **Curtin HD**. Radiologic approach to paragangliomas of the temporal bone (opinion). *Radiology* 1984; 150:837-838.
20. Dresner SC, Rothfus WE, Slamovits TL, Kennerdell JS, **Curtin HD**. Computed tomography of orbital myositis. *AJR* 1984; 143(3):671-674, and *AJNR* 1984; 5(4):351-354.
21. Johnson JT, **Curtin HD**. Carcinoma associated with Zenker's diverticulum x-ray study of the month. *Ann Otol Rhinol Laryngol* 1985; 94:324-325.
22. **Curtin HD**, Williams R. CT anatomy of the pterygopalatine fossa. *Radiographics* 1985; 5(3):429-440.

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28. **Curtin HD**, Jensen JE, Barnes L, May M. Ossifying hemangiomas of the temporal bone: evaluation with CT. *Radiology* 1987; 164:831-835.
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34. Snyderman C, May M, Berman MA, **Curtin HD**. Facial paralysis: traumatic neuromas vs facial nerve neoplasms. *Otolaryngol Head Neck Surg* 1988; 98:53-59.
35. Cunningham MJ, **Curtin HD**, Butkiewicz BL. Histiocytosis X of the temporal bone: CT findings. *JCAT* 1988; 12(1):70-74.

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Factor 4

FACTOR 4: STANDARDS COMPLIANCE

If this project involves renovation or new construction, please submit schematic line drawings for that construction.

Please consult the Determination of Need Program staff if you require guidance in completion of this section.

See "Square Footage" under DEFINITIONS, FACTOR 5.

Exhibit A: Schematics

Attachment/Exhibit

A

DEMOLITION PLAN LEGEND

- EXISTING PARTITION TO REMAIN
- EXISTING PARTITION TO BE DEMOLISHED
- < EXISTING DOOR AND FRAME TO REMAIN
- < EXISTING DOOR AND FRAME TO BE DEMOLISHED

**PERKINS
+WILL**

200 Summer Street, Suite 1800
Boston, MA 02108
617.452.4000
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PROJECT
PROJECT LOCATION: MAINE

**Massachusetts
Eye and Ear
Infirmary**

MRI RENOVATION

**MASSACHUSETTS EYE
AND EAR INFIRMARY**
243 Charles St., Boston, MA
02114

KEY PLAN

ISSUE CHART

12.22.2016

Job Number: _____
 Drawn: _____ Author: _____
 Checked: _____ Checked: _____
 Approved: _____ Approved: _____

TITLE

**LEVEL 01 DEMOLITION
PLAN**

SHEET NUMBER
A04-01

12/22/2016 10:00 AM

— EXISTING PARTITION TO REMAIN
— NEW PARTITION
— NEW DOOR
— EXISTING DOOR



Factor 5

FACTOR 5: REASONABLENESS OF EXPENDITURES AND COSTS

Definitions

1. Capital Expenditure

Cost of the project expressed in a dollar amount as of the filing date (i.e., assuming the project were to commence on the filing date). (See discussion in Factor 6, Schedule D.)

2. Functional Areas

Unit of space directly related to a particular service (e.g., nursing unit, laboratory, radiology, dietary and admissions) or a space common to the operation of the entire facility (e.g., lobby, mechanical, major circulation, exterior wall).

3. Square Footage

Net Square Feet (NSF): The space associated with a particular department. It includes all functional space within a department; e.g., the interior of exam rooms, closets, utility rooms and waiting areas. Also, toilet rooms, walk-in refrigerators, and storage areas should be included if they are specifically for that department. It does not include allowances for internal partitions, departmental circulation, major circulation, shafts, ductways, general mechanical space and exterior walls.

Gross Square Feet (GSF): Includes the NSF of a Department plus circulation within the department, partitions within the department, and dedicated mechanical space (e.g., pump room for a surgical suite). The GSF for a specific functional department excludes major general mechanical space, ductwork, elevator shafts, and stairwells located within the department's boundaries; these components should instead be assigned to the GSF of a non-departmental- functional area such as "Elevators and Shafts," if they are significant.

If a department's perimeter is an interior wall, half of the thickness of the wall is allocated to the department. If the perimeter is an exterior wall, only 3 inches (i.e., half of a standard partition) of that wall's thickness is assigned to the department; the remainder belongs to the functional area "Exterior Wall."

Using these definitions, a facility's overall GSF is the sum total of the GSF of each functional area; that is, the total of the departmental GSF figures plus the area allocated to Major Circulation and Exterior Walls (i.e., the non-departmental areas.)

4. Cost per Gross Square Footage

In calculating the cost/GSF, the DoN Program adds construction contract, fixed equipment not in contract, site survey and soil investigation, and architectural and engineering costs and divide by the proposed gross square footage. However, the specific costs for these components should be included separately in Schedule D.

Schedule 5.1 Square Footage And Cost Per Square Foot

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Functional Areas	Present Square Footage		Square Footage Involved in Project			
		Net ^a	Gross ^a	New Construction		Renovation	
				Net	Gross	Net	Gross
1	MRI Room	635 sf	710 sf	0 sf	0 sf	635 sf	710 sf
2	Control Room	100 sf	110 sf	0 sf	0 sf	100 sf	110 sf
3	Computer Room	160 sf	200 sf	0 sf	0 sf	160 sf	200 sf
4	Vestibule Zone 2	165 sf	195 sf	0 sf	0 sf	165 sf	195 sf
5	Vestibule Zone 3	80 sf	80 sf	0 sf	0 sf	80 sf	80 sf
6	Change	30 sf	43 sf	0 sf	0 sf	30 sf	43 sf
7	Change	30 sf	43 sf	0 sf	0 sf	30 sf	43 sf
8	Waiting	85 sf	100 sf	0 sf	0 sf	85 sf	100 sf
9	Corridor	400 sf	420 sf	0 sf	0 sf	400 sf	420 sf
10	Reception	215 sf	230 sf	0 sf	0 sf	215 sf	230 sf
11	Areaway	70 sf	80 sf	0 sf	0 sf	70 sf	80 sf
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39							
40	Total	1970 sf	2211 sf	0 sf	0sf	1970 sf	2211 sf

^a See the definitions on page 23.

Schedule 5.1 Square Footage And Cost Per Square Foot, continued

		(8)	(9)	(10)	(11)	(12)	(13)
		Resulting Square Footage ^a		Total Cost		Cost/Square Footage	
	Functional Areas	Net	Gross	New Construction	Renovation	New Construction	Renovation
1	MRI Room	635 sf	710 sf		1,109,959		\$1,563
2	Control Room	100 sf	110 sf		171,965		\$1,563
3	Computer	160 sf	200 sf		312,664		\$1,563
4	Vestibule Zone	165 sf	195 sf		304,848		\$1,563
5	Vestibule Zone	80 sf	80 sf		125,066		\$1,563
6	Change	30 sf	43 sf		67,223		\$1,563
7	Change	30 sf	43 sf		67,223		\$1,563
8	Waiting	85 sf	100 sf		156,332		\$1,563
9	Corridor	400 sf	420 sf		656,595		\$1,563
10	Reception	215 sf	230 sf		359,564		\$1,563
11	Areaway	70 sf	80 sf		125,066		\$1,563
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38							
39							
40	Total	1970 sf	2211 sf		\$3,456,506		

^a Column 8 does not necessarily equal Columns 4 plus 6 or Columns 2 plus 4 plus 6; Column 9 does not necessarily equal Columns 5 plus 7 or Columns 3 plus 5 plus 7. This is because, for example, a) there may be demolition and b) department A may be reassigned to department B.

^b If this does not equal the sum of Lines 3,9,10 and 11 of Schedule D, please reconcile the difference (for example, do the costs include site survey and soil investigation, fixed equipment not in contract, and architectural and engineering costs which are not figured into Line 9 of Schedule D)

Schedule 5.2 Project Implementation

6.2 Anticipated Project Schedule

Construction/ Renovation or
Installation

Start Date

Completion Date

- Phase One
- Phase Two
- Phase Three
- Phase Four
- Etc.

May 1, 2017

Sept 17, 2017

Operations

Start Date

Reach Normal Volume

- Phase One
- Phase Two
- Phase Three
- Phase Four

October 2017

September 2018

Please *briefly* describe the phrases cited above:

Phase One Construction/renovations/installation

Phase Two _____

Phase Three _____

Phase Four _____

- 6.3 If you have not already provided a listing and description of the equipment requirements (if any) of this project please do so in the space below or on an additional sheet.

See attached equipment quote

- 6.4 Do you have any additional information, which you would like to supply concerning the reasonableness of the expenditures and costs associated with this project?

YES _____ NO X

If "YES", please supply this information on an additional sheet or sheets.

Attachment/Exhibit

A

PHILIPS HEALTHCARE
A division of Philips Electronics North America Corporation
22100 Bothell Everett Highway
P.O. Box 3003
Bothell, Washington 98041-3003

PHILIPS

Quotation #: 1-VAFRFH	Rev: 17	Effective From: 08-Dec-16	To: 06-Feb-17
Presented To: MASSACHUSETTS EYE & EAR INFIRMARY 243 CHARLES ST BOSTON, MA 02114-3096 Tel: Alternate Address:		Presented By: Michael Maynard <i>Account Manager</i> Laura Costello <i>Regional Manager</i> Tel: Fax:	
Date Printed: 08-Dec-16			
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IMPORTANT NOTICE: Health care providers are reminded that if the transactions herein include or involve a loan or discount (including a rebate or other price reduction), they must fully and accurately report such loan or discount on cost reports or other applicable reports or claims for payment submitted under any federal or state health care program, including but not limited to Medicare and Medicaid, such as may be required by state or federal law, including but not limited to 42 CFR 1001.952(h).

Quote Solution Summary

<u>Line #</u>	<u>Product</u>	<u>Qty</u>	<u>Price</u>
	100333 Ingenia 3.0T Omega	1	\$1,554,640.97
	100963 Ambient Experience for MR	1	\$190,539.60
Equipment Total:			\$1,745,180.57

Solution Summary Detail

<u>Product</u>	<u>Qty</u>	<u>Each</u>	<u>Monthly</u>	<u>Price</u>
100333 Ingenia 3.0T Omega	1	\$1,554,640.97		\$1,554,640.97

Buying Group: VIZIENT SUPPLY LLC

Contract #: XR0393 MRI

Add'l Terms:

Each Quotation solution will reference a specific Buying Group/Contract Number representing an agreement containing discounts, fees and any specific terms and conditions which will apply to that single quoted solution. If no Buying Group/Contract Number is shown, Philips' Terms and Conditions of Sale will apply to the quoted solution.

Each equipment system listed on purchase order/orders represents a separate and distinct financial transaction. We understand and agree that each transaction is to be individually billed and paid.

Payment Terms: 0% Down, 80% Upon Delivery, 20% Due When the Product is Available for First Patient Use, Net due 30 days from date of invoice

100963 Ambient Experience for MR	1	\$190,539.60	\$190,539.60
----------------------------------	---	--------------	--------------

Buying Group: VIZIENT SUPPLY LLC

Contract #: XR0393 MRI

Add'l Terms: The specific Contract # referenced above represents the Novation or Vizient agreement with Philips containing discounts, fees and any specific terms and conditions, including the Vendor's Terms and Conditions of Sale (subject to such Contract), applicable to the purchase of any Product identified as part of this quoted Solution.

Each Quotation solution will reference a specific Buying Group/Contract Number representing an agreement containing discounts, fees and any specific terms and conditions which will apply to that single quoted solution. If no Buying Group/Contract Number is shown, Philips' Terms and Conditions of Sale will apply to the quoted solution.

Each equipment system listed on purchase order/orders represents a separate and distinct financial transaction. We understand and agree that each transaction is to be individually billed and paid.

Payment Terms: 0% Down, 80% Upon Delivery, 20% Due When the Product is Available for First Patient Use, Net due 30 days from date of invoice

Quote Summary

100843 Ingenia 3.0T Omega

Qty	Product
1	NNAF992 Ingenia 3.0T Omega HP Q4 2016
1	NNAF994 Ingenia 3T Premium IQ VP Q4 2016
1	NMRB214 dS Torso 3.0T
1	NMRB246 dS Flex S 3.0T
1	NMRB375 dS Head 32ch 3.0T
1	NMRB486 FiberTrak Specialist
1	NMRB487 Spectroscopy Specialist
1	NMRB196 Flex Holders
1	FMR0340 FlexTilt
1	FMR0326 Anterior Coil Frame
2	989801256069 MR Full Travel Package OffSite
1	989801271105 MR Stereo - HiFi system
1	989801270041 Spectris Solaris EP Injector
1	NNAF952 MR Chiller
1	NNAF891 Enhanced Warranty Terms
1	SP007 Rigging Charges
1	SP059Q Clinical Services Flex Account
1	SP101 Future Dollars

Options

Qty	Product
1	NMRB461 ASL Neuro Specialist
1	FMR0274 HA FlexTrak
1	NMRB194 FlexCaddy

Quote Summary

100% Ambient Experience for MR

Qty	Product
1	NAEA161 Ambient Lighting and In-bore Solution
1	NAEA081 Wall Projection MR
1	NAEA083 Ceiling Halo
1	NAEA108 Ingenia
1	989801238019 AMB Enhanced OnSite Design Service - MR

1100833 Ingenia 3.0T Omega

System Type: New
Freight Terms: FOB Destination
Warranty Terms: Part numbers beginning with two (2) asterisks (**) are covered by a System 12 Months Warranty. All other part numbers are third (3rd) party items.
Special Notations: Contingencies must be removed 120 days before scheduled shipment to assure delivery on specified date. Any rigging costs are the responsibility of the Purchaser.
Additional Terms:

Line #	Part #	Description	Qty	Each	Price
1	**NNAF992	Ingenia 3.0T Omega HP Q4 2016	1	\$1,129,902.80	\$1,129,902.80

Ingenia 3.0T Omega HP

Ingenia with dStream architecture provides flexible and intelligent tools for faster exams and more consistent scanning, as well as excellent clinical performance for a variety of applications – all while increasing patient comfort. Designed for today and tomorrow, it is a safe investment that will serve your needs well into the future.

The R5 system software supports a new generation of clinical options for head, neck, spine, MSK and body imaging. In addition, R5 brings important improvements to the scanner GUI for better control and usability throughout the MR exam, including:

- Smart conflict management for improved workflow
- Selective archiving for better control of archiving & export
- Combined accession numbers for improved scan efficiency during procedure based billing
- AutoSPAIR, software controlled SPAIR delay time for consistent fat suppression
- Increased patient database image bulk storage capacity to >= 250GB
- Patient specific safety protocols with SAR/PNS management

At the heart of the Ingenia is the new dStream architecture. dStream comprises:

- DirectDigital RF receive technology, which samples the MR signal directly in the RF coil on the patient.
- FlexStream workflow, which increases system versatility and throughput
- EasyExpand, which enables plug and play expansion of clinical capabilities without major upgrades

Philips Ingenia significantly improves MR image clarity, speed and expandability.

- Clarity: By digitizing the signal directly on the patient, dStream captures image data where the signal is at its purest.
- Speed: Patient and coil handling have never been easier: flexible exam setup to meet each patient's unique situation, simplified coil changeover and optimal quality for any exam.
- Expandability: The number of channels is determined by the coil, rather than limited by the system. This makes the MRI system forward-compatible to easily access emerging applications like body and cardiac and new enhancements for established applications like neuro and musculoskeletal imaging.

dStream architecture

Line #	Part #	Description	Qty	Each	Price
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Unique digital broadband MR architecture capturing the purest MR signal combined with enhanced workflow and ease of use to provide increased SNR and greater efficiency in your daily operations. In addition the number of channels is no longer determined by the MR system.

- Up to 40% greater signal-to-noise ratio (DirectDigital)
- As much as 30% improvement in throughput (FlexStream)
- Easy expandability of clinical capabilities without the need for major system upgrades (EasyExpand)

Xtend design

System design optimized not only to provide a 70cm wide bore, but also to provide optimum quality and performance for imaging even the largest patients. Industry-leading magnet, gradient and system body coil designs provide the largest field-of-view for a 70cm system. Xtend offers the best combination of magnet homogeneity and gradient performance over a 55 cm FOV.

- Image eyes-to-thighs in as few as 2 stations
- Excellent large FOV and off-center imaging, ideal even for large patients
- Increased image accuracy for large FOV and multi-station exams

Magnet system

- Xtend ultra-large up to 55 cm field-of-view combined with a 70cm bore system, enabling uncompromised coverage and imaging of large patients.
- Actively shielded, lightweight design (<4940 kg) and compact fringe field (3.1 x 5.0) footprint facilitate easy siting
- Ultra compact patient-friendly magnet design - only 1.62m in length
- Best-in-class magnet homogeneity (1.8 ppm / 50 x 50 x 45 cm V-RMS) for excellent image quality, off-center imaging and fat suppression.
- Superconducting screening coils to reduce magnetic field susceptibility caused by moving external ferrous objects.
- HeliumSave zero boil-off technology for zero helium consumption (0 l/hr) under regular scanning conditions.
- Side turret design for easy installations even with low ceiling and difficult access

Gradient system

Omega HP Gradients

High-performance gradients specifically designed for a wide bore magnet. Omega HP provides a high linearity and maximum peak and slew rate over the entire imaging field of view.

- Peak amplitude up to 45 mT/m (78 mT/m effective), peak slew rate up to 200 mT/m/ms (346 mT/m/ms effective). All specifications are on axis (x, y and z).
- Superb linearity (< 1.4% over 50 cm FOV) to improve geometric and diffusion accuracy, and to maximize resolution, even at the edges of the field-of-view.
- High order shimming capabilities: first (x, y, z) and second order (x²-y², z², xy, xz, yz) for improved patient-specific shimming.
- State-of-the-art water-cooled gradient coil and solid-state amplifier for high fidelity and 100% duty cycle.
- Non-resonant gradient design allows flexible generation of any type of gradient waveform.

Line #	Part #	Description	Qty	Each	Price
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- The integrated force-balanced design of the gradient coil and magnet reduces vibrations and ensures acoustic noise is minimized.
- Extremely low eddy currents for short echo times
- AutoSoftTone further reduces gradient acoustic noise by up to 30 dB (an 86 % reduction in patient-perceived acoustic noise).

RF receive: DirectDigital and EasyExpand

DirectDigital: Unique Philips technology that samples the MR signal directly in the RF coil on the patient. The fiber-optic transmission of digital broadband data from the coil to the image reconstructor removes potential noise influences typical with analog pathways.

- Capturing the purest MR signal with up to 40% greater signal-to-noise, enabling higher speed/resolution
- Increased dynamic range (max 187 dB)

DirectDigital technology additionally includes:

- Sub-millisecond TRs and ultra-short TEs
- Real-time imaging control for clinical motion correction:
 - navigator-corrections required for free-breathing cardiac techniques
 - high-resolution diffusion (i.e., PhaseTrak) with profile updates within 1 ms.
- Real-time control of RF transmission, gradient switching, data acquisition and triggering.

EasyExpand: Inherent design of the dStream architecture, where channels are determined by the coils rather than the system. The MR system becomes channel independent, which means a removal of the number of channels as a system specification. This enables plug-and-play expansion of clinical capabilities.

- Expansion does not require major system upgrades, resulting in lower life cycle costs.

dS-SENSE

Next generation parallel imaging for the dStream (dS) architecture, which simplifies and speeds up scan setup and enables higher parallel imaging factors for more speed or resolution.

- Includes quick, fully integrated reference scans which are planned automatically.

RF Transmit: MultiTransmit 4D

Unique RF transmit design using multiple RF sources. MultiTransmit parallel RF transmission enhances signal and image contrast uniformity, speed and consistency at 3.0T for all applications.

- Patient-adaptive RF matches the RF field to the anatomy of each and every patient.
- Up to 40% more speed compared to single transmit RF systems.
- New MultiTransmit 4D enables the RF field to be optimized even during real-time cardiac applications.
- Parallel RF transmission and reception (2 x 2 channels) using two independent RF sources, amplifiers and receivers enabling patient-adaptive RF shimming: Adjustment of individual RF sources to provide uniform, consistent RF distribution and lower local RF deposition in each individual patient.
- The independent RF amplifiers feed into the individual ports of the MultiTransmit dS T/R System Body coil

Line #	Part #	Description	Qty	Each	Price
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- Patient-adaptive RF shimming adapts the RF (power, amplitude, phase, waveform) to each patient and each anatomy to maximize RF uniformity, contrast and consistency
- 2 x 18kW high-performance solid-state RF power amplifiers allow short, complex RF pulses, even on large patients.
- Digital control loops for each individual (TX) transmit channel digitize the transmit signals close to the System Body coil. These feedback loops ensure outstanding image quality by delivering optimal amplitude, phase and waveform of the RF pulses.
- RF-SMART technology enables SAR to be effectively managed through balanced system design, and maximizes scanner performance in combination with the application of Philips-unique imaging capabilities such as SENSE, SPAIR, Flip Angle Sweep and RF amplitude control.

Standard RF receive coils

dS T/R System Body coil 3.0T

The integrated dS T/R System Body coil is a transmit/receive system coil which is typically used for RF excitation, but can also be used for imaging various (large) body parts.

- MultiTransmit solid-state phased-array Transmit/Receive system body coil for improved SAR control and a high signal-to-noise ratio
- DirectDigital sampling in the coil where the MR signal is at its purest.
- Channels: 2x2 (Transmit x Receive)
- Excellent homogeneity
- 70 cm aperture

dS coil solutions

dStream (dS) coil solutions provide a full range of clinical solutions with two types of coils:

- Integrated coils combine to provide solutions for multiple applications
- Dedicated coils optimize imaging for a single application

dS coil solutions have been optimized for 3 important characteristics:

- Intrinsic signal-to-noise ratio (DirectDigital)
- Imaging coverage
- Parallel imaging performance

dStream Interface

Allows the connection and digitization of the signal from traditional RF coils* at the table. The digital signal from the interface is transferred via an optical connection to the reconstructor.

- Connector interface designed for easy connection and automatic release of coil
- Connects traditional coils up to 16 channels

*Note: Achieva coils are not compatible with dStream interface

Workflow / throughput: FlexStream

FlexStream is hinged upon the unique FlexCoverage Posterior coil that provides neck-to-toe coverage without the need for any manual coil removal or patient repositioning. The FlexCoverage

Line #	Part #	Description	Qty	Each	Price
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Posterior coil simply combines with other unique dS coils to enable imaging with fewer coils and reduce concerns for coil positioning and patient setup. The optional FlexTrak patient transport system enables easy patient preparation and more efficient use of the MR scanner. FlexTrak solutions can instantly convert your MR system from general purpose use to dedicated advanced clinical use, such as breast imaging, intervention or therapy applications, while ensuring high throughput.

- As much as 30% improvement in throughput
- Easy coil handling through lightweight patient conforming coil design
- Large coverage coils for easier positioning
- Flexible combinations of coils
- Efficient coil usage – more applications with fewer coils
- Unique design allows up to 70% of routine applications without additional coil connections.
- FlexConnect easy to use, single-handed coil connections.

FlexCoverage Posterior coil

Posterior coil, used routinely in 60% of all applications, is an integrated coil below the thin table top providing neck-to- toe coverage. This coil does not need to be carried, positioned, connected nor exchanged, thereby enhancing workflow. It is always there when you need it.

- Head-to-toe coverage up to 200 cm* in combination with the base coil

FlexConnect coil connection / connectors:

Single-handed coil connection for fast and easy plugging and unplugging of coils, and for auto-eject with FlexTrak undocking in emergency cases.

The small FlexConnect connectors use advanced fiber-optic connections for carrying digital broadband MR signals.

- Enhanced reliability by eliminating delicate RF pin connections.

FlexTrak table top

Ultra-thin table top that maximizes bore space. Includes coil connections directly on the table top for fast and easy setup.

- Ultra-thin design ensures minimal distance between patient and FlexCoverage Posterior coil for optimal SNR
- Ultra-strong design supports patients up to 250 kg (550 lbs)
- Wide table for enhanced patient space and comfort
- Easily removed for patient transport using the optional FlexTrak patient transport system

Workflow / throughput: SmartAssist

Next generation, easy-to-use SmartExam and ExamCards software that helps the user reduce the number of manual tasks.

- Simplifies workflow by making ExamCards more efficient
- Can reduce repetitive tasks by half

Line #	Part #	Description	Qty	Each	Price
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- Increases efficiency, reproducibility and consistency

ExamCards

A grouping of individual sequences and operations that define a clinical protocol. An ExamCard can include both the imaging sequences and any of the SmartAssist functionalities. ExamCards makes even the most complex exams simple.

- A set of Philips defined ExamCards is standard
- User-defined ExamCards can be created and stored
- Can be exported to memory stick or portable device
- Can be locked with a password to prevent unintended changes
- Can be shared among any of your scanners
- Philips Netforum provides an online community that allows ExamCards to be shared and downloaded
- Supports user-editable tips and processing/viewing/networking steps
- Supports single mouse-click scanner operation

SmartStart

One button action that automatically moves the table to isocenter and starts the ExamCard while the operator walks back to the console reducing the setup time.

SmartSelect coil and element selection

Automatically detects and selects the right coil and coil elements to maximize the SNR matching the area to be scanned.

- Simplifies patient positioning and coil placement
- No need for manual coil or element selection
- Optimal SNR
- Facilitates higher throughput

SmartExam planning (optional)

Assists the operator in planning the MR exam. SmartExam uses sophisticated algorithms to recognize the anatomy. Then, using previously run exams as input, SmartExam automatically positions slices on the target anatomy, and uses ExamCards to conduct the study, reducing operator input to as little as a single mouse click.

- Targeted for 100% reproducibility and consistency in outcome

SmartExam optional packages include:

- SmartExam Brain
- SmartExam Spine
- SmartExam Shoulder
- SmartExam Knee
- SmartExam Breast

Line #	Part #	Description	Qty	Each	Price
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SmartLink geometry linking

SmartLink (geolink) is a tool for simplifying the planning, viewing and processing of multi-sequence multi-station exams, treating multi-station exams as one volume.

- Allows a single table sweep for multi-sequence (e.g. T1, T2, STIR) multi-station exams. All sequences are run at each station before the table is moved to the next station minimizing the number of table movements for increased patient comfort.
- Provides the flexibility to perform one sequence at all stations before starting the next sequence.
- Labels and sorts images regardless of the order in which they are acquired for subsequent viewing and processing as a single volume.
- BolusTrak (fluoroscopic scans) can be interleaved at any point during a multi-station exam.

SmartLine processing

Smart, automated and intelligent processing of image data. SmartLine processing steps can be run simultaneously and in parallel with image acquisition. Defined in the ExamCard, the same processing settings are used every time for consistent results.

- Progress of each processing step is clearly displayed to the user alongside the scanning progress.

The following packages are included:

- **SmartLine** VolumeView Real-time MIP, MPR and 3D surface rendering (standard or user defined volumes of interest enable elimination of unwanted signals regions)
- **SmartLine** ImageAlgebra (including addition, subtraction, relative subtraction, cumulation, ratios, MTC, ASL calculation)
- **SmartLine** PicturePlus for user-defined image filtering (smoothing and/or edge enhancement)
- **SmartLine** T1 / T2 / rho map calculation
- **SmartLine** Delayed Reconstruction enables various retrospective image reconstructions from raw data (e.g. reconstruction of various flow directions from a 3D phase-contrast MRA dataset)

Scantools dependent options:

- **SmartLine** Diffusion registration
- **SmartLine** Diffusion (ADC, eADC, etc.)
- **SmartLine** IViewBold real-time fMRI analysis

Viewing, filming and export

The MR viewing environment supports fast and flexible viewing, processing and film generation

- Window width/level, zoom, pan, rotate, mirror
- Image annotation (text, arrows and lines)
- Simultaneous visualization of up to four independent series for comparison.
- Cine movie display in various formats
- Drag & drop functionality to enable the creation of films containing random image selections
- Single mouse click film generation of image series using a range of predefined formats

Line #	Part #	Description	Qty	Each	Price
		<ul style="list-style-type: none"> Images and movies can be exported to Windows PC formats as visible on screen 			

Patient environment and patient handling

The Ingenia was designed with the patient in mind, no matter the age, size or physical condition. The Ingenia's patient environment and patient handling features enhance patient comfort and facilitate exams.

Important features:

- Lightweight, patient-conforming coils
- 70 cm bore and extra large FOV imaging space
- Digital coil management workflow
- DirectDigital RF technology digitizes the signal in the RF coil on the patient
- SmartAssist efficiency enhancing software
- MultiTransmit RF transmit

Benefits include:

- More comfortable exams
- Decreased need for coil positioning
- Fewer retakes
- Faster exams

Patient Comfort

- 70 cm aperture for enhanced patient comfort, patient fit and reduced anxiety
- Choice of feet-first or head-first imaging for most applications
- FlexCoverage Posterior coil: Never worry about the position of the patient to this coil. No cables, no connections. This invisible, patient-friendly coil is always there when you need it.
- Lightweight, conforming coils for enhanced patient comfort and operator handling
- Ambient Ring circular light to enhance the visual openness of the system.
- Adjustable fresh air supply in 6 increments
- Adjustable variable in-bore lighting in 3 increments
- In-bore microphone and ceiling-mounted loudspeakers support two-way patient-operator communication and music.
- Hand-held technologist call button.
- Patient headset with built-in two-way communication reduces acoustic noise by up to 25 dB.
- Look-out mirror with adjustable angulation

Patient support

- Patient support enables patients weighing up to 250 kg (550 lbs) to be comfortably positioned and lifted.
- Wide table top for improved patient comfort and accommodation of larger patients
- Patient table height can be quickly lowered, providing access for compromised or non-ambulatory patients.
- Detachable tabletop can be combined with one or more FlexTrak patient transport systems for efficient patient management and rapid egress. Supported by manual mode table release.
- Up to 200 cm* scan range

Line #	Part #	Description	Qty	Each	Price
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- Horizontal travel of 275 cm (9 ft 1 in.) with +/- 0.5 mm (0.02 inch) accuracy
- Horizontal table speeds of up to 325 mm/s to enable fast, easy patient positioning and rapid multi-station examinations
- Ergonomically designed control units on both sides of the bore to increase operating flexibility.

Whole Body Specialist

Whole Body Specialist enables automated multi-station head-to-toe coverage. Extended table stroke for Ingenia and table-top extender for Achieva to increase total table travel, allowing whole-body multi-station feet-first imaging studies. Single table motion by combining all imaging sequences per station. Scanalign guarantees user defined overlap between stations. Whole Body Specialist extends DWBS to whole body coverage.

Physiology measurement and gating

Wireless physiological hardware to provide synchronization for sequence triggering and gating. Wireless physiological signals can be observed on the operator's console monitor or on the optional Interventional Monitor.

- Wireless Physiology consisting of wireless Basic Triggering Unit (wBTU) and respiratory module hardware
- Physiological synchronization for sequence triggering and gating through
 - Wireless VCG
 - Wireless Respiratory
 - Wireless PPU (requires optional PPU Sensors)

Patient accessories

Comprehensive set of patient accessories, including

- Table mattress set
- Head/leg support
- Knee support
- Positioning wedges
- Small foam wedges
- Set of sandbags
- Set of patient fixation straps

Computer specifications (may be supplied on one or two computers)

Host

- >= 32 GB host memory
- >= 100GB system disk
- >= 250 GB main image database disk (Approx. >= 300,000 images – 256 x 256 image resolution)
- >= 23-inch LCD wide-screen format monitor enabling large overview
- LCD wide screen resolution: 1920 x 1200
- MicroSoft Windows® OS 64 bits
- External storage via USB port
- 10BaseT, 100BaseT or 1000BaseT connections.

