NEW ISSUE
Full Book-Entry

RATINGS: Moody's: Aa3/S&P: AA
(See "RATINGS" herein)

In the opinion of Co-Bond Counsel, interest on the 2019 Bonds is excludable from gross income for purposes of federal income tax, assuming continuing compliance with the requirements of federal tax laws. Interest on the 2019 Bonds is not a specific preference item for purposes of the individual federal alternative minimum tax. Co-Bond Counsel are of the further opinion that the 2019 Bonds are exempt from personal property taxes in Pennsylvania and interest on the 2019 Bonds is exempt from Pennsylvania personal income tax and Pennsylvania corporate net income tax under the laws of the Commonwealth of Pennsylvania as enacted and construed on the date of initial delivery of the 2019 Bonds. For a more complete description of federal and state tax matters pertaining to the 2019 Bonds, see "TAX MATTERS" herein.

Penn Medicine

$534,870,000
PENNSYLVANIA HIGHER EDUCATIONAL FACILITIES AUTHORITY
University of Pennsylvania Health System
Health System Revenue Bonds
Series 2019

Dated: Date of Delivery

Due: See Inside Front Cover

The 2019 Bonds will be issued by the Pennsylvania Higher Educational Facilities Authority (the "Authority") under a Trust Indenture dated as of May 1, 1994, as previously amended and supplemented and as further amended and supplemented by a Sixteenth Supplemental Trust Indenture dated as of December 1, 2019 (collectively, and as amended and supplemented from time to time, the "Bond Indenture"), between the Authority and U.S. Bank National Association, Philadelphia, Pennsylvania, as successor bond trustee, paying agent and bond registrar (in such capacities, the "Bond Trustee"). The 2019 Bonds will be payable from and secured by certain funds held by the Bond Trustee under the Bond Indenture and payments to the Bond Trustee, as assignee of the Authority, under the Loan Agreement described herein among the Authority, The Trustees of the University of Pennsylvania (the "University"), Presbyterian Medical Center of the University of Pennsylvania Health System d/b/a Penn Presbyterian Medical Center ("Presbyterian" or "PPMC"), Pennsylvania Hospital of the University of Pennsylvania Health System ("Pennsylvania Hospital"), The Chester County Hospital and Health System ("TCCHHS"), and The Lancaster General Hospital ("LG Hospital"), as borrowers under the Loan Agreement (collectively referred to herein, as the "Borrowers" and, together with Wissahickon Hospice of the University of Pennsylvania Health System d/b/a Penn Medicine at Home ("Wissahickon Hospice"), Clinical Care Associates of the University of Pennsylvania Health System ("CCA"), Lancaster General Health ("LG Health"), Princeton HealthCare System Holding, Inc. ("PHCSH"), Princeton HealthCare System, A New Jersey Nonprofit Corporation ("PHCS") and Princeton HealthCare System Foundation, Inc. ("PHCS Foundation"), as the "Members of the Obligated Group"). In addition, the 2019 Bonds will be payable from amounts to be paid to the Bond Trustee under the 2019 Master Note described herein and issued by the Members of the Obligated Group under the Master Indenture described herein among the Members of the Obligated Group and U.S. Bank National Association, Philadelphia, Pennsylvania, as successor master trustee (in such capacity, the "Master Trustee"). *The obligation of the University, as a Member of the Obligated Group, to make payments under the Loan Agreement and the 2019 Master Note is not a general obligation of the University but is an obligation to make payments solely from certain Property (as defined herein) of HUP and CPUP (as each is described herein) or of any additional Designated Units (as defined herein) established under the Master Indenture.* The obligation of each Member of the Obligated Group, other than the University, to make payments under the Loan Agreement and the 2019 Master Note is a general obligation of such Member of the Obligated Group. The payment obligations of the Members of the Obligated Group under the Master Indenture are secured by a pledge and assignment of the Gross Receipts of the Members of the Obligated Group as further described herein. See "SOURCE OF PAYMENT AND SECURITY FOR THE 2019 BONDS" herein.

The 2019 Bonds will be issued only as fully registered bonds without coupons and, when issued, will be registered in the name of Cede & Co., as registered owner and nominee for The Depository Trust Company, New York, New York ("DTC"). DTC will act as securities depository for the 2019 Bonds. Purchases of beneficial interests in the 2019 Bonds will be made in book-entry form, in denominations of $5,000 or any integral multiple thereof. Purchasers will not receive certificates representing their interest in the 2019 Bonds purchased. So long as Cede & Co. is the registered owner, as nominee of DTC, references herein to the Bondholders or registered owners shall mean Cede & Co., as aforesaid and shall not mean the Beneficial Owners of the 2019 Bonds. See "BOOK-ENTRY SYSTEM" herein.

Interest on the 2019 Bonds will be payable on February 15 and August 15 of each year, commencing February 15, 2020, until maturity or prior redemption as provided herein. The principal and redemption price of, and interest on, the 2019 Bonds will be paid by the Bond Trustee. So long as DTC or its nominee, Cede & Co., is the Bondholder, such payments will be made directly to Cede & Co. Disbursement of such payments to the Beneficial Owners is the responsibility of the Direct Participants and Indirect Participants, as more fully described herein. The 2019 Bonds are subject to redemption as described herein. See "THE 2019 BONDS – Redemption Provisions" herein.

The 2019 Bonds are limited obligations of the Authority. Neither the general credit of the Authority nor the credit or the taxing power of the Commonwealth of Pennsylvania or any political subdivision thereof is pledged for the payment of the principal or redemption price of, and interest on, the 2019 Bonds, nor shall the 2019 Bonds be or be deemed to be general obligations of the Authority or obligations of the Commonwealth of Pennsylvania or any political subdivision thereof, nor shall the Commonwealth of Pennsylvania or any political subdivision thereof be liable for the payment of the principal and redemption price of, and interest on, the 2019 Bonds. The Authority has no taxing power.

MATURITIES, PRINCIPAL AMOUNTS, INTEREST RATES, PRICES, YIELDS AND CUSIPS
(See Inside Front Cover Page)

This cover page contains information for quick reference only. It is not a summary of this issue. Investors must read the entire Official Statement, including the Appendices, to obtain information essential to making an informed investment decision.

The 2019 Bonds are offered when, as and if issued by the Authority and received by the Underwriters, subject to the approving legal opinion of Ballard Spahr LLP and Andre C. Dasent, P.C., each of Philadelphia, Pennsylvania, as Co-Bond Counsel. Certain legal matters will be passed upon for the Authority by its counsel, Barley Snyder LLP, Lancaster, Pennsylvania; for the Obligated Group by Wendy S. White, Esquire, Senior Vice President and General Counsel of the University, Robert P. Macina, Esquire, Executive Vice President, Chief Administrative/Legal Officer and Corporate Secretary of LG Health, and Nancy Fletcher, Esquire, General Counsel Vice President, Corporate Compliance and Enterprise Risk of PHCSH; and for the Underwriters by their counsel, Drinker Biddle & Reath LLP, Philadelphia, Pennsylvania. It is expected that the 2019 Bonds in definitive form will be available for delivery through the facilities of DTC on or about December 5, 2019.

BofA Securities

Jefferies LLC **PNC Capital Markets LLC**

Morgan Stanley **Loop Capital Markets** **Ramirez & Co., Inc.**

Dated: November 14, 2019

$534,870,000
PENNSYLVANIA HIGHER EDUCATIONAL FACILITIES AUTHORITY
UNIVERSITY OF PENNSYLVANIA HEALTH SYSTEM
HEALTH SYSTEM REVENUE BONDS
SERIES 2019

MATURITIES, PRINCIPAL AMOUNTS, INTEREST RATES, PRICES, YIELDS AND CUSIPS

Serial Bonds

Maturity Date (August 15)	Principal Amount	Interest Rate	Price		Yield	CUSIP†
2027	$ 11,660,000	5.000%	123.948		1.670%	70917S6H1
2028	12,765,000	5.000	125.920		1.770	70917S6J7
2029	13,900,000	5.000	127.326		1.900	70917S6K4
2030	15,135,000	5.000	126.416	C	1.990	70917S6L2
2031	16,405,000	5.000	125.314	C	2.100	70917S6M0
2032	17,790,000	5.000	124.717	C	2.160	70917S6N8
2033	13,485,000	5.000	124.223	C	2.210	70917S6P3
2034	6,080,000	4.000	112.748	C	2.510	70917S6Q1
2035	5,110,000	4.000	112.381	C	2.550	70917S6R9
2036	5,685,000	4.000	111.834	C	2.610	70917S6S7
2037	6,260,000	4.000	111.290	C	2.670	70917S6T5
2038	6,910,000	4.000	110.840	C	2.720	70917S6U2
2039	4,940,000	4.000	110.570	C	2.750	70917S6V0

$60,235,000 4.000% Term Bonds Due August 15, 2044, Priced @ 109.411 to Yield 2.880%[C] (CUSIP†: 70917S6W8)

$62,195,000 3.000% Term Bonds Due August 15, 2047, Priced @ 95.985 to Yield 3.220% (CUSIP†: 70917S6X6)

$200,000,000 4.000% Term Bonds Due August 15, 2049, Priced @ 108.617 to Yield 2.970%[C] (CUSIP†:70917S6Y4)

$76,315,000 5.000% Term Bonds Due August 15, 2049, Priced @ 119.593 to Yield 2.690%[C] (CUSIP†:70917S6Z1)

[C] Callable premium bond; priced to first call date of August 15, 2029

† The CUSIP numbers listed on the inside cover page to this Official Statement are being provided solely for the convenience of owners of the 2019 Bonds only, and the Authority does not make any representation with respect to such numbers or undertake any responsibility for their accuracy. The CUSIP numbers are subject to being changed after the issuance of the 2019 Bonds as a result of various subsequent actions including, but not limited to, a refunding in whole or in part of the 2019 Bonds.

PENNSYLVANIA HIGHER EDUCATIONAL FACILITIES AUTHORITY
(Commonwealth of Pennsylvania)
1035 Mumma Road
Wormleysburg, PA 17043

BOARD MEMBERS

Honorable Thomas W. Wolf
Governor of the Commonwealth of Pennsylvania ..... President

Honorable Wayne Langerholc, Jr.
Designated by the President Pro Tempore of the Senate ..... Vice President

Honorable Andrew E. Dinniman
Designated by the Minority Leader of the Senate ..... Vice President

Honorable Curtis G. Sonney
Designated by the Speaker of the House of Representatives ..... Vice President

Honorable Joseph M. Torsella
State Treasurer ..... Treasurer

Honorable Curtis M. Topper
Secretary of General Services ..... Secretary

Honorable Anthony M. DeLuca
Designated by the Minority Leader of the House of Representatives ..... Board Member

Honorable Eugene A. DePasquale
Auditor General ..... Board Member

Honorable Pedro A. Rivera
Secretary of Education ..... Board Member

ACTING EXECUTIVE DIRECTOR
Beverly M. Nawa

AUTHORITY COUNSEL
(Appointed by the Office of General Counsel)
Barley Snyder LLP
Lancaster, Pennsylvania

BOND TRUSTEE AND MASTER TRUSTEE
U.S. Bank National Association
Philadelphia, Pennsylvania

CO-BOND COUNSEL
(Appointed by the Office of General Counsel)

Ballard Spahr LLP
Philadelphia, Pennsylvania

Andre C. Dasent, P.C.
Philadelphia, Pennsylvania

UNIVERSITY COUNSEL
Wendy S. White, Esquire
Senior Vice President and General Counsel of the University

COUNSEL TO UNDERWRITERS
Drinker Biddle & Reath LLP
Philadelphia, Pennsylvania

IN CONNECTION WITH THIS OFFERING THE UNDERWRITERS MAY OVER-ALLOT OR EFFECT TRANSACTIONS THAT STABILIZE OR MAINTAIN THE MARKET PRICE OF THE 2019 BONDS AT A LEVEL ABOVE THAT WHICH MIGHT OTHERWISE PREVAIL IN THE OPEN MARKET. SUCH STABILIZING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME.

THE 2019 BONDS MAY BE OFFERED AND SOLD TO CERTAIN DEALERS (INCLUDING DEALERS DEPOSITING THE 2019 BONDS INTO INVESTMENT ACCOUNTS) AND TO OTHERS AT PRICES LOWER THAN THE PUBLIC OFFERING PRICES AND SAID PUBLIC OFFERING PRICES MAY BE CHANGED FROM TIME TO TIME BY THE UNDERWRITERS WITHOUT PRIOR NOTICE TO THE PUBLIC, BUT WITH PRIOR NOTICE TO THE AUTHORITY AND THE HEALTH SYSTEM.

THE ORDER AND PLACEMENT OF MATERIALS IN THIS OFFICIAL STATEMENT, INCLUDING THE APPENDICES, ARE NOT TO BE DEEMED TO BE A DETERMINATION OF RELEVANCE, MATERIALITY, OR IMPORTANCE, AND THIS OFFICIAL STATEMENT, INCLUDING THE APPENDICES, MUST BE CONSIDERED IN ITS ENTIRETY. THE OFFERING OF THE 2019 BONDS IS MADE ONLY BY MEANS OF THIS ENTIRE OFFICIAL STATEMENT.

The information set forth herein has been obtained from the Pennsylvania Higher Educational Facilities Authority (the "Authority"), The Trustees of the University of Pennsylvania, Presbyterian Medical Center of the University of Pennsylvania Health System d/b/a Penn Presbyterian Medical Center, Pennsylvania Hospital of the University of Pennsylvania Health System, The Chester County Hospital and Health System, The Lancaster General Hospital, Wissahickon Hospice of the University of Pennsylvania Health System d/b/a Penn Medicine at Home, Clinical Care Associates of the University of Pennsylvania Health System, Lancaster General Health, Princeton HealthCare System Holding, Inc., Princeton HealthCare System, A New Jersey Nonprofit Corporation, and Princeton HealthCare System Foundation, Inc., as the Members of the Obligated Group described herein, and from other sources which are believed to be reliable, but the information provided by sources other than the Authority is not guaranteed as to accuracy or completeness by the Authority. The information and expressions of opinions herein are subject to change without notice and neither the delivery of this Official Statement nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in any of the information set forth herein since the date hereof.

The Underwriters have provided the following sentence for inclusion in the Official Statement: The Underwriters have reviewed the information in this Official Statement in accordance with, and as part of, their responsibilities to investors under the federal securities law as applied to the facts and circumstances of this transaction, but the Underwriters do not guarantee the accuracy or completeness of such information.

No dealer, broker, salesperson or other person has been authorized by the Authority, the Underwriters or the Members of the Obligated Group to give any information or to make any representations with respect to the 2019 Bonds, other than those contained in this Official Statement, and if given or made, such other information or representations must not be relied upon as having been authorized by any of the foregoing. This Official Statement does not constitute an offer to sell or the solicitation of any offer to buy any of the 2019 Bonds in any jurisdiction in which it is unlawful to make such an offer, solicitation, or sale.

CAUTION REGARDING FORWARD-LOOKING STATEMENTS

Certain statements included or incorporated by reference in this Official Statement constitute projections or estimates of future events, generally known as forward-looking statements. These statements are generally identifiable by the terminology used such as "plan," "expect," "estimate," "budget" or other similar words. These forward-looking statements include, among others, the information under the caption "CERTAIN FINANCIAL INFORMATION" in APPENDIX A to this Official Statement, and the statements under the captions, "CERTAIN RISK FACTORS" and "REGULATION OF THE HEALTH CARE INDUSTRY" in the forepart of this Official Statement.

The achievement of certain results or other expectations in these forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause actual results, performance or achievements described to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. Neither the Authority nor the Members of the Obligated Group plan to issue any updates or revisions to those forward-looking statements if or when changes in their expectations, or events, conditions or circumstances on which these statements are based occur.

THE 2019 BONDS HAVE NOT BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION (THE "SEC") UNDER THE SECURITIES ACT OF 1933, AS AMENDED, IN RELIANCE UPON THE EXEMPTION CONTAINED IN SECTION 3(A)(4) OF SUCH ACT. THE BOND INDENTURE HAS NOT BEEN QUALIFIED UNDER THE TRUST INDENTURE ACT OF 1939, AS AMENDED, IN RELIANCE UPON AN EXEMPTION CONTAINED IN SUCH ACT.

THE 2019 BONDS HAVE NOT BEEN APPROVED OR DISAPPROVED BY THE SEC OR THE SECURITIES COMMISSION OR ANY REGULATORY AUTHORITY OF ANY STATE, NOR HAS THE SEC OR ANY STATE SECURITIES COMMISSION OR REGULATORY AUTHORITY PASSED UPON OR ENDORSED THE MERITS OF THIS OFFERING OR THE ACCURACY OR THE ADEQUACY OF THIS OFFICIAL STATEMENT. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

Statements in this Official Statement are made as of the date hereof unless stated otherwise and neither the delivery of this Official Statement at any time, nor any sales thereunder, shall under any circumstances create an implication that the information contained herein is correct as of any time subsequent to the date hereof.

The Official Statement will be made available through the Electronic Municipal Market Access system.

Any references to internet websites in this Official Statement are shown for reference and convenience only; unless explicitly stated to the contrary, the information contained within the websites and any links contained within those websites are not incorporated herein by reference and do not constitute part of this Official Statement.

In making an investment decision, investors must rely on their own examination of the University, the Health System and the Obligated Group, and the terms of the offering, including the merits and risks involved. Prospective investors should not construe the contents of this Official Statement as legal, tax or investment advice.

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INTRODUCTION

The following introductory statement is subject in all respects to more complete information contained elsewhere in this Official Statement. Capitalized terms used in this Official Statement that are not otherwise defined herein have the meanings given to them in APPENDIX D hereto.

Purpose of the Official Statement

The purpose of this Official Statement, including the cover pages and the Appendices, is to furnish certain information relating to (1) the Pennsylvania Higher Educational Facilities Authority (the "Authority"), (2) the Authority's University of Pennsylvania Health System Health System Revenue Bonds, Series 2019, in the aggregate principal amount of $534,870,000 (the "2019 Bonds") and (3) the University of Pennsylvania Health System (the "Health System").

The Authority

The Authority is a body corporate and politic, constituting a public corporation and a governmental instrumentality of the Commonwealth of Pennsylvania (the "Commonwealth"), created by the Pennsylvania Higher Educational Facilities Authority Act of 1967 (Act. No. 318 of the General Assembly of the Commonwealth, approved December 6, 1967, as amended) (the "Act"). The Authority's address is 1035 Mumma Road, Wormleysburg, Pennsylvania 17043. The Authority has no taxing power. For additional information concerning the Authority, see "THE AUTHORITY" herein.

University of Pennsylvania Health System

The Health System consists of certain operating divisions of The Trustees of the University of Pennsylvania (the "University") and affiliated entities, including:

- The Hospital of the University of Pennsylvania ("HUP"), a 839 licensed bed (including 32 bassinets) quaternary care hospital and academic medical center located on the campus of the University in the West Philadelphia area of Philadelphia, Pennsylvania;
- Presbyterian Medical Center of the University of Pennsylvania Health System ("Presbyterian" or "PPMC"), d/b/a Penn Presbyterian Medical Center, a 375 licensed bed acute care hospital located adjacent to the campus of the University in the West Philadelphia area of Philadelphia, Pennsylvania;
- Pennsylvania Hospital of the University of Pennsylvania Health System ("Pennsylvania Hospital" or "PAH"), a 525 licensed bed (including 50 bassinets) acute care hospital located in the Center City area of Philadelphia, Pennsylvania;
- The Chester County Hospital and Health System ("TCCHHS"), which includes the Chester County Hospital ("CCH"), a 276 licensed bed (including 32 bassinets) acute care hospital located in the West Chester area, Chester County, Pennsylvania;
- Lancaster General Health ("LG Health"), which, through its controlled affiliates, including The Lancaster General Hospital ("LG Hospital"), operates a regional integrated health system that includes LG Hospital, a 508 licensed bed general acute care hospital in Lancaster, Pennsylvania, Women & Babies Hospital, a 143 licensed bed (including 48 newborn bassinets) women's health

facility located in East Hempfield Township, Pennsylvania, numerous outpatient ambulatory care sites, as well as 14 outpatient centers, six urgent care sites, and a physician practice network with nearly 370 primary care and specialty practices at 50 practice sites, all in the general area of Lancaster, Pennsylvania;

- Princeton HealthCare System Holding, Inc. ("PHCSH"), which, through its controlled affiliates, including Princeton HealthCare System, A New Jersey Nonprofit Corporation ("PHCS") and Princeton HealthCare System Foundation, Inc. ("PHCS Foundation"), operates a regional integrated health system that includes Princeton Medical Center, a 319 licensed bed (including 14 bassinets) acute care hospital located in Plainsboro, New Jersey, Princeton House Behavioral Health, a 110 bed psychiatric and behavioral health facility located in Princeton, New Jersey, and with seven additional outpatient locations;

- The Clinical Practices of the University of Pennsylvania ("CPUP"), the approved faculty practice plan for the clinical practices of 1,884 members of the medical faculty of the Perelman School of Medicine of the University of Pennsylvania;

- Clinical Care Associates of the University of Pennsylvania Health System ("CCA"), a community based physician network currently employing approximately 266 physicians at 64 office locations in Southeastern Pennsylvania and through its New Jersey affiliate in Southern New Jersey; and

- Wissahickon Hospice of the University of Pennsylvania Health System d/b/a Penn Medicine at Home and Penn Medicine Hospice ("Wissahickon Hospice"), a hospice care facility and home health agency, serving the terminally ill and providing home health and palliative care with facilities in Chester County, Bala Cynwyd and Center City Philadelphia, Pennsylvania.

HUP and CPUP are unincorporated operating divisions of the University. PPMC, Pennsylvania Hospital, TCCHHS, Wissahickon Hospice, CCA, LG Health and LG Hospital are separate Pennsylvania nonprofit corporations affiliated with and controlled by the University, and PHCSH, PHCS, and PHCS Foundation are separate New Jersey nonprofit corporations affiliated with and controlled by the University. HUP, CPUP, PPMC, Pennsylvania Hospital, TCCHHS, Wissahickon Hospice, CCA, LG Health, LG Hospital, PHCSH, PHCS and PHCS Foundation are collectively referred to herein as the "Members of the Obligated Group." The University (as to HUP and CPUP), PPMC, Pennsylvania Hospital, TCCHHS and LG Hospital, as the borrowers under the Loan Agreement (as defined below), are referred to herein as the "Borrowers."

The University is an independent non-sectarian research institution of higher education chartered under the laws of the Commonwealth. One of only nine colleges and universities established during the colonial period, the University is the third oldest Ivy League school. It is a privately endowed, gift-supported non-profit institution.

The obligation of the University to make payments under the Loan Agreement and the 2019 Master Note (as defined below) is a limited obligation of the University to make payments solely from the Property of HUP and CPUP (or any additional Designated Units established under the Master Indenture).

This Official Statement includes the cover page, inside cover pages and the attached appendices. APPENDIX A contains certain information on the history, organization, operations, and financial condition of the Health System. APPENDIX B contains certain audited combined financial statements of the Health System. APPENDIX C contains certain general information regarding the University. Prospective purchasers considering a purchase of the 2019 Bonds should read this Official Statement in its entirety.

The 2019 Bonds

The 2019 Bonds are authorized by a resolution of the Authority adopted on October 17, 2019, and will be issued under a Trust Indenture dated as of May 1, 1994, as previously amended and supplemented and as further amended and supplemented by a Sixteenth Supplemental Trust Indenture dated as of December 1, 2019 (collectively, the "Bond Indenture"), between the Authority and U.S. Bank National Association, as successor trustee (in such capacity, the "Bond Trustee"). The 2019 Bonds initially will be issued in the form of one registered bond in the aggregate principal amount of each maturity and will be registered in the name of Cede & Co., as

nominee for The Depository Trust Company, New York, New York ("DTC"). DTC will maintain a book-entry system for recording ownership interests in the 2019 Bonds. See "BOOK-ENTRY SYSTEM" herein.

Plan of Finance

The 2019 Bonds are being issued by the Authority for the purpose of undertaking a project to, among other things, finance or refinance (including to reimburse the Health System for) the costs of various capital projects of the Health System as more particularly described herein.

The proceeds of the 2019 Bonds will be loaned to the Borrowers for the purposes described above pursuant to a Loan Agreement dated as of May 1, 1994, as previously amended and supplemented and as further amended and supplemented by a Fifteenth Supplemental Loan Agreement dated as of December 1, 2019 (collectively, the "Loan Agreement"), between the Authority and the Borrowers. Under the Loan Agreement, the Borrowers will be obligated to make loan payments to the Bond Trustee, as assignee of the Authority, in amounts and at times sufficient, among other things, to pay the principal or redemption price of, and interest on, the 2019 Bonds when due.

See "PLAN OF FINANCE" herein.

Security and Sources of Payment for the 2019 Bonds

The 2019 Bonds are limited obligations of the Authority, payable solely from (1) the loan payments to be made by the Borrowers under the Loan Agreement and (2) certain funds held by the Bond Trustee under the Bond Indenture, and not from any other fund or source of the Authority.

To evidence and secure the payment obligations of the Borrowers with respect to the 2019 Bonds under the Loan Agreement, the Members of the Obligated Group jointly will deliver to the Bond Trustee, as assignee of the Authority, a promissory note (the "2019 Master Note") in a principal amount equal to the aggregate principal amount of the 2019 Bonds. The 2019 Master Note will be issued under a Master Trust Indenture dated as of May 1, 1994, as previously amended and supplemented and as further amended and supplemented by a Twenty-Second Supplemental Master Trust Indenture dated as of December 1, 2019 (collectively, and as amended and supplemented from time to time, the "Master Indenture"), among the Members of the Obligated Group and U.S. Bank National Association, Philadelphia, Pennsylvania, as successor master trustee (in such capacity, the "Master Trustee").

The obligation of the University to make payments under the Loan Agreement and the 2019 Master Note is a limited obligation of the University to make payments solely from the Property of HUP and CPUP (or any additional Designated Units established as provided in the Master Indenture). The obligation of each other Member of the Obligated Group to make payments under the Loan Agreement and the 2019 Master Note is a general obligation of such Member of the Obligated Group.

The payment obligations of the Members of the Obligated Group under the Master Indenture are secured by a pledge and assignment under the Master Indenture of (i) the Gross Receipts (as defined herein) of the Members of the Obligated Group and (ii) the right, title and interest of each Member of the Obligated Group in all deposit accounts to which Gross Receipts are deposited. No mortgage or security interest with respect to any other property of the Members of the Obligated Group will secure payment of the 2019 Bonds.

The Health System is indebted with respect to the revenue bonds of the Authority (collectively referred to as the "Prior PHEFA Bonds") under the Bond Indenture in amounts (as of September 30, 2019) as follows:

Revenue Bonds	Principal Amount
PHEFA University of Pennsylvania Health System Revenue Bonds, Series A of 2008	$ 69,995,000
PHEFA University of Pennsylvania Health System Revenue Bonds, Series A of 2009	12,115,000
PHEFA University of Pennsylvania Health System Revenue Bonds, Series A of 2012	134,650,000
PHEFA University of Pennsylvania Health System Revenue Bonds, Series A of 2014	100,000,000
PHEFA University of Pennsylvania Health System Revenue Bonds, Series A of 2015	257,495,000
PHEFA University of Pennsylvania Health System Revenue Bonds, Series C of 2016	128,435,000
PHEFA University of Pennsylvania Health System Revenue Bonds, Series A of 2017	400,000,000
Total	$ 1,102,690,000

As of September 30, 2019, the Health System was obligated in respect of $2,002,545,000 aggregate principal amount of long-term indebtedness incurred through the issuance of revenue bonds on behalf of the Members of the Obligated Group (including the Prior PHEFA Bonds outstanding under the Bond Indenture) and secured on a parity basis by Master Notes issued under the Master Indenture. As of September 30, 2019, the Members of the Obligated Group were additionally obligated in respect of $95,440,000 aggregate principal amount of other long-term debt constituting general obligations of one or more Members of the Obligated Group, but which are not payable from or secured by Master Notes issued under the Master Indenture. See "SECURITY AND SOURCES OF PAYMENT FOR THE 2019 BONDS" and APPENDIX A: "CERTAIN FINANCIAL INFORMATION – Long Term Debt of the Health System."

The University is currently designated by the Members of the Obligated Group as the "Obligated Group Agent" under the Master Indenture, and is authorized under the Master Indenture, as Obligated Group Agent, to take certain actions on behalf of the Members of the Obligated Group.

See "SECURITY AND SOURCES OF PAYMENT FOR THE 2019 BONDS" herein.

Definitions and Summaries of Documents

Definitions of certain words and terms used in the Official Statement and summaries of the Bond Indenture, the Loan Agreement and the Master Indenture are included in APPENDIX D and APPENDIX E. Such definitions and summaries do not purport to be comprehensive or definitive. All references herein to such documents are qualified in their entirety by reference to the definitive forms of such documents, copies of which may be viewed at the office of the Bond Trustee in Philadelphia, Pennsylvania, and will be provided to any prospective purchaser requesting the same upon payment by such prospective purchaser of the cost of complying with such request.

THE AUTHORITY

The Authority is a body corporate and politic, constituting a public corporation and a governmental instrumentality of the Commonwealth, created by the Act. The Authority's address is 1035 Mumma Road, Wormleysburg, Pennsylvania 17043.

Under the Act, the Authority consists of the Governor of the Commonwealth, the State Treasurer, the Auditor General, the Secretary of Education, the Secretary of the Department of General Services, the President Pro Tempore of the Senate, the Speaker of the House of Representatives, the Minority Leader of the Senate and the Minority Leader of the House of Representatives. The President Pro Tempore of the Senate, the Speaker of the House of Representatives, the Minority Leader of the Senate and the Minority Leader of the House of Representatives may designate a member of their respective legislative bodies to act as a member of the Authority in his or her stead. The members of the Authority serve without compensation, but are entitled to reimbursement for all necessary expenses incurred in connection with the performance of their duties as members. The powers of the Authority are exercised by a governing body consisting of the members of the Authority acting as a board.

The Authority is authorized under the Act to, among other things, acquire, construct, finance, improve, maintain and operate any educational facility (as therein defined), with the rights and powers, *inter alia*: (1) to finance projects for colleges (including universities) by making loans to such colleges which may be evidenced by, and secured as provided in, loan agreements, security agreements or other contracts, leases or agreements; (2) to

borrow money for the purpose of paying all or any part of the cost of construction, acquisition, financing, alteration, reconstruction and rehabilitation of any educational facility which the Authority is authorized to acquire, construct, finance, improve, install, maintain or operate under the provisions of the Act and to pay the expenses incident to the provision of such loans; and (3) to issue bonds and other obligations for the purpose of paying the cost of projects, and to enter into trust indentures providing for the issuance of such obligations and for their payment and security.

The Authority has issued from time to time other series of revenue bonds and notes for the purpose of financing projects for other higher educational institutions in the Commonwealth. None of the revenues of the Authority with respect to its revenue bonds and notes issued for the benefit of other institutions will be pledged as security for any bonds or notes issued for the benefit of the Members of the Obligated Group. Further, no revenue bonds and notes issued for the benefit of other institutions will be payable from or secured by the revenues of the Authority or other moneys securing any bonds or notes issued for the benefit of the Members of the Obligated Group.

The Authority may issue in the future other series of bonds for the purpose of financing other projects, including other educational facilities. Each such series of bonds to the extent issued to benefit educational institutions other than the University is or will be secured by instruments separate and apart from the Bond Indenture securing the 2019 Bonds.

The Act provides that the Authority is to obtain from the Pennsylvania State Public School Building Authority ("SPSBA" and, together with the Authority, the "Authorities"), for a fee, those executive, fiscal and administrative services which are not available from the colleges and universities, as may be required to carry out the functions of the Authority under the Act. Accordingly, the Authorities share an executive, fiscal and administrative staff and operate under a joint administrative budget.

The following are key staff members of the Authority who are involved in the administration of the financings and projects:

Beverly M. Nawa
Acting Executive Director

Ms. Nawa serves as the Acting Executive Director of both the Authority and SPSBA. She has been with the Authorities since 2004. Prior to her present position, she served as an Administrative Officer for both Authorities. Ms. Nawa is a graduate of Alvernia University with a bachelor's degree in business administration.

David Player
Comptroller & Director of Financial Management

Mr. Player serves as the Comptroller & Director of Financial Management of both the Authority and SPSBA. He has been with the Authorities since 1999. Mr. Player is a graduate of the Pennsylvania State University and a Certified Public Accountant.

THE AUTHORITY HAS NOT PREPARED OR ASSISTED IN THE PREPARATION OF THIS OFFICIAL STATEMENT, EXCEPT THE STATEMENTS UNDER THIS SECTION AND UNDER THE HEADING "LITIGATION – THE AUTHORITY," AND, EXCEPT AS AFORESAID, THE AUTHORITY DISCLAIMS RESPONSIBILITY FOR THE DISCLOSURES SET FORTH HEREIN MADE IN CONNECTION WITH THE OFFER, SALE, AND DISTRIBUTION OF THE 2019 BONDS.

PLAN OF FINANCE

Project

The 2019 Bonds are being issued by the Authority for the purpose of: (a) financing the costs of various projects in the Borrowers' capital budgets, including payment of a portion of the costs of a new 17-story 1.5 million square foot, 500-bed patient pavilion on the Hospital of the University of Pennsylvania campus, and the Center for Health Care Technology, an 8-story, approximately 250,000 square foot office and administrative center for Penn Medicine located adjacent to HUP; (b) repaying approximately $87,000,000 drawn under the Health System's line

of credit and used to (i) redeem the Lancaster County Hospital Authority Health System Revenue Bonds (The Lancaster General Hospital Refunding Project) Series A of 2012, and (ii) purchase a building located at 800 Walnut Street in Philadelphia, Pennsylvania; (c) paying certain capitalized interest on the Bonds; and (d) paying the costs of issuing the 2019 Bonds.

PNC Bank, National Association, an affiliate of PNC Capital Markets LLC, one of the Underwriters, is expected to receive approximately $87,000,000 of bond proceeds from the 2019 Bonds to repay the outstanding balance under the Health System's line of credit.

Estimated Sources and Uses of Funds

The following table sets forth the estimated sources and uses of funds in connection with the issuance of the 2019 Bonds:

Estimated Sources of Funds:	
Principal Amount of the 2019 Bonds	$534,870,000
Net Original Issue Premium/(Discount)	65,130,239
Total Sources of Funds	$600,000,239
Estimated Applications of Funds:	
Costs of Capital Projects (including capitalized interest)	$510,013,878
Repayment of Line of Credit	87,000,000
Costs of Issuance[1]	2,986,361
Total Applications of Funds	$600,000,239

[1] Includes Underwriters' discount, counsel fees (including Co-Bond Counsel, Underwriters' counsel, and Authority's counsel), rating agency fees, Bond Trustee and Master Trustee fees, accounting fees, printing costs, fees and expenses of the Authority and other expenses related to issuance of the 2019 Bonds.

THE 2019 BONDS

Description of the 2019 Bonds

The 2019 Bonds are dated as indicated on the cover page hereof and will bear interest from such date at the rates set forth on the inside front cover pages hereof, payable semiannually on February 15 and August 15 of each year (each a "Scheduled Interest Payment Date"), commencing February 15, 2020, until maturity or prior redemption, and will mature on the dates and in the amounts set forth on the inside front cover pages of this Official Statement.

The 2019 Bonds will be issued in the Fixed Rate Mode under the terms of the Bond Indenture. The Bond Indenture provides for conversion of all or a portion of the 2019 Bonds to other Interest Rate Modes; however, conversion of the Interest Rate Mode is permitted only when the 2019 Bonds are subject to optional redemption at par, and the 2019 Bonds being converted are subject to mandatory tender for purchase on the conversion date. See "Purchase in Lieu of Redemption or Mandatory Tender for Purchase During Period When Bonds are Subject to Optional Redemption at Par," below. This Official Statement does not purport to describe the terms of the 2019 Bonds in an Interest Rate Mode other than the Fixed Rate Mode. If any 2019 Bonds are converted to another Interest Rate Mode, a new or supplemental disclosure document will be prepared that will describe such Bonds in the new Interest Rate Mode.

Interest on the 2019 Bonds will be paid on each Scheduled Interest Payment Date by check or draft mailed to the persons in whose name the 2019 Bonds are registered on the registration books of the Authority maintained by the Bond Trustee at the address appearing thereon at the close of business on the 1st day (whether or not a Business Day) of the calendar month immediately preceding each Scheduled Interest Payment Date (the "Record Date"). The principal and redemption price of, and interest on, the 2019 Bonds are payable in any legal tender which at the time of payment constitutes lawful money of the United States of America.

DTC will act as securities depository under a book-entry system for the 2019 Bonds. Unless such system is discontinued, the provisions described below under "BOOK-ENTRY SYSTEM" (including provisions regarding payments to and transfers by the owners of beneficial interests in the 2019 Bonds) will be applicable to the 2019 Bonds. See "BOOK-ENTRY SYSTEM" below.

The Bond Indenture and the Loan Agreement and all provisions thereof are incorporated by reference in the text of the 2019 Bonds, and the 2019 Bonds provide that each registered owner, beneficial owner and Direct or Indirect Participant (as hereinafter defined) in DTC, by acceptance of a 2019 Bond (including receipt of a book-entry credit evidencing an interest therein), assents to all of the provisions of the Bond Indenture and the Loan Agreement as an explicit and material part of the consideration running to the Authority to induce it to issue the 2019 Bonds. Copies of the Bond Indenture and the Loan Agreement, including the full text of the form of the 2019 Bonds, are on file at the corporate trust office of the Bond Trustee in Philadelphia, Pennsylvania.

Transfer

Subject to the provisions described under "BOOK-ENTRY SYSTEM" below, a 2019 Bond may be transferred only upon surrender thereof to the Bond Trustee. Such 2019 Bond must be accompanied by an assignment duly executed by the registered owner. No charge will be imposed in connection with any transfer or exchange, except for taxes or governmental charges related thereto. The Bond Trustee is not required to transfer or exchange any 2019 Bond during the period between a Record Date and the corresponding Interest Payment Date.

Redemption Provisions

Optional Redemption

The 2019 Bonds maturing on and after August 15, 2030, are subject to optional redemption prior to maturity by the Authority, at the direction of the Obligated Group Agent, on or after August 15, 2029, in whole or in part at any time, at a redemption price equal to 100% of the principal amount thereof, plus interest accrued to the redemption date. Any partial redemption may be in any order of maturity and in any principal amount (in authorized denominations) within a maturity as designated by the Obligated Group Agent. If less than all of the 2019 Bonds are to be called for redemption, the 2019 Bonds to be redeemed may be selected for redemption in such manner as the Obligated Group Agent may specify and the Bond Trustee shall select the portions thereof within a maturity by lot.

Extraordinary Redemption

The 2019 Bonds are subject to extraordinary redemption prior to maturity by the Authority, at the direction of the Obligated Group Agent, out of insurance proceeds, condemnation awards and the proceeds of conveyances in lieu of condemnation deposited with or held by the Bond Trustee for such purpose, in whole or in part at any time, in any order of maturity or portion of each maturity as may be designated by the Obligated Group Agent, and by lot within a maturity, upon payment of a redemption price equal to the principal amount thereof plus accrued interest to the redemption date.

Mandatory Sinking Fund Redemption

The 2019 Bonds maturing on August 15, 2044, August 15, 2047, and August 15, 2049, will be subject to mandatory sinking fund redemption at a redemption price equal to 100% of the principal amount thereof on August 15 of the years and in the amounts set forth below.

Term Bonds Due August 15, 2044

Year (August 15)	Amount
2040	$11,340,000
2041	12,025,000
2042	11,280,000
2043	12,195,000
2044*	13,395,000

Term Bonds Due August 15, 2047

Year (August 15)	Amount
2045	$10,080,000
2046	25,665,000
2047*	26,450,000

4.000% Term Bonds Due August 15, 2049

Year (August 15)	Amount
2048	$ 96,610,000
2049*	103,390,000

5.000% Term Bonds Due August 15, 2049

Year (August 15)	Amount
2048	$36,865,000
2049*	39,450,000

* Final maturity date

The principal amount of the 2019 Bonds otherwise required to be redeemed as described above may be reduced by the principal amount of such 2019 Bonds previously called for optional redemption or theretofore delivered to the Bond Trustee by the Obligated Group Agent in lieu of cash payments under the Loan Agreement or purchased by the Bond Trustee out of moneys in the Debt Service Fund established under the Bond Indenture and which have not theretofore been applied as a credit against any sinking fund installment, in either case in such order of sinking fund installments as the Obligated Group Agent may direct.

Notice of Redemption

Not more than 60 nor less than 20 days before the redemption date of any 2019 Bonds, the Bond Trustee will send notice by first class mail, postage prepaid, to all registered owners of the 2019 Bonds to be redeemed as a whole or in part. Such redemption notice will set forth the details with respect to the redemption in accordance with the provisions of the Bond Indenture and shall state that from the date fixed for redemption interest will cease to accrue on the 2019 Bonds so called for redemption. Failure to give such notice by mail to any holder of 2019 Bonds, or any defect therein, will not affect the validity of any proceedings for the redemption of any other 2019 Bonds. If at the time of mailing of any notice of redemption, the Authority shall not have deposited with the Bond Trustee moneys sufficient to redeem all the 2019 Bonds called for redemption, such notice shall state that it is subject to the deposit of sufficient moneys with the Bond Trustee not later than the opening of business on the redemption date and shall be of no effect unless such moneys are so deposited.

So long as DTC or its nominee is the registered owner of the 2019 Bonds, any failure on the part of DTC or failure on the part of a nominee of a Beneficial Owner (having received notice from a Participant or otherwise) to notify the Beneficial Owner affected by any redemption of such redemption shall not affect the validity of the redemption. So long as DTC or its nominee is the registered owner of the 2019 Bonds, if less than all of the 2019 Bonds of any one maturity shall be called for redemption, the particular 2019 Bonds or portions of 2019 Bonds of such maturity to be redeemed shall be selected by lot by DTC, the Participants and Indirect Participants in such manner as they may determine. See "Book-Entry System" below.

Defeasance

If the Authority deposits with the Bond Trustee funds, evidenced by moneys or Government Obligations (as defined in APPENDIX D) the principal of and interest on which, when due, will be sufficient to pay the principal or redemption price of the 2019 Bonds, by call for redemption or otherwise, together with interest accrued to the due date or the redemption date, as appropriate, in accordance with the terms of the Bond Indenture, such 2019 Bonds shall no longer be deemed to be Outstanding under the Bond Indenture. Interest on such 2019 Bonds, as appropriate, will cease to accrue on the due date or the redemption date, as appropriate, and from and after the date of such deposit of funds with the Bond Trustee the holders of such 2019 Bonds will be restricted to the funds so deposited as provided in the Bond Indenture.

Purchase in Lieu of Redemption or Mandatory Tender for Purchase During Period When Bonds are Subject to Optional Redemption at Par

The Bond Indenture provides that the Obligated Group Agent may elect to purchase 2019 Bonds that have been called for optional redemption at par in lieu of redeeming and retiring such 2019 Bonds on the redemption date, provided that the notice of redemption to the Bondholders states that the Obligated Group Agent may so elect. The Bond Indenture also provides for mandatory tender and purchase, at the election of the Obligated Group Agent, of all or a portion of the 2019 Bonds if such 2019 Bonds are converted from the Fixed Rate Mode to another Interest Rate Mode (including a new Fixed Rate Mode). However, conversion of the Interest Rate Mode is permitted only when the affected 2019 Bonds are subject to optional redemption at par. Notice of any such mandatory tender and purchase will be given by the Bond Trustee to affected Bondholders not more than 60 nor less than 20 days prior to the proposed conversion date.

No Optional Tender and Purchase

The 2019 Bonds are not subject to tender and purchase at the option of the holders while the 2019 Bonds are in the Fixed Rate Mode.

Book-Entry Only System

The 2019 Bonds will be issued in book-entry form. DTC will act as securities depository for the 2019 Bonds. The 2019 Bonds will be issued as fully registered securities registered in the name of Cede & Co. (DTC's partnership nominee) or such other name as may be requested by an authorized representative of DTC. One fully registered bond certificate will be issued for the 2019 Bonds of each maturity thereof in the aggregate principal amount thereof and will be deposited with DTC. The following discussion will not apply to any 2019 Bonds issued in certificated form following the discontinuance of the DTC Book-Entry System, as described below.

So long as Cede & Co., as nominee of DTC, is the registered owner of the 2019 Bonds, the Beneficial Owners of the 2019 Bonds will not receive or have the right to receive physical delivery of the 2019 Bonds, and references herein to the Bondholders or Owners or registered owners of the 2019 Bonds shall mean Cede & Co. and shall not mean the Beneficial Owners of the 2019 Bonds.

DTC, the world's largest depository, is a limited-purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of the New York Banking Law, a member of the Federal Reserve System, a "clearing corporation" within the meaning of the New York Uniform Commercial Code, and a "clearing agency" registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934. DTC holds and provides asset servicing for over 3.5 million issues of U.S. and non-U.S. equity issues, corporate and municipal debt issues, and money market instruments (from over 100 countries) that DTC's participants ("Direct Participants") deposit with DTC. DTC also facilitates the post-trade settlement among Direct

Participants of sales and other securities transactions in deposited securities, through electronic computerized book-entry transfers and pledges between Direct Participants' accounts. This eliminates the need for physical movement of securities certificates. Direct Participants include both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations. DTC is a wholly-owned subsidiary of The Depository Trust & Clearing Corporation ("DTCC"). DTCC is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others such as both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, and clearing corporations that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly ("Indirect Participants"). DTC has Standard & Poor's rating of AA+. The DTC Rules applicable to its Participants are on file with the Securities and Exchange Commission. More information about DTC can be found at *www.dtcc.com.*

Purchases of the 2019 Bonds under the DTC system must be made by or through Direct Participants, which will receive a credit for the 2019 Bonds on DTC's records. The ownership interest of each actual purchaser of a Bond ("Beneficial Owner") is in turn to be recorded on the Direct and Indirect Participants' records. Beneficial Owners will not receive written confirmation from DTC of their purchase. Beneficial Owners are, however, expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the Direct or Indirect Participant through which the Beneficial Owner entered into the transaction. Transfers of ownership interests in the 2019 Bonds are to be accomplished by entries made on the books of Direct and Indirect Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership interests in 2019 Bonds, except in the event that use of the book-entry system for the 2019 Bonds is discontinued.

To facilitate subsequent transfers, all 2019 Bonds deposited by Direct Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co. or such other name as may be requested by an authorized representative of DTC. The deposit of Bonds with DTC and their registration in the name of Cede & Co. or such other DTC nominee do not effect any change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the 2019 Bonds; DTC's records reflect only the identity of the Direct Participants to which accounts such 2019 Bonds are credited, which may or may not be the Beneficial Owners. The Direct and Indirect Participants will remain responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time. Beneficial Owners of 2019 Bonds may wish to take certain steps to augment the transmission to them of notices of significant events with respect to the 2019 Bonds, such as redemptions, tenders, defaults, and proposed amendments to the 2019 Bond documents. For example, Beneficial Owners of 2019 Bonds may wish to ascertain that the nominee holding the 2019 Bonds for their benefit has agreed to obtain and transmit notices to Beneficial Owners. In the alternative, Beneficial Owners may wish to provide their names and addresses to the registrar and request that copies of the notices be provided directly to them.

Redemption notices shall be sent to DTC. If less than all of the 2019 Bonds of a particular maturity are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in the 2019 Bonds to be redeemed.

Neither DTC nor Cede & Co. (nor any other DTC nominee) will consent or vote with respect to 2019 Bonds unless authorized by a Direct Participant in accordance with DTC's procedures. Under its usual procedures, DTC mails an Omnibus Proxy to the Authority as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co. consenting or voting right to those Direct Participants to whose accounts 2019 Bonds are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Principal, premium and interest payments on the 2019 Bonds will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's practice is to credit Direct Participants' accounts upon DTC's receipt of funds and corresponding detail information from the Authority or the Bond Trustee, on the payable date in accordance with their respective holdings shown on DTC's records. Payments by the Direct or Indirect Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in "street

name," and will be the responsibility of such Participants and not of DTC, the Bond Trustee, the Members of the Obligated Group or the Authority, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of principal, premium and interest to Cede & Co. (or such other nominee as may be requested by an authorized representative of DTC) is the responsibility of the Authority, the Members of the Obligated Group or the Bond Trustee, disbursement of such payments to Direct Participants will be the responsibility of DTC, and disbursement of such payments to the Beneficial Owners will be the responsibility of Direct and Indirect Participants.

DTC may discontinue providing its services as depository with respect to the 2019 Bonds at any time by giving reasonable notice to the Authority or the Bond Trustee. Under such circumstances, in the event that a successor securities depository is not obtained, 2019 Bond certificates are required to be printed and delivered.

The Authority may decide to discontinue use of the system of book-entry only transfers through DTC (or a successor securities depository). In that event, 2019 Bond certificates will be printed and delivered to DTC.

The information in this section concerning DTC and DTC's book-entry system has been obtained from sources that the Members of the Obligated Group, the Authority and the Underwriters believe to be reliable, but neither the Members of the Obligated Group, the Authority nor the Underwriters take responsibility for the accuracy thereof.

The Members of the Obligated Group, the Authority and the Underwriters cannot and do not give any assurances that DTC will distribute to Direct Participants or that Direct Participants, Indirect Participants or other persons will distribute to the Beneficial Owners payments of principal of and interest and premium, if any, on the 2019 Bonds paid or any redemption or other notices or that they will do so on a timely basis or will serve and act in the manner described in this Official Statement. None of the Members of the Obligated Group, the Authority or the Underwriters is responsible or liable for the failure of DTC or any Direct Participant, Indirect Participant or other person to make any payments or give any notice to a Beneficial Owner with respect to the 2019 Bonds or any error or delay related thereto.

None of the Authority, the Underwriters, the Bond Trustee, or the Members of the Obligated Group will have any responsibility or obligations to any Direct Participants or Indirect Participants or to any Beneficial Owner with respect to (i) the accuracy of any records maintained by DTC, any Direct Participant, or any Indirect Participant; (ii) the payment by DTC, any Direct Participant, or any Indirect Participant of any amount with respect to the principal of or premium, if any, or interest on the 2019 Bonds; (iii) any notice that is permitted or required to be given to holders of the 2019 Bonds under the Master Indenture, (iv) the selection by DTC, any Direct Participant, or any Indirect Participant of any person to receive payment in the event of a partial redemption of the 2019 Bonds; (v) any consent given or other action taken by DTC as holder of the 2019 Bonds; or (vi) any other procedures or obligations of DTC, Direct Participants or Indirect Participants under the book-entry system.

SOURCE OF PAYMENT AND SECURITY FOR THE 2019 BONDS

Limited Obligations

The 2019 Bonds are limited obligations of the Authority. Neither the general credit of the Authority nor the credit or the taxing power of the Commonwealth or any political subdivision thereof is pledged for the payment of the principal and redemption price of, and interest on, the 2019 Bonds, nor shall the 2019 Bonds be or be deemed to be general obligations of the Authority or obligations of the Commonwealth or any political subdivision thereof, nor shall the Commonwealth or any political subdivision thereof be liable for the payment of the principal and redemption price of, and interest on, the 2019 Bonds. The Authority has no taxing power.

Bond Indenture

The 2019 Bonds will be issued under, and equally and ratably secured by, the Bond Indenture by a pledge and assignment by the Authority of payments due from the Borrowers under the Loan Agreement and the moneys and investments held by the Bond Trustee in the funds and accounts established under the Bond Indenture. The covenants and agreements in the Bond Indenture will be for the equal and ratable benefit of the present and future holders of the 2019 Bonds.

Loan Agreement and Master Indenture

Under the Loan Agreement, the Authority will loan the proceeds of the 2019 Bonds to the Borrowers for the purpose of undertaking the Project. The Borrowers agree in the Loan Agreement to make loan payments to the Bond Trustee, as assignee of the Authority, in amounts and at times sufficient, among other things, to pay the principal and redemption price of, and interest on, the 2019 Bonds and all other Bonds issued and Outstanding under the Bond Indenture.

To evidence and secure the payment obligations of the Borrowers with respect to the 2019 Bonds under the Loan Agreement, the Members of the Obligated Group jointly will deliver to the Bond Trustee, as assignee of the Authority, the 2019 Master Note, in a principal amount equal to the aggregate principal amount of the 2019 Bonds, issued under the Master Indenture.

The obligation of the University to make payments under the Loan Agreement and the 2019 Master Note is a limited obligation of the University to make payments solely from the Property of HUP and CPUP (or any additional Designated Units established as provided in the Master Indenture). The obligation of each other Member of the Obligated Group to make payments under the Loan Agreement and the 2019 Master Note is a general obligation of such Member of the Obligated Group.

As security for their payment obligations to make payments under the Master Indenture in respect of all Master Notes and other Obligations issued thereunder, including the 2019 Master Note, each Member of the Obligated Group has granted to the Master Trustee, for the benefit of the holders of all such Obligations (including the Bond Trustee as the holder of the 2019 Master Note), a lien on and security interest in its Gross Receipts, subject in each case to Permitted Liens and other limitations described below, and its right, title and interest in all deposit accounts to which Gross Receipts are deposited. As used herein, "Gross Receipts" means (a) with respect to the University, all revenues, income, receipts and money (other than proceeds of borrowing and income thereon) received in any period by or on behalf of the Designated Units, and (b) with respect to any Member of the Obligated Group other than the University, all revenues, income, receipts and money (other than proceeds of borrowing and income thereon) received in any period by or on behalf of such Member of the Obligated Group. Gross Receipts includes, without limiting the generality of the foregoing, (a) revenues derived from operations, (b) gifts, grants, bequests, donations and contributions and the income therefrom, excluding gifts, grants, bequests, donations and contributions to the extent specifically restricted by the donor to a particular purpose inconsistent with their use for the payment of Obligations, (d) rentals received from the leasing of real or tangible personal property, and (e) proceeds derived from (i) insurance, (ii) Accounts, (iii) securities and other investments, (iv) inventory and other tangible and intangible property, (v) medical or hospital insurance, indemnity or reimbursement programs or agreements and (vi) contract rights and other rights and assets now or hereafter owned, held or possessed.

The security interests in the Gross Receipts of the Members of the Obligated Group described above may be limited by a number of factors, including, but not limited to: (i) statutory liens; (ii) rights arising in favor of the United States of America or an agency thereof; (iii) present or future prohibitions against the assignment of amounts due under the Medicare or Medicaid programs contained in statutes or regulations of the United States or the Commonwealth; (iv) constructive trusts, equitable liens or other rights conferred or impressed by any state or federal court in the exercise of its equitable jurisdiction; (v) federal or state laws respecting bankruptcy, insolvency and creditors' rights generally; (vi) rights of third parties in Gross Receipts converted to cash and not in the possession of the Master Trustee; and (vii) claims that might arise if appropriate financing or continuation statements are not filed in accordance with the Uniform Commercial Code of the Commonwealth as from time to time in effect.

Pursuant to the Master Indenture, the Members of the Obligated Group are subject to certain operational and financial covenants and restrictions as set forth therein. These include primarily covenants and restrictions with respect to debt service coverage, the incurrence of additional indebtedness, the ability of Members of the Obligated Group to grant liens or security interests in certain of their facilities and assets, the ability of Members of the Obligated Group to transfer certain of their assets to any person or entity, the ability of any unit of the University to become a Designated Unit, the ability of other entities to become Members of the Obligated Group, the ability of any Designated Unit to cease being a Designated Unit, and the ability of any Member of the Obligated Group to cease being such a Member.

Under the Master Indenture, the Members of the Obligated Group may under certain circumstances grant additional liens on the Property comprising assets of the Health System.

In a default situation, except for any pledged funds held under the Bond Indenture and in certain circumstances under the Master Indenture, the owners of the 2019 Bonds would be unsecured creditors of the Members of the Obligated Group, provided that claims against the University would be limited to the Property of HUP and CPUP, and the University would not be obligated to make payments on the 2019 Bonds from any other assets or revenues of the University. The Property of HUP and CPUP (or of any additional Designated Units) would likely be available in the first instance to any secured creditors of the University having liens on such Property (which would not include the registered owners of the 2019 Bonds) and secondarily to all unsecured creditors of the University (which would include the registered owners of the 2019 Bonds).

The University is permitted, without the consent of the Bond Trustee, the Master Trustee or the holders of any of the 2019 Bonds, to convert all outstanding Obligations under the Master Indenture to general obligations of the University if, and only if, each Rating Agency then currently rating Obligations confirms that such action will not cause its rating of the Obligations to be lowered. Upon conversion of the Obligations to general obligations of the University, the operational and financial covenants and restrictions in the Master Indenture will be removed, including the covenants described in the following headings in APPENDIX E: "Rate Covenant," "Limitations on Creation of Liens," "Limitations on Issuance of Additional Indebtedness," and "Sale, Lease or Other Disposition of Property." In addition, all references to Designated Units in the Master Indenture would be amended to refer to the University as a whole.

For a more complete description of the terms and provisions of the Bond Indenture and the Loan Agreement, see APPENDIX D, and for a more complete description of the Master Indenture, see APPENDIX E.

Amendment to Master Indenture - Release and Substitution of Obligations upon Delivery of Replacement Master Indenture

In accordance with the provisions of the Master Indenture, the Obligated Group has determined to amend the Master Indenture the effect of which would be to require, upon satisfaction of certain conditions described in the Master Indenture, including confirmation that the rating on any Related Bonds, including the 2019 Bonds, will not be lowered or withdrawn in connection therewith, in connection with any merger, consolidation, member substitution or similar transaction involving an affiliation of the Obligated Group with an entity or entities, that all Master Notes and other Obligations issued under the Master Indenture, including the 2019 Master Note, be surrendered to and cancelled by the Master Trustee and replaced with similar notes or obligations ("Substitute Obligations") issued by, or on behalf of, a different credit group including one or more Members of the Obligated Group (the "New Group") under a new or replacement master indenture (a "Replacement Master Indenture") between the New Group and an independent corporate trustee, which may be the Master Trustee. In connection with the issuance of Substitute Obligations under a Replacement Master Indenture, the existing Master Indenture would be deemed terminated and discharged.