Line #	Part #	Description	Qty	Each	Price
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Recon

- Fast reconstruction of demanding imaging techniques (interactive real-time, dS-SENSE, high resolution and high coil receiver count).
- ≥ 6000 images per second (256 x 256 reconstructions)
- ≥ 13000 recons/sec (256 FFT, 100% FOV)
- ≥ 32 GB reconstruction memory (RAM)

Connectivity / interoperability

The MR environment fits seamlessly into local network environments. Communication is performed via DICOM protocols. The system can be configured for safe storage of MR images and other patient data in departmental information systems and PACS. The MR workspace conforms to the new Enhanced (multi-frame) MR DICOM standard, which improves the performance of data transfer of large data sets and fully supports information associated with diffusion and spectroscopy.

The system can be configured (per node) to support standard DICOM MR image transfer or DICOM Enhanced MR Image Transfer. If a receiving node does not support DICOM Enhanced MR, standard DICOM MR Images will be transferred.

- DICOM Workflow Management:
 - DICOM Modality Worklist
 - DICOM Modality Performed Procedure Steps
 - DICOM Storage Commitment
- DICOM Send/Receive:
 - DICOM Enhanced MR:
 - Export / Import of DICOM Enhanced MR Images
 - Export / Import of DICOM MR Spectroscopy
 - Export / Import of DICOM Raw
 - DICOM MR:
 - Export / Import of DICOM MR Images
 - Export / Import of Philips Private MR Series Data
 - Export / Import of Philips Private MR Spectrum Data
 - Export / Import of Philips Private MR ExamCards Data
 - DICOM SC:
 - Export / Import of SC (color) Image Data
 - DICOM Grayscale Softcopy Presentation State:
 - Export / Import of Grayscale Softcopy Presentation State
- DICOM Query / Retrieve of Philips MR data, all the exported image types
- DICOM Print
 - Grayscale Softcopy Presentation State with preset window settings as on the console
 - Basic Grayscale Print
- DICOM Media
 - MR Studies on DVD (Read / Write)
- IHE Integration Profiles
 - Scheduled Workflow
 - Patient Information Reconciliation
 - Consistent Presentation of Images
 - Basic Security

Line #	Part #	Description	Qty	Each	Price
		• Consistent Time			

Full information on compliance with DICOM standards and available functionality is contained in Philips' DICOM Conformance Statement.

Installation: EasySite and PowerSave

EasySite

System design for rapid installation times, compact siting footprint and low ceiling heights.

- Installation times as short as 7 days, based on prepared site conditions.
- Industry's lightest wide-bore magnet enables siting on upper floors.
- Siting (exam/technical/control room) as little as 30 m2
- Low ceiling height
- Low transport height for easy facility access
- System / building vibration transfer is minimized by special vibration pads that require no facility adaptations.

PowerSave

Unique, efficient design combined with smart power management of the high power sub-systems (gradient amplifiers, RF amplifiers, etc.) enable reduction in power consumption by up to 50% without affecting overall performance.

ScanTools Pro

Scantools Pro provides the following generic workflow features for all clinical anatomies:

- ExamCards for automated scanning and processing of patient studies.
- SENSE parallel imaging methods for fast scan times, high resolution or to reduce susceptibility artifacts.
- CLEAR for signal uniformity correction based on coil-sensitivity and on patient loading.
- PicturePlus to improve appearance of images through edge enhancement and smoothing. Provides full control over all enhancement parameters, which can be applied automatically post-acquisition or as a post-processing option.
- High-resolution acquisitions and reconstruction (1024 matrix)

In addition, ScanTools Pro contains fast, high resolution imaging methods for the assessment of morphology of all anatomical areas including brain and spine, MSK, body and breast, cardiac, and various blood vessels with or without contrast agents. Specific features per clinical area are listed below.

Neuro Pro

Line #	Part #	Description	Qty	Each	Price
		<ul style="list-style-type: none"> Sequences include SE, FFE and EPI based methods, with fat suppression methods including STIR, SPIR, ProSet and SPAIR. FLAIR for CSF suppression. Snapshot imaging, intended for uncooperative patients, eliminates the effects of patient and physiological motion through the combination of rapid TSE sequences and SENSE. Individual Snapshot images can be acquired in any orientation in approximately 250ms to 300ms. Asymmetric TSE makes Snapshot compatible with T1-, T2- and diffusion-weighted imaging. Single, Dual and Triple IR sequences for evaluation of gray and white matter differentiation. 2D TSE with Flip Angle Sweep technology for SAR and Magnetization Transfer reduction, improving gray/white matter contrast in both T2 and FLAIR acquisitions. 3D based anatomical sequences including: <ul style="list-style-type: none"> VISTA, isotropic 3D TSE for volumetric acquisitions with reconstruction in any plane. 3D T1-TFE sequences for volumetric acquisition and reconstruction of the original dataset in any orientation. 3D TFE for isotropic coverage of the entire head in short scantimes using SENSE. A single data set can be reformatted into alternate planes both pre- and post-contrast, eliminating the need for additional scans. DRIVE for T2-weighted 2D and 3D TSE acquisitions enabling short TRs while maintaining contrast-to-noise and SNR. Used to improve fluid visualization (IAC), for short scan times and to increase resolution. Balanced FFE/TFE for high-resolution high contrast (IAC and Spine applications). ProSet water and fat excitation for spinal nerve root imaging. Combines the characteristics of the high-resolution volume acquisitions with ProSet water or fat only selection. Multiple radial projection myelography both with 2D and 3D sequences. MultiVane to correct motion for multi-shot TSE examinations with radial encoding. MultiVane delivers high resolution diagnostic images even in case of patient motion for T2, IR-real & FLAIR TSE imaging as well as gradient-echo examinations. Dynamic multi-slice T2*-weighted sequences based on single- or multi-shot FFE-EPI methods for perfusion and fMRI sequences. Single-shot EPI diffusion-weighted imaging (DWI) with three diffusion directions and up to 16 b-values, robust against motion and generating isotropic DWI images. BolusTrak enables accurate synchronization of high-resolution CE-MRA acquisitions. BolusTrak uses a real-time fluoroscopic display of bolus arrival in the area of interest and manual start of the target acquisition. BolusTrak in combination with CENTRA minimizes venous contamination and produces optimal arterial vessel contrast and resolution. TRACS enables accelerated time-resolved contrast-enhanced vascular imaging. TRACS uses SENSE for image acceleration and CENTRA phase-encode ordering for optimized contrast. m-FFE provides unique image contrast - ranging from 2D or 3D gradient-echo sequences to the combination of echoes. Venous BOLD provides T2*-weighted 3D sequences compatible with SENSE. These sequences are useful for evaluating various brain anomalies associated with venous blood. Phase contrast (PC) sensitive imaging for the visualization of moving fluids. MobiFlex and MobiView, compatible with all sequences, for easy Total Spine imaging. T2* perfusion analysis. Diffusion imaging processing with automatic generation of the ADC maps. Perfusion tools package, enabling: <ul style="list-style-type: none"> Dynamic multi-slice T2*-weighted sequences based on single- or multi-shot FFE or FFE EPI methods, including the PRESTO technique. 			

Line #	Part #	Description	Qty	Each	Price
		<ul style="list-style-type: none"> Processing and calculation of T1 and T2* hemodynamic maps including Mean Transit Time (MTT), Time to Peak (TTP), Time of Arrival (T0), Negative Integral (NI), Index or upslope. All post-processing can be included as an in-line step within Examcard Prospective Motion Correction: accounts for subject motion by real time monitoring of motion during acquisition and adjustment of acquisition parameters accordingly. PMC enables overall improvements in image registration. 			
		<ul style="list-style-type: none"> 3D PRESTO <ul style="list-style-type: none"> Whole brain coverage and high temporal-resolution T2*-weighted imaging for perfusion-weighted and BOLD imaging studies. Higher temporal resolution and coverage compared to traditional multi-slice techniques. Reduce sensitivity to susceptibility and flow artifacts associated with EPI techniques, enabling imaging throughout the brain and into the skull base. 			

MSK Pro

- SE, TSE, and FFE sequences, with fat suppression provided by STIR, ProSet, SPIR and adjustable fat suppression with the SPAIR method.
- Balanced acquisitions (bFFE) for high-resolution morphology scans.
- DRIVE combined with TSE to increase sensitivity to fluids (with good T2 weighting), even with short TRs.
- Turbo-STIR for fat-suppressed evaluation of bone bruises.
- TSE with asymmetric profile ordering for proton density weighted imaging of joints with higher spatial resolution or faster scan times.
- Mixed Mode (interleaved IR/SE for combined T1 & T2 map calculation).
- Multi-Echo T2 measurements (up to 32 echoes) for T2 mapping.
- 3D FFE with ProSet for water-only (selective excitation) sequences. Optimizes cartilage and/or fluid imaging with high-resolution in all directions.
- e-THRIVE for 3D high-resolution fat-suppressed imaging for MR arthrograms and evaluation of soft tissue lesions as well as rheumatoid arthritis.
- MobiFlex for simple visualization of total spine imaging and multiple-station long bone studies.
- Dynamic imaging sequences for TMJ or other joint studies.
- Includes protocols for imaging in the presence of prostheses, with improved susceptibility using SENSE, modifications of water-fat shift and user-specified bandwidth.
- Up to 1024 acquisition resolution and flexible reconstruction resolution via interpolation.

Body Pro

- TSE sequences with respiratory triggering (in combination with breath hold or free breathing).
- MultiVane motion correction for T2w TSE diagnostic images, even in case of severe patient motion.
- In and out of phase FFE/TFE sequences.
- SPAIR for high uniformity fat saturation.
- e-THRIVE volumetric imaging with fat suppression, in short breath-hold times Keyhole for high temporal dynamic imaging.
- Diffusion-weighted sequences with automated creation of Apparent Diffusion Coefficient (ADC) maps.

Line #	Part #	Description	Qty	Each	Price
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- MRCP sequences, (radial) single shot and 3D acquisitions.
- High-resolution pelvic imaging.
- VISTA: isotropic 3D TSE pelvic imaging allowing volumetric acquisitions to be reconstructed in any plane.
- MobiView and MobiFlex for automatic composition of data sets from multi-station acquisitions into full FOV images.
- Dynamic scan techniques for monitoring and evaluation of contrast uptake viewing.
- High Resolution Diffusion / DWIBS package enables single or multi-station high resolution diffusion weighted imaging with background suppression. Patient and physiological motion is controlled by navigator-based motion correction.
- MotionTrak Body includes a real-time respiratory navigator to synchronize data acquisition to the respiratory cycle of the patient. Options include: gating, tracking, gating & tracking, triggering, triggering & tracking. Tracking improves slice accuracy position over multiple breath hold sequences. Designed for all Body applications, including diffusion and DWIBS.

Breast Pro

- SPAIR for high uniformity fat saturation.
- e-THRIVE for volumetric coverage with uniform fat suppression.
- BLISS, two bilateral sagittal volumes within a single acquisition.
- Diffusion-weighted sequences with automated creation of Apparent Diffusion Coefficient (ADC) maps.
- Silicone-Only sequences optimized for breast implants.

Cardiac Pro

- Black blood prepulses to suppress blood signal for optimized myocardial and lumen visualization.
- Multi Slice / Multi Phase for function studies.
- Retrospective triggering with real-time prospective updating for full R-to-R coverage of function studies.
- Temporal profile sharing for playback frame rates higher than acquisition frame rates.
- VCG gating for robust ECG gating and triggering (includes a four-lead cable set).
- ECG-triggered STIR (inversion recovery TSE) including black blood imaging (triple IR)
- ECG-triggered Inversion Recovery (including PSIR) for myocardial tissue characterization.
- Non-invasive quantitative flow measurements of blood, including overlaid color-encoded flow maps on the console.

MRA Pro

- 3D FFE sequences for contrast-enhanced MRA, including assessment of carotids, peripherals and renal arteries.
- Quantitative flow with variable VENC values for non-invasive measurements of blood flow in three directions.
- 2D/3D Balanced TFE/FFE for fast, high-resolution non-contrast enhanced vascular imaging.
- Phase-Contrast Angio for imaging of brain vasculature.
- TRANCE for 3D high contrast TSE acquisitions without vascular contrast agents.
- Time-of-flight (inflow) sequences with TONE to improve contrast and MTC to reduce peri-orbital fat signal.

Line #	Part #	Description	Qty	Each	Price
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- CENTRA for 3D high-resolution contrast enhanced imaging to allow an increase in spatial resolution without venous contamination.
- Keyhole imaging to improve temporal resolution in dynamic studies.
- BolusTrak for synchronization of high-resolution CE-MRA acquisitions with a real-time fluoroscopic display of bolus arrival in the area of interest.
- MobiView for automated composition of multi-station acquisitions (e.g. MRA runoffs) into single images.
- MobiFlex for setup and acquisition of complex multi-station exams, combining different FOVs, resolution, geometries and SENSE acceleration factors.
- VCG gating for robust ECG gating and triggering (includes a four-lead cable set).

3D SpineView

3D SpineVIEW delivers high resolution isotropic 3D TSE acquisitions in short scan times by employing high 3D dS SENSE factors. Isotropic acquisition allows reformats in arbitrary planes.

3D PelvisView

3D PelvisVIEW delivers high resolution isotropic 3D TSE acquisitions in the pelvis area with short scan times by employing high 3D dS SENSE factors. Isotropic acquisition allows reformats in arbitrary planes.

3D BreastView

3D BreastVIEW delivers high resolution isotropic 3D TSE breast acquisitions with short scan times by employing high 3D dS SENSE factors. Isotropic acquisition allows reformats in arbitrary planes.

dS TotalSpine 3.0T

An integrated coil solution for total spine related imaging. It includes the FlexCoverage Posterior and the Base coil with 90 cm coverage, using 44 channels maximum. Posterior coil, used routinely in 60% of all applications, is an integrated coil below the thin table top providing neck-to- toe coverage. This coil does not need to be carried, positioned, connected nor exchanged, thereby enhancing workflow. It is always there when you need it.

- Coverage: 90 cm
- Maximum nr. of channels: 44
- Main applications: Total spine, C-Spine, T-Spine, L-Spine
- Coil type: Integrated
- DirectDigital sampling in the coil where the MR signal is at its purest, without loss in the RF chain, enabling:
 - Enhanced SNR
 - dS-SENSE enhanced parallel imaging performance
 - Single FlexConnect coil connection and cable for fast and easy setup

Line #	Part #	Description	Qty	Each	Price
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The Base coil can stay on the table for most examinations without exchanging coils and additional dS Base is ideal to improve workflow by preparing the patient outside the magnet room.

dS HeadNeck 3.0T

An integrated coil solution for head, neck and total neuro related imaging. It includes the HeadNeck coil.

Combined with the FlexCoverage Posterior coil and Base it enables:

- 45 cm coverage, using 20 channels maximum (Head-Neck)
- 90 cm coverage, using 52 channels maximum (Total Neuro)
- Coverage: 45 cm (HeadNeck) and 90 cm (Total Neuro)
- Maximum nr. of channels: 20 (HeadNeck) and 52 (Total Neuro)
- Main applications: NeuroVascular, Head, Brain, Pediatric, Total Neuro, Total spine, C-Spine, T-Spine, L-Spine
- Coil type: Integrated
- Lightweight coil(s)
- DirectDigital sampling in the coil for the purest MR signal without loss in the RF chain, enabling:
 - Enhanced SNR
 - dS-SENSE enhanced parallel imaging performance
 - dS-SENSE capable in AP, LR and FH directions
- Cable-less connection of top coil

When used with an Ingenia, the head section can be tilted to provide optimal positioning and comfort for challenging patients such as Kyphosis patients. Note: this feature is only available with an Ingenia 70cm bore system.

dS Head 3.0T

An integrated coil solution for head and total neuro related imaging. It includes the Head coil.

Combined with the FlexCoverage Posterior coil and Base it enables:

- 30 cm coverage, using 15 channels maximum (Head)
- 90 cm coverage, using 51 channels maximum (Total Neuro)

When used with an Ingenia, the head section can be tilted to provide optimal positioning and comfort for challenging patients such as Kyphosis patients. Note: this feature is only available with an Ingenia Omega or Ingenia Omega HP.

- Coverage: 30 cm (Head) and 90 cm (Total Neuro)
- Maximum nr. of channels: 15 (Head) and 51 (Total Neuro)
- Main application: Head, Brain, Total Neuro, Total spine, C-Spine, T-Spine, L-Spine
- Coil type: Integrated
- Lightweight coil(s)
- DirectDigital sampling in the coil where the MR signal is at its purest, without loss in the RF chain, enabling:

Line #	Part #	Description	Qty	Each	Price
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- Enhanced SNR
- dS-SENSE enhanced parallel imaging performance
- dS-SENSE capable in AP, LR and FH directions
- Cable-less connection of top coil

dS Small Extremity 8ch 3.0T

Semi-flexible coil designed for imaging of elbows, hands and small knees. The coil has an inner diameter of 20 cm to match the size of the small extremities. It has a flexible wrap-around design for easy positioning and good fit. A mattress that supports both patient and coil is provided to increase patient comfort and avoid motion.

- Coverage: 20 cm
- Maximum nr. of channels: 8
- Main applications: Elbow, Arm, Extremities
- Coil type: Dedicated
- dS-SENSE enhanced parallel imaging performance

dS Flex M 3.0T

An integrated coil solution for general-purpose imaging. It includes two medium-sized flexible general-purpose coils. Combined with the FlexCoverage Posterior coil they enable 15 cm coverage, with a maximum of 6 channels.

The shape and size of the flexible coil elements enable a wide variety of applications, including imaging of medium sized anatomies. The coil can be used to locally enhance resolution of images acquired over a larger FOV, for example in pediatric applications.

- Coverage: 15 cm
- Maximum nr. of channels: 6
- Main applications: Shoulder, Foot, Ankle, Knee, Pediatric
- Coil type: Integrated
- dS-SENSE enhanced parallel imaging performance

ComforTone is a scan technique that brings noise reduction. ComforTone ExamCards will be available for routine exams (Brain, Spine, MSK) including the reference scans.

With **AutoVoice** the patient is guided through the MR examination with voice audio information to the patient on length of scan, breath hold and table movement. Multiple languages can be selected. Includes a recording option for specific commands or languages.

PPU for wireless physiology

Line #	Part #	Description	Qty	Each	Price
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The PPU for wireless physiology package contains a peripheral pulse sensor with the following 4 different sizes: neonate, infant, pediatric and adult. This option is required to use the peripheral pulse as a means to do physiological synchronization for sequence triggering and gating. The sensor can be positioned on finger, toe or foot, and is compatible with the Ingenia, Multiva, HFO and Achieva platforms. This package is ONLY compatible with Ingenia, Achieva, Multiva, and/or Panorama systems with wireless physiology.

Arm support

The arm support is designed to work in conjunction with the existing MR tabletop to provide additional support for a patient's arm when injections are required. The support easily slides under the patient.

Features:

- Transparent arm support contoured to match the MR table-top
- Positioning on either side of table

HA console table

Standard office table for MR-operator

- Table surface 160x100 cm
- Adjustable Height

DVD-PC

Local media storage option intended for burning and reading DICOM data on medical grade DVD's. This option enables the operator to burn DVD's directly or prepare multiple DVD's for burning later.

- Includes DICOM viewer on every DVD created
- Create multiple DVD's for exchange with off-line stations
- Burn DVD's independently of other scanner functions.
- Dimensions (hwxwd): 10x34x38cm

Clinical Education Package for Ingenia Release 5:

Line #	Part #	Description	Qty	Each	Price
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Customer Applications Training _Introduction to Philips MR Release 5 - Learning Path 1:

This online pre-learning material will introduce the User Interface and clinical handling of the MR scanner to prepare the technologist for on-site training. Learning Path 1 will guide the technologist through specific workflow steps, this self-paced learning module is highly recommended for all Ingenia users and should be completed prior to Essentials OffSite or Handover Onsite Education. CEU credits may be available for each participant that meets the guidelines provided by Philips.

Release 5 Essentials OffSite Education: The MR Release 5 Essential course is a prerequisite to attending the MR Release 5 Advanced Concepts course. Philips will provide up to two (2) technologists, as selected by customer, with in-depth didactic, tutorial, and hands-on training covering basic functionality and work-flow of the magnetic resonance imaging system. This twenty-eight (28) hour class is located in Cleveland, Ohio, and is scheduled based on your equipment configuration and availability. Due to program updates, the number of class hours is subject to change without notice. Customer will be notified of current, total class hours at the time of registration. In order to provide trainees with the ability to apply all fundamental functioning on their system, and to achieve maximum effectiveness, this class should be attended no earlier than two weeks prior to system installation, and trainee should have prior knowledge of basic MR theory. CEU credits may be available for each participant that meets the guidelines provided by Philips.

Handover OnSite Education: Philips Education Specialists will provide twenty-eight (28) hours of education for up to four (4) students, as selected by customer. Students should attend all 28 hours, and must include the two OffSite education attendees. This course does not cover Cardiac or Spectroscopy. CEU credits may be available for each participant that meets the guidelines provided by Philips. Please refer to guidelines for more information. Note: Site must be patient-ready, including all inspections approved, all accessory equipment installed and functioning (injectors, hard copy units, film processors and physiologic monitors), and all supplies stocked. **Note: Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.**

FollowUp OnSiteEducation: Philips Education Specialists will provide twenty-eight (28) hours of Follow-Up Education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. Customer must have operated the system for at least 30 days. CEU credits may be available for each participant that meets the guidelines provided by Philips. **Note: Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.**

PLEASE NOTE for all OnSite Education: It is recommended to purchase additional training, 16 or 24 hours, for customers purchasing specialist packages and requiring dedicated training for Breast Imaging, BOLD fMRI, Cardiac or Spectroscopy.

Project and Workflow Evaluation: Philips Education representative(s) conduct an eight (8) hour onsite customer MR Site/Clinical assessment; to include site demographics, workflow, identifying key contact personnel and decision makers. This process includes direct observation of customer's MR department workflow. Additionally, a copy of the Customer's MR protocol list is requested to be made available to Philips Education representative. Customer information provided during this process is the first building block for planning educational support and Clinical Exam Card configuration.

Implementation Support: Philips Clinical Education Representative supports the overall implementation of all customer training phases of the MR system handover and continued educational support. A Philips Education Representative works with the customer to design a

Line #	Part #	Description	Qty	Each	Price
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customized MR education program and coordinate the customer training/education implementation. Implementation support includes all onsite and offsite customer training events.

Clinical Exam Card Configuration: Exam Card (MR scan protocol) Configuration process is to ensure the Philips MR system is producing acceptable image quality according to customer preferences. Philips Clinical Education Specialist will provide sixteen (16) hours offline customized MR exam card configuration prior to onsite exam card IQ confirmation. Philips Clinical Education Specialist also conducts sixteen (16) hours onsite MR exam card configuration and image quality confirmation. This process includes Image quality acceptance made by the Customer's designated physician representative. Philips Clinical Education Specialist, working with the Customer Lead Technologist will make requisite adjustments to the exam card database in order to meet the customer's initial image quality expectations. Note: Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.

PLEASE NOTE: For all OffSite Education listed above: CEU credits may be available for each participant that meets the Guidelines provided by Philips. Travel and lodging are not included, but may be purchased through Philips. It is highly recommended that 989801292093 (MR Full Travel Pkg OffSite) is purchased with all OffSite courses. Due to program updates, the number of class hours is subject to change without notice. Customer will be notified of current, total class hours at the time of registration. OffSite training is scheduled based on your equipment configuration and availability.

Education expires one (1) year from equipment installation date (or purchase date if sold separately). Ref# 62616026614615622762286229-20150615

2	**NNAF994	Ingenia 3T Premium IQ VP Q4 2016	1	\$70,668.00	\$70,668.00
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Ingenia 3T Premium IQ VP Q4 2016

mDIXON XD FFE Specialist brings the next generation mDIXON algorithms for enhanced fat-free performance with a 2-point mDIXON method with flexible echo times and a 7-peak fat spectrum algorithm. mDIXON XD FFE Specialist provides fat-free FFE imaging with large FOV and sub-millimeter resolution, extending its use to challenging anatomies, including head, neck and spine, with access to new imaging methods such as subtractionless MRA.

mDIXON XD TSE Specialist brings the next generation mDIXON algorithms for enhanced fat-free performance. Our fast, 2-point mDIXON method brings flexible echo times and high sharpness, while a new 7-peak fat spectrum algorithm enhances accuracy. mDIXON XD TSE Specialist can be combined with Multivane XD in the head for simultaneous fat- and motion free imaging.

The **SWI Specialist** package enables a SWI/p sequence offering:

- 3D high resolution and high contrast susceptibility weighted imaging of the brain
- High SNR thanks to a multi-echo technology
- Enhanced contrast between tissues presenting susceptibility differences such as venous blood products or mineral deposits (e.g. iron or calcium) thanks to the utilization of MR phase information
- Visualization of phase maps to further help diagnosis.

Multivane XD is an enhanced Multivane technique for Multi-slice TSE and for Multi-slice FFE techniques, suitable for all anatomies. It provides an enhanced Multivane motion control algorithm

Line #	Part #	Description	Qty	Each	Price
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especially suited for gross motion. Combinable with SENSE parallel imaging in any direction allowing for short scantimes

O-MAR XD Specialist

O-MAR XD improves soft tissue visualization in the vicinity of MR conditional orthopedic implants. Suitable for use on patients cleared for MR exams, it uses the latest acquisition and reconstruction techniques to help reduce susceptibility artifacts caused by metal. It employs MARS (Metal Artefact Reduction Sequences) high bandwidth TSE methods, VAT (View Angle Tilting) technology and SEMAC to reduce metal-induced distortions both in-plane and through-plane. For use with MR conditional orthopedic implants only. Contact the implant manufacturer in order to obtain the latest safety information to ensure patient safety relative to the use of an MR procedure.

Full SmartExam Pack

The Full SmartExam Pack enables automatic planning of brain, knee, shoulder, spine and breast examinations for consistent studies with optimized scan quality, independent of patient, patient positioning or operator.

3	**NMRB214	dS Torso 3.0T	1	\$42,451.84	\$42,451.84
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An integrated coil solution for body and peripheral vascular related imaging. It includes the FlexCoverage Anterior coil. Combined with the FlexCoverage Posterior coil it enables 60 cm coverage, with a maximum of 32 channels.

The flexible, lightweight easy-to-position FlexCoverage Anterior coil is designed to conform both in right-left and foot-head directions for almost any patient. This enables large coverage and comfortable strap-free operation.

- Coverage: 60 cm
- Maximum nr. of channels: 32
- Main applications: Torso, Chest, Pelvis, Heart, Peripheral-vascular
- Coil type: Integrated
- Lightweight coil(s)
- DirectDigital sampling in the coil where the MR signal is at its purest, without loss in the RF chain, enabling:
 - Enhanced SNR
 - dS-SENSE enhanced parallel imaging performance
 - dS-SENSE capable in AP, LR and FH directions
- Single FlexConnect coil connection and cable for fast and easy setup

4	**NMRB246	dS Flex S 3.0T	1	\$11,997.86	\$11,997.86
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An integrated coil solution for general-purpose imaging. It includes two small flexible general-purpose coils. Combined with the FlexCoverage Posterior coil they enable 10 cm coverage, with a maximum of 4 channels.

The shape and size of the flexible coil elements enable a wide variety of applications, including imaging of small anatomies. The coil can be used to locally enhance resolution of images acquired over a larger FOV, for example in pediatric applications.

- Coverage: 10 cm
- Maximum nr. of channels: 4
- Main applications: Elbows, Wrist, Ankle, Inner ear, Pediatric
- Coil type: Integrated
- dS-SENSE enhanced parallel imaging performance

Line #	Part #	Description	Qty	Each	Price
5	**NMRB375	dS Head 32ch 3.0T	1	\$71,060.60	\$71,060.60

The dS Head 32ch 3.0T is a 32-channel coil designed for advanced neuro applications including fMRI, Spectroscopy, Angiography. It is also designed to facilitate EEG studies. The coil includes both front and rear facing mirrors for visual stimuli and movie projection.

Features:

- Complete high resolution coverage of the brain
- Parallel imaging with SENSE in all directions
- Compatible with the Ingenia 3.0T platform

Note - This option requires R4.1.3. Customers will be brought to the required software and hardware level.

6	**NMRB486	FiberTrak Specialist	1	\$11,997.86	\$11,997.86
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The FiberTrak Specialist package provides advanced imaging and processing methods for assessment of white matter fiber tracts in the brain. Functionalities include:

- Diffusion Tensor Imaging (DTI) (up to 32 directions and 16 b-values).
- Automatic calculation of Fractional Anisotropy (FA) maps.
- Visualization of the white matter tracts using fiber tracking.

Fibertracking key features:

- Advanced 3D visualization of (multiple) white matter fiber tracts.
- Overlays of anatomical and Bold Analysis datasets.
- 3D display movies of the entire white matter fiber structures.
- 2D cross sections of anatomical and Bold Analysis datasets.
- 2D color cross sections with fiber tracts.
- Multiple ROI fiber tracking.
- Statistics on voxels fibers and ROIs.

7	**NMRB487	Spectroscopy Specialist	1	\$24,918.32	\$24,918.32
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The 1H Spectroscopy Specialist package includes a complete set of single voxel, multi-voxel and multi-slice proton spectroscopy acquisition methods executed by ExamCards. Key features are:

- Fully integrated into the acquisition user interface
- Planning on survey images including free angulations of spectroscopic volumes
- Easy scanning, planning and reconstruction
- Short TE spectroscopy with STEAM volume selection (minimum TE < 10 ms)
- PRESS volume selection
- 2D, Multiple 2D and 3D spectroscopic imaging
- SENSE 2D and SENSE 3D Spectroscopic imaging
- 2D and 3D Turbo Spectroscopic Imaging
- Combination of Turbo Spectroscopic Imaging and SENSE to even further reduce acquisition time
- Anisotropic matrix to reduce scan time

Line #	Part #	Description	Qty	Each	Price
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- Automated water suppression and MOIST, a unique (adiabatic) water suppression technique which is insensitive to B1 and T1.
- Dynamic single voxel spectroscopy
- Multiple REST slabs suppression, including circular REST
- Can be used for any anatomy and with any coil

Includes the SpectroView Analysis package for visualization and processing of all spectroscopic data. Enables presentation of spectro data after processing in the form of:

- Graphs
- Tables
- Ratio and metabolite images in color overlay
- Grids on reference images including corresponding spectra
- Processed and fitted spectra
- Metabolic peak levels

All data created can be transferred via DICOM to PACS or other workstations and all results can be converted to Windows-compatible formats.

8	**NMRB196	Flex Holders	1	\$922.61	\$922.61
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Coil positioning aid for TMJ and other studies.

9	**FMR0340	FlexTilt	1	\$1,845.22	\$1,845.22
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The FlexTilt is an easy to use device which allows the dS Base in combination with the dS Head and dS HeadNeck coils to be tilted. The coils can be tilted up to 18 degrees in incremental steps of 2 degrees.

10	**FMR0326	Anterior Coil Frame	1	\$922.61	\$922.61
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The Anterior coil frame creates a distance between the coil and the patient thereby avoiding direct contact (e.g. for peripheral vascular disease, pediatric patients).

11	**989801256069	MR Full Travel Package OffSite	2	\$2,330.00	\$4,660.00
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Includes one (1) participant's airfare from North American customer location to Cleveland, Ohio with lodging, ground transportation, and meal expenses. Breakfast/dinner provided by the hotel, and lunch/breaks are catered by Philips. All other expenses will be the responsibility of the attendee. Details are provided during the scheduling process.

Note: Cancellation/rescheduling policy strictly enforced.

Education expires one (1) year from equipment installation date (or purchase date if sold separately).

12	**989801271105	MR Stereo - HiFi system	1	\$290.52	\$290.52
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Premium Audio Technology Meets Compact Design

Mini Hi-Fi System - 40 W RMS - iPod Supported -

Black - CD Player - AM, FM - 2 Speaker(s) - CD-DA, MP3, WAV - USB

- Remote Control

Line #	Part #	Description	Qty	Each	Price
13	**989801270041	Spectris Solaris EP Injector	1	\$23,375.40	\$23,375.40

The MEDRAD Spectris Solaris EP MR injection system offers Enhanced Performance capabilities designed for use with scanners up to and including 3T with uncompromised ease of use and more flexibility than ever before. The injector delivers precisely timed injections for performing contrast enhanced MR exams to include, MRA, Dynamic and functional procedures with consistent and reproducible results.

Key features include:

- 3T compatibility
- Enhance performance battery with increased injections per fully charge battery
- Optional integrated Continuous Battery Charger (iCBC) increases operator efficiency by not having to change out the battery
- Fiber optic cable enables direct, reliable communication.
- Six user- programmable phases for added programming flexibility
- Hold or Pause phases for programming delay type and time.
- Keep- Vein- Open (KVO)- Function maintains line patency. KVO function operates independently from the injection profile.
- Large 115 ml syringe holds sufficient saline for longer KVO and multiple injections.
- Continuous status display on optimized color touch screen.
- Disposable syringe set SSQK 65/115vs.
- One- year warranty.
- Installation included in purchase of injection system.
- Applications Training included with purchase of injections system.

Control room unit

- Dimensions (H x W x D):
- 279 mm x 305 mm x 267 mm •
- (screen in up position)

Integrated Continues Battery Charger (iCBC)

- iCBC provides maximize operator flexibility by not having to change battery
- Flexible installation, in-room or out-of-room

Battery charger

- Dimensions (H x W x D):
- 40 mm x 77 mm x 129 mm

Scan room unit

- Dimensions (H x W): 1327 mm x 489 mm x 546 mm

Line #	Part #	Description	Qty	Each	Price
		<ul style="list-style-type: none"> Volume Syringe A: 0.5 ml to max. syringe volume in 0.1 ml increments between 0.5 and 31 ml, 1 ml increments for 31 ml and above Volume Syringe B: 1 ml to max. syringe volume in 1 ml increments Flow rates: 0.01 to 10 ml/s in 0.01 ml/s increments between 0.01 and 3.1 ml/s, 0.1 ml/s increments for 3.1 ml/s and above Pressure limitation: 325 psi 			
14	**NNAF952	MR Chiller	1	\$24,368.68	\$24,368.68
		Chiller and associated hardware designed in accordance with cooling requirements necessary for selected MR scanner with appropriate ambient and seismic options. Bundle includes chiller, remote display, interface panel and start-up kit. Installation cost is not included.			
15	**NNAF891	Enhanced Warranty Terms	1		
		<u>Enhanced Warranty</u>			
		The Philips Ingenia MR System will receive the following service coverage for a period of twelve (12) months after completion of installation or availability for patient use, whichever occurs first.			
		<ul style="list-style-type: none"> Extended service coverage hours from Monday to Friday, 8am to 9pm Flexible Planned Maintenance scheduling from Monday to Friday, 7am to 12am and Saturday 8am to 5pm Onsite labor response of 2 hours Expedited parts delivery on same day 			
16	SP007	Rigging Charges	1	\$15,000.00	\$15,000.00
		Rigging			
17	SP059Q	Clinical Services Flex Account	1	\$50,250.00	\$50,250.00
		Clinical education account			
		Customer may request non-discountable clinical training commencing on the warranty start date, for a period of three (3) years chosen from the Philips Course catalogs available at the time training is requested. Course catalogs include:			
		<ul style="list-style-type: none"> Guided pathways to clinical excellence Imaging Systems continuing education course catalog Education designed around you Ultrasound course catalog Philips online Learning Center www.philips.com/learningcenter Some additional clinical education programs may apply. 			
		Selections can be made across one or any of these modalities:			
		<ul style="list-style-type: none"> Computed Tomography (CT) Cardiovascular (CV) General X-Ray (GXR) Hybrid Magnetic Resonance (MR) Nuclear Medicine (NM) CT Simulation and Treatment Planning (Oncology) Ultrasound 			

Line #	Part #	Description	Qty	Each	Price
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Courses include a variety of delivery formats including:

- Onsite, at your facility
- Offsite at the Cleveland Education Center the Atlanta Alpharetta Customer Solutions Center and other Philips locations
- Remote Clinical Education (RCE), using Philips Remote Services (PRS) technology from a secure Philips location - „seeing the images you are seeing in real time Virtual Instructor-led Training (VILT)
- Online, including over 650 self-directed learning activities and ASRT-approved courses

As customer requests Training, the monetary level (equal to the current non-discountable list price for the training described above) will be reduced by Philips then current published non-discountable list price for the Training, multiplied by the number of Trainees scheduled to attend the Training. Subject to the terms and conditions in this agreement, Philips will provide requested Training during the Training Contract Period until the monetary level of training stated above is exhausted or falls below the then current published non-discounted price of the requested Training. Training coverage expires at the end of the Training Contract Period and no credit for any unused funds may be carried forward to the next year.

Training may be conducted at Philips training facilities, the Customer location(s) described in this Agreement ("Customer Site(s)"), through on-line or remote training or at a third party location as determined by Philips. Customer is responsible for scheduling Training for its employees ("Trainee(s)"). Philips will make reasonable efforts to accommodate Customers scheduling requests. All Training is subject to availability. Philips reserves the right to cancel or reschedule courses at its sole discretion. Trainee(s) must meet the minimum admission requirements set forth in the course syllabus, must satisfy all prerequisites prior to admission and may be required to sign or acknowledge Philips safety checklist prior to receiving Training. PHILIPS MAKES NO WARRANTY THAT ANY TRAINEE WILL PASS ALL OR ANY PORTION OF THE TRAINING COURSES PROVIDED OR THAT THE TRAINING WILL RESULT IN ANY TRAINEE BEING QUALIFIED OR ABLE TO OPERATE THE PRODUCTS.

Unless otherwise indicated in this agreement, all travel and living expenses incurred by the Trainee(s) will be borne by Customer.

To receive remote Training Customer must provide Philips a secure location to store a Philips remote services ("PRS") router (or a Customer owned router acceptable to Philips) for connection to the products and Customer network; provide Philips appropriate access to the PRS router to enable Philips to access the products remotely; provide Philips with a dedicated broadband Internet access node, including but not limited to public and private interface access, suitable to establish a successful connection to the products through the Philips PRS and Customers network for Philips use in remote Training, transmitting automated status notification from the products and regular uploading of products data files (such as but not limited to error logs and utilization data for improvement of Philips products and services and aggregation into new services). Unless Philips determines in its sole discretion that the products cannot be connected to the PRS, then Customers failure to provide the access described in this paragraph will constitute Customers waiver of its rights to remote Training under this Agreement. Customer must identify one Customer representative to Philips in writing who will manage and be responsible for Customers selection and scheduling of all Training to be provided by Philips.

18	SP101	Future Dollars	1	\$70,000.00	\$70,000.00
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Line #	Part #	Description	Qty	Each	Price
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Dollars in the amount mentioned above for the future purchase of item(s) from the Philips catalogue, for which the discount on this order will determine the discount used for the future item(s). Payment for the entire order, including unidentified item(s), must be made as per the terms and conditions of this order. These funds must be utilized within twelve (12) months from the date of order processing, at which time any unused funds will be removed from the order. Under no circumstances will these dollars be refunded.

NET PRICE

\$1,554,640.97

Buying Group: VIZIENT SUPPLY LLC

Contract #: XR0393 MRI

Add'l Terms:

Each Quotation solution will reference a specific Buying Group/Contract Number representing an agreement containing discounts, fees and any specific terms and conditions which will apply to that single quoted solution. If no Buying Group/Contract Number is shown, Philips' Terms and Conditions of Sale will apply to the quoted solution.

Each equipment system listed on purchase order/orders represents a separate and distinct financial transaction. We understand and agree that each transaction is to be individually billed and paid.

Price above does not include any applicable sales taxes.

The preliminary delivery request date for this equipment is: _____.

If you do not issue formal purchase orders indicate by initialing here _____.

Tax Status:

Taxable _____ Tax Exempt _____

If Exempt, please indicate the Exemption Certification Number: _____, and attach a copy of the certificate.

Delivery/Installation Address:

Invoice Address:

Contact Phone #:

Contact Phone #:

Purchaser approval as quoted:

Date:

Title:

This quotation is signed and accepted by an authorized representative in acknowledgement of the system configuration, terms and conditions stated herein.

OPTIONS

SELECTION OF ANY OPTION WILL INCREASE THE CONTRACT PRICE BY THE AMOUNT SHOWN IN THE PRICE COLUMN. OPTIONAL EQUIPMENT PRICING VALID ONLY IF PURCHASED IN CONJUNCTION WITH EQUIPMENT QUOTED.

Line #	Part #	Description	Qty	Each	Price	Initial
1	**NMRB461	ASL Neuro Specialist	1	\$24,918.32	\$24,918.32	_____
		ASL Neuro Specialist enables:				
		<ul style="list-style-type: none"> • Non-contrast brain perfusion imaging • A sensitive pseudo-continuous labeling technique (pCASL) providing high SNR and contrast • Whole brain coverage with isotropic resolution • Multi-phase ASL for dynamic perfusion assessment and selection of optimal labeling delays. • In-line post-processing within Examcard • Color coded ASL maps with relative quantification bar 				
2	**FMR0274	HA FlexTrak	1	\$10,152.64	\$10,152.64	_____
		Dockable patient transport system for simplified patient preparation, handling and transportation from preparation room to the MR scanner, without repositioning the patient.				
		<ul style="list-style-type: none"> • HA: Height-adjustable to facilitate easy patient transfer • Lightweight, easy to maneuver FlexTrak dockable patient transport system docks and undocks quickly and easily with patient support and table top. Docking is possible from both sides. • Patient and coils can be prepared outside the MR room. No need to remove coils or to reposition patients. • Integrated coil connections on table and FlexConnect connectors for efficient patient management and rapid evacuation. • Easy to use foot pedal locks wheel direction during transport or brakes the FlexTrak while standing still. • When the FlexTrak is positioned and locked against a wall, an adjustable side-rail can be used to prevent a patient from falling. • Optional second FlexTrak offers economical solution to allow improved throughput. • 250 kg / 550 lb capacity 				
3	**NMRB194	FlexCaddy	1	\$3,690.44	\$3,690.44	_____
		Coil storage cart which stores dStream coils and accessories to enhance workflow for a large range of clinical applications. Includes:				
		<ul style="list-style-type: none"> • IV pole • Storage for <ul style="list-style-type: none"> • 2x Anterior coils • 1x Head Top / other coil • 1x HeadNeck Top / other coil • 1x Base coil • Accessories 				

100968 Ambient Experience for MR

System Type: New
Freight Terms: FOB Destination
Warranty Terms: Part numbers beginning with two (2) asterisks (**) are covered by a System 12 Months Warranty. All other part numbers are third (3rd) party items.
Special Notations: Contingencies must be removed 120 days before scheduled shipment to assure delivery on specified date. Any rigging costs are the responsibility of the Purchaser.
Additional Terms: The specific Contract # referenced above represents the Novation or Vizient agreement with Philips containing discounts, fees and any specific terms and conditions, including the Vendor's Terms and Conditions of Sale (subject to such

Line #	Part #	Description	Qty	Each	Price
1	**NAEA161	Ambient Lighting and In-bore Solution	1	\$75,000.00	\$75,000.00

This AE promo provides the benefits of Ambient Lighting and the patient in-bore solution. This commercially attractive promo is available for the Ingenia 1.5T, 3T and Ingenia S products. It is not currently available for the Ingenia CX or Achieva dstream, but will be for installs in 2016Q4 forward.

Ambient Experience provides a unique approach to the MR clinical environment. Insights into how people feel, work and interact with each other and with technology are reflected in a purposefully designed environment that combines design strategies and enabling technologies to make patients less anxious, staff more comfortable and hospitals nicer places to be. The solution begins with site-specific recommendations to optimize the clinical area in terms of workflow and storage, including opportunities to minimize clutter for a more soothing environment. These recommendations are incorporated into the equipment Site Plans. A proprietary Control System integrates, dynamic lighting, audio elements and optional video projection to provide both positive distractions for the patient and an opportunity to personalize an otherwise intimidating environment.

The Ambient Experience for MR solution includes:

- Design recommendations to minimize clutter and improve workflow incorporated in Site Plans
- Oversight by Philips Project Manager
- Coordinate communication, resources and implementation logistics, interface with construction contractor and/or architect Control System hardware and cabling
- Outlet/jack for connection to MR audio system
- Patient-selectable theme-controlled color "wall-washing" LED light system
- One touch screen with desk mount and wall mount fixtures
- Ambient Experience functionality such as volume and light intensity control as well as theme or color selection is accessed with a touch screen interface.
- 10 selectable video themes and a palette of selectable colors for LED-created wall wash A breath-hold animation may be initiated from the touch screen, to help familiarize patients with the process of lying still and holding their breath.

Instructions for Use

IMPORTANT: Many of the Ambient Experience architectural requirements are interdependent with the RF shield in the examination room. The selected RF cage vendor must be certified for installation of AE suites.

Note: the lighting component provides decorative lighting only. It is not intended as, nor replaces' functional lighting.

Line #	Part #	Description	Qty	Each	Price
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Patient in-bore solution

The patient in-bore solution is designed to help patients relax and hold still during the MRI examination. Head-first patients get an immersive viewing experience when they are moving into the scanner (patients' highest anxiety moment) and during the examination. Engaging visuals are displayed on the back wall and can be seen via a mirror on the head coil, while patients can listen to music or sound through the Headphone.

Note:

Please take into account the following requirements are met:

1. the magnetic field at the back wall is less than the maximum allowed magnetic field of 10mT AND
2. there is no passive shielding behind the back wall.

Please contact site planning or AE contact person if you have any questions, or need additional support.

Available for Philips Ingenia S only.

2	**NAEA081	Wall Projection MR	1	\$27,781.60	\$27,781.60
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Wall projection provides an effective way to provide both personalization and positive distraction to the patient. One of 10 themes, selected on the user interface touch screen, can be projected on the wall of the clinical suite. A ceiling-mounted projector, specified for short-throw optics, is minimally visible during operation.

The Ambient Experience Wall Projection MR solution includes:

- MR compatible optically short-throw video projector
- RF shielded projector housing
- Mounting brackets
- Cabling

3	**NAEA083	Ceiling Halo	1	\$54,181.60	\$54,181.60
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Ceiling Halo

The Halo is designed to enhance positive distraction for the patient. The backlit halo by the dynamic colored LED lighting is coordinated with the chosen theme or color by the patient. By combining the Halo with the video theme projection, the dynamic colored wall-washing LEDs, and the corresponding audio, the patient is immersed in a calming, more soothing environment.

The Halo includes:

- MR compatible dynamic colored LED lighting
- Specially designed and constructed molded light diffuser
- Power supply
- Cabling
- Ceiling tiles (for a ceiling upto 6.0x8.8m / 19.7x28.8ft)

Note: this lighting component provides decorative lighting only. It is not intended as, nor replaces' functional lighting.

Line #	Part #	Description	Qty	Each	Price
4	**NAEA108	Ingenia	1		
5	**989801238019	AMB Enhanced OnSite Design Service - MR	1	\$33,576.40	\$33,576.40

To optimize the overall implementation of Ambient Experience and address unique requirements such as a shared control room or special architectural challenges (e.g., space constraints or structural supports that interfere with standard solutions), Enhanced Design Consultancy by high-level design professionals provides customized design strategies to create a tailored overall solution.

Ambient Experience Enhanced Design Consultancy includes:

- Feasibility review and on-site analysis
- Collaboration with Customer Stakeholders and Architect to define requirements and issues
- Customization of layout and design for the clinical space
- Conceptual Drawings for customer review, including AE design elements, component placement and control room treatment
- Floor plan and elevation drawings for AE components, design elements and storage solution(s) in the exam room and the control room
- Site Planning drawings that integrate the AE Design

Customer Responsibilities Include:

- Provide detailed floor plans and sections of the specified areas (in CAD and PDF format).
- Provide access to hospital resources to discuss the specific workflow of the specified areas.
- Provide access to the identified space during normal business hours for the implementation of the Ambient Experience technology elements.
- All construction, electrical and infrastructure required by the Ambient Experience Solution and implementation. Such as (but not limited to): curved walls, electrical and low voltage cabling, conduit and trays for AE cabling, expanded control room glass, millwork for storage and work desks, mounting support brackets for projectors, and all necessary task or work lighting.
- Provide a single point of contact to work with in planning and implementing the services described.
- Work with Philips to accomplish their task, in an agreed upon timeframe, in order to facilitate the project.
- Any and all expenses related to required Union or Contracted Labor for construction or implementation of the Ambient Experience technology and/or design elements specified for this project.
- Provide a Programming document with accurate and complete information of all functional requirements and expectations for the project. This information includes: objectives, constraints, special equipment needs, adjacent space relationships and other site requirements.
- Identify architect of record for project. The Philips Ambient Experience Team and Customer architectural team will collaborate closely on this project.
- The architect of record will be responsible for all final architectural and construction drawings and validation that these drawings meet all applicable regulations and code requirements.

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Line #	Part #	Description	Qty	Each	Price
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- Participation by Customer, and their architects and engineers, in design presentations.
- All construction, electrical and infrastructure elements recommended by the Ambient Experience Solution and implementation, such as (but not limited to): curved walls, electrical and low voltage cabling, conduit and trays for AE cabling, expanded control room glass, millwork for storage and work desks, mounting support brackets for projectors, any construction or infrastructure required to meet all applicable regulations and code requirements.

*****PROMOTIONS*****

Promotion Name	Description
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NAEA161 Tier 1 + In-bore promo	This Ambient Experience promotion for MR provides the benefits of Ambient Lighting and the Patient In-bore solution.
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Ambient Experience provides a unique approach to the MR clinical environment. Insights into how people feel, work and interact with each other and with clinical technology are reflected in a purposefully designed environment that combines design strategies and enabling technologies to make patients less anxious, staff more comfortable and hospitals nicer places to be. The solution begins with recommendations to optimize the clinical area in terms of workflow and storage, including opportunities to minimize clutter for a more soothing environment. These recommendations are incorporated into the equipment Site Plans. A proprietary Control System integrates, dynamic color lighting, audio elements, and video to provide both a positive distraction for the patient and an opportunity to personalize an otherwise intimidating environment. The Ambient Experience Patient In-bore Solution is designed to help patients relax and hold still during the MR examination. Head-first patients get a viewing experience when they are moving into the scanner and during the examination. Engaging, patient-selectable visuals are displayed on the wall behind the MR bore and can be seen via a mirror on the head coil. Patients can also listen to theme-specific audio or a personal music selection through the MR Headphone.

This promotional Ambient Experience for MR solution includes:

- Ambient Experience Control System hardware, software, and cabling
- External audio jack for connection to MR audio system
- Patient-selectable color "wall-wash" LED light system
- Patient-selectable video themes for the Patient In-bore Solution display
- Two (2) touch screen system controllers (One (1) desk mount for the control room and one (1) wall mount for patient selection)
- Ten (10) video themes for the Patient In-bore display and a palette of selectable colors for "wall-wash" LED

NET PRICE

\$190,539.60

Buying Group: VIZIENT SUPPLY LLC

Contract #: XR0393 MRI

Add'l Terms: The specific Contract # referenced above represents the Novation or Vizient agreement with Philips containing discounts, fees and any specific terms and conditions, including the Vendor's Terms and Conditions of Sale (subject to such Contract),

Each Quotation solution will reference a specific Buying Group/Contract Number representing an agreement containing discounts, fees and any specific terms and conditions which will apply to that single quoted solution. If no Buying Group/Contract Number is shown, Philips' Terms and Conditions of Sale will apply to the quoted solution.

Each equipment system listed on purchase order/orders represents a separate and distinct financial transaction. We understand and agree that each transaction is to be individually billed and paid.

Price above does not include any applicable sales taxes.

The preliminary delivery request date for this equipment is: _____.

If you do not issue formal purchase orders indicate by initialing here _____.

Tax Status:

Taxable _____ Tax Exempt _____

If Exempt, please indicate the Exemption Certification Number: _____, and attach a copy of the certificate.

Delivery/Installation Address:

Invoice Address:

Contact Phone #:

Contact Phone #:

Purchaser approval as quoted:

Date:

Title:

This quotation is signed and accepted by an authorized representative in acknowledgement of the system configuration, terms and conditions stated herein.

PHILIPS PRODUCT WARRANTY

MAGNETIC RESONANCE (MR) SYSTEMS

This product warranty document is an addition to the terms and conditions set forth in the quotation to which this warranty document is attached. The terms and conditions of the quotation are incorporated into this warranty document. The capitalized terms herein have the same meaning as set forth in the quotation.

TWELVE-MONTH SYSTEM WARRANTY

Philips warrants to Customer that the MR System (the System) as delivered to Customer will perform in substantial compliance with its performance specifications for a period of twelve (12) months after completion of installation or first patient use, whichever occurs first. If coils, chiller unit, power conditioner unit, or injector unit are purchased from Philips, they will be covered by the special warranty set forth below.

MAGNET MAINTENANCE SERVICE

During the warranty period, Philips' service personnel shall provide magnet maintenance service. The liquid helium (cryogenics) levels are monitored and the boil off rate is calculated remotely and maintained within Philips Remote Services. When necessary, cryogenics are transferred from Dewars (shipping containers) to the System magnet. If cryogen supplies are required, they will be provided to maintain the magnet at operating temperature after delivery and initial cool down.

PLANNED MAINTENANCE

During the warranty period, Philips' service personnel will schedule planned maintenance visits in advance at a mutually agreeable time on weekdays, between 8:00 A.M. and 5:00 P.M., excluding Philips observed holidays.

SYSTEM OPTIONS

Any commercially available options or accessories for the System which are delivered and/or installed by Philips hereafter on the System shall be subject to the same warranty terms contained in the first paragraph of this warranty, except that such warranty shall expire: a) upon termination of the initial twelve (12) month warranty period for the System on which the option or accessory is installed, b) after ninety (90) days for parts only from the date of installation, or c) on the annual renewal date of any current service agreement on the System.

SYSTEM UPGRADES

Any commercially available upgrade to the System which is hereafter installed by Philips shall be subject to the warranty terms contained in the first paragraph of this warranty, except that such warranty shall expire: a) upon termination of the initial twelve (12) month warranty period for the System on which the upgrade is installed, b) after ninety (90) days for parts only from the date of installation, or c) on the annual renewal date of any current service agreement on the system.

RF SURFACE COILS

The System can be purchased with optional RF surface coils ("coils"). If coils are purchased with the System, Philips will include the coils under the System warranty. Third party coils will not be covered under this warranty.

CHILLER UNIT, POWER CONDITIONER UNIT OR INJECTOR UNIT

The System can be purchased with an optional Chiller Unit, Power Conditioner Unit or Injector Unit. If any of these Units are purchased with the System, Philips will include these Units under the twelve (12) month System warranty as an OEM warranty pass through. Authorized representatives of the Original Equipment Manufacturer will perform warranty service on each of these units.

SYSTEM SOFTWARE AND SOFTWARE UPDATES

The software provided with the System will be the latest version of the standard software available for that System as of the 90th day prior to the date the System is delivered to Customer. Updates to standard software for the System that do not require additional hardware or equipment modifications will be performed as a part of normal warranty service during the term of the warranty.

All software is and shall remain the sole property of Philips or its software suppliers. Use of the software is subject to the terms of a separate software license agreement. Customer must sign all such license agreements prior to or upon the delivery of the product. No license or other right is granted to Customer or to any other party to use the software except as set forth in the license agreements.

Any Philips maintenance or service software and documentation provided with the product, and/or located at Customer's premises, is intended solely to assist Philips and its authorized agents to install and to test the System, to assist Philips and its authorized agents to maintain and to service the System under a separate support agreement with Customer, or to permit Customer to maintain and service the System. Customer agrees to restrict the access to such software and documentation to Philips' employees and those of its authorized agents, and to authorized employees of Customer only.

WARRANTY LIMITATIONS

Philips' obligations under the System warranty are limited, at Philips' option, to the repair or the replacement of the System or a portion thereof, or to a credit or refund of a portion of the purchase price paid by Customer. Any refund or credit will be paid to Customer when the System is returned to Philips. Certain of the parts used in the manufacture or installation of, or in the replacement parts for, this System may contain refurbished components. If such components are used, they will be subject to the same quality control and inspection procedures as all other components in the System. Any System warranty is made on condition that Philips receives written notice of a System defect during the warranty period, and within thirty (30) days following the discovery of the defect by Customer. Philips' obligations under the System warranty do not apply to any System defects resulting from: improper or inadequate maintenance or calibration by Customer or its agents; Customer or third party supplied software, interfaces, or supplies; use or operation of the product other than in accordance with loss, or damage in transit; improper site preparation; unauthorized maintenance or Philips' applicable product specifications and written instructions; abuse, negligence, accident, modifications to the System; or, to viruses or similar software interference resulting from the connection of the product to a network. Philips does not provide a warranty for any such third party products furnished to Customer by Philips; however, Philips shall use reasonable efforts to extend to Customer the third party warranty for the product. The obligations of Philips described above are Philips' only obligations and Customer's sole and exclusive remedy for a breach of a System warranty. Repairs or replacement parts do not extend the term of this warranty.

THE WARRANTIES SET FORTH IN PHILIPS' WARRANTY DOCUMENT WITH RESPECT TO THIS SYSTEM (INCLUDING THE SOFTWARE PROVIDED WITH THE SYSTEM) ARE THE ONLY WARRANTIES MADE BY PHILIPS IN CONNECTION WITH THE SYSTEM, THE SOFTWARE, AND THE TRANSACTIONS CONTEMPLATED BY THE QUOTATION, AND ARE EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

ACCESS TO SYSTEM

Philips shall have full, free and safe access to the System and Customer's operation, performance and maintenance records for the System, on each scheduled or requested warranty service visit. Philips shall also have access to and use of any machine, service, attachment, features or other equipment required to perform the necessary service contemplated herein at no charge to Philips. Customer waives warranty service if it does not provide such access to the System and Customer's records. Should Philips be denied access to the System and Customer's records at the agreed upon time, a charge equal to the appropriate hourly rate will be accepted by Customer for "waiting time."

WARRANTY SERVICE

In the event it is not possible to accomplish warranty service within normal working hours (8:00 A.M. to 5:00 P.M., Monday through Friday, excluding Philips observed holidays), or in the event Customer specifically requests that warranty service be performed outside of Philips normal working hours, Customer agrees to pay for such services at Philips standard service rates in effect. Maintenance Agreements are available for extended coverage.

TRANSFER OF SYSTEM

In the event Customer transfers or relocates the System, all obligations under this warranty will terminate unless Customer receives the prior written consent of Philips for the transfer or relocation. Upon any transfer or relocation, the System must be inspected and certified by Philips as being free from all defects in material, software and workmanship and as being in compliance with all technical and performance specifications. Customer will compensate Philips for these services at the prevailing service rates in effect as of the date the inspection is performed. Any System which is transported intact to pre-approved locations and is maintained as originally installed in mobile configurations will remain covered by this warranty.

CONDITIONS

This warranty is subject to the following conditions: the System (a) is to be installed by authorized Philips representatives (or is to be installed in accordance with all Philips Installation instructions by personnel trained by Philips), (b) is to be operated exclusively by duly qualified personnel in a safe and reasonable manner in accordance with Philips written instructions and for the purpose for which the products were intended, (c) is to be maintained and in strict compliance with all recommended and scheduled maintenance instructions provided with the System, (d) Customer is to notify Philips immediately in the event the System at any time fails to meet its printed performance specifications, and (e) only Philips personnel acting under the direct supervision of Philips service management are to perform all maintenance of the cryogen subsystem (including replenishment of cryogenics).

LIMITATIONS OF LIABILITY AND DISCLAIMERS

The liability, if any, of Philips AND ITS AFFILIATES for damages whether arising from breach of the terms in the quotation, breach of warranty, negligence, indemnity, strict liability or other tort, or otherwise with respect to the products and services is limited to an amount not to exceed the price of the product or service giving rise to the liability.

IN NO EVENT SHALL PHILIPS OR ITS AFFILIATES BE LIABLE FOR ANY INDIRECT, PUNITIVE, INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR PROFITS, OR THE COST OF SUBSTITUTE PRODUCTS OR SERVICES WHETHER ARISING FROM BREACH OF THE TERMS IN THIS QUOTATION, BREACH OF WARRANTY, NEGLIGENCE, INDEMNITY, STRICT LIABILITY OR OTHER TORT. PHILIPS SHALL HAVE NO LIABILITY FOR ANY GRATUITOUS ADVICE PROVIDED TO THE CUSTOMER.

FORCE MAJEURE

Philips and Customer shall each be excused from performing its obligations arising from any delay or default caused by events beyond its reasonable control including, but not limited to: acts of God, acts of third parties, acts of the other party, acts of any civil or military authority, fire, floods, war, embargoes, labor disputes, acts of sabotage, riots, accidents, delays of carriers, subcontractors or suppliers, voluntary or mandatory compliance with any government act, regulation or request, shortage of labor, materials or manufacturing facilities.

Philips system specifications are subject to change without notice Document Number 4535 983 03237 999

Non Disclosure Agreement for Philips Confidential Pricing Information

The parties specified below agree to the following terms:

A. Philips

Name	Philips Healthcare, a division of Philips Electronics North America Corporation
Address	22100 Bothell-Everett Highway, Bothell, WA 98021 United States of America

B. Company

Name	MASSACHUSETTS EYE & EAR INFIRMARY
Address	243 CHARLES ST BOSTON, MA 02114-3096

C. Confidential Information

Authorized Purpose	To evaluate Philips' confidential information relating to pricing for imaging equipment ("Pricing") in connection with the potential purchase of such imaging equipment.
Period	Begins on the date Pricing is first disclosed and continues for 5 years from date Pricing is last disclosed.