Upon the effectiveness of the Replacement Master Indenture and the issuance of Substitute Obligations thereunder, the security interest created under the Master Indenture in the Gross Receipts of the Members of the Obligated Group to secure Obligations, including the 2019 Master Note, outstanding thereunder would be terminated; provided, however, that such security interest may not be terminated unless either (i) the Replacement Master Indenture provides for a security interest in the Gross Receipts securing all Substitute Obligations issued thereunder similar in scope to the security interest created under the Master Indenture securing the 2019 Master Note, or (ii) the Replacement Master Indenture does not create a security interest in the Gross Receipts and the security interest in the Gross Receipts created pursuant to the Master Indenture or any Supplemental Indenture entered into prior to the issuance of the 2019 Master Note (a "Pre-Existing Security Interest") has been terminated or released upon either (A) payment or discharge of the related Obligation or (B) the consent of the Holder of the related Obligation to the termination or release of such security interest. The security interest in the Gross Receipts securing payment of the 2019 Master Note for the benefit of the Owners of the 2019 Bonds will terminate upon delivery to the Bond Trustee of a Substitute Obligation in exchange for the 2019 Master Note unless at the time of such delivery there are other Holders of Obligations entitled to the benefit of a Pre-Existing Security Interest which has not been terminated or released as of such date, in which case such security interest will only terminate upon termination of all Pre-existing Security Interests.

The amendment to the Master Indenture described above will be effective upon the approval or deemed approval thereof by the Holders of a majority in aggregate principal amount of all Obligations outstanding under the Master Indenture. **The Bond Trustee, as the Holder of the 2019 Master Note on behalf of the Owners of the 2019 Bonds, is irrevocably deemed to have consented to such amendment.** Upon the issuance of the 2019 Bonds, it is expected that such amendment will become effective.

For a more complete description of the Master Indenture Amendment, see APPENDIX E: "SUMMARY OF CERTAIN PROVISIONS OF THE MASTER INDENTURE – Twenty-Second Supplemental Master Indenture - Release and Substitution of Obligations upon Delivery of Replacement Master Indenture."

No Credit Enhancement

The 2019 Bonds will not be secured by any form of credit enhancement from an insurance company, bank or other third party credit enhancer. The Bond Indenture permits the delivery of a Credit Facility or a Liquidity Facility securing all or a portion of the 2019 Bonds, but there will be no Credit Facility or Liquidity Facility when the 2019 Bonds are issued. The University does not plan to deliver any Credit Facility or Liquidity Facility, and any such credit enhancement would be applicable only after the affected 2019 Bonds have been purchased from the then existing holders pursuant to the mandatory tender and purchase provisions of the Bond Indenture. See "THE 2019 BONDS - Purchase in Lieu of Redemption or Mandatory Tender for Purchase During Period When 2019 Bonds are Subject to Optional Redemption at Par."

Additional Indebtedness

The Members of the Obligated Group are permitted to issue additional Master Notes under the Master Indenture or to issue other Obligations upon compliance with the terms and conditions of the Master Indenture. Obligations which may be issued in the future under the Master Indenture, to the extent permitted thereby, would be secured thereunder equally and ratably with the 2019 Master Note provided that all Obligations shall, as to the University, be limited as to payment to the Property of Designated Units. See APPENDIX E: "Limitations on Issuance of Additional Indebtedness."

The Master Indenture sets forth requirements for the issuance of additional Indebtedness. With respect to the University, "Indebtedness" refers only to debt to the extent payable solely from revenues of Designated Units or secured by revenues of or any tangible property of Designated Units. See the definition of "Indebtedness," in APPENDIX E. The Master Indenture does not restrict in any way the incurrence of general obligation indebtedness of the University, nor does it restrict the incurrence of any other indebtedness of the University except to the extent payable solely from revenues of Designated Units or secured by revenues of or any tangible property of Designated Units.

No Recourse Against Members of the Authority

No recourse shall be had for payment of the principal or redemption price of, and interest on, the 2019 Bonds, or for any claims based on the 2019 Bonds or on the Bond Indenture or any indenture supplemental thereto, against any member, officer or employee, past, present or future, of the Authority, or of any successor corporation, as such, either directly or through the Authority or any such successor corporation, whether by virtue of any constitutional provision, statute or rule of law, or by the enforcement of any assessment or penalty, or otherwise, and the release of all such liability of such members, officers or employees is a condition of and consideration for the execution by the Authority of the Bond Indenture and the issuance of the 2019 Bonds.

HEALTH SYSTEM PRO FORMA DEBT SERVICE REQUIREMENTS

The following table sets forth, for each Fiscal Year of the Health System, the approximate annual debt service requirements on the 2019 Bonds and other existing long-term debt of the Health System. Separately shown in the table below is the approximate annual debt service requirements of the Health System in each Fiscal Year, calculated in accordance with the requirements of the Master Indenture. See "SUMMARY OF CERTAIN PROVISIONS OF THE MASTER INDENTURE" in APPENDIX E hereto.

Fiscal Year Ended (June 30)	2019 Bonds Principal	2019 Bonds Interest	Other Long-Term Debt[1]	Total Debt Service	Annual Debt Service Requirements under the Master Indenture[1][2]
2020	$ -	$ 4,384,217	$ 133,696,617	$138,080,834	$ 137,580,204
2021	-	22,547,400	139,300,695	161,848,095	161,347,921
2022	-	22,547,400	144,419,575	166,966,975	166,465,421
2023	-	22,547,400	196,512,955	219,060,355	160,004,034
2024	-	22,547,400	135,447,868	157,995,268	161,872,967
2025	-	22,547,400	136,054,089	158,601,489	162,477,028
2026	-	22,547,400	135,799,660	158,347,060	162,223,328
2027	-	22,547,400	134,990,635	157,538,035	161,412,831
2028	11,660,000	22,255,900	108,190,401	142,106,301	145,982,331
2029	12,765,000	21,645,275	107,701,792	142,112,067	145,982,037
2030	13,900,000	20,978,650	107,230,923	142,109,573	145,981,097
2031	15,135,000	20,252,775	106,722,857	142,110,632	145,981,141
2032	16,405,000	19,464,275	106,247,359	142,116,634	145,983,560
2033	17,790,000	18,609,400	105,718,116	142,117,516	145,983,197
2034	13,485,000	17,827,525	110,805,460	142,117,985	145,984,579
2035	6,080,000	17,368,800	118,669,149	142,117,949	145,982,518
2036	5,110,000	17,145,000	119,864,480	142,119,480	145,983,997
2037	5,685,000	16,929,100	119,509,111	142,123,211	145,984,556
2038	6,260,000	16,690,200	119,173,061	142,123,261	145,983,222
2039	6,910,000	16,426,800	118,791,236	142,128,036	145,983,311
2040	4,940,000	16,189,800	120,998,591	142,128,391	145,985,494
2041	11,340,000	15,864,200	114,921,446	142,125,646	145,980,906
2042	12,025,000	15,396,900	114,704,271	142,126,171	145,980,827
2043	11,280,000	14,930,800	115,923,099	142,133,899	145,984,098
2044	12,195,000	14,461,300	115,480,675	142,136,975	145,983,771
2045	13,395,000	13,949,500	114,793,654	142,138,154	145,982,418
2046	10,080,000	13,530,400	118,528,411	142,138,811	145,981,231
2047	25,665,000	12,994,225	103,483,546	142,142,771	145,983,851
2048	26,450,000	12,212,500	103,480,856	142,143,356	145,983,417
2049	133,475,000	8,961,925	-	142,436,925	146,276,105
2050	142,840,000	3,054,050	-	145,894,050	145,894,050
	$534,870,000	$529,355,317	$3,527,160,588	$4,591,385,904	$4,631,195,448

(1) Interest on the Series 2008A Bonds, the Series 2012A Bonds and the Series 2014 Bonds, which bear interest at variable rates, is calculated in accordance with provisions of the Master Indenture. Debt service requirements with respect to the outstanding Series 2015 (LGH) Bonds is calculated on the assumption that such bonds, which are fixed rate bonds with principal maturing on July 1, 2022, and constituting Non-Amortizing Principal under the Master Indenture, amortize over a 30-year term with level debt service payments at an assumed interest rate equal to 3.67 %. See "Long-Term Debt of the Health System" in APPENDIX A hereto.

CERTAIN RISK FACTORS

General

The purchase and ownership of the 2019 Bonds involve Certain Risk Factors that are discussed throughout this Official Statement. Each prospective purchaser of the 2019 Bonds (or a beneficial ownership interest therein) should make an independent evaluation of the information presented in this Official Statement.

Any of the risk factors described herein may affect the Health System's revenues and impair the ability of the Members of the Obligated Group to make required payments under the Loan Agreement or the 2019 Master Note in respect of the 2019 Bonds when due. Any such impairment may adversely affect the Bond Trustee's ability to pay the principal of and interest on the 2019 Bonds when those payments are due. There can be no assurance that the financial condition of the Health System and/or the utilization of the facilities of the Health System will not be adversely affected by any of these factors.

The Health System is subject to a wide variety of federal and state regulatory actions, and legislative and policy changes by those governmental and private agencies that administer Medicare, Medicaid and other governmental payor programs and is subject to actions by, among others, The Joint Commission, the Centers for Medicare and Medicaid Services ("CMS") of the U.S. Department of Health and Human Services ("DHHS") and other federal, state and local government agencies. The future financial condition of the Health System could be adversely affected by, among other things, changes in the method and amount of payments to the Members of the Obligated Group by governmental and nongovernmental payors, the financial viability of those payors, increased competition from other healthcare entities, demand for health care, alternative forms of care and treatment, changes in the methods by which employers purchase health care for employees, capability of management, changes in the structure of how health care is delivered and paid for (e.g., a single payor system or accountable care organizations), future changes in the economy, demographic changes, availability of physicians, nurses and other healthcare professionals, and malpractice claims and other litigation.

Several of the federal statutes and regulations described herein may be substantially modified or repealed in whole or in part. Key elements of the legislative agenda of President Trump's administration include the repeal or replacement of the Patient Protection and Affordable Care Act (the "ACA"), tax reform and financial services reform. While attempts to repeal the entirety of the ACA have not been successful to date, a key provision of the ACA was effectively repealed as part of the Tax Cuts and Jobs Act, and on December 14, 2018, a federal U.S. District Court judge in Texas ruled the entire ACA is unconstitutional. While that ruling has been appealed to the Fifth Circuit Court of Appeals, it has caused greater uncertainty regarding the future status of the ACA. Also additional legislative attempts to repeal or piecemeal dismantle the ACA may be introduced in the future. The scope and effect of future legislation cannot be predicted and such future legislation could have a material adverse impact on the Obligated Group. In addition to statutory changes, regulatory changes and executive actions implemented by the Trump administration could have a material adverse impact on the Obligated Group. Accordingly, it is possible that the significant regulatory risks described herein will undergo significant change in the near term.

This description of various risks is not, and is not intended to be, exhaustive. The information set forth in this section should be read carefully in conjunction with the information describing the businesses, operations and financial condition of the Health System set forth in APPENDIX A and APPENDIX B hereto, as well as the information set forth under "REGULATION OF THE HEALTH CARE INDUSTRY" below. Other sections of this Official Statement, as cited herein, should be referred to for a more detailed description of risks described in this section, which descriptions are qualified by reference to any documents discussed therein.

Patient Service Revenues

General

Net patient service revenues realized by the Health System are derived from a variety of sources and will vary among the individual facilities owned and operated by the Health System and also among the various market areas and regions in which such facilities are located. A substantial portion of the net patient service revenues of the Health System is derived from third-party payers that pay for the services provided to patients covered by third parties. These third-party payers include the Medicare and Medicaid programs, commercial health plans and insurers, including managed care organizations such as health maintenance organizations ("HMOs") and preferred provider organizations ("PPOs"), and self-funded employer benefit plans. Many third-party payers make payments to the Health System in amounts that may not reflect the direct and indirect costs of providing services to patients. The financial performance of the Health System has been and could be in the future adversely affected by the financial position or the insolvency or bankruptcy of or other delay in receipt of payments from third-party payers that provide coverage for services to their patients. Health care providers have been and continue to be affected significantly by changes made in the last several years in federal and state health care laws and regulations, particularly those pertaining to Medicare and Medicaid. The purpose of much of this statutory and regulatory

activity has been to reduce the rate of increase in health care costs, particularly costs paid under the Medicare and Medicaid programs.

For information as to the sources of patient service revenues of the Health System, see "CERTAIN FINANCIAL INFORMATION – Sources of Revenue" in APPENDIX A hereto. More complete information with respect to the Medicare and Medicaid programs and other third-party payment information is also set forth under "REGULATION OF THE HEALTH CARE INDUSTRY" below.

Private Health Plans and Managed Care

The Health System's ability to develop and expand its services and, therefore, operating margins, is dependent upon its ability to enter into contracts with commercial third-party payers, such as managed care organizations, at competitive rates. There can be no assurance that it will be able to attract or maintain third-party payers, and where it does, no assurance that it will be able to contract with such payers on advantageous terms. The inability of the Health System to contract with a sufficient number of such payers on advantageous terms would have a material adverse effect on the Health System. Further, while the Health System intends to control health care service utilization and increase quality, the Health System cannot predict changes in utilization patterns or other changes that may adversely affect the Health System.

Managed care plans generally use discounts and other economic incentives, as well as increased utilization reviews, to reduce or limit their cost and utilization of healthcare services. Payments to the Health System from managed care plans typically are lower than those received from traditional indemnity/commercial insurers. There is no assurance that the Health System will maintain managed care contracts or obtain other similar contracts in the future. Failure to maintain contracts could have the effect of reducing the market share of the Health System and the Health System's net patient services revenues. Conversely, participation may maintain or increase the patient base but could result in lower net income or operating losses to the Health System if the Health System is unable to adequately contain its costs.

Many PPOs and HMOs currently pay providers on a negotiated fee-for-service basis or on a fixed rate per day of care, which, in each case, usually is discounted from the typical charges for the care provided. The discounts offered to HMOs and PPOs may result in payment to a provider that is less than its actual cost in a specific instance of patient care. Additionally, the volume of patients directed to a hospital may vary significantly from projections used to formulate the discount, and/or changes in the utilization of certain services offered by the provider may be significant and unexpected, thus further reducing revenues and jeopardizing the provider's ability to contain costs.

Some HMOs employ a capitation payment method under which hospitals are paid a predetermined periodic rate for each enrollee in the HMO who is assigned or otherwise directed to receive care at a particular hospital. In a capitation payment system, the hospital assumes a financial risk for the cost and scope of care given to such HMO's enrollees. In some cases, the capitated payment covers total hospital patient care provided. However, if payment under an HMO or PPO contract is insufficient to meet the hospital's costs of care or if utilization by such enrollees materially exceeds projections, the financial condition of the hospital could erode rapidly and significantly.

The ACA imposes, over time, increased regulation of the industry, the use and availability of state-based exchanges in which health insurance can be purchased by certain groups and segments of the population, the extension of subsidies and tax credits for premium payments by some consumers and employers and the imposition upon commercial insurers of certain terms and conditions that must be included in contracts with providers. In addition, the ACA imposes many new obligations on states related to health care insurance. With implementation of the ACA, substantial numbers of employers may elect to discontinue employer-funded medical care for employees eligible for federal assistance in securing private insurance, and the employees could then choose health insurance under the health insurance exchanges. Individuals choosing their own coverage are likely to be more price sensitive, which could increase the number of enrollees in lower-cost HMO plans and increase the use of capitation, making price negotiations with HMO and other insurance plans more difficult. It is unclear how the increased federal oversight of state health care may affect future state oversight or affect the Health System. The effects of these changes upon the revenues of the Health System, and upon the operations, results of operations and financial condition of the Health System, cannot be predicted.

As a consequence of the above factors, the effect of managed care on the Health System's financial condition is difficult to predict and may be different in the future than the financial statements for the current periods reflect.

The Health System derives a significant percentage of its gross inpatient revenue from HMOs, PPOs and other managed care organizations. Some of these contracts with managed care organizations can be terminated by the third-party payor at any time without the necessity of showing cause upon approximately six months prior written notice. Termination of contracts between the Health System and managed care organizations could have an adverse effect on the financial performance of the Health System.

Federal Budget and Debt Ceiling

The Budget Control Act of 2011 (the "Budget Control Act") mandated significant reductions in federal spending for fiscal years 2012-2021, including a reduction of 2% on all Medicare payments during this period. Subsequent legislation enacted by Congress extended these reductions through 2029. There is a substantial risk that Congress could act to extend or increase these across-the-board reductions. President Trump's 2020 budget proposal calls for an $845 billion reduction in Medicare spending and a $1.5 trillion reduction in Medicaid spending over the next decade. It is impossible to predict what portion, if any, of these proposed federal health care spending reductions will be included in a Congressionally approved budget.

It is possible that Congress will take action to eliminate some or all of the reductions in the future, and any Congressional action could be made retroactive in order to eliminate some or all of the cuts that were imposed. However, there is no certainty that Congress will take any action. Absent further Congressional action, these automatic spending cuts become permanent. Because Congress may make changes to the budget in the future, it is impossible to predict the impact any spending cuts may have on the Health System. Similarly, it is impossible to predict whether any automatic reductions to Medicare reimbursement rates may be triggered in lieu of other spending cuts that may be proposed by Congress. Any further reduction in Medicare and/or Medicaid spending under either scenario, may have a material adverse effect upon the operations, financial condition and financial performance of the Health System. Ultimately, these reductions or alternatives could have a disproportionate impact on hospital providers and could have an adverse effect on the operations, financial condition and financial performance of the Health System, which could be material.

The federal government is further subject to a debt "ceiling" established by Congress. In the past several years, political disputes concerning authorization of a federal debt ceiling increase have led to shutdowns of substantial portions of the federal government and other federal budget authorization delays have occurred. Federal budget delays and federal government shutdowns are unpredictable and may occur in the future. Failure by Congress to increase the federal debt ceiling, federal budget authorization delays, federal government shutdowns, or other political challenges may cause Medicare or Medicaid reimbursements to be further reduced or paid late, which effects may have a material adverse effect on the Health System's business or financial condition.

On August 2, 2019, the Bipartisan Budget Act of 2019 was signed into law, which suspended the debt ceiling until July 31, 2021. Any future failure to increase the federal debt limit could have a material adverse effect on the operations, financial condition, and financial performance of the health care industry and the Health System. In addition, the market price or marketability of the 2019 Bonds in the secondary market could be materially adversely affected by any failure to increase the federal debt limit.

State and Local Budgets

State budgets, including the budgets of Pennsylvania and New Jersey, face financial challenges, including erosion of general fund tax revenues, falling real estate values, slowing economic growth, and relatively high unemployment, each of which may continue to worsen or resist improvement over the coming years. These factors have resulted in a shortfall between revenue and spending demands. These financial challenges may negatively affect hospitals in a number of ways, including elimination or reduction of health care safety net programs (causing a greater number of indigent, uninsured or underinsured patients), reductions in Medicaid reimbursement rates or delays in Medicaid reimbursement payments. The financial challenges may also result in a greater number of indigent, uninsured or underinsured patients who are unable to pay for their care or access primary care facilities. Pennsylvania has for a number of years instituted a "provider tax" on hospitals, as a result of which supplemental federal funds are made available to the state Medicaid program and, through state funding of the Medicaid program,

to state hospitals. Any curtailment of federal funds related to the provider tax or any effort by Pennsylvania to maintain the provider tax without providing supplemental funding to state hospitals could have a material adverse effect on the Health System.

Government Regulation of the Health Care Industry

Effect of Regulation Generally

Hospitals, including the hospitals of the Health System, are subject to extensive regulation by federal, state and local governmental agencies and by certain nongovernmental agencies such as The Joint Commission. These laws and regulations require that hospitals meet various detailed standards relating to the adequacy of medical care, equipment, personnel, operating policies and procedures, maintenance of adequate records, utilization, compliance with building codes and environmental protection laws, and numerous other matters. Failure to comply with applicable regulations can jeopardize a hospital's licenses, ability to participate in the Medicare and Medicaid programs, and ability to operate as a hospital. No assurance can be given as to the effect on future operations of the Health System of existing laws, regulations and standards for certification or accreditation or of any future changes in such laws, regulations and standards. See generally "REGULATION OF THE HEALTH CARE INDUSTRY" below.

Licensing, Certification and Accreditation

Health facilities, including those in the Health System, are subject to numerous legal, regulatory, professional and private licensing, certification and accreditation requirements. These include, but are not limited to, requirements for participation in Medicare, requirements for participation in Medicaid, state licensing agencies, private payors and the accreditation standards of The Joint Commission. Renewal and continuation of certain of these licenses, certifications and accreditations are based on inspections, surveys, audits, investigations or other reviews, some of which may require affirmative actions by the Health System.

The Health System anticipates that it will be able to renew periodically currently held licenses, certifications or accreditations when required. Nevertheless, adverse actions in any of these areas could occur, which could result in the loss of utilization, revenue, or the ability to operate all or a portion of the Health System's facilities, and consequently, could have a material and adverse effect on the Health System.

Enforcement Activity

Enforcement activity against hospitals and healthcare providers has increased and enforcement authorities have adopted aggressive approaches. Hospitals and other healthcare providers are frequently subject to audits, investigations or other enforcement actions regarding the healthcare fraud laws mentioned above. In addition, enforcement agencies increasingly pursue sanctions for violations of healthcare fraud and abuse laws through civil administrative actions.

Federal and state enforcement authorities are often in a position to compel settlements by providers charged with or being investigated for false claims violations by withholding or threatening to withhold Medicare, Medicaid, and or similar payments and/or by instituting criminal action. In addition, the cost of defending such an action, the time and management attention consumed and the facts of the case may dictate a settlement. Therefore, regardless of the merits of a particular case, a hospital or healthcare provider could experience materially adverse settlement costs, as well as materially adverse costs associated with implementation of any settlement agreement. Prolonged and publicized investigations could be damaging to the reputation and business of a hospital or other healthcare provider, regardless of outcome.

The conduct of clinical research at hospitals is subject to increasing federal regulation. The Department of Health and Human Services Office of Human Research Protection, the Food and Drug Administration (the "FDA") and National Institutes of Health have increased their enforcement efforts in relation to their oversight of federally funded research on human subjects. These agencies' enforcement powers range from substantial fines and penalties to exclusion of researchers and suspension or termination of entire research programs, and repayment for errors in billing of the Medicare Program for care provided to patients enrolled in clinical trials that is not eligible for Medicare reimbursement. To the extent the health facilities within the Health System participate in federally funded clinical trials, these enforcement activities could subject the Health System to sanctions as well as repayment

obligations for adverse actions relating to the conduct of these trials, which could have a material and adverse effect on the Health System.

Corporate Compliance

The sentencing of organizations for federal health care crimes is governed by the U.S. Sentencing Guidelines, which permit the imposition of extremely large fines in many instances. The Guidelines permit the fine to be reduced significantly if the provider had in place at the time of the crime an effective corporate compliance program and/or accepts responsibility for its actions. As a result of the current environment of increased enforcement against health care fraud and abuse, health care organizations have established compliance programs to prevent or detect violations of federal law. The OIG issued a Compliance Program Guideline for Hospitals in 1998 and Supplemental Compliance Program Guidance for Hospitals in 2005 to assist hospitals in the development and implementation of effective controls and to promote adherence to applicable federal and state laws and program requirements of federal, state and private health plans.

The Health System has internal policies and procedures and has developed and implemented a compliance program that management of the Health System believes effectively reduces exposure for violations of these federal and State laws. However, because the government's enforcement efforts presently are widespread within the industry and may vary from region to region, there can be no assurance that the compliance program will significantly reduce or eliminate the exposure of the Health System to civil or criminal sanctions or adverse administrative determinations.

Negative Rankings Based on Clinical Outcomes, Cost, Quality, Patient Satisfaction and Other Performance Measures.

Health plans, Medicare, Medicaid, employers, trade groups and other purchasers of health services, private standard-setting organizations and accrediting agencies increasingly are using statistical and other measures in efforts to characterize, publicize, compare, rank and change the quality, safety and cost of health care services provided by hospitals and physicians. Published rankings (such as "score cards"), "pay for performance," "never-events" and other financial and non-financial incentive programs are being introduced to affect the reputation and revenue of hospitals and the members of their medical staffs and to influence the behavior of consumers and providers such as the Health System. Currently prevalent are measures of quality based on clinical outcomes of patient care, reduction in costs, patient satisfaction and investment in health information technology. Measures of performance set by others that characterize a hospital negatively may adversely affect its reputation and financial condition.

CMS and certain private insurers and HMOs will not reimburse hospitals for medical costs arising from certain "never events," which include specific preventable medical errors. The occurrence of "never events" or "serious reportable events" is more likely to be publicized and may negatively affect a hospital's reputation, reducing future utilization and potentially increasing the possibility of liability claims.

Environmental Laws and Regulations

The Health System is subject to a wide variety of federal, state and local environmental and occupational health and safety laws and regulations. These include but are not limited to: air and water quality control requirements; waste management requirements; specific regulatory requirements applicable to asbestos and radioactive substances; requirements for providing notice to employees and members of the public about hazardous materials handled by or located at a hospital; and requirements for training employees in the proper handling and management of hazardous materials and wastes.

Hospitals may be subject to requirements related to investigating and remedying hazardous substances located on their property, including such substances that may have migrated off the property. Typical hospital operations include the handling, use, storage, transportation, disposal and or discharge of hazardous, infectious, toxic, radioactive, biomedical, flammable and other hazardous materials, wastes, pollutants and contaminants. As such, hospital operations are susceptible to the practical, financial and legal risks associated with the environmental laws and regulations. Such risks may result in damage to individuals, property or the environment; may interrupt operations and/or increase their costs; result in liability, damages, injunctions or fines; may result in investigations, administrative proceedings, civil litigations, criminal prosecution, penalties or other governmental agency actions

and may not be covered by insurance. No assurance can be given that a violation of federal, state or local environmental laws, rules, or regulations will not occur.

Other Governmental Regulation

The Health System's activities and operations are subject to regulation by federal agencies other than those that administer the Medicare and Medicaid programs. Such agencies include the FDA, the Drug Enforcement Agency, the Department of Labor, the Occupation Health and Safety Administration, the Environmental Protection Agency and the IRS. The Health System is also subject to regulation by the Commonwealth, primarily by the Pennsylvania Department of Health and the New Jersey Department of Health. Compliance with federal and State agencies may require substantial expenditures from time to time for administrative or other costs.

Risks in Healthcare Delivery

General

Efforts by health insurers and governmental agencies to limit the cost of hospital service and to reduce utilization of hospital facilities may reduce future revenues. Hospitals in the United States are considered to have significant excess capacity. Through various combinations of changes in governmental policy, competition, advances in technology and treatment, and changes in payment methodology to reduce incentives for inpatient hospital utilization, inpatient hospitalizations have generally decreased over the past five years. It is probable that these trends will continue, and the factors mentioned above will continue to create operational and economic uncertainty for hospitals. It is now generally acknowledged that hospital operations pose greater complexity and higher risk than in years past, and this trend may continue. It is not practical to enumerate each and every operating risk which may result from the operations of the Health System, and certain risks or combinations of risks which are now unanticipated may have material adverse results in the future. Certain risks relating to the operations of the Health System are enumerated below.

Competition

Increased competition from a wide variety of potential sources, including, but not limited to, other hospitals, inpatient and outpatient healthcare facilities, clinics, physicians and others, may adversely and increasingly affect the utilization and/or revenues of the Health System. Further, increased competition could arise due to the recent increases in the development of integrated health delivery systems in the services areas of the Health System. Existing and potential competitors may not be subject to various regulations and restrictions applicable to the Health System, and may be more flexible in their ability to adapt to competitive opportunities and risks. Certain new competitors, such as home health and infusion providers, and certain niche providers, such as specialized cardiology or oncology companies, specifically target hospital patients as their prime source of revenue growth. Some of these companies have aggressive business and marketing plans, and some are well capitalized. Regardless of any moratorium that may be imposed from time to time on such types of competition, if these competitors are successful, some of the most profitable aspects of the inpatient services of the Health System may be stripped away, and/or overall hospital utilization of the Health System may decline further. Competition may, in the future, arise from new sources not currently anticipated or prevalent.

Antitrust

Antitrust liability may arise in a variety of circumstances, including medical staff privilege disputes, payor contracting, joint ventures, merger, affiliation and acquisition activities, certain pricing or salary setting activities and anticompetitive business conduct or practices. The application of federal and state antitrust laws to health care entities is evolving, thus the legal guidance is not always lucid. Currently, the most common areas for potential liability for hospitals and other healthcare providers are joint action among providers with respect to payor contracting, medical staff credentialing disputes and anticompetitive business conduct or practices by hospitals or other healthcare providers with sufficiently large market share.

Violation of the antitrust laws could result in criminal and/or civil enforcement proceedings by federal and state agencies, as well as actions by private litigants. In certain actions, private litigants may be entitled to treble damages and in others, governmental entities may be able to assess substantial monetary fines. Moreover,

successful private or governmental litigants may obtain injunctive relief that can affect the defendant's ability to conduct or continue certain business practices or activities.

Service Area

The financial performance of the Health System is, to some extent, dependent upon the economic vitality of its service area. If there were a general economic downturn in the Health System's extended service area, it could result in a decrease in the population served by the Health System or a loss of insurance benefits for a portion of the Health System's patients, either or both of which could lead to a decrease in revenues of the Health System.

Labor Relations and Collective Bargaining

Hospitals are large employers with a wide variety of employees. Increasingly, employees of hospitals are becoming unionized and many hospitals have collective bargaining agreements with one or more labor organizations. Employees subject to collective bargaining agreements may include essential nursing and technical personnel as well as food services, maintenance and other trade personnel. Renegotiation of such agreements upon expiration may result in significant cost increases to hospitals. Employee strikes or other unfavorable labor actions may have an adverse impact on operations, revenue and hospital reputation.

Certain employees of the Health System currently are covered by collective bargaining agreements. See "ADDITIONAL HEALTH SYSTEM INFORMATION – Employees" in APPENDIX A hereto.

Staffing Shortages

In recent years, the healthcare industry has suffered from a scarcity of nursing and other qualified healthcare technicians and personnel. This trend could force the Health System to pay higher salaries to nursing and other qualified healthcare technicians and personnel as competition for such employees intensifies and, in an extreme situation, could lead to difficulty in keeping the facilities licensed to provide nursing care and thus eligible for reimbursement under Medicare and Medicaid.

In addition to overall staffing shortages, there have been efforts in many states across the country, including Pennsylvania, to introduce legislation limiting a hospital's ability to require nurses to work overtime and to mandate minimum nurse-patient staff ratios. In December 2008, the Commonwealth enacted legislation, effective July 1, 2009, prohibiting discipline or discrimination against a nurse for refusing to work beyond an agreed to, scheduled work shift, except in narrowly-defined unforeseeable circumstances. These and other similar future laws may exacerbate the nurse staffing shortage.

Physician Relations

The success of the business of the Health System depends in significant part on the number, quality, specialties, and admitting and scheduling practices of admitting physicians. Accordingly, it is essential to the Health System's ongoing business that it attract an appropriate number of quality physicians in the specialties required to support its services and that it maintain good relationships with those physicians. A shortage of physicians, especially in primary care, could become a significant issue for health providers in the coming years.

The primary relationship between a hospital and physicians who practice in it is through the hospital's organized medical staff. Medical staff bylaws, rules and policies establish the criteria and procedures by which a physician may have his or her privileges or membership curtailed, denied or revoked. Physicians who are denied medical staff membership or certain clinical privileges, or who have such membership or privileges curtailed, denied or revoked often file legal actions against hospitals. Such actions may include a wide variety of claims, some of which could result in substantial uninsured damages to a hospital. In addition, failure of the hospital governing body to oversee adequately the conduct of its medical staff may result in hospital liability to third parties. All hospitals, including those owned and operated by the Health System, are subject to such risks.

The Health System may contract with physician organizations (such as independent physician associations, and physician-hospital organizations) to arrange for the provision of physician and ancillary services. Because physician organizations are separate legal entities with their own goals, obligations to shareholders, financial status, and personnel, there are risks involved in contracting with the physician organizations.

The success of the Health System is partially dependent upon its ability to attract physicians to join the physician organizations and to attract physician organizations to participate in their networks, and upon the ability of the physicians, including employed physicians, to perform their obligations and deliver high quality patient care in a cost-effective manner. There can be no assurance that the Health System will be able to attract and retain the requisite number of physicians, or that such physicians will deliver high quality healthcare services. Without impaneling a sufficient number and type of providers, the Health System could fail to be competitive, could fail to keep or attract payor contracts, or could be prohibited from operating until its panel provided adequate access to patients. Such occurrences could have a material adverse effect on the business or operations of the Health System.

Section 340B Drug Pricing Program

Hospitals that participate (as "covered entities") in the prescription drug discount program established under Section 340B of the federal Public Health Service Act (the "340B Program") are able to purchase certain outpatient prescription drugs for their patients at a reduced cost. In February 2017, the federal government withdrew proposed omnibus guidance for the 340B Program. The proposed guidance was initially introduced in August 2015, and would have updated all areas of the 340B program, including significant changes to the definition of eligible patient, and to 340B Program integrity provisions. By withdrawing the proposed guidance, the federal government indicates that the guidance will not be adopted as proposed. Since the withdrawal, there have been no updates to the guidance from the Trump administration. As a result of court cases limiting the scope of the administration's ability to issue regulations that have binding legal effect with regard to many aspects of the 340B Program, the Trump administration will need to evaluate the scope and intended effect of any forthcoming guidance. Until guidance is finalized and adopted, 340B Program covered entities and drug manufacturers must continue to rely on the historical guidance.

In a 2018 outpatient prospective payment system final rule, CMS announced that it would reduce payments for separately payable, non-pass-through drugs (excluding vaccines) purchased through the 340B Program from Average Sales Price ("ASP") plus 6 percent to ASP minus 22.5 percent, an effective reduction of 26.89 percent in payments for 340B Program drugs. However, the District Court for the District of Columbia ruled that these payment cuts exceeded the regulatory authority. The retroactive application of this ruling is currently uncertain, but the cuts have been reversed for future payments.

Malpractice Claims and Liability Insurance

Malpractice and other actions alleging wrongful conduct are often filed against hospitals. Potential liabilities associated with these claims can be significant. The Health System carries primary coverage for professional liability claims principally through captive insurance programs, through the state-administered M-Care program and through self-insurance. While the Health System believes its insurance program is adequate, it is possible that the cost of coverage, including other programs of insurance, in the future could significantly increase or that the amount payable in respect of liability claims could impose material increased expense to the Health System. Increases in the cost or limitations on the availability of malpractice insurance to other healthcare professionals could also result in a shortage of medical professionals and has the potential of disrupting the delivery of healthcare.

Any judgments or settlements that exceed insurance coverages or self-insurance reserves could have a material adverse effect on the Health System. Moreover, the Health System is not able to predict the cost or availability of any such insurance in the future.

For a discussion of the professional liability insurance coverage of the Health System, see APPENDIX A: "BUSINESS OF THE HEALTH SYSTEM – Malpractice Insurance."

Litigation Relating to Billing and Collection Practices

Over the past several years, lawsuits have been filed in both federal and state courts alleging, among other things, that hospitals have failed to fulfill their obligations to provide charity care to uninsured patients, have overcharged uninsured patients, and have engaged in aggressive billing and collection practices. Other cases have alleged that charging patients more for services furnished in a hospital-based setting is a wrongful or deceptive practice. Some of these cases have since been dismissed by the courts and some hospitals and health systems have entered into substantial settlements. A number of cases are still pending in various courts around the country with inconsistent results and others could be filed.

Affiliation, Merger, Acquisition and Divestiture

Significant numbers of affiliations, mergers, acquisitions and divestitures have occurred in the healthcare industry in recent years. As part of its ongoing planning process, the Health System has considered and will continue to consider the potential acquisition of operations or property that may become affiliated with or become part of the Health System in the future, as well as the potential disposition of certain existing operations or properties of the Health System. As a result, it is possible that the organizations and assets which make up the Health System may change from time to time, subject to the provisions in the Master Indenture and other financing documents that apply to merger, sale, disposition or purchase of assets, or with respect to joining or withdrawing from the Obligated Group.

Joint Ventures

The Health System may participate in ancillary joint ventures with tax-exempt or for-profit entities. Participation in joint ventures, particularly joint ventures with for-profit entities, that do not meet requirements of the Code, potentially may: (i) result in a finding of inurement or undue private benefit which could result in a loss of tax-exempt status, (ii) result in a finding of an excess benefit transaction which could result in the imposition of an excise tax on the insider involved in the transaction or on the Health System's management that knowingly approved the transaction, or both, or (iii) result in a finding that the activity is unrelated to the exempt purpose of the members of the Health System and a determination that certain income received by the tax-exempt organization from the joint-venture with the for-profit entity is taxable. Management of the Health System does not believe that participation by the Health System or an affiliated entity in any such presently existing ancillary joint venture will have a material adverse effect on the Health System's tax-exempt status or financial condition.

Inadequate Payments and Uncompensated Care

The Health System is also at risk for the provision of hospital services on an uncompensated or undercompensated basis. Consistent with its status as a tax-exempt 501(c)(3) organization, the Health System generally pursues a policy of providing care to the poor and indigent without regard to ability to pay and maintains a financial assistance policy. Governmental agencies may also compel the provision of uncompensated care. For example, federal law imposes significant fines on a hospital that denies appropriate care on the basis of the patient's ability to pay or the source of payment. As a result, the Health System may be required to provide services for which it receives reimbursement below cost, or for which it may receive no reimbursement, from the patient or third-party payors. While the Health System attempts to provide care to the poor and indigent in a prudent manner, the continuation or expansion of such policy, or the inability to properly document its indigent care, could have an adverse financial effect on the Health System.

While the ACA is designed to reduce uncompensated care by expanding health care coverage to a larger portion of the population, improvements to coverage and access were not expected to occur immediately and may be reversed by recent executive and legislative actions relating to the ACA, such as the elimination of the individual mandate. In addition, the Medicaid program is dependent on the continued ability of federal and state funding, which could be curtailed in the future in response to growing budget deficits at all governmental levels. The continued availability, comprehensiveness of coverage and adequacy of reimbursement for care for the indigent and disabled cannot be assured in the future.

Information Systems and Technology

Scientific and technological advances, new procedures, drugs and appliances, preventive medicine, occupational health and safety and outpatient healthcare delivery may reduce utilization and revenues of the Health System in the future. Technological advances in recent years have accelerated the trend toward the use by hospitals of sophisticated, and costly, equipment and services for diagnosis and treatment. The acquisition and operation of certain equipment or services may continue to be a significant factor in hospital utilization, but the ability of the Health System to offer such equipment or services may be subject to the availability of equipment or specialists, governmental approval, the ability to finance such acquisitions or operations, or reimbursement at levels sufficient to support the cost of such equipment or services.

The ability to adequately price and bill health care services and to accurately report financial results depends in part on the integrity of the data stored within information systems, as well as the operability of such

systems. Information systems require an ongoing commitment of significant resources to maintain, protect and enhance existing systems and develop new systems to keep pace with continuing changes in information processing technology, evolving systems and regulatory standards. There can be no assurance that efforts to upgrade and expand information systems capabilities, protect and enhance these systems, and develop new systems to keep pace with continuing changes in information processing technology will be successful or that additional systems issues will not arise in the future.

The use of electronic media is standard for clinical operations, medical records and order entry functions. The reliance on information technology for these purposes imposes new expectations on physicians and other workforce members to be adept in using and managing electronic systems. It also introduces risks related to patient safety, and to the privacy, accessibility and preservation of health information. Technology malfunctions or failure to understand and use information systems properly could result in the dissemination of or reliance on inaccurate information, as well as in disputes with patients, physicians and other health care professionals. Health information systems may also be subject to different or higher standards or greater regulation than other information technology or the paper-based systems previously used by health care providers, which may increase the cost, complexity and risks of operations. All of these risks may have adverse consequences on hospitals and health care providers.

Future government regulation and adherence to technological advances could result in an increased need of the Health System to implement new technology. Such implementation could be costly and is subject to cost overruns and delays in application, which could have a material adverse effect on the Health System.

Technological advances in recent years have forced hospitals to acquire sophisticated and costly equipment to remain technologically current. Moreover, the growth of e-commerce and the increased capabilities of telehealth may also result in a shift in the way that health care is delivered. For example, physicians are able to provide certain services remotely, using enhanced technology that allows real-time access using video-conferencing technology over the internet, and patients can purchase pharmaceuticals, devices, and other health services online through telehealth providers, subscription services, and other new and innovative models. If, due to financial constraints, the Health System were unable to acquire new equipment required to remain technologically current, the operations and financial condition of the Health System could be materially adversely affected.

Cyber-Attacks

Despite the implementation of network security measures by the Health System, its information technology systems may be vulnerable to breaches, hacker attacks, computer viruses, physical or electronic break-ins and other similar events or issues. The Federal Bureau of Investigation has expressed concern that health care systems are a prime target for such cyber-attacks due to the mandatory transition from paper records to electronic health records and a higher financial payout for medical records in the black market. Health care systems have recently been subject to such attacks. Such events or issues could lead to the inadvertent disclosure of protected health information or other confidential information, ransom attacks holding critical information hostage, or could have an adverse effect on the ability of the Health System to provide health care services. Any breach or cyber-attack that comprises patient data could result in negative press and substantial fines or penalties for violation of HIPAA (defined below) or similar state privacy laws. See "REGULATION OF THE HEALTH CARE INDUSTRY" below. See also "ADDITIONAL HEALTH SYSTEM INFORMATION - Information Technology and Cybersecurity" in APPENDIX A hereto.

Facility Damage

Hospitals are highly dependent on the condition and functionality of their physical facilities. Damage from natural causes, fire, deliberate acts of destruction, terrorism or various facility system failures may have a material adverse impact on hospital operations, financial condition and results of operations, especially if insurance is inadequate to cover resulting property and business losses. The occurrences of natural disasters, including floods, earthquakes and fires may damage facilities of the Health System, interrupt utility service to facilities or otherwise impair the operation of some facilities or the generation of revenues beyond existing insurance coverage.

Class Actions

Hospitals, health systems and other health care providers have long been subject to a wide variety of litigation risks, including liability for care outcomes, employer liability, property and premises liability, and peer

review litigation with physicians, among others. In recent years, consumer class action litigation has emerged as a potentially significant source of litigation liability for hospitals, health systems and other health care providers. These class action suits have most recently focused on hospital billing and collections practices and breaches of privacy, and they may be used for a variety of currently unanticipated causes of action. Since the subject matter of class action suits may involve uninsured risks, and since such actions often involve alleged large classes of plaintiffs, they may have material adverse consequences on hospitals and health systems in the future.

Wage and Hour Class Actions and Litigation

Federal law and many states, including Pennsylvania, impose standards related to worker classification, payment of the minimum wage, eligibility and payment for overtime, liability for providing rest periods and similar requirements. Large employers with complex workforces, such as hospitals, are susceptible to actual and alleged violations of these standards. In recent years there has been a proliferation of lawsuits over these "wage and hour" issues, often in the form of large class actions. For large employers, such as the Health System, such class actions can involve multi-million dollar claims, judgments and/or settlements. A major class action decided or settled adversely to the Health System could have a material adverse effect.

Action by Consumers and Purchasers of Health Care Services

Major purchasers of health care services also could take action to restrain hospital or other provider charges or charge increases. As a result of increased public scrutiny, it is also possible that the pricing strategies of hospitals may be perceived negatively by consumers, and hospitals may be forced to reduce fees for their services. Decreased utilization could result, and health care revenues may be negatively impacted. In addition, consumers and groups on behalf of consumers are increasing pressure for hospitals and other health care providers to be transparent and provide information about cost and quality of services that may affect future consumer choices about where to receive health care services.

Tax Matters

Tax-Exempt Status of Interest on the 2019 Bonds

The tax-exempt status of the 2019 Bonds is based on the continued compliance by the Authority and the Members of the Obligated Group with certain covenants relating generally to restrictions on use of the facilities of the Members of the Obligated Group, maintenance of Section 501(c)(3) status under the Code by the Members of the Obligated Group, arbitrage limitations, rebate of certain excess investment earnings to the federal government, and restrictions on the amount of issuance costs financed with the proceeds of the 2019 Bonds. Failure to comply with such covenants could cause interest on the 2019 Bonds to become subject to federal income taxation retroactive to the date of issue of the 2019 Bonds.

Proposals to limit or eliminate the exclusion of interest on tax-exempt bonds from gross income for some or all taxpayers have been made in the past by the Administration and in Congress, and may be made again in the future. The prospects for any such legislation now or in the future are uncertain. The impact of such legislation, if enacted, on the 2019 Bonds and the financial condition of the Health System cannot be predicted.

Tax-Exempt Status of the Members of the Obligated Group

The Members of the Obligated Group are charitable organizations described in Section 501(c)(3) of the Code that are generally exempt from the payment of federal income taxes. The maintenance of such status is contingent on compliance with general rules promulgated in the Code and related regulations regarding the organization and operation of tax-exempt entities, including their operation for charitable and educational purposes and their avoidance of transactions which may cause their earnings or assets to inure to the benefit of private individuals. As these general principles were developed primarily for public charities, which do not conduct large-scale technical operations and business activities, they often do not adequately address the myriad of operations and transactions entered into by modern healthcare organizations.

The most significant adverse consequence to a tax-exempt entity for inurement or unlawful private benefit available to the IRS under the Code would be revocation of tax-exempt status. Although the IRS has seldom revoked the 501(c)(3) tax-exempt status of any organization, it could do so in the future. Moreover, upon the

issuance of the 2019 Bonds, the Health System will be obligated with respect to a substantial amount of outstanding tax-exempt revenue bonds, including the 2019 Bonds. The loss of tax-exempt status by even one Member of the Obligated Group could adversely affect the tax exemption of the 2019 Bonds and of other tax-exempt debt of the Health System retroactively to the date of issuance of the 2019 Bonds or of such other debt, and defaults in covenants regarding the 2019 Bonds and other related tax-exempt debt would likely result. Loss of tax-exempt status could also result in substantial tax liabilities on income of affected Members of the Obligated Group. For these reasons, loss of tax-exempt status of any Member of the Obligated Group could have a material adverse effect on the financial condition of the Health System, taken as a whole.

With increasing frequency, the IRS has imposed substantial monetary penalties and future charity care or public benefit obligations on tax-exempt organizations that own and operate hospitals in lieu of revoking tax-exempt status, as well as requiring that certain transactions be altered, terminated or avoided in the future and/or requiring governance or management changes. These penalties and obligations typically are imposed on the tax-exempt organization pursuant to a closing agreement.

The IRS conducts comprehensive examinations of nonprofit organizations through its Coordinated Examination Program ("CEP"). These examinations generally cover a wide range of possible issues, including the community benefit basis of exemption, private inurement and private benefit, partnerships and joint ventures, retirement plans and employee benefits, employment taxes, tax-exempt bond financing, political contributions and unrelated business taxable income. The Health System may be the subject of a CEP audit in the future.

In recent years, the IRS has issued a number of formal and informal statements or interpretations, which have increased uncertainty as to the position of the IRS on a wide variety of activities commonly undertaken by healthcare organizations, including the arrangements of such organizations with physicians and physician groups. As a result, tax-exempt hospitals and other providers are currently subject to an increased degree of scrutiny and possibly enforcement by the IRS with respect to such activities.

Legislation enacted by Congress in 1996 provides the IRS with an "intermediate" sanctions system of federal excise taxes to combat violations by tax-exempt organizations of the private inurement prohibition of the Code. Prior to the enactment of this law, the IRS could punish such violations only through revocation of an entity's tax-exempt status. Intermediate sanctions may be imposed where there is an "excess benefit transaction" defined to include a disqualified person (i.e., an insider) (i) engaging in a non-fair market value transaction with the tax-exempt organization; (ii) receiving unreasonable compensation from the tax-exempt organization; or (iii) receiving payment in an arrangement that violates the private inurement proscription. Penalty excise taxes may be imposed in an amount up to 200% of the amount of the excess benefit and may be imposed by the IRS either in lieu of or in addition to revocation of exemption. The legislation is potentially favorable to tax-exempt entities since it provides the IRS with a punitive option short of revocation of tax-exempt status to deal with incidents of private inurement. However, the standards for tax exemption have not been changed and the IRS still has the authority for revoking tax-exempt status in appropriate circumstances.

The ACA also contains new requirements for tax-exempt hospitals. Under the ACA, each tax-exempt hospital facility is required to (i) conduct a community health needs assessment at least every three years and adopt an implementation strategy to meet the identified community needs, (ii) adopt, implement and widely publicize a written financial assistance policy and a policy to provide emergency medical treatment without discrimination, (iii) limit charges to individuals who qualify for financial assistance under such tax-exempt hospital's financial assistance policy to no more than the amounts generally billed to individuals who have insurance covering such care and refrain from using "gross charges" when billing such individuals, and (iv) refrain from taking extraordinary collection actions without first making reasonable efforts to determine whether the individual is eligible for assistance under such tax-exempt hospital's financial assistance policy. In addition, the Treasury Department is required to review information about each tax-exempt hospital's community benefit activities at least once every three years, as well as to submit an annual report to Congress with information regarding the levels of charity care, bad debt expenses, unreimbursed costs of government programs, and costs incurred by tax-exempt hospitals for community benefit activities. The IRS issued final regulations under Section 501(r) of the Code on December 29, 2014, clarifying these new requirements and outlining reporting obligations and the consequences of failure to comply. The final regulations became effective for taxable years beginning after December 29, 2015 (*i.e.*, for the 2016 taxable year). The periodic reviews and reports to Congress regarding the community benefits provided by 501(c)(3) hospitals may increase the likelihood that Congress will require such hospitals to provide a minimum level

of charity care in order to retain tax-exempt status and may increase IRS scrutiny of particular 501(c)(3) hospital organizations.

The IRS has taken the position that hospitals that are in violation of the federal Anti-Kickback Law may also be subject to revocation of their tax-exempt status. See "REGULATION OF THE HEALTH CARE INDUSTRY–Federal and State Legislation; National Health Care Reform–Medicare/Medicaid Anti-Kickback Laws" below. As a result, tax-exempt hospitals, such as those of the Health System, which have, and will continue to have, extensive transactions with health providers and suppliers are subject to an increased degree of scrutiny and perhaps enforcement by the IRS.

Unrelated Business Income

The IRS sometimes undertakes audits and reviews of the operations of tax-exempt hospitals with respect to their exempt activities and the generation of unrelated business taxable income ("UBTI"). The Members of the Obligated Group participate in activities that generate UBTI. Further, the "Tax Cuts and Jobs Act of 2017" revised the UBTI rules to isolate discrete lines of business such that losses from one line cannot be used to offset income from another line. Management believes it has properly accounted for and reported UBTI; nevertheless, an investigation or audit could lead to a challenge which could result in taxes, interest and penalties with respect to unreported UBTI and in some cases could ultimately affect the tax-exempt status of the Obligated Group members as well as the exclusion from gross income for federal income tax purposes of the interest payable on the 2019 Bonds.

Internal Revenue Service Examination of Tax-Exempt Hospitals

Hospitals, including those in the Health System, must satisfy the community benefit standard in order to qualify as tax-exempt charities under Section 501(c)(3) of the Code. In 2006, the IRS initiated the Hospital Compliance Project in an effort to study nonprofit hospitals and community benefit, and to determine how hospitals establish and report executive compensation. To gather data concerning community benefit and charity care, the IRS submitted questionnaires to 487 hospitals. The questionnaires focused on hospital operations, services and the community benefit extended by each surveyed hospital. The IRS issued a report in February 2009 summarizing a study of nonprofit hospitals that evaluated uncompensated care as a factor in whether a hospital is providing a community benefit, a requirement to remain tax-exempt. The IRS continues to consider revising the community benefit standard. As a result, hospitals within the Health System may be required to provide services for which they receive reimbursement below cost, or for which they may receive no reimbursement, from the patient or third-party payors.

Limitations on Contractual and Other Arrangements Imposed by the Internal Revenue Code

As tax-exempt organizations, the Obligated Group Members are limited with respect to the use of practice income guarantees, reduced rent on medical office space, low interest loans, joint venture programs and other means of recruiting and retaining physicians. The IRS scrutinizes a broad variety of contractual relationships commonly entered into by hospitals and has issued a detailed audit guide suggesting that field agents scrutinize numerous activities of the hospitals in an effort to determine whether any action should be taken with respect to limitations on or revocation of their tax-exempt status or assessment of additional tax. Any suspension, limitation, or revocation of the tax-exempt status of a Member of the Obligated Group or assessment of significant tax liability could have a materially adverse effect on the Obligated Group and might lead to loss of tax exemption of interest on the 2019 Bonds.

Bond Examinations

The IRS has an ongoing program of examining tax-exempt obligations to determine whether, in the view of the IRS, interest on such obligations is properly excluded from gross income for federal income tax purposes, and it is possible that the 2019 Bonds may be selected for examination under such program. If an examination is commenced, under current procedures, the IRS will treat the Authority as the relevant taxpayer under the Code, and the holders of the 2019 Bonds may have no right to participate. The commencement of an audit could adversely affect the market value and liquidity of the 2019 Bonds regardless of the ultimate outcome.

Future Legislation Regarding Limitations or Elimination of Tax-Exempt Status

Future tax legislation, administrative actions taken by tax authorities or court decisions, whether at the federal or state level, may adversely affect the tax-exempt status of interest on the 2019 Bonds under federal or state law or otherwise prevent beneficial owners of the 2019 Bonds from realizing the full current benefit of the tax status of such interest. In addition, such legislation, administrative actions and court decisions could affect the market price or marketability of the 2019 Bonds. Prospective investors should consult with their tax advisors on the foregoing matters as they consider an investment in the 2019 Bonds.

Cost of Capital

From time to time, Congress has considered and is considering revisions to the Code that may prevent or limit access to the tax-exempt debt market by borrowers such as the Borrowers. Such legislation, if enacted into law, may materially increase the cost of capital to the Health System. See "Tax Reform" below.

State Income Tax Exemption and Local Property Tax Exemption

It is likely that the loss by a Member of the Obligated Group of federal tax exemption would also result in a challenge to the state tax exemption of such Member. Such an event would likely impose significant additional costs on the Health System.

In recent years, state, county, and local taxing authorities have been undertaking audits and reviews of the operations of tax-exempt healthcare providers with respect to their real property tax exemptions. In some cases, particularly where such authorities are dissatisfied with the amount of services provided as charity care to indigents, the real property tax-exempt status of the healthcare providers has been increasingly challenged. The majority of the real property of the Health System is exempt from real property taxation. Such challenges could have a material adverse effect on the financial condition of the Health System, taken as a whole. In addition, state and local taxing authorities with jurisdiction over the Health System could enact tax laws or promulgate regulations under existing tax laws that would further limit or repeal the exemptions from state and local tax currently enjoyed by the Members of the Obligated Group.

Tax Reform

On December 22, 2017, President Trump signed into law the Tax Cuts and Jobs Act (the "Tax Cuts and Jobs Act"). The Tax Cuts and Jobs Act lowered corporate and individual tax rates and eliminated certain tax preferences and other tax expenditures. The Tax Cuts and Jobs Act also effectively repealed a key provision of the ACA known as the "individual mandate" or the "individual shared responsibility payment," which imposes a tax on individuals who do not obtain health care insurance. Such repeal of the individual mandate may result in a higher uninsured rate, which could have a materially adverse effect on the Obligated Group. In addition, the Tax Cuts and Jobs Act precludes the issuance of tax-exempt bonds to advance refund outstanding tax-exempt bonds. The Tax Cuts and Jobs Act could materially adversely affect the market price or marketability of the 2019 Bonds (and outstanding tax-exempt bonds of issued on behalf of the Health System) and/or availability of borrowed funds for the Health System, particularly for capital expenditures, as well as the results of operations and financial position of the Health System generally.

Nonprofit Healthcare Environment

The Members of the Obligated Group are nonprofit corporations, exempt from federal income taxation as organizations described in Section 501(c)(3) of the Code. As nonprofit tax-exempt organizations, such entities are subject to federal, state and local laws, regulations, rulings and court decisions relating to their organization and operation, including their operation for religious and charitable purposes. At the same time, the Members of the Obligated Group conduct large-scale complex business transactions and are often the major employers in their geographic areas. There can often be a tension between the rules designed to regulate a wide range of charitable organizations and the day-to-day operations of a complex, multi-state healthcare organization.

Recently, an increasing number of the operations or practices of healthcare providers have been challenged or questioned to determine if they are consistent with the regulatory requirements for nonprofit tax-exempt organizations. These challenges are broader than concerns about compliance with federal and state statutes and

regulations, such as Medicare and Medicaid compliance, and instead in many cases are examinations of core business practices of the healthcare organizations. Areas that have come under examination have included pricing practices, billing and collection practices, charitable care, executive compensation, exemption of property from real property taxation, and others. These challenges and questions have come from a variety of sources, including state attorneys general, the IRS, labor unions, Congress, state legislatures, and patients, and in a variety of forums. These examples are indicative of a greater scrutiny of the billing, collection and other business practices of these organizations, and may indicate an increasingly more difficult operating environment for healthcare organizations, including the Health System. The challenges and examinations, and any resulting legislation, regulations, judgments, or penalties, could have a material adverse effect on the Health System.

Nonprofit corporations, including the Health System, are subject to state oversight and examination to ensure their charitable purposes are being carried out, that their fundraising and investment activities comply with state law and that the terms of charitable gifts are followed. Both the Pennsylvania Office of Attorney General and the Attorney General of the State of New Jersey review fundamental change transactions (e.g., sales, mergers, affiliations) involving nonprofit, charitable organizations outside the ordinary course of business to ensure that the public interest in the charitable assets of the organization is fully protected. In addition, the Pennsylvania state legislature may direct state executive bodies to monitor or audit levels of charity care being provided in nonprofit hospitals.

The legislatures of some states have attempted to pass legislation mandating charity care levels or imposing other requirements relating to charity care. From time to time Congress proposes new laws and the IRS proposes new regulations concerning the manner in which charity care is calculated or issues guidance concerning the level of charity care expected of an organization exempt from tax under section 501(c)(3) of the Code. The Health System cannot predict whether legislation, regulations, or guidance will be implemented in the future and cannot predict the affect it may have on the Obligated Group's financial condition, though such effect may be material.

Certain Matters Relating to Enforceability of Obligations

No facilities of the Health System are pledged as security for any 2019 Bonds. In addition, with certain minor exceptions, the facilities of the Health System are not general purpose facilities and are not likely to be suitable for industrial or commercial use. Consequently, it would be difficult to find a buyer or lessee for such facilities and, in the event of the institution of bankruptcy proceedings, the estate in bankruptcy may not realize an amount sufficient to pay the outstanding 2019 Bonds from the disposition of such facilities.

The practical realization of value upon any default will depend upon the exercise of various remedies specified in the Bond Indenture, the Loan Agreement and the Master Indenture. These and other remedies may, in many respects, require judicial actions which are often subject to discretion and delay. The various legal opinions to be delivered concurrently with the delivery of the 2019 Bonds will contain customary qualifications as to the enforceability of the various legal instruments by limitations imposed by state and federal laws, rulings and decisions affecting remedies and by bankruptcy, reorganization, fraudulent conveyance, or other laws affecting the enforcement of creditors' rights generally.

The effectiveness of the pledge of Gross Receipts of the Health System is limited since a security interest in money generally cannot be perfected by the filing of financing statements under the Pennsylvania Uniform Commercial Code ("UCC"). Rather, such a security interest is perfected by taking possession of the subject funds. The monies constituting Gross Receipts received by the Health System from time to time are not required to be transferred to or held by the Master Trustee or the Bond Trustee, and may be spent by the Members of the Obligated Group or commingled with other funds. Under the circumstances, the pledge of Gross Receipts might not be perfected under the UCC.

The provisions of the Master Indenture pursuant to which each Member of the Obligated Group guarantees the payment of any and all amounts due under the Master Notes of the Obligated Group, including the 2019 Master Note, may not be enforceable as to payments from any Member other than the actual issuer of a Master Note which: (a) are required with respect to any Master Note which was issued for a purpose which is not consistent with the charitable purpose of the Member of the Obligated Group from which such payments are required or which is issued for the benefit of any entity other than a not-for-profit corporation which is exempt from federal income taxes under Sections 501(a) and 501(c)(3) of the Code and is not a "private foundation" as defined in Section 509(a) of the

Code; (b) are required to be made from any moneys or assets of the Health System from which such payments are required which are donor restricted or which are subject to a direct or express trust which does not permit the use of such moneys or assets for such payments; (c) would result in a cessation or discontinuance of any material portion of the healthcare or related services previously provided by the Member of the Obligated Group from which such payments are required; or (d) are required to be made pursuant to any loan violating applicable usury laws.

There is no clear precedent in the law as to whether payments on a Master Note by any Member of the Obligated Group may be voided by a trustee in bankruptcy in the event of a bankruptcy of such Member or by third-party creditors in an action brought pursuant to state fraudulent conveyances statutes. Under the United States Bankruptcy Code, a trustee in bankruptcy, and under state fraudulent conveyances statutes a creditor of a guarantor, may avoid any obligation incurred by a guarantor if, among other bases therefor, (a) the guarantor has not received fair consideration or reasonably equivalent value in exchange for the guaranty, and (b) the guarantor was insolvent at the time the obligation was incurred or the incurrence of the obligation renders the guarantor insolvent. Application by courts of the tests of "insolvency," "reasonably equivalent value" and "fair consideration" has resulted in a conflicting body of case law. It is possible that, in an action to force any Member of the Obligated Group to make a payment on a Master Note, including the 2019 Master Note, issued other than by such Member, a court might not enforce such a payment in the event it is determined that sufficient consideration for the guaranty of such Member was not received or that the incurrence of such guaranty has rendered or will render the Member of the Obligated Group insolvent or the Member of the Obligated Group is or will thereby become under-capitalized.

There exists statutory authority for a court to dissolve a nonprofit corporation or undertake supervision of its affairs on various grounds, including a finding that such corporation is insolvent. Moreover, pursuant to the common law and statutory power to enforce charitable trusts and to see that charitable funds are applied to their intended uses, the Attorney General of a state where Members of the Obligated Group are incorporated or do business may commence legal proceedings to dissolve a non-profit corporation acting contrary to its charitable purposes or to restrain actions inconsistent with the charitable use of such funds or which render such non-profit corporation unable to discharge its charitable functions. Such actions may arise on a court's own motion or pursuant to a petition of the Attorney General or such other persons who have interests different than those of the general public. The obligations of each Member of the Obligated Group may be limited by such charitable trust laws.

Bankruptcy

The rights and remedies of owners of the 2019 Bonds are subject to various provisions of the United States Bankruptcy Code (the "Bankruptcy Code"). A filing under the Bankruptcy Code by a Member of the Obligated Group would operate as an automatic stay of the commencement or continuation of any judicial or other proceeding against such Member, and its property, and as an automatic stay of any act or proceeding to enforce a lien upon its property.

A Member of the Obligated Group may file a plan for the adjustment of its debts in any such proceeding, which could include provisions modifying or altering the rights of creditors generally, or any class of them, secured or unsecured. The plan, when confirmed by the court, binds all creditors who had notice or knowledge of the plan and discharges all claims against the debtor provided for in the plan. No plan may be confirmed unless certain conditions are met, among which are that the plan is in the best interests of creditors, is feasible, and has been accepted by each class of claims impaired thereunder. Each class of claims has accepted the plan if at least two-thirds in dollar amount and more than one-half in number of the allowed claims of the class that are voted with respect to the plan are cast in its favor. Even if the plan is not so accepted, it may be confirmed if the court finds that the plan is fair and equitable with respect to each class of non-accepting creditors impaired thereunder and does not discriminate unfairly.

Secondary Market

There can be no assurance that there will be a secondary market for the purchase or sale of the 2019 Bonds. From time to time, there may be no market for the 2019 Bonds depending upon prevailing market conditions, including the financial condition or market position of firms who may make the secondary market, the evaluation of the Health System's capabilities and the financial condition and results of operations of the Health System.

Bond Ratings

There is no assurance that the ratings assigned to the 2019 Bonds at the time of issuance will not be lowered or withdrawn at any time, the effect of which could adversely affect the market price for, and marketability of, the 2019 Bonds.

Replacement Master Indenture

Master Notes and other Obligations issued under the Master Indenture may be replaced by payment obligations issued under a Replacement Master Indenture (as defined in APPENDIX E hereto) upon delivery of such Replacement Master Indenture to the Master Trustee upon the terms and conditions provided in the Master Indenture. The new obligated group may be different from the Obligated Group under the Master Indenture, and the financial condition or results of operations of the new obligated group may be materially different. Further, the Replacement Master Indenture may contain covenants and security that are different from the Master Indenture. See "Release and Substitution of Obligations upon Delivery of Replacement Master Indenture" in APPENDIX E hereto.

General Economic Factors and Credit Market Disruptions

The United States economy is unpredictable. Previous disruptions of the credit and financial markets have led to volatility in the securities markets, significant losses in investment portfolios, increased business failures and consumer and business bankruptcies and economic recession. In response to the 2008 recession, the Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Dodd Frank Act") was enacted in 2010. The Dodd-Frank Act included broad changes to the existing financial regulatory structure, including the creation of new federal agencies to identify and respond to the financial stability of the United States. On June 5, 2018, President Trump signed into law the Economic Growth, Regulatory Relief and Consumer Protection Act, which relaxes restrictions on large parts of the banking industry. The effects of the new law are unclear.

In the past, the economic climate has adversely affected the health care sector generally. Patient service revenues and inpatient volumes have not increased as historic trends would otherwise indicate. When unemployment rates were increasing nationally, increases in self-pay admissions, increased levels of bad debt and uncompensated care, reduced demand for elective procedures, and reduced availability and affordability of health insurance resulted. The economic climate also increased stresses on state budgets, potentially resulting in reductions in Medicaid payment rates or Medicaid eligibility standards and delays in payment of amounts due under Medicaid and other state or local payment programs. Any similar economic recession in the future could have similar or worse effects.

Other Factors

Additional factors may affect future operations of the Health System. The extent of such factors' influence cannot be determined at this time. Such factors include the following:

- Adverse labor actions resulting in a reduction in revenues without corresponding decreases in cost;
- Reduced demand for healthcare or other services arising from future medical and scientific advances, decreases in population in the Health System's service area or from increased competition by other health care providers;
- Efforts by insurers and governmental agencies to limit the cost of hospital services and to reduce utilization of inpatient hospital facilities by such means as preventive medicine, improved occupational health and safety, and outpatient care;
- Occurrence of natural or man-made disasters, which may damage the facilities of the Health System or interrupt utility service to the facilities or otherwise impair the operation of the Health System and the generation of revenues from the facilities;
- Increased unemployment or other adverse economic conditions in the Health System's service area that could increase the proportion of patients who are unable to pay fully for the cost of their care. In addition, increased unemployment caused by a general downturn in the economy of the Health

System's service area or by the closing of operations of one or more major employers in such service area may result in a loss of health insurance benefits for a portion of the Health System's patients; and

- Cost and availability of energy;
- Scientific and technological advances, new procedures, drugs and appliances, preventive medicine, occupational health and safety and outpatient health care delivery that may reduce utilization and revenues of the Health System's facilities;
- Any increase in the quantity of indigent care provided which is mandated by law or required due to increased needs of the community in order to maintain the charitable status and real estate tax exemption of the Members of the Obligated Group;
- Regulatory actions that might limit the ability of the Health System to undertake capital improvements to its facilities or to develop new institutional health services;
- The occurrence of a flood, earthquake, or other natural disaster, or a large-scale terrorist attack that disrupts operations of the Health System's facilities or increases the proportion of patients who are unable to pay fully for the cost of their care;
- Instability in the stock market which may adversely affect both the principal value of, and income from, the Health System's investment portfolio; and
- A national or localized outbreak of a highly contagious or epidemic disease.

REGULATION OF THE HEALTH CARE INDUSTRY

General Health Care Industry Factors

The Obligated Group, and the health care industry in general, are subject to regulation by a number of governmental agencies, including those which administer the Medicare and Medicaid programs, federal, state and local agencies responsible for administration of health planning programs and other federal, state and local governmental agencies. The health care industry is also affected by federal, state and local policies developed to regulate the manner in which health care is provided, administered and paid for nationally and locally. As a result, the health care industry is sensitive to legislative and regulatory changes in such programs and is affected by reductions and limitations in government spending for such programs as well as changing health care policies. The pressure to curb the rate of increase in federal spending in health care programs overall and on a per beneficiary basis is expected to increase as the U.S. population ages. Among other effects, this pressure may result in further reductions in reimbursement rates for hospital services and increased shift to value-based care in the Medicare and Medicaid programs. In addition, Congress and other governmental agencies have focused on the provision of care to indigent and uninsured or underinsured patients, the prevention of "dumping" such patients on other hospitals in order to avoid provision of unreimbursed care, and other issues. Adoption of additional regulations in these areas could have an adverse effect on the operations and financial condition of the Obligated Group Members. Furthermore, laws promulgated by Congress and state legislatures that regulate the manner in which health care services are provided and billed for, are increasing. As a result, the costs of complying with these laws and regulations are increasing. Some of the legislation and regulations affecting the health care industry are discussed in this section.

Federal and State Legislation; National Health Care Reform

General.

A significant portion of the revenues of the Obligated Group is derived from Medicare, Medicaid and other third-party payers. For a breakdown of the sources of payment for services provided by the Obligated Group Members, see "FINANCIAL INFORMATION – Sources of Revenue" in APPENDIX A hereto.

Medicare is a federal program administered by the CMS, through Medicare Administrative Contractors. Medicare provides certain health care benefits to beneficiaries who are 65 years of age or older and other classes of

individuals. Medicare Part A generally covers health services provided by institutional entities, including hospital, home health, nursing home care, and certain other providers. Medicare Part B covers outpatient services, certain physician services, medical supplies and durable medical equipment.

Medicaid is a federally assisted, state administered program of medical assistance that provides reimbursement for a portion of the cost of caring for certain indigent persons including parents and caretakers, relatives of children, children, pregnant women, former foster care individuals, non-citizens with medical emergencies, aged or disabled individuals not currently receiving Supplemental Security Income, and other individuals that qualify for a state's Medicaid program. Under the ACA, states have the option to expand Medicaid to cover individuals under the age of 65 with incomes up to 138% of the federal poverty level; the federal government pays 93% in 2019 and 90% in 2020 and beyond. Medical benefits are available under each participating state's Medicaid program, within prescribed limits, to persons meeting certain minimum income or other need requirements. The Medicaid program provides payments for medical items and services for any person who is determined to be eligible for Medicaid assistance on the date of service. Federal and state funds support the Medicaid program. Medicaid benefits are available, within prescribed limits, to persons meeting certain minimum income or other need requirements. Payment for medical and health services is made to providers in amounts determined in accordance with procedures and standards established by state law under federal guidelines, and providers are eligible to receive Medicaid payments up to, but not in excess of, the cost of providing such care. However, because the state is required to contribute funding prior to federal investment, most states' Medicaid programs reimburse providers for significantly less than the amount that would cover costs for treating this population. Fiscal considerations of state governments in establishing their budgets will directly affect the funds available to the providers for payment of services rendered to Medicaid beneficiaries. Delays in appropriations and state budget deficits that may occur from time to time create a risk that payment for services to Medicaid patients will be withheld or delayed. CMS regulations can also impact services and facilities that are eligible for reimbursement.

Significant changes have been and will likely continue to be made in these programs, which changes could have an adverse impact on the financial condition of the Obligated Group. In addition, bills have in the past and may in the future be introduced in Congress which, if enacted, could adversely affect the operations of the Obligated Group by, for example, decreasing payment by Medicare and Medicaid and other third-party payers or limiting the ability of the physicians on the medical staff of the Obligated Group to provide services or increase services provided to patients.

Participation in any federal health care program is heavily regulated. Providers and suppliers that participate in the Medicare and Medicaid programs must agree to be bound by the terms and conditions of the programs, such as meeting quality standards for rendering covered services and adopting and enforcing policies to protect patients from certain discriminatory practices, and must disclose certain ownership interests and/or managing control information. If a health care entity fails to substantially comply with any applicable conditions of participation in the Medicare and Medicaid programs or performs certain prohibited acts, the entity's participation in these programs may be terminated, and civil and/or criminal penalties may be imposed.

The discussion herein describes risks associated with certain existing federal and state laws, regulations, rules, and governmental administrative policies and determinations to which the Obligated Group Members and the health care industry are subject. These are regularly subject to change. Additionally, because health care regulations are particularly complex, such regulations may be interpreted and enforced in a manner that is inconsistent with management's interpretation. The Obligated Group's business or financial condition could be harmed if it is alleged to have violated existing health care regulations or if it fails to comply with new or changed health care regulations. Furthermore, health care, as one of the largest industries in the United States, continues to attract much legislative interest and public attention. Further changes in the health care regulatory framework that increase the burdens on health care providers could have a material adverse effect on the Obligated Group's business or financial condition.

Also, there can be no assurances that any current health care laws and regulations, including the ACA, will remain in their current form. There can be no assurances that any potential changes to the laws and regulations governing health care would not have a material adverse financial effect on the Obligated Group. Therefore, the following discussion should be read with the understanding that significant changes could occur in the foreseeable future in many of the statutory and regulatory matters discussed.

The Affordable Care Act

The ACA has significantly changed, and continues to change, how health care services are covered, delivered, and financed in the United States. One of the primary goals of the ACA–extending health coverage to millions of uninsured legal U.S. residents–has taken place through a combination of private sector health insurance reforms and Medicaid program expansion (discussed below). To fund Medicaid expansion, the ACA includes a broad array of quality improvement programs, cost-efficiency incentives, and enhanced fraud and abuse enforcement measures, each designed to generate savings within the Medicare and Medicaid programs. Additionally, the ACA created health insurance exchanges–competitive markets for individuals and small employers to purchase health insurance–and financial programs designed to encourage insurance companies to offer plans on the health insurance exchanges.

The ACA and its implementation have been, and remain, politically controversial. The ACA has continually faced, and continues to face, legal and legislative challenges, including repeal efforts. President Trump and Republican leaders of Congress have repeatedly cited health care reform, and particularly repeal and replacement of the ACA, as a key goal. To that end, Congressional leaders have introduced various ACA repeal bills. While no bills wholly repealing the ACA have passed both chambers of Congress, the Tax Cuts and Jobs Act (discussed above) effectively eliminated a key provision of the ACA–a tax penalty associated with failing to maintain health coverage (the "Individual Mandate Tax Penalty") by reducing the penalty to zero dollars effective January 1, 2019. Additionally, on December 14, 2018, a Texas Federal District Court judge, in the case of *Texas v. Azar* declared the ACA unconstitutional, reasoning that the Individual Mandate Tax Penalty was essential to and not severable from the remainder of the ACA. The case has been appealed to the U.S. Court of Appeals for the Fifth Circuit. In a letter dated March 25, 2019, the U.S. Department of Justice stated that it "has determined that the district court's judgment should be affirmed." The ACA will remain law while the case proceeds through the appeals process; however, the case creates additional uncertainty as to whether any or all of the ACA could be struck down, which creates operational risk for the health care industry. Management cannot predict the effect of the elimination of the Individual Mandate Tax Penalty, the final result and effect of the *Texas v. Azar* case, the likelihood of any future ACA repeal bills or other health care reform bills becoming law, or the subsequent effects of any such laws or legal decisions, though such effects could materially impact the Obligated Group's business or financial condition. In particular, any legal, legislative or executive action that (1) reduces federal health care program spending, (2) increases the number of individuals without health insurance, (3) reduces the number of people seeking health care, or (4) otherwise significantly alters the health care delivery system or insurance markets, could have a material adverse effect on the Obligated Group's business or financial condition.

Executive branch actions can also have a significant impact on the viability of the ACA. President Trump has issued two broad executive orders aimed at de-regulation: (1) one requiring federal agencies to repeal two previously implemented regulations for every new regulation added, and (2) one directing each federal agency to set up a "regulatory reform task force" to review existing regulations and eliminate those that are costly or unnecessary. President Trump has issued executive actions directly aimed at the ACA: (1) one requiring federal agencies with authorities and responsibilities under the ACA to "exercise all authority and discretion available to them to waive, defer, grant exemptions from, or delay" parts of the law that place "unwarranted economic and regulatory burdens" on states, individuals or health care providers, (2) a second instructing federal agencies to make new rules allowing the proliferation of "association health plans" and short-term health insurance, which plans have fewer benefit requirements than those sold through ACA insurance exchanges, and (3) a third order regarding health care price and quality transparency that directs federal rulemaking by executive agencies to increase transparency of healthcare price and quality information. Additional executive branch actions include: (i) the issuance of a final rule in June 2018 by the Department of Labor to enable the formation of health plans that would be exempt from certain ACA essential health benefits requirements; (ii) the issuance of a final rule in August 2018 by the Departments of Labor, Treasury, and Health and Human Services to expand the availability of short-term, limited duration health insurance; (iii) eliminating cost-sharing reduction payments to insurers that would otherwise offset deductibles and other out-of-pocket expenses for health plan enrollees at or below 250 percent of the federal poverty level; (iv) relaxing requirements for state innovation waivers that could reduce enrollment in the individual and small group markets and lead to additional enrollment in short-term, limited duration insurance and association health plans; and (v) the issuance of a final rule by the Departments of Labor, Treasury, and Health and Human Services ("DHHS") that would incentivize the use of health reimbursement arrangements by employers to permit employees to purchase health insurance in the individual market. The uncertainty resulting from these executive branch policies likely contributed to reduced exchange enrollment in 2018 with final CMS reported data for 2019 indicating further

decline, and with enrollment expected to further worsen the individual and small group market risk pools in future years. It is also anticipated that these and future policies may create additional cost and reimbursement pressures on hospitals.

These executive actions have the potential to significantly impact the insurance exchange market by causing a reduction in the number of healthy individuals in the ACA health insurance exchanges, a reduction in the number of plans available on the health insurance exchanges, and/or an increase in insurance premiums. Management cannot predict the likelihood or effect of any current or future executive actions on the Obligated Group's business or financial condition, though such effects could be material.

The majority of the ACA remains law. Certain key provisions of the law are briefly described below:

Private Health Insurance Coverage Expansion/Insurance Market Reforms

One key provision of the ACA was the Individual Mandate Tax Penalty (discussed above), which required most Americans to maintain "minimum essential" health coverage or pay a tax penalty to the federal government. Individuals who were not deemed exempt from the Individual Mandate Tax Penalty and otherwise did not obtain health coverage through an employer or government program were expected to satisfy the mandate by purchasing insurance from a private company or through a "health insurance exchange." The health insurance exchanges are government-established organizations that provide competitive markets for buying health insurance by offering individuals and small employers a choice of different health plans, certifying plans that participate, and providing information to help consumers better understand their options. The Tax Cuts and Jobs Act effectively eliminated the Individual Mandate Tax Penalty by reducing the penalty to zero dollars effective January 1, 2019. While the effect of the elimination of the Individual Mandate Tax Penalty remains uncertain, it has been predicted that it will result in fewer healthy individuals purchasing insurance (through the exchanges or otherwise) and increase the number of uninsured individuals.

The health insurance exchanges may have a positive impact for health care facilities to the extent they increase the number of individuals with health insurance. Conversely, health insurance exchanges may have a negative financial impact on health care providers to the extent (1) insurance plans purchased on the exchanges reimburse providers at lower rates or (2) high-deductible plans offered on the exchanges become more prevalent and lead to lower inpatient volumes as patients choose to forgo medical treatment.

The ACA also includes an "employer mandate." The "employer mandate" provisions require the imposition of penalties on employers having 50 or more employees that do not offer qualifying health insurance coverage to those working 30 or more hours per week or 130 hours of service per month. The ACA also established a number of other health insurance market reforms, including bans on lifetime limits and pre-existing condition exclusions, new benefit mandates, and increased dependent coverage (until the age of 26).

Management cannot predict the future of the health insurance markets or the effects of current and future health reform efforts on such markets, though such effects may materially affect the Obligated Group's business or financial condition.

Medicaid Expansion

Another key provision of the ACA is the expansion of Medicaid coverage. Prior to the passage of the ACA, the Medicaid program offered federal funding to states to assist limited categories of low-income individuals (including children, pregnant women, the blind and the disabled) in obtaining medical care. The ACA permits states to expand Medicaid program eligibility to virtually all individuals under 65-years old with incomes up to 138% of the federal poverty level, and provides enhanced federal funding to states that opt to expand such eligibility. There is no deadline for a state to undertake expansion and qualify for the enhanced federal funding available under the ACA. For states that choose not to participate in the federally funded Medicaid expansion, the net positive effect of ACA reforms has been significantly reduced. See "State Medicaid Program" below.

Spending Reductions

The ACA contains a number of provisions designed to significantly reduce Medicare and Medicaid program spending, including: (1) negative adjustments to the "market basket" updates for Medicare's inpatient,

outpatient, long-term acute and inpatient rehabilitation prospective payment systems, and (2) reductions to Medicare and Medicaid disproportionate share hospital ("DSH") payments. Currently, hospitals within the Health System receive additional payments in the form of DSH payments. There can be no assurance that these hospitals will continue to receive DSH payments in the future. It was expected that the new coverage and access provisions of the ACA would substantially reduce uncompensated care provided by hospitals, resulting in incremental decreases in the Medicare and Medicaid payments for DSH payments of $36 billion dollars. However, as discussed above, the repeal of the individual mandate has not increased access as expected, and therefore uncompensated care costs remain to be a risk for the future. Overall, any reductions to reimbursement under the Medicare and Medicaid programs could have a material adverse impact on the Obligated Group's business or financial condition to the extent such reductions are not offset by increased revenues from providing care to previously uninsured individuals or from other sources.

Readmission Rate Penalty

Medicare inpatient payments to hospitals with excessive readmission rates compared to the national average for certain patient conditions are reduced based on the dollar value of that hospital's percentage of excess preventable Medicare readmissions within 30 days of discharge, for certain medical conditions. The conditions include acute myocardial infarction, pneumonia, heart failure, chronic obstructive pulmonary disease, coronary bypass graft surgery, elective total hip arthroplasty, and total knee arthroplasty. The maximum penalty is 3%.

Quality Improvement and Clinical Integration Initiatives

The ACA mandated the creation of a number of payment reform measures designed to incentivize or penalize hospitals based on quality, efficiency and clinical integration measures and authorizes the Center for Medicare & Medicaid Innovation within CMS to develop and test new payment methodologies designed to improve quality of care and lower costs. Current programs include (1) the "Readmission Reduction Program," which reduces Medicare payments by specified percentages to hospitals with excess or preventable hospital admissions based on historical discharge data, (2) the "Hospital Value-Based Purchasing Program," which imposes an across-the-board reduction in inpatient reimbursement and then reallocates and redistributes those funds to hospitals based on quality and patient experience measures, and (3) the "Hospital-Acquired Condition Reduction Program," which negatively adjusts payments to applicable hospitals that rank in the worst-performing quartile for risk-adjusted hospital-acquired condition measures. Management is not currently aware of any situation in which an ACA quality, efficiency, or clinical integration program is materially adversely affecting the business or financial condition of the Obligated Group. However, the Obligated Group's business or financial condition may be adversely affected by such programs in the future.

New Models for Care Under Health Care Reform

The ACA directed HHS to establish a Medicare shared savings program that promotes accountability for the care of Medicare beneficiaries and encourages coordination of care and other efficiencies through entities called Accountable Care Organizations ("ACOs"). Under this shared savings program, Medicare providers are offered a financial incentive to band together in an ACO with the shared goals of improving the quality of care provided to Medicare beneficiaries and coordinating care to achieve cost savings. If an ACO realizes savings in Medicare expenditures above an expenditure benchmark established by CMS for the group, and meets or exceeds quality performance standards established by HHS, it will be paid a share of Medicare's savings. Additionally, depending upon the particular "track" the ACO is participating in, the ACO can be risk-based, meaning the ACO shares not only in savings but also in losses. It is unclear what effect the ACO program and regulations promulgated with respect thereto will have on the Obligated Group and its revenues should it choose to participate in the program.

Fraud and Abuse Enforcement Enhancements

In an attempt to reduce unnecessary health care spending, the ACA includes a number of provisions aimed at combating fraud and abuse within the Medicare and Medicaid programs. Such provisions provide increased federal funding to fight health care fraud and abuse, provide government agencies with additional enforcement tools and investigation flexibility, facilitate cooperation between agencies by establishing mechanisms for information sharing, and enhance criminal and administrative penalties for non-compliance with the federal fraud and abuse laws (e.g., the Anti-Kickback Law, the Stark Law and the FCA, each as defined and discussed below). Management is

not currently aware of any pending recovery audit that, if determined adversely to the Obligated Group, would materially adversely affect the business or financial condition of the Obligated Group.

To the extent the ACA remains law, it is difficult to predict the full impact of the ACA on the Obligated Group's future revenues and operations due to uncertainty regarding a number of material factors, including: (1) the number of uninsured individuals to ultimately obtain and retain insurance coverage as a result of the ACA, (2) the percentage of any newly insured patients covered by Medicaid versus a commercial plan, (3) the pace at which insurance coverage expands, (4) future changes in the reimbursement rates and methods, (5) the percentage of individuals in the exchanges who select the high-deductible plans, (6) the extent to which the enhanced program integrity and fraud and abuse provisions lead to a greater number of civil or criminal actions, (7) the extent to which the ACA tightens health insurers' profits, causing the plans to reduce reimbursement rates, (8) the extent of lost revenues, if any, resulting from ACA quality initiatives, and (9) the success of any clinical integration efforts or programs in which the Obligated Group participates.

Medicare Reimbursement

Hospitals generally are paid for inpatient and outpatient services provided to Medicare beneficiaries under a prospective payment system ("PPS"). Under PPS, a fixed payment is made to hospitals based on the average cost of care incurred in providing various kinds of services. Additionally, under PPS, the amount paid to the provider for an episode of care is established by federal regulation and is not related to the provider's charges or costs of providing that care. Presently, inpatient and outpatient services, skilled nursing care, and home health care are paid on the basis of PPS.

Value-based purchasing and other alternative payment model initiatives tying health care provider reimbursement to quality, efficiency, or patient outcome measures will increasingly affect health care provider operations and may negatively impact revenues if the provider is unable to meet targeted measures. CMS had set a goal of tying 50% of traditional Medicare payments to quality or value through alternative payment models such as accountable care organizations, bundled payment arrangements or integrated care demonstrations by the end of 2018, and it continues to focus on moving the health care system towards paying for value. In 2016, CMS released final regulations for implementation of the Medicare Access and CHIP Reauthorization Act ("MACRA") and its physician Quality Payment Program ("QPP"), which dramatically alter the way physicians and other clinicians are reimbursed by Medicare. The QPP and other federal delivery reform initiatives evidence a rapid volume-value shift within Medicare and could present challenges for the Obligated Group and the employed or contracted clinicians with whom the Obligated Group partners to deliver care. It is generally anticipated that CMS will continue to experiment with additional alternative payment models. Additionally, private payers are moving toward value-based purchasing and alternative payment models.

Hospital Inpatient Reimbursement

Under PPS, acute care hospitals generally are paid for inpatient services provided to Medicare beneficiaries based on established categories of treatments or conditions known as diagnosis related groups ("DRGs"). Hospitals also may receive outlier payments for extraordinarily costly cases that exceed a federally established condition-based threshold. DRG rates and outlier thresholds are subject to adjustment by CMS. DRG rates are adjusted annually by the use of an "update factor" based on the projected increase in a market basket inflation index that measures changes in the costs of goods and services purchased by hospitals, but the adjustments historically have not kept pace with inflation.

With limited exceptions, such payments are not adjusted for actual costs, variations in intensity of illness, or length of stay. If a hospital treats a patient and incurs less cost than the applicable DRG-based payment, the hospital is entitled to retain the difference. Conversely, if a hospital's cost for treating the patient exceeds the DRG-based payment, the hospital generally will not be entitled to any additional payment. If a case is unusually complex or expensive, it may qualify for an "outlier" payment, which is added to the DRG-adjusted base rate payment. There can be no assurance that payments under the PPS will be sufficient to cover all actual costs of providing inpatient hospital services to Medicare patients.

Hospital Outpatient Reimbursement

Hospitals generally are paid for outpatient services provided to Medicare beneficiaries based on established categories of treatments or conditions known as ambulatory payment classifications ("APC"). The actual cost of care, including capital costs, may be more or less than the reimbursements based on APCs. The ACA provides for a reduction to the market basket used to determine annual outpatient PPS increases by an adjustment factor through 2019 and by a productivity adjustment. Application of the productivity adjustment can result in a market basket increase of less than zero, such that payments in a current year may be less than the prior year. There is no guarantee that hospital outpatient reimbursement will cover actual costs of providing services to Medicare patients.

Bipartisan Budget Act of 2015

The Bipartisan Budget Act of 2015 (the "BBA 2015") changed the reimbursement methodology for items and services furnished in certain off-campus hospital outpatient departments ("HOPDs"). Beginning January 1, 2017, off-campus HOPDs established on or after November 2, 2015 ("non-excepted HOPDs") are no longer eligible for payment under the hospital outpatient prospective payment system ("OPPS") for non-emergency services. A hospital outpatient department is considered to be "off-campus" if it is located more than 250 yards from a main provider hospital or a remote location of a hospital. Instead, non-emergency services performed at these facilities will be paid under the Medicare Physician Fee Schedule ("PFS") at a set of PFS payment rates that are specific to hospitals. Effective January 1, 2018, these hospital specific PFS rates are based on 40% of the comparable OPPS rate. Beginning January 1, 2019, CMS began applying the PFS equivalent pay rate for certain evaluation and management services when provided at an off-campus HOPD that is paid under the OPPS, including at those HOPDs grandfathered under BBA 2015, stepping down from 70% of OPPS rates in 2019 and 40% of OPPS rates in 2020 and thereafter. The reimbursement changes implemented under the BBA 2015 and the recent CMS reimbursement policies for calendar year 2019 threaten to further reduce revenues to off-campus HOPDs. While CMS's adoption of this payment policy with respect to grandfathered HOPDs is currently being challenged in court, there can be no assurance that CMS's policy will not become permanent.

Section 340B Drug Pricing Program

Certain hospitals that serve a high percentage of low income patients are eligible for reduced pricing on certain covered outpatient drugs through the 340B program ("340B Program").

CMS's calendar year 2018 final OPPS rule, issued on November 13, 2017, substantially reduced Medicare Part B reimbursement for 340B Program drugs paid to hospitals and ASCs. Beginning January 1, 2018, CMS reimbursement for certain separately payable drugs or biologicals that are acquired through the 340B Program by a hospital paid under the OPPS (and not excepted from the payment adjustment policy) is the average sales price ("ASP") of the drug or biological minus 22.5 percent, an effective reduction of 26.89% in payments for 340B program drugs. In calendar year 2019, rural sole community hospitals, children's hospitals, and PPS-exempt cancer hospitals are exempted from the 340B payment adjustment. In the calendar year 2019 OPPS final rule, CMS extended the policy to pay ASP minus 22.5% for 340B-acquired drugs when those drugs are furnished by non-excepted off-campus HOPDs. In December 2018, the U.S. District Court for the District of Columbia ruled that DHHS did not have statutory authority to implement the 2018 Medicare OPPS rate reduction related to hospitals that qualify for drug discounts under the 340B Program and granted a permanent injunction against the payment reduction. The hospitals subsequently asked the court for a permanent injunction on the 2019 OPPS final rule. On May 6, 2019, the court held that the 2018 and 2019 rate reductions were unlawful and remanded the rules back to DHHS. The case has been appealed by DHHS. Management is unable to predict the ultimate outcome of any appeal and the type of relief that may be ordered by the courts.

A decrease in reimbursement for 340B Program drugs or loss of discount procurement opportunities could have an adverse effect on the Obligated Group. Congress is considering further changes to the 340B Program and the regulatory environment for the 340B Program remains uncertain. Any reduction in eligibility for, or other further changes to, the 340B Program generally could have a materially adverse effect on the Obligated Group.

Medical Education Payments

Medicare currently pays for a portion of the costs of medical education at hospitals that have teaching programs. These payments are vulnerable to reduction or elimination. The direct and indirect medical education

reimbursement programs have repeatedly emerged as targets in the legislative efforts to reduce the federal budget deficit. There can be no assurance that medical education payments will remain at current levels. Further, In 2007, CMS proposed to eliminate all federal matching funds for state GME payments to hospitals under the Medicaid program. A Congressionally imposed moratorium on the CMS proposal expired in 2009. However, Congress included in ARRA a "sense of the Congress" statement that the proposal to abolish Medicaid GME should not be implemented, but ARRA does not prevent CMS from doing so.

Medicare DSH Payments

The Medicare DSH payment is a percentage add-on to the standardized payment per discharge under the Medicare PPS for the operating costs of inpatient hospital services. There are two methods for determining qualification for Medicare DSH payments and the amount of payments. The first, most common, method is based on a hospital's disproportionate patient percentage, which considers the proportion of patients eligible for Medicaid but not Medicare Part A and the proportion of Medicare Part A patients who are also entitled to supplemental security ("SSI") benefits. The second method is based on a hospital's percentage of revenues attributable to state and local funding (excluding Medicaid and Medicare revenues) for low-income patient care.

The ACA provides for a reduction in Medicare DSH payments, which took effect on October 1, 2013. Instead of the amount that would otherwise be paid as the DSH adjustment, hospitals receive 25% of the amount they would have previously received. The remainder, equal to 75% of what otherwise would have been paid as Medicare DSH, becomes available for an uncompensated care payment after the amount is reduced for changes in the percentage of individuals who are uninsured. CMS is currently using uncompensated care costs reported on Worksheet S-10 in combination with insured low income days (the sum of Medicaid days and Medicare SSI days) to develop hospital uncompensated care payments. Each hospital eligible for Medicare DSH payments receives an uncompensated care payment based on its relative share of total uncompensated care costs and low income days reported by Medicare DSHs.

Medicare DSH payments will decrease as the number of uninsured patients decreases. Congress may make changes to the budget in the future and CMS may change its methodology for calculating uncompensated care costs and other elements of the DSH payment in the future. There can be no assurance that the current level of Medicare DSH reimbursement will continue in the future.

Value-Based Payments

The ACA has increased the use of value-based payments to incentivize providers to control costs and provide better quality care. These models can seek both vertical and longitudinal alignment of health care providers and payers and can require providers to share in upside and/or downside financial risk. Current models include bundled payment models and accountable care/population health models. Bundled payment models establish a budgeted payment to cover the entire cost of an episode of care (e.g., a hip or knee replacement). Examples of bundled payment models include, among others, Bundled Payments for Care Improvement ("BPCI") Initiative models 2, 3 and 4 (which expired September 30, 2018); BPCI-Advanced; Comprehensive Care for Joint Replacement; and the Oncology Care Model. Population health models incentivize providers to maintain or improve quality while reducing cost through shared savings or shared loss arrangements. Population health models usually involve a form of capitated payment, which is a per patient payment for the cost of care over a set period of time. Population health models include the Medicare Shared Savings Program ("MSSP") and Next Generation Accountable Care Organization ("ACO") model.

CMS has encouraged the use of alternative payment models, and it is generally anticipated that CMS will continue to experiment with additional alternative payment models. Additionally, private payers are moving toward value-based purchasing and alternative payment models. Value-based and other alternative payment model initiatives tying health care provider reimbursement to quality, efficiency, or patient outcome measures will increasingly affect health care provider operations and may negatively impact revenues if the provider is unable to meet targeted measures.

In 2015, CMS set a goal of tying 50% of traditional Medicare payments to quality or value through alternative payment models such as accountable care organizations, bundled payment arrangements or integrated care demonstrations by the end of 2018. While CMS has since stated that it is no longer aiming for these Obama-era

goals, it continues to propose new payment models and evaluate the impact of existing ones, which has led to some confusion in the industry.

Transparency in Pricing

The ACA requires hospitals to establish and make public a list of the hospital's standard charges for items and services, including MSDRGs. A 2006 executive order was issued requiring the same public reporting of cost and quality data at four federal agencies. CMS also has made "outcomes" reporting a condition of Medicare participation. These requirements are examples of a trend in which hospitals will be required to divulge proprietary information to the general public in order to participate in federal health care programs. The disclosure of proprietary information may have a negative impact on the Obligated Group's ability to gain advantages in negotiations with payors. This, in turn, could negatively influence the Obligated Group's revenues. The ACA includes various public disclosure obligations for financial arrangements between hospitals, physicians, imaging centers, and pharmaceutical and medical device manufacturers. Due to the relative novelty of these disclosure requirements, it is impossible to predict the effect, if any, that cost and outcomes reporting will have on the Obligated Group's finances.

Physician Payments

Payment for physician fees is covered under Medicare Part B. Under Part B, physician services are reimbursed in an amount equal to the lesser of actual charges or the amount determined under a fee schedule known as the "resource-based relative value scale" ("RBRVS"). RBRVS sets a relative value for each physician service; that value is then multiplied by a geographic adjustment factor and a nationally-uniform conversion factor to determine the amount Medicare will pay for each service.

In April 2015, MACRA established QPP, which repealed the sustainable growth rate methodology for updates to the PFS, changed the way that Medicare rewards clinicians for services, streamlined existing quality and value programs, and provided for bonus payments to physicians and other clinicians for participating in certain payment models. The QPP provides incentive payments to eligible clinicians participating in Medicare Part B through two tracks: the Merit-based Incentive Payment System ("MIPS") and Advanced Alternative Payment Models ("Advanced APMs"). In 2016, CMS released final regulations implementing the QPP. The 2020 PFS proposed rule budget neutrality factor would adjust reimbursement levels upward by 0.14% in 2020; otherwise PFS would then remain at the same reimbursement level (0.0% increase) through 2025. Beginning in 2026, the PFS will be increased either by (i) 0.25% annually for providers participating in MIPS, or (ii) 0.75% annually for providers participating in Advanced APMs.

MIPS, which is the "default track" under MACRA, provides eligible clinicians with an adjustment to their Medicare Part B reimbursement based on performance in four categories: Quality, Promoting Interoperability, Improvement Activities, and Cost. MIPS combines into a single program aspects of CMS's prior quality and value programs, including the Physician Quality Reporting System, Medicare Electronic Health Records Incentive Program, and the Physician Value-Based Payment Modifier. MIPS eligible clinicians include physicians, physician assistants, nurse practitioners, clinical nurse specialists and certified registered nurse anesthetists. 2017 was the first MIPS performance period. CMS scored and weighted the data reported for performance year 2017 and is applying a performance adjustment in the 2019 payment year.

Advanced APMs are alternative payment models ("APMs") that use certified electronic health record technology, provide for payment for covered professional services based on quality measures comparable to those in the quality performance category under MIPS, and either require that participating APM entities bear risk for financial losses of more than a nominal amount under the APM or be a type of Medical Home Model. Eligible clinicians who meet threshold Medicare participation levels in their Advanced APMs may be entitled to incentive payments.

The QPP and other federal delivery reform initiatives evidence a rapid volume-value shift within Medicare and could present challenges for the Obligated Group and the employed or contracted clinicians with whom the Obligated Group Members partner to deliver care. The new quality reporting programs may negatively impact the reimbursement amounts received by the Obligated Group for the cost of providing physician services.

Current or new legislation that reduces Medicare payments could adversely affect the Obligated Group. There is no assurance that the Obligated Group will be paid amounts that will reflect adequately its costs incurred in providing inpatient hospital services to Medicare beneficiaries, as well as any changes in the cost of providing health care or in the cost of health care technology being made available to Medicare beneficiaries. The ultimate effect on the Obligated Group will depend on its ability to control costs involved in providing inpatient hospital services.

Medicare Trust Funds

Two trust funds are maintained as part of the Medicare Program. Hospital Insurance ("HI") or Medicare Part A, helps to pay for hospital, home health, skilled nursing facility, and hospice care for the aged and disabled and is financed primarily by payroll taxes paid by workers and employers. The Medicare Board of Trustees' annual report in April 2019 indicated that the HI Trust Fund is not financed adequately and is projected to be exhausted in 2026. The other trust fund and various other components of the Medicare Program also have significant funding challenges. The trustees recommended that Congress and the executive branch work together with a sense of urgency to address the depletion of the HI Trust Fund and the projected growth in hospital and other expenditures. Accordingly, it is likely that statutory and regulatory attempts to contain increases in Medicare costs will continue in the future.

Medicaid Reimbursement

Payments made to health care providers under the Medicaid program are subject to changes as a result of federal or state legislative and administrative actions, including further changes in the methods for calculating payments, the amount of payments that will be made for covered services and the types of services that will be covered under the program. Such changes have occurred in the past and may continue to occur in the future, particularly in response to federal and state budgetary constraints coupled with increased costs for covered services.

Hospitals participating in the Medicaid program are subject to numerous requirements and regulations under the program. Failure to remain in compliance with any program requirements may subject the Medicaid provider to civil and/or criminal penalties, including fines and suspension or expulsion from the program, preventing the provider from receiving any funds under the Medicaid program. Noncompliance with Medicaid requirements, and suspension or exclusion from the Medicaid program, can also be a basis for mandatory or permissive suspension or exclusion from the Medicare program.

Significant changes have been and may be made in the Medicaid program that could have a material adverse effect on the financial condition of the Obligated Group. For example, under Medicaid, the federal government provides limited funding to states that have medical assistance programs that meet federal standards, and the ACA provides significantly enhanced federal funding for states to expand their Medicaid program to virtually all non-elderly, non-disabled adults with incomes up to 138% of the federal poverty level. Attempts to balance or reduce the federal and state budgets by decreasing funding of Medicaid may negatively impact spending for Medicaid and other state health care programs spending. Health care providers have been affected significantly in the last several years by changes to federal and state health care laws and regulations, particularly those pertaining to Medicaid. The purpose of much of this statutory and regulatory activity has been to contain the rate of increase in health care costs, particularly costs paid under the Medicaid program. Diverse and complex mechanisms to limit the amount of money paid to health care providers under the Medicaid program have been enacted, and may have a material adverse effect on the operations or financial condition of the Obligated Group.

State Medicaid Programs

While state Medicaid programs are rarely as important as the Medicare program to the operations, financial condition and financial performance of hospitals and other health care providers, state Medicaid programs nevertheless constitute an important payer source for many hospitals and other health care providers. These programs often pay hospitals and other health care providers at levels that are substantially below the actual cost of the care provided. Medicaid is jointly funded by states and the federal government, and adverse economic conditions that reduce state revenues or changes to the federal government's methodology for funding state Medicaid programs may result in lower funding levels and/or payment delays. This could have a material adverse effect on operations, financial condition and financial performance of hospitals and other health care providers, including the Obligated Group.

Pennsylvania Medicaid Program

The Pennsylvania Department of Human Services ("PADHS") administers the Medicaid program in the Commonwealth.

In July 2010, the Medical Assistance Payment Modernization Act (Act 49) ("Act 49") was enacted. Act 49 was designed to address the fact that Medical Assistance has historically paid low rates to Pennsylvania hospitals, about 75 cents for each dollar a hospital spent on inpatient care and about 54 cents for each dollar spent on outpatient care. Because Medical Assistance has not paid adequate rates, other health insurers were left to make up the shortfall left by Medical Assistance's lower payment rates, having the effect of creating a hidden tax on citizens through higher insurance premiums.

Act 49 modernized Pennsylvania's inpatient fee for service hospital payment system by establishing a uniform base rate for all hospitals using the then-current cost information, and makes adjustments for differences in regional labor costs, teaching programs, and Medical Assistance volume. Act 49 also establishes enhanced hospital payments through the state's Medical Assistance managed care program, and secures additional matching Medicaid funds through the establishment of the Quality Care Assessment ("QCA"). The QCA is a tax on hospital net patient revenues that allows the state to access additional federal dollars. Act 40 of 2018, enacted on June 22, 2018, reauthorized the QCA through June 30, 2023 and changed the single rate on net inpatient revenue to a bifurcated rate split between net inpatient revenue and net outpatient revenue. Act 49 also replaced the current clinical classification system with a new clinical classification system (APR-DRG) in which payments more accurately reflect the levels of service and patient needs unique to Medical Assistance patients. For fiscal year 2019, the inpatient rate is 2.98% and the outpatient rate is 1.55%. For fiscal years 2020 through 2023, the inpatient and outpatient rates increase to 3.32% and 1.73% respectively.

Pennsylvania's Medicaid Managed Care Plan ("HealthChoices") requires Medicaid recipients in certain regions of the Commonwealth to enroll in managed care plans. Medicaid recipients receive physical health services through one managed care organization and behavioral health services through another managed care organization. HealthChoices' programs attempt to negotiate lower fee schedules with their contracted health care providers. There can be no assurance that the Obligated Group Members will continue to be successful in contracting with the assigned managed care organizations or that the reimbursements from these managed care organizations will be sufficient to cover the costs of delivering care to Pennsylvania's Medicaid recipients going forward.

New Jersey Medicaid Program

New Jersey Healthcare and Medicaid. The New Jersey Department of Human Services - Division of Medical Assistance and Health Services, administers Medicaid and NJ FamilyCare. Medicaid provides health insurance to parents/caretakers and dependent children, pregnant women, and people who are aged, blind or disabled. These programs pay for hospital services, doctor visits, prescriptions, nursing home care and other healthcare needs, depending on which Medicaid program the person is eligible for. NJ FamilyCare is a Medicaid program for uninsured children whose family income is too high for them to qualify for Medicaid but not high enough to be able to afford private health insurance. Some low-income uninsured parents/caretakers may also be eligible for NJ FamilyCare.

In 1995, New Jersey Medicaid began moving Medicaid clients from a traditional fee-for-service health insurance program into a managed care program. Most individuals on Medicaid are enrolled in a managed care program. In 2012, CMS approved a comprehensive waiver program allowing the operation of a statewide health reform effort that expanded existing managed care programs to include managed long-term services, supports and expands home and community based services to some populations, and included an additional benefit for beneficiaries to receive treatment for substance use disorder in previously excluded Institutions for Mental Diseases. This waiver was granted an extension by CMS on October 31, 2017. New Jersey also operates several other Medicaid waiver programs.

Children's Health Insurance Program

The Children's Health Insurance Program ("CHIP") is a federally funded insurance program for families that are financially ineligible for Medicaid, but cannot afford commercial health insurance. CMS administers CHIP, but each state creates its own program based upon minimum federal guidelines. CHIP insurance is provided through

private health plans contracting with the state. Each state must periodically submit its CHIP plan to CMS for review to determine if it meets the federal requirements. If it does not meet the federal requirements, a state can lose its federal funding for the program.

From time to time, Congress and/or the President may seek to expand, reduce or fail to authorize CHIP. The ACA authorized an extension of the CHIP program through September 30, 2015. MACRA extended the CHIP program through September 30, 2017. President Trump signed a six-year reauthorization of CHIP into law on January 22, 2018. On February 9, 2018, Congress voted to extend CHIP for an additional four years, effectively extending CHIP through 2027.

Medicare/Medicaid Conditions of Participation

Certain health care facilities must comply with standards called "*Conditions of Participation*" in order to be eligible for Medicare and Medicaid reimbursement. Under Medicare rules, hospitals accredited by an approved accrediting organization (such as The Joint Commission) are deemed to meet most of the Conditions of Participation. However, CMS may request that the state agency responsible for licensing hospitals, on behalf of CMS, conduct a "sample validation survey" of a hospital to determine whether it is complying with the Medicare or Medicaid Conditions of Participation. Failure to maintain The Joint Commission accreditation or to otherwise comply with the Conditions of Participation could have a material adverse effect on the Obligated Group.

Civil and Criminal Fraud and Abuse Laws, Regulations and Enforcement

The Department of Justice ("DOJ"), the Federal Bureau of Investigation and the Office of the Inspector General ("OIG") of DHHS have been conducting investigations and audits of the billing practices of many health care providers. Violations and alleged violations may be deliberate, but also frequently occur in circumstances where management is unaware of the conduct in question, as a result of mistake, or where the individual participants do not know that their conduct is in violation of law. Violations may occur and be prosecuted in circumstances that do not have the traditional elements of fraud, and enforcement actions may extend to conduct that occurred in the past. Violations carry significant sanctions. The government periodically conducts widespread investigations and audits, covering various categories of services, or certain accounting or billing practices. The Members of the Obligated Group may be required to undergo such audits by one or more of these agencies and may be required to make payments to resolve any such audits. It is possible that any such payments may be substantial and could have a material adverse effect on the Obligated Group.

In addition, the Health Insurance Portability and Accountability Act of 1996 ("HIPAA") also added provisions that prohibit certain types of manipulative Medicare billing practices. These include improperly coding (for billing purposes) services rendered in order to claim a higher level of reimbursement and billing for the provision of services or items that were not medically necessary. HIPAA also increases the legal risk of provider billing and increases the risk that a Medicare provider will be the subject of a fraud investigation.

The federal Medicaid Integrity Program was created by the Deficit Reduction Act in 2005. The Medicaid Integrity Program was the first federal program established to combat fraud and abuse in the state Medicaid programs. Congress determined a federal program was necessary due to the substantial variations in state Medicaid enforcement efforts. The Medicaid Integrity Program's enforcement efforts support existing state Medicaid Fraud Control Units. Federal Medicaid Integrity Contractors ("MICs") are classified into Review MICs, Audit MICs and Educational MICs. Review MICs perform review audits generally to determine trends and patterns of aberrant Medicaid billing practices through data mining. Audit MICs perform post-payment reviews of individual providers through desk and field audits. The Educational MICs are responsible for developing and carrying out a variety of education activities to increase and improve Medicaid enforcement efforts by state government. Once a Medicaid overpayment is identified, the state has one year to recover or attempt to recover the overpayment from the provider before adjustment is made in the federal payment to the state on account of such overpayment; *provided, however*, in the case of fraud, if the state is unable to recover the overpayment from the provider within the one year period because there has not been a final determination of the amount of the overpayment under an administrative or judicial process (as applicable), including as a result of judgment being under appeal, no adjustment shall be made in the federal payment to the state before the date that is 30 days after the final judgment is made.

Medicare and Medicaid audits may result in reduced reimbursement or repayment obligations related to past alleged overpayments and may also delay Medicare or Medicaid payments to providers pending resolution of

the appeals process. The ACA explicitly gives DHHS the authority to suspend Medicare and Medicaid payments to a provider or supplier during a pending investigation of fraud. The ACA also amended certain provisions of the FCA (as defined below) to include retention of overpayments as a false claim. A provider or supplier must report and return an overpayment by the later of 60 days after the overpayment was identified, or the date the corresponding cost report is due, if applicable. The provider or supplier is also required to describe in writing the reason for the overpayment. Overpayments must be reported and returned only if a provider or supplier identifies the overpayment within six years of the date the overpayment was received. While it is not anticipated that Medicare and Medicaid audits will materially adversely affect the future financial condition or operations of the Health System, in light of the complexity of the regulations relating to both the Medicare and Medicaid programs, there can be no assurance that significant difficulties could not develop in the future.

RAC Audits

CMS has implemented a Recovery Audit Contractor ("RAC") program on a nationwide basis pursuant to which CMS contracts with private contractors to conduct pre- and post-payment reviews to detect and correct improper payments in the fee-for-service Medicare program. The RACs use their own software and independent knowledge of Medicare to determine areas to review. Once a RAC identifies a potentially improper claim as a result of an audit, it makes an assessment from the provider's Medicare reimbursement in an amount estimated to equal the overpayment from the provider pending resolution of the audit. The ACA expanded the RAC program's scope to include managed Medicare plans and Medicaid claims. CMS also employs contractors to perform post-payment audits of Medicaid claims and identify overpayments. These programs tend to result in retroactively reduced payment and higher administration costs to hospitals.

Exclusions from Medicare or Medicaid Participation

The government must exclude from Medicare/Medicaid program participation a health care provider that is convicted of a criminal offense relating to the delivery of any item or service reimbursed under Medicare or a state health care program, any criminal offense relating to patient neglect or abuse in connection with the delivery of health care, fraud against any federal, state or locally financed health care program or an offense relating to the illegal manufacture, distribution, prescription or dispensing of a controlled substance. The government also may exclude individuals or entities under certain other circumstances, such as an unrelated conviction of fraud or other financial misconduct relating either to the delivery of health care in general or to participation in a federal, state or local government program. Exclusion from the Medicare/Medicaid program means that a health care provider would be decertified and no program payments can be made. Any exclusion of a hospital or other facility of the Health System could be a materially adverse event.

Review of Outlier Payments

In certain cases where patient costs are extraordinarily high, Medicare-participating hospitals may be eligible to receive additional payments. In order to receive an "outlier" payment, costs must exceed a fixed-loss cost threshold amount. The OIG has reviewed Medicare contractor reviews of outlier payments and issued multiple reports regarding outlier payment reconciliation, most recently in September 2017. OIG recommended that CMS ensure Medicare contractors are continuing to take corrective actions previously recommended by the OIG, such as collecting overpayments and returning funds to either Medicare or hospitals; determining whether any cost reports that exceeded the three-year reopening limit may be reopened as a result of hospital fault or fraud; and ensuring Medicare contractors review all cost reports submitted following earlier OIG audit periods and ensure that hospitals whose outlier payments qualified for reconciliation are correctly identified, referred, and reconciled. CMS is reviewing health care providers that are receiving large proportions of their Medicare revenues from outlier payments. Health care providers found to have obtained inappropriately high outlier payments will be subject to further investigation by the CMS Program Integrity Unit and potentially the OIG.

Patient Records and Confidentiality

HIPAA, as amended by the HITECH Act (defined and discussed below), protects the privacy and security of individually identifiable health information through regulations on Standards for Privacy of Individually Identifiable Health Information (the "Privacy Rule"), Security Standards for the Protection of Electronic Protected Health Information (the "Security Rule"), Standards for Notification in the Case of Breach of Unsecured Protected Health Information (the "Breach Notification Rule"), and Rules for Compliance and Investigations, Impositions of

Civil Monetary Penalties, and Procedures for Hearings (the "Enforcement Rule") (the Privacy Rule, the Security Rule, the Breach Notification Rule and the Enforcement Rule are collectively referred to as the "HIPAA Rules").

The HIPAA Rules, developed through successive waves of the administrative rulemaking process, are extensive and complex. Violations of HIPAA can result in civil monetary penalties and criminal penalties. Provisions of the Health Information Technology for Economic and Clinical Health Act (the "HITECH Act") amend HIPAA by (i) increasing the maximum civil monetary penalties for violations of HIPAA, (ii) granting limited enforcement authority of HIPAA to state attorneys general, (iii) extending the reach of HIPAA beyond "covered entities," to include "business associates" of covered entities, (iv) imposing a breach notification requirement on HIPAA covered entities and business associates, (v) limiting certain uses and disclosures of individually identifiable health information, (vi) restricting covered entities' marketing communications, and (vii) permitting the imposition of civil monetary penalties for a HIPAA violation even if an entity did not know and would not, by exercising reasonable diligence, have known of a violation. Civil monetary penalties for violations of HIPAA now range to a maximum $57,051 per violation and/or imprisonment, depending on the violator's degree of intent and the extent of the harm resulting from the violation, and whether the violation was timely corrected. The maximum civil monetary penalty for violations of the same HIPAA provision in a calendar year cannot exceed a certain dollar amount, depending on the level of culpability and whether the violation was timely corrected, capping out at $1.71 million for instances of willful neglect where the violation is not corrected in a timely manner. A state attorney general may bring civil action to protect the interests of one or more residents of the state who has been or is threatened or adversely affected by any person who violates HIPAA. A state attorney general may enjoin further violations by a defendant or obtain potential damages of up to $25,000, in addition to an award of attorney fees. The HITECH Act also requires the DHHS Office for Civil Rights ("OCR") to conduct periodic audits of covered entity and business associate compliance with the HIPAA Rules.

The Breach Notification Rule requires the notification of each individual whose unsecured protected health information has been, or is reasonably believed to have been accessed, acquired, used, or disclosed as a result of such breach. If a breach involves more than 500 residents, prominent media outlets must be notified. In addition, the Secretary of DHHS must be notified promptly following the discovery of a breach involving 500 or more individuals and annually for breaches involving fewer than 500 individuals. The reporting of such breaches may lead to an investigation by OCR during which OCR could discover other HIPAA violations that may result in fines other penalties.

In recent years, OCR has enhanced its enforcement efforts that include civil monetary penalties and settlement agreements with some related payments reaching into the multimillion dollar range. Further, OCR is initiating an auditing process to evaluate compliance with HIPAA. It is expected that the audits will expose many health care providers and their vendors to enforcement actions under HIPAA.