D. Philips Contact

Name	Michael Maynard
Title	
Telephone	
Fax	
e-mail	
Signature	

Company Contact

Name	
Title	
Telephone	
Fax	
e-mail	
Signature	

- The following terms and conditions (the "Agreement") apply to Pricing disclosed by Philips and its Affiliates ("Philips") to Company and its Affiliates ("Company"), in connection with the Authorized Purpose.
 - Subject to Philips' prior written consent, Company may disclose, or request that Philips disclose, Pricing to Company's Affiliates that need to know the Pricing for carrying out the Authorized Purpose, provided they are advised of and agree to be bound by this Agreement. Company is responsible for any breach of this Agreement by its Affiliates.
 - An Affiliate is any corporation, company, or other entity, that: (i) is under the Control of a party hereto; or (ii) has Control of a party hereto; or (iii) is under common Control with a party hereto. For this purpose "Control" means that more than fifty percent (50%) of the controlled entity's shares or ownership interest representing the right to make decisions for such are owned or controlled, directly or indirectly, by the controlling entity.
- Philips may disclose Pricing to Company with respect to the Authorized Purpose in writing, orally, or otherwise. All information is assumed to be Pricing, and confidential, if the confidential or proprietary nature is reasonable under the circumstances.
- All Pricing disclosed by Philips shall remain Philips' the property. Company does not, by implication, estoppel, or otherwise, acquire any intellectual property right, title, or ownership, nor a license to any such intellectual property right, with respect to any Pricing disclosed by Philips hereunder.

ALL PRICING IS PROVIDED ON AN "AS IS" BASIS, WITHOUT ANY WARRANTY WHATSOEVER. PHILIPS SHALL HAVE NO LIABILITY WHATSOEVER RESULTING FROM THE USE OF THE INFORMATION PROVIDED.
- Company shall:
 - not use the Pricing for any purpose other than the Authorized Purpose;
 - not disclose the Pricing to any third party;
 - protect the Pricing against disclosure in the same manner and with the same degree of care with which Company protects its own confidential information but not less than a reasonable degree of care; and
 - limit circulation of the Pricing to Company's employees as have a need to know in connection with the Authorized Purpose.These obligations shall survive the termination of this Agreement. Philips may terminate this Agreement at any time by means of a written notice to Company. Company shall return to Philips, or certify destruction of, all Pricing, immediately upon termination or expiration of this Agreement.
- Information disclosed by Philips to Company pursuant to this Agreement shall not be confidential to the extent that the information:
 - is or becomes part of the public domain without violation of this Agreement or any other obligation of confidentiality;
 - is known by Company prior to disclosure by Philips;
 - is lawfully obtained by Company from a third party without any breach of confidentiality or violation of law; or
 - is developed by Company completely independently of any such disclosure by Philips.
- If Company is required, pursuant to administrative or judicial action or subpoena, to disclose the Pricing, Company shall use its best efforts to maintain the confidentiality of the Pricing, e.g. by asserting in such action any applicable privileges. Immediately after gaining knowledge or receiving notice of such action or subpoena, Company shall notify Philips and give Philips the opportunity to seek any other legal remedies so as to maintain such Pricing in confidence, including a reasonable protective order.
- Company may not transfer or assign any or all of its rights and/or obligations or delegate the performance of any or all of its obligations under this Agreement, directly or indirectly, through acquisition, merger or otherwise, without the prior written consent of Philips. Any transfer, assignment or delegation in contravention of the foregoing shall be void.
- Company shall not disclose, export or release the Pricing in contravention of any applicable laws or regulations.
- This Agreement shall be governed and construed in accordance with the laws of the State of New York, without giving effect to its conflict of laws provisions.
- This Agreement contains the entire understanding of the parties and supersedes any previous understandings or agreements with respect to the subject matter hereof. This Agreement may be amended only in writing signed by authorized representatives of each party.

Pricing NDA ver1 - 8/9/07

Factor 6

FACTOR 6: FINANCIAL FEASIBILITY

LIST OF SCHEDULES FOR FACTOR SIX

SCHEDULE A:	Statement of Revenues and Expenses
*SCHEDULE B:	Statistical/Financial Data - Revenue Producing Cost Centers
SCHEDULE C:	Staffing Patterns
SCHEDULE D:	Estimated Capital Expenditure
SCHEDULE E:	Depreciation Expense
SCHEDULE F:	Proposed Funds for Estimated Capital Expenditure
SCHEDULE F1:	Features of Permanent Financing of Estimated Capital Expenditure
SCHEDULE F2:	Application of Permanent Financing Proceeds
SCHEDULE G:	Fixed Charges Covered
SCHEDULE H:	Revenue by Payer

The purpose of "Factor Six - Financial Feasibility" of the DoN Application is to: (1) collect evidence regarding the ability of the applicant to finance and support the operation of the proposed project; and (2) highlight the probable effects of the project, in cost and statistical terms.

It may be useful as a conceptual aid to think of the schedules that comprise "Factor Six- Financial Feasibility" as sorting into these categories:

- 1) Schedules A-C - information about the likely impact of the proposed project on operations of the applicant (institution).
- 2) Schedules D-G - information about the capital cost and the method of financing for the proposed project; and
- 3) Schedule H - information about the applicant's recent payer mix.

The schedules request the most recent annual historical data plus two sets of three-year projections for single service projects and the most recent three years historical data plus two sets of four-year projections for capital expenditure projects. "P1" is the projection of the likely future course of operations, assuming the project under consideration is approved by the Department. "P2" is the projection of the likely future course of operations, assuming the project under consideration is not approved by the Department.

The first projection year should be the first year following the last actual. The second, third, or fourth year projection should be the point in time when the project reaches normal volume.

The applicant must clearly explain its assumptions about costs (both operating and capital) on separate sheets to be attached to Schedule A.

FACTOR 6: FINANCIAL FEASIBILITY

Consistency is a key to the fairness and usability of "Factor Six- Financial Feasibility." If assumptions about unit costs, occupancies, or similar items differ between P1 and P2, explain the reasons for these differences on separate sheets. Since it is obvious that the approval or denial of this application will not alter demographic or economic trends in the applicant's area, it is expected that assumptions for P1 and P2 will be uniform for these items. This section uses Schedule A, the operating statement, to link the various other schedules together. This interlocking system will ensure that all comparisons of P1 and P2 will be made using consistent data, which fit smoothly into the broader financial situation of the applicant.

In order to obtain forecasts or financial and statistical impacts, it is necessary to consider the interrelationship of determination of need projects filed by an individual applicant. Therefore, if the applicant's institution has more than one DoN application pending, or expects to file additional applications within one year of the date of this application, please note the application numbers and dates of the pending applications and the nature and scope of expected applications on the "assumptions" sheet attached to Schedule A. "P1" and "P2" projections must assume approval of all pending (rather than anticipated or expected) DoN applications. For example, an institution that has one application pending consideration, by the Department, and which is now filing another application, should:

- note the first application in the assumption section of Schedule A of the new application; and
- assume approval of the first application in both the "P1" and "P2" projections of the new application.

The new application should, in effect, show the combined projections if the first application were, in fact, to be implemented on the applicant's proposed schedule.

On some schedules, hospitals are required to report financial and statistical data according to the specifications of the *Hospital Uniform Reporting Manual*.** Of course, this requirement does not apply to non-hospital applicants.

These schedules will provide necessary information about the probable impacts of determination of need actions on individual applicants. Schedules A, G, and H should be completed for the whole facility and not only for the project's revenue producing cost center(s).

**Hospital Uniform Reporting Manual is available at <http://www.mass.gov/chia/docs/p/hospital-reports/hospital-uniform-reporting-manual.pdf>.

FACTOR 6: FINANCIAL FEASIBILITY

Notes:

1. The financial and statistical information requested in Factor Six must be submitted on the schedules provided or on copies thereof.
2. Copies of audited financial statements for the most recent year must be filed with this application.
3. Assumptions used in projecting capital and operating costs, revenues, and demographic factors must be clearly explained on a separate sheet attached to the beginning of Factor 6.
4. Statistical data and projections provided in Factor Two are important for the Factor Six data and projections. Please review both Factor Two and Factor Six carefully to ensure overall consistency between them.
5. It is permissible to round dollar amounts to the nearest thousand, as long as such rounding does not materially affect the results. If you do so, please clearly indicate this on each page on which such rounding is done.
- 6(a) Use constant dollars for the projection years (that is, do not include inflation). Do not restate actual dollars.
- 6(b) In general, use the last complete fiscal year as the basis for constant dollars (e.g., an applicant filing May 2014 with a fiscal year ending September 2014 would state project costs in 2014 dollars).

FACTOR 6: FINANCIAL FEASIBILITY

The Applicant made the following assumptions:

1. Audited financial statements are provided for the Foundation of the Massachusetts Eye and Ear Infirmary, Inc, which include all related entities of the Applicant. Actual financial information provided in Factor 6 is based on hospital-only financials, which do not include any of the Affiliates but serve as a basis for the audited financial statements provided herein.
2. The Applicant reports its financial results on a fiscal year ending September 30th. The years stated in the assumptions and in the Factor 6 schedules are for the years ending September 30th, 2015.
3. There is no inflation factor on the revenues or expenses in the projections. These figures are impacted by expected volume growth, case mix and/or anticipated rate changes, as well as changes in research-related agreements and activity.
4. The Applicant is proposing to expand its MRI services with the acquisition of a new MRI unit. For purposes of the projections, it is assumed that this unit will have come on-line in October 2017. The projection P1 assumes the operating results of the Hospital after implementation of the new MRI equipment.
5. The Applicant proposes a capital expenditure of \$3,506,506, which includes \$1,745,181 for the acquisition of a new MRI unit and \$1,761,325 for renovations and other soft costs related to the project.
6. P1 represents the budget/projection for the entire Hospital assuming approval of the DoN project. Revenues for the MRI department are based on the expected charge structure and assumed number of scans. It is projected that the annual number of scans for the MRI department will be as follows:

P1 (2017)	6,139
P2 (2018)	6,839
P3 (2019)	6,916
P4 (2020)	6,996

7. P2 represents the budget/projection for Hospital-only operations assuming denial of the DoN project.
8. Salaries and wages are based on the FTEs necessary to provide services for the MRI unit. Average salaries and wages per FTE are consistent with prevailing wages for employees providing these services.
9. Fringe benefits are not reported as direct expenses in the cost centers of the hospital, but are allocated cost items. Therefore, fringe benefits are not included in Schedule B column 5, but are included in schedule B column 8 under "Allocated Expenses."
10. Purchased services are not expected to increase with the purchase of the new MRI equipment.
11. Schedule C presents the direct FTEs by category once the new unit is fully operational.

Schedule A: Statement of Revenues and Expenses

The data presented here must tie to later schedules and **should be for the entire institution and not only for the project's cost center.** Explain all variances. Should your institution have another application pending (i.e. accepted and under review by the Determination of Need Program), the projections made in these schedules must assume *approval* of all pending applications.

	(1)	(2)	(3)	(4)
		Actual 2014	Actual 2015	Actual 2016
1	Gross Patient Service Revenue*	371,998,320	398,820,687	430,361,459
2	Less: Contractuals	216,630,942	229,964,980	242,956,127
3	Provision for Doubtful Accounts	3,125,903	3,810,922	4,236,650
4	Free Care	224,230	1,523,218	2,076,450
5	Other (Specify)	0	0	0
6	Net Patient Service Revenue	152,017,245	163,521,567	181,092,232
7				
8	Other Operating Revenue*	73,117,304	66,262,681	71,082,560
9				
10	Net Operating Revenue	225,134,549	229,784,248	252,174,792
11				
12	Operating Expenses			
13a	Salaries, Wages* and Fringe Benefits (Exclude Pension)*	73,058,136	80,669,398	80,653,345
13b	Purchased Services	6,656,173	6,070,568	6,363,371
14	Supplies and Other Expenses	117,959,676	132,406,006	140,182,741
15	Depreciation	18,751,456	20,663,247	19,128,859
16	Interest	2,470,353	2,768,171	4,032,830
17	Pension	8,919,835	10,207,011	10,204,980
18				
19	Total Operating Expenses*	227,815,629	252,784,401	260,566,125
20				
21	Gain (Loss) from Operations	(2,681,080)	(23,000,153)	(8,391,333)
22				
23	Total Non-operating Revenue	2,153,321	25,932,891	5,287,941
24				
25	Excess of Revenues Over Expenses	(527,759)	2,932,738	(3,103,392)
26				
27				
28				
29				
30				

Note: For a single service project, complete the most recent year actual data and for a capital expenditure project by a hospital complete the most recent three years actual data.

Schedule B: Statistical/Financial Data - Revenue Producing Cost Centers

		(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		Assuming Project Approval				Assuming Project Denial			
		Projection 2017 (P1)	Projection 2018 (P1)	Projection 2019 (P1)	Projection 2020 (P1)	Projection 2017 (P2)	Projection 2018 (P2)	Projection 2019 (P2)	Projection 2020 (P2)
1	Gross Patient Service Revenue*	458,191,512	459,297,762	459,440,350	459,789,091	454,537,679	454,537,679	454,537,679	454,537,679
2	Less: Contractuals	258,659,396	259,281,526	259,361,714	259,427,183	256,604,563	256,604,563	256,604,563	256,604,563
3	Provision for Doubtful Accounts	4,536,150	4,554,770	4,557,170	4,562,641	4,474,650	4,474,650	4,474,650	4,474,650
4	Free Care	2,193,098	2,193,098	2,193,098	2,193,098	2,193,098	2,193,098	2,193,098	2,193,098
5	Other (Specify)	0	0	0	0	0	0	0	0
6	Net Patient Service Revenue	192,802,868	193,268,368	193,328,368	193,606,169	191,265,368	191,265,368	191,265,368	191,265,368
7									
8	Other Operating Revenue*	68,466,066	68,466,066	68,466,066	68,466,066	68,466,066	68,466,066	68,466,066	68,466,066
9									
10	Net Operating Revenue	261,268,934	261,734,434	261,794,434	262,072,235	259,731,434	259,731,434	259,731,434	259,731,434
11									
12	Operating Expenses								
13 a	Salaries, Wages* and Fringe Benefits (Exclude Pension)*	80,738,288	80,738,288	80,738,288	80,738,288	80,513,288	80,513,288	80,513,288	80,513,288
13 b	Purchased Services	6,352,320	6,352,320	6,352,320	6,352,320	6,352,320	6,352,320	6,352,320	6,352,320
14	Supplies and Other Expenses	140,184,309	140,169,309	140,179,309	140,210,414	139,939,309	139,939,309	139,939,309	139,939,309
15	Depreciation	19,387,581	19,387,581	19,387,581	19,387,581	19,095,641	19,095,641	19,095,641	19,095,641
16	Interest	4,025,827	4,025,827	4,025,827	4,025,827	4,025,827	4,025,827	4,025,827	4,025,827
17	Pension	10,187,259	10,187,259	10,187,259	10,187,259	10,187,259	10,187,259	10,187,259	10,187,259
18									
19	Total Operating Expenses*	260,875,584	260,860,584	260,870,584	260,901,689	260,113,644	260,113,644	260,113,644	260,113,644
20									
21	Gain (Loss) from Operations	393,350	873,850	923,850	1,170,547	(382,210)	(382,210)	(382,210)	(382,210)
22									
23	Total Non-operating Revenue	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000
24									
25	Excess of Revenues Over Expenses	793,350	1,273,850	1,323,850	1,570,547	17,790	17,790	17,790	17,790
26									
27									
28									
29									
30									

*For each of these items state on a separate and attached sheet the assumptions you made in arriving at P1 (assuming project approval, columns 5-8) and P2 (assuming project denial, columns 9-12) figures.

Schedule B: Statistical/Financial Data - Revenue Producing Cost Centers, continued

Complete in detail for each revenue producing cost center affected by the project. Data for revenue-producing cost centers not affected by the project should be presented in aggregate under "Other Revenue-Producing Cost Centers". Under Other it is expected that P1 and P2 will be identical. The cost centers and standard units of measure must be those required by *Hospital Uniform Reporting Manual*.

(<http://www.mass.gov/chia/docs/p/hospital-reports/hospital-uniform-reporting-manual.pdf>)

	(1) Cost Center	(2) Standard Unit of Measure	(3) Gross Patient Service Revenue	(4) Major Movable Equipment Depreciation
	A MRI	B MRI Exams		
1	2014 Actual (A)	4,098	9,355,603	0
2	2015 (A)	4,138	9,328,809	0
3	2016 (A)	4,264	9,673,425	0
4	2017 (P1)	6,139	13,327,258	291,940
5	2018 (P1)	6,839	14,433,508	291,940
6	2019 (P1)	6,916	14,576,097	291,940
7	2020 (P1)	6,996	14,721,062	291,940
8	2017 (P2)	4,264	9,673,425	0
9	2018 (P2)	4,264	9,673,425	0
10	2019 (P2)	4,264	9,673,425	0
11	2020 (P2)	4,264	9,673,425	0
12				
13	Other Revenue Producing Cost Centers			
14	2014 Actual (A)		362,642,717	18,751,456
15	2015 (A)		389,491,878	20,663,247
16	2016 (A)		420,688,034	19,128,859
17	2017 (P1)		444,864,254	19,095,641
18	2018 (P1)		444,864,254	19,095,641
19	2019 (P1)		444,864,254	19,095,641
20	2020 (P1)		444,864,254	19,095,641
21	2017 (P2)		444,864,254	19,095,641
22	2018 (P2)		444,864,254	19,095,641
23	2019 (P2)		444,864,254	19,095,641
24	2020 (P2)		444,864,254	19,095,641
25				
26	Total Revenue Producing Cost Centers			
27	2014 Actual (A)		371,998,320	18,751,456
28	2015 (A)		398,820,687	20,663,247
29	2016 (A)		430,361,459	19,128,859
30	2017 (P1)		458,191,512	19,387,581
31	2018 (P1)		459,297,762	19,387,581
32	2019 (P1)		459,440,350	19,387,581
33	2020 (P1)		459,585,315	19,387,581
34	2017 (P2)		454,357,679	19,095,641
35	2018 (P2)		454,357,679	19,095,641
36	2019 (P2)		454,357,679	19,095,641
37	2020 (P2)		454,357,679	19,095,641
38				

^a On this line state the name of the cost center (Column 1)

^b On this line indicate the standard unit of measure (column 2) and number of units for Actual, P₁ and P₂

Note: Use copies of this sheet for additional cost centers

Schedule B: Statistical/Financial Data - Revenue Producing Cost Centers, continued

(5)		(6)	(7)	(8)	(9)	
	Cost Center	Physician Compensation & Benefits*	Direct Expenses Excluding Physician Compensation & Benefits & MME Depreciation	Total Direct Expenses (Cols. 4+5+6)	Allocated Expenses	Total Expenses (Cols. 7+8)
	a					
1	2014 Actual (A)	0	889,456	889,456	987,754	1,877,210
2	2015 (A)	0	912,278	912,278	1,013,098	1,925,376
3	2016 (A)	0	906,547	906,547	1,006,734	1,913,281
4	2017 (P1)	0	1,331,547	1,623,487	1,802,906	3,426,393
5	2018 (P1)	0	1,316,547	1,608,487	1,786,248	3,394,735
6	2019 (P1)	0	1,326,547	1,618,487	1,797,353	3,415,840
7	2020 (P1)	0	1,336,547	1,628,487	1,808,458	3,436,945
8	2017 (P2)	0	906,547	906,547	1,006,734	1,913,281
9	2018 (P2)	0	906,547	906,547	1,006,734	1,913,281
10	2019 (P2)	0	906,547	906,547	1,006,734	1,913,281
11	2020 (P2)	0	906,547	906,547	1,006,734	1,913,281
12						
13						
14	2014 Actual (A)	0	118,794,631	137,546,087	88,392,332	225,938,419
15	2015 (A)	0	132,054,954	152,718,201	98,140,824	250,859,025
16	2016 (A)	0	137,444,309	156,573,168	102,079,676	258,652,844
17	2017 (P1)	0	136,451,138	155,546,780	101,902,412	257,449,191
18	2018 (P1)	0	136,467,796	155,563,437	101,902,412	257,465,849
19	2019 (P1)	0	136,456,691	155,552,332	101,902,412	257,454,744
20	2020 (P1)	0	136,466,961	155,562,332	101,902,412	257,464,744
21	2017 (P2)	0	137,025,046	156,120,687	102,079,676	258,200,363
22	2018 (P2)	0	137,025,046	156,120,687	102,079,676	258,200,363
23	2019 (P2)	0	137,025,046	156,120,687	102,079,676	258,200,363
24	2020 (P2)	0	137,025,046	156,120,687	102,079,676	258,200,363
25						
26						
27	2014 Actual (A)	0	119,684,087	138,435,543	89,380,086	227,815,629
28	2015 (A)	0	132,967,232	153,630,479	99,153,922	252,784,401
29	2016 (A)	0	138,350,856	157,479,715	103,086,410	260,566,125
30	2017 (P1)	0	137,782,685	157,170,266	103,705,317	260,875,584
31	2018 (P1)	0	137,784,343	157,171,924	103,688,660	260,860,584
32	2019 (P1)	0	137,783,238	157,170,819	103,699,765	260,870,584
33	2020 (P1)	0	137,803,238	157,190,819	103,710,870	260,901,689
34	2017 (P2)	0	137,931,593	157,027,234	103,086,410	260,113,644
35	2018 (P2)	0	137,931,593	157,027,234	103,086,410	260,113,644
36	2019 (P2)	0	137,931,593	157,027,234	103,086,410	260,113,644
37	2020 (P2)	0	137,931,593	157,027,234	103,086,410	260,113,644
38						

* Include in this column fringe benefits.

Note: The difference between P₁ and P₂ Schedule A, Line 19 "Total Operating Expenses" must tie to the difference between P₁ and P₂ "Schedule B, Column 9, "Total Expenses"

Schedule B: Statistical/Financial Data - Revenue Producing Cost Centers, continued

NOT APPLICABLE

	(10)	(11)	(12)	(13)
	Cost Center	Standard Unit of Measure	Gross Patient Service Revenue	Major Movable Equipment Depreciation
	a	b		
1	2014 Actual (A)			
2	2015 (A)			
3	2016 (A)			
4	2017 (P1)			
5	2018 (P1)			
6	2019 (P1)			
7	2020 (P1)			
8	2017 (P2)			
9	2018 (P2)			
10	2019 (P2)			
11	2020 (P2)			
12				
13	Other Revenue Producing Cost Centers			
14	2014 Actual (A)			
15	2015 (A)			
16	2016 (A)			
17	2017 (P1)			
18	2018 (P1)			
19	2019 (P1)			
20	2020 (P1)			
21	2017 (P2)			
22	2018 (P2)			
23	2019 (P2)			
24	2020 (P2)			
25				
26	Total Revenue Producing Cost Centers			
27	2014 Actual (A)			
28	2015 (A)			
29	2016 (A)			
30	2017 (P1)			
31	2018 (P1)			
32	2019 (P1)			
33	2020 (P1)			
34	2017 (P2)			
35	2018 (P2)			
36	2019 (P2)			
37	2020 (P2)			
38				
39				
40				

^a On this line state the name of the cost center, Column 10.

^b On this line indicate the standard unit of measure, Column 11, and number of units for Actual, P₁ and P₂

Schedule C: Staffing Patterns

Complete in detail the staffing level of the service(s) that will be affected by the proposed project.

	(1)	(2) (3) (4)		
		Number of FTEs*		
		2016 ^a	2017 ^b P1 Year	2017 ^b P2 Year
1	Service (specify):			
2	Personnel category			
3	MR Technologists	4.25	6.25	4.25
4	Radiologist Supervisor	1.00	1.00	1.00
5	MAA (Front Desk)	1.5	1.5	1.5
6				
7				
8	Service (specify):			
9	Personnel category			
10				
11				
12				
13				
14				
15	Service (specify):			
16	Personnel category			
17				
18				
19				
20				
21				
22	Service (specify):			
23	Personnel category			
24				
25				
26				
27				
28				
29	Service (specify):			
30	Personnel category			
31				
32				
33				
34				
35				
36	Service (specify):			
37	Personnel category			
38				
39				
40				
41				
42				
43	All Personnel	6.75	8.25	6.75

*A FTE is a full-time equivalent employee. See the *Hospital Uniform Reporting Manual* for the computation of full-time equivalent.

^a For the fiscal year most recently completed.

^b The year when normal operating volume is achieved.

Schedule D: Estimated Capital Expenditure

Outlined below is a comprehensive list of all components of Estimated Capital Expenditures. Capital Expenditure as defined in the Regulations includes the site acquisition cost of land and buildings or **fair market value of land and buildings if leased (capital or operating) or donated**, the total cost of construction including all site improvements, the cost of all capital equipment or **fair market value if leased (capital or operating) or donated**, the cost of all professional fees associated with the development of the project, including fees for architectural, engineering, legal, accounting, feasibility, planning and financing services, any fee associated with financing including any bond discount, and the interest cost to be incurred on funds borrowed during construction (but not including the on-going interest expense of permanent financing).

The estimate to be computed below must be based on costs and interest rates, which assume commencement and/or implementation of the project as of the date of application; therefore, the estimate should *not* include inflation up to the *anticipated actual* commencement and/or implementation date. (Where appropriate, an inflationary allowance is applied later during the DoN Staff's monitoring of the approved project.)

Because the inflation allowance is an important factor in large, costly construction projects, prospective applicants for such projects should consult the DoN Office for technical advice regarding completion of Schedule D. Do not include a special provision for contingency.

(1)		(2)	(3)
	Category of Expenditure	New Construction	Renovation
1	Land Costs:	\$	\$
2	Land Acquisition Cost		
3	Site Survey and Soil Investigation		
4	Other Non-Depreciable Land Development ^a		
5	Total Land Costs (Lines 2 through 4)		
6	Construction Costs:		
7	Depreciable Land Development Cost ^b		
8	Building Acquisition Cost		
9	Construction Contract (including bonding cost)		1,456,325
10	Fixed Equipment Not in Contract		1,745,181
11	Architectural Cost (including fee, printing, supervision etc.) and Engineering Cost		255,000
12	Pre-filing Planning and Development Costs		25,000
13	Post-filing Planning and Development Costs		25,000
14	Other (specify):		
15	Other (specify):		
16	Net Interest Expense During Construction ^c		
17	Major Movable Equipment ^d		
18	Total Construction Costs (Lines 7 through 17)		3,506,506
19	Financing Costs:		
20	Cost of Securing Financing (legal, administrative, feasibility studies, mortgage insurance, printing, etc.)		
21	Bond Discount		
22	Other (specify):		
23	Total Financing Costs (Lines 20 through 22)		
24	Estimated Total Capital Expenditure (Line 5 + Line 18 + Line 23)		3,506,506

Footnotes:

- Examples of Other Non-Depreciable Land Development Costs: commissions to agents for purchase of land, attorney fees related to land, demolition of old buildings, clearing and grading, streets, removal of ledge, off-site sewer and water lines, public utility charges necessary to service the land, zoning requirements, and toxic waste removal.
- Examples of Depreciable Land Development Costs: construction of parking lots, walkways and walls; on-site septic systems; on-site water and sewer lines; and reasonable and necessary landscaping.
- Describe assumptions used in calculating interest rates and costs.
- Acute care hospitals need not include equipment expenditure unless for DoN regulated device (see 105 CMR 100.022, definition of Expenditure Minimum).

Schedule E: Depreciation Expense

Complete for project's estimated capital expenditure (including the fair market value for capital lease), which will be depreciated. For a given category and cost center show in aggregate the data for assets with the same useful lives. Include in the basis the asset's appropriate share of construction interest and professional fees. Use the estimates from Schedule D.

	(1)	(2)	(3)	(4)
	Description of Asset	Basis for Depreciation	Useful Life	Annual Depreciation Expense
1	Building:			
2				
3				
4				
5				
6				
7	Land Improvements:			
8				
9				
10				
11				
12				
13	Building Improvements:			
14	Construction	Straight Line	15 Years	97,088
15	Architectural and Engineering Costs	Straight Line	15 Years	17,000
16	Pre and Post Filing Costs	Straight Line	15 Years	3,333
17				
18				
19	Parking Facilities:			
20				
21				
22				
23				
24				
25	Fixed Equipment:	Straight Line	10 Years	174,518
26				
27				
28				
29				
30				
31	Major Movable Equipment:			
32				
33				
34				
35				
36				
37	Total			291,940

Note: For simplicity assume first year of depreciation is a full year depreciation not one half year of depreciation. Also, if project is to be gradually phased in do not adjust for such phasing unless it significantly affects this Schedule. Explain such adjustments.

Schedule F: Proposed Funds for Estimated Capital Expenditure

NOT APPLICABLE

Show only those funds, which are intended to finance the estimated capital expenditure.

	(1)	(2)
	Funds Available as of Application Filing Date:	
1	Plant Replacement and Expansion Fund	\$3,506,506
2	Unrestricted Fund	
3	Endowment Fund	
4	Specific Purpose Fund	
5	Other (specify):	
6	Subtotal	
	Funds to be Generated/Raised:	
	Internal Sources:	
7	Accumulated Gain from Operations	
8	Accumulated Non-operating Revenue ^a	
	External Sources:	
9	Long Term Debt Proceeds ^b (available _____ / _____) ^c month year	
10	Grants (available _____ / _____) month year	
11	Unrestricted Gifts/ Bequests (available _____ / _____) month year	
12	Plant Fund Drive (available _____ / _____) month year	
13	Capital Lease (terms) _____ / _____ rate years	
14	Subtotal	
15	Total Funds (Line 6 - Line 13)	\$

^a Exclude unrestricted gifts and bequests. Show these on Line 11.

^b Complete Schedule F1.

^c Provide date when total amount will be available.

Schedule F1: Features of Permanent Financing of Estimated Capital Expenditure ^a

NOT APPLICABLE

1. a) Loan principal _____ b) Interest rate _____ c) Term _____ yrs.
2. Does the proposed debt service require even periodic payments, which include interest and principal?
☐ Yes ☐ No

If No, attach a separate sheet outlining the required schedule of payments of interest and principal over the term of the loan.
3. Check anticipated source of permanent financing.^b
☐ Lending Institution (specify) _____
☐ Massachusetts Health and Educational Facilities Authority
☐ Federal Housing and Urban Development Administration Insured Mortgage
☐ Public or Private Sale Bonds
☐ Other (specify) _____
4. Check anticipated debt instrument.
☐ Mortgage
☐ Mortgage Bonds
☐ Notes
☐ Taxable Bonds
☐ Tax-exempt Bonds
☐ Bond Anticipation Note
☐ Other (specify) _____
5. Specify the loan covenants (such as required sinking fund payments, and compensating balances) associated with the proposed financing.

6. Indicate specific extent of mortgagee's proposed collateral interest in real property, gross receipts, etc.

7. Will the proposed long term loan refinance a construction loan? ☐ Yes ☐ No
8. If Yes, complete the following:
a) Source of construction loan _____
b) Maximum principal outstanding _____
c) Terms of interest rate _____
9. Anticipated date for the delivery of the long-term loan proceeds _____

^a If appropriate complete for internal as well as external loans.

^b If uncertain, use "1", "2", etc. to indicate order of likelihood. Explain effect on cost in going from source number 1 to source number 2, etc.

Complete question 8 only if the project includes refinancing of existing debt

Schedule F2: Application of Permanent Financing Proceeds

NOT APPLICABLE

Complete only for the estimated capital expenditures of projects requiring debt financing.