Security Breaches and Unauthorized Releases of Personal Information

Federal, state and local authorities are increasingly focused on the importance of protecting the confidentiality of individuals' personal information, including protected health information. In addition to the data breach disclosure requirements of HIPAA, many states have enacted laws requiring businesses to notify individuals of security breaches that result in the unauthorized release of personal information. In some states, notification requirements may be triggered even where information has not been used or disclosed, but rather has been inappropriately accessed. State consumer protection laws may also provide the basis for legal action for privacy and security breaches and frequently, unlike HIPAA, authorize a private right of action. In particular, the public nature of security breaches exposes health organizations to increased risk of individual or class action lawsuits from patients or other affected persons, in addition to government enforcement. Failure to comply with restrictions on patient privacy or to maintain robust information security safeguards, including taking steps to ensure that contractors who have access to sensitive patient information maintain the confidentiality of such information, could consequently damage a health care provider's reputation and materially adversely affect business operations.

Civil and Criminal Fraud and Abuse Laws and Enforcement

The federal Civil Monetary Penalties Law ("CMP Law") provides for administrative sanctions against health care providers for a broad range of billing and other abuses. For example, penalties may be imposed for the knowing presentation of claims that are (i) incorrectly coded for payment, (ii) for services that are known to be

medically unnecessary, (iii) for services furnished by an excluded party, or (iv) otherwise false. An entity that offers remuneration to an individual that the entity knows, or should know, is likely to induce the individual to receive care from a particular provider may also be fined under the CMP Law. Under the ACA, Congress amended the CMP Law to authorize civil monetary penalties for a number of additional activities, including (i) knowingly making or using a false record or statement material to a false or fraudulent claim for payment, (ii) failing to grant the OIG timely access for audits, investigations, or evaluations, and (iii) failing to report and return a known overpayment within statutory time limits. The CMP Law authorizes imposition of civil monetary penalties, adjusted yearly for inflation, currently ranging from $20,000 to $100,000 for each item or service improperly claimed and each instance of prohibited conduct. Health care providers may be found liable under the CMP Law even when they did not have actual knowledge of the impropriety of the claim. It is sufficient that the provider "should have known" that the claim was false, and ignorance of the Medicare regulations is not a defense.

False Claims Act

The federal False Claims Act ("FCA") makes it illegal to knowingly submit or present a false, fictitious or fraudulent claim to the federal government (*e.g.*, the Medicare or Medicaid programs) for payment or approval for payment for which the federal government provides, or reimburses at least some portion of the requested money or property. Because the term "knowingly" is defined broadly under the law to include not only actual knowledge but also deliberate ignorance or reckless disregard of the facts, the FCA can be used to punish a wide range of conduct. The ACA amended the FCA by expanding the number of activities that are subject to civil monetary penalties to include, among other things, failure to report and return known overpayments within statutory limits. FCA investigations and cases have become common in the health care field and may cover a range of activity from submission of intentionally inflated billings, to highly technical billing infractions, to allegations of inadequate care. The FCA provides for potentially severe penalties. In June 2016, the DOJ issued a rule that more than doubled civil monetary penalties under the FCA. These increases took effect on August 1, 2016 and apply to FCA violations after November 2, 2015. The penalty amounts are adjusted no later than January 15 of each year to reflect changes in the inflation rate. As of the date of this Official Statement, any person who acts in violation of the FCA is potentially liable for a civil penalty ranging from $11,463 to $22,927 per claim, plus three times the amount of damages sustained by the government. As a result, violation or alleged violation of the FCA frequently results in settlements that require multi-million dollar payments and costly corporate integrity agreements. The Program Fraud and Civil Remedies Act ("PFCRA") also creates administrative remedies for making false claims and false statements. These penalties are in addition to any liability that may be imposed under the False Claims Act.

The FCA also permits individuals to initiate civil actions on behalf of the government in lawsuits called "qui tam" actions. Qui tam plaintiffs, or "whistleblowers," can share in the damages recovered by the federal government or recover independently if the government does not participate. The FCA has become one of the federal government's primary weapons against health care fraud and suspected fraud. FCA violations or alleged violations could lead to settlements, fines, exclusion or reputation damage that could have a material adverse effect on a hospital and other health care providers. Some regulators and whistleblowers have asserted that claims submitted to governmental payers that do not comply fully with regulations or guidelines come within the scope of the FCA.

In June 2016, the United States Supreme Court announced its decision in *Universal Health Services, Inc. v. United States ex rel. Escobar*, No. 15-7 (I.S. June 16, 2016). Prior to Escobar, lower courts had split on the issue of whether the FCA extended to so-called "implied certification" of compliance with laws, and whether such compliance was limited to express conditions of payment or extended to conditions of participation. The United States Supreme Court affirmed the theory of "implied certification" and rejected the distinction between conditions of payment and conditions of participation for these purposes, ruling that the relevant inquiry is whether the alleged noncompliance, if known to the government, would have in fact been material to the government's determination as to whether to pay the claim. There is considerable uncertainty as to the application of the Escobar holding, but depending on how it is interpreted by the lower courts, it could result in an expanded scope of potential FCA liability for noncompliance with applicable laws, regulations and subregulatory guidance.

Under the ACA, the FCA has been expanded to include overpayments that are discovered by a health care provider and are not promptly refunded to the applicable federal health care program, even if the claims relating to the overpayment were initially submitted without any knowledge that they were false. The 2016 Medicare Overpayments Final Rule, which took effect on March 14, 2016, requires that providers report and return identified

overpayments by the later of 60 days after identification, or the date the corresponding cost report is due, if applicable. If the overpayment is not so reported and returned, it becomes an "obligation" under the FCA. This expansion of the FCA exposes hospitals and other health care providers to liability under the FCA for a considerably broader range of claims than in the past. CMS clarified that the 60-day timeframe for report and return begins when either reasonable diligence is completed (including determination of the overpayment amount) or on the day the person received credible information of a potential overpayment (if the person failed to conduct reasonable diligence and the person in fact received an overpayment). Failure to report and return overpayments as described herein may result in false claims liability. That same final rule also established a six-year lookback period, meaning overpayments must be reported and returned only if a person identifies the overpayment within six years of the date the overpayment was received.

Medicare/Medicaid Anti-Kickback Laws

The federal "Anti-Kickback Law" is a criminal statute that prohibits anyone from soliciting, receiving, offering or paying any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, in return for a referral of a patient (or to induce a referral) or the ordering or recommending of the purchase (or lease) of any item or service that is paid by any federal or state health care program. The Anti-Kickback Law applies to many common health care transactions between persons and entities with which a hospital does business, including hospital-physician joint ventures, medical director agreements, physician recruitment agreements, physician office leases and other transactions. The ACA amended the Anti-Kickback Law to provide explicitly that a claim that includes items or services resulting from a violation of the Anti-Kickback Law constitutes a false or fraudulent claim for purposes of the FCA. Another amendment provides that an Anti-Kickback Law violation may be established without showing that an individual knew of the statute's proscriptions or acted with specific intent to violate the Anti-Kickback Law, but only that the conduct was generally unlawful. The new standards could significantly expand criminal and civil fraud exposure for transactions and arrangements where there is no intent to violate the Anti-Kickback Law.

The Anti-Kickback Law can be prosecuted either criminally or civilly. If the government proceeds criminally, a violation of the Anti-Kickback Law is a felony and may be punished by a criminal fine of up to $100,000 for each violation or imprisonment, however, under 18 U.S.C. Section 3571, this fine may be increased to $250,000 for individuals and $500,000 for organizations. Civil money penalties may include fines of up to $100,000 per violation and damages of up to three times the total amount of the remuneration and/or exclusion from participation in Medicare and Medicaid.

Increasingly, the federal government and qui tam relators are prosecuting violations of the Anti-Kickback Law under the FCA, based on the argument that claims resulting from an illegal kickback arrangement are also false claims for FCA purposes. Any claims for items or services that violate the federal Anti-Kickback Statute are also considered false claims for purposes of the FCA. See the discussion under the subheading "False Claims Act" above.

Courts have interpreted this law broadly and held that the Anti-Kickback Law is violated if just one purpose of the remuneration is to generate or induce referrals, even if there are other lawful purposes. Federal regulations describe certain arrangements (i.e., safe harbors) that are exempt from prosecution under the federal Anti-Kickback Law. Because the law is broadly applied and safe harbors are narrowly drawn, there can be no assurance that Obligated Group Members will not be found in violation of the federal Anti-Kickback Law in the future. The IRS has taken the position that hospitals that are in violation of the Anti-Kickback Law may also be subject to revocation of their tax-exempt status.

In October 2019, the OIG issued a proposed rule that would add a number of new safe harbors and modify existing safe harbors to the Anti-Kickback Law. This new rule, if finalized, may increase the costs for the Obligated Group Members to remain compliant with the Anti-Kickback Law because the Obligated Group Members may have to make adjustments as a result of the revised regulations.

Management of the Health System has taken and is taking steps it believes are reasonable to ensure that its contracts with physicians and other referral sources are in material compliance with the Anti-Kickback Law. However, in light of the narrowness of the safe harbor regulations and the scarcity of case law interpreting the Anti-Kickback Law, there can be no assurances that the Health System will not be found to have violated the Anti-Kickback Law, and if so, whether any sanction imposed would have a material adverse effect on its operations.

Medicare/Medicaid Anti-Referral Laws

The Ethics in Patient Referrals Act of 1989 ("Stark I"), as amended in the Omnibus Budget Reconciliation Act of 1993 and subsequently amended ("Stark II") (collectively, the "Stark Law"), prohibits the referral of Medicare patients for certain designated health services (including inpatient and outpatient hospital services, clinical laboratory services, and radiology and other imaging services) to entities with which the referring physician (or an immediate family member) has a financial relationship unless that relationship fits within an exception to the Stark Law. It also prohibits a hospital, or other provider, furnishing the designated health services from billing Medicare, or any other government health care program for services performed pursuant to a prohibited referral. The government does not need to prove that the entity knew that the referral was prohibited to establish a Stark Law violation. If certain substantive and technical requirements of an applicable exception are not satisfied, an ordinary business arrangement or contract between hospitals and physicians can violate the Stark Law, thus triggering the prohibition on referrals and billing. All providers of designated health services with physician relationships have some exposure to liability under the Stark Law.

Penalties for violation of the Stark Law include denial of payment, recoupment, refunds of amounts paid in violation of the law, exclusion from the Medicare or Medicaid program, and substantial civil monetary penalties (which are inflation-adjusted and, as of the most recent adjustment, are up to $24,748 per service, $164,992 for each arrangement or scheme intended to circumvent or to violate the statute, or $19,639 per day for false reporting or failure to report certain information required under the law). Violation of the Stark Law may also provide the basis for a claim under the FCA.

In October 2019, CMS released a proposed rule regarding a number of new exceptions related to value-based arrangements, certain limited remuneration payments to physicians and electronic health record items and services donations. The proposed rule also provides guidance regarding the application of the Stark Law and its exceptions, by making changes to existing exceptions and the definitions contained in the Stark Law's implementing regulations. This new rule, if enacted, may increase costs for the Obligated Group Members to remain compliant with the Stark Law because the Obligated Group Members may have to make adjustments as a result of the revised regulations.

Medicare may deny payment for all services performed by a provider based on a prohibited referral, and a hospital that has billed for prohibited services is obligated to refund the amounts collected from the Medicare program or to make a self-disclosure to CMS under its Self-Referral Disclosure Protocol. As a result, even relatively minor, technical violations of the Stark Law may trigger substantial refund obligations. Moreover, where there are "knowing" violations of the Stark Law, the government may seek substantial civil monetary penalties under FCA, and in some cases, a hospital may be excluded from the Medicare and Medicaid programs. Potential repayments to CMS, settlements, fines or exclusion for a Stark Law violation or alleged violation could have a material adverse effect on a hospital and other health care providers. Increasingly, the federal government is prosecuting Stark Law violations under the FCA, based on the argument that claims resulting from an illegal referral arrangement are also false claims for FCA purposes. See the discussion under the subheading "False Claims Act" above. The DOJ and others have asserted that Medicaid referrals in which a non-excepted financial arrangement exists under the Stark Law also create FCA exposure, and have had some success with these arguments in certain courts.

State Fraud and Abuse Laws

Pennsylvania

Health care providers, such as facilities in the Health System, are also subject to a variety of Pennsylvania laws as described below:

False Claims. The Commonwealth's Medicaid Fraud and Abuse Control Law (the "Medicaid Fraud Control Act") prohibits the submission of false or fraudulent claims to Pennsylvania's Medical Assistance (Medicaid) program. The Medicaid Fraud Control Act prohibits any person from, among other things: knowingly or intentionally presenting for allowance or payment any false or fraudulent claim or cost report for furnishing services or merchandise under the Medicaid program; knowingly presenting for allowance or payment any claim or cost report for medically unnecessary services or merchandise under the Medicaid program; knowingly submitting false information, for the purpose of obtaining greater compensation than that to which he or she is legally entitled for furnishing services or merchandise under the Medicaid program; or knowingly submitting false information for the

purpose of obtaining or furnishing services or merchandise under the Medicaid program. Violation of the Medicaid Fraud Control Act may lead to civil and criminal penalties, as well as exclusion from the Medicaid program.

The Pennsylvania Whistleblower Law provides protection from discrimination and retaliation to any person who witnesses or has evidence of wrongdoing or waste while employed by a public body (or any body that is funded in any amount by or through the Commonwealth) and who makes a good faith report of the wrongdoing or waste, verbally or in writing, to one of the person's superiors, to an agent of the employer or to an appropriate authority. No employer may discharge, threaten or otherwise discriminate or retaliate against an employee regarding the employee's compensation, terms, conditions, location or privileges of employment because the employee, or a person acting on behalf of the employee, makes a good faith report or is about to report, verbally or in writing, to the employer or appropriate authority an instance of wrongdoing or waste.

The potential imposition of large monetary penalties, criminal sanctions, and the significant costs of mounting a defense, create serious pressures to settle on providers who are targets of false claims actions or investigations. Therefore, an action under the Medicaid Fraud Control Act could have a material adverse financial impact on the Health System, regardless of the merits of the case.

State Anti-Kickback Law. Pennsylvania regulations contain provisions that prohibit a provider enrolled in the Medicaid program from directly or indirectly doing any of the following acts: solicitation or receipt or offer of a kickback, payment, gift, bribe or rebate for purchasing, leasing, ordering or arranging for, or recommending purchasing, leasing, ordering or arranging for, a good, facility, service or item for which payment is made under Medicaid. This does not preclude discounts or other reductions in charges by a provider to a practitioner for services, that is, laboratory and x-ray, so long as the price is properly disclosed and appropriately reflected in the costs claimed or charges made by a practitioner.

Violation of the Commonwealth's Anti-Kickback Law may lead to civil and criminal penalties, as well as exclusion from the Medicaid program. The Health System attempts to comply with the provisions of these regulations. The mere allegation of such a violation, or if such violation were found to have occurred any sanctions imposed, could have a material adverse effect upon the operations and financial condition of the Health System.

State Anti-Referral Law. Under current Pennsylvania law, physicians (and other practitioners of the healing arts) are required to disclose to patients any referral to a facility where the physician has a financial interest, and must advise the patient that he or she retains the freedom to choose among any recommended facilities. Providers participating in the Medicaid program may not refer a Medicaid recipient to an independent laboratory, pharmacy, radiology or other ancillary medical service in which the practitioner or professional corporation has an ownership interest.

Breach of Personal Information Notification Act. The Breach of Personal Information Notification Act, enacted in 2006, states that a state agency, political subdivision, individual or business that operates in the Commonwealth and maintains, stores or manages personal consumer information on a computer, must provide notice of any security system breach to Pennsylvania residents whose personal information was or may have been compromised by the breach. A private action under the Breach of Personal Information Notification Act can also result in treble damages. The Pennsylvania Attorney General may impose civil penalties of $1,000 per violation, or $3,000 if the injured person is 60 years of age or older.

Future Pennsylvania Legislation. From time to time, the Pennsylvania Legislature considers certain reforms aimed at containing health care costs and increasing coverage. Such reforms often include provisions to provide more affordable coverage through expanded government health care programs, provide subsidies to low-income residents to enable them to purchase health care coverage and initiate studies or implement regulations related to payment systems reform. At this time, it is impossible to measure the overall financial impact that current and future legislation, if enacted into law, would have on the Obligated Group.

New Jersey

Health care providers, such as facilities in the Health System, are also subject to a variety of New Jersey laws. Similar to the Commonwealth, New Jersey has also a State False Claims Act, Anti-kickback Law, and Anti-Referral Law. Health care providers in New Jersey are also subject to the following New Jersey laws and regulations:

Insurance Fraud. The New Jersey Insurance Fraud Prevention Act ("FPA") prohibits a person's or entity's submission of false or misleading claims for payment or approval by an insurance company, and allows New Jersey to recover substantial damages from persons or entities that knowingly present or cause to be presented a false or misleading claim for payment or approval by an insurance company. Any person or entity that violates the FPA may be liable for, among other things, financial penalties that escalate for subsequent violations. In addition to or as an alternative to the civil sanctions provided in the FP A, the Attorney General of New Jersey may bring a criminal action under applicable statutes.

Health Care Claims Fraud. N.J.S.A. 2C:21-4.3 and N.J.S.A. 2C:51-5 complements the FPA and prohibits a practitioner's submission of bills or claims for payment reimbursement of health care services that contain false, fictitious, fraudulent and misleading statements of material fact, or omissions of material fact. In addition to other criminal penalties allowed by other applicable laws, under this body of law, a practitioner may be guilty of the crime of health care claims fraud. Practitioners can be guilty of a crime in the second or third degree depending upon the severity of the claims fraud, may be subject to a fine of up to five times the pecuniary benefit obtained or sought to be obtained, and may be subject to imprisonment, if convicted. A practitioner may in some cases, also have his license revoked or suspended. Non-practitioners can also be found guilty of health care claims fraud in the third and fourth degrees.

Health Claims Authorization, Processing and Payment Act. Carriers and health care providers must comply with New Jersey's Health Claims Authorization, Processing and Payment Act ("HCAPPA") which contains provisions relating to handling of claims, claims payment appeals, prior authorization processes, utilization management appeals rights and obligations, and information about clinical guidelines and claims submissions procedures. Carriers and health care providers have an obligation to meet certain requirements of the HCAPPA with respect to both claims payment and the establishment of an independent claims arbitration program to be administered through the New Jersey Department of Banking and Insurance. No assurance can be given at this time as to the impact, if any, of the provisions of the HCAPPA on the operations of the University and the financial condition of the Obligated Group.

Future New Jersey Legislation. From time to time, the New Jersey State Legislature considers certain reforms aimed at containing health care costs and increasing coverage. Such reforms often include provisions to provide more affordable coverage through expanded government health care programs, subsidize low-income residents to enable them to purchase health care coverage and study and implement payment system reforms. At this time, it is impossible to measure the overall financial impact that current and future legislation, if enacted into law, would have on the Obligated Group.

EMTALA

The Emergency Medical Treatment and Active Labor Act ("EMTALA") is a federal civil statute that requires Medicare-participating hospitals with an emergency department to conduct a medical screening examination to determine the presence or absence of an emergency medical condition and to provide treatment sufficient to stabilize such emergency medical condition before discharging or transferring the patient. A hospital that violates EMTALA is subject to civil penalties of up to $106,965 per offense and termination of its Medicare provider agreement. EMTALA also provides for a limited private right of action against hospitals, and as a result a hospital could be subject to claims for personal injury where an individual suffers harm as result of an EMTALA violation.

Over the last few years, the federal government has increased its enforcement of EMTALA. Failure to comply with the law can result in exclusion from the Medicare and/or Medicaid programs, as well as civil and criminal penalties. In addition, a hospital may be held liable to a patient who suffered injuries as a result of a violation of EMTALA and may be liable to the receiving hospital for financial losses suffered as a result of a transfer in violation of EMTALA. Substantial failure of an Obligated Group Member to meet its responsibilities under EMTALA could have a materially adversely effect on the Obligated Group. Outpatient facilities that are included as part of a hospital by virtue of a provider-based status designation are required to adhere to EMTALA's requirements, regardless of whether they are located on or away from the hospital's main campus.

Any sanctions imposed as a result of an EMTALA violation could have a material adverse effect on the Obligated Group.

Administrative Enforcement

Administrative regulations may require less proof of a violation than do criminal laws and thus, health care providers may have a higher risk of imposition of monetary penalties as a result of an administrative enforcement action.

Enforcement Activity

Enforcement activity against health care providers has increased and enforcement authorities have adopted aggressive approaches. In the current regulatory climate, it is anticipated that many hospitals and physician groups will be subject to an audit, investigation or other enforcement action regarding the health care fraud laws mentioned above.

Enforcement actions may pertain to not only deliberate violations, but also frequently relate to violations resulting from actions of which management is unaware, from mistakes or from circumstances where the individual participants do not know that their conduct is in violation of law. Enforcement actions may extend to conduct that occurred in the past. The government may seek a wide array of penalties, including withholding essential payments under the Medicare or Medicaid programs or exclusion from those programs.

Enforcement authorities are often in a position to compel settlements by providers charged with or being investigated for false claims violations by withholding or threatening to withhold Medicare, Medicaid and/or similar payments and/or by instituting criminal action. In addition, the cost of defending such an action, the time and management attention consumed, and the facts of a case may dictate settlement. Therefore, regardless of the merits of a particular case, a hospital could experience materially adverse settlement costs, as well as materially adverse costs associated with implementation of any settlement agreement. Prolonged and publicized investigations could be damaging to the reputation and business of a hospital, regardless of outcome.

Certain acts or transactions may result in violation or alleged violation of a number of the federal health care fraud laws described above and therefore penalties or settlement amounts often are compounded. Generally, these risks are not covered by insurance. Enforcement actions may involve multiple hospitals in a health system, as the government often extends enforcement actions regarding health care fraud to other hospitals in the same organization. Therefore, Medicare fraud related risks identified as being materially adverse as to a hospital could have materially adverse consequences to a health system taken as a whole.

Increased Enforcement Affecting Academic Research

In addition to increasing enforcement of laws governing payment and reimbursement, the federal government has also stepped up enforcement of laws and regulations governing the conduct of clinical trials at hospitals. DHHS elevated and strengthened its Office for Human Research Protections, one of the agencies with the responsibility for monitoring federally funded research. The Food and Drug Administration ("FDA") also has authority over the conduct of clinical trials performed in hospitals when these trials are conducted on behalf of sponsors seeking FDA approval to market the drug or device that is the subject of the research. These agencies' enforcement powers range from substantial fines and penalties to exclusion of researchers and suspension or termination of entire research programs.

Other Pennsylvania Department of Human Services Funding

As a result of the national class action tobacco settlement, PADHS has created an uncompensated care pool to provide grants to hospitals that meet certain levels of uncompensated care. PADHS began funding these grants in 2002. There can be no assurance that this resource will be available at current levels, if at all, in the future.

Additional State Regulation

Medical Care Availability and the Reduction of Error Act

In March 2002, the Commonwealth enacted the Medical Care Availability and Reduction of Error Act (the "Mcare Act"). The Mcare Act includes significant patient safety initiatives, professional liability tort reforms, professional liability insurance reforms, and administrative requirements that impose numerous burdens on health care providers in the Commonwealth.

Under the Mcare Act, hospitals are required to develop and implement patient safety plans, appoint patient safety officers, form patient safety committees, and engage in mandatory reporting of serious events, incidents, and infrastructure failures in the hospital. Furthermore, hospitals are required to provide written notice to patients affected by serious events. Hospitals, ambulatory surgical centers, and birth centers are subject to administrative fines of $1,000 per day for failure to comply with the patient safety requirements of the Mcare Act. The administrative provisions under the Mcare Act require physicians in the Commonwealth to report to the appropriate licensing board each time they are named in a lawsuit, and provide for additional civil penalties of up to $10,000 for violations of the Mcare Act by licensees.

The Mcare Act also eliminated the Pennsylvania Medical Professional Liability Catastrophe Loss Fund (the "CAT Fund") and established the Medical Care Availability and Reduction of Error Fund (the "Mcare Fund"). The liabilities of the CAT Fund, which were estimated at over two billion dollars, were transferred into the Mcare Fund and were to be paid through the imposition of annual assessments on health care providers in the Commonwealth until all liabilities were satisfied. The Mcare Fund provides coverage for professional liability claims in excess of a basic limit of insurance, and participation in the Mcare Fund is mandatory for licensed health care providers. The administrative and financial burdens imposed on health care providers by the Mcare Act are substantial, and there can be no assurance that compliance with the Mcare Act will not have a material adverse effect on the Obligated Group Members. Continued funding of the Mcare program is uncertain.

TAX MATTERS

Federal Tax Exemption

General

Concurrently with the issuance of the 2019 Bonds, Co-Bond Counsel will deliver their opinions to the effect that, under existing law as enacted and construed on the date of initial delivery of such Bonds, interest (including original issue discount) on the 2019 Bonds is excludable from gross income for purposes of federal income tax, assuming the accuracy of the certifications of the Authority and the Borrowers and continuing compliance by the Authority and the Borrowers with the requirements of the Internal Revenue Code of 1986, as amended (the "Code"). Interest on the 2019 Bonds is not a specific tax preference for purposes of the individual federal alternative minimum tax. Co-Bond Counsel will not express any opinion regarding other federal tax consequences relating to ownership or disposition of, or the accrual or receipt of interest on, the 2019 Bonds.

The Code establishes requirements that must be complied with subsequent to the issuance of the 2019 Bonds for interest thereon to be and remain excluded from gross income pursuant to Section 103 of the Code. Failure to comply with these requirements could cause the interest on the 2019 Bonds to be included in gross income, retroactive to the date of issue of the 2019 Bonds or at some later date. The requirements include, but are not limited to, the provisions of Section 148 of the Code which prescribes yield and other limits within which the proceeds of the 2019 Bonds are to be invested and may require that certain investment earnings on the foregoing be rebated on a periodic basis to the United States. The Borrowers and the Authority have covenanted to comply with the provisions of the Code.

Original Issue Discount

The initial public offering price of certain 2019 Bonds indicated on the inside front cover page hereof may be less than the principal amount thereof (the "Discount Bonds"). The difference between the stated principal amount of any Discount Bond and the public offering price thereof is "original issue discount." For federal income tax purposes, original issue discount on a Discount Bond accrues periodically over the term of such Discount Bond as interest with the same tax exemption and alternative minimum tax status as regular interest. The accrual of original issue discount increases the holder's tax basis in such Discount Bond for determining taxable gain or loss from sale or from redemption prior to maturity. Holders should consult their tax advisors for an explanation of the accrual rules.

Original Issue Premium

The initial public offering price of certain 2019 Bonds indicated on the inside front cover page hereof may be greater than the principal amount thereof (the "Premium Bonds"). The difference between the stated principal amount of any Premium Bond and the public offering price thereof is "original issue premium." For federal income tax purposes, original issue premium is amortizable periodically over the term of a Premium Bond through reductions in the holder's tax basis for such Premium Bond for determining taxable gain or loss from sale or from redemption prior to maturity. Amortization of premium does not create a deductible expense or loss. Holders should consult their tax advisors for an explanation of the amortization rules.

Information Reporting and Backup Withholding

A person making payments of tax-exempt interest to a bondholder is generally required to make an information report of the payments to the Internal Revenue Service and to perform "backup withholding" from the interest if the bondholder does not provide an IRS Form W-9 to the payor. "Backup withholding" means that the payor withholds tax from the interest payments at the backup withholding rate, currently 24%. Form W-9 states the bondholder's taxpayer identification number or basis of exemption from backup withholding.

If a holder purchasing a 2019 Bond through a brokerage account has executed a Form W-9 in connection with the account, as generally can be expected, there should be no backup withholding from the interest on the 2019 Bond.

If backup withholding occurs, it does not affect the excludability of the interest on the 2019 Bonds from gross income for Federal income tax purposes. Any amounts withheld pursuant to backup withholding would be allowed as a refund or a credit against the owner's Federal income tax once the required information is furnished to the Internal Revenue Service.

Pennsylvania Tax Exemption

Co-Bond Counsel will also deliver their opinions to the effect that, under existing law as enacted and construed on the date of initial delivery of the 2019 Bonds, the 2019 Bonds are exempt from personal property taxes in Pennsylvania, and interest on the 2019 Bonds is exempt from the Pennsylvania personal income tax and the Pennsylvania corporate net income tax.

Changes in Federal and State Tax Law

Purchasers of the 2019 Bonds should consult their tax advisors regarding any pending or proposed legislation, regulatory initiatives or litigation. The opinions expressed by Bond Counsel are based upon existing legislation and regulations as interpreted by relevant judicial and regulatory authorities as of the date of issuance and delivery of the 2019 Bonds, and Bond Counsel has expressed no opinion as of any date subsequent thereto or with respect to any proposed or pending legislation, regulatory initiatives or litigation.

BOND TRUSTEE AND MASTER TRUSTEE

The obligations of the Bond Trustee and the Master Trustee (the "Trustees") are described in the Bond Indenture and the Master Indenture, respectively. The Bond Trustee and the Master Trustee have undertaken only those obligations and duties which are expressly set out in the Bond Indenture and the Master Indenture, respectively. The Trustees have not independently passed upon the validity of the 2019 Bonds or the 2019 Master Note, any security for the payment thereof, the adequacy of the provisions for such payment, or the status for federal or state income tax purposes of the interest on the 2019 Bonds. The Bond Indenture and the Master Indenture expressly provide that the respective Trustees will not be responsible for any loss or damage resulting from any action or inaction taken (i) in good faith in reliance upon an opinion of counsel or (ii) absent the Bond Trustee's or Master Trustee's negligence or gross misconduct.

LEGAL MATTERS

Legal matters incident to the authorization, issuance, and sale of the 2019 Bonds will be passed upon by Ballard Spahr LLP and Andre C. Dasent, P.C., each of Philadelphia, Pennsylvania, as Co-Bond Counsel. The proposed form of opinion of Co-Bond Counsel with respect to the 2019 Bonds is included in APPENDIX F hereto. Certain legal matters will be passed upon for the Authority by its counsel, Barley Snyder LLP, Lancaster, Pennsylvania; for the Obligated Group by Wendy S. White, Esquire, Senior Vice President and General Counsel of the University, Robert P. Macina, Esquire, Executive Vice President, Chief Administrative/Legal Officer and Corporate Secretary of LG Health, and Nancy Fletcher, Esquire, General Counsel Vice President, Corporate Compliance and Enterprise Risk of PHCSH; and for the Underwriters by their counsel, Drinker Biddle & Reath LLP, Philadelphia, Pennsylvania.

Each of Ballard Spahr LLP, which is acting as Co-Bond Counsel in connection with the 2019 Bonds, Drinker Biddle & Reath LLP, which is acting as counsel to the Underwriters in connection with the 2019 Bonds, and Barley Snyder LLP, which is acting as the Authority's counsel in connection with the 2019 Bonds, periodically provides general legal services to the University, the Health System or one or more of the Members of the Obligated Group.

INDEPENDENT ACCOUNTANTS

The audited combined financial statements of the Health System as of June 30, 2019, and June 30, 2018, and for the years then ended included in APPENDIX B to this Official Statement have been audited by PricewaterhouseCoopers LLP, independent accountants, as stated in their report appearing in APPENDIX B.

RATINGS

Moody's Investors Service ("Moody's") has assigned its long-term municipal bond rating of "Aa3," with a stable outlook, and S&P Global Ratings, a division of S&P Global Inc. ("S&P"), has assigned its long-term municipal bond rating of "AA," with a stable outlook, to the 2019 Bonds.

Any explanation of the significance of any ratings may only be obtained from the rating agency furnishing the same.

Generally, rating agencies base their ratings on information and materials provided to them and on investigations, studies and assumptions made by the rating agencies themselves. There is no assurance that the ratings initially assigned to any of the 2019 Bonds will be maintained for any given period of time or that such ratings may not be revised downward or withdrawn entirely by a rating agency if, in its judgement, circumstances so warrant. The Underwriters have not undertaken any responsibility to bring to the attention of the holders of the 2019 Bonds any proposed revision or withdrawal of the rating of the 2019 Bonds or to oppose any such proposed revision or withdrawal. Any downward change in or the withdrawal of any such rating might have an adverse effect on the market price or marketability of the 2019 Bonds to which it applies.

UNDERWRITING

Pursuant to the provisions of the bond purchase contract for the 2019 Bonds among the Authority, the Members of the Obligated Group and BofA Securities, Inc., acting as a representative on behalf of itself and the other underwriters listed on the cover page of this Official Statement (collectively, the "Underwriters"), the Underwriters have agreed, subject to certain conditions, to purchase the 2019 Bonds from the Authority at an aggregate discount of $2,279,361 from the initial public offering prices set forth on the inside front cover page hereof. The Underwriters will be obligated to purchase all of the 2019 Bonds if any are purchased. The public offering prices may be changed, from time to time, by the Underwriters. The 2019 Bonds may be offered and sold to certain dealers (including the Underwriters and other dealers depositing the 2019 Bonds into investment trusts) at prices lower than such public offering prices. The offering price of 2019 Bonds may be changed from time to time by the Underwriters.

The purchase contract for the 2019 Bonds requires the Members of the Obligated Group to indemnify the Authority and the Underwriters against certain liabilities relating to this Official Statement.

The Underwriters and their respective affiliates are full service financial institutions engaged in various activities, which may include sales and trading, commercial and investment banking, advisory, investment management, investment research, principal investment, hedging, market making, brokerage and other financial and non-financial activities and services. Under certain circumstances, the Underwriters and their affiliates may have certain creditor and/or other rights against the Authority, any of the Members of the Obligated Group and their affiliates in connection with such activities.

In the ordinary course of their various business activities, the Underwriters and their respective affiliates, officers, directors and employees may purchase, sell or hold a broad array of investments and actively trade securities, derivatives, loans, commodities, currencies, credit default swaps and other financial instruments for their own account and for the accounts of their customers, and such investment and trading activities may involve or relate to assets, securities and/or instruments of the Members of the Obligated Group (directly, as collateral securing other obligations or otherwise) and/or persons and entities with relationships with the Members of the Obligated Group. The Underwriters and their respective affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such assets, securities or instruments and may at any time hold, or recommend to clients that they should acquire, long and/or short positions in such assets, securities and instruments.

BofA Securities, Inc., one of the underwriters of the 2019 Bonds, has entered into a distribution agreement with its affiliate Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S"). As part of this arrangement, BofA Securities, Inc. may distribute securities to MLPF&S, which may in turn distribute such securities to investors through the financial advisor network of MLPF&S. As part of this arrangement, BofA Securities, Inc. may compensate MLPF&S as a dealer for their selling efforts with respect to the 2019 Bonds.

Morgan Stanley, parent company of Morgan Stanley & Co., LLC, one of the Underwriters of the 2019 Bonds, has entered into a retail distribution arrangement with its affiliate Morgan Stanley Smith Barney LLC. As part of the distribution arrangement, Morgan Stanley & Co. LLC may distribute municipal securities to retail investors through the financial advisor network of Morgan Stanley Smith Barney LLC. As part of this arrangement, Morgan Stanley & Co., LLC may compensate Morgan Stanley Smith Barney LLC for its selling efforts with respect to the Bonds.

PNC Capital Markets LLC, one of the Underwriters of the 2019 Bonds, may offer to sell to its affiliate, PNC Investments, LLC ("PNCI"), securities in PNC Capital Markets LLC's inventory for resale to PNCI's customers, including securities such as the 2019 Bonds. PNC Capital Markets LLC may share with PNCI a portion of the fee or commission paid to PNC Capital Markets LLC if any 2019 Bonds are sold to customers of PNCI.

PNC Bank, National Association, an affiliate of PNC Capital Markets LLC, is expected to receive approximately $87,000,000 of bond proceeds from the 2019 Bonds to repay the outstanding balance under the Health System's line of credit.

Jefferies LLC has entered into an agreement (the "Distribution Agreement") with E*TRADE Securities LLC ("E*TRADE") for the retail distribution of municipal securities. Pursuant to the Distribution Agreement, Jefferies LLC will sell the 2019 Bonds to E*TRADE and will share a portion of its selling concession compensation with E*TRADE.

NEGOTIABILITY

Under the Act, the 2019 Bonds have all the qualities of negotiable instruments under the law merchant and the laws of the Commonwealth relating to negotiable instruments.

LITIGATION

The Authority

There is no litigation of any nature pending or, to the Authority's knowledge, threatened against the Authority at the date of this Official Statement to restrain or enjoin the issuance, sale, execution or delivery of the 2019 Bonds, or in any way contesting or affecting the validity of the 2019 Bonds or any proceedings of the Authority taken with respect to the issuance or sale thereof, or the pledge or application of any moneys or the security provided for the payment of the 2019 Bonds or the existence or powers of the Authority.

The Health System

There are various legal actions pending against the Health System and/or individual Members of the Obligated Group, which have arisen in the ordinary course of the business of the Health System, including medical malpractice claims that may or may not be covered by insurance or self-insurance because of the type of action or damages sought (such as punitive damages), because of a reservation of rights by an insurance carrier or self-insurance program or because the action has not proceeded to a stage that permits an accurate assessment of available coverage. Nonetheless, in the opinion of management of the Health System, there is no litigation pending or overtly threatened against any Member of the Obligated Group in which an adverse decision would have a material adverse effect on the current business, financial position or operations of the Health System. See "ADDITIONAL HEALTH SYSTEM INFORMATION - Litigation" in APPENDIX A and "ADDITIONAL UNIVERSITY INFORMATION – Litigation" in APPENDIX C hereto.

CONTINUING DISCLOSURE

At the time of issuance of the 2019 Bonds, the University, as Obligated Group Agent acting on behalf of the Members of the Obligated Group, will enter into a Continuing Disclosure Agreement (the "Disclosure Agreement") with the Bond Trustee for the benefit of the holders of the 2019 Bonds, as required to enable the Underwriters to comply with their obligations under Rule 15c2-12 of the Securities and Exchange Commission (the "Rule"). Under the Disclosure Agreement, the Members of the Obligated Group will covenant to provide, through the Electronic Municipal Market Access ("EMMA") system of the Municipal Securities Rulemaking Board ("MSRB"), the following:

- within 150 days following the end of each fiscal year of the Health System, commencing with the fiscal year ending June 30, 2020, a copy of the annual financial statements of the Health System prepared in accordance with generally accepted accounting principles and audited by a certified public accountant, together with an update of the financial information and operating data set forth in APPENDIX A hereto (i) under "BUSINESS OF THE HEALTH SYSTEM," the information under the headings "Hospital Facilities," "Historical Utilization Statistics," and "Service Area and Market Share"; and (ii) under "CERTAIN FINANCIAL INFORMATION," the information under the heading "Sources of Revenue" and "Debt Service Coverage," and within 60 days following the end of each fiscal quarter, a copy of the following information for each fiscal quarter of the Health System: (i) the Health System's unaudited financial statements for each fiscal quarter (beginning with the quarter ending December 31, 2019); and (ii) an update of the financial information and operating data set forth in APPENDIX A hereto, under "BUSINESS OF THE HEALTH SYSTEM," the information under the heading "Historical Utilization Statistics";

- within 150 days following the end of each fiscal year of the University, commencing with the fiscal year ending June 30, 2020, a copy of its annual consolidated financial statements prepared in accordance with generally accepted accounting principles and audited by a certified public accountant, together with an update of the financial information and operating data set forth in APPENDIX C hereto under the following headings: (i) under "PROGRAMS," the information under the headings "Undergraduate Student Applications and Enrollment," "Tuition and Fees," and "Student Financial Aid;" and (ii) under "UNIVERSITY FINANCIAL DATA," the information under the headings "Contributions," "Sponsored Research," "Endowment," "Endowment Spending Policy," "Investment Policy," and "Investment Performance;" and

- in a timely manner, but not in excess of ten business days after the occurrence of the event, notice of the occurrence of any of the following events with respect to the 2019 Bonds: principal and interest payment delinquencies; nonpayment related defaults, if material; unscheduled draws on debt service reserves reflecting financial difficulties; unscheduled draws on credit enhancements reflecting financial difficulties; substitution of credit or liquidity providers, or their failure to perform; adverse tax opinions, the issuance by the Internal Revenue Service of proposed or final determinations of taxability, or a Notice of Proposed Issue (IRS Form 5701-TEB) or other material notices of determinations with respect to tax status of the 2019 Bonds, or other events affecting the tax status of the 2019 Bonds; modifications to rights of registered owners of the 2019 Bonds, if material; bond calls (excluding mandatory sinking fund redemptions) and tender offers; defeasances; release, substitution or sale of property securing repayment of the 2019 Bonds, if material; rating changes; bankruptcy, insolvency, receivership, or similar proceeding by any Member of the Obligated Group; consummation of a merger, consolidation, acquisition involving any Member of the Obligated Group, or sale of all or substantially all of the assets of any Member of the Obligated Group, other than in the ordinary course of business, the entry into a definitive agreement to undertake such an action or termination of a definitive agreement relating to any such actions, other than pursuant to its terms, if material; and appointment of an additional or a successor trustee, or the change in name of a trustee, if material; incurrence of a financial obligation (as defined in the Rule) of the Members of the Obligated Group, if material, or agreement to covenants, events of default, remedies, priority rights, or other similar terms of a financial obligation, any of which affect holders of the 2019 Bonds, if material; default, event of acceleration, termination event, modification of terms, or other similar events under the terms of a financial obligation of any Member of the Obligated Group, any of which reflect financial difficulties; and notice of any failure on the part of any Member of the Obligated Group to meet the reporting requirements of the Disclosure Agreement.

The Disclosure Agreement may be amended by the Obligated Group Agent and the Bond Trustee so long as such amendment does not contravene the Rule as applicable to the 2019 Bonds. In addition, the Members of the Obligated Group reserve the right (i) to modify from time to time the specific types of information provided or the format of the presentation of its annual financial information and other operating data, to the extent necessary or appropriate in the judgment of the Obligated Group Agent, and (ii) upon prior written notice to EMMA to amend or terminate any or all of its continuing disclosure covenants for any reason if permitted to do so under the Rule. Prior to executing any requested amendment, the Bond Trustee may request the Obligated Group Agent to provide an opinion of counsel knowledgeable in federal securities laws and acceptable to the Bond Trustee to the effect that the proposed amendment is permitted under the Disclosure Agreement and would not, in and of itself, cause the undertakings therein, as modified by such amendment, to violate the Rule as it applies to the 2019 Bonds. To the extent that the Rule requires or permits an approving vote of beneficial owners of the 2019 Bonds, in connection with an amendment, the approving vote of beneficial owners of the 2019 Bonds constituting more than 50% of the aggregate principal amount of the then outstanding 2019 Bonds shall constitute such approval. Any notice of an amendment to the Disclosure Agreement shall be submitted to EMMA in accordance with the rules and procedures set forth by the MSRB.

In the event of a breach or default by the Members of the Obligated Group of their covenants to provide information and notices as specified in the Disclosure Agreement, the Bond Trustee or any record or beneficial owner of the 2019 Bonds may, but is not required, to bring an action in a court of competent jurisdiction to compel specific performance by the Obligated Group. No monetary damages may be recovered under any circumstances for any breach or default by the Members of the Obligated Group of their covenants under the Disclosure Agreement. A breach or default under the Disclosure Agreement shall not constitute an event of default with respect to the 2019 Bonds or the Bond Indenture or the Loan Agreement.

The University and the Members of the Obligated Group have entered into similar disclosure agreements in accordance with the Rule in connection with prior debt obligations issued on behalf of the University and of the Health System. Such information may be available to investors so long as the University or the Members of the Obligated Group are obligated to provide such information as part of its other undertakings.

In reviewing its filings with EMMA made during the five years prior to the date of this Official Statement, the Health System has noted the following:

- In connection with the University becoming the sole corporate member of TCCHHS effective September 1, 2013, and TCCHHS becoming a Member of the Obligated Group on June 12, 2014, the University filed an event notice with EMMA on February 12, 2015, which was more than the required 10 business days after the underlying event.

- In connection with the execution on December 22, 2016, of the definitive agreement relating to the proposed affiliation of the University with Princeton HealthCare System Holding, Inc., the University filed an event notice with EMMA on January 19, 2017, which was more than the required 10 business days after the underlying event.

- The annual financial statements and other financial and operating information regarding the Health System for the fiscal year ended June 30, 2016, as filed generally with EMMA on September 23, 2016, were not linked to the CUSIP numbers for the outstanding University of Pennsylvania Health System Health System Revenue Bonds, Series C of 2016, issued by the Authority on behalf of the Health System on August 25, 2016, which was corrected on November 15, 2017.

Except as noted above, the University believes that it has complied in all material respects with its previous undertakings with regard to continuing disclosure for prior obligations issued. Further, the University has reviewed its disclosure policies and procedures to ensure that the University will continue to be in compliance with continuing disclosure undertakings in the future.

The Authority is not a party to the Disclosure Agreement, and is not required to provide disclosure regarding its financial condition because, among other things, its financial condition is not material to an investment in the 2019 Bonds. In addition, the Authority has no responsibility for the compliance by the Members of the Obligated Group with the Disclosure Agreement or for the information provided thereunder.

CERTAIN RELATIONSHIPS

Certain Trustees of the University and/or members of the PENN Medicine Board (which provides separate governance of the Health System) have affiliations with firms participating in the issuance and sale of the 2019 Bonds, as follows:

Hon. Thomas W. Wolf, Governor of the Commonwealth of Pennsylvania and an ex officio Trustee of the University, is a Board Member and President of the Pennsylvania Higher Educational Facilities Authority, the issuer of the 2019 Bonds.

For a description of the University's comprehensive conflict-of-interest policy, see "THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA - Transactions between the University and Members of its Board of Trustees" in APPENDIX C hereto.

MISCELLANEOUS

This Official Statement, issued by the Authority, has been duly approved by the Authority, the University, as Obligated Group Agent and the Health System, and the Authority, the University, as Obligated Group Agent and the Health System have authorized its distribution in connection with the offering of the 2019 Bonds. This Official Statement is not to be construed as a contract or agreement between the Authority, the University, as Obligated Group Agent, or the Health System and the purchasers or holders of any 2019 Bonds.

All of the summaries of the provisions of the Act, the Bond Indenture, the Loan Agreement, the Master Indenture, the 2019 Master Note and the 2019 Bonds set forth herein are only brief outlines of certain provisions thereof and are made subject to all of the detailed provisions thereof, to which reference is hereby made for further information, and do not purport to be complete statements of any or all such provisions of such document.

The 2019 Bonds have not been recommended by any federal or state securities commission or regulatory authority. Furthermore, the foregoing authorities have not confirmed the accuracy or determined the adequacy of this document. Any representation to the contrary is a criminal offense.

Information concerning the Health System has been provided by the Members of the Obligated Group. All estimates, projections, and assumptions herein have been made on the best information available and are believed to be reliable, but no representations whatsoever are made that such estimates, projections, or assumptions are correct or will be realized. So far as any statements herein involve matters of opinion, whether or not expressly so stated, they are intended merely as such and not as representations of fact.

The Authority has not assisted in the preparation of this Official Statement, except for the statements under the sections captioned "THE AUTHORITY" and "LITIGATION - The Authority" herein and, except for those sections, the Authority is not responsible for any statements made in this Official Statement. Except for the authorization, execution, and delivery of documents required to effect the issuance of the 2019 Bonds, the Authority assumes no responsibility for the disclosures set forth in this Official Statement.

The delivery of this Official Statement has been duly authorized by the Authority and the Health System.

PENNSYLVANIA HIGHER EDUCATIONAL FACILITIES AUTHORITY

By: /s/ Beverly Nawa
Beverly Nawa
Acting Executive Director

Approved:

THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA, as Obligated Group Agent under the Master Indenture

By: /s/ MaryFrances McCourt
MaryFrances McCourt
Vice President for Finance and Treasurer

UNIVERSITY OF PENNSYLVANIA HEALTH SYSTEM

By: /s/ Keith A. Kasper
Keith A. Kasper
Senior Vice President & Chief Financial Officer

APPENDIX A

INFORMATION CONCERNING THE UNIVERSITY OF PENNSYLVANIA HEALTH SYSTEM

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements included or incorporated by reference in this APPENDIX A constitute projections or estimates of future events, generally known as forward-looking statements. These statements are generally identifiable by the terminology used such as "plan," "expect," "estimate," "budget" or other similar words. These forward-looking statements include, among others, the information under the caption "Certain Financial Information" in this APPENDIX A.

The achievement of certain results or other expectations in these forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause actual results, performance or achievements described to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. No Member of the Obligated Group plans to issue any updates or revisions to those forward-looking statements if or when changes in their expectations, or events, conditions or circumstances on which these statements are based, occur.

THE UNIVERSITY OF PENNSYLVANIA HEALTH SYSTEM

Certain capitalized terms used and not otherwise defined in this APPENDIX have the meanings set forth in the forepart of the Official Statement.

Introduction

The University of Pennsylvania Health System (the "Health System" or "UPHS") consists of certain operating divisions of The Trustees of the University of Pennsylvania (the "University") and affiliated entities, including:

- The Hospital of the University of Pennsylvania ("HUP"), a 839 licensed bed (including 32 bassinets) quaternary care hospital and academic medical center located on the campus of the University in the West Philadelphia area of Philadelphia, Pennsylvania;

- Presbyterian Medical Center of the University of Pennsylvania Health System ("Presbyterian" or "PPMC"), d/b/a Penn Presbyterian Medical Center, a 375 licensed bed acute care hospital located adjacent to the campus of the University in the West Philadelphia area of Philadelphia, Pennsylvania;

- Pennsylvania Hospital of the University of Pennsylvania Health System ("Pennsylvania Hospital" or "PAH"), a 525 licensed bed (including 50 bassinets) acute care hospital located in the Center City area of Philadelphia, Pennsylvania;

- The Chester County Hospital and Health System ("TCCHHS"), which includes the Chester County Hospital ("CCH"), a 276 licensed bed (including 32 bassinets) acute care hospital located in the West Chester area, Chester County, Pennsylvania;

- Lancaster General Health ("LG Health"), which, through its controlled affiliates, including The Lancaster General Hospital ("LG Hospital"), operates a regional integrated health system (sometimes referred to herein as the "Lancaster General Health System") that includes Lancaster General Hospital, a 508 licensed bed general acute care hospital in Lancaster, Pennsylvania, "Women & Babies Hospital," a 143 licensed bed (including 48 newborn bassinets) women's health facility located in East Hempfield Township, Pennsylvania, numerous outpatient ambulatory care sites, as well as 14 outpatient centers, six urgent care sites, and a physician practice network with nearly 370 primary care and specialty practices at 50 practice sites, all in the general Lancaster area;

- Princeton HealthCare System Holding, Inc. ("PHCSH"), which, through its controlled affiliates, including Princeton HealthCare System ("PHCS") and Princeton HealthCare System Foundation, Inc. ("PHCS Foundation"), operates a regional integrated health system that includes Princeton Medical Center, a 319 licensed bed (including 14 bassinets) acute care hospital located in Plainsboro, New Jersey, Princeton House Behavioral Health, a 110 bed psychiatric and behavioral health facility located in Princeton, New Jersey, and with seven additional outpatient locations;

- The Clinical Practices of the University of Pennsylvania ("CPUP"), the approved faculty practice plan for the clinical practices of 1,884 members of the medical faculty of the Perelman School of Medicine of the University of Pennsylvania;

- Clinical Care Associates of the University of Pennsylvania Health System ("CCA"), a community based physician network currently employing approximately 266 physicians at 64 office locations in Southeastern Pennsylvania and through its New Jersey affiliate in Southern New Jersey; and

- Wissahickon Hospice, d/b/a. Penn Medicine at Home and Penn Medicine Hospice, ("Wissahickon Hospice"), a hospice care facility and home health agency, serving the terminally ill and providing home health and palliative care with facilities in Chester County, Bala Cynwyd and Center City Philadelphia, Pennsylvania.

HUP and CPUP are operating divisions of the University. Presbyterian, Pennsylvania Hospital, TCCHHS, LG Health, LG Hospital, PHCSH, PHCS, PHCS Foundation, Wissahickon Hospice and CCA are separate nonprofit corporations affiliated with and controlled by the University. As described below, the University (as to HUP and CPUP only), Presbyterian, Pennsylvania Hospital, TCCHHS, LG Health, LG Hospital, PHCSH, PHCS, PHCS Foundation, Wissahickon Hospice and CCA are members of the obligated group established under the Master Indenture (defined below) and are sometimes referred to in this APPENDIX as the "Obligated Group" or the "Members of the Obligated Group."

This APPENDIX A contains certain information regarding the history, organization, operations, and financial condition of the Health System. APPENDIX B contains certain audited financial statements of the Health System. APPENDIX C contains certain general information regarding the University.

The University is an independent non-sectarian research institution of higher education chartered under the laws of the Commonwealth. One of only nine colleges and universities established during the colonial period, the University is the third oldest Ivy League school. It is a privately endowed, gift-supported non-profit institution.

The obligation of the University to make payments under the Loan Agreement and any Master Notes issued under the Master Indenture is a limited obligation of the University to make payments solely from the assets and revenues of HUP and CPUP (or any additional Designated Units in the Master Indenture) and not from any other assets or revenues of the University, including the Perelman School of Medicine.

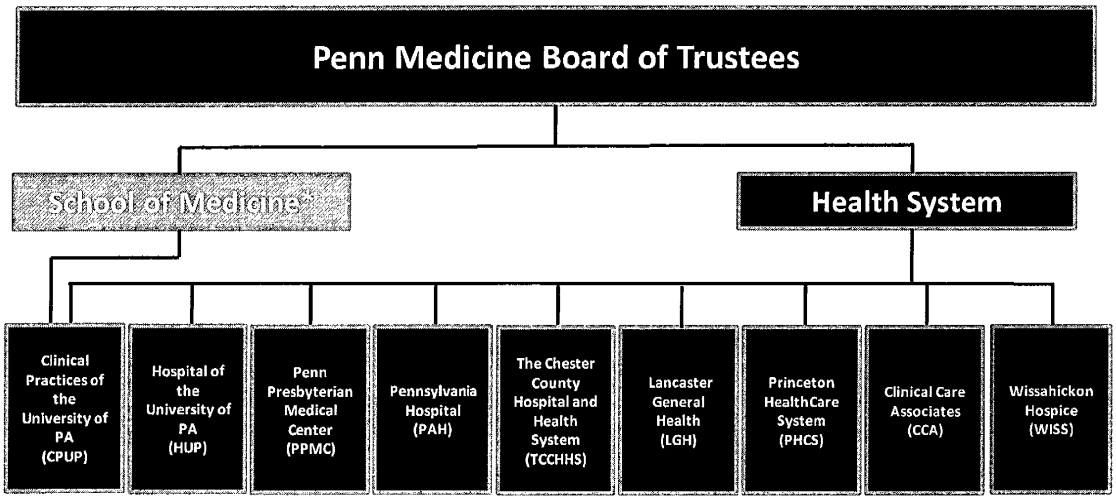
The academic component of the University includes the Perelman School of Medicine, which is the nation's oldest medical school. In 2002, the University established a separate governance structure, known as "Penn Medicine," to operate, oversee, and coordinate the academic, research, and clinical operations of the Health System and the Perelman School of Medicine. Penn Medicine has integrated many of the functions of the separate governing boards of the Health System and the Perelman School of Medicine into a single board, thus emphasizing the interdependency of the three missions.

The mission of Penn Medicine is excellence in education, research, and clinical care. It strives to achieve these goals by having the best people in medical education, health-related research, and patient care; making use of knowledge gained from nearly two and a half centuries of learning and discovery as part of a world-class university; delivering high-quality medicine to patients across a fully integrated academic health system; and fulfilling a commitment to improve the health of people in the communities served by the Health System and around the world.

Penn Medicine

The Health System is committed to remain a world-leading institution in three equally valued and inter-related missions of patient care, education, and research. The success of these missions requires the integration of the Perelman School of Medicine and the Health System and a shared destiny with the University. By recruiting and retaining a world-class faculty and staff who strive for excellence, innovation, quality, and professionalism, Penn Medicine will accomplish the mission to be recognized nationally as an accomplished and respected school of medicine and health system.

The University maintains a separate governance structure with respect to its healthcare and medical education components under the governance umbrella of Penn Medicine. The following chart highlights the key component organizations within Penn Medicine.



* *The Perelman School of Medicine is not a Designated Unit of the University and is not included in the Obligated Group*

History

John Morgan, a physician and 1757 graduate of the College of Philadelphia (the "College," now the University), is the founding father of the Perelman School of Medicine. Following his undergraduate education and apprenticeship in medicine, Morgan left Philadelphia and traveled to Europe where he earned a medical degree from the University of Edinburgh. Dr. Morgan's educational experience in Europe convinced him that the apprenticeship system used in the colonies was insufficient in providing medical knowledge and training. Dr. Morgan felt that an academic base was required to provide the most up-to-date education and that medical studies should move progressively from basic concepts to the application of those concepts in clinical care. Therefore, shortly after returning from Europe, Dr. Morgan persuaded the Trustees of the College to fund a medical school at the College and to appoint him to the faculty. In May 1765, the Trustees of the College approved Dr. Morgan's plan and he was elected Professor of the Theory and Practice of Physick (Medicine).

The founding of the Perelman School of Medicine, the first in the 13 colonies, introduced two important elements to American medical education. First is the placement of medical education within an institution of higher learning, thus promoting medicine as an academic pursuit. Second is the emphasis on the need to supplement medical education with bedside teaching. During the early years of the Perelman School of Medicine, bedside teaching was provided to apprentice physicians by practitioners at Pennsylvania Hospital, located a few blocks from the College. However, in the 1870s when the College moved from downtown Philadelphia to its present campus, the need for a teaching hospital nearby became apparent. As a result, the Trustees of the College built a teaching hospital owned by the College and staffed by the medical faculty. With its original building dating to 1874, HUP became the first teaching hospital in the United States built in support of a medical school. In the years after HUP was built, the Perelman School of Medicine was one of the first to encourage the development of specialties such as neurosurgery, rehabilitation medicine, ophthalmology, dermatology, and radiology.

In 1986, the University consolidated the Perelman School of Medicine (including CPUP) and HUP into the University of Pennsylvania Medical Center. This was a formal recognition that the academic and health services programs and resources of the Perelman School of Medicine, CPUP, and HUP are, and should be, interrelated and mutually supporting. In 1993, by action of the University's Trustees, the University of Pennsylvania Health System was created to further integrate education, research and patient care. In 2002, the Board of Trustees established Penn Medicine, an umbrella governance structure. The purpose of this governance structure is to operate, oversee and coordinate the academic, research and clinical operations of the Health System and the Perelman School of Medicine. The University believes that these changes have improved its stature as one of the nation's leading academic health systems.

THE MEMBERS OF THE OBLIGATED GROUP

The Master Indenture

In 1994, the University entered into a Master Indenture dated as of May 1, 1994 (as supplemented and amended, the "Master Indenture") with U.S. Bank National Association (formerly Wachovia Bank, National Association and First Union National Bank), as master trustee, for the purpose of establishing the Obligated Group as a separate financial credit group limited to the healthcare and health-related businesses of the University. Initially, the Obligated Group consisted solely of HUP and CPUP as the Designated Units of the University. As of the date of the Official Statement, the Obligated Group consists of HUP, CPUP, PPMC, PAH, TCCHHS, LG Health, LG Hospital, PHCSH, PHCS, PHCS Foundation, CCA and Wissahickon Hospice.

The obligation of the University to make payments under the Loan Agreement and any Master Notes issued under the Master Indenture is a limited obligation of the University to make payments solely from the assets and revenues of HUP and CPUP (or any additional Designated Units established as provided in the Master Indenture) and not from any other assets or revenues of the University, including the Perelman School of Medicine.

Set forth below are general descriptions of the Members of the Obligated Group (including HUP and CPUP as the Designated Units of the University).

The Hospital of the University of Pennsylvania

HUP is an 839 licensed bed, including bassinets, quaternary care hospital, and academic medical center operating in 1,900,000 square feet of interconnected buildings located on the campus of the University in the West Philadelphia area of Philadelphia, Pennsylvania.

HUP first opened its doors in 1874, becoming the nation's first teaching hospital. In conjunction with the Perelman School of Medicine, HUP has had a long history of pioneering new procedures and techniques that have been used worldwide. HUP is situated in the center of a complex of health, educational, scientific, civic and cultural institutions in a general area of approximately three square miles known as University City which includes most of the facilities of the University, the facilities of Presbyterian, and the following independent organizations: The Children's Hospital of Philadelphia, a 494-bed facility physically connected to HUP providing pediatric inpatient, rehabilitation and other services; the Philadelphia VA Medical Center with 145 acute care beds and 135-bed Community Living Center; Drexel University; and the University City Science Center.

Today, HUP provides secondary, tertiary, and quaternary care to the residents of Philadelphia and the surrounding tri-state area. PennSTAR, HUP's critical-care flight and ground transport program since 1988, now operates six helicopters and has safely flown more than 40,000 patients from six states. Specialties include: Cancer and Cancer Genetics; Cardiovascular Services (electrophysiology, heart failure and transplant program, robotic surgery); Neurology (stroke center, Alzheimer's Disease Center, Parkinson's Center, Epilepsy Clinic); Women's Health (including infertility and high risk pregnancy); Diabetes; Multi-organ Transplant Program; Neurosurgery (brain disorders including tumors and aneurysms, spinal disorders including disc, cervical, thoracic and lumbar abnormalities, stenosis and peripheral nerve damage); Institute on Aging; Vascular Laboratory; Orthopedic Surgery; Gastroenterology; Proton Therapy; and Ophthalmology. Appointment to the medical staff at HUP is limited to individuals with an academic appointment to the Perelman School of Medicine.

Over the last century, HUP researchers have developed parenteral nutrition; pioneered computed tomography ("CT") scanning; discovered the Philadelphia Chromosome, the first defective chromosome linked to cancer; developed cognitive therapy; pioneered human in-vitro fertilization and endoscopic surgery; discovered the genes for Fragile X Syndrome, Kennedy's disease, and Charcot-Marie-Tooth disease; pioneered basic clinical applications of gene transfer; developed a cure for atrial fibrillation; discovered the hormone that triggers type 2 diabetes; developed a new therapy for sickle cell disease; discovered the genes contributing to Prader-Willi/Angelman syndrome; discovered the genetic mutation that may have led to human evolution; and created new advances in transcatheter heart valve replacement surgery. HUP also hosted the first televised surgical operation on March 16, 1952 performed by Dr. Isadore Ravdin. HUP scientists developed the use of positron emission tomography ("PET") scanning, which shows metabolic function in tissue and in 1976, the first metabolic images of the brain using PET scanning were taken at HUP. Today, scientists throughout the world use similar images to investigate organ functions of various

disorders. HUP was the first hospital to treat muscular dystrophy in the United States. HUP is a pioneer in endoscopic surgery and human in-vitro fertilization, housing one of six Centers for Infant Research and Treatment designated by the National Institutes of Health ("NIH"). HUP physicians also developed the "Pennsylvania Peel," a surgical technique widely used to cure life-threatening arrhythmia.

In June 2008, the Perelman Center for Advanced Medicine officially opened its doors for radiology oncology patients. At the time, the $302 million facility was the largest capital project undertaken in the history of the Health System. It presently houses the Abramson Cancer Center, radiation oncology, cardiovascular medicine, and outpatient surgical pavilion, as well as other outpatient practices.

The facilities of the Perelman Center for Advanced Medicine are connected to the Roberts Proton Therapy Center, which opened in January 2010. The Proton Therapy Center is an approximately 75,000 square foot facility that consists of four gantries and one fixed beam room. When the center is at full capacity, physicians can deliver proton therapy to up to 200 cancer patients in one day. The Roberts Proton Therapy Center is one of six similar centers in the country, and the largest proton therapy center in the world associated with an academic medical center.

The 10-story Smilow Center for Translational Research, which is physically integrated into both the Perelman Center for Advanced Medicine and the Roberts Proton Therapy Center, brings basic scientists and physicians together to deliver discoveries quickly and effectively to patients. Just steps away within this same complex is the new Henry A. Jordan M'62 Medical Education Center, the Perelman School of Medicine's new home for medical education. This facility, which opened in January 2015, is among the first in the nation to fully integrate education facilities with active clinical care and research lab space, placing students in the midst of the dynamic practice of medicine.

HUP has a long history of receiving numerous awards and recognitions for its excellence in medical, surgical and nursing care as well new technology.

HUP is one of only 21 hospitals chosen from the nearly 5,000 facilities surveyed and selected for the "Honor Roll" of best hospitals in America by U.S. News & World Report 2019-2020. HUP is ranked number one in the Philadelphia metropolitan area and is recognized for its demonstrated excellence in 11 specialties, including Cancer, Cardiology & Heart Surgery, Diabetes & Endocrinology, Ear, Nose & Throat (ENT), Gastroenterology & GI Surgery, Geriatrics, Gynecology, Nephrology, Neurology & Neurosurgery, Pulmonology & Lung Surgery, and Urology. HUP is also rated as "high performing" in eight of the nine procedures and conditions ranked, including Abdominal Aortic Aneurysm Repair; Aortic Valve Surgery; Chronic Obstructive Pulmonary Disease (COPD); Colon Cancer Surgery; Heart Bypass Surgery; Heart Failure; Knee Replacement; and Lung Cancer Surgery.

HUP has achieved Magnet status – the highest institutional honor awarded for nursing excellence from the American Nurses Credentialing Center (ANCC) and the first awarded to an academic medical center in Pennsylvania.

Additional awards previously received include the prestigious Beacon Award for HUP's neuro-critical care unit for excellence in critical care; America's 100 Choice Hospitals (American Alliance of Healthcare Providers), "25 Most Influential" for the recent installation of three new state-of-the-art high-powered MRI systems - a radiology first for any hospital in the US (RT Image magazine); Blue Distinction Award for Cardiac Care (IBC); Center of Excellence for Bariatric Surgery (American Society for Bariatric Surgery); and the Gift of Life Award from the Delaware Valley Hospital Council.

Presbyterian Medical Center of the University of Pennsylvania Health System

Presbyterian Medical Center d/b/a Penn Presbyterian Medical Center ("Presbyterian" or "PPMC") is a 375 licensed bed acute care facility located in University City, on a 16.5 acre site adjacent to the University's campus. The Presbyterian campus consists of ten major buildings with approximately 1,106,000 gross square feet. Presbyterian provides primary, secondary and tertiary care to residents of metropolitan Philadelphia and Southern New Jersey, with a significant clinical focus on Interventional Cardiology, Cardiac Surgery and Orthopaedic Surgery. Presbyterian also operates Penn Presbyterian Infusion Services, an ambulatory care facility located in Cherry Hill, New Jersey. As a component hospital of the Health System and through its teaching affiliation in several medical disciplines with the Perelman School of Medicine, Presbyterian serves as a clinical resource for the training of medical students. Most of the medical staff at Presbyterian hold academic appointments at the Perelman School of Medicine. In August 2014,

Penn Medicine University City, an ambulatory facility and ambulatory surgery facility, began operations. In February 2015, the Pavilion for Advanced Care (PAC) at Presbyterian opened its doors, uniting more than 20 medical and surgical specialists in a six-story, 178,000-square-foot facility. The building is now home to Penn Medicine's Level I Regional Resource Trauma Center, which relocated from the Hospital of the University of Pennsylvania (HUP).

Pennsylvania Hospital of the University of Pennsylvania Health System

Pennsylvania Hospital, initially founded in 1751 under a Royal Charter of King George II, issued to a group of citizens under the leadership of Benjamin Franklin and Dr. Thomas Bond, has 525 licensed beds, including bassinets, and today is an acute care tertiary facility located on an 8.5 acre site at Eighth and Spruce Streets, in the Society Hill-Independence Hall area of Philadelphia. Its campus consists of 15 major buildings with a total of more than 1,100,000 gross square feet. Pennsylvania Hospital provides primary, secondary and tertiary care to residents of metropolitan Philadelphia and Southern New Jersey, with a significant clinical focus on Orthopaedics, OB/GYN, including high-risk pregnancies, Neurosurgery, Interventional Cardiology, and Cardio-Thoracic Surgery. During fiscal year 2019, Pennsylvania Hospital performed 5,131 deliveries.

As a component hospital of the Health System and through its teaching affiliation in several medical disciplines with the Perelman School of Medicine, Pennsylvania Hospital serves as a clinical resource for the training of medical students. Approximately two-thirds of the members of the medical staff at Pennsylvania Hospital hold academic appointments at the Perelman School of Medicine.

Pennsylvania Hospital was the first hospital in North America, operating in a rented home on Market Street, below Seventh Street, where it began operating on February 6, 1752. It relocated to its present site in 1756. Over the 260 years since Dr. Bond and Benjamin Franklin received the charter and chose the story of the Good Samaritan ("Take care of him and I will repay Thee") for the official seal of Pennsylvania Hospital, many of the most significant events in American medical history have occurred in Pennsylvania Hospital's facilities. In addition, Dr. Benjamin Rush, signer of the Declaration of Independence, social reformer and known as the "Father of American Psychiatry," was on staff of Pennsylvania Hospital from 1783 to 1813, and Dr. Philip Syng Physick, "the Father of American Surgery," served on the staff from 1794 until 1816. The College of Philadelphia, later to become the University, established a School of Medicine in 1765 using Pennsylvania Hospital as its principal clinical facility. The first surgery room in the United States, with an amphitheater for medical students, was constructed at Pennsylvania Hospital in 1805. The Medical Library of Pennsylvania established in 1835 was not only the first in the United States, but it continues to serve as an important repository for current and historically significant works.

The Chester County Hospital and Health System

The Chester County Hospital and Health System ("TCCHHS") includes the Chester County Hospital which is a 276 licensed bed, including bassinets, acute care facility located in West Chester, as well as satellite locations in Exton, West Goshen, New Garden, Jennersville and Kennett Square. Chartered in 1892, the 535,520 square feet hospital complex offers an array of inpatient and outpatient medical/surgical services including interventional cardiovascular services, open heart surgery, oncology, radiation oncology and comprehensive maternal/infant health services. TCCHHS also offers home health and hospice care, skilled nursing care, occupational and employee healthcare, professional and technical education, outpatient laboratory, radiology and physical therapy services, prenatal care and gynecological care centers for the underserved and cardiopulmonary rehabilitation. TCCHHS became affiliated with the Health System in September 2013, through the substitution of the University as the sole corporate member of TCCHHS.

Lancaster General Health

LG Health controls and manages the Lancaster General Health System, an integrated regional healthcare delivery system principally located in Lancaster County, Pennsylvania, operated through its affiliated entities, including LG Hospital. Effective on August 1, 2015, LG Health and its affiliates, including LG Hospital, became part of the Health System when the University became the sole corporate member of LG Health. LG Hospital operates Lancaster General Hospital ("Lancaster General" or "LGH"), a 508 licensed bed acute care and surgical facility located in the City of Lancaster and "Women & Babies Hospital," a 143 licensed bed (including 48 newborn bassinets) women's specialty hospital offering separate medical facilities to women and babies. Occupying approximately 1,300,000 square feet, Lancaster General provides multiple specialties, including cardiology, trauma, neurosurgery and orthopedics, and is the only trauma-designated facility in Lancaster County. Through separate affiliated entities

that are not part of the Obligated Group, the Lancaster General Medical System also includes a 383,000 square feet outpatient facility, six medical office buildings providing 246,000 square feet, six urgent care sites, and a physician practice network with nearly 370 primary care and specialty practices at 50 practice sites, all in the general Lancaster area.

LGH has the region's only Women's Specialty Center, located in the Women & Babies Hospital Outpatient Center, where female physicians and staff offer both primary and specialty care to women at every stage of life. The available services at the site include coordinated care in internal medicine, cardiology, gastroenterology, behavioral health counseling, and urogynecology and pelvic reconstructive surgery.

Lancaster General and Women & Babies Hospital have achieved Magnet status – the highest institutional honor awarded for nursing excellence from the American Nurses Credentialing Center (ANCC).

The Ann B. Barshinger Cancer Institute is a two-story, 90,000 square foot outpatient facility delivering a full spectrum of outpatient oncology services devoted to treatment, research, education, and prevention.

The Pennsylvania College of Health Sciences, a four-year college offering a variety of degree and certificate programs in healthcare, operates a new 24.7-acre campus just outside Lancaster City. The $67 million campus includes a 148,000-square-foot former manufacturing facility that has been renovated into state-of-the-art classroom and lab facilities. The new campus infuses technology and design that supports collaborative learning and easily reconfigurable spaces to meet teaching needs.

During fiscal year 2019, LG Health and Universal Health Services opened the jointly owned 126-bed behavioral-health hospital in Lancaster City to address the growing demand for inpatient and outpatient mental-health services.

Princeton HealthCare System Holding, Inc.

PHCHS is a comprehensive healthcare provider located in central New Jersey, which, through its affiliates, including PHCS and PHCS Foundation, offers a full continuum of health care, including acute care hospital services, behavioral health care, acute rehabilitation, home care, hospice care, ambulatory surgery, and fitness and wellness services. Princeton Medical Center is an acute care teaching hospital, licensed for 319 beds, located in Plainsboro, New Jersey which is affiliated with Rutgers-Robert Wood Johnson Medical School and partners with Children's Hospital of Philadelphia for pediatric inpatient, emergency and neonatal services. In addition to Princeton Hospital, PHCS operates Princeton House which is a 110 bed, 85,000 square foot, inpatient unit and Electroconsulsive Therapy Center located in Princeton, New Jersey and Princeton HealthCare Affifiliated Physicians, PC, ("Princeton Medicine") which is part of a network of medical practices comprised of 113 primary care and specialty providers at 22 locations throughout the central New Jersey area. The Health System became affiliated with PHCSH in January 2018, through the substitution of the University as the sole corporate member of PHCHS.

The Clinical Practices of the University of Pennsylvania

CPUP was established in 1977 as the approved faculty practice plan of the Clinical Departments of the Perelman School of Medicine based on the principle that the practice of medicine by the faculty of the Perelman School of Medicine is an integral component of the University. The general purpose of CPUP is to improve and further both academic medicine and the clinical practice of medicine within the context of the educational, patient care and research missions of the University. Specifically, CPUP undertakes, among other things, to review clinical practice standards, coordinate the determination of clinical practice needs, exchange information, coordinate activities attendant to the clinical practices, further teaching programs, and establish and operate approved clinical programs or activities that may further the goals of CPUP, the Health System and the Perelman School of Medicine.

CPUP consists of 17 separate clinical practices ranging in size from 23 to 693 physicians. The CPUP organization permits a coordinated development of the practice of medicine by the 1,884 physician faculty members of the University in a manner that benefits the individual departments or practices, the hospitals of the Health System, the Perelman School of Medicine, and the University as a whole.

The University established CPUP to provide for the terms and conditions under which full-time, salaried members of the Perelman School of Medicine faculty are extended the privilege of clinical practice at the facilities of

the Health System. CPUP is designed to serve patient needs of the Health System and to supplement the income and benefits of full-time faculty members so as to make their compensation competitive with other opportunities available to such physicians. CPUP consists of various departmentally based practices which may be further subdivided into divisions or groups or individual practices. It is not a separate corporation, partnership, or foundation but is a Designated Unit for purposes of the Master Indenture.

All physicians who have full-time, salaried positions on the faculty of the Perelman School of Medicine and who are actively engaged in clinical practice activities are required to devote all of their professional efforts to the University and to participate in CPUP unless specifically exempted by the Dean of the Perelman School of Medicine. CPUP members render their professional activities only at facilities owned, operated or approved by the University. A significant portion of CPUP revenue is paid to CPUP physicians as salary, supplementing their income as faculty of the Perelman School of Medicine.

The affairs of CPUP are conducted by the Clinical Practices Board of Directors and the Clinical Practices Executive Committee. The Clinical Practices Board of Directors consists of the chair of each clinical department of the Perelman School of Medicine and selected practice plan chiefs and executives, and is responsible for developing policies in accordance with the policies of Penn Medicine and the University.

The following table sets forth the number and average ages of the CPUP physicians in the major clinical specialties as of June 30, 2019:

Specialty	Number of Physicians	Average Age
Anesthesiology	102	49
Dermatology	55	48
Emergency Medicine	59	44
Family Practice	30	42
Medicine	693	48
Neurology	95	48
Neurosurgery	26	49
Obstetrics/Gynecology	77	47
Ophthalmology	44	54
Orthopaedic Surgery	49	49
Otorhinolaryngology	34	51
Pathology and Laboratory Medicine	103	52
Psychiatry	108	50
Radiation Oncology	66	47
Radiology	186	49
Rehabilitation Medicine	23	43
Surgery (Including Urology and Trauma)	134	51
Total/Average	1,884	49

Source: Health System records.

Clinical Care Associates of the University of Pennsylvania Health System

CCA was formed in June 1993 to develop a geographically distributed network of primary care physicians. As of June 30, 2019, CCA and its New Jersey affiliate, Clinical Health Care Associates of New Jersey, P.C., employed or contracted with 266 physicians and 101 physician extenders at 64 office locations throughout the five county Southeastern Pennsylvania area and three county Southern New Jersey area. CCA has grown to be a primary and specialty care network with approximately 50% of CCA's physicians providing primary care. CCA physicians serve as teachers for students and residents of the Perelman School of Medicine, and the Health System has realized, and continues to realize, increased access to patients for teaching and research purposes as a result of CCA's development. HUP, CPUP, Presbyterian, Pennsylvania, Princeton, and Chester County Hospitals also expect to attract incremental admissions and outpatient visits because of the unique and specialized services they can provide to CCA's patients.

Wissahickon Hospice

Wissahickon Hospice was established in 1982 to provide compassionate care for patients with life-limiting conditions. Wissahickon Hospice provides skilled nursing care for aggressive pain and symptom management, 24-hour on-call support, counseling and emotional support, and companionship, bereavement support and counseling for families, friends and caregivers. In November 2008, Wissahickon Hospice opened a 12 bed inpatient unit in Center City Philadelphia to accommodate patients with acute symptoms need; this unit expanded to 20 beds in July 2010. In addition to hospice care, Wissahickon Hospice has a special home care program, Penn Home Palliative Care, for the patient with an end-stage illness who may be continuing curative treatment or is not prepared to accept hospice care. As of June 30, 2019, Wissahickon Hospice employed 85 full-time nurses who provide services at its hospice care facilities located in Philadelphia and West Chester, Pennsylvania and at the homes of patients in Philadelphia, Chester, Delaware, Bucks and Montgomery counties through its home care program. Wissahickon Hospice provides a way for patients to take control of their lives and treatment, encouraging them to take an active role in the important medical, social and legal decisions that affect them and those around them.

Other Affiliated Entities

The businesses of certain of the Members of the Obligated Group are partially conducted through certain subsidiary corporations or other nonprofit and for-profit entities that are controlled by such Members of the Obligated Group but that are not themselves Members of the Obligated Group. While the assets and revenues of these affiliated entities are included in the consolidated financial statements of the Health System, such assets and revenues might not be available to satisfy the payment obligations of the Members of the Obligated Group with respect to Master Notes or other Obligations issued under the Master Indenture unless distributed or otherwise made available to the Members of the Obligated Group. In the opinion of management of the Health System, the assets and revenues of such affiliated entities are not material to the financial condition or operations of the Members of the Obligated Group.

Affiliation with Good Shepherd Rehabilitation Network

In March 2007, the Health System acquired the properties of the former Graduate Hospital in Philadelphia from Tenet Healthcare Corporation for approximately $18.0 million. The Health System contributed, though a long-term lease arrangement, a portion of these properties to a joint venture (Philadelphia Post Acute Partners LLC d/b/a Good Shepherd Penn Partners). This joint venture is operated by the Health System and The Good Shepherd Home ("GSH"), a Pennsylvania nonprofit organization which operates inpatient rehabilitation and other health facilities in the Lehigh Valley region of the Commonwealth. The facilities of the joint venture principally consist of a 30,000 square foot long-term acute care hospital ("LTACH") and a 46,000 square foot inpatient rehabilitation facility ("IRF") to which the Health System relocated the existing inpatient rehabilitation services provided at HUP and Pennsylvania Hospital. The LTACH is owned and operated by the joint venture, while the IRF is managed and staffed by the joint venture on behalf of the Health System and HUP. GSH paid substantially all costs of constructing and renovating these facilities. In addition to its contribution of the former Graduate Hospital facilities (now known as Penn Medicine at Rittenhouse) for use by the joint venture, the Health System also contributed to the joint venture all of its outpatient rehabilitation centers, which are operated by the joint venture. In return for their respective contributions to the joint venture, the Health System has a 30% interest in the joint venture, and GSH has a 70% interest. Operation of the LTACH and IRF at Penn Medicine at Rittenhouse commenced in July 2008. On July 1, 2019, the Health System contributed an additional $9 million to increase its ownership interest to 49%.

Perelman School of Medicine

The following information is provided with respect to the Perelman School of Medicine, which serves as an integral part of the clinical and academic mission of Penn Medicine. The Perelman School of Medicine, which is an academic component of the University, is not a Designated Unit of the University under the Master Indenture, and none of its assets or revenues are available for the payment of the obligations of the Members of the Obligated Group with respect to the Master Indenture.

The Perelman School of Medicine currently enrolls 770 medical students. Current first-year students represent 23 states and 65 colleges and universities. Approximately 86% of the medical students receive financial assistance in the form of scholarships and loans. The following table sets forth certain information regarding medical student applications, acceptances, and matriculations for the academic years indicated:

Academic Year	Applications	Acceptances	Percent Accepted	Matriculants	Percent Matriculated
FY 15	5,742	244	4.2	157	64.3
FY 16	5,436	248	4.6	166	62.9
FY 17	5,720	240	4.2	146	60.8
FY 18	6,200	244	3.9	159	65.2
FY 19	6,711	244	3.6	152	62.3

Source: Perelman School of Medicine records.

The Perelman School of Medicine attracts highly qualified students. The following is a comparison of the Medical College Admissions Test ("MCAT") scores of medical students entering the Perelman School of Medicine compared to the national average score for the most recent five academic years:

	Mean Scores				
	FY 19	FY 18	FY 17	FY 16	FY 15
Perelman School of Medicine	521	521	520	518	37.8
National	511	510	509	508	31.4
Percentile	98	98	98	97	98

Source: AAMC

In April 2015, a new version of the MCAT launched. Because of this change, FY 16 MCAT scores are not comparable to prior years

The Perelman School of Medicine faculty includes 11 members of the National Academy of Sciences, 71 members of the National Academy of Medicine (formerly Institute of Medicine), 27 members of the American Academy of Arts and Sciences, and 2 investigators of the Howard Hughes Medical Institute. The full-time faculty totals 2,672. The faculty is comprised of the basic science faculty, the research faculty, the pediatric faculty and the clinical faculty.

There are 2,126 residents and fellows participating in post-graduate training programs, the majority of which are based at HUP with the remainder at other area hospitals, including Presbyterian and Pennsylvania Hospital.

The Biomedical Graduate Studies program in the Perelman School of Medicine currently offers Ph.D. training for 735 full-time doctoral students. The biomedical graduate faculty currently numbers 753. The combined MD/PhD program had 202 enrollees and the VMD/Ph.D. program had 20 enrollees as of June 2019. There were also 602 students in other graduate/professional programs, which include 11 masters degree programs -- Bioethics, Biostatistics, Biomedical Informatics, Clinical Epidemiology, Health Policy Research, Public Health, Genetic Counseling, Health Care Innovation, Medical Physics, Regulatory Affairs, and Translational Research. The Biomedical Graduate training program received approximately $24.3 million in training grants from the National Institutes of Health (NIH) in fiscal year 2019, ranking first nationally.

The Perelman School of Medicine supports active research programs in every area of modern biomedical science with major emphases in gene and cell therapies, cancer, cardiovascular disease, behavioral disorders, biomedical imaging, bioinformatics, diabetes, immunology, molecular genetics, the neurosciences, pharmacology, and digital health. A key feature of Penn Medicine is the full integration of research and education with clinical service and hospital management. These structural attributes insure a cohesive and consistent institutional vision. A five-year strategic plan implemented in 2018 under the leadership of Dean J. Larry Jameson, MD, PhD, complements ongoing strategic initiatives with a focus on accelerating momentum in six areas: (1) harnessing the power of data science to advance biomedical research and care delivery; (2) promoting health care quality and value for all patients; (3) developing and providing new tools and methods for discovery; (4) reducing health disparities through public health science across Penn's campus; (5) fostering diversity, engagement and advancement; and (6) reimagining education.

The University is one of the nation's premier biomedical research institutions. This excellence is evidenced by an extraordinary level of research impact and peer-reviewed grant support. In fiscal year 2019, the Perelman School

of Medicine received $752 million in support for its research activities from extramural sponsors, including $425 million from the NIH, ranking in the top five among academic medical schools nationally in receipt of NIH support.

The quality of research is also reflected through an extraordinary level of impact faculty publications as Penn Medicine faculty continue to be published widely in the most cited journals. For the fiscal years 2015 through 2019, the total number of publications in the high-impact journals tracked by the School increased by 63%.

GOVERNANCE OF THE HEALTH SYSTEM

The Board of Penn Medicine (the "Penn Medicine Board") and its executive committee (the "Penn Medicine Executive Committee") have responsibility delegated to them by the University Trustees to foster productive relationships among the components of Penn Medicine and between Penn Medicine and the University. The University maintains ultimate control over the governance and operation of the Health System and Perelman School of Medicine.

Penn Medicine Board

The Penn Medicine Board has responsibility for the oversight of the Health System and the Perelman School of Medicine. The Penn Medicine Board meets at least twice a year to assure that its constituents operate in a coordinated manner to promote the goals of providing outstanding clinical care, education and research. The Penn Medicine Executive Committee meets approximately six times a year to act on behalf of the Board in all matters unless provided otherwise by law or by Penn Medicine bylaws.

The Penn Medicine Board is appointed by the University Trustees upon nomination by the Chairman of the University Trustees, the Chairman of the Penn Medicine Board and the President of the University, acting jointly. The Board consists of not more than forty persons (excluding *ex-officio* or Emeriti members) who, by their experience and expertise, can further the mission of Penn Medicine. The Penn Medicine Board includes all members of the Penn Medicine Executive Committee, the Provost of the University, the Vice President for Finance and Treasurer of the University, the Chairman of the Board of Overseers of the School of Nursing, and the Chairmen of the Boards of HUP, Pennsylvania Hospital, TCCHHS, LG Health, PHCHS, and Presbyterian, as *ex-officio* members.

The Penn Medicine Board is currently comprised of the following individuals, as of September 30, 2019:

Francis H. Abbott, Jr.[5, 8]
President
Abbott Bloodstock
West Chester, PA

Madlyn K. Abramson[1, 4, 6]
The Abramson Group
Blue Bell, PA

David J. Adelman, [5, 8]
Chief Executive Officer
Campus Apartments
Philadelphia, PA

Melissa Neubauer Anderson, PsyD, [6]
Consultant
Gateway HorseWorks
Malvern, PA

John R. Cali[10]
Member, Cali Futures, LLC
Cranford, NJ

Craig R. Carnaroli *(ex-officio)*[1, 2, 8]
Executive Vice President
University of Pennsylvania
Philadelphia, PA

Richard T. Clark[2,5]
Retired Board Chairman
Merck & Company, Inc.
Whitehouse, NJ

Catherine Roberts Clifton[3, 6]
Haverford, PA

David L. Cohen, Esq. *(ex-officio)*[1, 7, 9]
Senior Executive Vice President
Comcast Corporation
Philadelphia, PA

Richard J. Cohen, PhD, FACHE *(ex-officio)*[5]
President & Chief Executive Officer
Public Health Management Corporation
Philadelphia, PA

Susan Frier Danilow, Esq.[4, 5]
New York, NY

Conrad L. Druker, CPA [2, 8]
Managing Principal
Mercadien Group, P.C.
Philadelphia, PA

Henry W. Foster, Jr., MD[10]
Emeritus Professor & Former Dean & VP for
Medical Affairs, Clinical Professor (OB-GYN)
Vanderbilt Mehany Medical College
Nashville, TN

Walter J. Gamble, MD[4, 5]
Professor Emeritus
Harvard University School of Medicine
Brookline, MA

Barry J. Gertz, MD, PhD[4, 5]
Managing Director
Blackstone Life Sciences
Cambridge, MA

Perry Golkin, Esq.[1, 2, 3]
Chief Executive Officer
PPC Enterprises, LLC
New York, NY

Mindy Gray [4]
Founder
Gray Foundation
New York, NY

Richard J. Green[2, 3, 4, 8]
Chairman & Chief
Executive Officer
FirstTrust Bank
Conshohocken, PA

Joel M. Greenblatt[2, 5]
Founder and Managing Partner
Gotham Capital
535 Madison Avenue
New York, NY

James H. Greene, Jr.[1, 2, 3]
Founding Partner
True Wind Capital
San Francisco, CA

Amy Gutmann, PhD *(ex-officio)*[1, 7, 9]
President
University of Pennsylvania
Philadelphia, PA

Andrew R. Heyer *(Chair)* [1, 2, 7, 9]
Chief Executive Officer and Managing
Director
Mistral Equity Partners
New York, NY

J. Larry Jameson, MD, PhD *(ex-officio)*[1]
Executive Vice President for the Health
System
University of Pennsylvania
Philadelphia, PA

Barbara McNeil Jordan[1, 4, , 6, 8]
Chester Springs, PA

Massi Khadjenouri, [5]
Chief Investment Officer
Chief Risk Officer
Kite Lake Capital Management
London, UK

Curtis S. Lane[10]
Senior Managing Director
MTS Health Partners, L.P.
New York, NY

Andrea Berry Laporte, *(ex officio)* [6]
Chair of Board of Overseers University
of Pennsylvania School of Nursing
Philadelphia, PA

Charles B. Leitner III[1,3, 5]
Chief Executive Officer
Berkshire Group
Boston, MA

Mariann T. MacDonald[6]
Naples, FL

Kevin B. Mahoney, *(ex officio)* [1]
Chief Executive Officer
University of Pennsylvania Health
System
Philadelphia, PA

Louis A. Matis, MD, [4, 5]
Senior Vice President and Chief
Development Officer
Pieris Pharmaceuticals, Inc.
Boston, MA

Rosemary Mazanet, MD, PhD[3, 4, 5]
President
Rosemary Mazanet, LLC
Chestnut Hill, MA

C. Clair McCormick *(ex-officio)* [6, 8]
Owner/President
Philip Lebzelter & Son Company
Lancaster, PA

Mary Frances McCourt *(ex-officio)*[2]
Vice President for Finance & Treasurer
University of Pennsylvania
Philadelphia, PA

Leslie Anne Miller, Esq.[4, 6, 8]
Leslie Anne Miller, Esq., LLC
Philadelphia, PA

Keith A. Morgan[10]
Chief Executive Officer
Dough Nuts for Doughnuts, LLC
Philadelphia, PA

Ilene D. Penn [6]
Senior Vice President
PennantPark Investment Advisors, LLC
New York, NY

Kim Jensen Pimley[1, 2, 8]
Co-Founder
Pimley & Pimley, Inc.
P&P Training Resources
Princeton, NJ

Wendell Pritchett *(ex-officio)*
Provost
University of Pennsylvania
Philadelphia, PA

James S. Riepe[2, 5, 6]
Senior Advisor & Retired Vice Chairman
T. Rowe Price Group, Inc.
Baltimore, MD

Thomas J. Sharbaugh, Esq. (ex-officio)[3, 6]
Of Counsel
Morgan Lewis & Bockius, LLP
Philadelphia, PA
Professor of Practice Penn State Law
University Park, PA

Rev. Dr. William J. Shaw (ex-officio)[6]
Pastor
White Rock Baptist Church
Philadelphia, PA

William S. Smilow[4, 5]
President
Great Oak Holdings, Inc.
Philadelphia, PA

Richard W. Vague[1, 2, 4, 5, 8]
Managing Partner
Gabriel Investments
Chair
The Governor's Woods Foundation
Philadelphia, PA

Bruce C. Vladeck, PhD [2, 3, 6]
New York, NY

D. Michael Wege *(ex officio)* [1, 3, 6, 8]
Lititz, PA

George A. Weiss[10]
President
George Weiss Associates
Chief Executive Officer
Weiss Multi-Strategy Advisors, LLC
New York, NY

Philip R. Wenger[6, 8]
President and Chief Executive Officer
Lancaster Conservancy
Lancaster, PA

Mark O. Winkelman [2, 6]
Director
Goldman Sachs Group, Inc.
Director
Goldman Sachs International
New York, NY

Nancy Abramson Wolfson [4]
Foundation Manager
Abramson Family Foundation
Philadelphia, PA

William W. Wylie, Jr. (ex-officio)[1, 6, 8]
President
Mitchell Sinkler & Starr
Philadelphia, PA

Joseph R. Zebrowitz, MD[3, 5]
Managing Partner
Devon Hill Capital Partners
Marion Station, PA

1. *Penn Medicine Executive Committee*
2. *Penn Medicine Finance Committee.*
3. *Penn Medicine Audit & Compliance Committee.*
4. *Penn Medicine Development Committee*
5. *Penn Medicine Research & Education Committee*
6. *Penn Medicine Clinical Quality Committee*
7. *Penn Medicine Compensation Committee*
8. *Regional Planning Committee*
9. *Nominating Committee*
10. *Emeriti Member, without vote*

The Bylaws of the Penn Medicine Board prohibit members of the Board from voting on certain matters in which they have a conflict of interest. Board members with an interest in a proposed transaction or matter are required to disclose such interest and to refrain from voting on, or using their personal influence to impact, the transaction or matter.

Executive Administration

The key administrators responsible for the Health System are:

J. LARRY JAMESON, MD, PhD, was appointed *Executive Vice President*, University of Pennsylvania for the Health System and *Dean of the Perelman School of Medicine*, effective July 1, 2011. Before coming to Penn Medicine, Dr. Jameson was the Vice President for Medical Affairs and the Lewis Landsberg Dean of the Feinberg School of Medicine at Northwestern University in Evanston, Illinois from 2007 to 2011. Dr. Jameson began his tenure at Northwestern in 1993 as chief of the Division of Endocrinology, Metabolism and Molecular Medicine, and was the Irving S. Cutter Professor of Medicine and chair of the Department of Medicine at Northwestern from 2000 to 2007. Earlier in his career, he was associate professor of medicine at the Harvard Medical School and chief of the Thyroid Unit at Massachusetts General Hospital. Dr. Jameson was elected to the Institute of Medicine, the American Academy of Arts and Sciences, the American Society of Clinical Investigation and the Association of American Physicians. He has served as president of the Endocrine Society and the Association of American Physicians, as a member of the medical advisory board of the Howard Hughes Medical Institute, as a director of the American Board of Internal Medicine, and as a member of the Jury for the Lasker Award. He has also been the recipient of distinguished awards, including the Van Meter Award from the American Thyroid Association, Thomas G. Sheen Award from the American College of Surgeons, and Oppenheimer and Koch Awards from the Endocrine Society. Dr. Jameson received his doctor of medicine degree with honors and a Ph.D. in biochemistry from the University of North Carolina in 1981.

KEVIN B. MAHONEY was appointed *Chief Executive Officer of the University of Pennsylvania Health System* on July 1, 2019. He previously served as the Executive Vice President and Chief Administrative Officer of the Health System and Executive Vice Dean for Integrative Services at the Perelman School of Medicine. Prior to that role, he served UPHS as the Executive Director of Phoenixville Hospital, Executive Director and Chief Operating Officer at CCA and Director of Network Development. Prior to joining UPHS in 1996, Mr. Mahoney was Vice President for Johnson & Higgins, where he provided leadership to the Health Group, including business plan development and management of an extensive client base. He also served as Vice President for Administration for nine years at Bryn Mawr Hospital and as Director of Administrative Services for Episcopal Hospital for three years. A lifelong resident of the Philadelphia area, Mr. Mahoney is actively involved in many community activities. He serves on the Board of Directors at the Southeastern Pennsylvania Chapter of the American Heart Association, Puentes de Salud, and Community Volunteers in Medicine. He is also on the campaign cabinet at the United Way. He served as an elected member of the Tredyffrin-Easttown School District School Board for 10 years. Mr. Mahoney received his Bachelor of Arts degree in economics from Millersville University of Pennsylvania, his MBA from Temple University and hold a Doctorate of Business Administration from Fox School of Business.

KEITH A. KASPER is the *Senior Vice President and Chief Financial Officer* for the University of Pennsylvania Health System. In this role he is responsible for leading the Health System's capital and operating budget process, providing financial support in the development of strategic and operating plans, integrating financial services to support UPHS business objectives and missions, leading the implementation and oversight of efficient customer-focused financial processes and systems, and providing appropriate management controls and stewardship of assets. Mr. Kasper joined UPHS as Associate Vice President of Financial Operations and Budget in 2004 and more recently held the position of Vice President Operations, Finance and Budget. Prior to coming to UPHS he was the chief financial officer of Hahnemann University Hospital in Philadelphia and spent 14 years previously in senior financial roles in hospitals around the country. Mr. Kasper received a bachelor of science in accounting from Saint Joseph's University and a master of business administration from the University of Phoenix. He is a member of the Healthcare Financial Management Association; and was named the 2010 CFO of the year by the *Philadelphia Business Journal.*

PATRICK J. BRENNAN, MD is the *Chief Medical Officer and Senior Vice President* of the University of Pennsylvania Health System and *Professor of Medicine* at the Perelman School of Medicine and the Hospital of the University of Pennsylvania. As Chief Medical Officer, Dr. Brennan leads implementation of Penn's Blueprint for Quality, a strategic effort to improve clinical accountability and the outcomes of care including the elimination of preventable readmissions and preventable deaths. Dr. Brennan oversees the departments of Healthcare Quality,

Patient Safety, Regulatory Affairs, and Medical Affairs. He has developed a Center for Evidence Based Practice to apply scientific evidence to clinical operations. Dr. Brennan is an infectious diseases physician and previously served as Director of Infection Control for 11 years at the Hospital of the University of Pennsylvania, and he also held the same post at Penn Presbyterian Medical Center and the Philadelphia VA Medical Center. He also served as the Director of Tuberculosis Control for the City of Philadelphia for seven years. Dr. Brennan is a fellow of the Infectious Diseases Society of America and The Society for Healthcare Epidemiology of America (SHEA) and in 2008 served as SHEA's president. From 2004 to 2010, Dr. Brennan chaired the Healthcare Infection Control Practices Advisory Committee (HICPAC), which advises the Secretary of the U.S. Department of Health and Human Services and the Centers for Disease Control and Prevention on a broad range of issues related to control of infectious diseases. Dr. Brennan is a member of the Patient Safety Advisory Group of The Joint Commission, an organization that accredits and certifies health care programs in the United States. He also chairs the Board of Directors of the Health Care Improvement Foundation (HCIF), an independent, nonprofit organization that leads health care initiatives aimed at improving the safety, outcomes and care experiences of patients in Southeastern Pennsylvania.

PHILIP A. OKALA is the *Chief Operating Officer of UPHS.* In this role, he is responsible for program integration across the Health System's hospitals, whose respective leaders report to him. In his previous role as Senior Vice President for Business Development, he had executive oversight for business development initiatives, marketing, clinical service line integration, network affiliations and Penn Global Medicine Services. Mr. Okala joined Penn Medicine in 2007 as the Chief Administrative Officer for Cancer Services across the Health System, and was subsequently promoted in 2010 to Vice President of Service Line Integration, assuming additional responsibilities with other service lines, before moving to his current position in 2013. Prior to joining Penn Medicine, he was System Vice President of the Cancer Service Line at Geisinger Health System in Danville, PA; Vice President for Clinical Strategic Planning at Roswell Park Cancer Institute in Buffalo, NY; and served as a Senior Management Analyst at MD Anderson Cancer Center in Houston, TX. He has a Master's in Health Care Administration from Texas Woman's University and a bachelor's of science in Economics from the University of Houston, and he earned an advanced certification in Healthcare Executive Leadership from the Wharton School of the University of Pennsylvania. He is a Fellow of the American College of Healthcare Executives (FACHE); Fellow in Healthcare Financial Management Association (FHFMA), and Certified by the American College of Medical Practice Executives (CMPE).

MICHAEL RESTUCCIA is the *Senior Vice President* and *Chief Information Officer* at the University of Pennsylvania Health System. Mr. Restuccia has over 25 years of healthcare information technology experience and has worked nearly all his career in the healthcare information technology provider, vendor and consulting services industries. Through his tenure as Senior Vice President and Chief Information Officer, Penn Medicine has achieved many advances in healthcare technology. Prior to joining Penn Medicine as an IS management consultant in 2006, Mr. Restuccia served as President of MedMatica Consulting Associates, a healthcare information technology consulting firm that has been recognized as a four-time recipient of the Inc. Magazine 5,000 Fastest Growing, Privately Held Companies in the U.S. and the Philadelphia region. While at MedMatica, Mr. Restuccia served as the Interim Chief Information Officer for several healthcare organizations, including Phoenixville Hospital, Doylestown Hospital and the University of Pennsylvania Health System. Prior to MedMatica, Mr. Restuccia served in leadership roles with several other healthcare information technology firms, including First Consulting Group and Shared Medical Systems (now Cerner Corp.). Mr. Restuccia received a bachelor of science degree from Rider University and earned his MBA from Villanova University.

LORI GUSTAVE is the *Senior Vice President* for *Business Development* at the University of Pennsylvania Health System. In this role, Ms. Gustave provides strategic leadership on business development initiatives across the Health System, working with respective entity leadership and various strategic partners. Her portfolio includes marketing, strategic business initiatives and network development. During her ten-year career with the Health System, Ms. Gustave has been a leader in both business development and operations arenas, continually driving both financial improvements and transformational care delivery models. In her previous role as Chief Administrative Officer for the Musculoskeletal & Rheumatology Service Line and Chief Operating Officer for the department of Orthopaedic Surgery, she oversaw design and implementation of the fully integrated Penn Musculoskeletal Center at Penn Medicine University City. As an Associate Executive Director and Director of Strategic Planning for Penn Presbyterian Medical Center, Ms. Gustave led a variety of strategic growth and operational improvement initiatives across multiple disciplines, including cardiovascular medicine, gastroenterology, oncology, orthopaedics, thoracic surgery, and minimally invasive surgery. Ms. Gustave holds master's degrees in both business administration and health administration, as well as a bachelor's degree in social work from the University of Pittsburgh.

PETER D. QUINN, DMD, MD is *Chief Physician Executive for the Penn Medicine Medical Group (PMMG)*. PMMG, created in 2017 as a unified organization for all of the Health System's physicians in primary care, different specialties, and with various hospital affiliations, is a key prong of the Health System strategy to ensure fully integrated clinical operations across the system. Previously, Dr. Quinn served as the Senior Vice President of the Clinical Practices of the University of Pennsylvania (CPUP) where he was responsible for the financial and operational aspects of CPUP. Prior to that role, Dr. Quinn served as the Chair of Oral and Maxillofacial Surgery Department at the Hospital of the University of Pennsylvania and as the Schoenleber Professor and Chair of Oral and Maxillofacial Surgery and Pharmacology at the University of Pennsylvania School of Dental Medicine. He has served as Chair of the Medical Board of HUP and received the Lindback Award for Distinguished Teaching and the Alfred Stengel Health System Champion Award for his numerous Health System committee responsibilities. Dr. Quinn's main area of research interest is the surgical treatment of the temporomandibular joint. He has also published widely in the advanced techniques in management of high-flow arteriovenous malformations of the maxillofacial skeleton. He served as the President of the American Society of Temporomandibular Joint Surgeons (2009-2011). Dr. Quinn received his dental degree from the University of Pennsylvania School of Dental Medicine and his medical degree from the Medical College of Pennsylvania. He completed post-graduate training in Oral and Maxillofacial Surgery at the Hospital of the University of Pennsylvania.

PATRICK V. NORTON serves as *Vice President for Public Affairs, Chief of Staff to the EVP/Dean*, and *Secretary to the Board for Penn Medicine*. In these roles, he serves on the senior leadership team overseeing communications, media relations, and government and community relations functions for the University of Pennsylvania Health System and Perelman School of Medicine. He previously managed state government affairs in the Mid-Atlantic region for Amgen, a leading biopharmaceutical innovator and manufacturer of biologic medicines for serious diseases such as rheumatoid arthritis, cancer and cardiovascular disease. In this role, Mr. Norton represented Amgen's interests before multiple state governments and led successful campaigns to pass laws to ensure patient access to lifesaving drugs. Mr. Norton previously served as Director of Public Affairs for Penn Medicine from 2007 to 2013. Prior to joining the organization, he held various policy-related roles both inside and outside of government and worked on several political campaigns. In addition, he served on a number of industry committees and has worked extensively with patient and physician groups, trade associations and national entities on the development and implementation of health policy.

DEBORAH A. DRISCOLL, MD was appointed *Senior Vice President for the Clinical Practices of the University of Pennsylvania (CPUP) and Vice Dean for Professional Services in the Perelman School of Medicine* on October 1, 2019. In this role, Dr. Driscoll will lead CPUP's departmental practice plans and have executive oversight for all strategic, operational, financial and clinical aspects of the organization. Dr. Driscoll is widely recognized as a transformative leader, serving for the past 14 years as chair of the Department of Obstetrics and Gynecology, where she helped to build one of the most highly regarded OB/GYN departments in the country for research, clinical programs and teaching. During her tenure, she has developed numerous innovative programs addressing issues ranging from pregnancy loss and family planning to premature birth and remote monitoring for new mothers, and in her personal research portfolio she has made key research contributions to the understanding of familial genetic disorders. Dr. Driscoll has also played a vital role in the mentoring and career development of faculty, residents and fellows, promoting leadership development and strengthening the culture of safety and the patient experience in both her department and as Chair of the CPUP Clinical Operations Committee. Dr. Driscoll received her A.B. from Smith College in biology and her M.D. from New York University School of Medicine.

BUSINESS OF THE HEALTH SYSTEM

The following information describes generally the business of the Health System and its component organizations and activities.

Services

The Health System offers a full range of acute care services, including highly specialized regional, national and international programs in areas of cancer, cardiology, dermatology, gene therapy, infertility, neurosurgery, oral and maxillofacial surgery, orthopaedics, otorhinolaryngology, transplantations, and urology.

The clinical specialties and subspecialties of the Health System include:

- Adolescent Medicine
- Anesthesiology
- Dermatology
- Emergency Medicine
- Medicine
  - Allergy and Immunology
  - Cardiovascular Medicine
  - Diabetes
  - Endocrinology
  - Family Medicine
  - Gastroenterology
  - General Internal Medicine
  - Geriatric Medicine
  - Hematology/Oncology
  - Human Genetics
  - Infectious Diseases
  - Pulmonary and Critical Care Medicine
  - Renal- Electrolyte & Hypertension
  - Rheumatology
  - Neonatology
  - Nephrology
- Neurology
- Neurosurgery
- Obstetrics/Gynecology
  - General Obstetrics and Gynecology
  - Gynecologic Oncology
  - Maternal/Fetal Medicine
  - Reproductive Endocrinology & Infertility
  - Reproductive Genetics
- Ophthalmology
- Oral and Maxillofacial Surgery
- Oral Medicine
- Orthopaedic Surgery
- Otorhinolaryngology/ Head & Neck Surgery
- Pathology and Laboratory Medicine
  - Anatomic Pathology
  - Laboratory Medicine
  - Neuropathology
- Psychiatry
- Radiation Oncology
- Radiology
  - Breast Imaging
  - Chest
  - Computed Tomography (CT)
  - Gastrointestinal & Genitourinary Radiology
  - Interventional Radiology
  - Magnetic Resonance Imaging (MRI)
  - Neuroradiology
  - Nuclear Medicine
  - Orthopaedic and Emergency
  - Positron Emission Tomography (PET)
  - Teleradiology
  - Ultrasound
- Rehabilitation Medicine
- Surgery
  - Cardiothoracic Surgery
  - Colon & Rectal Surgery
  - Gastrointestinal Surgery
  - Plastic Surgery
  - Surgical Oncology
  - Transplantation Surgery
  - Trauma and Surgical Critical Care
  - Urology & Urologic Surgery
  - Vascular Surgery

Hospital Facilities

The following table sets forth the licensed and staffed bed complements of the hospitals of the Health System as of June 30, 2019:

	HUP	PAH	PPMC	TCCHHS	LGH	PHCS	Total
Adult Medical/Surgical[(1)]	541	383	244	230	574	228	2,200
Psychiatric	--	42	22	--	--	117	181
Rehabilitation	58	--	--	--	--	17	75
Detoxification and Skilled Nursing	--	--	43	--	--	15	58
Intensive Care/Intermediate Care Nurseries	208	50	66	14	29	38	405
Total Adult and Neo-Natal	807	475	375	244	603	415	2,919
Newborn Bassinets	32	50	--	32	48	14	176
Total Licensed Beds	839	525	375	276	651	429	3,095
Total Staffed Beds	807	390	353	224	555	355	2,684

[(1)] *Includes obstetrics, surgical intensive care unit, medical intensive care unit and critical unit.*

Licensure, Accreditations and Memberships

Each of the hospitals of the Health System is currently licensed by the Pennsylvania or New Jersey Department of Health and accredited by The Joint Commission. Each other component of the Health System is properly licensed by each appropriate licensing agency. In addition to the Joint Commission accreditation, a wide range of Health System programs are periodically surveyed for accreditation by other organizations. The Health System (or its components) is a member in a wide number of organizations including the American Hospital Association, the Hospital and Healthsystem Association of Pennsylvania, Vizient (formerly University Healthsystem Consortium), and the Council of Teaching Hospitals of the Association of American Medical Colleges. Currently, all hospitals within the Health System have Magnet Recognition by the American Nurses Credentialing Center.

Clinical Training and Research Activities

The clinical departments of the Health System currently support approved training programs for over 2,000 residents and post graduate fellows. These physicians also receive training in other affiliated hospitals, most extensively at the resident level. Residency programs are offered in all the Health System clinical departments. All facilities offer a variety of fellowship programs in specialties and subspecialties such as Cardiology, Gastroenterology, Radiology, Pathology and Psychiatry. While a majority of the clinical training is conducted at the Health System facilities, the Health System facilities participate in rotating residency programs with The Children's Hospital of Philadelphia, the Philadelphia VA Medical Center and other Philadelphia area hospitals.

Each of the medical training programs of the Health System is currently accredited by the Accreditation Council of Graduate Medical Education.

The Health System's hospitals also make available their clinical facilities for use by the School of Nursing of the University of Pennsylvania for both clinical training and research activities. The facilities are also made available to students from other nursing schools. The Health System also conducts other teaching programs in the areas of Pharmacy, Radiology, Perfusion and Pastoral Care.

Research activities are conducted primarily by members of the medical staff, in their capacity as faculty of the Perelman School of Medicine. The Health System believes that the research activity of the Perelman School of Medicine enhances its patient care.

Institutional Affiliations

In addition to its inter-school and inter-departmental affiliations, the Health System maintains many external institutional affiliations. These affiliations provide additional resources for the educational, research, and clinical

missions of Penn Medicine. The most significant category of affiliations is related to medical education where the Health System maintains affiliations for undergraduate and graduate medical education. Members of the standing faculty of the Perelman School of Medicine provide the vast majority of the medical staff at several leading medical institutions adjacent to the HUP and Perelman School of Medicine, including The Children's Hospital of Philadelphia and the Philadelphia Veterans Affairs Medical Center. In research, most of the affiliations are investigator-to-investigator. Penn Medicine also maintains significant institution-to-institution relationships with the Howard Hughes Medical Institute and the Wistar Institute.

The Health System also has numerous affiliations with other health enterprises and has established non-corporate affiliations (not owned or controlled by the University) with Cape Regional Medical Center, Shore Memorial Hospital, Grand View Health, Virtua Health, and Bay Health Medical Center, among others.

The Abramson Cancer Center of the University of Pennsylvania (the "Cancer Center") is one of the largest providers of cancer care in the Delaware Valley. Founded in the early 1970's, this interdisciplinary institute of the University has over 400 basic, translational, and clinical scientists who share a commitment to excellence in cancer care, research, and education. The Cancer Center is one of only 47 cancer centers in the country to be approved and designated as a Comprehensive Cancer Center by the National Cancer Institute, a prestigious status that the Cancer Center has continuously maintained for 30 years. Cancer Center members have obtained annual research funding in excess of $181 million per year; $114 million per year of these grants are from the National Institutes of Health. The Abramson Cancer Center currently has on an annual basis 230,000 outpatient visits and more than 11,800 discharges, and provides more than 37,000 chemotherapy and 66,000 radiation treatments. More than 11,500 new patients with a diagnosis of cancer are seen annually at the Cancer Center's major clinical facilities. In order to meet the Cancer Center's commitment to ensure that patients and physicians in the region have access to the latest cancer treatments and research, the University of Pennsylvania Cancer Network (the "Network") was created in 1991. The Cancer Center has established cooperative relationships in cancer care with leading community hospitals strategically located throughout Southeastern Pennsylvania, New Jersey and Delaware. The Network creates an integrated system of cancer care, so that patients have access to the best possible level of cancer diagnosis, treatment, research and follow-up care regardless of where they live. Physicians, nurses and health care professionals participate in the Cancer Center's continuing education programs and clinical and cancer control research projects.