(1)		(2)
1	Total Estimated Land and Construction Costs (from Schedule D, Columns 2 and 3, Line 5 + Line 18)	\$
2	Debt Service Fund Requirement	
3	Total Financing Costs (from Schedule D, Columns 2 and 3, Line 23)	
4	Refinancing of Existing Debt	
5	Other (specify):	
6	Other (specify):	
7	Subtotal	
8	Less:	
9	Project Costs met by Internal Sources (from Schedule F, Column 2, Lines 6 + 7 + 8)	
10	Interest Income Earned During Construction	
11	Premium on Sale of Bonds	
12	Project Costs Met by External Sources Other than Debt (from Schedule F, Column 2, Lines 10 + 11 + 12)	
13	Total Deductions (Lines 9+10 + 11 + 12)	
14	Loan Principal Required (Line 7 - Line 13)	\$

Schedule G: Fixed Charges Covered

NOT APPLICABLE

Complete for the entire institution if the estimated capital expenditure for the project requires debt financing, including capital lease.

	(1)	(2)	(3)	(4)
		Actual 20	Actual 20	Actual 20
1	Gain (Loss) from Operations ^a			
2	Add: Interest Expense ^a			
3	Depreciation Expense ^a			
4	Lease Payments			
5	Cash from Operations Available for Debt Service (Lines 1 + 2 + 3 + 4)			
6	Debt Service Required:			
7	Interest on Long Term Debt (LTD)			
8	Interest on Certain Short Term Debt ^b			
9	Principal Payments – LTD			
10	Reduction in Short Term Debt ^b			
11	Lease Payments			
12	Net Sinking Fund Payment ^c			
13	Total Debt Service Required (Lines 7 + 8 + 9 + 10 + 11 + 12)			
14	Ratio: Fixed Charges Covered (Line 5 ÷ Line 13)			

^a Must tie to Schedule A data. Explain any variances.

^b Include only short-term debt that will be rolled over or refinanced with long-term debt and any interest expense on inter-fund loans.

^c Required payment to sinking fund less payment from sinking fund.

Schedule G: Fixed Charges Covered, continued
NOT APPLICABLE

Complete for the entire institution if the estimated capital expenditures for the project requires debt financing, including capital lease.

	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Assuming Project Approval				Assuming Project Denial			
	Projection 20____(P1)	Projection 20____(P1)	Projection 20____(P1)	Projection 20____(P1)	Projection 20____(P2)	Projection 20____(P2)	Projection 20____(P2)	Projection 20____(P2)
1								
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Schedule H: Revenue by Payer

Complete for the entire institution: Actual for the two fiscal years most recently completed and Projected (P1 and P2) for first full year of proposed project operation.

	(1)	(2)	(3)		(4)
			Routine Inpatient		
	Payer	Total Patient Days	Gross Patient Service Revenue	Net Patient Service Revenue	
1	2015 Actual (A)				
2	Medicare	2,128	14,998,637	6,349,404	
3	MA Medicaid	528	3,793,633	1,356,710	
4	Other Government	106	875,206	235,184	
5	Private Insurers	1,662	15,139,006	7,313,299	
6	Self Pay	110	1,239,345	368,582	
7	Other	270	2,173,119	883,155	
8	TOTAL	4,804	38,218,945	16,506,334	
9					
10					
11	2016 Actual (A)				
12	Medicare	1,935	15,612,491	7,731,216	
13	MA Medicaid	644	4,552,048	1,452,030	
14	Other Government	199	1,454,242	494,005	
15	Private Insurers	1,632	14,963,395	8,084,694	
16	Self Pay	96	1,726,101	437,302	
17	Other	129	1,110,870	337,101	
18	TOTAL	4,635	39,419,147	18,536,349	
19					
20					
21	2017 Projected (P1)				
22	Medicare	2,094	16,892,006	8,438,611	
23	MA Medicaid	697	4,925,109	1,584,888	
24	Other Government	215	1,573,424	539,206	
25	Private Insurers	1,766	16,189,713	8,824,431	
26	Self Pay	104	1,867,562	477,314	
27	Other	140	1,201,911	367,946	
28	TOTAL	5,016	42,649,724	20,232,396	
29					
30					
31	2017 Projected (P2)				
32	Medicare	2,094	16,892,006	8,438,611	
33	MA Medicaid	697	4,925,109	1,584,888	
34	Other Government	215	1,573,424	539,206	
35	Private Insurers	1,766	16,189,713	8,824,431	
36	Self Pay	104	1,867,562	477,314	
37	Other	140	1,201,911	367,946	
38	TOTAL	5,016	42,649,724	20,232,396	
39					
40					
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48					

Factor 7

FACTOR 7: RELATIVE MERIT

7.1 Please describe below and on additional sheet (if necessary) any alternatives that you have considered in the development of this project. Please also give your reasons for rejecting these alternatives.

The Applicant considered a number of alternatives to address its need for increased access to MRI services. Among these alternatives, the Applicant evaluated the possibility of not providing additional MRI services at the Hospital and referring patients to other MRI providers, further expanding the hours of its existing MRI unit and the proposed Project of adding one full time, fixed unit. After a thorough assessment of each alternative, the Applicant determined that the proposed Project represented the most clinically effective and efficient means of addressing the demand for additional MRI services at the Hospital.

The Applicant examined the possibility of not providing additional MRI services at the Hospital, resulting in the referral of patients to other providers of MRI services. This option would require patients to make arrangements with a separate provider for the provision of services. Such a situation would result in the fragmentation of care as the Applicant would not be able to control and oversee the services provided to its patients, nor have control and ready access to patient records in most instances. Furthermore, the specialized nature of the imaging services provided at the Hospital and the need to provide the imaging services concurrent with other services that patients receive at the Hospital is critical to providing safe and quality care for patients with severe visual impairments and those with cancers of the head and neck. As a result, the Applicant rejected this option.

The Applicant also explored the possibility of further expanding its hours of operation. The Applicant's one (1) fixed unit currently operates twelve (12) hours per day to accommodate demand for outpatient scans, which accounts for the vast majority of the Applicant's imaging volume. With limited inpatient activity, the Applicant determined it would be impractical to attempt to schedule outpatient scans later than the current hours of operation. Accordingly, the Applicant determined that this option was not reasonable.

The Applicant considered the proposed Project of expanding its MRI service through the addition of another fixed unit at its main campus. The option will allow the applicant to control patient scheduling and medical records, promoting continuity and quality of patient care, as well as convenient and timely access to MRI scanning. Moreover, a traditional MRI provider cannot meet the needs of the Applicant's patient population due to the highly specialized protocols required and which are not typically available at other MRI providers. As a result, the Project presents the most clinically effective and efficient approach to meet the Applicant's growing demand for MRI services.

Factor 8

FACTOR 8: ENVIRONMENTAL IMPACT

I. Compliance with Massachusetts Environmental Protection Act ("MEPA")

The Massachusetts Environmental Protection Act or "MEPA" (M.G.L. c. 30 §§ 61, 62-62H) requires that state agencies take into account the environmental consequences of their actions. The issuance of a Determination of Need by the Department of Public Health is a state action subject to MEPA. MEPA regulations (301 CMR 11.00 et seq.) require environmental review of all DoN applications for projects exceeding the review thresholds set forth at 301 CMR 11.03.

DoN Applicants should familiarize themselves with the MEPA review thresholds to determine whether MEPA review will be required. MEPA regulations may be viewed online at <http://www.env.state.ma.us/mepa/regs/11-03.aspx> and may be obtained through the State House Bookstore (<http://www.sec.state.ma.us/spr/sprcat/catidx.htm>). Review thresholds are divided into the following categories:

- | | |
|---|---|
| (1) Land. | (7) Energy. |
| (2) State-listed Species under M.G.L. c. 131A | (8) Air. |
| (3) Wetlands, Waterways and Tidelands. | (9) Solid and Hazardous Waste. |
| (4) Water. | (10) Historical and Archaeological Resources. |
| (5) Wastewater. | (11) Areas of Critical Environmental Concern. |
| (6) Transportation. | (12) Regulations. |

Projects that are subject to MEPA review must circulate and file an Environmental Notification Form (ENF). A 20-day comment period ensues from publication of the ENF in the MEPA Monitor (appears bi-weekly). The proposal and site plans are reviewed, and within a total of 30 days from publication, a decision will be made on whether an environmental impact report (EIR) is required.

If an EIR is required, a "scope" will be issued, identifying items which the EIR must address. Draft and Final EIR's each go through a 37-day review and comment period.

Certain projects that exceed specified size thresholds (301 CMR 11.03) require a mandatory EIR. The MEPA regulations allow the Secretary of Environmental Affairs to waive a mandatory EIR, or to allow a single EIR, following review of an expanded ENF. See 301 CMR 11.05(7), 11.06(8) and 11.11, and consult with the MEPA Office to discuss whether this approach would be appropriate.

Applicants are advised to consult with the MEPA Office to determine if an Environmental Notification Form must be filed for a DoN project. Address all inquiries to:

MEPA Office
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900, 9th Floor
Boston, MA 02114
Tel: (617) 626-9031

Please note that final approval of a DoN as well as architectural plans and specifications for a project is contingent upon compliance with MEPA regulations.

Every Applicant for Determination of Need is required to certify compliance with MEPA regulations by completing section the form provided in Section 8.1 of this Application Kit.

8.1 Certification of MEPA Compliance

After careful review of the MEPA regulations (301 CMR 11.00 et seq.) in effect at the time of filing this application for Determination of Need, the status of the project as proposed relative to MEPA requirements is as follows:

[Please check one of the following boxes]

- ☒ The proposed project neither meets nor exceeds any of the thresholds for MEPA review.
- ☐ The proposed project meets one or more of the MEPA review thresholds and an Environmental Notification Form (ENF) was filed on ____/____/_____. A copy of the ENF is attached to the DoN application. (mm dd yyyy)
- ☐ The proposed project meets one or more of the MEPA review thresholds requiring both an Environmental Notification Form (ENF) and a mandatory Environmental Impact Report (EIR). A completed EIR was submitted to MEPA on ____/____/_____ and a copy of the EIR is submitted with this DoN application. (mm dd yyyy)

Name of DoN Applicant: Massachusetts Eye and Ear Infirmary

Brief Description of DoN Project: Addition of one (1) fixed MRI Unit

Signature and Printed Name of Authorized Official:

Ralph Pelosi
(Signature)

Ralph Pelosi
(Printed Name)

Title: Executive Director Support Services

Date: 01/18/2017
(mm dd yyyy)

Factor 8: DoN GREEN GUIDELINES

II. Compliance with Determination of Need Guidelines for Environmental and Human Health Impact

Effective January 1, 2009 for hospitals and clinics and July 1, 2009 for long term care facilities, all Determination of Need applications involving new construction and/or gut renovation projects are required to demonstrate compliance with the Determination of Need Guidelines for Environmental and Human Health Impact ("DoN Green Guidelines"). Gut renovation is defined as construction within an existing building that requires complete demolition of all non-structural building components (After demolition, only the floor, deck above, outside walls, and structural columns would remain).

Compliance requires achievement of all of the prerequisites and at least 50% of all the possible points for the Leadership in Energy and Environmental Design – Health Care ("LEED-HC") or, with the Department's approval, its current equivalent nationally-accepted best practice standard.

Documentation of compliance with DoN Green Guidelines must be included in the submission of DoN Factor 8.

8.2 In this section, provide complete documentation of how the project, upon its implementation, will achieve compliance with the Determination of Need Guidelines for Environmental and Human Health Impact ("DoN Green Guidelines"). A completed project scorecard based upon the most current version of LEED-HC or its equivalent, as approved by the DoN Program prior to application submission, should accompany a description of the plans for compliance.

This Factor is not applicable as the Applicant is not proposing new construction or a gut renovation.

Attachment/Exhibit

A



LEED v4 for ID+C: Commercial Interiors

Project Checklist

Y ? N

Y		Credit	Integrative Process	2
8	0	28	Location and Transportation	18
		18	Credit LEED for Neighborhood Development Location	18
		8	Credit Surrounding Density and Diverse Uses	8
		7	Credit Access to Quality Transit	7
		1	Credit Bicycle Facilities	1
		2	Credit Reduced Parking Footprint	2
12	0	0	Water Efficiency	12
Y			Prereq Indoor Water Use Reduction	Required
Y			Credit Indoor Water Use Reduction	12
5	0	33	Energy and Atmosphere	38
Y			Prereq Fundamental Commissioning and Verification	Required
Y			Prereq Minimum Energy Performance	Required
Y			Prereq Fundamental Refrigerant Management	Required
		5	Credit Enhanced Commissioning	5
		25	Credit Optimize Energy Performance	25
		2	Credit Advanced Energy Metering	2
		3	Credit Renewable Energy Production	3
		1	Credit Enhanced Refrigerant Management	1
		2	Credit Green Power and Carbon Offsets	2
5	2	6	Materials and Resources	13
Y			Prereq Storage and Collection of Recyclables	Required
Y			Prereq Construction and Demolition Waste Management Planning	Required
		1	Credit Long-Term Commitment	1
		4	Credit Interiors Life-Cycle Impact Reduction	4
		1	1 Credit Building Product Disclosure and Optimization - Environmental Product Declarations	2
		1	1 Credit Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
		1	1 Credit Building Product Disclosure and Optimization - Material Ingredients	2
		1	1 Credit Construction and Demolition Waste Management	2

Project Name: Mass Eye and Ear Infirmary - MRI

Date: 12/20/2016

7	0	10	Indoor Environmental Quality	17
Y			Prereq Minimum Indoor Air Quality Performance	Required
Y			Prereq Environmental Tobacco Smoke Control	Required
		2	Credit Enhanced Indoor Air Quality Strategies	2
		2	Credit Low-Emitting Materials	3
		1	Credit Construction Indoor Air Quality Management Plan	1
		1	Credit Indoor Air Quality Assessment	2
		0	Credit Thermal Comfort	1
		0	Credit Interior Lighting	2
		3	Credit Daylight	3
		1	Credit Quality Views	1
		1	Credit Acoustic Performance	2

1	0	5	Innovation	6
		5	Credit Innovation	5
		1	Credit LEED Accredited Professional	1

0	0	4	Regional Priority	4
		1	Credit Regional Priority: Specific Credit	1
		1	Credit Regional Priority: Specific Credit	1
		1	Credit Regional Priority: Specific Credit	1
		1	Credit Regional Priority: Specific Credit	1

38 2 86 TOTALS Possible Points: **110**

Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80+

Factor 9

FACTOR 9: COMMUNITY HEALTH SERVICE INITIATIVES

The Determination of Need primary and preventive health care services and community contributions review factor is required under 105 CMR 100.533(B)(9) and described under 105 CMR 100.551(J) as follows:

- (1) the holder [of an approved DoN] shall expend, over a five-year period (or other period approved by the Department) an amount reasonably related to the cost of the project, for the provision of primary and preventive health care services necessary for underserved populations in the project's service area (or other area approved by the Department) and reasonably related to the project, in accordance with a plan submitted as part of the application process (see 105 CMR 100.533(B)(9)) and approved by the Department; and
 - (2) the holder shall file reports with the Department detailing compliance with its approved plan, and to the extent practicable, an evaluation of the health effects thereof. The frequency, content and format of such reports shall be established by the Department.
- 1.1 The plan for provision of primary and preventive health services shall be developed in consultation with the Community Health Network Areas (CHNAs) and Department of Public Health's Office of Community Health Planning to identify health issues in the service areas and the community initiatives that should be directed toward them. To identify the CHNAs in your service areas please contact the Office of Community Health Planning.

The Applicant is committed to contributing an amount reasonably related to this Project for programs that provide primary and preventative health services to underserved populations in its service area. As such, the Applicant will contribute five percent (5%) of the MCE upon project implementation for the Factor 9 requirements. The community benefit contribution will be **\$175,325.30** allocated over five (5) years at **\$35,065.06 per year**.

Consistent with the policies and procedures set forth in the Department of Public Health Bulletin ("Bulletin") of February 11, 2009, and amended August 2014, the Applicant will work with the Office of Community Health Planning ("OCHP") and other community representatives deemed appropriate by OCHP to ensure that the funds are directed to community health improvement initiatives as identified in the Bulletin and agreed to by these Planning Partners. The Applicant will contact the OCHP to begin the community process on or before the DoN is filed with DPH to develop a more detailed Factor 9 CHI plan for Public Health Council review.

D. Other Exhibits

1. Letters of Support



MASSACHUSETTS
GENERAL HOSPITAL



HARVARD
MEDICAL SCHOOL

Department of Radiology
Massachusetts General Hospital
55 Fruit Street, FND210
Boston, Massachusetts 02114-2698
E-mail: jabrink@partners.org
Tel: 617.724.9634, Fax: 617.726.3077

James A. Brink, MD
Radiologist-in-Chief
Massachusetts General Hospital
Juan M. Taveras Professor of Radiology
Harvard Medical School

December 26, 2016

Bernard Plovnick, Director
Determination of Need Program
99 Chauncy St.
Boston, MA 02111

Dear Mr. Plovnick:

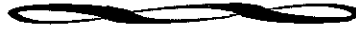
I write in strong support of the Massachusetts Eye and Ear Infirmary (MEEI)'s application to expand its magnetic resonance (MR) imaging capacity by acquiring a second MR scanner. The MEEI provides expert imaging services for disorders of the head and neck. Facilities of its size and importance suffer from use of just one scanner. Unexpected service disruptions are common with such scanners, and the absence of a second scanner means that MEEI patients have no alternatives for MR imaging in such circumstances. When service disruptions occur, these patients must be transported to other facilities in Boston, including the Massachusetts General Hospital (MGH), for their imaging exams. At MGH, our ability to accommodate these patients is severely limited owing to rising demand that exceeds our capacity for MR imaging on the main MGH campus.

I urge you to approve this request expeditiously. Please let me know if I can provide further assistance with this important issue.

Sincerely,

James A. Brink, M.D.

MASSACHUSETTS GENERAL HOSPITAL
CANCER CENTER™



December 26, 2016.

Bernard Plovnick, Director
Determination of Need Program
99 Chauncy St
Boston, MA 02111

RE: Mass. Eye and Ear 2nd MRI Determination

Dear Mr. Plovnick,

I am writing this letter in support of the efforts of the Massachusetts Eye and Ear Infirmary (MEEI) to obtain an additional state-of-the-art MRI unit to support its current needs.

I am a head and neck radiation oncologist, the Director of the Head and Neck Radiation Oncology Research Program, and the Director of the Proton Fellowship Program at the Massachusetts General Hospital (MGH). Due to the superior quality of head and neck MRI imaging studies at MEEI, my head and neck colleagues and I order all MRI imaging studies exclusively at MEEI. Currently, the demand for MRI services at MEEI significantly exceeds its current capacity. This has resulted in delays in diagnosis, delays in initiation of treatment, and suboptimal treatment outcome. As the number of pediatric head and neck patients at MGH and MEEI has increased substantially over the past five years, the addition of a second MRI scanner at MEEI would also provide the necessary need for this group of patients, including the pediatric patients who need general anesthesia.

I strongly urge you and the Department of Public Health to approve this application for a second MRI scanner at MEEI.

Sincerely,

Annie W. Chan, MD
Director, Head & Neck Radiation Oncology Research Program
Director, Proton Fellowship Program
Harvard Medical School
Department of Radiation Oncology
Massachusetts General Hospital

DEPARTMENT OF OTOLARYNGOLOGY

Massachusetts Eye and Ear
243 Charles Street
Boston, Massachusetts 02114

Tel: 617-573-3654 | Fax: 617-573-3939 | masseyeandear.org



December 21, 2016

Bernard Plovnick, Director
Determination of Need Program
99 Chauncy Street
Boston, MA 02111

Dear Director:

I am writing this letter in support of obtaining an additional MRI unit at Massachusetts Eye & Ear Infirmary. I am the Rhinology Division Chief at the hospital, and our patients with sinus/nasal masses, skull base defects, and smell and taste disorders benefit from the high quality services and expert opinions currently provided by the radiology department in our hospital. One rate-limiting factor to providing faster diagnosis and treatment is in obtaining timely radiographic studies often including MR for these disorders. An additional MRI unit would facilitate completion of these studies ultimately improving patient care through faster diagnosis and earlier treatment. I am in full support of this application and encourage you to do the same.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric Holbrook".

Eric H. Holbrook, M.D.
Division Chief of Rhinology
Medical Staff President
Massachusetts Eye & Ear Infirmary
Assistant Professor
Department of Otolaryngology
Harvard Medical School
617-573-3209

HARVARD MEDICAL SCHOOL * MASSACHUSETTS EYE & EAR INFIRMARY

MICHAEL J. MCKENNA, M.D.
Professor
Department of Otolaryngology



Otology, Neuro-Otology
Skull Base Surgery
243 Charles Street,
Boston, Massachusetts 02114
(617) 573-3672
Fax: (617) 573-3914

December 22, 2016

Bernard Plovnick
Director
Determination of Need Program
99 Chauncy Street
Boston, MA 02111

Dear Mr. Plovnick:

I am writing this letter in support of the efforts of the Massachusetts Eye and Ear's Department of Radiology to obtain an additional, state-of-the-art MRI unit. I am the Division Chief of Otolaryngology and MRIs are an indispensable component of my practice. The MRI service at the Massachusetts Eye and Ear is excellent, however, the demand for services greatly exceeds current capacity. This has resulted in delays in diagnosis, and less than optimal patient care.

I urge you and the Department of Public Health to approve this application.

Sincerely,

Michael J. McKenna, MD

HARVARD MEDICAL SCHOOL * MASSACHUSETTS EYE AND EAR INFIRMARY
DEPARTMENT OF OPHTHALMOLOGY



Massachusetts Eye & Ear Infirmary
243 Charles Street
Boston, MA 02114

JOSEPH F. RIZZO III, M.D.
*David G. Cogan Professor of Ophthalmology
in the Field of Neuro-Ophthalmology
Director, Neuro-Ophthalmology*



Neuro-Ophthalmology Service
Telephone: 617-573-3412
Fax: 617-573-3851
Email: joseph_rizzo@meei.harvard.edu

December 21, 2016

Bernard Plovnick, Director
Determination of Need Program
99 Chauncy St
Boston, MA 02111

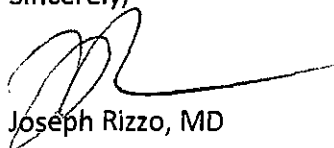
Dear Mr. Plovnick:

I am Director of the Neuro-Ophthalmology service at the Massachusetts Eye and Ear Infirmary. My service relies heavily on the availability of high-quality neuroimaging, and MRI is our modality of choice for almost all of our needs.

Our hospital generates a relatively high volume of MRI scans. The demand for imaging not uncommonly creates difficulty for our service when we attempt to obtain MRI scans in a timely fashion. And, it is not rare that we are required to send patients to another site to obtain an MRI scan, or at least to accept a longer time delay than deemed to be ideal by the clinician. This is especially true for our Pediatric patients.

If we had an additional MRI machine, we would be able to reliably obtain scans promptly, and we would be able to accommodate a larger volume of pediatric patients, which would be of benefit to me as a clinician.

Sincerely,



Joseph Rizzo, MD

DEPARTMENT OF OTOLARYNGOLOGY

Massachusetts Eye and Ear
243 Charles Street
Boston, Massachusetts 02114

Tel: 617-573-3654 | Fax: 617-573-3939 | masseyeandear.org



December 22, 2016

Bernard Plovnick, Director
Determination of Need Program
99 Chauncy St
Boston, MA 02111

Dear Mr. Plovnick,

I am a senior head and neck surgeon and the Associate Chair of Otolaryngology at the Massachusetts Eye and Ear Infirmary. I am writing to you in strong support of our institution's request for a second MRI on our campus.

We are a major tertiary and quaternary referral center in New England for patients with head and neck and skull base malignancies. Many of our patients present from a distance with complex pathologies, either with advanced disease at primary presentation or with recurrent disease after prior multimodality treatment. MRI is the most critical imaging diagnostic procedure in this group of patients.

With our current MRI capacity on site we are not meeting the needs of our current population of patients. Acquiring a second scanner at the Infirmary will help us fill the unmet need of the patients referred to us. Frequency it is the interpretation of the MRI that is the final piece of data in building the treatment plan for many of our patients. The second scanner could mean the difference in getting patients with cancer planned and treated sooner rather than later.

In addition, we have one of the most capable faculty of head and neck neuroradiologists anywhere in the world. Obtaining the imaging with consistent algorithms read by the same radiologists adds tremendous accuracy to the final interpretation of the study.

I hope you will grant the request for a second scanner at the Massachusetts Eye and Ear Infirmary. Please don't hesitate to contact me should you have any questions.

Sincerely,

A handwritten signature in black ink, reading 'Mark A. Varvares'.

Mark A Varvares, MD, FACS
The Montgomery Associate Professor, Harvard Medical School
Associate Chair, Department of Otolaryngology

2. Audited Financial Statements

**Foundation of the
Massachusetts Eye and Ear
Infirmary, Inc.**

**Combined Financial Statements and
Supplementary Combining Schedules
September 30, 2015 and 2014**

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.

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September 30, 2015 and 2014

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Year Ended September 30, 2014 43



Independent Auditor's Report

To the Board of Directors of the Foundation of the Massachusetts Eye and Ear Infirmary, Inc.:

We have audited the accompanying combined financial statements of the Foundation of the Massachusetts Eye and Ear Infirmary, Inc., (the "Foundation"), which comprise the combined balance sheets as of September 30, 2015 and 2014, and the related combined statements of operations, changes in net assets and of cash flows for the years then ended.

Management's Responsibility for the Combined Financial Statements

Management is responsible for the preparation and fair presentation of the combined financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of combined financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on the combined financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the combined financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the combined financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the combined financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the Foundation's preparation and fair presentation of the combined financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Foundation's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the combined financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.



Opinion

In our opinion, the combined financial statements referred to above present fairly, in all material respects, the financial position of the Foundation and its subsidiaries at September 30, 2015 and 2014, and the changes in net assets and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters

Our audit was conducted for the purpose of forming an opinion on the combined financial statements taken as a whole. The combining information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the combined financial statements. The combining information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves and other additional procedures, in accordance with auditing standards generally accepted in the United States of America. In our opinion, the combining information is fairly stated, in all material respects, in relation to the combined financial statements taken as a whole. The combining information is presented for purposes of additional analysis of the combined financial statements rather than to present the financial position, results of operations and cash flows of the individual entities and is not a required part of the combined financial statements. Accordingly, we do not express an opinion on the financial position, results of operations and cash flows of the individual companies.

PricewaterhouseCoopers LLP

Boston, Massachusetts

January 25, 2016

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
Combined Balance Sheets
September 30, 2015 and 2014

	2015	2014
Assets		
Current assets		
Cash and cash equivalents	\$ 8,012,889	\$ 3,249,181
Assets whose use is limited (Notes 2 and 3)	3,551,739	4,731,480
Patient accounts receivable, less allowance for doubtful accounts of \$6,436,343 and \$4,230,684 as of September 30, 2015 and 2014, respectively (Notes 9 and 15)	30,689,274	26,753,537
Other current assets	18,592,528	17,532,760
Total current assets	60,846,430	52,266,958
Assets whose use is limited (Notes 2 and 3)		
Special cash reserves	2,697,242	3,738,309
Under indenture agreement (Note 6)	7,246,350	7,209,193
Total assets whose use is limited	9,943,592	10,947,502
Investments (Notes 2, 3 and 6)	190,320,731	174,279,118
Pledges receivable, net (Notes 2 and 5)	5,261,431	6,133,755
Remainder interest in charitable trusts (Note 3)	451,826	509,677
Beneficial interest in trusts (Note 3)	15,128,979	16,255,998
Property, plant and equipment, net (Note 4)	177,464,053	177,390,037
Intangible assets and other assets, net of accumulated amortization of \$2,111,507 and \$2,022,878 as of September 30, 2015 and 2014, respectively	1,363,619	1,452,248
Deposits and other assets	15,567,662	14,563,740
Total assets	\$ 476,348,323	\$ 453,799,033
Liabilities and Net Assets		
Current liabilities		
Current portion of long-term debt and capital lease obligations (Notes 6 and 8)	\$ 7,032,101	\$ 6,481,856
Accounts payable and accrued expenses	48,350,054	36,448,832
Accrued interest	778,221	227,267
Estimated third-party settlements (Note 9)	7,854,958	3,912,860
Total current liabilities	64,015,334	47,070,815
Long-term debt and capital lease obligations, less current portion (Notes 6 and 8)	86,035,526	87,755,490
Asset retirement obligation	-	30,723
Deferred QLT revenue (Note 14)	13,280,726	14,295,172
Other long-term liabilities (Notes 2 and 6)	12,162,134	9,444,276
Professional liability reserve (Note 13)	8,024,786	7,531,524
Accrued pension costs (Note 10)	55,512,094	41,999,693
Total liabilities	239,030,600	208,127,693
Commitments and contingencies (Notes 8, 9 and 13)		
Unrestricted net assets		
Unrestricted for general operations	67,547,830	68,664,928
Board designated	48,282,744	53,144,579
Total unrestricted net assets	115,830,574	121,809,507
Temporarily restricted net assets (Notes 12 and 16)	49,262,806	50,982,932
Permanently restricted net assets (Notes 12 and 16)	72,224,343	72,878,901
Total net assets	237,317,723	245,671,340
Total liabilities and net assets	\$ 476,348,323	\$ 453,799,033

The accompanying notes are an integral part of these consolidated financial statements.

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
Combined Statements of Operations
Years Ended September 30, 2015 and 2014

	2015	2014
Unrestricted revenue and gains (Note 9)		
Net patient service revenue (net of contractual allowances and discounts)	\$ 269,395,584	\$ 247,119,669
Provision for bad debts	(8,075,542)	(7,876,353)
Net patient service revenue less provision for bad debts	261,320,042	239,243,316
Research direct revenue	33,251,534	32,847,289
Research indirect revenue	13,953,988	13,607,914
Contributions	6,977,898	6,251,953
Investment income (Note 3)	2,225,227	1,767,818
Net assets released from restriction used for operations (Note 2)	15,036,071	18,145,245
QLT revenue (Note 14)	2,994,328	13,254,740
Other revenue & gains	60,940,815	20,850,722
Total unrestricted revenue and gains	396,699,903	345,968,997
Expenses (Note 7)		
Salaries and wages	149,070,600	138,302,981
Fringe benefits	35,976,351	31,524,839
QLT expenses (Note 14)	3,948,667	864,885
Supplies and other expenses	126,232,114	106,470,559
Depreciation	22,974,850	21,072,138
Interest	3,554,261	3,349,823
Research expenditures	47,607,917	47,555,580
Total expenses	389,364,760	349,140,805
Income (Loss) from operations	7,335,143	(3,171,808)
Other gains		
Net realized gains on investments (Note 3)	1,782,773	4,253,629
Total other gains, net	1,782,773	4,253,629
Excess of revenues over expenses	9,117,916	1,081,821
Net assets released from restriction for the purchase of property, plant and equipment	365,186	291,304
Change in unrealized depreciation on investments (Note 2)	(2,386,496)	(125,707)
Pension and postretirement-related charges other than net periodic pension cost-(Loss) (Note 10)	(13,075,539)	(7,956,772)
Total decrease in unrestricted net assets	\$ (5,978,933)	\$ (6,709,354)

The accompanying notes are an integral part of these consolidated financial statements.