Current members of the Network include:

Bayhealth Medical Center– Kent General Hospital	Dover, Delaware
Bayhealth Medical Center– Milford Memorial Hospital	Milford, Delaware
Grand View Hospital	Sellersville, Pennsylvania
St. Mary's Medical Center	Langhorne, Pennsylvania
Virtua Health System – Mount Holly Hospital	Mount Holly, New Jersey
Virtua Health System– Voorhees Hospital	Voorhees, New Jersey
Virtua Health System– Marlton Hospital	Marlton, New Jersey
Penn Medicine Cherry Hill	Cherry Hill, New Jersey
Pennsylvania Hospital	Philadelphia, Pennsylvania
Perelman Center for Advanced Medicine	Philadelphia, Pennsylvania
Penn Presbyterian Medical Center	Philadelphia, Pennsylvania
Hospital of the University of Pennsylvania	Philadelphia, Pennsylvania
Chester County Hospital	West Chester, Pennsylvania
Lancaster General Hospital	Lancaster, Pennsylvania
Cape Regional Medical Center	Cape May Court House, New Jersey
Shore Medical Center	Somers Point, New Jersey

Centers, Institutes and Specialty Programs

Included below is a listing of Centers, Institutes and other Specialty Programs at the Health System:

ABRAMSON CANCER CENTER
- Bone Marrow and Stem Cell Transplantation Program
- Bone or Soft Tissue Sarcomas Program
- Center for Head and Neck Cancer
- Center for Lung Cancer and Related Disorders
- Gastrointestinal Cancer Program
- Gynecologic Cancer Program
- Hematology/Oncology
- Leukemia Program
- Lymphoma Program
- Multiple Myeloma Program
- Neuro-Oncology Program
- Nutrition Program
- Pain and Symptom Management Program
- Pigmented Lesions and Melanoma Program
- Rena Rowan Breast Center
- Skin Cancer Program
- Urologic Cancer Program
- Cancer Risk Evaluation Program

ALLERGY
- Penn Asthma Care Program

ANESTHESIA
- Anesthesia Pain Medicine Center
- Penn Pain Management Services

CARDIOVASCULAR DIVISION
- Adult Congenital Heart Disease Program
- Arrhythmia Evaluation Center
- Complex Aortic Surgery
- Electrophysiology Program
- Heart Failure and Transplant Program
- Minimally Invasive and Robotic Cardiac Surgery Program
- Non Invasive Cardiac Imaging
- Penn Molecular Cardiology Research Center
- Peripheral Vascular Intervention Program
- Preventive Cardiovascular Medicine and Lipid Center
- Vascular Medicine
- Women's Heart and Health

CENTER FOR BIOETHICS

CENTER FOR BLOODLESS MEDICINE AND SURGERY

CENTER FOR HUMAN APPEARANCE

DERMATOLOGY
- Phototherapy Unit
- Psoriasis Unit
- Skin Enhancement Center

EMERGENCY MEDICINE
- Hyperbaric Medicine
- Occupational Medicine
- Travel Medicine

ENDOCRINOLOGY, DIABETES & METABOLISM
- Cox Institute
- Diabetes Education Center
- Franklin Dialysis Center
- Endocrinology Program
- Penn Diabetes Center
- Rodebaugh Clinical Diabetes Center

FAMILY PRACTICE AND COMMUNITY MEDICINE

GASTROENTEROLOGY
- Acid Peptic Program
- Digestive and Liver Center
- Endoscopic Services
- Inflammatory Bowel Disease Program
- Motility/Physiology Program
- Pancreatic & Biliary Disease
- Swallowing Program

GERIATRICS ADULT CARE FOR ELDERS (ACE)

HEMATOLOGY / ONCOLOGY
- Developmental Therapeutics Program

INFECTIOUS DISEASES
- Antimicrobial Management Program
- Immunodeficiency Program
- Penn Medicine/ID Program in Botswana

INTERNAL MEDICINE

JOAN KARNELL CANCER CENTER

NEUROLOGY
- Center for Neuro-Oncology
- Headache Center
- Multiple Sclerosis
- Neurological Institute
- Center for Functional and Restorative Neurosurgery
- Deep Brain Stimulation
- ALS Center
- Parkinson's Disease & Movement Disorders Center
- Penn Epilepsy Center
- Penn Center for Sleep Disorders

NEUROSURGERY
- Brain Tumor Center
- Center for Cranial-Base Surgery & Pituitary Tumors
- Peripheral Nerve Disorders
- Spine & Spinal Reconstruction

OBSTETRICS & GYNECOLOGY
- Adolescent Gynecology
- Childbirth Education Program
- Family Planning Program
- Healthy Beginnings Plus Program
- Helen O. Dickens Center for Women's Health
- Human Reproduction
- Maternal Fetal Medicine
- Penn Special Delivery Plus Program
- Premenstrual Syndrome Program

OPHTHALMOLOGY (SCHEIE EYE INSTITUTE)
- Cornea & External Diseases
- Glaucoma
- Low Vision
- Macular Degeneration
- Neuro-ophthalmology
- Retina & Vitreous Services

ORTHOPAEDIC SURGERY
- Neuro-Orthopaedics
- Penn Upper Extremity Center
- Penn Shoulder and Elbow Service
- Penn Hand Service
- Penn Therapy & Fitness
- Penn Foot & Ankle Center
- Penn Joint Replacement
- Spine Center
- Sports Medicine Center

OTORHINOLARYNGOLOGY
- Balance Center
- Center for Head & Neck Cancer
- Hearing Sciences Center
- Smell & Taste Center

PATHOLOGY & LABORATORY MEDICINE
- Aphaeresis Program

PENN PAIN MEDICINE CENTER

PENN TRANSPLANT CENTER
- Heart Transplant Program
- Lung Transplant Program
- Kidney/Pancreas Program
- Liver Transplant Program
- Islet Cell Transplant Program

PEDIATRICS
- Neonatology & Newborn Services

PENN SLEEP CENTERS

PHYSICAL MEDICINE & REHABILITATION
- Penn Spine Center
- --Falls & Balance Program
- Pulmonary Rehabilitation Program
- Skilled Care Center
- Penn Center For Sleep Disorders

PSYCHIATRY
- Psychiatric Emergency Evaluation Center
- Bipolar Research Program
- Center for Cognitive Therapy
- Center for the Treatment and Study of Anxiety
- Depression Research Program
- Geriatric Psychiatry
- Mood & Anxiety Disorders
- Neuropsychiatry
- Weight & Eating Disorders Program

PULMONARY & ALLERGY
- Allergy Program
- Asthma Program
- Cystic Fibrosis Program for Adults
- Emphysema Program
- Lung Transplant Program
- Penn Lung Center
- Penn Quit Smoking Program
- Pulmonary Hypertension Program
- Pulmonary Rehabilitation Program
- Sarcoidosus & Beryllium Induced Lung Disease

RADIOLOGY
- Computerized Tomography (CT)
- Positron Emission Tomography (PET)
- Magnetic Resonance Imaging (MRI)
- Interventional Radiology

RALSTON CENTER
- Institute on Aging
- Alzheimer's Disease Center

RHEUMATOLOGY

RENAL-ELECTROLYTE & HYPERTENSION
- Ambulatory Renal Disease Program
- Immune Nephritis Program
- Kidney Stone Evaluation Center
- Diabetic Nephropathy Program
- Renal Outpatient Dialysis Unit
- Renal Transplant Program

SURGERY
- Bariatric Surgery Program
- Cardiothoracic
- Colorectal
- General
- Minimally Invasive
- Neurosurgery
- Ophthalmology
- Orthopaedic
- Otorhinolaryngology
- Plastic & Reconstructive
- Surgical Oncology
- Urology
- Vascular

TRAUMA CENTER AT PENN
- Level 1 Trauma Center
- Firearm & Injury Center at Penn (FICAP)
- PENNStar

UROLOGY

WOUND CARE

Historical Utilization Statistics

The following table summarizes certain historical utilization statistics of the Health System for the five fiscal years ended June 30, 2019, and for the three months ended September 30, 2019, and 2018:

	Three Months Ended September 30		Fiscal Year Ended June 30				
	2019	2018	2019	2018	2017	2016	2015
Adult and Neonatal Staffed Beds	2,670	2,676	2,684	2,693	2,387	2,366	1,708
Newborn Bassinets	169	169	169	169	145	145	97
Adult and Neonatal Admissions	34,613	33,584	135,188	127,209	118,566	114,764	83,163
Newborn Admissions	4,661	4,399	16,857	15,543	13,075	12,791	10,789
Adult and Neonatal Patient Days	197,742	192,667	772,122	710,789	656,661	639,406	490,547
Newborn Patient Days	11,164	10,591	41,094	38,240	31,852	29,444	25,225
Adult and Neonatal Average Length of Stay (Days)	5.71	5.74	5.71	5.59	5.54	5.57	5.90
Newborn Average Length of Stay (Days)	2.40	2.41	2.44	2.46	2.44	2.30	2.34
Adult and Neonatal Staffed Beds Occupancy	80.5%	77.5%	79.1%	77.9%	76.4%	75.7%	78.7%
Inpatient Surgical Procedures (I/P)	12,024	12,110	48,003	46,270	44,366	43,729	30,074
Day Surgery Procedures	18,679	17,293	74,025	65,349	59,888	56,362	38,082
Emergency Room Visits	95,116	89,494	359,708	331,767	303,253	294,679	182,426
Outpatient Visits	1,122,919	1,039,690	4,442,934	4,099,264	3,870,296	3,637,849	2,456,427

Source: Health System records.

Service Area and Market Share

With the addition of Princeton HealthCare, UPHS includes 27 counties in its service area. The extended metropolitan service area of the Health System includes 12 counties in Southeastern Pennsylvania (Philadelphia, Bucks, Chester, Delaware, Montgomery, Berks, Lancaster, Lehigh, Lebanon, Northampton, Dauphin, York), thirteen counties in Southern New Jersey (Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Hunterdon, Mercer, Middlesex, Monmouth, Ocean, Salem, Somerset), and two counties in Delaware (Kent, New Castle). The area is home to 12.2 million people with projections showing a 1.1% increase in population between 2018 and 2023. The area accounted for 97% of all hospital admissions of the Health System in fiscal year 2019.

Market Area	Percent of Discharges[1]
City of Philadelphia	23.40%
PA Suburbs (Bucks, Chester, Delaware, Montgomery Counties)	21.66%
External PA Counties (Berks, Lancaster, Lehigh, Northampton Counties)	25.48%
All Other Counties in Pennsylvania	3.18%
Total Pennsylvania	**73.73%**
Southern New Jersey (Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Ocean, Salem Counties)	8.93%
Princeton Area (Mercer, Middlesex, Somerset)	12.33%
All Other Counties in New Jersey	1.37%
Total New Jersey	**22.63%**
Delaware	1.54%
Maryland	0.22%
New York	0.28%
All Other Areas	1.60%
Total Other	**3.64%**
Total	**100.00%**

[1] *Includes fiscal year 2019 discharges at HUP, PAH, PPMC, LGH, CCH, and PHCS; excludes normal newborns and neonates.*

The primary community service area ("PCSA") of the Health System's Philadelphia hospitals (i.e. HUP, Presbyterian and Pennsylvania Hospital) includes four sections in the City of Philadelphia: West Philadelphia, Southwest Philadelphia, South Philadelphia, and Center City Philadelphia. This area has a total population of approximately 520,831 and represents 33% of the City of Philadelphia's population. The Health System also counts portions of Lancaster County as part of its PCSA, which has a total population of 314,855. The PCSA, an important market for the regional hospitals and physicians in the Health System, accounted for approximately 40% of admissions in fiscal year 2019.

The tertiary and quaternary services of the Health System attract patients from throughout the Middle Atlantic region and across the United States. In fiscal year 2019, the Health System treated patients from almost every county in a four state region that includes Pennsylvania, New Jersey, Delaware and Maryland as well as 50 states, the District of Columbia and Puerto Rico. The Health System competes with tertiary providers in New York City and Baltimore as well as other academic medical centers throughout the country.

The Medicare Case Mix Index ("CMI") provides an indication of the average complexity of the Medicare inpatients treated at a healthcare facility, the greater the CMI the more complex the patient care. The following table indicates the average CMI for hospitals in the Health System as compared to both hospitals identified by the Health System as principal competitors within the general Philadelphia Region, and to certain peer institutions also recognized as "Honor Roll" hospitals by the *U.S. News & World Report*, in each case, excluding specialty hospitals.

Philadelphia Regional Hospitals		**Nationally Recognized Peer Institutions**	
Hospital	**Medicare CMI**	**Hospital**	**Medicare CMI**
HUP*	2.6587	Cleveland Clinic	2.6933
PPMC	2.4713	**HUP**	2.6587
Temple University Hospital	2.3994	Ronald Reagan UCLA Medical Center	2.6480
Thomas Jefferson Univ Hospital	2.2140	UCSF Medical Center	2.5723
Our Lady Of Lourdes Med Ctr	2.1911	Stanford Health Care - Stanford Hospital	2.5425
Main Line Hospital Lankenau	2.1855	**PPMC**	2.4713
Cooper University Hospital	2.1610	Mount Sinai Hospital	2.4186
Jersey Shore Medical Center	2.0947	Univ. of Michigan Hospitals & Health Cntrs	2.3659
PAH	2.0840	Brigham and Women's Hospital	2.3009
Lancaster Regional Medical Center	2.0468	Northwestern Memorial Hospital	2.2914
St Luke's Hospital Bethlehem	1.9770	Cedars-Sinai Medical Center	2.2711
Medical Center of Delaware	1.8728	Massachusetts General Hospital	2.2607
LGH	1.8670	Mayo Clinic, Rochester	2.2606
Lehigh Valley Hospital	1.8572	Mayo Clinic Phoenix	2.2606
Crozer-Chester Medical Center	1.7500	New York - Presbyterian Hospital	2.2266
TCCHHS	1.6957	UPMC Presbyterian Shadyside	2.1994
Reading Hospital Medical Center	1.6897	Johns Hopkins Hospital	2.1634
Hahnemann University Hospital	1.6665	NYU Langone Medical Center	2.1392
Abington Hospital	1.6645	**PAH**	2.0840
Saint Mary's Med Center	1.6532	Yale New Haven Hospital	1.9873
Main Line Hospital Paoli	1.5953	**LGH**	1.8670
Phoenixville Hospital	1.5871	Houston Methodist	1.7961
PHCS	1.5026	**TCCHHS**	1.6957
		PHCS	1.5026

** Hospitals marked in bold indicate Health System facilities*
Excludes specialty hospitals
Source: Centers for Medicare & Medicaid Services, Case Mix Index, fiscal year 2020 Final Rule Data

Inpatient Market Share for the 27-County Region

General Market Share. The following table indicates the aggregate market share of the hospitals in the Health System, and their principal competitors in Pennsylvania (excluding specialty hospitals) by CMI level for calendar year 2017. This includes patients in the 27 county regional market that visit hospitals in Pennsylvania and New Jersey.

			Case Mix Index Level					
Health System/Hospital	**# Hospitals Included***	**Overall Share**	**<=2.0**	**>2.0**	**>2.5**	**>3.0**	**>3.5**	**>4.0**
UPHS	6	10.70%	12.71%	14.11%	13.35%	13.53%	15.21%	9.92%
Jefferson Health System	10	10.42%	11.36%	11.38%	10.76%	10.38%	11.47%	10.19%
Main Line Health System	4	4.84%	5.38%	4.92%	5.55%	6.42%	4.62%	4.74%
Temple Health System	3	3.16%	2.57%	4.99%	3.59%	3.45%	4.32%	3.08%
Crozer Keystone	4	1.92%	1.43%	1.18%	1.51%	1.12%	1.39%	2.07%

Source: PHC4(PA) NJHSS(NJ) data January 2017 through December 2017 for PA and NJ hospitals only and patients that originate in 27-county area; excludes all newborns as well as psych, rehab, substance abuse, and some other patient types; excludes all children's, psych, and rehab hospitals.

Jefferson Health System: Jefferson University Hospitals (Thomas Jefferson University Hospital; Methodist Hospital; Abington Memorial; Abington Lansdale; Aria Health; Kennedy)

Main Line Health: Lankenau Hospital; Bryn Mawr; Paoli Memorial Hospital; Riddle Memorial Hospital

Temple Health System: Temple University Hospital; Jeanes Hospital; Fox Chase Cancer Center

Crozer Keystone: Crozer Chester Medical Center; Taylor Hospital; Delaware County Memorial Hospital; Springfield Hospital

UPHS: HUP, PAH, PMC, LG HEALTH, TCCHHS, PHCS

Market Share by Service Line. The following table reflects the market share of the Health System's hospitals by service line within the 27-county market for patients that go to a hospital in Pennsylvania or New Jersey. Market Share is based upon the most recently available data

Inpatient Market Share by Service Line
27-County Market, CY17

	HUP	PAH	PMC	CCH	LG	PHCS
Transplant	26%	0%	1%	0%	1%	0%
Cardiothoracic Surgery	8	1	5	1	4	0
Thoracic Surgery	7	0	2	1	2	1
Cancer	7	3	1	1	2	1
Otorhinolaryngology	6	2	3	1	1	0
Neurosurgery	6	4	1	1	3	1
Obstetrics - Non Delivery	5	4	0	1	3	1
Gynecology	5	4	1	1	2	1
General Surgery	4	1	2	1	3	1
Plastic Surgery	4	2	2	2	3	1
Obstetrics - Delivery	3	4	0	2	4	2
Dermatology	3	1	1	1	1	1
Vascular Surgery	3	2	3	1	4	1
Neurology	3	1	1	1	3	1
Oral Max Surgery	3	1	2	1	1	1
Gastrointestinal	3	1	1	1	2	1
Endocrinology	2	1	1	1	3	1
Urology	2	1	2	1	2	1
General Medicine	2	1	1	2	2	1
Cardiology - Non Invasive	2	1	1	1	2	1
Cardiology - Interventional	2	1	2	1	3	0
Trauma / Injury	2	1	3	1	3	1
Pulmonary	2	1	1	1	2	1
Nephrology	1	1	1	1	3	1
Ophthalmology	1	0	4	1	1	1
Orthopaedics	1	2	3	1	4	2

Sources: PHC4(PA), NJDHSS (NJ) data January 2017 through December 2017 for PA and NJ hospitals only
Excludes all pediatric, psychiatric and rehabilitation hospitals, as well as newborn, psychiatric, rehabilitation and certain other patient discharges.

CERTAIN FINANCIAL INFORMATION

Summary of Financial Performance

The following tables sets forth (i) the combined balance sheets of the Health System as of September 30, 2019, and as of June 30, 2019, and (ii) summaries of combined revenues and expenses of the Health System for the three months ended September 30, 2019 and 2018, and for the five fiscal years ended June 30, 2019. The balance sheet information set forth below at June 30, 2019, and the revenue and expense information set forth below with respect to the five fiscal years ended June 30, 2019, are derived from the audited combined financial statements of the Health System for such years. The information set forth below with respect to the three months ended September 30, 2019, and 2018, is unaudited. In the opinion of management of the Health System, such unaudited financial information has been prepared on a basis consistent with the preparation of the Health System's annual financial statements and includes all adjustments necessary to present fairly the information contained therein.

The summary information set forth below (in thousands) should be read in conjunction with the combined financial statements of the Health System for the fiscal years ended June 30, 2019, and 2018, including the notes thereto, included as APPENDIX B to this Official Statement.

Summary Balance Sheet
(in thousands)

	As of September 30, 2019	As of June 30, 2019
ASSETS		
Current:		
Cash and cash equivalents	$ 450,833	$ 779,099
Patient receivables, net	876,439	826,940
Third-party receivables	6,073	3,995
Other current assets	328,089	266,159
Total current assets	1,661,434	1,876,193
Assets whose use is limited		
Held by trustees	150,765	163,598
RRG\captive	227,908	219,879
Designated	2,740,359	2,731,038
Donor restricted		
Investments	653,617	678,137
Total assets whose use is limited	3,772,649	3,792,652
Investments	855,649	890,882
Property, plant and equipment	4,771,934	4,760,563
Other assets	576,116	261,349
Total assets	$ 11,637,782	$ 11,581,639
LIABILITIES AND NET ASSETS		
Current:		
Accounts payable	$ 200,115	$ 263,559
Accrued expenses	737,131	865,284
Current portion of long-term debt and notes	48,718	47,017
Due to the University of Pennsylvania	10,918	5,215
Estimated third-party payer settlements	69,914	62,813
Total current liabilities	1,066,796	1,243,888
Long-term debt, net of current portion	2,177,952	2,283,002
Third-party liabilities, net of current portion	7,053	7,238
Other liabilities	1,128,968	859,668
Pension and post-retirement liabilities	1,273,631	1,266,067
Total liabilities	5,654,400	5,659,863
Net assets:		
Net assets without donor restriction	5,319,659	5,234,000
Net assets with donor restriction	663,723	687,776
Total net assets	5,983,382	5,921,776
Total liabilities and net assets	$ 11,637,782	$ 11,581,639

Summary of Combined Revenues and Expenses
(in thousands)

	Three Months Ended September 30		Fiscal Year Ended June 30,				
	2019	2018	2019	2018	2017	2016	2015
Net patient service revenue	1,811,289	1,663,114	6,940,977	6,252,911	5,709,931	5,326,566	4,051,391
Other operating revenue	181,395	147,743	653,071	529,240	428,721	375,249	274,262
Total operating revenue	1,992,684	1,810,857	7,594,048	6,782,151	6,138,652	5,701,815	4,325,653
Salaries and wages	826,679	770,445	3,205,444	2,880,679	2,589,331	2,382,231	1,806,907
Employee benefits	217,668	205,634	821,337	754,179	714,634	663,731	488,393
Supplies and service	675,173	575,878	2,562,033	2,178,960	1,975,318	1,782,843	1,329,782
Utilities	16,734	32,612	67,093	96,946	55,432	55,115	31,738
Perelman School of Medicine support	4,894	4,985	19,770	19,844	19,351	20,648	20,676
Malpractice	24,010	23,787	94,117	104,433	101,872	77,548	92,179
Total operating expenses before interest, taxes, depreciation and amortization,	1,765,158	1,613,341	6,769,794	6,035,041	5,455,938	4,982,116	3,769,675
Earnings before interest, taxes, depreciation and amortization	227,526	197,516	824,254	747,110	682,714	719,699	555,978
Less:							
Interest expense	8,039	14,726	53,755	55,123	48,350	47,594	35,427
Depreciation & amortization	82,016	83,077	332,813	309,259	278,714	252,983	175,388
Excess of revenues over expenses from operations	137,471	99,713	437,686	382,728	355,650	419,122	345,163
Non-operating gains\(losses):							
Interest and dividends	12,636	15,066	77,395	42,879	36,481	27,899	22,538
Net realized gains/(losses),							
Contributions and other support	30,666	50,557	210,592	128,942	83,708	72,842	93,920
Member substitution	-	-	-	398,493	-	1,263,867	-
Loss on extinguishment of debt	-	-	-	-	(27,947)	(22,366)	(17,958)
Unrealized gain/(loss) on alternative investments	(25,576)	(25,652)	36,038	120,364	48,699	(41,834)	(25,403)
Excess of revenues over expenses	155,197	139,684	761,711	1,073,406	496,591	1,719,530	418,260
Unrealized gain/(loss) on investments	(21,804)	(21,403)	(97,576)	19,848	140,454	(54,502)	15,380
Transfers	(51,337)	(50,580)	(240,393)	(203,268)	(180,632)	(160,803)	(147,794)
Reclassifications for capital purposes	3,566	101	5,212	2,426	2,898	25,566	8,119
Pension and other postretirement plan adjustments	-	-	(332,465)	151,812	154,077	(261,421)	(139,813)
Increase in net assets without donor restriction	$ 85,622	$ 67,802	$ 96,489	$ 1,044,224	$ 613,388	$ 1,268,370	$ 154,152

Sources of Revenue

In addition to serving as the leading health care system in its primary service area, the Health System, through its breadth of tertiary care centers of excellence, draws high acuity patients from throughout eastern Pennsylvania, southern New Jersey and Delaware.

The following is a percentage breakdown of payer mix based on total adult patient discharges for the five fiscal years ended June 30, 2019 and for the three months ended September 30, 2019 and September 30, 2018:

	Three Months Ended September 30		Fiscal Year Ended June 30,				
	2019	2018	2019	2018	2017	2016	2015
Medicare	30%	30%	30%	31%	29%	28%	27%
Managed Care [1]	51	51	51	49	50	47	51
Blue Cross [2]	8	8	8	9	12	16	14
Commercial Insurance	6	5	6	6	5	5	2
Medicaid	3	4	3	3	3	3	4
Self Pay and Other	2	2	2	2	1	1	2
	100%	100%	100%	100%	100%	100%	100%

Source: Health System records.

[1] *Includes all managed care programs including Medicaid and Medicare managed care programs.*

[2] *Includes only traditional indemnity coverage and Personal Choice® plans.*

The Health System has contracts with the two largest non-governmental payers in the Philadelphia healthcare market, Independence Blue Cross ("IBC") and Aetna U.S. Healthcare ("Aetna"). Payments under the IBC contract, which covers all subscribers under IBC's traditional indemnity and managed care plans, represented approximately 16% of total net patient revenue of the Health System, and payments under the Aetna contract represented approximately 15% of total net patient service revenue for the Health System, in each case for the fiscal year ended June 30, 2019.

During 2017, UPHS and Independence Blue Cross (IBC) reached an agreement on terms of a new five-year agreement and continuing unless terminated by the parties. Payments made for inpatient services provided to IBC traditional and managed care subscribers are effected on a per case rate basis for most services. Payment for outpatient services is principally based upon negotiated fee schedules. Hospital and physician rates also provide for annual inflationary increases. In addition, incentives are paid for high performance with regard to clinical outcomes and quality.

The Aetna contract was executed in August 2015 and has an initial five-year term expiring on July 1, 2020. The terms of the agreement provide payments for inpatient hospital services on a per case basis with annual increases for inflation and bonus incentive opportunities based on quality and outcomes. Payments for outpatient services continue to be predominantly based upon negotiated fee schedules.

Transfer of Funds to Perelman School of Medicine

During the fiscal years ended June 30, 2019 and June 30, 2018, the Members of the Obligated Group made aggregate transfers of funds to the Perelman School of Medicine of $234,722,000 and $198,394,000, respectively. In addition, the Health System's results of operations include expenses representing academic operating support to the clinical departments of the Perelman School of Medicine. The Health System anticipates similar support to the Perelman School of Medicine in fiscal year 2020.

Long Term Debt of the Health System

As of September 30, 2019, the Health System was obligated in respect of $2,002,545,000 aggregate principal amount of long-term indebtedness incurred through the issuance of revenue bonds on behalf of the Members of the Obligated Group (including the Prior PHEFA Bonds outstanding under the Bond Indenture) and secured on a parity basis by Master Notes issued under the Master Indenture. As of September 30, 2019, the Members of the Obligated Group were additionally obligated in respect $95,440,000 aggregate principal amount of other long-term debt constituting general obligations of one or more Members of the Obligated Group, but which are not payable from or secured by Master Notes issued under the Master Indenture.

Outstanding Long-Term Debt
(at September 30, 2019)

Description	Principal Amount
Parity Debt:	
PHEFA University of Pennsylvania Health System Revenue Bonds, Series A of 2008	$ 69,995,000
PHEFA University of Pennsylvania Health System Revenue Bonds, Series A of 2009	12,115,000
PHEFA University of Pennsylvania Health System Revenue Bonds, Series A of 2012	134,650,000
PHEFA University of Pennsylvania Health System Revenue Bonds, Series A of 2014	100,000,000
LCHA Lancaster General Hospital 2015 Taxable Note	69,690,000
PHEFA University of Pennsylvania Health System Revenue Bonds, Series A of 2015	257,495,000
LCHA University of Pennsylvania Health System Revenue Bonds, Series A of 2016	156,455,000
LCHA University of Pennsylvania Health System Revenue Bonds, Series B of 2016	128,050,000
PHEFA University of Pennsylvania Health System Revenue Bonds, Series C of 2016	128,435,000
NJHCFFA Princeton HealthCare System Bonds, Series A of 2016	173,660,000
NJHCFFA Princeton HealthCare System Bonds, Series B of 2016	65,000,000
NJHCFFA Princeton HealthCare System Bonds, Series C of 2016	20,000,000
PHEFA University of Pennsylvania Health System Revenue Bonds, Series A of 2017	400,000,000
University of Pennsylvania Health System 2017 Taxable Notes	200,000,000
University of Pennsylvania Health System Line of Credit (outstanding balance)[1]	87,000,000
Total Parity Debt	**2,002,545,000**
Other Debt:	
Mortgages, notes and capital leases	95,440,000
Total Other Debt	**95,440,000**
Unamortized Debt Premium/(Discount)	**128,684,000**
TOTAL LONG-TERM DEBT	**$2,226,669,000**

[1] The outstanding balance of the Line of Credit is expected to be repaid with a portion of the proceeds of the 2019 Bonds.

For a description of the Health System's aggregate annual debt service requirements see "HEALTH SYSTEM DEBT SERVICE REQUIREMENTS" in the forepart of this Official Statement.

The PHEFA University of Pennsylvania Health System Revenue Bonds, Series A of 2014 (the "Series 2014 Bonds") and the LCHA Lancaster General Hospital 2015 Taxable Note (the "Series 2015 LGH Note"), were issued to, and remain directly held by, commercial banks and are secured by Master Notes issued under the Master Indenture on a parity basis with all other Master Notes and Obligations issued thereunder, including the 2019 Master Note issued in respect of the 2019 Bonds.

The Health System also maintains a revolving line of credit (the "Line of Credit") with a commercial bank of $100,000,000 for the purpose of providing additional liquidity for the Health System. Repayment obligations under the Line of Credit are secured by an additional Master Note issued under the Master Indenture on a parity basis with all other Master Notes and Obligations issued thereunder, including the 2019 Master Note issued in respect of the 2019 Bonds. As of September 30, 2019, there was a balance of $87 million outstanding on the Line of Credit, as well as various letters of credit issued thereunder with various expiration dates, to cover balances due on construction projects. The outstanding balance of the Line of Credit is expected to be repaid with a portion of the proceeds of the 2019 Bonds.

The Series 2014 Bonds, the Series 2015 LGH Note and the Line of Credit contain covenants and agreements in favor of the lenders thereunder that are customary for similar obligations in favor of commercial banks. The principal operating covenants thereunder are consistent with the covenants of the Obligated Group under the Master Indenture.

Historical and Pro Forma Debt Service Coverage

The table below sets forth the Obligated Group's coverage, for the five fiscal years ended June 30, 2015, to June 30, 2019, of (i) the Maximum Annual Debt Service Requirement of the Obligated Group on indebtedness, calculated as of September 30, 2019, and (ii) the pro forma Maximum Annual Debt Service Requirement on indebtedness of the Obligated Group, calculated as of September 30, 2019, and including, for such purpose, the expected payments of principal and interest on the 2019 Bonds.

Historical and Pro Forma Debt Service Coverage
(in thousands)

	Fiscal Year Ended June 30,				
	2019	**2018**	**2017**	**2016**	**2015**
Excess of Revenue Over Expenses	$761,711	$1,073,406	$496,591	$1,719,530	$418,260
Less:					
Membership substitution	--	(398,493)	--	(1,263,867)	--
Plus:					
Unrealized loss/(gain) on alternative investments	(36,038)	(120,364)	(48,699)	41,834	25,403
Loss on extinguishment of debt	--	--	27,947	22,366	17,958
Depreciation and amortization	332,813	309,259	278,714	252,983	175,388
Interest expense	53,755	55,123	48,350	47,594	35,427
Income Available for Debt Service	$1,112,241	$918,931	$802,903	$820,440	$672,436
Maximum Annual Debt Service Requirement [1]	$143,918	$143,918	$143,918	$143,918	$143,918
Coverage of Maximum Annual Debt Service Requirement	7.73	6.39	5.58	5.70	4.67
Pro Forma Maximum Annual Debt Service Requirement [2]	$166,465	$166,465	$166,465	$166,465	$166,465
Coverage of Pro Forma Maximum Annual Debt Service Requirement	6.68	5.52	4.82	4.93	4.04

[1] The Maximum Annual Debt Service Requirement is calculated in accordance with the provisions of the Master Indenture and (i) excludes repayment obligations with respect to the Line of Credit and (ii) excludes annual debt service on the Series 2008B Bonds which were repaid in full on July 1, 2018. Interest on the Series 2008A Bonds, the Series 2012A Bonds and the Series 2014 Bonds, which bear interest at variable rates, is calculated in accordance with provisions of the Master Indenture. Debt service requirements with respect to the outstanding Series 2015 (LGH) Bonds is calculated on the assumption that such bonds, which are fixed rate bonds maturing on July 1, 2022, and constituting Non-Amortizing Principal under the Master Indenture, amortize over a 30-year term with level debt service payments at an assumed interest rate equal to 3.670%.

[2] See "HEALTH SYSTEM PRO FORMA DEBT SERVICE REQUIREMENTS" in the forepart of this Official Statement.

Capital Expenditures and Future Borrowing

The Project. The principal project to be financed with the proceeds of the 2019A Bonds is the construction and equipping by the Health System of a new, 17-story, 1.5 million square foot patient pavilion building (the "HUP Pavilion") located in Philadelphia across from the existing HUP facility and adjacent to the Perelman Center for Advanced Medicine. The HUP Pavilion, which is an extension of the hospital and will replace a portion of the aging bed complement at HUP, will include 500 patient rooms, 47 surgical operating and procedure rooms, 63 Emergency Department rooms, and an additional 690 parking spaces, with an adaptable room concept in which patient rooms can flex between standard and intensive care set-up and adapt as the patient population and caregiving needs change in the coming years. Incorporating new technology in advanced medicine, it will also provide clinical and non-clinical support space for inpatient cancer services, cardiovascular services and neurosciences, and more seamless integration across patient services from emergency department to surgical and other procedures to patient recovery and discharge. The total cost of the HUP Pavilion is currently estimated at approximately $1.5 billion. Construction began with the demolition of existing structures at the site in 2015, and is expected to continue until final activation of the HUP Pavilion, currently estimated to occur in mid-2021.

Future Capital Expenditures. For fiscal years 2020 through 2024, the Health System currently estimates capital expenditures of approximately $3.1 billion, including additional expenditures associated with the HUP Pavilion, as well as the Center for Health Care Technology, an eight-story, approximately 250,000 square foot office and administrative center for Penn Medicine, continued renovations of Chester County Hospital, and future capital investments associated with Princeton HealthCare System. Future capital expenditures may also include the development of several off-site practice locations, as well as significant investments for Health System plans to make in information technology and clinical interventional equipment (e.g., surgical robots and diagnostic equipment), as well as capitalized interest associated with Health System borrowings. Capital spending in future years is dependent upon many factors, including the financial performance of the Health System and approval of annual capital budgets.

Future Borrowing. Depending on market conditions, the Health System may incur additional indebtedness, which may include additional bonds issued under the Bond Indenture and secured by Master Notes issued under the Master Indenture, to finance capital projects, including additional costs of the HUP Pavilion, and to refinance certain currently outstanding indebtedness of the Health System. Additional borrowings by the Health System are subject to approval by the Penn Medicine Board as well as other University approvals.

Hedging Transactions and Derivative Instruments

In the normal course of its business, the Health System may enter into interest rate swap agreements or other hedging transactions to hedge cash flows, reduce costs, hedge against floating interest rate risk, alter the relative amounts of its fixed and floating rate obligations or otherwise manage risk.

As of September 30, 2019, the Health System was obligated with respect to three interest rate swap agreements with notional amounts of approximately $21.6 million, $14.4 million and $14.4 million, respectively. The $21.6 million agreement was entered into in order to synthetically convert the LCHA 2012 Series A Bonds to fixed rates. In June of 2019, the LCHA 2012 Series A Bonds were redeemed in full by the Health System. The remaining two $14.4 million agreements were entered into for the purpose of reducing total interest expense by synthetically converting a portion of the Health System's PHEFA 2009 Series A Bonds from a fixed rate debt to a variable rate debt. The amortization and term of the swaps are identical to the PHEFA 2009 Series A Bonds. The two $14.4 million swaps constitute an interest modification and the payments by the Health System with respect to these agreements are included in interest expense. Beginning in the fiscal year ending June 30, 2020, the gain and losses associated with the $21.6 million swap will be recorded in non-operating income.

The payment obligations of the Health System with respect to these swap agreements are secured by Master Notes issued to each counterparty under the Master Indenture.

The Health System may in the future enter into other similar financial arrangements, including additional interest rate swaps or similar hedging arrangements.

Management's Discussion of Recent Financial Performance

Financial Results for the Fiscal Year Ended June 30, 2019

Net assets without donor restriction increased from $5.138 billion to $5.234 billion, an increase of $96.5 million (1.9%) for the fiscal year ended June 30, 2019. This was primarily the result of positive excess of revenue over expenses of $437.7 million offset by an unfavorable pension and post retirement plan adjustment of $332.5 million and transfers to the Perelman School of Medicine and the University of $240.4 million.

The excess of revenue over expenses from operations was $437.7 million for the fiscal year ended June 30, 2019, reflecting an increase of $55.0 million from the prior fiscal year and the nineteenth consecutive year of positive operating performance, exclusive of investment income. Including non-operating gains (interest and dividends, net realized gains, contributions and other support and unrealized gains on alternative investments) the total excess of revenue over expenses was $761.7 million.

Total operating revenue for the fiscal year ended June 30, 2019 was $7.594 billion, compared to $6.782 billion for the prior fiscal year, reflecting an increase of $812 million or 12.0%. The increase was partially due to the recording of a full year of PHCS operations during the current year, as opposed to only six months in the prior year. Net patient service revenue totaled $6.941 billion, compared to $6.253 billion for the prior fiscal year, reflecting an increase of $688 million (11.0%). Net patient service revenue was also positively impacted by activity growth in targeted high intensity programs such as radiology, cardiac surgery, transplant, oncologic gynecology and outpatient surgery. Compared to the prior year, emergency room visits increased by 8.4%, ambulatory surgeries increased by 13.3%, and outpatient visits (net of primary care network visits) increased by 8.4%.

Total operating expenses for the fiscal year ended June 30, 2019, were $7.156 billion, reflecting a $757 million (11.8%) increase over the prior fiscal year. Once again, the increase was partially due to the recording of a full year of PHCS operations during the current year, as opposed to only six months in the prior year. Salaries and wages totaled $3.205 billion and were higher than the prior fiscal year by $325 million (11.3%) as a result of fiscal year 2019 base wage increases (3%), selected additional market-based nursing and allied health personnel increases, and increased patient volumes. Although labor costs have increased, salaries as a percentage of operating revenue were consistent with the prior fiscal year, and overall productivity measures such as full time equivalents per adjusted occupied bed remained relatively constant with the prior fiscal year and continue to be extremely competitive to peer group benchmarks.

Employee benefit expense totaled $821.3 million and was higher than the prior fiscal year by $67.2 million (8.9%) primarily due to additional personnel, higher medical expenses and pension costs. Supplies and utility expenses totaled $2.629 billion and were higher than the prior fiscal year by $353 million (15.6%) as a result of increased supply utilization, as well as inflationary increases. The increase in supply utilization is particularly attributable to the increased use of drug and blood products due to increased volumes and patient acuity levels. Malpractice expense totaled $94.1 million and was lower than the prior fiscal year expense of $104.4 million by $10.3 million (9.9%), primarily due to a favorable reserve adjustment in fiscal year 2019. The Health System obtains a comprehensive, independent actuarial analysis of its medical malpractice liabilities each year along with quarterly updates to validate the adequacy of those self-insured reserves. The information is also used to provide a measure for establishing current fiscal year reserves along with any necessary quarterly adjustments. This analysis is validated quarterly for the purpose of reserve validation. Interest expense totaled $53.8 million and was consistent with the prior year. Perelman School of Medicine support expense totaled $19.8 million and was consistent with the prior year.

As of June 30, 2019, unrestricted financial assets, consisting of cash and cash equivalents, board-designated assets and investments, totaled $4.401 billion as compared to $4.511 billion at June 30, 2018, or a decrease of $110 million (2.4%). Days cash on hand at June 30, 2019, were 235, as compared to 260 at June 30, 2018. The decrease in days' cash on hand was primarily attributable to unfavorable market performance of investments and increased construction activities.

The Health System days' revenue outstanding in accounts receivable at June 30, 2019, were consistent with the prior year at 44 days' revenue outstanding.

Financial Results for the Three Months Ended September 30, 2019

Net assets without donor restriction increased from $5.234 billion at June 30, 2019 to $5.320 billion at September 30, 2019, an increase of $86 million (1.6%) for the three-month period, primarily as a result of positive operating performance.

The excess of revenue over expenses from operations for the three-month period ended September 30, 2019 totaled $137.5 million. Including non-operating gains (interest and dividends, net realized gains, contributions and other support and unrealized losses on alternative investments), the total of revenue over expenses was $155.2 million, reflecting a $15.5 million increase from the corresponding prior fiscal year three-month period.

Total operating revenue for the three-month period ended September 30, 2019 was $1.993 billion, compared to $1.811 billion for the prior fiscal year three-month period, reflecting an increase of $182 million (10.0%). Net patient service revenue totaled $1.810 billion, compared to $1.661 billion for the corresponding prior fiscal year three-month period. Adjusted admissions (admissions adjusted for outpatient activity) were 3.9% higher than the prior fiscal year three-month period. Other outpatient activity remains strong in high acuity non-surgical areas with increases in radiology and chemotherapy of 6.6% and 9.9%, respectively, from the prior fiscal year three-month period.

Total operating expenses for the three-month period ended September 30, 2019 were $1.855 billion, reflecting a $144 million (8.5%) increase over the prior fiscal year three-month period. The increase was primarily the result of higher salaries and wages and supplies expenses. Salaries and wages totaled $827 million and were higher than the prior fiscal year three-month period by $56 million (7.3%), as a result of the fiscal year 2020 base wage increase. Overall productivity measures, such as full time equivalents per adjusted occupied bed, remained relatively constant with the prior fiscal year three-month period and continue to be extremely competitive to peer group benchmarks. Employee benefit expense totaled $217.7 million which was higher than the prior fiscal year three-month period by $12 million (5.9%), primarily due to medical costs. Supplies and utility expenses totaled $675 million and were higher than the prior fiscal year three-month period by $99 million (17.2%), as a result of increased supply largely due to increased volumes and patient acuity levels. Malpractice expense totaled $24.0 million, which was consistent with the prior fiscal year three-month period.

Unrestricted financial assets, consisting of cash and cash equivalents, board designated assets and unrestricted investments, decreased from $4.401 billion at June 30, 2019 to $4.047 billion at September 30, 2019, a decrease of $354 million (8.0%). Correspondingly, days cash on hand decreased from 235 days at June 30, 2019 to 212 days at September 30, 2019.

ADDITIONAL HEALTH SYSTEM INFORMATION

Employees

At June 30, 2019, the Health System had 32,474 employees. Employees of certain components of the Health System are covered by two collective bargaining agreements representing employees at certain facilities as follows (numbers of employees are at June 30, 2019):

- 110 physical plant employees at HUP are represented by the International Union of Operating Engineers, Local 835 (AFL-CIO) under a collective bargaining agreement that expires on June 30, 2025;
- 11 physical plant employees at Penn Medicine at Rittenhouse are represented by the International Union of Operating Engineers, Local 835 (AFL-CIO) under a collective bargaining agreement that expires on September 30, 2019.

Retirement Plans

Retirement benefits are principally provided to active employees through a combination of qualified and non-qualified defined contribution plans (DC). The Health System's policy with respect to its DC Plan contribution is up to 6.5% of eligible employee salaries and contributions amounted to $77,935,000 and $71,992,000 in 2019 and 2018, respectively.

The Health System also has several non-contributory partially and fully frozen defined benefit (DB) pension plans. Benefits under the plans generally are based on the employee's years of service and compensation during the years preceding retirement. Contributions to the plans are made in amounts necessary to at least satisfy the minimum required contributions as specified in the Internal Revenue Service Code and related regulations. The Health System's primary plan was frozen to new entrants effective July 1, 2010; the benefit accruals for all participants of the LGH and PHCS plans were frozen effective June 30, 2013 and December 31, 2011, respectively.

Additionally, the Health System provides healthcare and life insurance benefits (Other Postretirement Employee Benefits or OPEB); while, LGH provides only life insurance for retirees prior to January 1, 2012. Only a limited number of employees may become eligible for such benefits if they reach retirement age while working for the Health System. These and similar benefits for active and certain retired employees are provided through insurance contracts.

During the period from March 2018 through July 2018, 3,394 terminated vested participants in the Health System's DB plans were fully paid out their pension benefits as part of a one-time vested termination cash out offering (VTCO), with the exception of PHCSH. The projected and accrued benefit obligations as of June 30, 2018, reflect the pay-out of benefits for these participants. Total lump sum payments from the VTCO were $156,928,000, which included $41,050,000 for the DB plan at LGH. Except with respect to the DB plan at LGH, the amount of lump sum payouts during the fiscal year did not exceed the sum of fiscal 2018 service cost plus interest cost, and settlement accounting was not required for fiscal 2018. However, for the LGH plan, the amount of lump sum payouts during the fiscal year did exceed the sum of fiscal 2018 service cost plus interest cost, so settlement accounting was required for that plan.

The Health System uses a measurement date of June 30 for their defined benefit and postretirement health care benefit plans.

Insurance

The assets of the University, including assets of the Health System, are protected by a comprehensive program of insurance. The general liability coverage is placed with a reciprocal risk retention group known as "Pinnacle," which is owned by eighteen universities, including the University. The eighteen universities consist of both public and private institutions which have a united mission to maintain long-term stability while offering broad insurance coverage and minimize the total cost of risk. The general liability limit in the amount of $2,000,000 is subject to a $500,000 deductible, with the reciprocal risk retention group covering the next $1,500,000 of exposure. The University maintains all-risk property liability coverage with commercial insurance carriers at a limit of $2.50

billion for property, plant and equipment, with a $500,000 deductible per incident for University owned and leased properties and a $250,000 deductible per incident for the Health System owned and leased properties. The property policy does not include LG Health or PHCSH. In addition to Pinnacle and the all-risk property insurance program, the University's present coverage includes automobile liability insurance, professional liability, excess/umbrella liability insurance, fine arts insurance, environmental impairment liability, workers' compensation and employers' liability, crime insurance, directors and officers insurance, fiduciary liability, cyber liability, helipad premises liability, non-owned aviation liability, student athlete injury liability, special accident liability, active shooter liability, international safety and security assistance and an inventory of surety bonds that are contractually required to satisfy its obligations. The University conducts periodic reviews of its insurance needs in an effort to maintain adequate coverage at reasonable cost.

Malpractice Insurance.

Act 111, the Pennsylvania Health Care Services Malpractice Act, requires every health care provider (hospitals, physicians and nurse mid-wives) to insure their medical malpractice liability exposure by purchasing commercial insurance or qualifying as a self-insurer. This statute, as amended, mandates that all health care providers as defined by the Act, maintain primary medical professional liability limits. Those mandated limits are $500,000 per medical incident and $2,500,000 annual aggregate for hospitals and $500,000 per medical incident and $1,500,000 annual aggregate for physicians and nurse mid-wives. The statute provides for a Medical Care Availability and Reduction of Error Fund (the "MCare Fund"), which provides coverage for all medical malpractice awards against a health care provider in excess of the primary limits with limits of $500,000 per incident and $1,500,000 in the aggregate. Nurse practitioners, physician assistants, clinical nurse specialists, perfusionists and physical therapists also are required to secure coverage with limits of $1 million per incident and $3 million in the aggregate. With the exception of LG Health and TCCHHS, the Health System insures these exposures through Franklin Casualty Insurance Company ("Franklin Casualty"), a wholly owned insurance subsidiary included in the combined financial statements of the Health System that has been operational since July 1, 1997. TCCHHS is insured as a member of Cassatt Insurance Group. LG Health is insured through Lancaster General Insurance Company Ltd, an insurance company incorporated and licensed in the Cayman Islands, the sole shareholder of which is LG Health; however under a reinsurance agreement Lancaster General Insurance Company serves as reinsurer to Franklin Casualty insuring the aforementioned exposures of LG Health. PHCHS, its hospital, physicians, and other healthcare professionals became insured by Franklin Casualty Insurance Company effective July 1, 2019. PHCHS, its hospital, physicians, and other healthcare professionals are not subject to the MCare Fund as PHCHS operations are based in New Jersey. Franklin Casualty insures only the primary medical professional liability risk of the Health System employed physicians, nurse midwives, nurse practitioners, physician assistants, clinical nurse specialists, perfusionists, physical therapists and owned hospitals. Franklin Casualty is ultimately responsible for payment of any malpractice awards within the primary limits and the prescribed limits for nurse practitioners, physician assistants, clinical nurse specialists, perfusionists and physical therapists. The Health System's exposure in excess of coverage provided by the MCare Fund or the limits for nurse practitioners, physician assistants and physical therapists is covered by a program that utilizes self-insurance and commercial insurance.

Information Technology and Cybersecurity

The Health System has made major investments in information technology to improve clinical quality and consistency, while establishing a strong commitment to developing strong security policies and programs. Investments in technology continue to help the Health System to achieve its goals of improved patient care, world-class system infrastructure and effective data security.

In 2013, the Health System contracted with EPIC Systems to develop a unified electronic medical records solution. By 2016, all hospitals had received Stage 2 of Electronic Health Record certification. During 2017, the Health System went live with the physician revenue cycle solution built by EPIC Systems. By June 2018, both physical and hospital revenue solutions were fully deployed, rebranded as PennChart. The PennChart platform allows better analytical and financial data across the entire Health System, which can ultimately drive better decision-making and refine workflows. Additionally, the Health System uses a web-based solution and smart device EPIC application called MyPennMedicine which allows patients to have access to their medical records, test results, appointments and contact any member of their physician care team. In 2018, MyPennMedicine also introduced the Health System FirstCall Virtual Care which allowed patients access to have an appointment with Health System medical providers using a video enabled smart device.

Since 2002, the Health System has continued to enhance and modernize its enterprise resource planning system (ERP), Lawson Software (now Infor), which supports Human Resources, Finance, Payroll, and Supply Chain. Beginning in fiscal year 2020, the Health System plans to develop the new Infor CloudSuite Human Capital Management tool which will help the Health System standardize job roles and facilitate further growth initiatives. Future projects may include the deployment of other Infor CloudSuite products such as Finance, Supply Chain, Disbursements, and Payroll.

The Health System maintains a strong commitment to cybersecurity and employs a dedicated team to accomplish the goals necessary to protect patient information, employee data, critical infrastructure, and the reputation of Penn Medicine. The Health System has an internal information security department, which includes security operations, security engineering, and information assurance teams. The Health System aligns with the National Institute of Standards and Technology Cybersecurity Framework (NIST CSF) and follows the HIPAA Security and Privacy Rules, and Payment Card Industry regulatory/security rules. The Health System utilizes several layers of security controls, including next-generation perimeter technologies, encryption, endpoint detection and response, and more to secure protected health information (PHI) and employee information. The Health System maintains an onsite Security Operations Center (SOC), staffed with full-time security analysts responsible for threat intelligence, security monitoring of systems, forensic analysis, and incident response activities.

Litigation

The nature of the business of the Health System generates claims and litigation against the Members of the Obligated Group. At any given time, the Members of the Obligated Group will have pending medical malpractice actions and may be subject to other claims arising in the ordinary course of business. In the opinion of management, the Health System maintains adequate insurance and/or other financial reserves to cover the estimated potential liability for damages in these cases, or, to the extent such liability is uninsured, adverse decisions will not have a material adverse effect on the financial position or operations of the Health System.

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APPENDIX B

AUDITED COMBINED FINANCIAL STATEMENTS OF THE HEALTH SYSTEM FOR THE YEARS ENDED JUNE 30, 2019 AND JUNE 30, 2018

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University of Pennsylvania Health System

Combined Financial Statements and Combining Supplementary Data

June 30, 2019 and 2018

University of Pennsylvania Health System
Table of Contents
June 30, 2019 and 2018

Report of Independent Auditors

To the Trustees of the University of Pennsylvania:

We have audited the accompanying combined financial statements of the University of Pennsylvania Health System (UPHS), which comprise the combined balance sheets as of June 30, 2019 and 2018, and the related combined statements of operations, changes in net assets and 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.

Auditors' 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 UPHS' 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 UPHS' 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 University of Pennsylvania Health System as of June 30, 2019 and 2018, and the results of its operations, its 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.

pwc

Emphasis of Matter

As discussed in Note 2 to the combined financial statements, UPHS changed the manner in which it presents net assets and reports certain aspects of its financial statements as a not-for-profit entity in 2019. Our opinion is not modified with respect to this matter.

Other Matter

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 combined financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the combined financial statements or to the combined 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, changes in net assets 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, changes in net assets and cash flows of the individual entities.

PricewaterhouseCoopers LLP

September 26, 2019

University of Pennsylvania Health System
Combined Balance Sheets
June 30, 2019 and 2018 (thousands of dollars)

	2019	2018
Assets		
Current		
Cash and cash equivalents	$ 779,099	$ 990,383
Patient receivables, net	826,940	753,599
Third party payer receivables	3,995	4,873
Due from the University of Pennsylvania	-	7,475
Other current assets	266,159	235,838
Total current assets	1,876,193	1,992,168
Assets whose use is limited		
Held by trustees	163,598	274,300
RRG\Captive	219,879	207,403
Designated	2,731,038	2,584,262
Donor-restricted investments	678,137	648,104
	3,792,652	3,714,069
Investments	890,882	936,280
Property and equipment, net	4,760,563	4,103,777
Other assets	261,349	267,935
Total assets	$ 11,581,639	$ 11,014,229
Liabilities and Net Assets		
Current		
Accounts payable	$ 263,559	$ 212,064
Accrued expenses	865,284	734,116
Current portion of long-term debt	47,017	97,678
Due to the University of Pennsylvania	5,215	-
Third party payer settlements	62,813	66,522
Total current liabilities	1,243,888	1,110,380
Long-term debt, net of current portion	2,283,002	2,274,859
Third party payer settlements, net of current portion	7,238	7,457
Other liabilities	859,668	877,347
Pension and postretirement benefit liability	1,266,067	949,174
Total liabilities	5,659,863	5,219,217
Net assets		
Net assets without donor restriction	5,234,000	5,137,511
Net assets with donor restriction	687,776	657,501
Total net assets	5,921,776	5,795,012
Total liabilities and net assets	$ 11,581,639	$ 11,014,229

See accompanying notes to combined financial statements.

University of Pennsylvania Health System
Combined Statements of Operations
Years Ended June 30, 2019 and 2018 (thousands of dollars)

	2019	2018
Revenues		
Net patient service revenue before provision for bad debts		$ 6,417,674
Provision for bad debts		(164,763)
Net patient service revenue	$ 6,940,977	6,252,911
Other revenue	653,071	529,240
Total revenues	7,594,048	6,782,151
Expenses		
Salaries and wages	3,205,444	2,880,679
Employee benefits	821,337	754,179
Supplies and other expenses	2,629,126	2,275,906
Depreciation and amortization	332,813	309,259
Malpractice	94,117	104,433
Interest	53,755	55,123
Perelman School of Medicine (PSOM) support	19,770	19,844
Total expenses	7,156,362	6,399,423
Excess of revenue over expenses from operations	437,686	382,728
Nonoperating gain (loss)		
Interest and dividends	77,395	42,879
Net realized gain, contributions and other support	210,592	128,942
Princeton HealthCare System membership substitution	-	398,493
Change in unrealized gain (loss) on alternative investments	36,038	120,364
Excess of revenue over expenses	761,711	1,073,406
Change in unrealized gain (loss) on other investments	(97,576)	19,848
Transfers to PSOM and University, net	(240,393)	(203,268)
Net assets released from restrictions for capital	5,212	2,426
Pension and other postretirement plan adjustments	(332,465)	151,812
Increase in net assets without donor restriction	$ 96,489	$ 1,044,224

See accompanying notes to combined financial statements.

University of Pennsylvania Health System
Combined Statements of Changes in Net Assets
Years Ended June 30, 2019 and 2018 (thousands of dollars)

	Net assets without donor restriction	Net assets with donor restriction	Total
Net assets, June 30, 2017	$ 4,093,287	$ 590,543	$ 4,683,830
Excess of revenue over expenses	1,073,406	-	1,073,406
Change in unrealized gain on investments	19,848	-	19,848
Pension and other postretirement plan adjustments	151,812	-	151,812
Contributions and investment income	-	30,864	30,864
Net assets released from restrictions for			
Operations	-	(25,185)	(25,185)
Capital	2,426	(2,426)	-
Net realized and unrealized gain on restricted funds		45,289	45,289
Princeton HealthCare System membership substitution	-	18,416	18,416
Transfer to PSOM and University, net	(203,268)		(203,268)
Increase in net assets	1,044,224	66,958	1,111,182
Net assets, June 30, 2018	5,137,511	657,501	5,795,012
Excess of revenue over expenses	761,711		761,711
Change in unrealized gain on investments	(97,576)		(97,576)
Pension and other postretirement plan adjustments	(332,465)		(332,465)
Contributions and investment income		37,058	37,058
Net assets released from restrictions for			
Operations	-	(25,795)	(25,795)
Capital	5,212	(5,212)	-
Net realized and unrealized gain on restricted funds	-	24,224	24,224
Transfer to PSOM and University, net	(240,393)		(240,393)
Increase in net assets	96,489	30,275	126,764
Net assets, June 30, 2019	$ 5,234,000	$ 687,776	$ 5,921,776

See accompanying notes to combined financial statements.

University of Pennsylvania Health System
Combined Statements of Cash Flows
Years Ended June 30, 2019 and 2018 (thousands of dollars)

	2019	2018
Cash flows from operating activities		
Increase in net assets	$ 126,764	$ 1,111,182
Adjustments to reconcile change in net assets to net cash provided by operating activities		
Depreciation and amortization	320,350	300,041
Gain on asset transaction	(10,399)	-
Increase (decrease) from changes in		
Patient receivables	(73,341)	(20,789)
Other current assets	(30,321)	(23,843)
Other assets	5,722	(13,007)
Accounts payable and accrued expenses	131,631	118,178
Estimated third party payer settlements	(3,050)	20,090
Due from University of Pennsylvania	12,690	(37,690)
Other liabilities	(17,337)	16,851
Pension and postretirement benefit liability	(15,572)	(23,244)
Princeton HealthCare System membership substitution	-	(416,909)
Net realized and unrealized gain on investments	(168,215)	(314,057)
Transfers, restricted contributions and pension adjustment	558,487	46,053
Net cash provided by operating activities	837,409	762,856
Cash flows from investing activities		
Purchases of property and equipment	(974,916)	(615,818)
Purchases of assets whose use is limited and investments	(1,725,885)	(1,220,283)
Sale of assets whose use is limited and investments	1,749,420	1,159,194
Release of funds held by trustee for capital	169,397	142,297
Princeton Health System membership substitution	-	46,440
Net cash used for investing activities	(781,984)	(488,170)
Cash flows from financing activities		
Repayment of long-term debt and notes payable	(120,488)	(43,201)
Cost of issuance of debt	-	(3,718)
Proceeds from restricted contributions	7,172	5,402
Proceeds from issuance of long-term debt	87,000	370,305
Transfers and other	(240,393)	(203,268)
Net cash used for financing activities	(266,709)	125,520
Net decrease in cash and cash equivalents	(211,284)	400,206
Cash and cash equivalents		
Beginning of year	990,383	590,177
End of year	$ 779,099	$ 990,383
Supplemental disclosure of cash flow information		
Cash paid for interest, net of amount capitalized	$ 57,812	$ 54,547
Purchases of property and equipment included in accounts payable	$ 114,554	$ 64,547

See accompanying notes to combined financial statements.

1. Organization

The University of Pennsylvania Health System (UPHS or Health System) includes the following operating entities: Clinical Practices of the University of Pennsylvania (CPUP), Clinical Care Associates (CCA), Hospital of the University of Pennsylvania (HUP), Penn Presbyterian Medical Center (PPMC), Pennsylvania Hospital of the University of Pennsylvania Health System (PAH-UPHS), Chester County Hospital and Health System (TCCHHS), Lancaster General Health (LGH), Princeton HealthCare System (PHCS) and Wissahickon Hospice of the University of Pennsylvania Health System. In addition, the activities of UPHS' risk retention program, supported and administered by Franklin Casualty Insurance Company (FCI), a wholly owned Risk Retention Group and Quaker Insurance Company Ltd. (QIC), a wholly owned offshore captive insurance company (collectively referred to as RRG/Captive), are included in the combined financial statements.

UPHS and the University of Pennsylvania Perelman School of Medicine (PSOM) operate under the governance of Penn Medicine. The governing body, approved by the University, operates, oversees, and coordinates the academic, research, and clinical missions of Penn Medicine. Penn Medicine replaced the prior multiple governing boards of UPHS and the PSOM, all of which were dissolved, with this single governing board. UPHS is a tax-exempt organization under Section 501(c) (3) of the Internal Revenue Code. The University (as to HUP and CPUP), CCA, PPMC, PAH-UPHS, TCCHHS, Lancaster General Health, Lancaster General Hospital, Princeton Healthcare System, and Wissahickon Hospice of the University of Pennsylvania Health System are sometimes referred to herein as the "Obligated Group." In addition, UPHS is included in the financial statements of the Trustees of the University of Pennsylvania (University).

2. Significant Accounting Policies

Presentation

The University of Pennsylvania Health System Combined Financial Statements have been prepared on the accrual basis of accounting in accordance with accounting principles generally accepted in the United States of America.

UPHS has revised its classification of certain prior year balances to conform to current year presentation.