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
Combined Statements of Changes in Net Assets
Years Ended September 30, 2015 and 2014

	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
Net assets at September 30, 2013	\$ 128,518,861	\$ 50,820,054	\$ 70,149,551	\$ 249,488,466
Excess of revenues over expenses	1,081,821	-	-	1,081,821
Contributions, grants and other income	-	13,193,070	2,288,327	15,481,397
Realized gain on investments	-	6,066,535	-	6,066,535
Investment loss, net	-	(438,938)	-	(438,938)
Net assets released from restriction for the purchase of property, plant and equipment	291,304	(291,304)	-	-
Change in unrealized depreciation on investments	(125,707)	(636,287)	-	(761,994)
Gain on beneficial interest in trusts	-	-	856,070	856,070
Net assets released from restriction used for operations	-	(18,145,245)	-	(18,145,245)
Net asset transfers	-	415,047	(415,047)	-
Pension and postretirement-related charges other than net periodic pension cost-Loss	(7,956,772)	-	-	(7,956,772)
(Decrease) Increase in net assets	(6,709,354)	162,878	2,729,350	(3,817,126)
Net assets at September 30, 2014	121,809,507	50,982,932	72,878,901	245,671,340
Excess of revenues over expenses	9,117,916	-	-	9,117,916
Contributions, grants and other income	-	15,357,589	472,461	15,830,050
Realized gain on investments	-	1,605,847	-	1,605,847
Investment loss, net	-	(852,513)	-	(852,513)
Net assets released from restriction for the purchase of property, plant and equipment	365,186	(924,093)	-	(558,907)
Change in unrealized depreciation on investments	(2,386,496)	(1,870,885)	-	(4,257,381)
Gain on beneficial interest in trusts	-	-	(1,127,019)	(1,127,019)
Net assets released from restriction used for operations	-	(15,036,071)	-	(15,036,071)
Pension and postretirement-related charges other than net periodic pension cost-Loss	(13,075,539)	-	-	(13,075,539)
(Decrease) Increase in net assets	(5,978,933)	(1,720,126)	(654,558)	(8,353,617)
Net assets at September 30, 2015	\$ 115,830,574	\$ 49,262,806	\$ 72,224,343	\$ 237,317,723

The accompanying notes are an integral part of these consolidated financial statements.

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
Combined Statements of Cash Flows
Years Ended September 30, 2015 and 2014

	2015	2014
Cash flows from operating activities		
Change in net assets	\$ (8,353,617)	\$ (3,817,126)
Adjustments to reconcile change in net assets to cash flows provided by (used in) from operating activities		
Depreciation and amortization	23,084,835	21,182,123
Net realized and unrealized gains on investments	868,761	(9,558,170)
Provision for doubtful accounts	8,075,542	7,876,353
Restricted contributions for long-term use	7,858,217	4,724,156
Noncash contributions received	(5,401,094)	(3,038,593)
Proceeds from sale of donated securities	108,326	52,302
Gain on beneficial interest in trusts	1,127,019	(856,070)
(Gain) Loss on remainder interest in trusts	57,851	(597)
Change in asset retirement obligation	(30,723)	1,532
Pension and Postretirement-related charges other than net period pension costs	13,075,539	7,956,772
Effects of changes in operating assets and liabilities		
Accounts receivable	(12,011,279)	(10,439,096)
Pledges receivable	145,978	(3,192,172)
Other assets	(1,337,344)	(2,013,662)
Accounts payable and accrued expenses	12,845,648	(674,581)
Other long term liabilities	2,717,858	74,800
Estimated third-party settlements	3,942,098	(306,138)
QLT deferred fund liability	(1,014,446)	(11,218,553)
Professional liability reserve	493,262	(104,570)
Accrued pension costs	436,862	(785,065)
Cash provided by (used in) operating activities	<u>46,689,293</u>	<u>(4,136,355)</u>
Cash flows from investing activities		
Purchases of property, plant and equipment	(17,879,540)	(15,676,979)
Purchases of investments and assets whose use is limited	(139,895,584)	(119,538,687)
Sales of investments and assets whose use is limited	125,168,861	143,710,271
Cash (used in) provided by investing activities	<u>(32,606,263)</u>	<u>8,494,605</u>
Cash flows from financing activities		
Restricted contributions for long-term use	(7,858,217)	(4,724,156)
Proceeds from sale of donated securities restricted for endowment	5,292,768	2,986,291
Proceeds from line of credit		950,000
Payments on line of credit	(500,000)	(750,000)
Principal payments on long-term debt and capital lease obligations	(6,253,873)	(5,762,363)
Cash used in financing activities	<u>(9,319,322)</u>	<u>(7,300,228)</u>
Increase (Decrease) in cash and cash equivalents	4,763,708	(2,941,978)
Cash and cash equivalents		
Beginning of year	3,249,181	6,191,159
End of year	<u>\$ 8,012,889</u>	<u>\$ 3,249,181</u>
Supplementary cash flow information		
Interest paid	\$ 4,095,276	\$ 4,215,027
Supplementary disclosure of noncash activities		
Acquisition of property, plant and equipment financed with a capital lease and debt	\$ 6,479,862	\$ 1,858,873
Donated Securities	5,401,094	3,038,593
Property plant and equipment included in AP and accrued expenses	63,933	457,405

The accompanying notes are an integral part of these consolidated financial statements.

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
Notes to Combined Financial Statements
September 30, 2015 and 2014

1. Organization

The Foundation of the Massachusetts Eye and Ear Infirmary, Inc. (the "Foundation") is the parent corporation for a group of controlled organizations which consists of the Massachusetts Eye and Ear Infirmary (the "Infirmary"), Massachusetts Eye and Ear Associates, Inc. (the "Associates"), Schepens Eye Research Institute, Inc. ("Schepens"), Embankment Services, Inc. ("Embankment") and Circle Company, Inc. ("Circle").

The Foundation is a not-for-profit organization and was formed primarily as a fund-raising organization for the Infirmary, and to hold and manage the endowment and other investments of the Infirmary.

The Infirmary is a not-for-profit hospital located in downtown Boston, Massachusetts specializing in the treatment of, and teaching and research relating to, disorders of the eye, ear, nose, throat, head and neck. The Infirmary is the principal teaching hospital for ophthalmology and otolaryngology for Harvard Medical School.

The Associates is a not-for-profit corporation which provides physician services primarily to patients of the Infirmary. The Infirmary and Associates operate clinical practices in surrounding Massachusetts communities including Stoneham, Concord, East Bridgewater, Quincy, other suburban locations and in Providence Rhode Island.

Schepens, a not-for-profit corporation, conducts basic and clinical research and training of young scientists on the normal processes of vision and the diseases that affect sight.

Embankment, a not-for-profit corporation, was formed to engage in charitable activities and programs in support of the charitable purposes of the Foundation.

Circle, a not-for-profit corporation, was formed for the purpose of owning and developing real estate for the benefit of the Foundation and the Infirmary.

2. Summary of Significant Accounting Policies

Principles of Combination

The combined financial statements include the accounts of the above-named entities for the years ended September 30, 2015 and 2014. All significant inter-entity transactions have been eliminated. The assets of one or more of the entities in the combined group may not be available to satisfy the liabilities of others within the group.

Basis of Presentation

The financial statements of the Foundation have been prepared on the accrual basis of accounting in accordance with accounting principles generally accepted in the United States of America.

Net Assets

Resources are reported for accounting purposes in separate classes of net assets based on the existence or absence of donor-imposed restrictions. In the accompanying financial statements, net assets that have similar characteristics have been combined into similar categories as follows:

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
Notes to Combined Financial Statements
September 30, 2015 and 2014

Permanently Restricted

Net assets subject to explicit donor-imposed stipulations that they be maintained by the Foundation in perpetuity are classified as permanently restricted. Generally, the donors of these assets permit the Foundation to use all or part of the investment return on these assets for general operations or specified purposes.

Temporarily Restricted

Net assets whose use by the Foundation is subject to explicit donor-imposed stipulations that can be fulfilled by either the incurrence of expenses by the Foundation pursuant to those stipulations or by the passage of time are classified as temporarily restricted. Temporarily restricted net assets also include amounts subject to legal restrictions such as portions of otherwise unrestricted capital appreciation on donor restricted funds which are restricted by Massachusetts law until appropriated by the Board of Directors.

Unrestricted

Net assets that are not subject to explicit donor-imposed stipulations are classified as unrestricted net assets. Unrestricted net assets may be designated for specific purposes by action of the Board of Directors or may otherwise be limited by contractual agreements with outside parties.

Revenues are reported as increases in unrestricted net assets unless use of the related assets is limited by donor-imposed restrictions. Expenses are reported as decreases in unrestricted net assets. Gains and losses on investments are reported as increases or decreases in unrestricted net assets, unless their use is restricted by explicit donor stipulations or by law.

The Commonwealth of Massachusetts requires capital appreciation on donor restricted endowment funds to be considered as changes in temporarily restricted net assets until it has been appropriated for expenditure by the Board of Directors. When a donor restriction expires (i.e. when a stipulated time restriction ends or purpose restriction is met), temporarily restricted net assets are reclassified as unrestricted net assets and reported in the statements of operations and of changes in net assets as either net assets released from restriction used for operations (for noncapital related items) or as net assets released from restriction for the purchase of property, plant and equipment (for capital related items).

Contributions, including unconditional promises to give, are recognized as revenues at the date the promise is received. Contributions of assets other than cash are recorded at their estimated fair value at the date of gift. Unconditional promises to give are included in the financial statements as pledges receivable and revenue within temporarily restricted net assets due to implicit time restrictions. Pledges are recorded after discounting to the present value of the expected future cash flows and recording an allowance for unfulfilled pledges. Contributions restricted for the acquisition of land, buildings and equipment are reported as temporarily restricted support.

Assets Held With Outside Trustees

The Foundation is the beneficiary of several trust funds administered by outside trustees. Assets received include perpetual trusts and charitable remainder trusts and are recorded at fair value in the appropriate net asset category based on donor stipulations. Contributions related to perpetual trusts are recognized as revenue upon notification of the trusts' existence and are equal to the fair market value on that date. The related asset is adjusted on an annual basis to reflect changes in the fair value of the asset due to appreciation or depreciation in the trusts. The resulting unrealized gain or loss is included in the statement of changes in net assets. Contributions to charitable remainder trusts are recognized as revenue upon notification of the trusts' existence and are equal to the present value of the expected future cash flows to the Foundation.

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
Notes to Combined Financial Statements
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Split-Interest Agreements

The Foundation has split-interest agreements consisting primarily of charitable gift annuities, and pooled income funds. Split-interest agreements, which are included in investment totals, amount to \$1,937,451 (cost basis of \$1,969,502) and \$2,178,206 (cost basis of \$2,121,020) as of September 30, 2015 and 2014, respectively. Contributions are recognized at the date the trusts are established net of a liability for the present value of the estimated future cash outflows to beneficiaries. The present value of payments is discounted with a rate of 7.5%. The liability of \$676,777 and \$696,676 as of September 30, 2015 and 2014, respectively, is adjusted during the term of the agreement for changes in actuarial assumptions. This number is included in the other long-term liabilities line on the Balance Sheet.

Cash and Cash Equivalents

Cash and cash equivalents consist of cash and short-term investments with original maturities of three months or less. Amounts whose use is limited by Board designation, specific purpose, or other arrangements under trust agreements are reported in accordance with their intended use and are excluded from cash and cash equivalents.

The majority of the Foundation's banking activity, including cash and cash equivalents, is maintained with one bank and amounts on deposit exceed federal insurance limits. It is the Foundation's policy to monitor this bank's financial strength on an ongoing basis.

Research Grants and Contracts

The Foundation engages in research activities under grants and contracts with U.S. Government agencies and other organizations. Reimbursed costs, including overhead allowances, are subject to post-performance review and adjustment.

Revenues associated with research contracts and grants are recognized as the related costs or capital expenditures are incurred. Grant revenue used for the construction or acquisition of plant is recorded as changes in unrestricted net assets. The Foundation records reimbursement of facilities and administrative costs relating to government contracts and grants at authorized rates each year.

Property, Plant and Equipment

Property, plant and equipment are recorded at cost. Donated items are recorded at fair value at the date of contribution. Depreciation is provided over the estimated useful life of each class of depreciable asset and is computed using the straight-line method. Estimated useful lives range from 3 to 40 years. Equipment under capital lease obligations is amortized on the straight-line method over the shorter period of the lease term or the estimated useful life of the equipment. Such amortization is included in depreciation and amortization expense in the financial statements. Interest cost incurred on borrowed funds during the construction period of capital assets is capitalized as a component of the cost of acquiring those assets.

Gifts of long-lived assets such as land, buildings, or equipment are reported as unrestricted support, and are excluded from the excess of revenues over expenses, unless explicit donor stipulations specify how the donated assets must be used. Gifts of long-lived assets with explicit restrictions that specify how the assets are to be used and gifts of cash or other assets that must be used to acquire long-lived assets are reported as temporarily restricted net assets. Absent explicit donor stipulations about how long-lived assets must be maintained, expirations of donor restrictions are reported when the donated or acquired long-lived assets are placed in service.

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
Notes to Combined Financial Statements
September 30, 2015 and 2014

Intangible Assets

Intangible assets primarily include deferred financing costs relating to bond financing. Deferred financing costs are amortized using the imputed interest method over the repayment period of the bonds.

The Foundation reviews its intangible and other long-lived assets annually to determine potential impairment. In performing the review, the Foundation estimates the future cash flows expected to result from the use of the asset and its eventual disposition. If the sum of the expected future cash flows is less than the carrying amount of the asset, an impairment is recognized.

Other Current Assets

Other current assets primarily include prepaid expenses, research receivables and inventories. Inventories are stated at average cost.

Investments and Investment Income

The Foundation records its investments in marketable securities at market value as determined by closing sale prices on national securities exchanges or closing bid prices on over the counter markets. The Foundation records its purchases and sales of investments on the trade date, and realized gains and losses are recorded by the Foundation using the average cost basis. Investment income or loss (including realized gains and losses on investments, interest and dividends) is included in the excess of revenues over expenses unless the income or loss is restricted by donor or law.

Investments in limited partnerships, limited liability corporations or common/collective trusts are recorded on the cost basis based on the Foundation's ownership share and rights of the investment. The Foundation does not own any interests in limited partnerships, limited liability corporations and common/collective trusts where the Foundation owns a significant portion of the total net assets of the portfolio or has significant influence. Since many of these investments are not readily marketable, the estimates of fair value involve assumptions and estimation methods which are uncertain, and therefore, the estimate could differ materially from actual results or if a ready market for the investment existed. The cost of these investments at September 30, 2015 and 2014 is \$96,450,564 and \$100,935,064, respectively. The estimated market value of these investments at September 30, 2015 and 2014 is \$114,742,329 and \$123,677,351, respectively.

The Foundation reviews the recoverability of investments quarterly in accordance with generally accepted accounting principles and reviews the carrying value of its investments held. Any impairment on unrestricted investments would be recognized in net realized gains (losses) rather than in the change in unrealized appreciation (depreciation) if a diminution in value considered to be other than temporary were to occur. Accordingly, the Foundation recorded a charge of \$98,909 and \$20,464 for the years ended September 30, 2015 and 2014, respectively, for the decline in fair value of investments considered to be other than temporary. These amounts have been included in net realized gains (losses) on investments on the combined statements of operations.

QLT, Inc. Judgment

On November 6, 2006, the Infirmary received a favorable jury verdict in a case tried in the United States District Court for the District of Massachusetts involving the Infirmary's claims of unjust enrichment and unfair trade practices against QLT, Inc. ("QLT"). The Judge entered final judgment in July 2007 and subsequently QLT filed an appeal. On January 12, 2009, the Federal Appeals Court ruled in favor of the Infirmary on liability and damages. QLT, Inc. chose not to appeal the case further and paid the Infirmary the judgment amount of \$127,094,390 in April 2009. In addition, the Infirmary receives royalty payments related to ongoing product sales. Royalty

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
Notes to Combined Financial Statements
September 30, 2015 and 2014

revenue is treated as deferred revenue when received. Deferred revenue is released to the current period income when used to fund capital or expenses associated with research and academic purposes for the department of Ophthalmology.

Assets Whose Use is Limited

Assets whose use is limited include assets set aside by the Board of Directors in a special cash reserve fund for future capital improvements or other purposes as designated by the Board of Directors, and assets held by trustees under indenture agreements. Also included are assets received from the QLT judgment and funding received from the Department of Defense for sponsored research.

Excess (Deficit) of Revenues Over Expenses

The statements of operations include excess (deficit) of revenues over expenses. Changes in unrestricted net assets which are excluded from excess (deficit) of revenues over expenses, consistent with industry practice, include unrealized gains and losses on investments other than trading securities, changes in accrued pension costs other than net periodic pension costs, permanent transfers of assets to and from affiliates and contributions of long-lived assets (including assets acquired using contributions which by donor restriction were to be used for the purposes of acquiring such assets).

Net Patient Service Revenue

The Foundation has agreements with third-party payors that provide for payments to the Foundation at amounts different from its established rates. Payment arrangements include prospectively determined rates per discharge, reimbursed costs, discounted charges and per diem payments and fee schedules. Net patient service revenue is reported at the estimated net realizable amounts from patients, third-party payors, and others for services rendered, including estimated retroactive adjustments under reimbursement agreements with third-party payors. These adjustments are accrued on an estimated basis in the period the related services are rendered and adjusted in future periods as final settlements are determined (Note 9).

Charity Care

The Foundation provides care to patients who meet certain criteria under its charity care policy without charge or at amounts less than its established rates. Because the Foundation does not pursue collection of amounts determined to qualify as charity care, they are not reported as revenue.

The estimated costs of providing charity care services are determined using a ratio of costs of charges to the gross uncompensated charges associated with providing care to charity patients. The Associates estimated the cost of providing charity care based on the ratio of total expenses divided by gross revenue. For the Infirmary the ratio of costs to charges is calculated using a ratio of FY15 charity care costs to FY15 charity care gross charges. FY15 charity costs are derived from the hospital's internal cost accounting system, which is comprised of a step-down methodology for allocating hospital overhead that is similar to that used for the Medicare Cost Report. All indirect costs are allocated to patient care cost centers, teaching and research. Fully loaded patient care costs are allocated to patients using billed units, and unit costs and allocation algorithms specific to each cost center. Charity care includes the payment to the Health Safety Net (HSN).

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
Notes to Combined Financial Statements
September 30, 2015 and 2014

Charity care of \$2,902,944 and \$1,385,455, measured at the Foundation's cost, was provided for the years ended September 30, 2015 and 2014, respectively. In FY14, the Infirmary received payments totaling \$361,694 from the HSN pool, thus reducing the charity care figure. This payment was primarily related to delayed processing of FY13 HSN claims due to the State's conversion to a new system.

Tax Status

The Foundation and its affiliates qualify as tax-exempt organizations under the Internal Revenue Code. The Foundation, Infirmary, Associates, Schepens and Embankment are tax-exempt under Section 501(c)(3) of the Internal Revenue Code and Circle is tax-exempt under 501(c)(25) of the Internal Revenue Code. Accordingly, no provision for income taxes has been made in the accompanying financial statements. Management has evaluated accounting for uncertainty in income tax position and there was no impact to the Foundation's financial statements for the year ended September 30, 2015.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Management considers critical accounting policies to be those that require more significant judgments and estimates in the preparation of the financial statements including, but not limited to, recognition of net patient service revenue and patient accounts receivable, which includes contractual allowances and provision for bad debts, estimates for healthcare professional liabilities and estimated third-party liabilities. Management relies on historical experience and other assumptions believed to be reasonable relative to the circumstances in making judgments and estimates. Actual results could differ from those estimates.

Recently Issued Accounting Pronouncements

In May 2014, the FASB issued ASU 2014-09, Revenue from Contracts with Customers, a principles-based standard to recognize revenue from customer contracts. ASU 2014-09 is effective for the Foundation's fiscal year ending September 30, 2018. The Foundation is evaluating the impact that the ASU may have on its consolidated financial statements.

In April 2015, the Financial Accounting Standards Board ("FASB") issued guidance which requires debt issuance costs to be presented in the balance sheet as a direct deduction from the associated debt liability. This guidance is effective for financial statements issued for fiscal years beginning after December 15, 2015, and interim periods within those fiscal years. Early adoption is permitted and is to be applied on a retrospective basis. The Company does not expect that this guidance will have a material impact on its consolidated financial statements.

In May 2015, the FASB issued ASU 2015-07, Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or its Equivalent). This guidance removes the requirement to categorize within the fair value hierarchy all investments for which fair value is measured using the net asset value per share practical expedient. The amendments also remove the requirement to make certain disclosures for all investments that are eligible to be measured at fair value using the net asset value per share practical expedient. This guidance is effective for the Foundation's fiscal year ending September 30, 2018, however, this guidance can be early adopted. The Foundation has not early adopted and is evaluating the impact that this ASU may have on its current fair value disclosures.

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
Notes to Combined Financial Statements
September 30, 2015 and 2014

Subsequent Events

In December 2015, The Foundation entered into a Loan and Security Agreement with Citizens Bank. The Massachusetts Development Finance Agency issued bonds which were purchased directly by three banks including Citizens Bank, whom will act as the sole Agent for all transactions with The Foundation. Under this agreement, The Foundation has access to borrow up to \$55,000,000 for capital expenditures. The Foundation will pay interest only for the first three years, with the principal amortized over nineteen years. The bonds have variable interest rates, but were swapped at closing with an interest rate swap, synthetically fixing the interest rate 3.59%.

Under this agreement, the Foundation also refinanced the existing Pool-O loans. The Pool-O loans were refinanced for the amount of \$15,394,000 which will be amortized over a period of 22 years using the swap rate of 3.59%. Also under the agreement with Citizens, the Foundation has access to \$15,000,000 if needed, to fund future acquisitions or major capital expenditures.

The Foundation has evaluated other subsequent events through January 25, 2016, the date of the financial statements issuance, and determined that subsequent events are properly reflected within the financial statements and notes.

3. Investments and Assets Whose Use is Limited

Investments consist of the following at September 30, 2015:

	On Cost Method	At Fair Value	Total
Cash and cash equivalents	\$ -	\$ 59,455,288	\$ 59,455,288
Bonds	10,710,504	7,396,641	18,107,145
Equity securities	54,972,888	26,980,574	81,953,462
Investment in limited partnerships	29,917,172	-	29,917,172
Other	850,000	37,664	887,664
	<u>\$ 96,450,564</u>	<u>\$ 93,870,167</u>	<u>\$ 190,320,731</u>

Investments consist of the following at September 30, 2014:

	On Cost Method	At Fair Value	Total
Cash and cash equivalents	\$ -	\$ 26,238,711	\$ 26,238,711
Bonds	10,392,268	9,022,890	19,415,158
Equity securities	53,002,943	38,044,589	91,047,532
Investment in limited partnerships	37,089,853	-	37,089,853
Other	450,000	37,864	487,864
	<u>\$ 100,935,064</u>	<u>\$ 73,344,054</u>	<u>\$ 174,279,118</u>

The cost of investments held at fair value at September 30, 2015 and 2014 is \$94,410,890 and \$69,646,498, respectively.

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The Foundation is obligated to make capital investments in private equity funds. Gross commitments to private equity funds total \$44,263,000. The Foundation had unfunded commitments of approximately \$7,478,449 and \$9,809,637 at September 30, 2015 and 2014, respectively.

Fair Value Measurements

The Foundation applies fair value accounting guidance which defines fair value, establishes a framework for measuring fair value under generally accepted accounting principles and enhances disclosures about fair value measurements. Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset in an orderly transaction between market participants on the measurement date.

This fair value guidance establishes a hierarchy of valuation inputs based on the extent to which the inputs are observable in the marketplace. Observable inputs reflect market data obtained from sources independent of the reporting entity and unobservable inputs reflect the entities own assumptions about how market participants would value an asset or liability based on the best information available. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The standard describes a fair value hierarchy based on three levels of inputs, of which the first two are considered observable and the last unobservable, that may be used to measure fair value.

The following describes the hierarchy of inputs used to measure fair value and the primary valuation methodologies used by the Foundation for financial instruments measured at fair value on a recurring basis. The three levels of inputs are as follows:

- Level 1 Quoted prices in active markets for identical assets or liabilities.
- Level 2 Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the same term of the assets or liabilities.
- Level 3 Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

Assets and liabilities measured at fair value are based on one or more of three valuation techniques noted in the fair value accounting guidance. The three valuation techniques are as follows:

Market Approach

Prices and other relevant information generated by market transactions involving identical or comparable assets or liabilities;

Cost Approach

Amount that would be required to replace the service capacity of an asset (i.e., replacement cost);

Income Approach

Techniques to convert future amounts to a single present amount based on market expectations (including present value techniques).

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A financial instrument's categorization within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement.

The following table presents the financial instruments carried at fair value as of September 30, 2015, by caption on the Balance Sheet by the valuation hierarchy defined above:

	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total Fair Value
Investments				
Cash and cash equivalents	\$ 59,455,288	\$ -	\$ -	\$ 59,455,288
Bonds	7,396,641	-	-	7,396,641
Equity securities	22,347,710	4,632,864	-	26,980,574
Other	-	-	37,664	37,664
Total investments	89,199,639	4,632,864	37,664	93,870,167
Remainder interest in charitable trusts	-	-	451,826	451,826
Beneficial interest in trusts	-	-	15,128,979	15,128,979
Assets whose use is limited	-	-	-	-
cash and cash equivalents	13,495,331	-	-	13,495,331
Total assets whose use is limited	13,495,331	-	15,580,805	29,076,136
Total assets at fair value	\$ 102,694,970	\$ 4,632,864	\$ 15,618,469	\$ 122,946,303

The following table presents the financial instruments carried at fair value as of September 30, 2014, by caption on the Balance Sheet by the valuation hierarchy defined above:

	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total Fair Value
Investments				
Cash and cash equivalents	\$ 26,238,711	\$ -	\$ -	\$ 26,238,711
Bonds	9,022,890	-	-	9,022,890
Equity securities	32,320,345	5,724,244	-	38,044,589
Other	-	-	37,864	37,864
Total investments	67,581,946	5,724,244	37,864	73,344,054
Remainder interest in charitable trusts	-	-	509,677	509,677
Beneficial interest in trusts	-	-	16,255,998	16,255,998
Assets whose use is limited	-	-	-	-
cash and cash equivalents	15,678,982	-	-	15,678,982
Total assets whose use is limited	15,678,982	-	16,765,675	32,444,657
Total assets at fair value	\$ 83,260,928	\$ 5,724,244	\$ 16,803,539	\$ 105,788,711

In addition to the investments noted above, the Foundation holds at September 30, 2015 and 2014 \$96,450,564 and \$100,935,064, respectively, in alternative investments using the cost method. These investments are not subject to fair value accounting. Please refer to Note 2.

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Beneficial interests in perpetual trusts and assets in split interest agreements and charity remainder trusts are valued by the trustees of the agreements and are based on valuation of the underlying marketable securities or for those securities which do not have a readily determinable fair value by the trustee based on appraisals or other estimates which require judgment. These balances are included within Level 3. The primary unobservable inputs used in the fair value measurement of the perpetual trust assets are the underlying securities held by the trust. Significant fluctuation in the discount rates utilized in this calculation could result in a material change in fair value.

The methods described above may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while the Foundation believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a materially different estimate of fair value at the reporting date.

The following table is a roll-forward of the statement of financial position amounts for financial instruments classified by the Foundation within Level 3 of the fair value hierarchy defined above:

	Remainder Interest in Charitable Trusts	Beneficial Interest in Trusts	Other Investments	Total Level 3 Assets
Fair value at September 30, 2013	\$ 509,080	\$ 15,399,928	\$ 38,792	\$ 15,947,800
Purchases				
Sales	-	-	(14,588)	(14,588)
Realized gains, net	-	-	13,660	13,660
Change in value of charitable remainder and perpetual trusts	597	856,070	-	856,667
Fair value at September 30, 2014	509,677	16,255,998	37,864	16,803,539
Purchases				
Sales	-	-	(574,049)	(574,049)
Realized gains, net	-	-	573,849	573,849
Change in value of charitable remainder and perpetual trusts	(57,851)	(1,127,019)	-	(1,184,870)
Fair value at September 30, 2015	<u>\$ 451,826</u>	<u>\$ 15,128,979</u>	<u>\$ 37,664</u>	<u>\$ 15,618,469</u>

All net realized gains in the table above are reflected in the accompanying Combined Statement of Operations. There were no unrealized gains (losses) associated with Level 3 investments at September 30, 2015 and 2014. The changes in value of charitable remainder trusts and perpetual trusts are reflected in the Statement of Changes in Net Assets.

Transfers from Level 3 to Level 2 typically would involve investments, or portions of investments, in investment vehicles recorded at fair value having redemption terms that provide for liquidity within the 6 months following the reporting period. The Foundation's policy is to recognize transfers as of the end of the year. As of September 30, 2015 and 2014, the Foundation did not record any transfers from Level 3 to Level 2.

As of September 30, 2015 and 2014, the Foundation did not record any transfers between Level 1 and Level 2.

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In 1996, the Foundation invested in a start-up company. During 2015 and 2014, the Foundation realized net gains of \$573,849 and \$14,588 respectively, in its investment and received a cash payment representing the Foundation's share of the profits received from the sale of said technology by the inventor.

Assets whose use is limited consists of the following at September 30:

	2015		2014	
	Cost	Fair Value	Cost	Fair Value
Current asset designation				
Internally designated funds				
Special cash reserves	\$ 1,468,186	\$ 1,468,186	\$ 477,308	\$ 477,308
Externally limited funds				
Under indenture agreement	95,952	95,952	99,436	99,436
Construction funds	13	13	3,671,296	3,671,296
QLT judgment fund	676,982	676,982	7,171	7,171
Funds held for research	1,310,606	1,310,606	476,269	476,269
Total current assets whose use is limited	<u>\$ 3,551,739</u>	<u>\$ 3,551,739</u>	<u>\$ 4,731,480</u>	<u>\$ 4,731,480</u>
Long-term asset designation				
Internally designated funds				
Special cash reserves	<u>\$ 2,697,242</u>	<u>\$ 2,697,242</u>	<u>\$ 3,738,309</u>	<u>\$ 3,738,309</u>
	<u>2,697,242</u>	<u>2,697,242</u>	<u>3,738,309</u>	<u>3,738,309</u>
Externally limited funds				
Under indenture agreement	7,246,350	7,246,350	7,209,193	7,209,193
Construction funds	-	-	-	-
	<u>7,246,350</u>	<u>7,246,350</u>	<u>7,209,193</u>	<u>7,209,193</u>
Total long-term assets whose use is limited	<u>\$ 9,943,592</u>	<u>\$ 9,943,592</u>	<u>\$ 10,947,502</u>	<u>\$ 10,947,502</u>

Investment income is shown in the combined Statement of Operations net of expenses of \$534,289 and \$456,846 for the years ended September 30, 2015 and 2014, respectively.

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4. Property, Plant and Equipment

Property, plant, and equipment consists of the following at September 30:

	2015	2014
Land and land improvements	\$ 899,134	\$ 1,077,844
Buildings and improvements	237,751,071	223,595,914
Fixed equipment	44,676,354	43,056,807
Major movable equipment	84,990,548	130,127,795
Minor movable equipment	15,814,145	21,121,249
Leasehold improvements	19,084,734	18,930,987
Construction in progress	10,365,418	13,898,888
	<u>413,581,404</u>	<u>451,809,484</u>
Less: Accumulated depreciation	<u>(236,117,351)</u>	<u>(274,419,447)</u>
	<u>\$ 177,464,053</u>	<u>\$ 177,390,037</u>

Included in property, plant and equipment as of September 30, 2015 and 2014 are assets under capital leases for major movable equipment with a cost of \$8,782,659 and \$8,605,026, respectively, and related accumulated amortization of \$5,134,517 and \$4,940,905, respectively.