Princeton HealthCare System

Effective January 1, 2018, the University and Princeton HealthCare System entered into an affiliation agreement whereby the University became the sole corporate member of PHCS. PHCS is a comprehensive healthcare provider located in central New Jersey that principally includes the Medical Center of Princeton, a general acute care hospital facility in Plainsboro, New Jersey, with 319 inpatient beds (plus 24 newborn bassinets), and Princeton House Behavioral Health, which includes a 110 bed inpatient facility in Princeton, New Jersey, and four additional outpatient locations. PHCS includes approximately 1,200 physicians on staff and employs approximately 3,200 people.

No consideration was exchanged for the net assets contributed and acquisition costs were expensed as incurred. In accordance with applicable accounting guidance on not-for-profit mergers and acquisitions (ASC 958), UPHS recorded non-operating contribution income of $398,493,000 in fiscal year 2018 reflecting the fair value of the contributed net assets without donor restriction of PHCS on January 1, 2018. Restricted contribution income of $18,416,000 was recorded in net assets with donor restriction.

2 Significant Accounting Policies (continued)

Total fair value of assets, liabilities and net assets contributed by PHCS and its subsidiaries at January 1, 2018 were as follows (in thousands):

Cash and cash equivalents	$	46,440
Patient accounts receivable, net		43,895
Prepaid expenses and other current assets		17,533
Investments and assets limited as to use		213,460
Property, plant, and equipment, net		491,877
Other assets		30,540
Total assets acquired	$	843,745
Accounts payable and accrued expense	$	75,954
Accrued compensation and related benefits		32,962
Estimated third-party settlements		7,099
Long-term debt		293,861
Other liabilities		16,960
Total liabilities assumed		426,836
Net assets without donor restriction		398,493
Net assets with donor restriction		18,416
Total net assets		416,909
Total liabilities and net assets	$	843,745

A summary of the pro-forma combined financial results of UPHS and PHCS for the year ended June 30, 2018, as if the affiliation had occurred on July 1, 2017, excluding the contribution associated with the membership substitution, is as follows (unaudited):

(amounts in thousands)		June 30, 2018
Total revenues	$	7,020,438
Total expenses		6,636,843
Excess of revenues over expenses from operations		383,595
Nonoperating activity, net		275,329
Increase in net assets without donor restriction	$	658,924

2. Significant Accounting Policies (continued)

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 disclosure of contingent assets and liabilities at the date of the combined financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates. Significant estimates made by management include the valuation of alternative investments, the estimated net realizable value of patient and contributions receivables and the actuarially determined pension and other postretirement benefits, malpractice and self-insurance reserves.

Cash and Cash Equivalents

Cash equivalents consist primarily of demand deposits and money market mutual funds, which would be considered a Level 1 investment under the fair value hierarchy. Investments in highly liquid debt instruments with original maturities of three months or less when purchased are included in cash and cash equivalents. The carrying amount of cash and cash equivalents are at fair value based on quoted market prices.

Investments and Investment Income

Investments and assets limited as to use include assets set aside by management for future purposes, including capital improvements and self-insurance funds, and are not for trading. Certain investments have been restricted by donors and are designated as donor restricted. The significant portion of these assets are invested in the University's Associated Investment Fund (A.I.F.), which is described in greater detail below. The remaining assets are managed in separate investment portfolios.

Realized gains and losses on investments and changes in unrealized gains and losses on alternative investments are reported as a component of excess of revenue over expenses. The change in unrestricted unrealized gains and losses on investments are reported below the excess of revenue over expenses. Investment income or loss, realized and unrealized gains and losses on investments of donor restricted funds are added to or deducted from the appropriate net asset category based on the donor's restriction. A write down in the cost basis of investments is recorded when the decline in fair value of investments has been judged to be other than temporary. Depending on any donor-imposed restrictions on the underlying investments, the amount of the write down is reported as a realized loss in either net assets with donor restriction or in excess of revenue over expenses, with no adjustment in the cost basis for subsequent recoveries in fair value. There were no other-than-temporary write downs reported for the years ended June 30, 2019 and June 30, 2018.

Assets Whose Use Is Limited (AWUIL)

Assets whose use is limited are comprised of cash, investments and pledges, which are reported at fair or net realizable value. These assets include assets held by trustees under indenture agreements or self-insurance trust arrangements, assets of self-insurance captives used to settle malpractice claims, assets for other retirement benefits, assets set aside by management for future purposes, over which they retain control and may subsequently use for other purposes, and donor-restricted funds (Endowments, Specific Purpose and Plant Replacement and Expansion Funds and Contributions Receivable). Contributions receivable are recognized as increases to net assets in the period received, at their fair value, net of discounts and allowances.

2. **Significant Accounting Policies (continued)**

Fair Value

UPHS values certain financial and nonfinancial assets and liabilities by applying the FASB pronouncements on *Fair Value Measurements*. The pronouncement defines fair value and establishes a framework for measuring fair value that includes a hierarchy that categorizes and prioritizes the sources used to measure and disclose fair value. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (an exit price). The hierarchy is broken down into three levels based on inputs that market participants would use in valuing the asset or liability developed based on market data obtained from sources independent of UPHS as follows:

Level 1 Unadjusted quoted market prices in active markets for identical assets or liabilities.

Level 2 Unadjusted quoted prices in active markets for similar assets or liabilities, unadjusted quoted prices for identical or similar assets or liabilities in markets that are not active, or inputs other than quoted prices that are observable.

Level 3 Unobservable inputs for the asset or liability.

Inputs broadly refer to the assumptions that market participants use to make valuation decisions, including assumptions about risk. Inputs may include price information, volatility statistics, specific and broad credit data, liquidity statistics, and other factors. UPHS is required by the pronouncement to maximize the use of observable inputs (Levels 1 and 2) and minimize the use of unobservable inputs (Level 3). UPHS considers observable data to be that market data which is readily available, regularly distributed or updated, reliable and verifiable, not proprietary, and provided by independent sources that are actively involved in the relevant market. The categorization of a financial instrument within the hierarchy is based upon the pricing transparency of the instrument and does not necessarily correspond to UPHS' perceived risk of that instrument.

Assets and liabilities are disclosed in the Notes to Combined Financial Statements within the hierarchy based on the lowest (or least observable) input that is significant to the measurement. UPHS' assessment of the significance of an input requires judgment, which may affect the valuation and categorization within the fair value hierarchy. The fair value of assets and liabilities using Level 3 inputs are generally determined by using pricing models or discounted cash flow methods, which all require significant management judgment or estimation.

As a practical expedient, UPHS is permitted under the pronouncement to estimate the fair value of an investment in an investment company at the measurement date using the reported net asset value (NAV). Adjustment is required if the Health System expects to sell the investment at a value other than NAV or if the NAV is not calculated in accordance with US generally accepted accounting principles (US GAAP).

2. Significant Accounting Policies (continued)

Associated Investment Fund (A.I.F.)
The A.I.F. is a diversified pooled investment vehicle available solely to the University, its affiliates and subsidiaries. The A.I.F. is invested in accordance with the investment policies set out by an Investment Board which has been appointed by the Trustees of the University. The Office of Investments is responsible for the day-to-day management of the A.I.F. including identifying, selecting and monitoring a variety of external investment managers to implement the strategic asset allocation set forth by the Investment Board. Unrestricted realized gain/(loss) and the change in unrealized gain/(loss) on alternative investments are reported as a component of the excess of revenue over expenses. The change in unrestricted unrealized gain/(loss) from other investments are reported in the change in net assets, while realized gain/(loss) are reported as a component of the excess of revenue over expenses. The fair value of the A.I.F. represents UPHS' ownership in the underlying fair value of the assets as determined by the University.

Investment Allocation
The following is a summary of the investments held by UPHS by asset allocation.

Short-Term (A.I.F., Investments and Pension)
Short-term investments include cash equivalents and fixed income investments with maturities of less than one year. Short-term investments are valued using observable market data and are categorized as Level 1 based on quoted market prices in active markets. The majority of these short-term investments are held in a US Treasury money market account.

Equity (A.I.F., Investments and Pension)
Equity investments consist of direct holdings of public securities in managed accounts as well as exchange traded funds and private funds. The securities held in managed accounts, along with exchange traded funds are generally valued based on quoted market prices in active markets obtained from exchange or dealer markets for identical assets, and are accordingly categorized as Level 1. Private funds are valued at NAV.

Absolute Return (A.I.F., Investments and Pension)
Absolute return investments are made up of allocations to private funds. The fund managers of these private funds invest in a variety of securities, based on the strategy of the fund, which may or may not be quoted in an active market. Private funds are valued at NAV.

Debt (A.I.F., Investments and Pension)
Debt investments consist of direct holdings of securities in managed accounts and private funds. Securities such as US Treasuries, held in managed accounts, are valued based on quoted market prices in active markets and are categorized as Level 1. Securities such as corporate bonds, high yield bonds and bank loans, also held in managed accounts, are valued based on quoted market prices or dealer or broker quotations and are categorized as Level 2 or in the cases where inputs are unobservable as Level 3. Private funds are valued at NAV.

2. Significant Accounting Policies (continued)

Private Equity (A.I.F., Investments and Pension)
Investments in private equity are in the form of close-ended private funds. The fund managers primarily invest in investments for which there is no readily determinable market value. The fund manager may value the underlying private investments based on an appraised value, discounted cash flow, industry comparables or some other method. These private fund investments are valued at NAV.

Real Estate (A.I.F. and Pension)
Investments in real estate are primarily in the form of private funds. The fund managers of these private funds primarily invest in investments for which there is no readily determinable market value. The fund manager may value the underlying investments based on an appraised value, discounted cash flow, industry comparables or some other method. Private funds are valued at NAV.

Natural Resources (A.I.F., Investments and Pension)
Investments in natural resources are made up of private funds and securities in managed accounts. The fund managers of these private funds primarily invest in investments for which there is no readily determinable market value. The fund manager may value the underlying investments based on an appraised value, discounted cash flow, industry comparables or some other method. Private funds are valued at NAV. The securities held in the managed accounts are generally valued based on quoted market prices in active markets obtained from exchange or dealer markets for identical assets, and are accordingly categorized as Level 1.

Derivatives (A.I.F., Investments and Pension)
In the normal course of business, UPHS utilizes derivative financial instruments in connection with its investment activity. Derivatives utilized by the UPHS can include futures, options, swaps and forward currency contracts and are reflected at fair value following the definition of Level 1 and 2 assets and liabilities as previously described. Investments in derivative contracts are subject to foreign exchange and equity price risks that can result in a loss of all or part of an investment. In addition, UPHS is also subject to additional counterparty risk should its counterparties fail to meet the terms of their contracts.

Investment Risk (A.I.F., Investments and Pension)
The Health System's investing activities expose it to a variety of risks, including market, credit and liquidity risks and attempts to identify, measure and monitor risk through various mechanisms including risk management strategies and credit policies.

Market risk is the potential for changes in the fair value of the UPHS's investment portfolio. Commonly used categories of market risk include currency risk (exposure to exchange rate differences between functional currency relative to other foreign currencies), interest rate risk (changes to prevailing interest rates or changes in expectations of futures rates) and price risk (changes in market value other than those related to currency or interest rate risk, including the use of NAV provided).

2. Significant Accounting Policies (continued)

Credit risk is the risk that one party to a financial investment will cause a financial loss for the other party by failing to discharge an obligation (counterparty risk).

Liquidity risk is the risk that UPHS will not be able to meet its obligations associated with financial liabilities.

Details on the current redemption terms and restrictions by asset class and type of investment are as follows:

Strategy	Redemption Terms	Redemption Restrictions
Short-term	Daily	None
Equity		
Managed accounts	Daily and semi-annually with varying notice periods	None
Mutual funds	Daily	None
Private funds (1)	Weekly to annually with varying notice periods	Lock-up provisions ranging from 0 to 5 years and side pocket investments (2)
Debt		
Managed accounts	Daily	None
Private funds (1)	Daily	None; side pocket investments (2)
Absolute return	Range from monthly to annually and close-ended funds not available for redemption	Lock-up provisions ranging from 0 to 5 years with earlier redemptions subject to redemption fee, close-ended funds not available for redemption, and side pocket
Real estate	Close-ended funds not available for redemption	Close-ended funds not available for redemption
Private equity	Close-ended funds not available for redemption	Close-ended funds not available for redemption
Natural resources		
Managed accounts	Daily	None
Private funds (1)	Close-ended funds not available for redemption	Close-ended funds not available for redemption

(1) Private funds consist of close-ended and open-ended funds generally in the form of limited partnerships. Close-ended funds have varying remaining fund terms between 1 to 15 years.

(2) Side pocket investments represents investments designated by a manager that are not available for liquidity in an otherwise liquid fund vehicle.

2. Significant Accounting Policies (continued)

Property, Equipment and Depreciation
Property and equipment are stated at cost at the date of acquisition less accumulated depreciation. Depreciation is computed on a straight-line basis over the estimated useful lives of the related assets. Useful lives range from 15 to 40 years for buildings and building improvements and 5 to 20 years for equipment. 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. Interest cost incurred on borrowed funds during the period of construction of major capital assets is capitalized as a component of the cost of acquiring those assets.

Intangible Assets
Goodwill, representing the excess of cost over assets acquired in the 1996 statutory merger of the Presbyterian Medical Center into PPMC, was $52,850,000. The remaining balance of $24,888,000 is included in other assets in the accompanying combined balance sheets. As noted below, goodwill is no longer subject to amortization. UPHS performs an annual impairment test of the PPMC reporting unit during the second quarter of the fiscal year. The calculation compares the reporting unit's carrying value to its fair value that is calculated using a discounted cash flow approach, which incorporates market participant data. In addition to the annual impairment test, additional evaluations will be done if circumstances exist that may lead to impairment. There were no goodwill impairments during 2019 or 2018.

Long-Lived Assets
UPHS continually evaluates whether events and circumstances have occurred that indicate the remaining estimated useful life of long-lived assets may warrant revision or that the remaining balance may not be recoverable. When factors indicate that long-lived assets should be evaluated for possible impairment, UPHS uses an estimate of the related discounted operating income over the remaining life of the long-lived asset in measuring whether the long-lived asset is recoverable. An impairment loss on these assets is measured as the excess of the carrying amount of the asset over its fair value. Fair value is based on market prices when available, or discounted cash flows.

Deferred Financing Fees
Deferred financing fees at June 30, 2019 and 2018, totaling $12,691,000 and $13,244,000, respectively are amortized using the effective interest method over the life of the related debt.

Self-Insurance
UPHS accrues for estimated risks arising from both asserted and unasserted medical professional and workers' compensation claims based on historical claims data utilized by an independent actuary.

Split-Interest Agreements
UPHS' split-interest agreements with donors consist primarily of irrevocable charitable perpetual trusts and charitable lead trusts. Assets are invested and payments are made to donors and/or other beneficiaries in accordance with the respective agreements.

2. **Significant Accounting Policies (continued)**

Perpetual trust assets are initially valued at the current market value of the underlying assets using observable market inputs based on its beneficial interest in the trust. The initially contributed assets are categorized as a Level 3 measurement in the fair value hierarchy and are reported as investments, at fair value on the combined balance sheets and as contribution revenue on the combined statements of operations. Subsequent valuation follows this same approach with changes in fair value reported as an adjustment to donor-restricted investments, net on the combined statements of changes in net assets.

Charitable remainder trust assets, where UPHS does not serve as the trustee, are initially valued using the current fair value of the underlying assets, using observable market inputs based on its beneficial interest in the trust, discounted to a single present value using current market rates at the date of the contribution. The initially contributed assets are categorized as Level 3, and reported as Investments, at fair value on the combined balance sheet and as contribution revenue on the combined statements of operations. Subsequent valuation follows this same approach with changes in fair value reported as an adjustment to donor-restricted investments, net on the combined statements of changes in net assets.

Net Assets

Net assets are classified for accounting and financial reporting purposes into two net asset categories according to donor imposed restrictions, if any. A description of the two net asset categories is as follows:

Without donor restrictions – includes net assets that are available for the support of operations and whose use is not donor-restricted, although their use may be limited by other factors such as by contract or board designation.

With donor restrictions – includes net assets that are (i) subject to legal or donor-imposed restrictions that will be met by actions of UPHS and/or the passage of time, and (ii) the original values of donor restricted net assets, the use of which is limited to investment and can only be appropriated for expenditure by UPHS in accordance with the Pennsylvania Uniform Principal and Income Act (Pennsylvania Act).

2. Significant Accounting Policies (continued)

Interest Rate Exchange Agreements

The Health System enters into interest rate swap agreements to synthetically modify the interest rate terms of its long term debt. The agreements are not entered into for trading or speculative purposes. Fair value of interest rate swap agreements are obtained by quotes from Merrill Lynch, which is based on the income approach that uses observable market data to discount future net payment streams. The quote provided by Merrill Lynch also represents the amount the Health System would accept or be required to pay to transfer the agreement to Merrill Lynch, or exit price as defined by *Fair Value Measurements*. The Health System verifies the reasonableness of the quote provided by Merrill Lynch by comparing it to a similar quote from a swap adviser and the results of similar observable inputs used in a pricing model. The Health System also assesses the risk of nonperformance by reviewing bond ratings, and accordingly considers the agreements to be Level 2 measurements in the fair value hierarchy. The Health System has recognized an asset of $1,469,000 and $1,292,000 and liability of $6,371,000 and $4,799,000 as of June 30, 2019 and June 30, 2018, respectively, which represents the fair market value of the swaps. Gains/(losses) on the interest rate swap agreements are recorded as non-operating gain/(loss) and the interest component of the swaps are recorded as interest expense in the combined statements of operations.

	Merrill Lynch/ Bank of America	Merrill Lynch/ Bank of America	Merrill Lynch/ Bank of America
Notional amount	$ 17,950,000	$ 17,950,000	$ 22,175,000
Trade date	7/15/2009	1/7/2010	7/28/2006
Maturity date	8/15/2023	8/15/2023	7/1/2041
Rate:			
Receive	3.184%	2.902%	70% of 1-Month LIBOR
Pay	SIFMA	SIFMA	3.980%
Default optional termination at market value	Default by UPHS	Default by UPHS	Default by UPHS
Optional termination at market value	UPHS Only	UPHS Only	UPHS Only
Collateral threshold	AAA/Aaa = Infinite	AAA/Aaa = Infinite	AAA/Aaa = Infinite
	AA(+/-) / Aa(1,2,3) = $40M	AA(+/-) / Aa(1,2,3) = $40M	AA(+/-) / Aa(1,2,3) = $40M
	A(+/-) / A(1,2,3) = $20M	A(+/-) / A(1,2,3) = $20M	A(+/-) / A(1,2,3) = $20M
	A(+/-) / A(1,2,3) = $20M	A(+/-) / A(1,2,3) = $20M	A(+/-) / A(1,2,3) = $20M
	A(+/-) / A(1,2,3) = $20M	A(+/-) / A(1,2,3) = $20M	A(+/-) / A(1,2,3) = $20M
	BBB+ / Baa1 = $10M	BBB+ / Baa1 = $10M	BBB+ / Baa1 = $10M
	BBB or below = None	BBB or below = None	BBB or below = None

Participation in Partnerships

To further its mission, UPHS participates in several partnerships, which are accounted for under either the cost or equity methods of accounting. If UPHS owns less than 20%, the investment is accounted for using the cost method and if over 20% up to 50% the investment is accounted for using the equity method. These investments are recorded in Other Assets on the combined balance sheets. For partnerships that make routine cash distributions, which UPHS has determined are central to its operations and mission, the equity share of income/(loss) is recorded in Other Revenue. Those significant investments are summarized below. All other equity income/(loss) from partnerships are recorded as a component of Net Realized Gain, Contributions and Other Support.

2. **Significant Accounting Policies (continued)**

UPHS has a 30% interest in Good Shepherd Penn Partners, a venture and strategic alliance that provides post-acute medical care in eastern Pennsylvania. The investment is accounted for by utilizing the equity method.

UPHS has a 50% interest in Lancaster Behavior Health Hospital LLC, which provides adult and adolescent inpatient care for those suffering from severe depression, anxiety, or other mood disorders. The investment is accounted for by utilizing the equity method.

UPHS has a 50% interest in Lancaster Rehabilitation Hospital which serves intensive inpatient physical rehabilitation following strokes, trauma or other healthcare problems that result in severe disabilities. The investment is accounted for by utilizing the equity method.

UPHS has a 50% interest in Physicians' Surgery Center Lancaster General LLC, which is a modern outpatient surgery center located in the city of Lancaster, Pennsylvania. The investment is accounted for by utilizing the equity method.

UPHS has a 49% interest in Virtual Penn Radiation Oncology Partners LLC, a venture and strategic alliance that provides radiation and oncology physician services in southern New Jersey. The investment is accounted for by utilizing the equity method.

Excess of Revenues Over Expenses
The combined statements of operations include excess of revenue over expenses. Changes in net assets without donor restriction which are excluded from excess of revenue over expenses, consistent with industry practice, include the change in unrealized gains and losses on investments other than trading securities, permanent transfers of assets to and from the PSOM other than for goods and services, net assets released from restrictions for capital, and pension related changes other than net periodic pension cost.

Transfers Between UPHS Entities
All significant inter-entity accounts and transactions are eliminated in combination.

New Accounting Pronouncements
In March 2017, the FASB issued a standard on Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost. Historically, net benefit cost is reported as an employee cost within Excess of revenue over expenses from operations (or capitalized into assets when appropriate.) This standard required the bifurcation of net benefit cost, as follows: service cost will continue to be reported in Employee benefits, while the remaining components of net benefit cost will be reported in Net realized gain/(loss), contributions and other support, net. This standard is effective for fiscal years beginning after December 15, 2019. UPHS early adopted this standard for fiscal year 2018.

In August 2016, the FASB issued a standard on the Presentation of Financial Statements of Not-for-Profit Entities. The new guidance requires improved presentation and disclosures to help not-for-profits provide more relevant information about their resources to donors, grantors, creditors and other users. UPHS adopted this standard for fiscal year 2019, on a retrospective basis. Prior year amounts for Temporarily restricted and Permanently restricted net assets were combined as Net assets with donor restrictions.

2. Significant Accounting Policies (continued)

In May 2014, the FASB issued a standard on Revenue from Contracts with Customers. This standard implements a single framework for recognition of all revenue earned from customers. This framework ensures that entities appropriately reflect the consideration to which they expect to be entitled in exchange for goods and services by allocating transaction price to identified performance obligations and recognizing revenue as performance obligations are satisfied. Qualitative and quantitative disclosures are required to enable users of financial statements to understand the nature, amount, timing, and uncertainty of revenue and cash flows arising from contracts with customers. UPHS adopted this standard for fiscal year 2019 using the retrospective method and elected the practical expedient to apply to contracts not yet completed as of the beginning of the fiscal year. The adoption of this standard did not materially impact the UPHS' results of operations or financial position.

In February 2016, the FASB issued a standard on Leases. This standard requires lessees to recognize assets and liabilities for the rights and obligations created by leases with terms in excess of 12 months. The recognition, measurement, and presentation of expenses and cash flows arising from a lease will primarily depend on its classification as a finance or operating lease. The accounting by lessors remains largely unchanged. This standard is effective for fiscal years beginning after December 15, 2018. UPHS is evaluating the impact this will have on the combined financial statements beginning in fiscal year 2020.

In November 2016, the FASB issued a standard on Restricted Cash. This standard requires that the Combined Statement of Cash Flows explain the change during the period in the total of cash, cash equivalents, restricted cash and restricted cash equivalents ("Total Cash"). Additionally, a disclosure describing the nature of the restrictions and a reconciliation of Total Cash to the amounts of Cash and cash equivalents presented on the Combined Statement of Financial Position is required. The standard is effective for fiscal year 2020.

Net Patient Service Revenue
UPHS reports revenues generally related to contracts with patients in which our performance obligations are to provide health care services to the patients. Net patient service revenues are recorded over time during the period our obligations to provide health care services are rendered and at the estimated net realizable amounts from patients, third-party payers and others in exchange for their service.

UPHS has agreements with third-party payers that provide for payments at amounts different from its established rates. Payment arrangements include prospectively determined rates per discharge, reimbursed costs, discounted charges and per diem payments. Estimates of contractual allowances, under managed care plans, which represent explicit price concessions under ASC 606, are based upon the payment terms specified in the related contractual agreements. A summary of the payment arrangements with major third-party payers is as follows:

- Medicare: Inpatient acute care services and outpatient services rendered to Medicare program beneficiaries are paid at prospectively determined rates. These rates vary according to a patient classification system that is based on clinical, diagnostic, and other factors. Inpatient psychiatric services and medical education costs related to Medicare beneficiaries are paid based on a cost reimbursement methodology. UPHS is reimbursed for cost reimbursable items at a tentative rate with final settlement determined after submission of annual cost reports by each hospital and audits thereof by the Medicare fiscal intermediary.

2. Significant Accounting Policies (continued)

- Medicaid: Inpatient and outpatient services rendered to Medicaid program beneficiaries are paid at prospectively determined rates. Additional amounts are allocated to each hospital for training residents and serving a disproportionate indigent population.

- Commercial: UPHS also has reimbursement agreements with certain commercial insurance carriers, health maintenance organizations and preferred provider organizations. The basis for reimbursement under these agreements includes prospectively determined rates per discharge, discounts from established charges, and prospectively determined per diem rates.

Medicare and Medicaid
Revenue from the Medicare and Medicaid programs accounted for approximately 34% and 10%, respectively, of Health System's hospital Net patient service revenue for the year ended 2019, and 31% and 11%, respectively, of the Health System's Net patient service revenue, for the year ended 2018. Laws and regulations governing the Medicare and Medicaid programs are extremely complex and subject to interpretation. As a result, there is at least a reasonable possibility that recorded estimates will change by a material amount in the near term. Certain revenue received for third party payers is subject to audit and retrospective adjustments.

Final adjustments resulting from settlements with third-party payers are recorded in the year in which they are settled. The amount was an increase of $15,825,000 and $26,611,000 to net patient service revenue in 2019 and 2018, respectively, as a result of final settlements and the revision or removal of reserves previously estimated that were no longer necessary.

Self-Pay and Other Adjustments to Revenues
Under ASC 605, the provision for bad debt expense was based on management's assessment of expected net collections considering economic conditions, historical experience, trends in health care coverage and other collection indicators. Periodically throughout the fiscal year, management assessed the adequacy of the allowance for uncollectible accounts based upon historical collection rates by payer category, changes in applicable laws, rules and regulations and contract terms, including patients not covered by insurance. The results of this review were then used to make any modifications to the provision for bad debt expense to establish an appropriate allowance for uncollectible accounts. Under ASC 606, similar process and methodologies are considered using the portfolio approach. The portfolio approach combines similar classes of accounts into groups for assessment. Management does not expect a material difference between the portfolio approach and considering each account separately. These revenue adjustments, or implicit price concessions, are now recorded when patient service revenues are recognized. After satisfaction of amounts due from insurance and reasonable efforts to collect from the patient have been exhausted, UPHS follows established guidelines for placing certain past-due patient balances with collection agencies, subject to terms of certain restrictions on collection efforts as determined by UPHS. Account receivables are written off after collection efforts have been followed in accordance with UPHS' policy.

2. Significant Accounting Policies (continued)

In accordance with ASC 606, the impact of the adoption of the new standard is described in the following table:

(amounts in thousands)	Twelve months ended June 30, 2019		
	As Reported	Balances Without Adoption of ASC 606	Effect of Change
Net patient service revenue before provision for bad debts		$ 7,134,078	
Provision for bad debts		(193,101)	
Net patient service revenue	$ 6,940,977	$ 6,940,977	$ -

Medicaid Modernization Program

On July 3, 2010, the Pennsylvania General Assembly passed the Public Welfare Code amendment (Act 49) which was signed into law by the Governor, establishing a new program referred to as Medicaid Modernization. The program was subsequently approved by the federal Centers for Medicare and Medicaid Services. The program is designed to provide additional funding to Pennsylvania hospitals for the purpose of enhancing access to quality healthcare for qualifying Medicaid beneficiaries, helping to partially mitigate the losses incurred by hospitals resulting from low reimbursement rates. To accomplish this objective, for fiscal years 2011 through 2018, the program provides participating hospitals with improved inpatient fee-for-service hospital payments, establishes enhanced hospital payments through Medicaid managed care organizations (MCOs), and secures additional federal matching Medicaid funds through a Quality Care Assessment, under which hospitals pay the state a percentage of their net inpatient revenue. After deducting the cost of the assessment due to the state, UPHS recognized additional revenues over expenses of $30,844,000 in fiscal year 2019 and $26,671,000 in fiscal year 2018 from the Pennsylvania Medicaid Modernization program.

Third Party Agreements

During 2017, UPHS and Independence Blue Cross (IBC) reached an agreement on terms of a new five-year agreement and continuing unless terminated by the parties. Payments made for inpatient services provided to IBC traditional and managed care subscribers are effected on a per case rate basis for most services. Payment for outpatient services is principally based upon negotiated fee schedules. Hospital and physician rates also provide for annual inflationary increases. In addition, incentives are paid for high performance with regard to clinical outcomes and patient quality.

During 2015, UPHS and Aetna reached agreement on terms of a new five-year agreement. The terms of the new agreement provide payments for inpatient hospital services on a per case rate basis. Payments for outpatient services continue to be predominantly based upon negotiated fee schedules.

2. Significant Accounting Policies (continued)

Endowments

The Commonwealth of Pennsylvania has not adopted the Uniform Management of Institutional Funds Act (UMIFA) or the Uniform Prudent Management of Institutional Funds Act (UPMIFA). Rather, the Pennsylvania Uniform Principal and Income Act (Pennsylvania Act) governs the investment, use and management of the UPHS' endowment funds. The Pennsylvania Act allows a non-profit to elect to spend between 2% and 7% of the endowment market value, determined at least annually and averaged over a period of three or more preceding years.

The Pennsylvania Act does not require the preservation of the fair value of a donor's original gift as of the gift date of a donor-restricted endowment fund, absent explicit donor stipulations to the contrary. However, based on its interpretation of the Pennsylvania Act and relevant accounting literature, UPHS classifies the following as net assets with donor restrictions for reporting purposes: (i) the original value of donated assets required to be invested in perpetuity; (ii) the original value of subsequent donated assets required to be invested in perpetuity; (iii) accumulations to the donated assets invested in perpetuity made in accordance with the direction of the applicable donor gift instrument at the time the accumulation is added to the fund; and (iv) donated assets and accumulations that are subject to legal or donor-imposed restrictions that will be met by actions of the University and/or the passage of time.

UPHS follows the University's endowment spending policy. In accordance with the Pennsylvania Act, the University has elected to adopt and follow an investment policy seeking a total return for the investments held by the AIF, whether the return is derived from appreciation of capital or earnings and distributions with respect to capital or both. The endowment spending policy which the Board of Trustees has elected to govern the expenditure of funds invested in the AIF is designed to manage annual spending levels and is independent of the cash yield and appreciation of investments for the year. For Fiscal Year 2019, the spending rule target payout was based on the sum of: (i) 70% of the prior fiscal year distribution adjusted by an inflation factor; and (ii) 30% of the prior fiscal year-end fair value of the AIF, lagged one year, multiplied by 5.0% for financial aid funds and 5.0% for all other funds.

3. Assets Whose Use Is Limited

Assets whose use is limited at June 30, 2019 and 2018 are set forth in the following table (in thousands):

	2019	2018
Held by trustees		
Debt service		
Cash and cash equivalents	$ 10,503	$ 9,448
Capital project fund		
Cash and cash equivalents	23,815	140,455
Other retirement programs		
Marketable equity securities	92,247	89,946
Other		
Cash and cash equivalents	3,060	1,158
Marketable debt securities	665	-
Marketable equity securities	32,003	31,000
Other	1,305	2,293
	37,033	34,451
Total held by trustees	163,598	274,300
RRG/Captive		
Cash and cash equivalents	174,674	158,832
Other	45,205	48,571
Total RRG Captive	219,879	207,403
Designated		
Cash and cash equivalents	75,976	95,296
Associated Investment Funds (A.I.F)	2,338,368	1,598,137
US Treasury obligations	71,866	49,790
Marketable debt securities	63,705	251,171
Marketable equity securities	91,966	413,138
Notes, mortgages and other	89,157	176,730
Total designated	2,731,038	2,584,262
Donor-restricted		
Cash and cash equivalents	37,570	31,868
Marketable debt securities	882	2,483
Marketable equity securities	120,680	116,287
Associated Investment Funds (A.I.F)	502,212	479,304
Contribution receivable, net	14,357	7,158
Notes, mortgages and other	2,436	11,004
Total donor-restricted	678,137	648,104
Total assets whose use is limited	$ 3,792,652	$ 3,714,069

4. Investments

Investments at June 30, 2019 and 2018 are set forth in the following table (in thousands):

	2019	2018
US Treasury obligations	$ 685,094	$ 642,890
Intermediate investments	-	94,807
Associated Investment Funds (A.I.F)	183,722	152,620
Marketable debt securities	21,856	26,606
Other	210	19,357
	$ 890,882	$ 936,280

5. Fair Value Measurement

Investments, derivative instruments and assets whose use is limited, measured at fair value in accordance with the Fair Value Measurements standard as of June 30, 2019 and 2018 are as follows (in thousands):

	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Investments at NAV	Total 2019
Assets					
Cash and cash equivalents	$ 326,675	$ -	$ -	$ -	$ 326,675
Equity investments					
US equities	212,209	-	-	-	212,209
International equities	26,684	-	-	-	26,684
Debt investments					
US Treasuries and Agencies	733,913	41,860	-	-	775,773
Corporate bonds	1,548	100,536	-	26,849	128,933
Split-interest agreements	-	-	104,287	-	104,287
Absolute return	-	-	-	22,788	22,788
Natural resources	8,006	-	-	12,154	20,160
Private equity	-	-	-	27,366	27,366
	$ 1,309,035	$ 142,396	$ 104,287	$ 89,157	$ 1,644,875
Associated Investment Fund (A.I.F.)					3,024,302
Total: Assets					$ 4,669,177
Liabilities					
Derivative instruments	-	4,902	-	-	4,902
Total: Liabilities	$ -	$ 4,902	$ -	$ -	$ 4,902

	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Investments at NAV	Total 2018
Assets					
Cash and cash equivalents	$ 606,957	$ -	$ -	$ -	$ 606,957
Equity investments					
US equities	290,745	-	-	-	290,745
International equities	164,287	-	-	40,837	205,124
Debt investments					
US Treasuries and Agencies	713,136	42,348	-	-	755,484
Corporate bonds	1,533	152,971	-	99,581	254,085
Split-interest agreements	-	-	104,576	-	104,576
Absolute return	-	-	-	64,178	64,178
Natural resources	39,461	-	-	47,746	87,207
Private equity	-	-	-	44,774	44,774
	$ 1,816,119	$ 195,319	$ 104,576	$ 297,116	$ 2,413,130
Associated Investment Fund (A.I.F.)					2,230,061
Total: Assets					$ 4,643,191
Liabilities					
Derivative instruments	-	3,507	-	-	3,507
Total: Liabilities	$ -	$ 3,507	$ -	$ -	$ 3,507

5. Fair Value Measurement (continued)

Changes to the reported amounts of split interest agreements, measured at fair value using unobservable (Level 3) inputs as of June 30, 2019 and 2018 are all recorded as net unrealized gains and losses. The primary unobservable input used in the fair value measurement of the split interest agreements is the discount rate. Significant fluctuation in the discount rates utilized in this calculation could result in a material change in fair value.

As noted above, UPHS participates in the Associated Investment Fund (A.I.F). At June 30, 2019 and June 30, 2018, UPHS held 22.12% and 18.12% of the total investment fund, respectively. The asset classification for the A.I.F. is as follows (in thousands):

	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Investments at NAV	Total 2019
Assets					
Short term investments	$ 829,956	$ -	$ -	$ -	$ 829,956
Equity investments					
US equities	413,143	-	-	982,622	1,395,765
International equities	164,010	-	-	1,055,871	1,219,881
Emerging market equities	153,435	-	-	1,091,866	1,245,301
Debt securities					
US Treasuries	702,170	-	-	-	702,170
Corporate bonds	-	66	-	-	66
High yield	-	-	-	98	98
Absolute return	-	-	-	3,236,498	3,236,498
Real estate	-	-	-	804,620	804,620
Private equity	-	-	-	3,805,518	3,805,518
Natural resources	149,434	-	-	638,259	787,693
Derivative instruments	-	1,167	-	-	1,167
Total: Assets	$ 2,412,148	$ 1,233	$ -	$ 11,615,352	$ 14,028,733
Less: Liabilities	355,649	7,177	-	-	362,826
	$ 2,056,499	$ (5,944)	$ -	$ 11,615,352	$ 13,665,907

	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Investments at NAV	Total 2018
Assets					
Short term investments	$ 361,818	$ -	$ -	$ -	$ 361,818
Equity investments					
US equities	477,458	-	-	945,701	1,423,159
International equities	189,082	-	-	986,910	1,175,992
Emerging market equities	163,933	-	-	960,603	1,124,536
Debt securities					
US Treasuries	679,350	-	-	-	679,350
Corporate bonds	-	3,169	-	-	3,169
High yield	-	-	-	106	106
Absolute return	-	-	-	3,112,126	3,112,126
Real estate	-	-	-	687,726	687,726
Private equity	-	-	-	3,137,522	3,137,522
Natural resources	222,671	-	-	679,783	902,454
Derivative instruments	-	10,386	-	-	10,386
Total: Assets	2,094,312	13,555	-	10,510,477	12,618,344
Less: Liabilities	289,977	6,428	-	-	296,405
	$ 1,804,335	$ 7,127	$ -	$ 10,510,477	$ 12,321,939

6. Other Assets

Other assets at June 30, 2019 and 2018 are set forth in the following table (in thousands):

	2019	2018
Goodwill, net	$ 24,888	$ 24,888
Certificate of need	22,000	22,000
Other receivables	75,066	75,437
Malpractice receivable	103,777	106,673
Inventory	87,615	74,573
Prepaid expenses	95,050	96,065
Interests in joint ventures	83,243	73,545
Other	35,869	30,592
	527,508	503,773
Less: Current portion	(266,159)	(235,838)
	$ 261,349	$ 267,935

Amortization expense charged to operations totaled $1,091,000 and $800,000 in 2019 and 2018, respectively.

7. Property, Equipment and Accumulated Depreciation

Property, equipment and accumulated depreciation at June 30, 2019 and 2018 are set forth in the following table (in thousands):

	2019	2018
Land and improvements	$ 205,272	$ 200,135
Building and improvements	4,155,662	3,793,989
Fixed and movable equipment	2,188,327	2,089,181
	6,549,261	6,083,305
Accumulated depreciation	(2,974,400)	(2,697,405)
	3,574,861	3,385,900
Construction in progress	1,185,702	717,877
	$ 4,760,563	$ 4,103,777

Depreciation expense for fiscal year 2019 was $331,950,000 and $307,228,000 in fiscal year 2018. Capitalized Interest recorded for fiscal year 2019 was $30,133,000 and $12,924,000 in fiscal year 2018.

8. Long-Term Debt

	Final Maturity	Effective Interest Rate at June 30, 2019	2019	2018
Fixed rate debt obligations:				
Lancaster County Hospital Authority (LCHA)				
Series A of 2016 revenue bonds	August 15, 2042	1.04% - 3.52%	$ 160,590	$ 164,540
Series B of 2016 revenue bonds	August 15, 2046	1.43% - 3.58%	128,050	128,050
Pennsylvania Higher Education Facilities Authority (PHEFA)				
Series A of 2017 revenue bonds	August 15, 2047	2.60% - 3.68%	400,000	400,000
Series C of 2016 revenue bonds	August 15, 2041	0.76% - 3.08%	128,730	129,015
Series A of 2015 revenue bonds	August 15, 2045	1.38% - 4.00%	278,975	300,445
Series A of 2012 revenue bonds	August 15, 2042	1.99% - 4.08%	136,360	136,950
Series A of 2009 revenue bonds	August 15, 2021	4.37% - 4.67%	22,780	33,005
Series B of 2008 revenue bonds	August 15, 2037	-	-	52,000
New Jersey Health Care Facilities Financing Authority (NJHCFFA)				
Princeton Healthcare System Series A of 2016	July 1, 2045	1.51% - 3.875%	178,670	183,440
University of Pennsylvania Health System 2017 Taxable Bond	August 15, 2047	4.01%	200,000	200,000
Lancaster General Hospital 2015 Taxable Note	August 15, 2022	2.66%	70,335	72,805
Build-to-suit leases, net of related interest	Various	N/A	75,094	122,860
Line of credit, outstanding balance	April 13, 2022	2.85%	87,000	-
Mortgages, Notes and capital leases	Various	Various	76,312	25,986
Variable rate debt obligations:				
PHEFA Series A of 2014 revenue bonds	August 15, 2045	2.03%	100,000	100,000
PHEFA Series A of 2008 revenue bonds	August 15, 2037	1.90%	69,995	69,995
NJHCFFA Princeton Healthcare System Series B of 2016	July 1, 2045	2.30%	65,000	65,000
NJHCFFA Princeton Healthcare System Series C of 2016	July 1, 2045	2.30%	20,000	20,000
Series A of 2012 revenue bonds	August 15, 2041	-	-	22,775
Total outstanding bonds payable			2,197,891	2,226,866
Unamortized original issue premiums, discounts and debt costs			132,128	145,671
			2,330,019	2,372,537
Current portion of debt obligations			(47,017)	(97,678)
			$ 2,283,002	$ 2,274,859

8. Long-Term Debt (continued)

UPHS Series A of 2017 were issued on December 13, 2017 for $400,000,000. $171.6 million of the funds were used to reimburse UPHS for expenses already incurred in relation to various projects and capital expenditures. $269.2 million of the remaining proceeds, including the issued premium, were deposited in a capital project fund held by trustee to be drawn upon for future capital expenditures. This portion of the financing is reflected as a noncash transaction in the Statement of Cash Flows. Future reimbursements from the capital project fund will be accounted for as a cash inflow from investing activities in the Statement of Cash Flows. The bonds have stated interest rates that range between 3.125% and 5.00%.

UPHS Taxable Health System Bonds of 2017 were issued on December 13, 2017 for $200,000,000. Proceeds of the bonds were used to fund various UPHS projects and capital expenditures. The bonds have a stated interest rate of 4.00%.

UPHS Series A of 2008 Bonds were issued on April 21, 2008. Interest on the bonds is reset weekly through a remarketing process. The bonds are subject to optional redemption by the University, the obligated group agent, on any scheduled Interest Payment Date at a Redemption Price equal to 100% of the principal amount plus accrued interest and option tender by the Holders upon seven days notice. The bonds are enhanced by a renewable direct pay letter of credit issued by Bank of America with an expiration date of April 15, 2023 and UPHS self-liquidity policy.

Each of the Series A, B and C revenue bonds are subject to optional redemption by the University, the obligated group agent, at a redemption price of 100% plus accrued interest on or after specified dates within the agreements.

PHCS Series A, B and C of 2016 were issued on January 20, 2016 for the purpose of refinancing a majority of the outstanding PHCS debt through bond issuance and direct placement obligations.

The PHEFA, LCHA and NJHCFFA Revenue Bonds are collateralized by master notes issued under the UPHS Master Trust Indenture (MTI). The MTI and related agreements contain certain restrictive covenants which limit the issuance of additional indebtedness and among other things, require UPHS to meet an annual debt service coverage requirement of "income available for debt service" (excess of revenue over expenses plus depreciation, amortization, interest expense and extraordinary items) at an amount equal to 110% of the annual debt service requirements. If the coverage requirement for a particular year is not met, within six months of the close of that fiscal year, UPHS must retain the services of a consultant, to make recommendations to improve the coverage requirement. UPHS must also implement the recommendations of the consultant to the extent that they can be feasibly implemented. UPHS will not be considered to be in default of the provisions of the MTI, so long as UPHS has sufficient cash flow to pay total operating expenses and to pay debt service for the fiscal year. The debt service coverage requirement for 2019 and 2018 was met by UPHS. Additionally, UPHS has pledged its gross revenues to collateralize its obligation under the MTI.

UPHS secured a $82,132,000 loan on December 21, 2019 for the sole purpose of funding the development of a new ambulatory building. As of June 30, 2019, $51.6 million had been deposited in an escrow account held by trustee, and is reflected as a noncash transaction in the Statement of Cash Flows. The remaining $30.5 million of the loan will be deposited in the escrow account in scheduled increments through April, 2020. As of June 30, 2019, $27.8 million had been drawn down to reimburse construction costs incurred by UPHS and is accounted for as a cash inflow from investing activities in the Statement of Cash Flows.

8. Long-Term Debt (continued)

UPHS has a mortgage payable that is collateralized by three office buildings of approximately $6,900,000.

In June of 2019, UPHS purchased a building that was originally financed as a build-to-suit lease. The result of the purchase reduced the build-to-suit lease liability by $47,272,000.

UPHS maintains a $100,000,000 line of credit to supplement liquidity and issue letters of credit to cover balances due on construction projects and reinsurance agreements. As of June 30, 2019, there were outstanding balances of $87,000,000 and a zero balance as of June 30, 2018. Letters of credit issued under the line are noted in contingencies and commitments.

A summary of maturities of long-term debt payments for the next five years and thereafter is as follows (in thousands):

	PHEFA	LCHA	NJHCFFA	Other	Total
Fiscal Year					
2020	$ 34,150	$ 4,135	$ 5,010	$ 2,560	$ 45,855
2021	35,830	4,305	5,260	2,582	47,977
2022	28,615	13,075	5,525	2,675	49,890
2023	27,475	16,320	5,800	62,518	112,113
2024	34,220	13,740	6,090	-	54,050
Thereafter	976,550	237,065	235,985	200,000	1,649,600
Total principal	1,136,840	288,640	263,670	270,335	1,959,485
Unamortized original issue premiums, discounts, and debt costs	82,510	32,788	18,148	(1,318)	132,128
Total debt	$ 1,219,350	$ 321,428	$ 281,818	$ 269,017	$ 2,091,613

	Build-to-Suit Lease
Fiscal Year	
2020	$ 6,487
2021	6,649
2022	6,815
2023	6,986
2024	7,160
Thereafter	83,758
Total lease payments	117,855
Less: Amounts representing interest	(42,761)
Present value of future lease payments	$ 75,094

	Mortgages Lines and Capital Leases
Fiscal Year	
2020	$ 1,162
2021	1,058
2022	93,660
2023	503
2024	536
Thereafter	66,393
Total mortgages, notes and capital leases	$ 163,312

9. Transactions with the University of Pennsylvania

UPHS transferred $234,722,000 and $198,394,000 in 2019 and 2018, respectively, to further the research and educational activities of the PSOM. In addition, PSOM support totaling $19,770,000 and $19,844,000, which represents academic operating support to the clinical departments of the PSOM, has been recognized as operating expenses in 2019 and 2018, respectively. These activities are integral to the overall Penn Medicine mission and are reported as expenses and transfers in the combined financial statements.

Certain University expenses, such as a portion of the salaries of the PSOM faculty, qualify for reimbursement by third-party payers. Reimbursement for these costs is claimed by UPHS, and recognized as other operating revenue by CPUP and the PSOM.

Due to/(from) the University of Pennsylvania reflects the net balance resulting from transactions conducted between UPHS and the University (primarily inter-entity billings for allocation of common costs, physician salaries and benefits, certain purchased services, and support for the PSOM). UPHS transferred $5,671,000 in 2019 and $4,874,000 in 2018 to the University. The amounts outstanding at June 30, 2019 and 2018 represented normal current inter-entity activity.

10. Net Assets

The major components of net assets at June 30, 2019 and 2018 are as follows (in thousands):

	2019		
	Without Donor Restriction	With Donor Restriction	Total
General operating	$ 2,319,743	$ 63,965	$ 2,383,708
Capital	-	21,325	21,325
Endowment			
Quasi	2,914,257	-	2,914,257
Donor restricted	-	602,486	602,486
	$ 5,234,000	$ 687,776	$ 5,921,776

	2018		
	Without Donor Restriction	With Donor Restriction	Total
General operating	$ 2,381,882	$ 50,928	$ 2,432,810
Capital	-	16,976	16,976
Endowment			
Quasi	2,755,629	-	2,755,629
Donor restricted	-	589,597	589,597
	$ 5,137,511	$ 657,501	$ 5,795,012

11. Net Assets with Donor Restriction

Net assets with donor restriction are those whose use by UPHS has been limited by donors for the following purposes (in thousands):

	2019	2018
Specific purpose (i.e., departmental room funds)	$ 85,290	$ 67,904
Endowment - held by others and fair value adjustments	495,272	489,968
Endowment - original cost basis	107,214	99,629
	$ 687,776	$ 657,501

Changes to the reported amounts of the UPHS' endowments and split interests as of June 30, 2019 and June 30, 2018 are as follows (in thousands):

	2019		
	Without Donor Restriction	With Donor Restriction	Total
Endowments and split interests at June 30, 2018	$ 2,755,629	$ 589,597	$ 3,345,226
Investment return	158,058	27,175	185,233
New gifts	772	7,585	8,357
Allocation of AIF assets for expenditure	(114,723)	-	(114,723)
Other investment allocations	(1,129)	-	(1,129)
Transfers to create Board designated funds	93,779	-	93,779
Other transfers	3,548	(3,548)	-
Released from restriction	18,323	(18,323)	-
Endowments and split interests at June 30, 2019	$ 2,914,257	$ 602,486	$ 3,516,743

	2018		
	Without Donor Restriction	With Donor Restriction	Total
Endowments and split interests at June 30, 2017	$ 2,303,595	$ 531,387	$ 2,834,982
Investment return	289,147	59,132	348,279
New gifts	-	1,190	1,190
Allocation of AIF assets for expenditure	(83,743)	-	(83,743)
Other investment allocations	(1,494)	-	(1,494)
Princeton Healthcare Systems membership substitution	163,024	18,416	181,440
Other transfers	64,572	-	64,572
Released from restriction	20,528	(20,528)	-
Endowments and split interests at June 30, 2018	$ 2,755,629	$ 589,597	$ 3,345,226

At June 30, 2019 and 2018, there were no material donor-restricted endowment funds for which the fair value of assets was less than the level required by donor stipulations or law.

12. Pension and Postretirement Benefit Costs

Retirement benefits are principally provided to active employees through a combination of qualified and non-qualified defined contribution plans (DC). The UPHS policy with respect to its DC Plan contribution is up to 6.5% of eligible employee salaries and contributions amounted to $77,935,000 and $71,992,000 in 2019 and 2018, respectively.

UPHS also has several non-contributory partially and fully frozen defined benefit (DB) pension plans. Benefits under the plans generally are based on the employee's years of service and compensation during the years preceding retirement. Contributions to the plans are made in amounts necessary to at least satisfy the minimum required contributions as specified in the Internal Revenue Service Code and related regulations. UPHS' primary plan was frozen to new entrants effective July 1, 2010; the benefit accruals for all participants of the LGH and PHCS plans were frozen effective June 30, 2013 and December 31, 2011, respectively.

Additionally, UPHS provides healthcare and life insurance benefits (Other Postretirement Employee Benefits or OPEB), while LGH provides only life insurance for retirees prior to January 1, 2012. Only a limited number of employees may become eligible for such benefits if they reach retirement age while working for some UPHS entities. These and similar benefits for active and certain retired employees are provided through insurance contracts.

During the period from March 2018 through July 2018, 3,394 terminated vested participants in the UPHS and LGH DB plans were fully paid out their pension benefits as part of a one-time vested termination cashout offering (VTCO), with the exception of Princeton. The PBO and ABO as of June 30, 2018 reflect the pay-out of benefits for these participants. Total lump sum payments from the VTCO were $156,928,000, which was $115,878,000 for UPHS and $41,050,000 for LG plans. The amount of lump sum payouts during the fiscal year did not exceed the sum of fiscal 2018 service cost plus interest cost for the UPHS plan. Therefore, settlement accounting was not required for fiscal 2018. However, for the LGH plan, the amount of lump sum payouts during the fiscal year did exceed the sum of fiscal 2018 service cost plus interest cost for the UPHS plan, so settlement accounting was required for that plan.

UPHS uses a measurement date of June 30 for their defined benefit and postretirement health care benefit plans.

12. Pension and Postretirement Benefit Costs (continued)

Change in Plan Assets/ Obligation and Funded Status

The funded status of the plans is measured as the difference between the plan assets at fair value and the PBO for Pension Benefits or accumulated postretirement benefit obligation (APBO) for Other Postretirement Benefits. The resulting net liability is recorded in Pension and post-retirement benefit liability on the Combined Balance Sheets. The following shows changes in the benefit obligation, plan assets and funded status (in thousands):

	June 30					
	Pension Benefits		Other Postretirement Benefits		Total	
	2019	2018	2019	2018	2019	2018
Change in Benefit Obligation						
Benefit obligation at end of prior year	$3,059,991	$2,995,855	$ 146,801	$ 160,188	$3,206,792	$3,156,043
Service costs	65,996	67,022	2,277	2,739	68,273	69,761
Interest costs	128,493	127,061	6,062	6,239	134,555	133,300
Retiree drug subsidy	N/A	N/A	110	87	110	87
Plan participants' contributions	N/A	N/A	610	562	610	562
Plan amendments	N/A	N/A	N/A	N/A	N/A	N/A
Plan curtailments	N/A	N/A	N/A	N/A	N/A	N/A
Net transfer in/(out)	-	167,552	N/A	N/A	-	167,552
Net actuarial (gain)/loss	309,053	(61,596)	1,592	(15,221)	310,645	(76,817)
Benefits paid from fund	(90,356)	(235,903)	(72)	(67)	(90,428)	(235,970)
Benefits paid directly by company	N/A	N/A	(8,458)	(7,726)	(8,458)	(7,726)
Benefit obligation at end of year	$ 3,473,177	$ 3,059,991	$ 148,922	$ 146,801	$ 3,622,099	$ 3,206,792
Accumulated benefit obligation	$3,087,834	$2,726,358	$ -	$ -	$3,087,834	$2,726,358

	June 30					
	Pension Benefits		Other Postretirement Benefits		Total	
	2019	2018	2019	2018	2019	2018
Change in Plan Assets						
Fair value of plan assets at beginning of year	$ 2,339,244	$ 2,131,107	$ -	$ -	$ 2,339,244	$ 2,131,107
Actual return on assets	105,623	200,905	-	-	105,623	200,905
Company contributions	85,428	103,344	7,809	7,144	93,237	110,488
Retiree drug subsidy	-	-	110	87	110	87
Plan participants' contributions	-	-	610	562	610	562
Benefits paid from fund	(90,356)	(235,903)	(72)	(67)	(90,428)	(235,970)
Benefits paid directly by company	-	-	(8,457)	(7,726)	(8,457)	(7,726)
Acquistions	-	139,791	-	-	-	139,791
Fair value of plan assets at end of year	$ 2,439,939	$ 2,339,244	$ -	$ -	$ 2,439,939	$ 2,339,244
Funded Status						
Projected benefit obligation/accumulated postretirement benefit obligation	$ (3,473,177)	$ (3,059,991)	$ (148,922)	$ (146,801)	$ (3,622,099)	$ (3,206,792)
Plan assets at fair value	2,439,939	2,339,244	-	-	2,439,939	2,339,244
Funded status at end of year	$ (1,033,238)	$ (720,747)	$ (148,922)	$ (146,801)	(1,182,160)	(867,548)
Other retirement programs					(92,246)	(89,946)
Total accrued retirement benefits					(1,274,406)	(957,494)
Less: current portion included in Accrued expenses					8,339	8,320
Pension and post-retirement benefit liability					$ (1,266,067)	$ (949,174)

12. Pension and Postretirement Benefit Costs (continued)

Net Periodic Benefit Cost

The components of the net periodic benefit cost for pension benefits and other postretirement benefits are as follows (in thousands):

	June 30					
	Pension Benefits		Other Postretirement Benefits		Total	
	2019	2018	2019	2018	2019	2018
Service cost	$ 65,996	$ 67,022	$ 2,277	$ 2,739	$ 68,273	$ 69,761
Interest cost	128,493	127,061	6,062	6,239	134,555	133,300
Expected return on plan assets	(154,983)	(162,050)	-	-	(154,983)	(162,050)
Settlement/Curtailment	-	764	-	-	-	764
Amortization of						
Net prior service cost (credit)	-	-	(387)	(387)	(387)	(387)
Net losses (gains)	27,707	34,871	219	495	27,926	35,366
Net periodic benefit cost	$ 67,213	$ 67,668	$ 8,171	$ 9,086	$ 75,384	$ 76,754

Net Assets Without Donor Restriction

UPHS recorded the following year-end valuation adjustments to its Pension and Other Postretirement Benefit Plans in the Pension and other postretirement plans adjustments in the Combined Statements of Operations (in thousands):

	June 30					
	Pension Benefits		Other Postretirement Benefits		Total	
	2019	2018	2019	2018	2019	2018
Net assets without donor restriction						
Net actuarial loss	$ (860,291)	$ (529,586)	$ (6,535)	$ (5,162)	$ (866,826)	$ (534,748)
Net prior service (cost) / credit	-	-	2,759	3,146	2,759	3,146
Accumulated net assets without donor restriction	(860,291)	(529,586)	(3,776)	(2,016)	(864,067)	(531,602)
Adjustment to net assets without donor restriction	$ 330,705	$ (136,086)	$ 1,760	$ (15,726)	$ 332,465	$ (151,812)

The estimated amounts that will be amortized from net assets without donor restriction in net periodic benefit cost in 2020 are as follows (in thousands):

	Pension Benefits	Other Postretirement Benefits
Amortization of prior service credit	$ -	$ (387)
Amortization of net losses	48,713	250

12. Pension and Postretirement Benefit Costs (continued)

Actuarial Assumptions

The expected long-term rate of return on plan assets is management's best estimate of the average investment return expected to be received on the assets invested in the plan over the benefit period. The expected long-term rate of return on plan assets has been established by considering historical and future expected returns of the asset classes invested in by the pension trust, and the allocation strategy currently in place among those classes.