Interest expense capitalized as a component of the cost of assets constructed is \$3,301,071 and \$2,989,313 for the years ended September 30, 2015 and 2014, respectively.

Depreciation expense amounted to \$22,974,850 and \$21,072,138 for the years ended September 30, 2015 and 2014, respectively, of which \$21,376,800 and \$19,476,209 related to the Obligated Group (Note 4).

In July 2015 The Foundation sold the Charles Street Garage property. Cash proceeds from the sale were \$39,714,460. The subsequent gain recognized was \$39,155,554; the gain is included in Other Revenue and Gains on the Statement of Operations.

5. Pledges Receivable

Unconditional promises to donate to the Foundation in the future are recorded as pledges receivable in the year promised at the present value of expected cash flows. Pledges receivable included in the financial statements at September 30 are expected to be realized as follows:

	2015	2014
One year or less (included in other current assets)	\$ 6,857,973	\$ 6,131,627
Between one and five years	5,876,831	6,836,986
More than five years	-	-
Less: Discount and allowance for uncollectible pledges	<u>(615,400)</u>	<u>(703,231)</u>
Pledges receivable	<u>\$ 12,119,404</u>	<u>\$ 12,265,382</u>

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Due to uncertainties with regard to their realizability and valuation, bequest intentions and other conditional promises to give are not estimated by management and are recognized as assets only if and when the conditions upon which they depend are met. Conditional pledges at September 30, 2015 and 2014 are \$2,481,603 and \$355,000 respectively.

6. Long-Term Debt

Long-term debt consists of the following at September 30:

	2015	2014
Mass Development Finance Agency (MDFA) Series O-1 Pool Fund with principal payments ranging from \$582,491 in 2006 to \$1,316,957 in 2020 with a variable interest rate (.034% at September 30, 2015)	\$ 5,939,157	\$ 6,933,105
MDFA Series O-1 Pool Fund #2 with principal payments of \$1,523,077 commencing in 2009 through 2021 with a variable interest rate (.034% at September 30, 2015)	9,230,390	10,768,620
MDFA Bonds, Series C, with principal payments ranging from \$1,700,000 in 2015 to \$4,735,000 in 2035 with interest rates varying from 5.00% to 5.375%	60,370,000	62,070,000
MDFA note payable	-	5,006
Citizens Bank Agreement with principal payments commencing in 2015 through 2020 with an interest amount equal to the Libor rate plus 1.5%	4,579,388	-
Series B Revenue Bond (Century Subsidiary Investments, Inc. III) commencing in 2010 through 2031 with an interest rate of 4.79%, collateralized by building, equipment and machinery	8,509,536	8,858,683
Mass General Hospital deferred credit construction loan with principal payments commencing in 2003 through 2017 with interest rate of 11.5%	2,871,160	3,880,471
Century Bank Line of Credit with prime interest rate of 3.25%	-	500,000
	91,499,631	93,015,885
Discount	(427,127)	(448,483)
Less: Current portion	(6,526,802)	(6,070,490)
	<u>\$ 84,545,702</u>	<u>\$ 86,496,912</u>

Aggregate maturities on long-term debt are as follows:

2016	\$ 6,526,801
2017	6,826,239
2018	6,203,289
2019	5,923,152
2020	7,321,926
Thereafter	58,698,224
	<u>\$ 91,499,631</u>

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In February 2005, the Obligated Group (Foundation, Infirmary, Associates) borrowed \$13,695,000 from a pool of bonds issued by MDFA. MDFA issued these bonds on October 1, 2004 under the title of Capital Asset Program Issue, Series M-3A (2004), Pool 3 (the "Series M-3A Bonds"). The Obligated Group utilized the proceeds of the Series M-3A Bonds to fund various facility improvements. The net proceeds of this debt issuance have been fully spent as of September 30, 2013.

In June 2007, the Obligated Group borrowed \$20,000,000 from a pool of bonds issued by MDFA. MDFA issued these bonds on March 1, 2007 for the purpose of financing and refinancing the cost of Eligible Projects for Participating Institutions, Series M3-D (2007), Pool 3 (the "Series M-3D Bonds"). The Obligated Group utilized the proceeds of the Series M-3D Bonds to fund various facility renovations and equipment acquisitions. The net proceeds of this debt issuance have been fully spent as of September 30, 2013.

In July 2009, the debt issued under Pools M-3A and M-3D were converted to debt under MDFA Pools O-1 and O-1 #2, respectively, to reflect changes in the underlying bank letters of credit that support the pools. The terms of the loans were otherwise unchanged.

The MDFA Pools O-1 and O-1 #2 Bonds are variable rate demand bonds ("VRDBs") that are supported by two irrevocable letters of credit ("LOCs"). The LOCs are provided by a financial institution to secure bond repayment and interest obligations with an original maturity date of December 31, 2014. Prior to maturity of these LOCs, the Foundation extended their maturity to December 31, 2016. In the event that a VRDB cannot be remarketed, the bond may be "put" to the LOC provider, resulting in a loan to the Foundation to fund the redemption of the bond. As of September 30, 2015, the Foundation has used VRDBs backed by bank LOCs for a number of years during which time there have been no instances where a bond failed to be remarketed and was put back to the Foundation.

In September 2010, the Obligated Group issued \$63,690,000 of MDFA bonds (the "Series C bonds"), for the purpose of financing capital projects. The bonds are collateralized by a mortgage on the Infirmary's main building located at 243 Charles Street, Boston.

Also in September 2010, the Obligated Group secured a MDFA loan agreement for \$231,059. The proceeds are used to finance energy efficient measures to be installed at the main hospital building at 243 Charles Street. Principal is paid in installments over the period of November 2010 through October of 2014.

The Obligated Group is jointly and severally liable for all obligations. Each member of the Obligated Group has granted a lien on all of its gross receipts, subject to certain limitations, to the master trustee. The indenture agreement contains a covenant against the creation of certain liens in favor of any party on certain property of the Obligated Group. The Master Trust places limits on additional borrowings and requires the Obligated Group to maintain a minimum debt service coverage ratio of 1.10.

As of September 30, 2015 and 2014, the Foundation held \$7,342,302 and \$7,308,629 in various funds as required under the terms of the Master Trust Agreement and various bond documents. These funds are included in assets whose use is limited on the balance sheet.

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The fair value of the Foundation's debt is estimated primarily based on quoted market prices for the same or similar issues and would be classified as Level 2. The fair value of the Foundation's bonds and notes payable at September 30, 2015 and 2014 is approximately \$96,461,810 and \$96,992,156, respectively.

In January of 2015 the Obligated Group entered into an agreement with Citizens Bank to borrow up to \$8M. Subsequently, in December 2015 MEE received approval from Citizens to increase the available amount to \$9.5M. The primary purpose of the agreement was to provide a source of funding for the PeopleSoft and Epic software projects and their related costs. The funds are intended to be used for costs including, but not limited to, equipment, software, consultants, temporary help, resource backfilling, and other related costs. The equipment and software purchased as part of the agreement, \$4,692,430 as of September 30th, 2015, serves as collateral. The interest amount is equal to the LIBO rate plus 1.50%. As of September 30th, 2015 the payback amount was \$56,271 per month. This amount is subject to change during FY16 as additional funds are requested. The final due date of the agreement is July 1, 2020.

On December 30, 2010, Schepens issued \$10,000,000 of revenue bonds, Series B (2010) (the Bonds). The Bonds have an interest rate of 4.79%. Bond principal and interest payments are made monthly to the bond purchaser, Century Subsidiary Investments, Inc. III. The Bonds mature on July 1, 2031. The Bonds are secured by collateral consisting of building, equipment, and machinery. The Bond proceeds have been used to refinance the January 15, 1999 issued Series A revenue bonds. Initially, the Bonds Master Trust Indenture provided for the maintenance of a minimum debt service coverage ratio of 1.10, however, in 2015 Century Bank executed an amendment that eliminated the requirement of a debt service ratio.

In 2003, Schepens entered into an agreement with the Davis Company, now Massachusetts General Hospital, (the Landlord) where the Landlord provided \$10,000,000 to Schepens which was used to renovate the building at 20 Staniford Street. The \$10,000,000 has an interest rate of 11.5% and the last payment is due in January of 2018.

Schepens entered into a line of credit arrangement with Century Bank & Trust Company which carries a maximum possible balance of \$3,000,000. The line of credit has a variable interest rate that is equal to the Bank's designated prime rate, but not less than 3.25%. As of September 30, 2015 and 2014 Schepens has drawn down \$0 and \$500,000 of their line of credit. Collateral used to secure the loan is building, equipment and machinery. The line of credit was renewed in FY14 with an expiration date of April 30, 2015.

7. Functional Expenses

Expenses of the Foundation are functionalized as follows at September 30:

	2015	2014
Patient care and clinical	\$ 230,901,682	\$ 203,546,457
General and administrative	94,185,871	81,152,170
Research	58,034,857	58,342,238
Fundraising	2,167,420	2,145,325
Education	4,074,930	3,954,615
	<u>\$ 389,364,760</u>	<u>\$ 349,140,805</u>

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8. Lease Obligations

The following is a schedule of future minimum lease payments under capital leases, together with the present value of the net minimum lease payments at September 30, 2015:

2016	\$	547,353
2017		547,353
2018		714,924
2019		157,860
Thereafter		<u>131,550</u>
		2,099,040
Interest		<u>(103,916)</u>
	\$	<u>1,995,124</u>

The Infirmary and Associates have entered into operating lease agreements for facility space and equipment. Future minimum rent payments under operating leases are as follows:

2016	\$	9,009,038
2017		8,105,727
2018		6,774,527
2019		5,793,803
2020		5,096,639
Thereafter		<u>66,416,163</u>
	\$	<u>101,195,897</u>

Total rental expense for the years ended September 30, 2015 and 2014 was \$8,675,319 and \$7,664,311, respectively.

9. Patient Service Revenue and Accounts Receivable

Patient service revenue is reported net of contractual allowances and the provision for bad debt as follows for the years ended September 30, 2015 and 2014:

	2015	2014
Gross patient service revenue	\$ 627,579,270	\$ 576,831,671
Less: Contractual allowances	(358,183,686)	(329,712,002)
Less: Provision for bad debt	<u>(8,075,542)</u>	<u>(7,876,353)</u>
Net patient service revenue	<u>\$ 261,320,042</u>	<u>\$ 239,243,316</u>

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Patient service revenue (net of contractual allowance before bad debt) by major payors are summarized as follows for the years ended September 30, 2015 and 2014:

Major Payor	2015	2014
Medicare	\$ 77,189,033	\$ 68,620,826
Blue Cross	65,500,556	64,564,113
Other Third Party	54,864,511	47,520,202
Harvard and Tufts	42,320,572	41,113,785
Self-Pay	11,361,861	10,232,486
Medicaid	7,354,968	7,485,106
Other	10,804,083	7,583,151
	<u>\$ 269,395,584</u>	<u>\$ 247,119,669</u>

Accounts Receivable, prior to adjustment for doubtful accounts, are summarized as follows for the years ended September 30, 2015 and 2014:

Receivables	2015	2014
Patients	\$ 5,447,830	\$ 4,246,505
Third Party	30,566,019	26,174,758
Nonpatient	1,081,768	562,958
	<u>\$ 37,095,617</u>	<u>\$ 30,984,221</u>

Accounts receivable are reduced by an allowance for doubtful accounts. The Foundation uses a trend analysis and a look back approach to estimate the appropriate amount of the provision for bad debt and the reserve for doubtful accounts. The provision for bad debts is established based on a review of the current year's volume, payor, case mix and collectability trends. The amount of the provision is adjusted as required during the year, and a thorough analysis is conducted at year end. The sufficiency of the year-end reserve for doubtful accounts is reviewed by analyzing prior year and current year collection experience by payor. The previous year's bad debt experience is reviewed using a look-back analysis. For the look back, a ratio is computed of the amount of bad debts written off from the previous years' accounts receivable to the amount of accounts receivable of the prior year. Any current year accounts receivable older than 365 days is added to the bad debt allowance. The ratio is applied to year-end accounts receivable net of contractual adjustments. Six month accounts receivable is also reviewed, since an increase in the proportion of six month accounts receivable might indicate a change in collectability compared to the prior year, necessitating an increase to the reserve. The amount and ageing of self-pay accounts receivable compared with prior years is also reviewed. Self-pay accounts receivable includes both patients without insurance and patients with deductible and copayment balances due for which third-party coverage exists for part of the bill. Management regularly reviews contractual adjustment allowances, denials and bad debt reserve requirements at a payor level to ensure that changes in payor mix, co-pays and deductibles and other collectability assumptions are conservatively reserved for.

The Infirmary and Associates have agreements with third-party payors that provide for payments at amounts different from its established rates. A summary of the payment arrangements with major third-party payors follows:

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Medicare

Inpatient acute care services rendered to Medicare program recipients are paid at a prospectively determined rate per discharge. These rates, which are based on the diagnosis-related group (DRG), vary according to the intensity of service required by the patient. Medicare reimburses most hospital outpatient services based on a prospectively determined rate per ambulatory service.

Professional services provided by the Associates to program recipients are paid according to a fee schedule. These fees are based on Current Procedural Terminology ("CPT") codes, which describe the medical, surgical and diagnostic services provided.

NonMedicare

The Infirmary and Associates have entered into payment agreements with certain commercial insurance carriers, health maintenance organizations, and preferred provider organizations. The basis for payment to the Infirmary under these agreements includes prospectively determined rates per case, per diem and discounts from established charges and prospectively determined daily rates. The basis for payment to Associates under these agreements include discounts from established charges and prospectively determined fee schedules based on CPT codes.

Health Safety Net Pool

The Commonwealth of Massachusetts operates a Health Safety Net Pool (the "Pool"), which is funded by an assessment on acute care hospitals based on the amount of private sector charges. Each hospital's liability is adjusted for the cost of caring for Health Safety Net (HSN) patients. Beginning in fiscal year 2008, the value of HSN services was determined through a prospectively determined rate per discharge (inpatient) or encounter (outpatient).

Blue Cross

The Infirmary renegotiated its three year Blue Cross managed care contract in 2011, with an effective date of October 1, 2011. The contract pays the Infirmary for inpatient services based on a DRG methodology and for outpatient services on the basis of a fee schedule for certain services or at a discount from charges. The basis for payment to the Associates under its Blue Cross arrangement is a fee schedule based on CPT codes.

Included in the statement of operations is a decrease/increase in net patient service revenue due to changes in prior years estimated settlements of \$(447,763) and \$106,346 for the years ended September 30, 2015 and 2014, respectively.

10. Pension Plan

The Infirmary had a noncontributory defined benefit pension plan covering substantially all of its employees. The plan was amended February 1, 2004.

The benefits under the plan are based on years of service and the participant's compensation during the final five years of service. The Infirmary's policy is to fund the minimum required contributions under the plan in order to cover all present and future obligations of the plan. Contributions are intended to provide not only for benefits attributed to services to date but also for those expected to be earned in the future. The assets of the plan are invested in a broad range of common stocks, government securities, corporate bonds, limited partnerships and mutual funds.

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The plan was amended on February 1, 2004, whereby, benefits for nongrandfathered active participants consist of (i) the frozen accrued benefit as of January 31, 2004, plus (ii) cash balance accruals for service on and after February 1, 2004 (with a zero initial cash balance; an "A plus B" approach). An additional minimum benefit formula applies for nongrandfathered active participants. Grandfathered active participants continued to earn benefits under the prior plan provisions until January 31, 2009, and then moved into the cash balance plan, which does not have a minimum benefit formula. The midyear amendment was adopted in fiscal year 2004.

The following table sets forth the plan's change in benefit obligation and change in plan assets for the years ended September 30:

	2015	2014
Change in benefit obligation		
Benefit obligation at beginning of year	\$ 122,637,557	\$ 107,805,351
Service cost	5,288,886	4,435,186
Interest cost	4,859,841	4,831,663
Actuarial loss	7,082,293	10,014,913
Benefits paid	(6,341,876)	(4,449,556)
Benefit obligation at end of year	<u>\$ 133,526,701</u>	<u>\$ 122,637,557</u>
Change in plan assets		
Fair value of plan assets at beginning of year	\$ 80,637,864	\$ 72,977,365
Actual (loss)/return on plan assets	(4,950,718)	3,472,124
Employer contribution	8,669,337	8,637,931
Benefits paid	(6,341,876)	(4,449,556)
Fair value of plan assets at end of year	<u>\$ 78,014,607</u>	<u>\$ 80,637,864</u>
Funded status		
Funded status	<u>\$ (55,512,094)</u>	<u>\$ (41,999,693)</u>
Amounts recognized in balance sheet		
Current liability	\$ -	\$ -
Noncurrent liability	<u>(55,512,094)</u>	<u>(41,999,693)</u>
Net amount recognized	<u>(55,512,094)</u>	<u>(41,999,693)</u>
Pension cost recognized in operations net of contributions	<u>(55,512,094)</u>	<u>(41,999,693)</u>
Accrued pension costs on the combined balance sheet	<u>\$ (55,512,094)</u>	<u>\$ (41,999,693)</u>

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Funded Status

The Infirmary accounts for these benefits in accordance with authoritative guidance for employers' accounting for pensions, defined benefit pension and other postretirement plans. The Foundation recognizes a benefit liability for an underfunded plan and a benefit asset for an overfunded plan, with offsetting impacts to unrestricted net assets. At September 30, 2015, the Foundation's pension plan had an unfunded status of \$55,512,094. Additionally, please note the following amounts recognized in unrestricted net assets:

	2015	2014
Net actuarial loss	47,444,061	34,368,522
Unrestricted net assets	<u>\$ 47,444,061</u>	<u>\$ 34,368,522</u>

Other changes in plan assets and benefit obligations recognized in unrestricted net assets are as follows:

	2015	2014
New actuarial loss	\$ 17,591,900	\$ 11,581,798
Amortization of net loss in unrestricted net assets	<u>(4,516,361)</u>	<u>(3,625,026)</u>
Total pension-related charges other than net periodic pension cost	<u>\$ 13,075,539</u>	<u>\$ 7,956,772</u>

The amounts expected to be recognized as components of net periodic cost in the following year are as follows:

Amortization of net actuarial loss	<u>5,200,000</u>
Amounts to be recognized in the following year	<u>\$ 5,200,000</u>

The Infirmary expects to contribute \$8,120,000 to the plan in fiscal year 2016.

Included in the table below is additional year-end information for the pension plan and benefit obligations in excess of plan assets at the actuarial valuation date of September 30.

	2015	2014
Accumulated benefit obligation	\$ 126,870,050	\$ 116,501,034

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The following table sets forth the plan's components of net periodic benefit cost for the years ended September 30:

	2015	2014
Service cost	\$ 5,288,886	\$ 4,435,186
Interest cost	4,859,841	4,831,663
Expected return on plan assets	(5,558,889)	(5,039,009)
Unrecognized net loss	4,516,361	3,625,026
Net periodic benefit cost	<u>\$ 9,106,199</u>	<u>\$ 7,852,866</u>

Actuarial assumptions used in determining the benefit obligation and net periodic benefit cost were as follows as of and for the years ended September 30:

	2015	2014
Benefit obligation at September 30		
Discount rate	4.00 %	4.00 %
Salary increase	3.50 %	3.50 %
Net periodic benefit cost for the year ended September 30		
Discount rate	4.00 %	4.50 %
Salary increase	3.50 %	3.50 %
Expected long-term rate of return	6.90 %	7.50 %

Expected benefit payments, net of participant contributions are as follows:

2016	\$ 9,751,000
2017	10,509,000
2018	9,120,000
2019	8,285,000
2020	9,792,000
2021–2025	43,165,000

In selecting the long-term rate of return on assets, the Foundation considered the plan's target allocation to each of the major asset classes in the fund and the expected future earnings on these asset classes. Earnings assumptions were long-term in nature and were based on historical risk premiums, current valuation levels, and expected future inflation rates. The historical risk premiums were evaluated over various cumulative and rolling time periods. This basis is consistent with prior years.

The goal of the investment strategy is to achieve a rate of return equal to or better than a benchmark comprised of the asset classes with weightings as defined below. The Foundation believes that the diversification of these investments will keep risk levels within a tolerable range.

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The following lists the plan's asset allocation at September 30, 2015 and 2014:

	2015	2014	Target Percentages
Asset category			
Equity securities	31 %	30 %	30 %
Alternative investments	45	43	50
Fixed income	24	27	20
	<u>100 %</u>	<u>100 %</u>	<u>100 %</u>

The hierarchy and inputs to valuation techniques to measure fair value of the Plan's assets are the same as outlined in Note 3. The following table sets forth the Foundation Plans' investments that were accounted for at fair value as of September 30, 2015 and September 30, 2014:

	Assets at Fair Value as of September 30, 2015			
	Level 1	Level 2	Level 3	Total
Mutual funds				
Short-term bonds	\$ 8,464,359	\$ -	\$ -	\$ 8,464,359
Equity energy funds	-	-	-	-
Diversified emerging markets	959,141	-	-	959,141
	<u>9,423,500</u>	<u>-</u>	<u>-</u>	<u>9,423,500</u>
Equity securities	<u>9,006,248</u>	<u>2,940,162</u>	<u>-</u>	<u>11,946,410</u>
Private equity and senior loan funds				
Senior loan fund	-	-	7,956,497	7,956,497
Real estate	-	-	1,236,628	1,236,628
Emerging market smaller companies	1,737,402	-	2,646,624	4,384,026
Diversified international funds	-	-	11,894,540	11,894,540
	<u>1,737,402</u>	<u>-</u>	<u>23,734,289</u>	<u>25,471,691</u>
Limited partnerships				
Diversified international	-	-	7,469,322	7,469,322
Diversified domestic	-	-	2,021,724	2,021,724
Domestic equity	-	-	2,939,641	2,939,641
Fund of funds	-	-	-	-
Mid cap growth	-	-	3,711,077	3,711,077
	<u>-</u>	<u>-</u>	<u>16,141,764</u>	<u>16,141,764</u>
Money market funds	<u>15,031,242</u>	<u>-</u>	<u>-</u>	<u>15,031,242</u>
Total plan assets at fair value	<u>\$ 35,198,392</u>	<u>\$ 2,940,162</u>	<u>\$ 39,876,053</u>	<u>\$ 78,014,607</u>

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	Assets at Fair Value as of September 30, 2014			
	Level 1	Level 2	Level 3	Total
Mutual funds				
Short-term bonds	\$ 8,302,510	\$ -	\$ -	\$ 8,302,510
Equity energy funds	2,949,469	-	-	2,949,469
Diversified emerging markets	2,187,421	-	-	2,187,421
	<u>13,439,400</u>	<u>-</u>	<u>-</u>	<u>13,439,400</u>
Equity securities	7,347,121	3,311,056	-	10,658,177
Private equity and senior loan funds				
Senior loan fund	-	-	3,010,124	3,010,124
Real estate	-	-	1,695,900	1,695,900
Emerging market smaller companies	2,146,688	-	2,281,375	4,428,063
Diversified international funds	-	-	12,425,147	12,425,147
	<u>2,146,688</u>	<u>-</u>	<u>19,412,546</u>	<u>21,559,234</u>
Limited partnerships				
Diversified international	-	-	7,544,814	7,544,814
Diversified domestic	-	-	4,007,646	4,007,646
Domestic equity	-	-	4,919,811	4,919,811
Fund of funds	-	-	-	-
Mid cap growth	-	-	2,605,071	2,605,071
	<u>-</u>	<u>-</u>	<u>19,077,342</u>	<u>19,077,342</u>
Money market funds	15,903,711	-	-	15,903,711
Total plan assets at fair value	<u>\$ 38,836,920</u>	<u>\$ 3,311,056</u>	<u>\$ 38,489,888</u>	<u>\$ 80,637,864</u>

The table below sets forth a summary of changes in the fair value of Plan's Level 3 assets for the year ended September 30, 2015:

	Private Equity Funds	Limited Partnerships
Balance beginning of year	\$ 19,412,546	\$ 19,077,342
Realized gains	608	237,699
Unrealized gains	(1,838,542)	(313,420)
Gross purchases	6,216,880	(2,859,857)
Gross Sales	(57,203)	-
Balance, end of year	<u>\$ 23,734,289</u>	<u>\$ 16,141,764</u>

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The table below sets forth a summary of changes in the fair value of Plan's Level 3 assets for the year ended September 30, 2014:

	Private Equity Funds	Limited Partnerships
Balance beginning of year	\$ 17,676,959	\$ 20,663,023
Realized gains	229,068	1,067,521
Unrealized gains	965,708	609,809
Gross purchases	633,842	552,397
Gross Sales	(93,031)	(3,815,408)
Balance, end of year	<u>\$ 19,412,546</u>	<u>\$ 19,077,342</u>

Transfers from Level 3 to Level 2 typically would involve investments, or portions of investments, in investment vehicles recorded at fair value having redemption terms that provide for liquidity within the six months following the reporting period. The Foundation's policy is to recognize transfers as of the end of the year. There are no known transfers between levels to recognize for the year ended September 30, 2015.

The following table presents liquidity information for the Pension Plan investments Asset Value as of September 30, 2015:

Investment Type	Fair Value	Redemption Frequency	Notice Period
Mutual funds	9,423,500	Daily	1
Equity securities	\$ 11,946,410	Daily to monthly	1
Private equity and senior loan funds	\$ 25,471,691	Monthly to 30 months	7-60 days
Limited partnerships	\$ 16,141,764	Monthly to 30 months	7-60 days
Money market	<u>\$ 15,031,242</u>	Daily	1
	<u>78,014,607</u>		

11. Defined Contribution Retirement Plans

The Associates maintains a defined contribution retirement plan covering physicians, research associates, and optometrists employed by the Associates and the Infirmary. Subject to certain limitations, the plan provides for employer contributions ranging from 11% to 20% of participants' earnings. Vesting occurs after one year of service. Contributions to the plan for the years ended September 30, 2015 and 2014 totaled \$4,692,936 and \$4,320,338, respectively.

Schepens made contributions to a qualified defined-contribution retirement plan for full-time employees with at least two years of service. Contributions to the plan were made monthly and were based upon the compensation of the participants. Participants were fully vested immediately upon admission to the plan. Contributions to the plan for the years ended September 30, 2015 and 2014 totaled \$504,505 and \$787,915, respectively. As of Dec 31, 2014, no further contributions were made to the Schepens plan. Participants in this plan were moved to either the Mass Eye and Ear plan or to the Associate's plan if they were faculty members.

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12. Temporarily and Permanently Restricted Net Assets

Temporarily restricted net assets are available for the following purposes at September 30:

	2015	2014
Realized gains from donor restricted funds	\$ 13,502,849	\$ 18,407,073
Research	26,355,855	22,419,529
Other	4,535,463	4,070,330
Unrealized gains from donor restricted funds	1,994,823	2,981,115
Educational	2,058,896	2,248,230
Patient care	814,920	856,655
	<u>\$ 49,262,806</u>	<u>\$ 50,982,932</u>

Permanently restricted net assets are restricted as to the following at September 30:

	2015	2014
Investments to be held in perpetuity, the income of which is expendable for patient care, teaching and research activities of the Infirmary, Schepens and Associates	\$ 57,095,364	\$ 56,622,903
Beneficial interest in trusts	15,128,979	16,255,998
	<u>\$ 72,224,343</u>	<u>\$ 72,878,901</u>

13. Commitments and Contingencies

The Foundation participates with other Harvard-affiliated medical institutions in the operation of a captive insurance company, Controlled Risk Insurance Company, Ltd. (CRICO). The Foundation currently maintains an internal risk management program and carries claims-made malpractice insurance coverage. The Foundation purchases its malpractice and general liability insurance through the Controlled Risk Insurance Company of Vermont, Inc. ("CRICO"), a Risk Retention Group based in Burlington, VT at rates determined annually. Currently, CRICO provides primary coverage of \$5,000,000 per claim and a \$10,000,000 annual aggregate for professional liability for each individual insured, and \$5,000,000 per claim with no annual aggregate for general liability. CRICO retains liability under this coverage of \$3,000,000 per claim for professional liability and general liability. Excess coverage is provided with limits of \$105,000,000 per claim and \$105,000,000 annual aggregate. These excess limits are reinstated once over the \$3,000,000 primary coverage. In addition, each year CRICO issues a policy to extend the current tail liability coverage (unasserted claims) related to physicians who have left the Foundation or the Infirmary. Total amounts accrued under these programs as long-term liabilities approximate \$8,024,786 and \$7,531,524 at September 30, 2015 and 2014 respectively. Amounts recognized as insurance receivables are measured on the same basis and are included in other assets on the combined balance sheet. The Foundation recognized insurance receivables of \$6,422,844 and \$6,032,009 at September 30, 2015 and 2014 respectively. In determining the ultimate cost, the Foundation has used a 4.0% and 4.5% discount rate at September 30, 2015 and 2014, respectively.

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In April 2012, the Foundation entered into an Affiliation Agreement with the Joslin Diabetes Center. Both the Foundation and Joslin are committed to providing the highest quality ophthalmology and related care to their patients with or at risk for diabetes and have shared clinical, teaching and research goals. The organizations will collaborate with respect to their individual areas of expertise in order to benefit patients with or at risk for diabetes who have ophthalmology related illness. The Foundation has committed to providing fees of \$450,000 per year for professional services, goods, facilities, and licensing arrangements. The organizations will share in the financial risks and rewards of the arrangement in a manner consistent with the collaborative nature of the agreement. The agreement has an initial period that terminates September 30, 2021 with options for additional renewal periods.

In 2013 the Foundation agreed to pay a \$1,500,000 fine to the Department of Health and Human Services (HHS) to address allegations that the Foundation failed to comply with certain requirements of the Health Insurance Portability and Accountability Act (HIPAA) standards that govern the security of electronic individually identifiable health information (the "Security Rule"). The review of the Foundation by the U.S. Department of Health and Human Services (HHS) was triggered by the hospital's proactive self-reporting of a doctor's unencrypted laptop being stolen while he was traveling abroad in 2010. The Foundation has no indication that any patients were harmed by this isolated incident. As a result of that incident, the Foundation cooperated extensively with HHS as HHS conducted an investigation of the hospital's compliance with the federal standards under the Health Insurance Portability and Accountability Act (HIPAA.) The agreement with HHS requires the Foundation to enter into a Corrective Action Plan (CAP), which includes a risk assessment, the review and revision of policies and procedures, and the provision of training to staff. The Foundation has implemented many of the elements of the CAP as part of ongoing programs to safeguard the health information of patients. The fine was paid over a 3-year period with the final installment of \$500,000 completed in October 2014.

The health care industry is subjected to numerous laws and rules of federal, state and local governments. Recently, government activity has increased with respect to investigations and allegations concerning possible violations by health care providers of billing rules. Such investigations and reviews may or may not result in the imposition of significant fines and penalties as well as significant repayments for patient services previously billed. Compliance with such laws and rules can be subject to future government review and interpretations as well as regulatory actions unknown or unasserted at this time.

14. QLT Judgment

On November 6, 2006, the Massachusetts Eye and Ear Infirmary (the "Infirmary") received a favorable jury verdict in a case tried in the United States District Court for the District of Massachusetts involving the Infirmary's claims of unjust enrichment and unfair trade practices against QLT, Inc. The Judge entered final judgment in July 2007 and subsequently QLT filed an appeal. On January 12, 2009, the federal appeals court ruled in favor of the Infirmary on liability and damages. QLT, Inc. chose not to appeal the case further and paid the judgment in the amount of \$127,094,390 in April 2009.

In fiscal year 2009, the Infirmary recognized as revenue the amount of \$64,748,745, which represented reimbursement for expenses related to the litigation, and amounts due to the inventors and the Infirmary under the terms of the Infirmary's policy on distribution of royalties from intellectual property. The Infirmary also recognized \$47,496,289 of expenses which included legal expenses that had not been recognized in previous periods because they were under a contingency agreement, as well as the amounts due to the inventors.

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The balance of the judgment has been recorded as deferred revenue. Federal regulations require that revenue received from intellectual property, the development of which was financed through National Institute of Health grants, be used for support of the institution's research and academic programs. The revenue is recognized as resources are expended for programs that meet the guidelines in the federal regulations.

On September 24, 2012 QLT, Inc. divested of the business of the commercial product, Visudyne, which is the product that gave rise to judgment against QLT. In fiscal year 2015, the Foundation recognized revenue in the amount of \$2,994,328 which included \$453,973 of new royalty income received during the year attributable to the Infirmary and the inventors and \$2,039,350 of previously deferred revenue. In fiscal year 2014, the Foundation recognized revenue in the amount of \$13,254,740 which included \$475,290 of new royalty income received during the year attributable to the Infirmary and the inventors and \$12,282,540 of previously deferred revenue.

In the fiscal year 2015, the Infirmary used \$1,014,445 from the resources for the institution's academic and research programs and consequently recognized this amount as revenue. At September 30, 2015 and 2014, the balance of deferred revenue was \$13,280,726 and \$14,295,172 respectively. The related assets are included in Investments on the Combined Balance Sheets as of September 30, 2015 and 2014 (Note 3).

15. Concentrations of Credit Risk

The Foundation grants credit without collateral to its patients, most of whom are local residents and are insured under third-party payor agreements. The Foundation has not historically incurred any significant credit losses outside the normal course of business.

The mix in patient accounts receivable as of September 30, 2015 and 2014, before allowances for doubtful accounts, consisted of the following:

	2015	2014
Managed care	44 %	40 %
Medicare and Medicaid	32	40
Other	10	9
Self-pay patients	8	7
Commercial insurance	6	4
	<u>100 %</u>	<u>100 %</u>

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The following table categorizes payors into seven groups and their respective percentages of gross patient service revenue for the years ended September 30, 2015 and 2014:

Major Payor	2015	2014
Medicare	34 %	34 %
Blue Cross	24	23
Other Third Party	21	20
Harvard & Tufts	14	15
Medicaid	4	5
Other	2	2
Self-Pay	1	1
	<u>100 %</u>	<u>100 %</u>

16. Components of Net Assets and Endowment

Endowments

The Foundation's endowment consists of approximately 200 individual donor restricted endowment funds and 23 board-designated endowment funds for a variety of purposes plus the following where the assets have been designated for endowment: pledges, receivables, split interest agreements, and other net assets. The endowment includes both donor-restricted endowment funds and funds designated by the Board of Directors to function as endowments. The net assets associated with endowment funds including funds designated by the Board of Directors to function as endowments, are classified and reported based on the existence or absence of donor imposed restrictions.

The Board of Directors of the Foundation has interpreted the "Uniform Prudent Management of Institutional Funds Act" (UPMIFA) as requiring the preservation of the original gift as of the gift date of the donor-restricted endowment funds absent explicit donor stipulations to the contrary. As a result of this interpretation, the Foundation classifies as permanently restricted net assets, (a) the original value of gifts donated to the permanent endowment, (b) the original value of subsequent gifts to the permanent endowment, and (c) accumulations to the permanent endowment made in accordance with the direction of the applicable donor gift instrument at the time the accumulation is added to the fund. The remaining portion of the donor-restricted endowment fund that is not classified in permanently restricted net assets is classified as temporarily restricted net assets until those amounts are appropriated for expenditure of the Foundation in a manner consistent with the standard of prudence prescribed by UPMIFA. In accordance with UPMIFA, the Foundation considers the following factors in making a determination to appropriate or accumulate endowment funds:

- (1) The duration and preservation of the fund.
- (2) The purposes of the Foundation and the donor restricted endowment fund.
- (3) General economic conditions.
- (4) The possible effect of inflation and deflation.
- (5) The expected total return from income and the appreciation of investments.

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(6) Other resources of the Foundation.

(7) The investment policies of the Foundation.

The Foundation had the following endowment activities during the year ended September 30, 2015 delineated by net asset class and donor-restricted versus Board-designated funds:

Changes in endowment net assets for the year ended September 30, 2015:

	Board- Designated Unrestricted	Donor-Restricted Endowment Temporarily Restricted	Permanently Restricted	Total
Endowment net assets at beginning of year	\$ 4,895,458	\$ 21,388,187	\$ 52,228,006	\$ 78,511,651
Investment return				
Investment income	13,217	299,921	-	313,138
Net appreciation (realized and unrealized)	(30,357)	(557,247)	-	(587,604)
Total investment return	(17,140)	(257,326)	-	(274,466)
Gifts and pledges	-	-	1,229,040	1,229,040
Net releases from restriction	(1,219,862)	(5,633,189)	-	(6,853,051)
Endowment net assets at end of year	<u>\$ 3,658,456</u>	<u>\$ 15,497,672</u>	<u>\$ 53,457,046</u>	<u>\$ 72,613,174</u>

Changes in endowment net assets for the year ended September 30, 2014:

	Board- Designated Unrestricted	Donor-Restricted Endowment Temporarily Restricted	Permanently Restricted	Total
Endowment net assets at beginning of year	\$ 7,458,817	\$ 28,264,235	\$ 51,481,612	\$ 87,204,664
Investment return				
Investment income	130,215	(97,622)	-	32,593
Net appreciation (realized and unrealized)	242,036	4,840,065	-	5,082,101
Total investment return	372,251	4,742,443	-	5,114,694
Gifts and pledges	-	-	746,394	746,394
Net releases from restriction	(2,935,610)	(11,618,491)	-	(14,554,101)
Endowment net assets at end of year	<u>\$ 4,895,458</u>	<u>\$ 21,388,187</u>	<u>\$ 52,228,006</u>	<u>\$ 78,511,651</u>

Description of Amounts Classified as Permanently Restricted Net Assets and Temporarily Restricted Net Assets (Endowments Only).

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Permanently Restricted Net Assets

The portion of perpetual endowment funds that is required to be retained permanently by explicit donor stipulation:

	2015	2014
Restricted for general use	\$ 13,303,660	\$ 13,291,788
Restricted for research	25,555,662	24,607,484
Restricted for department use	6,066,556	5,934,068
Restricted for patient care	5,915,062	5,860,956
Restricted for education	2,616,106	2,533,710
	<u>\$ 53,457,046</u>	<u>\$ 52,228,006</u>

Temporarily Restricted Net Assets

	2015	2014
Term endowment funds		
Restricted for general use	\$ (346,012)	\$ 830,770
Restricted for research	10,351,318	13,857,294
Restricted for department use	3,217,250	3,767,675
Restricted for patient care	2,284,878	2,783,172
Restricted for education	(9,763)	149,276
	<u>\$ 15,497,671</u>	<u>\$ 21,388,187</u>

From time to time, the fair value of assets associated with individual donor-restricted endowment funds may fall below the value of the initial and subsequent donor gift amounts (deficit). When donor endowment deficits exist, they are classified as a reduction of unrestricted net assets. Deficits of this nature reported in unrestricted net assets were \$631,022 and \$48,908 as of September 30, 2015 and 2014, respectively. These deficits resulted from unfavorable market fluctuations that occurred shortly after the investment of newly established endowments, and authorized appropriation that was deemed prudent.

The Foundation has adopted endowment investment and spending policies that attempt to provide a predictable stream of funding to programs supported by its endowment while seeking to maintain the purchasing power of endowment assets. Under this policy, the return objective for the endowment assets, measured over a full market cycle, shall be to maximize the return against a blended index, based on the endowment's target allocation applied to the appropriate individual benchmarks. The Foundation expects its endowment funds over time, to provide an average rate of return of approximately 5% plus inflation annually. Actual returns in any given year may vary from this amount.

To achieve its long-term rate of return objectives, the Foundation relies on a total return strategy in which investment returns are achieved through both capital appreciation (realized and unrealized gains) and current yield (interest and dividends). The Foundation targets a diversified asset allocation that places greater emphasis on equity-based investments to achieve its long-term objectives within prudent risk constraints.

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The Board of Directors of the Foundation determines the method to be used to appropriate endowment funds for expenditure. Calculations are performed for individual endowment funds at a rate of 5% of the rolling 12 quarter average market value. The corresponding calculated spending allocations are distributed in equal quarterly installments on the first day of each quarter from the current net total or accumulated net total investment returns for individual endowment funds. In establishing this policy, the Board considered the expected long-term rate of return on its endowment. Accordingly, over the long term, the Foundation expects the current spending policy to allow its endowment to grow at least by the rate of inflation annually, consistent with its intention to maintain the purchasing power of the endowment assets as well as to provide additional real growth through new gifts.

Supplementary Combining Schedules

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
Combining Balance Sheet
September 30, 2015

	Foundation	Infirmary	Associates	Eliminations and Reclassifications	Obligated Group	Schepens	Circle	Embankment	Eliminations and Reclassifications	Combined
Assets										
Current assets										
Cash and equivalents	\$ 1,874,227	\$ 1,824,021	\$ 2,654,792	\$ -	\$ 6,353,040	\$ 34,671	\$ 1,285,600	\$ 339,578	\$ -	\$ 8,012,889
Assets whose use is limited	-	3,551,739	-	-	3,551,739	-	-	-	-	3,551,739
Patient accounts receivable, less allowance for doubtful accounts of \$6,436,343	-	20,851,137	9,838,137	-	30,689,274	-	-	-	-	30,689,274
Other current assets	6,857,973	9,259,070	728,893	-	16,845,936	1,646,069	12,098	88,425	-	18,592,528
Due from affiliates	-	22,160,534	6,292,242	(23,027,698)	5,425,078	17,831,515	-	-	(23,056,593)	-
Total current assets	8,732,200	57,648,501	19,514,064	(23,027,698)	62,865,087	19,312,255	1,297,698	428,003	(23,056,593)	60,846,430
Assets whose use is limited										
Construction fund	-	-	-	-	-	-	-	-	-	-
Special cash reserves and capital reserves	-	2,334,500	-	-	2,334,500	-	362,742	-	-	2,697,242
OLT judgment funds	-	-	-	-	-	-	-	-	-	-
Under indenture agreement	-	6,480,219	-	-	6,480,219	766,131	-	-	-	7,246,350
Total assets whose use is limited	-	8,814,719	-	-	8,814,719	766,131	362,742	-	-	9,943,592
Investments	187,591,657	-	37,664	-	187,629,321	2,691,410	-	-	-	190,320,731
Pledges receivable, net	5,261,431	-	-	-	5,261,431	-	-	-	-	5,261,431
Remainder interest in charitable trusts	375,026	-	-	-	375,026	76,800	-	-	-	451,826
Beneficial interest in trust	15,128,979	-	-	-	15,128,979	-	-	-	-	15,128,979
Property, plant and equipment, net	16,095,932	137,847,296	1,094,851	-	155,037,879	19,319,814	3,106,360	-	-	177,464,053
Other assets	-	-	-	-	-	-	-	-	-	-
Investment interest in Foundation	-	219,572,271	-	(219,572,271)	-	-	-	-	-	-
Investment interest in Schepens	22,279,331	-	-	-	22,279,331	-	-	-	(22,279,331)	-
Intangible assets and other assets, net of accumulated amortization of \$ 2,111,507	-	1,363,619	-	-	1,363,619	-	-	-	-	1,363,619
Deposits and other assets	3,000,000	6,849,986	5,071,738	-	15,021,724	545,938	-	-	-	15,567,662
Total assets	\$ 258,464,556	\$ 432,194,392	\$ 25,718,117	\$ (242,599,969)	\$ 473,777,096	\$ 42,712,348	\$ 4,766,800	\$ 428,003	\$ (45,335,924)	\$ 476,348,323

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
Combining Balance Sheet
September 30, 2015

	Foundation	Infirmary	Associates	Eliminations and Reclassifications	Obligated Group	Schepens	Circle	Embankment	Eliminations and Reclassifications	Combined
Liabilities and Net Assets										
Current liabilities										
Current portion of long-term debt and capital lease obligations	\$ -	\$ 5,531,702	\$ -	\$ -	\$ 5,531,702	\$ 1,500,399	\$ -	\$ -	\$ -	\$ 7,032,101
Accounts payable and accrued expenses	38,539	40,093,840	4,753,515	-	44,885,894	3,137,317	6,287	320,556	-	48,350,054
Accrued interest	-	778,221	-	-	778,221	-	-	-	-	778,221
Estimated third-party payors settlements	-	7,854,958	-	-	7,854,958	-	-	-	-	7,854,958
Due to affiliates	38,251,902	2,327,706	79,605	(23,027,698)	17,631,515	5,294,134	6,127	124,817	(23,056,593)	-
Total current liabilities	38,290,441	56,586,427	4,833,120	(23,027,698)	76,682,290	9,931,850	12,414	445,373	(23,056,593)	64,015,334
Long-term debt and capital lease obligations, less current portion										
Asset retirement obligation	-	76,155,230	-	-	76,155,230	9,880,296	-	-	-	86,035,526
Deferred CLT revenue	-	13,280,726	-	-	13,280,726	-	-	-	-	13,280,726
Other long term liabilities	601,844	10,939,419	-	-	11,541,263	620,871	-	-	-	12,162,134
Professional liability reserve	-	2,595,221	5,429,565	-	8,024,786	-	-	-	-	8,024,786
Accrued pension costs	-	55,512,094	-	-	55,512,094	-	-	-	-	55,512,094
Total liabilities	38,892,285	215,069,117	10,262,685	(23,027,698)	241,196,389	20,433,017	12,414	445,373	(23,056,593)	239,030,600
Net assets										
Unrestricted for general operations	66,948,884	49,330,238	13,480,576	(66,948,884)	62,810,814	1,828,262	4,754,386	(17,370)	(1,828,262)	67,547,830
Board designated	31,136,238	46,307,888	1,974,856	(31,136,238)	48,282,744	496,576	-	-	(496,576)	48,282,744
Total unrestricted net assets	98,085,122	95,638,126	15,455,432	(98,085,122)	111,093,558	2,324,838	4,754,386	(17,370)	(2,324,838)	115,830,574
Temporarily restricted	49,262,806	49,262,806	-	(49,262,806)	49,262,806	7,942,775	-	-	(7,942,775)	49,262,806
Permanently restricted	72,224,343	72,224,343	-	(72,224,343)	72,224,343	12,011,718	-	-	(12,011,718)	72,224,343
Total net assets	219,572,271	217,125,275	15,455,432	(219,572,271)	232,580,707	22,279,331	4,754,386	(17,370)	(22,279,331)	237,317,723
Total liabilities and net assets	\$ 258,464,556	\$ 432,194,392	\$ 25,718,117	\$ (242,599,969)	\$ 473,777,096	\$ 42,712,348	\$ 4,766,800	\$ 428,003	\$ (45,335,924)	\$ 476,346,323

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
Combining Statement of Operations
Year Ended September 30, 2015

	Foundation	Infirmary	Associates	Eliminations and Reclassifications	Obligated Group	Schepens	Circle	Embankment	Eliminations and Reclassifications	Combined
Unrestricted revenue and gains										
Net patient service revenue (net of contractual allowances and discounts)	\$ -	\$ 167,332,489	\$ 102,304,300	\$ (241,205)	\$ 269,395,584	\$ -	\$ -	\$ -	\$ -	\$ 269,395,584
Provision for bad debts	-	(3,810,922)	(4,264,620)	-	(6,075,542)	-	-	-	-	(6,075,542)
Net patient service revenue less provision for bad debts	-	163,521,567	98,039,680	(241,205)	263,319,042	-	-	-	-	261,320,042
Research direct revenue	-	25,032,444	-	(558,480)	24,473,964	9,433,289	-	-	(655,719)	33,251,534
Research indirect revenue	-	7,428,509	-	-	7,428,509	6,525,079	-	-	-	13,953,588
Contributions	1,375,746	3,468,726	-	-	4,844,472	2,133,426	-	-	-	6,977,898
Investment income	2,050,353	-	-	-	2,154,494	69,329	1,404	-	-	2,225,227
Institutional support	-	104,141	-	-	-	-	-	-	(3,064,228)	-
Net assets released from restriction used for operations	-	7,137,871	16,690,715	(23,828,586)	-	3,064,228	-	-	(629,368)	15,036,071
CLT revenue	13,118,713	6,562,753	275,778	(6,641,531)	13,118,713	2,847,326	-	-	-	2,894,326
Other revenue and gains	39,756,021	2,894,326	3,743,061	(16,814)	57,016,377	-	1,726,862	3,011,504	(1,454,988)	60,940,815
Total unrestricted revenue	56,301,433	229,784,248	118,752,234	(31,486,616)	373,351,299	24,713,737	1,728,266	3,011,504	(6,104,603)	396,699,903
Expenses										
Salaries and wages	588,125	71,324,373	73,990,641	-	145,813,139	2,059,738	100,361	1,097,362	-	149,070,600
Fringe benefits	146,474	19,552,036	15,730,585	-	35,429,075	206,988	26,182	-	-	35,662,245
CLT expenses	-	3,846,687	-	-	3,846,687	-	-	-	-	3,846,687
Supplies and other expenses	4,956,718	89,053,682	27,131,146	(258,019)	120,863,727	4,531,536	664,794	1,607,045	(1,454,988)	126,232,114
Institutional support	20,896,616	12,716,992	948,705	(30,670,117)	3,994,186	-	-	-	(3,994,186)	-
Depreciation and amortization	625,083	20,663,247	86,470	-	21,376,800	1,251,019	347,031	-	-	22,974,850
Interest	-	2,768,171	-	-	2,768,171	786,090	-	-	-	3,554,261
Research and other expenditures	-	32,755,033	-	(658,480)	32,186,553	16,067,063	-	-	(655,719)	47,607,917
Total expenses	27,313,016	252,784,401	117,799,527	(31,486,616)	356,410,328	24,902,454	1,138,368	2,704,407	(6,104,603)	389,050,654
(Loss) income from operations	28,988,417	(23,000,153)	952,707	-	6,940,971	(188,717)	589,898	307,097	-	7,649,249
Other gains (losses)										
Net realized gains on investments	1,401,989	378,395	-	-	1,780,383	2,380	-	-	-	1,782,773
Change in interest of Foundation	(614,699)	25,554,496	-	(25,554,496)	-	-	-	-	614,699	-
Change in interest of Schepens	-	-	-	-	(614,699)	-	-	-	-	-
Total other gains, net	787,290	25,932,891	-	(25,554,496)	1,165,684	2,380	-	-	614,699	1,782,773
(Deficit) excess of revenues over expenses	29,775,706	2,932,738	952,707	(25,554,496)	8,106,655	(188,327)	589,898	307,097	614,699	9,432,022
Other support										
Transfer from (to) affiliate, net	(5,127,908)	5,568,952	(41,044)	-	400,000	-	(400,000)	-	-	-
Net assets released from restriction for the purchase of property, plant and equipment	906,696	-	-	-	906,696	17,395	(558,907)	-	-	365,186
Change in unrealized (depreciation) appreciation on investments	(1,447,321)	(1,940,729)	-	1,447,521	(1,940,729)	(445,767)	-	-	-	(2,386,496)
Adjustment for pension and postretirement-related charges other than net periodic pension cost	-	(13,075,539)	-	-	(13,075,539)	-	-	-	-	(13,075,539)
Total (decrease) increase in unrestricted net assets	\$ 24,106,675	\$ (6,514,378)	\$ 911,663	\$ (24,106,675)	\$ (5,602,915)	\$ (614,699)	\$ (389,009)	\$ 307,097	\$ 614,699	\$ (5,664,327)

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
Combining Balance Sheet
September 30, 2014

	Foundation	Infirmary	Associates	Eliminations and Reclassifications	Obligated Group	Schepens	Circle	Embankment	Eliminations and Reclassifications	Combined
Assets										
Current assets										
Cash and equivalents	\$ 644,123	\$ 566,415	\$ 339,476	\$ -	\$ 1,550,014	\$ 634,674	\$ 862,743	\$ 201,750	\$ -	\$ 3,249,181
Assets whose use is limited	-	4,731,480	-	-	4,731,480	-	-	-	-	4,731,480
Patient accounts receivable, less allowance for doubtful accounts of \$4,230,684	-	18,396,611	8,362,926	-	26,753,537	-	-	-	-	26,753,537
Other current assets	5,517,185	9,375,889	1,222,718	-	16,115,792	1,298,221	18,853	99,894	-	17,532,760
Due from affiliates	-	23,365,037	6,585,294	(28,675,660)	1,274,671	18,230,860	58,020	-	(19,563,551)	-
Total current assets	6,161,308	56,429,432	16,510,414	(28,675,660)	50,425,494	20,163,755	939,616	301,644	(19,563,551)	52,266,958
Assets whose use is limited										
Construction fund	-	-	-	-	-	-	-	-	-	-
Special cash reserves and capital reserves	-	3,335,000	-	-	3,335,000	-	403,309	-	-	3,738,309
QLT judgment funds	-	-	-	-	-	-	-	-	-	-
Under indenture agreement	-	6,443,828	-	-	6,443,828	765,365	-	-	-	7,209,193
Total assets whose use is limited	-	9,778,828	-	-	9,778,828	765,365	403,309	-	-	10,947,502
Investments	170,850,185	-	37,864	-	170,888,049	3,391,069	-	-	-	174,279,118
Pledges receivable, net	6,133,755	-	-	-	6,133,755	-	-	-	-	6,133,755
Remainder interest in charitable trusts	414,520	-	-	-	414,520	95,157	-	-	-	509,677
Beneficial interest in trust	16,255,998	-	-	-	16,255,998	-	-	-	-	16,255,998
Property, plant and equipment, net	16,721,017	135,347,328	1,395,631	-	153,463,976	20,081,888	3,844,173	-	-	177,390,037
Other assets	-	-	-	-	-	-	-	-	-	-
Investment interest in Foundation	-	197,479,980	-	(197,479,980)	-	-	-	-	-	-
Investment interest in Schepens	23,938,254	-	-	-	23,938,254	-	-	-	(23,938,254)	-
Intangible assets and other assets, net of accumulated amortization of \$2,022,878	-	1,452,248	-	-	1,452,248	-	-	-	-	1,452,248
Deposits and other assets	3,000,000	6,191,916	4,772,605	-	13,964,521	599,219	-	-	-	14,563,740
Total assets	\$ 243,475,037	\$ 406,679,732	\$ 22,718,514	\$ (226,155,640)	\$ 446,715,643	\$ 45,096,453	\$ 5,187,098	\$ 301,644	\$ (43,501,805)	\$ 453,799,033

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
Combining Balance Sheet
September 30, 2014

	Foundation	Infirmary	Associates	Eliminations and Reclassifications	Obligated Group	Schepens	Circle	Embankment	Eliminations and Reclassifications	Combined
Liabilities and Net Assets										
Current liabilities										
Current portion of long-term debt and capital lease obligations	\$ -	\$ 4,623,479	\$ -	\$ -	\$ 4,623,479	\$ 1,858,377	\$ -	\$ -	\$ -	\$ 6,481,856
Accounts payable and accrued expenses	191,415	28,357,743	3,249,897	-	31,799,055	4,380,010	32,133	237,634	-	36,448,832
Accrued interest	-	227,267	-	-	227,267	-	-	-	-	227,267
Estimated third-party payors settlements	-	3,912,860	-	-	3,912,860	-	-	-	-	3,912,860
Due to affiliates	45,184,950	117,211	-	(28,675,660)	16,626,501	2,861,832	846	74,372	(19,563,551)	-
Total current liabilities	45,376,365	37,238,560	3,249,897	(28,675,660)	57,189,162	9,100,219	32,979	312,006	(19,563,551)	47,070,815
Long-term debt and capital lease obligations, less current portion										
Asset retirement obligation	-	76,374,713	-	-	76,374,713	11,380,777	-	-	-	87,755,490
Deferred QLT revenue	-	-	-	-	-	-	30,723	-	-	30,723
Other long term liabilities	-	14,295,172	-	-	14,295,172	-	-	-	-	14,295,172
Professional liability reserve	618,692	8,148,381	-	-	8,767,073	677,203	-	-	-	9,444,276
Accrued pension costs	-	2,608,676	4,922,848	-	7,531,524	-	-	-	-	7,531,524
	-	41,999,693	-	-	41,999,693	-	-	-	-	41,999,693
Total liabilities	45,995,057	180,665,195	8,172,745	(28,675,660)	206,157,337	21,158,199	63,702	312,006	(19,563,551)	208,127,693
Net assets										
Unrestricted for general operations	42,644,649	50,982,981	12,568,913	(42,644,649)	63,551,894	1,787,047	5,123,396	(10,362)	(1,787,047)	68,664,928
Board designated	31,333,498	51,169,723	1,974,656	(31,333,498)	53,144,579	1,152,490	-	-	(1,152,490)	53,144,579
Total unrestricted net assets	73,978,147	102,152,704	14,543,769	(73,978,147)	116,696,473	2,939,537	5,123,396	(10,362)	(2,939,537)	121,809,507
Temporarily restricted	50,622,932	50,982,932	-	(50,622,932)	50,962,932	8,986,999	-	-	(8,986,999)	50,982,932
Permanently restricted	72,878,901	72,878,901	-	(72,878,901)	72,878,901	12,011,718	-	-	(12,011,718)	72,878,901
Total net assets	197,479,980	226,014,537	14,543,769	(197,479,980)	240,558,306	23,938,254	5,123,396	(10,362)	(23,938,254)	245,671,340
Total liabilities and net assets	\$ 243,475,037	\$ 406,679,732	\$ 22,716,514	\$ (226,155,640)	\$ 446,715,643	\$ 45,096,453	\$ 5,187,098	\$ 301,644	\$ (43,501,805)	\$ 453,799,033

Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
Combining Statement of Operations
Year Ended September 30, 2014

	Foundation	Infirmary	Associates	Eliminations and Reclassifications	Obligated Group	Schepens	Circle	Embankment	Eliminations and Reclassifications	Combined
Unrestricted revenue										
Net patient service revenue (net of contractual allowances and discounts)	\$ -	\$ 155,143,148	\$ 82,216,686	\$ (240,165)	\$ 247,119,669	\$ -	\$ -	\$ -	\$ -	\$ 247,119,669
Provision for bad debts	-	(3,125,803)	(4,750,450)	-	(7,876,353)	-	-	-	-	(7,876,353)
Net patient service revenue less provision for bad debts	-	152,017,245	87,466,236	(240,165)	239,243,316	-	-	-	-	239,243,316
Research direct revenue	-	23,826,765	-	(217,989)	23,608,776	10,797,204	-	-	(1,558,691)	32,847,269
Research indirect revenue	-	7,012,603	-	-	7,012,603	6,585,311	-	-	-	13,607,914
Contributions	1,772,069	3,115,737	-	-	4,887,806	1,364,147	-	-	-	6,251,953
Investment income	1,539,713	57,039	-	-	1,596,752	169,621	1,445	-	-	1,767,818
Institutional Support	-	2,142,969	15,402,875	(17,545,844)	-	734,729	-	-	(734,729)	-
Net assets released from restriction used for operations	13,339,988	11,157,689	115,000	(11,272,889)	13,339,988	4,855,257	-	-	(50,000)	18,145,245
QLT revenue	-	13,254,740	-	-	13,254,740	-	-	-	-	13,254,740
Other revenue and gains	-	12,549,762	3,907,313	(18,464)	16,439,611	1,038,251	1,888,176	3,112,046	(1,626,362)	20,850,722
Total unrestricted revenue	16,651,770	225,134,549	106,891,424	(29,295,151)	319,382,592	25,554,520	1,889,621	3,112,046	(3,969,782)	345,968,997
Expenses										
Salaries and wages	423,575	66,576,518	68,140,980	-	135,141,073	1,992,685	100,766	1,068,457	-	138,302,961
Fringe benefits	114,953	15,401,453	14,897,068	-	30,413,472	780,228	23,076	308,063	-	31,524,839
QLT expenses	-	864,885	-	-	864,885	-	-	-	-	864,885
Supplies and other expenses	1,651,727	77,507,958	22,052,438	(258,629)	100,953,495	4,696,777	757,075	1,689,574	(1,626,362)	106,470,559
Institutional support	15,841,247	12,873,659	888,356	(28,818,533)	784,729	-	-	-	(784,729)	-
Depreciation and amortization	625,083	18,751,456	99,670	-	19,476,209	1,234,674	361,255	-	-	21,072,138
Interest	-	2,470,353	-	-	2,470,353	877,938	1,532	-	-	3,349,823
Research and other expenditures	-	33,369,347	-	(217,989)	33,151,358	15,962,913	-	-	(1,558,691)	47,555,580
Total expenses	18,656,585	227,815,629	106,078,511	(29,295,151)	323,255,674	25,545,215	1,243,704	3,066,094	(3,969,782)	349,140,805
(Loss) income from operations	(2,004,815)	(2,681,080)	812,913	-	(3,872,682)	9,305	645,917	45,952	-	(3,171,808)
Other gains (losses)										
Net realized gains on investments	2,647,243	1,845,309	-	-	4,292,552	(38,923)	-	-	-	4,253,629
Change in interest of Foundation	-	508,012	-	(508,012)	-	-	-	-	-	-
Change in interest of Schepens	133,638	-	-	-	133,638	-	-	-	(133,638)	-
Total other gains, net	2,780,881	2,153,321	-	(508,012)	4,426,190	(38,923)	-	-	(133,638)	4,253,629
(Deficit) excess of revenues over expenses	776,066	(527,759)	812,913	(508,012)	553,208	(29,610)	645,917	45,952	(133,638)	1,081,821
Other support										
Transfer from (to) affiliate, net	(529,741)	684,099	91,010	-	245,368	154,632	(350,000)	(50,000)	-	-
Net assets released from restriction for the purchase of property, plant and equipment	261,887	-	-	-	261,887	28,617	-	-	-	291,304
Change in unrealized (depreciation) appreciation on investments	(67,930)	(104,714)	-	67,930	(104,714)	(20,993)	-	-	-	(125,707)
Adjustment for pension and postretirement-related charges other than net periodic pension cost	-	(7,956,772)	-	-	(7,956,772)	-	-	-	-	(7,956,772)
Total (decrease) increase in unrestricted net assets	\$ 440,082	\$ (7,905,146)	\$ 903,923	\$ (440,082)	\$ (7,001,223)	\$ 133,638	\$ 295,917	\$ (4,048)	\$ (133,638)	\$ (6,709,354)