	Pension Benefits		Other Postretirement Benefits	
	2019	2018	2019	2018
Weighted-average assumptions used to determine benefit obligation at year end				
Discount rate	3.70 %	4.27 %	3.59 %	4.25 %
Rate of compensation increase	4.00	4.00	4.00	4.00
Weighted-average assumptions for net periodic benefit cost				
Discount rate	4.27 %	4.38 %	4.25 %	4.00 %
Expected long-term return on plan assets	7.42	7.94	N/A	N/A
Rate of compensation increase	4.00	4.00	4.00	4.00
Assumed health care trend rates				
Health care cost trend rate assumed for next fiscal year (pre-65/post-65)			5.90%/6.40%	6.20%/6.70%
Rate to which the cost trend rate is assumed to decline (the ultimate trend rate)			4.50%	4.50%
Ultimate trend rate is reached in fiscal year			2038	2038
Medicare Part B trend rate assumed for next fiscal year			5.40%	5.50%
Ultimate trend rate			4.50%	4.50%
Ultimate trend rate is reached in fiscal year			2038	2038
Assumed prescription drug trend rates at June 30				
Health care cost trend rate assumed for next fiscal year			7.70%	8.50%
Rate to which the cost trend rate is assumed to decline (the ultimate trend rate)			4.50%	4.50%
Ultimate trend rate is reached in fiscal year			2038	2038

Assumed health care cost trend rates have a significant effect on the amounts reported for the other postretirement benefits. A one-percentage-point change in assumed health care trend rates would have the following effects on other postretirement benefits (in thousands):

	One-Percentage Point Increase		One-Percentage Point Decrease	
	2019	2018	2019	2018
Effect on total service and interest cost	$ 393	$ 453	$ (342)	$ (390)
Effect on accumulated postretirement benefit obligation	$ 8,381	$ 8,876	$ (7,312)	$ (7,742)

Expected Contributions

UPHS expects to contribute $122,480,000 and $8,404,000 for pension benefits and other postretirement benefits, respectively, during the fiscal year ending June 30, 2020.

12. Pension and Postretirement Benefit Costs (continued)

Expected Benefit Payments (in thousands):

	Pension Benefits	Other Post Retirement Benefit Before Medicare Part D Subsidy	Medicare Part D Subsidy
Actual for the year ending			
June 30, 2018	$ 235,903	$ 7,794	$ (87)
June 30, 2019	90,356	8,531	(110)
Expected for the year ending			
June 30, 2020	111,401	9,202	(157)
June 30, 2021	115,212	9,672	(162)
June 30, 2022	122,785	10,033	(167)
June 30, 2023	131,026	10,419	(170)
June 30, 2024	139,631	10,679	(173)
June 30, 2025 to June 30, 2029	815,484	51,373	(900)

Plan Assets

The principal investment objectives for the pension plans are: to ensure the availability of funds to pay pension benefits as they become due under a broad range of future economic scenarios; to maximize long-term investment returns with an acceptable level of risk based on the pension obligations; and to invest the pension trust in a diversified manner.

UPHS uses the University Office of Investments to manage the day-to-day activities of the investments of the pension. The investments are made in accordance with policies set out by the Investment Board which has been appointed by the Trustees. The pension benefit investments are similar in nature to those investments discussed in Note 2 – Significant Accounting Policies. However, the actual allocations to specific investments within each asset class may vary due to certain restrictions imposed by investment managers and ERISA regulations.

12. Pension and Postretirement Benefit Costs (continued)

A summary of plan assets, measured at fair value, as of June 30, 2019 and 2018 is as follows (in thousands):

	Level 1	Level 2	Level 3	Investments at NAV	2019
Assets					
Short-term investments	$ 61,240	$ -	$ -	$ -	$ 61,240
Equity investments					
US equities	220,083	459	-	149,124	369,666
International equities	119,573	-	-	210,448	330,021
Emerging markets equities	175	-	-	146,958	147,133
Debt investments					
US Treasuries	224,475	7,699	-	-	232,174
Corporate bonds	85,863	79,911	-	178,772	344,546
Absolute return	-	-	-	525,155	525,155
Real estate	-	-	-	55,230	55,230
Private equity	2,611	-	-	221,968	224,579
Natural resources	60,520	-	-	89,927	150,447
	$ 774,540	$ 88,069	$ -	$ 1,577,582	$ 2,440,191
Liabilities					
Derivative instruments					
Options	$ -	$ 252	$ -	$ -	$ 252
	$ -	$ 252	$ -	$ -	$ 252

	Level 1	Level 2	Level 3	Investments at NAV	2018
Assets					
Short-term investments	$ 47,131	$ -	$ -	$ -	$ 47,131
Equity investments					
US equities	280,800	328	-	138,298	419,426
International equities	139,466	-	-	228,352	367,818
Emerging markets equities	5,826	-	-	128,612	134,438
Debt investments					
US Treasuries	173,761	8,400	-	-	182,161
Corporate bonds	36,829	79,663	-	154,097	270,589
Absolute return	13,335	-	-	496,797	510,132
Real estate	-	-	-	40,149	40,149
Private equity	3,868	-	-	179,116	182,984
Natural resources	92,372	1,059	-	91,116	184,547
Derivative instruments					
Forward currency contracts	-	59	-	-	59
	$ 793,388	$ 89,509	$ -	$ 1,456,537	$ 2,339,434
Liabilities					
Derivative instruments					
Forward currency contracts	$ -	$ 1	$ -	$ -	$ 1
Options	-	189	-	-	189
	$ -	$ 190	$ -	$ -	$ 190

12. Pension and Postretirement Benefit Costs (continued)

As of June 30, 2019, UPHS has unfunded commitments to limited partnerships totaling $299,869,000, which are expected to be called over the next several years.

Transfers between leveled assets are based on the actual date of the event which caused the transfer. As of June 30, 2019 and 2018 there were no transfers between Level 1 and 2.

Allocation of Plan Assets:

	Pension Benefits		
	Target	2019	2018
Short-term investments	0.0 %	2.5 %	2.0 %
Equity investments			
US equities	13.2 %	15.2 %	17.9 %
International equities	13.9 %	13.5 %	15.7 %
Emerging markets equities	6.2 %	6.0 %	5.7 %
Debt investments			
US Treasuries	20.6 %	9.5 %	7.8 %
Corporate bonds	3.5 %	14.1 %	11.6 %
Absolute return	23.3 %	21.5 %	21.8 %
Real estate	2.1 %	2.3 %	1.7 %
Private equity	9.0 %	9.2 %	7.8 %
Natural resources	8.2 %	6.2 %	7.9 %
	100.0 %	100.0 %	100.0 %

13. Net Patient Revenue by Payer

	2019	2018
Medicare (including Managed Medicare)	34 %	31 %
Medicaid (including Managed Medicaid)	10	11
Managed care	35	37
Blue cross	16	17
Commercial	4	3
Self pay	1	1
	100 %	100 %

14. Concentrations of Credit Risk

UPHS grants credit without collateral to its patients, most of whom are local residents and are insured under third–party payer agreements. The mix of receivables from patients and third-party payers at June 30, 2019 and 2018, respectively, is as follows:

	2019	2018
Medicare	18 %	15 %
Medicaid	1	2
Managed care (including Managed Medicare and Medicaid)	47	49
Blue cross	13	12
Commercial	14	14
Self pay	7	8
	100 %	100 %

15. Lease Commitments

Expenses for equipment and office space under operating leases during 2019 and 2018 were $82,611,000 and $81,003,000, respectively, and are included in the accompanying combined financial statements.

A summary of future minimum payments under operating leases at June 30, 2019, is as follows (in thousands):

2020	$ 73,773
2021	62,326
2022	56,579
2023	48,418
2024	45,397
Thereafter	217,398
	$ 503,891

16. Medical Professional Liability Claims

UPHS is insured for medical professional liability claims through the combination of the Medical Care Availability and Reduction of Error Fund (Mcare - formally the Medical Professional Liability Catastrophe Loss Fund of the Commonwealth of Pennsylvania - CAT Fund), various commercial insurance companies, and risk retention programs.

Mcare levies health care provider surcharges, as a percentage of the Pennsylvania Joint Underwriters Association (JUA) rates for basic coverage, to pay claims and pay administrative expenses of the Mcare participants. These surcharges are recognized as expenses in the period incurred. In March 2002, the Pennsylvania General Assembly approved reforming the Commonwealth's medical malpractice insurance system. Mcare operates on a pay-as-you-go basis and no provision has been made for any future Mcare assessments in the accompanying combined financial statements, as UPHS' portion of the unfunded Mcare liability cannot be estimated.

UPHS retains insurance for primary and excess coverage, in addition to the self-insured amounts. The coverage provided by the captive is done through its purchase of commercial insurance. The excess professional liability coverage is provided on a claim-made basis.

UPHS funded RRG/Captive and Lancaster General Insurance Company, Ltd. (LGI), for purposes of administering its risk retention program and covering its primary layer exposures. The assets and respective liabilities of risk retentions groups are included in the accompanying combined financial statements.

UPHS accrues for estimated retained risks arising from both asserted and unasserted medical professional liability claims. UPHS has employed independent actuaries to estimate the ultimate costs, if any, of the settlement of these claims. The estimate of the gross liability and corresponding receivable for unasserted claims arising from unreported incidents is based on analysis of historical claims data by an independent actuary, which is recorded utilizing a 2.25% to 3.50% discount rate at June 30, 2019 and June 30, 2018. Total liability under this program is approximately $732,389,000 and $734,383,000 with a corresponding receivable of $103,777,000 and $106,673,000 at June 30, 2019 and 2018, respectively.

17. Charity, Uncompensated and Under-Compensated Care

UPHS accepts patients in serious need of professional medical care, independent of their financial status. This definition includes those patients suffering from a medical condition manifesting itself by acute symptoms of sufficient severity (including severe pain) such that the absence of immediate medical attention could reasonably be expected to result in (1) placing the health of the individual (or, with respect to a pregnant woman, the health of the woman or her unborn child) in serious jeopardy, or (2) serious impairment to bodily functions. Accordingly, UPHS provides services to patients, who meet certain criteria under its charity care policy, without charge or at amounts less than UPHS' established rates. Because UPHS does not pursue collections, such amounts have been excluded from net patient service revenue. UPHS estimated $24,968,000 and $19,189,000 of costs were incurred during 2019 and 2018, respectively, from providing services to charity patients. The estimated costs of providing charity services are based on data derived from a combination of the UPHS' cost accounting system and the ratio of costs to charges.

17. Charity, Uncompensated and Under-Compensated Care (continued)

UPHS also provides care to patients who do not have health insurance or meet the criteria to qualify for its charity care policy. UPHS pursues collection of these amounts, however certain amounts are deemed to be uncollectible. For 2019, with the adoption of ASC 606, $193,101,000 was classified as an implicit price concession which reduces net patient service revenue in the accompanying combined statements of operations. For 2018, prior to the adoption of ASC 606, $164,763,000 was classified in the provision for bad debts in the accompanying combined statements of operations.

Additionally, the costs of providing services to eligible welfare recipients, who participate in the Pennsylvania Medical Assistance and local Managed Medicaid programs exceeded reimbursement by $280,672,000 and $258,803,000 in 2019 and 2018, respectively.

In addition to providing direct patient charity care and in furtherance of its exempt purpose to benefit the community, UPHS operates emergency rooms open to the public 24-hours per day, 7 days per week; maintains research facilities for the study of disease and injuries; provides facilities for teaching and training various medical personnel; facilitates the advancement of medical and surgical education; and provides various community services such as screenings for the detection of breast, colorectal and skin cancer, cancer support groups, a toll free number for cancer information, free immunization shots, training programs for the City Fire and Police Departments, health education classes, speeches and regularly provides health related information to television and radio news programs and to reporters at newspapers and magazines.

18. Contingencies and Commitments

UPHS is subject to litigation and regulatory investigations that arise in the ordinary course of its business. To cover claims arising out of its operations, UPHS maintains various levels of insurance coverage with deductibles that UPHS believes to be sufficient. UPHS cannot assure that professional liability insurance will cover all claims or continue to be available at reasonable costs for UPHS to maintain adequate levels of insurance. In the opinion of management, the outcome of such claims and litigation will not materially affect our combined financial position, results of operations and cash flows.

At June 30, 2019, construction contract commitments are estimated to total $317,404,000.

UPHS maintains various unused letters of credit with expirations at various dates through fiscal year 2019 totaling $11,816,000 and $6,800,000 at June 30, 2019 and 2018, respectively, to cover balances due on construction projects and reinsurance agreements.

19. Liquidity and Availability

As of June 30, 2019, financial assets and liquidity resources available within one year for general expenditure, such as operating expenses, scheduled principal payments on debt and capital construction costs not financed with debt, are as follows (in thousands):

	2019
Financial assets:	
Cash and cash equivalents	$ 779,099
Patient and third party payer receivables	830,935
Other receivables included in other current assets	178,843
Pledge payment available for operations	3,132
Investments (all other)	2,715,117
Total financial assets available within one year	$ 4,507,126
Liquidty resources	
Bank lines of credit	13,000
Total financial assets and liquidity resources available within one year	$ 4,520,126

To manage liquidity, UPHS maintains a line of credit that is drawn upon as needed during the year to manage cash flows. Management has the discretion to utilize the full amount of quasi-endowment funds for general expenditures.

20. Investment Returns

A summary of the investment return included within Excess of revenue over expenses, which is net of external and direct internal investment expenses, for the years ended June 30, 2019 and 2018 is presented below (in thousands).

	2019	2018
Investment income	$ 77,395	$ 42,879
Realized gains on investments	209,760	128,522
Unrealized gain on alternative investments	36,038	120,364
Total return investment income	$ 323,193	$ 291,765

21. Subsequent Events

UPHS has evaluated subsequent events through September 26, 2019, which is the date the combined financial statements were issued.

Supplementary Combining Information

The following unaudited supplemental schedules have been prepared on the accrual basis of accounting in accordance with accounting principles generally accepted in the United States of America.

University of Pennsylvania Health System
Combining Balance Sheet
June 30, 2019 (thousands of dollars)

	CPUP	CCA	HUP	Penn Presbyterian	TCCHS	Pennsylvania	LGH	PHCS	Wissahickon Hospice/ Homecare	Corporate	RRG/ Captive	Total
Assets												
Current												
Cash and cash equivalents	$ -	$ -	$ -	$ -	$ -	$ -	$ 117,976	$ 72,981	$ 8,066	$ 580,076	$ -	$ 779,099
Due from (to) UPHS central treasury	316,413	20,894	2,212,761	(67,940)	(186,253)	48,777	-	-	31,252	(2,375,904)	-	-
Patient receivables, net	66,308	12,131	302,876	101,046	38,964	76,345	140,389	60,728	28,253	(100)	-	826,940
Third party payer receivables	-	-	2,020	877	-	1,098	-	-	-	-	-	3,995
Due from the University of Pennsylvania	-	-	-	-	-	-	-	-	-	-		-
Other current assets	13,705	3,966	77,943	21,914	15,052	17,298	58,512	15,000	6,404	36,365	-	266,159
Total current assets	396,426	36,991	2,595,600	55,897	(132,237)	143,518	316,877	148,709	73,975	(1,759,563)	-	1,876,193
Assets whose use is limited												
Held by trustee	92,247	-	23,925	-	-	-	7,135	9,490	92	30,709	-	163,598
RRG\Captive	-	-	-	-		-	45,205	-	-	-	174,674	219,879
Designated	-	-	651,752	-	-	66,411	1,086,129	-	-	926,746	-	2,731,038
Donor-restricted investments	-	-	148,627	157,056	18,891	285,793	39,825	21,678	1,046	5,221	-	678,137
	92,247	-	824,304	157,056	18,891	352,204	1,178,294	31,168	1,138	962,676	174,674	3,792,652
Investments	-	-	-	-	-	141	40,374	183,722	73	666,572	-	890,882
Property and equipment, net	22,622	35,584	1,105,830	402,392	322,858	243,610	805,328	439,607	5,342	1,377,390	-	4,760,563
Other assets	67	2,576	3,883	46,453	18,994	587	35,067	31,131	-	122,591	-	261,349
Total assets	$ 511,362	$ 75,151	$ 4,529,617	$ 661,798	$ 228,506	$ 740,060	$ 2,375,940	$ 834,337	$ 80,528	$ 1,369,666	$ 174,674	$ 11,581,639
Liabilities and Net Assets												
Current												
Accounts payable	$ -	$ 110	$ (48)	$ 152	$ 1,220	$ 445	$ 41,280	$ 24,295	$ 254	$ 195,851	$ -	$ 263,559
Accrued expenses	117,803	29,968	201,984	35,189	25,785	26,918	92,830	49,429	12,895	272,483	-	865,284
Current portion of long-term debt	-	-	18,010	5,104	325	11,037	32,978	5,738	-	(26,175)	-	47,017
Due to the University of Pennsylvania	-	-	-	-	-	-	-	-	-	5,215	-	5,215
Third party payer settlements	-	-	29,831	7,882	5,487	12,601	6,933	-	-	79	-	62,813
Total current liabilities	117,803	30,078	249,777	48,327	32,817	51,001	174,021	79,462	13,149	447,453	-	1,243,888
Long-term debt, net of current portion	-	-	1,308,431	189,871	56,407	112,260	255,082	276,882	-	82,069	-	2,283,002
Third party payer settlements, net of current portion	(5)	(3)	-	1	(2,513)	-	-	6,089	1,171	2,498	-	7,238
Other liabilities	-	2,657	18,660	6,010	12,537	300	59,419	18,386	8	582,343	159,348	859,668
Pension and postretirement benefit liability	92,247	-	-	-	-	-	220,689	23,128	-	930,003	-	1,266,067
Total liabilities	210,045	32,732	1,576,868	244,209	99,248	163,561	709,211	405,947	14,328	2,044,366	159,348	5,659,863
Net assets												
Net assets without donor restriction	301,317	42,309	2,803,212	261,198	102,358	290,702	1,624,734	407,720	64,739	(679,615)	15,326	5,234,000
Net assets with donor restrictions	-	110	149,537	156,391	26,900	285,797	41,995	20,670	1,461	4,915	-	687,776
Total net assets	301,317	42,419	2,952,749	417,589	129,258	576,499	1,666,729	428,390	66,200	(674,700)	15,326	5,921,776
Total liabilities and net assets	$ 511,362	$ 75,151	$ 4,529,617	$ 661,798	$ 228,506	$ 740,060	$ 2,375,940	$ 834,337	$ 80,528	$ 1,369,666	$ 174,674	$ 11,581,639

University of Pennsylvania Health System
Combining Balance Sheet
June 30, 2018 (thousands of dollars)

	CPUP	CCA	HUP	Penn Presbyterian	TCCHS	Pennsylvania	LGH	PHCS	Wissahickon Hospice/ Homecare	Corporate	RRG/ Captive	Total
Assets												
Current												
Cash and cash equivalents	$ -	$ -	$ -	$ -	$ -	$ -	$ 115,957	$ 50,646	$ 2,089	$ 821,691	$ -	$ 990,383
Due from (to) UPHS central treasury	284,331	16,833	2,075,797	(90,238)	(114,864)	69,341	-	-	31,252	(2,272,422)	-	-
Patient receivables, net	66,275	7,539	281,716	88,642	42,751	68,928	125,900	47,884	24,164	(200)	-	753,599
Third party payer receivables	-	-	1,791	670	-	2,412	-	-	-	-	-	4,873
Due from the University of Pennsylvania	-	-	-	-	-	-	-	-	-	7,475		7,475
Other current assets	13,392	4,799	67,007	19,108	15,110	13,960	63,004	39,070	4,956	(4,568)	-	235,838
Total current assets	363,998	29,171	2,426,311	18,182	(57,033)	154,641	304,861	137,600	62,461	(1,448,024)	-	1,992,168
Assets whose use is limited												
Held by trustee	89,946	-	475	-	-	-	6,796	9,352	-	167,731	-	274,300
RRG\Captive	-	-	-	-		-	48,571	-	-	-	158,832	207,403
Designated	-	-	613,353	-	-	62,499	1,036,265	-	-	872,145	-	2,584,262
Donor-restricted investments	-	-	140,858	152,692	18,496	279,358	33,758	21,903	733	306	-	648,104
	89,946	-	754,686	152,692	18,496	341,857	1,125,390	31,255	733	1,040,182	158,832	3,714,069
Investments	-	-	-	-	-	141	26,606	173,919	-	735,614	-	936,280
Property and equipment, net	20,824	35,398	1,036,546	403,058	236,951	270,254	788,682	467,012	4,163	840,889	-	4,103,777
Other assets	118	2,389	3,954	42,618	16,308	667	40,886	31,394	-	129,601	-	267,935
Total assets	$ 474,886	$ 66,958	$ 4,221,497	$ 616,550	$ 214,722	$ 767,560	$ 2,286,425	$ 841,180	$ 67,357	$ 1,298,262	$ 158,832	$ 11,014,229
Liabilities and Net Assets												
Current												
Accounts payable	$ -	$ 110	$ 161	$ (17)	$ 703	$ 266	$ 38,394	$ 43,090	$ 199	$ 126,158	$ -	$ 212,064
Accrued expenses	106,559	24,989	149,601	30,107	19,864	24,763	94,054	34,879	7,306	240,038	1,956	734,116
Current portion of long-term debt	-	-	69,266	4,933	325	10,372	7,293	5,489	-	-	-	97,678
Third party payer settlements	-	-	26,500	12,270	5,487	12,881	9,305	-	-	79	-	66,522
Total current liabilities	106,559	25,099	245,528	47,293	26,379	48,282	149,046	83,458	7,505	366,275	1,956	1,110,380
Long-term debt, net of current portion	-	-	1,283,384	195,844	56,702	171,436	285,803	286,621	-	(4,931)	-	2,274,859
Third party payer settlements, net of current portion	-	-	-	-	(2,755)	-	-	7,235	457	2,520	-	7,457
Other liabilities	-	2,564	19,514	5,681	12,839	1,372	58,371	20,790	573	611,095	144,548	877,347
Pension and postretirement benefit liability	89,946	-	-	-	-	-	161,339	23,558	-	674,331	-	949,174
Total liabilities	196,505	27,663	1,548,426	248,818	93,165	221,090	654,559	421,662	8,535	1,652,290	146,504	5,219,217
Net assets												
Net assets without donor restriction	278,381	39,211	2,531,530	214,901	93,913	267,108	1,595,976	400,457	57,734	(354,028)	12,328	5,137,511
Net assets with donor restrictions	-	84	141,541	152,831	27,644	279,362	35,890	19,061	1,088	-	-	657,501
Total net assets	278,381	39,295	2,673,071	367,732	121,557	546,470	1,631,866	419,518	58,822	(354,028)	12,328	5,795,012
Total liabilities and net assets	$ 474,886	$ 66,958	$ 4,221,497	$ 616,550	$ 214,722	$ 767,560	$ 2,286,425	$ 841,180	$ 67,357	$ 1,298,262	$ 158,832	$ 11,014,229

University of Pennsylvania Health System
Combining Statement of Operations
Year Ended June 30, 2019 (thousands of dollars)

	CPUP	CCA	HUP	Penn Presbyterian	TCCHS	Pennsylvania	LGH	PHCS	Wissahickon Hospice/ Homecare	Corporate	RRG/ Captive	Eliminations	Total
Revenues													
Net patient service revenue	646,733	168,917	2,501,531	771,542	356,220	610,758	1,212,268	488,093	184,680	235	-	-	6,940,977
Other revenue	126,467	20,957	278,550	93,578	9,865	53,175	94,671	19,773	1,019	41,955	43,389	(130,328)	653,071
Total revenues	773,200	189,874	2,780,081	865,120	366,085	663,933	1,306,939	507,866	185,699	42,190	43,389	(130,328)	7,594,048
Expenses													
Salaries and wages	658,032	106,881	684,847	259,139	131,177	222,742	542,140	225,613	84,877	289,996	-	-	3,205,444
Employee benefits	125,596	25,739	217,242	76,743	32,069	67,097	138,466	53,171	24,238	60,976	-	-	821,337
Supplies and expenses	130,199	42,829	888,268	286,047	134,631	205,596	418,083	142,403	65,417	309,455	996	5,200	2,629,126
Corporate services/inter-entity support	(363,748)	1,898	604,668	143,637	46,821	111,745	76,204	34,746	6,755	(670,002)	-	(92,724)	-
Depreciation and amortization	5,514	1,671	84,531	32,109	16,284	31,645	66,943	39,479	966	51,471	-	-	332,813
Malpractice	40,824	8,174	24,701	4,039	943	12,343	9,873	3,821	10	(10,000)	42,393	(42,804)	94,117
Interest	-	-	18,257	11,854	(3,315)	7,328	10,989	9,074	-	(218)	-	(214)	53,755
Perelman School of Medicine (PSOM) support	280	-	11,658	3,096	-	-	-	-	-	4,736	-	-	19,770
Total expenses	696,697	187,392	2,534,172	816,664	360,610	658,498	1,262,698	508,107	182,263	36,414	43,389	(130,542)	7,156,362
Excess (deficit) of revenue over expenses from operations	76,503	2,482	245,909	48,456	5,475	5,435	44,241	(241)	3,436	5,776	-	214	437,686
Nonoperating gains (loss)													
Interest and dividends	1,958	201	22,831	(344)	(730)	2,595	31,549	12,149	680	3,722	2,998	(214)	77,395
Net realized gain (loss), contributions and other support	2,479	397	75,367	(1,623)	(1,378)	15,684	93,800	2,223	522	23,121	-	-	210,592
Change in unrealized gain (loss) on alternative investments	-	-	10,037	-	-	3,309	(8,979)	-	-	31,671	-	-	36,038
Excess (deficit) of revenue over expenses	80,940	3,080	354,144	46,489	3,367	27,023	160,611	14,131	4,638	64,290	2,998	-	761,711
Change in unrealized gain (loss) on other investments	-	-	(8,619)	-	-	(2,841)	(56,850)	(75)	7	(27,198)	-	-	(97,576)
Transfers to PSOM and University, net	(74,832)	-	(73,943)	-	-	(599)	-	-	(151)	(90,868)	-	-	(240,393)
Transfers to the other Health System entities	16,828	18	-	(192)	(18)	-	(2,511)	-	2,511	(16,636)	-	-	-
Net assets released from restrictions for capital	-	-	100	-	5,096	13	3	-	-	-	-	-	5,212
Pension and other postretirement plan adjustments	-	-	-	-	-	-	(70,495)	(6,793)	-	(255,177)	-	-	(332,465)
Increase in net assets without donor restriction	$ 22,936	$ 3,098	$ 271,682	$ 46,297	$ 8,445	$ 23,596	$ 28,758	$ 7,263	$ 7,005	$ (325,589)	$ 2,998	$ -	$ 96,489

University of Pennsylvania Health System
Combining Statement of Operations
Year Ended June 30, 2018 (thousands of dollars)

	CPUP	CCA	HUP	Penn Presbyterian	TCCHS	Pennsylvania	LGH	PHCS	Wissahickon Hospice/ Homecare	Corporate	RRG/ Captive	Eliminations	Total
Revenues													
Net patient service revenue before provision for bad debts	$ 627,235	$ 153,485	$ 2,366,329	$ 733,718	$ 341,422	$ 614,582	$ 1,168,018	$ 244,087	$ 168,521	$ 277	$ -	$ -	$ 6,417,674
Provision for bad debts	(15,789)	(5,099)	(41,676)	(17,241)	(12,545)	(17,045)	(44,199)	(5,892)	(5,277)	-	-	-	(164,763)
Net patient service revenue	611,446	148,386	2,324,653	716,477	328,877	597,537	1,123,819	238,195	163,244	277	-	-	6,252,911
Other revenue	120,361	18,688	211,993	75,100	12,909	54,139	87,300	6,911	166	38,961	43,974	(141,262)	529,240
Total revenues	731,807	167,074	2,536,646	791,577	341,786	651,676	1,211,119	245,106	163,410	39,238	43,974	(141,262)	6,782,151
Expenses													
Salaries and wages	620,088	95,922	650,858	250,060	126,809	217,429	502,505	114,770	73,155	229,063	-	-	2,880,679
Employee benefits	120,608	22,691	208,600	74,567	31,069	66,618	131,568	25,019	19,439	54,000	-	-	754,179
Supplies and expenses	126,214	26,868	761,855	246,158	122,135	195,271	373,829	87,707	61,453	281,177	996	(7,757)	2,275,906
Corporate services/inter-entity support	(242,421)	3,246	534,494	127,545	53,871	113,843	68,732	-	9,046	(574,855)	-	(93,501)	-
Depreciation and amortization	5,484	1,785	91,277	33,192	18,065	29,353	61,712	19,782	707	47,902	-	-	309,259
Malpractice	45,941	8,182	27,634	4,568	1,089	13,811	11,338	2,877	-	(13,981)	42,978	(40,004)	104,433
Interest	-	-	26,334	9,493	(285)	7,774	9,512	4,602	-	(2,307)	-	-	55,123
Perelman School of Medicine (PSOM) support	595	-	11,563	3,037	-	-	-	-	-	4,649	-	-	19,844
Total expenses	676,509	158,694	2,312,615	748,640	352,753	644,099	1,159,196	254,757	163,800	25,648	43,974	(141,262)	6,399,423
Excess (deficit) of revenue over expenses from operations	55,298	8,380	224,031	42,937	(10,967)	7,577	51,923	(9,651)	(390)	13,590	-	-	382,728
Nonoperating gains (loss)													
Interest and dividends	965	76	11,488	(157)	(210)	3,013	20,986	3,058	471	1,477	1,712	-	42,879
Net realized gain (loss), contributions and other support	2,630	1,531	67,195	(954)	(371)	4,745	27,381	(703)	500	26,988	-	-	128,942
Princeton Healthcare Systems membership substitution	-	-	-	-	-	-	-	398,493	-	-	-	-	398,493
Change in unrealized gain (loss) on alternative investments	-	-	44,218	-	-	4,018	6,799	-	-	65,329	-	-	120,364
Excess (deficit) of revenue over expenses	58,893	9,987	346,932	41,826	(11,548)	19,353	107,089	391,197	581	107,384	1,712	-	1,073,406
Change in unrealized gain (loss) on other investments	-	-	(9,151)	-	-	(831)	36,755	6,603	(9)	(13,519)	-	-	19,848
Transfers to PSOM and University, net	(50,743)	-	(71,165)	10	(5,432)	(568)	-	-	5,284	(80,534)	-	-	(203,268)
Net assets released from restrictions for capital	-	-	48	-	-	-	2	-	-	2,376	-	-	2,426
Pension and other postretirement plan adjustments	-	-	-	-	-	-	46,362	2,657	-	102,793	-	-	151,812
Increase in net assets without donor restriction	$ 8,150	$ 9,987	$ 266,664	$ 41,836	$ (16,980)	$ 17,934	$ 190,208	$ 400,457	$ 5,856	$ 118,400	$ 1,712	$ -	$ 1,044,224

APPENDIX C

CERTAIN INFORMATION REGARDING THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements included or incorporated by reference in this Appendix C constitute projections or estimates of future events, generally known as forward-looking statements. These statements are generally identifiable by the terminology used such as "plan," "expect," "estimate," "budget" or other similar words. These forward-looking statements include, among others, the information under the caption "UNIVERSITY FINANCIAL DATA" in this Appendix C.

The achievement of certain results or other expectations in these forward-looking statements involves known and unknown risks, uncertainties and other factors which may cause actual results, performance or achievements described to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. The University does not plan to issue any updates or revisions to those forward-looking statements if or when changes in its expectations, or events, conditions or circumstances on which these statements are based occur.

THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA

The information set forth in this APPENDIX C is intended to provide certain limited information regarding The Trustees of the University of Pennsylvania (the "University"). The obligation of the University to make payments under the Loan Agreement and the 2019 Master Note is a limited obligation of the University to make payments solely from the Property of HUP and CPUP (or any additional Designated Units established as provided in the Master Indenture). There is no assurance, however, that the property of the University comprising HUP and CPUP would not be attached by general creditors of the University in the event that the University becomes unable to pay its obligations as they become due. Accordingly, the ability of the University to pay its limited obligations as a Member of the Obligated Group with respect to the Loan Agreement and the 2019 Master Note would be adversely affected if the University were to become unable to pay its obligations generally as they become due.

Information with respect to the University of Pennsylvania Health System is separately set forth in APPENDIX A to this Official Statement.

General

The Trustees of the University of Pennsylvania (the "University" or "Penn") is an independent non-sectarian research institution of higher education chartered under the laws of the Commonwealth of Pennsylvania (the "Commonwealth"). One of only nine colleges and universities established during the colonial period, the University is the third oldest Ivy League school. It is a privately endowed, gift-supported non-profit corporation and is exempt from federal income taxes as an organization described in Section 501(c)(3) of the Internal Revenue Code of 1986, as amended (the "Code").

The University has a long history of innovation. Unique among its colonial peers in its departure from the traditional ecclesiastical curriculum, the University established the first liberal arts curriculum, combining for the first time a scientific and classical education and offering such new fields of study as modern languages, physics, mathematics, history, and economics. As the nation's first university, it introduced the concept of a multi-disciplinary education. It founded the nation's first School of Medicine in 1765, marking the beginning of formal medical education in North America, and the nation's first hospital established by a medical school.

The first professorships in botany and chemistry in the United States were established at the University. Benjamin Rush, a chemistry professor, joined the medical faculty in 1769 and published the first book on insanity in the United States, pioneering the study of mental disease. The Wharton School of Finance and Commerce, the first collegiate school of business, opened in 1881. In 1896, the world's first psychology clinic opened at the University. During World War II, ENIAC, the original large-scale, all-electronic digital computer, which was the forerunner of the computer industry, was designed and built at the Moore School of Electrical Engineering. The Piersol Rehabilitation Center, founded in 1959, was the first rehabilitation center in the City of Philadelphia (the "City").

The University continues this pioneering tradition today in fields as diverse as cancer research, genomics, gene therapy, digital media design, cognitive science, materials science, aging, biotechnology, bioethics, neuroscience, demography, management and technology, bioinformatics and computational biology, nanotechnology, translational research and public policy, among other areas. The Penn Compact – a mission statement articulated at the 2004 inauguration of President Amy Gutmann – has propelled the University from excellence to eminence by advancing its core endeavors of teaching, research and service. It focused on increasing access to the University's exceptional intellectual resources; integrating knowledge across academic disciplines with emphasis on innovative understanding and discovery; and engaging locally, nationally, and globally to bring the benefits of Penn's research, teaching, and service to individuals and communities at home and around the world.

The University has a full-time student body of over 23,000 and a 280-acre campus in West Philadelphia (excluding the Hospital of the University of Pennsylvania) on which over 150 University buildings are situated. In addition, the University owns two properties that are not adjacent to the campus. The Morris Arboretum, located in Chestnut Hill, Pennsylvania, encompasses 92 acres with 30 buildings. The Morris Arboretum conducts four major activities: education, research, outreach and horticultural display. As the official Arboretum of the Commonwealth, it provides research and outreach services to state agencies, community institutions and to citizens of Pennsylvania and beyond. The New Bolton Center, in Kennett Square, Pennsylvania, consists of 600 acres with 77 buildings. Opened in 1954, the New Bolton Center comprises the George D. Widener Hospital for Large Animals, the University of Pennsylvania School of Veterinary Medicine's teaching hospital for large animals, featuring one of the world's largest

equine surgical facilities, the Marshak Dairy, the Laboratory of Aquatic Animal Medicine and Pathology and one of Pennsylvania's three Animal Diagnostic Laboratories.

In July 2007, the University acquired from the United States Postal Service two properties adjacent to the eastern edge of the University's main campus. These properties include 2.5 acres of land and associated buildings which the University has leased for redevelopment to a private developer under a long term ground lease, and 14 acres of property which the University developed, together with adjacent property of the University, to form a 24-acre urban park now known as Penn Park. Penn Park is the centerpiece of "Penn Connects," the University's long-term master land use and urban design campus plan. Penn Park brings 20% more green space to the urban campus of the University and creates a new gateway uniting University City in West Philadelphia with Center City in Philadelphia.

In September 2010, the University acquired 23 acres of land and facilities located across the Schuylkill River from the University's main campus. More than 250,000 square feet of laboratory, office and warehouse space remains on the property that formerly comprised the DuPont Marshall Laboratory. The site is intended to be repurposed with light industrial, flex-use, and buildings scaled to fit the need for practical commercialization and business opportunities in the region. The site has also been designated as the home for the Penn Center for Innovation, a new initiative that will provide the infrastructure, leadership and resources needed to transfer promising Penn inventions, know-how and related assets into the marketplace for the public good. As of June 30, 2018, nearly 181,000 square feet of space was leased to University tenants, small research and technology businesses, and for storage for the University and other entities.

The University is comprised of an academic component (see "Programs- Academic" below) and a Health System component (more particularly described in APPENDIX A to this Official Statement).

Governance

The University is governed by its Board of Trustees (the "University Trustees"). The Executive Committee of the University Trustees (the "Executive Committee") is elected annually and can act on behalf of the full University Trustees in most matters. Under the bylaws of the University, the University Trustees may consist of a maximum of 14 Charter Trustees, 28 Term Trustees, 14 Alumni Trustees, including the President of the Alumni Society, and four Commonwealth Trustees. The Governor of the Commonwealth and the President of the University are Ex-Officio Trustees. Charter Trustees are elected by the University Trustees from among persons who have served as University Trustees for a period of not less than five years. Term Trustees are elected by the University Trustees for terms of five years. Alumni Trustees are elected by Penn Alumni for terms of five years from among those persons who have received degrees from the University. The Commonwealth Trustees are each appointed by one of the following members of the Pennsylvania legislature: the President Pro Tempore of the Senate, the Minority Leader of the Senate, the Speaker of the House of Representatives, and the Minority Leader of the House of Representatives. Under normal circumstances, Charter, Term and Alumni Trustees must retire at the age of 70, or following 10 years' service per the Statutes, at which time Charter Trustees are designated by the University Trustees as Trustees Emeriti. Term and Alumni Trustees who have been elected to two five-year terms in any class are eligible for election by the University Trustees as Trustees Emeriti. Trustees Emeriti and Ex-Officio Trustees are non-voting University Trustees.

In addition, the University has an Investment Board, which can include members who are not University Trustees. The Investment Board oversees the investment of endowment and similar funds, and all other investment funds of the University.

The members of the University Trustees as of September 30, 2019 are listed below:

Ex-Officio Trustees:
Dr. Amy Gutmann
Hon. Thomas W. Wolf

Executive Committee:
Scott L. Bok, Esq.
David L. Cohen, Esq., *Chair*
Mrs. Lee Spelman Doty
Perry Golkin, Esq.
Mr. James H. Greene, Jr.
Dr. Amy Gutmann
Mr. Andrew R. Heyer

Term Trustees:
Ms. Laura J. Alber
Mr. David S. Blitzer
Mr. James G. Dinan
Mrs. Connie K. Duckworth
Mr. James H. Greene, Jr.
Dr. Janet F. Haas
Mr. Lloyd W. Howell, Jr.
Osagie O. Imasogie, Esq.
James C. Johnson, Esq.
Susanna E. Lachs, Esq.
Mr. Charles B. Leitner III

Trustees Emeriti:
Mrs. Madlyn K. Abramson
Gilbert F. Casellas, Esq.
Mrs. Susan W. Catherwood
William W.M. Cheung, DMD
Gloria Twine Chisum, Ph.D.
Mr. L. John Clark
Mr. Robert A. Fox
Mr. Stephen J. Heyman
Mr. Paul K. Kelly
Mr. James J. Kim
Mr. Michael J. Kowalski

Osagie O. Imasogie, Esq.
Mr. Robert M. Levy, *Vice Chair*
Mr. Marc F. McMorris
Mrs. Julie Beren Platt
Mr. Andrew S. Rachleff
Mrs. Ann Reese

Charter Trustees:
Scott L. Bok, Esq.
David L. Cohen, Esq.
Mrs. Lee Spelman Doty
Mr. David Ertel
Perry Golkin, Esq.
Mr. Andrew R. Heyer
Mr. William P. Lauder
Mr. Robert M. Levy
M. Claire Lomax, Esq.
Mr. Marc F. McMorris
Mr. Richard C. Perry
Mrs. Julie Beren Platt
Mr. Andrew S. Rachleff

Commonwealth Trustees:
Mr. Chris Franklin
Mr. Michael F. Gerber
Mr. John P. Shoemaker
Amb. Martin J. Silverstein
Mr. Kenneth D. Moelis
Mr. Simon D. Palley
Mr. Michael J. Price
Mr. Ramanan Raghavendran
Mrs. Ann Reese
Mr. Marc J. Rowan
Mr. Theodore E. Schlein
Mr. Alan D. Schnitzer
Mrs. Julie Breier Seaman
Mr. Robert M. Stavis
Mr. Richard W. Vague
Mr. Mark B. Werner

Alumni Trustees:
Mrs. Bonnie Miao Bandeen
Mr. Brett H. Barth
Mr. Adam K. Bernstein
Mr. Alberto J. Chamorro
Mr. Alberto I. Duran
Mr. George KL Hongchoy
Mrs. Lynn J. Jerath
Ms. Catherine M. O'Hern Lyons
Dr. Patricia Martín
Mr. Ofer Nemirovsky
Mr. Dhananjay M. Pai
Mrs. Cheryl Peisach
Mrs. Jill Topkis Weiss
Mrs. Andrea Berry Laporte
Mr. Leonard A. Lauder
Mr. William L. Mack
Mr. A. Bruce Mainwaring
Mr. Howard S. Marks
Dr. Deborah Marrow
Mr. Edward J. Mathias
Ms. Andrea Mitchell
Mr. Russell E. Palmer
Mr. Ronald O. Perelman
Mr. Egbert L. J. Perry
Mr. James S. Riepe
Mrs. Katherine Stein Sachs
Mrs. Adele K. Schaeffer
Mr. Alvin V. Shoemaker
Dr. Krishna P. Singh
Dr. P. Roy Vagelos
Mr. George A. Weiss
Dr. Charles K. Williams II
Mr. Paul Williams
Mr. Mark O. Winkelman

Transactions Between the University and Members of its Board of Trustees

The University has a comprehensive conflict-of-interest policy that was formally adopted by the University Trustees in June 2000. The policy applies to University Trustees, officers and members of the Investment Board ("Covered Persons"), and is intended to address any real, potential, or apparent conflicts of interest that might call into question a person's duty of undivided loyalty to the University. The policy, which is in conformity with the Intermediate Sanctions regulations of the Internal Revenue Service ("IRS") applicable to tax-exempt organizations, adopts the IRS standard for approval of a transaction between a Covered Person and the University. The standard requires that a Covered Person seeking to enter into a transaction with the University recuse himself or herself from the decision-making process, that any payments made are at fair market value, and that the transaction, as a whole, is fair, reasonable and in the best interests of the University.

The relationships of certain Trustees of the University with certain transaction participants in connection with the offering of the Bonds are described under the "CERTAIN RELATIONSHIPS" in the forepart of the Official Statement.

Officers of the University

The officers of the University are the President, the Provost, the Executive Vice Presidents, the Senior Vice President and General Counsel, the Vice Presidents, the Secretary, the Treasurer and the Comptroller. Subject to the policies of the University, all officers except the President are elected by the University Trustees upon nomination by the President. The President is elected by the University Trustees upon nomination by the Executive Committee. The principal officers of the University are as follows:

Dr. Amy Gutmann	*President*
Dr. Wendell Pritchett	*Provost*
Mr. Craig R. Carnaroli	*Executive Vice President*
Dr. J. Larry Jameson	*Executive Vice President for the Health System and Dean of the Perelman School of Medicine*
Wendy S. White, Esquire	*Senior Vice President and General Counsel of the University and Health System*
Ms. MaryFrances McCourt	*Vice President for Finance and Treasurer*
Ms. Anne Papageorge	*Vice President for Facilities and Real Estate Services*
Mr. John H. Zeller	*Senior Vice President for Development and Alumni Relations*
Ms. Medha Narvekar	*Vice President and University Secretary*
Mr. John F. Horn	*Comptroller*

PROGRAMS

Academic

The University is comprised of the twelve schools listed below, four of which, marked by an asterisk (*), offer undergraduate degrees. Graduate and professional degrees are offered by all twelve schools:

School of Arts and Sciences *	Stuart Weitzman School of Design
School of Engineering and Applied Science *	School of Dental Medicine
School of Nursing *	School of Law
Wharton School *	Perelman School of Medicine
Annenberg School for Communication	School of Social Policy and Practice
Graduate School of Education	School of Veterinary Medicine

The quality and success of the programs offered by the University have been consistently recognized around the world. The University was ranked sixth in the 2020 *U.S. News and World Report* National Universities Ranking and fifteenth on the Best Values Schools. In these same rankings, the University's Wharton School was ranked first for undergraduate business students. In the 2020 *US News and World Report* Best Graduate Schools rankings, the University's Wharton School was ranked first among graduate business schools, the School of Nursing was ranked third among nursing schools, and the Law School (7th), the Perelman School of Medicine (3rd in research, 10th in primary care), the School of Veterinary Medicine (4th), and the School of Graduate Education (2nd) – as well as departments across the School of Arts and Sciences, the School of Engineering, the School of Nursing, the Wharton School, the Graduate School of Education, and the Perelman School of Medicine – were all ranked in the top ten among the survey's wide range of specific academic areas. From a global perspective, the University is ranked among the top 19 institutions around the world in all three of the major international university rankings: the Academic Ranking of World Universities of the Center for World-Class Universities at the Shanghai Jiao Tong University, the QS World University Rankings, and the *Times Higher Education* World University Rankings. In 2014, the Middle States Commission on Higher Education reaffirmed the University's accreditation, following a rigorous, two-year process in which the University first prepared an in-depth, campus-wide Self-Study Report and was then reviewed by an external evaluation team of faculty members and senior administrators from peer institutions.

The proximity of all twelve of the University's schools on a single campus has stimulated a number of renowned multi-disciplinary enterprises aimed at solutions to major issues impacting a global society. Among them are: the Center for Public Health Initiatives, Penn Institute for Urban Research, Leonard Davis Institute of Health Economics, Laboratory for Research on the Structure of Matter, David Mahoney Institute for Neurological Sciences, Lauder Institute, Abramson Family Cancer Research Institute, and Institute for Regenerative Medicine, as well as globally-focused initiatives such as the Perry World House and the Penn Wharton China Center.

The twelve schools also combine their expertise in campus-wide academic theme years, which bring together a wide range of perspectives to illuminate critical issues such as health, water, data, media, and the role of art in urban settings.

Faculty

For the 2019 Academic Year, there are 2,753 standing faculty at the University, approximately one for every four full-time undergraduates on campus. Approximately 76% of the faculty, excluding clinician educators in the Perelman School of Medicine, is tenured. All of the University's full-time faculty has earned a doctorate and/or other terminal professional degree.

The faculty of the University is actively engaged in teaching and research. Honors and awards received by members of the faculty include the Nobel Prize, Pulitzer Prize, Bancroft Prize, Carnegie Fellowship, Guggenheim Fellowship, National Medal of Science, MacArthur Foundation Fellowship, Sloan Research Fellowship, Wolf Prize in Medicine, and Presidential Early Career Award for Scientists and Engineers.

Members of the faculty hold memberships and leadership positions in such prestigious professional and learned societies as the American Academy of Arts and Sciences, American Association for the Advancement of Science, American Philosophical Society, National Academy of Engineering, National Academy of Medicine, National Academy of Science, and Royal Society of London.

Undergraduate Student Applications and Enrollment

The following table sets forth certain information regarding undergraduate applicants, acceptances and matriculants for the academic years indicated:

Applicants, Acceptances and Matriculants

Academic Year	Applicants	Acceptances	Acceptance Percentage	Matriculants	Matriculation Percentage
2015-2016	37,268	3,787	10.2%	2,435	64.3%
2016-2017	38,918	3,674	9.4%	2,491	67.8%
2017-2018	40,413	3,757	9.3%	2,456	65.4%
2018-2019	44,491	3,740	8.4%	2,518	67.3%
2019-2020*	44,961	3,446	7.7%	2,401	69.7%

*2019-2020 information is as of September 26, 2019 and is subject to change.

The following is a five-year analysis of the mean college entrance examination scores achieved by entering freshmen (2019-2020 test scores are as of September 26, 2019, and are subject to change):

Mean SAT Scores

Academic Year	SAT 1 Critical Reading	SAT 1 Math
2015-2016	718	739
2016-2017	723	740
2017-2018	734	750
2018-2019	728	761
2019-2020	730	764

Mean ACT Scores

Academic Year	ACT Score
2015-2016	33
2016-2017	33
2017-2018	33
2018-2019	33
2019-2020	34

The full-time equivalent enrollment at the University for the academic years indicated is as follows:

Full-Time Equivalent Enrollment

Academic Year	Undergraduate	Graduate[1]	Professional[1]	Full-Time Equivalent Enrollment[2]	Total Degrees Awarded
2015-2016	10,800	3,175	8,692	22,667	8,021
2016-2017	10,884	3,156	8,519	22,559	8,129
2017-2018	10,907	3,202	8,746	22,855	8,104
2018-2019	11,020	3,292	8,947	23,260	8,429
2019-2020	10,922	3,447	9,400	23,770	N/A

Notes:
1. Graduate students are all non-undergraduate students pursuing degrees in Research Masters (AM, MS), PhD, or dual degree PhD (PhD and MD/VMD/DMD/JD), and Professional students are all non-undergraduate students pursuing degrees other than Research Masters, PhD, or dual degree PhD.
2. Standard Part-time = 1/3 FTE is applied..

Tuition, Fees and Other Charges

The cost of education at the University is covered by tuition and fees, gifts, grants, income derived from investments and other sources. The University believes that its tuition, fees and other related student expenses are competitive with other major private institutions.

The University's total undergraduate tuition and fees and the standard undergraduate room and board charges are set forth in the table below. Graduate and professional schools set their own tuition rates and fees annually. Tuition and fees for full-time programs range from $32,716 to $113,778 per year. The University offers substantial financial assistance to both residential and non-residential students.

Undergraduate Tuition, Fees and Other Charges

	2018-19 Academic Year	2019-20 Academic Year
Academic Year Tuition & Fees for a Full-Time Undergraduate (excluding room & board)	$55,584	$57,770
Academic Year Room & Board Charges	15,616	16,190
Total	$71,200	$73,960

Student Financial Aid

Undergraduate Student Financial Aid. The University has a need-blind undergraduate admissions policy for students who are citizens or permanent residents of the U.S., Canada, and Mexico. For all admitted students, the University is committed to meeting 100% of their demonstrated financial need with grant-based financial aid packages, making it possible to graduate without incurring educational debt. The University is the largest university with a grant-based financial aid program.

For the 2019-2020 academic year, the University budgeted a record $247 million for undergraduate aid. In fall 2018, the average aid package for a traditional undergraduate was $54,304—more than the cost of tuition. Students with the highest levels of financial need—approximately 10% of the undergraduate population—receive financial aid packages that cover more than tuition, fees, room, and board. Approximately 46% of undergraduate students receive grant-based aid from the University.

The University made undergraduate debt reduction a major goal when announcing its grant-based financial aid program in 2009. In the 2018-2019 academic year, only 28% of students receiving need-based aid took out loans to supplement their packages, compared to 80% of students in 2004. In the graduating Class of 2018, 24% of students graduated with debt, with an average of $22,103 over four years—less than the national average.

Graduate Student Financial Aid. More than half of the University's student body is composed of graduate and professional students. Graduate awards may include institutional grant funding if available, as well as federal or private loans. Some programs also award work-study funding. The graduate and professional financial aid budget for 2019-2020 totals $254 million, with an additional $61 million budgeted as stipend support.

For the 2019-2020 academic year, the nine-month minimum stipend increased by 4.5% to $26,961. Most PhD students are fully funded for the first four to five years of study. Funding includes stipends, tuition remission, fees, and health insurance. Aid for professional students is awarded based on both need and merit.

For the fiscal years listed below, the components of student financial aid were as follows:

Scholarships, Grants, and Institutional Loans *(in millions)*

	Fiscal Year Ended June 30,				
	2015	**2016**	**2017**	**2018**	**2019**
Grants - Unrestricted revenues	$155.9	$157.0	$158.8	$160.7	$177.3
Grants- Endowment income	63.6	74.2	84.3	92.7	95.3
Endowed & University Admin. Fed. Loans[1]	17.5	17.1	9.4	4.3	8.0
Federal, State & private grants[2]	52.7	51.8	49.0	53.9	58.2
Tuition remission[3]	133.5	143.1	152.0	165.8	176.4
Total	$423.2	$443.2	$453.5	$477.3	$515.1

[1] Includes Federal Perkins, Nursing and Health Profession Loans, and University endowed loans administered by the University.
[2] Includes gifts and payments from third parties.
[3] Includes tuition remission for faculty/staff attending the University as well as research fellowships, research assistantships, teaching fellowships, and departmental grants. Does not include stipends.

Student Financing Options

For undergraduate and graduate students who are not eligible for need-based financial aid or who are exploring resources to meet their expected family contribution, Penn offers a variety of financing options beyond traditional student loans.

In the 2017-2018 academic year, the University launched the Penn Payment Plan, in which students can budget their billed expenses over the course of four payments each semester. In Fall 2017, 1,506 students budgeted $29.5 million. Plan participation has grown significantly with 2,602 students budgeting $56.2 million in Fall 2019. The University also offers a tuition prepayment program, in which students can pay multiple years of tuition and fees locked in at the current rate. Finally, for students who are ineligible for federal student loans—such as international students – the University provides counseling on private alternative loan options.

UNIVERSITY FINANCIAL DATA

General

The financial statements of the University have been prepared on an accrual basis and include the accounts of the University and its related entities, including the Health System. All material transactions between the University and its related entities have been eliminated.

The selected financial data and other information below have been derived by management from the audited financial statements of the University prepared in accordance with generally accepted accounting principles. The University currently makes certain annual operating and financial information, including its audited annual financial statement, available through the Municipal Securities Rulemaking Board -- Electronic Municipal Market Access (http://emma.msrb.org) as required by continuing disclosure agreements entered into by the University in accordance with Rule 15c2-12 promulgated under the Securities Exchange Act of 1934, as amended.

Summarized Statements of Financial Position
(in thousands)

	Fiscal Year Ended June 30,				
	2015	2016	2017	2018	2019
Total Assets	$19,000,235	$21,373,983	$23,082,794	$26,414,714	$28,079,450
Total Liabilities	$5,509,215	$6,861,394	$6,835,361	$7,840,748	$8,654,617
Net Assets:					
Without Donor Restrictions	7,153,207	8,447,469	9,466,538	11,152,992	11,392,252
With Donor Restrictions	6,337,813	6,065,120	6,780,895	7,420,974	8,032,581
Total Net Assets	$13,491,020	$14,512,589	$16,247,433	$18,573,966	$19,424,833
Total Assets	$19,000,235	$21,373,983	$23,082,794	$26,414,714	$28,079,450

Summarized Statements of Activities
(in thousands)

	Fiscal Year Ended June 30,				
	2015	2016	2017	2018	2019
Revenue and other support	$7,119,997	$8,576,320	$9,194,188	$10,093,931	$11,018,111
Expenses	(6,723,115)	(8,139,987)	(8,850,931)	(9,561,019)	(10,498,938)
Increase in net assets from operations	396,882	436,333	343,257	532,912	519,173
(Decrease) Increase in net assets from non-operating activities	122,301	585,236	1,391,587	1,793,621	331,694
(Decrease) Increase in total net assets	519,183	1,021,569	1,734,844	2,326,533	850,867
Net assets, beginning of year	12,971,837	13,491,020	14,512,589	16,247,433	18,573,966
Net assets, end of year	$13,491,020	$14,512,589	$16,247,433	$18,573,966	$19,424,833

Operating Budget

The University operates under a decentralized budget management structure, termed "Responsibility Center Management (RCM)." This framework promotes the broad stewardship of financial resources and encourages and rewards innovation and efficiency. The University engages in a disciplined budget process, under which each responsibility center submits a high level five-year budget during the fall and a detailed annual budget during the spring. Key central planning parameters include undergraduate total charges, the salary pool, the employee benefit rate, and income growth under the endowment spending rule. Budgets are reviewed by the University Office of Budget Planning & Analysis and discussed in detail in meetings with the Provost (schools and resource centers) or the Executive Vice President (administrative and auxiliary centers). The full University budget in both an RCM and Generally Accepted Accounting Principles (GAAP) format is presented to the University Trustees for approval in June. The University monitors budget performance during the course of the year, and requires that each responsibility center provide an updated forecast each quarter. The University reports GAAP performance against both the prior year actual results and the current year budget to the University Trustees on a quarterly basis.

Commonwealth Appropriations

Although the University has no legal relationship with the Commonwealth, it has, pursuant to specific legislative appropriations, received sums from the Commonwealth for its support and maintenance (primarily for the School of Veterinary Medicine) and for other specific purposes in each year since 1903. Approximately $34,518,000 of the total unrestricted revenue of the University for Fiscal Year 2019 was provided from Commonwealth appropriations. The Pennsylvania legislature has appropriated a slight increase for Fiscal Year 2020, most of which is targeted to support the School of Veterinary Medicine. Once an appropriation is made, it may be reduced

administratively, usually because of Commonwealth budgetary constraints. There is no assurance that the Commonwealth will not reduce the University's appropriation for Fiscal Year 2020 or thereafter.

Contributions

The University consistently has ranked among the top 15 private universities in America in philanthropic support. In December 2012, the Making History campaign was concluded, reaching $4.3 billion of philanthropic support under CASE reporting standards for fundraising commitments against an original goal of $3.5 billion. On April 12, 2018, Power of Penn Campaign was launched, with the goal to raise $4.1 billion in philanthropic support between 2013 and 2021. This is the most ambitious fundraising goal in Penn history. With shared University objectives, including other key priorities defined by the University's Schools and Centers, the University's goals are to raise an additional $569 million for undergraduate, graduate, and professional student aid-- if successful this would bring the total raised for such purposes to over $1.2 billion over the two campaigns-- and raise an additional $500 million for faculty support, bringing the total raised for such purpose to over $1.07 billion during that same period.

Contributions, defined as new gifts and pledges in GAAP reporting, for the years listed below were as follows:

	Contributions *(in thousands)*			
Fiscal Year Ended June 30	**Endowment**	**Facilities**	**Operations**	**Total**
2015	154,593	21,909	145,558	322,060
2016	189,279	32,371	169,684	391,334
2017	233,167	30,464	175,263	438,894
2018	165,233	79,126	211,501	455,860
2019	349,509	63,237	256,612	669,358

Sponsored Research

The University has long been a center for programs of research and training, and a significant portion of its research and graduate education programs are supported by research grants and contracts. The aggregate dollar amount of grants and contracts awarded to the University for sponsored research and training from governmental and private agencies during the years listed below were as follows:

Research Grants and Contracts *(in thousands)*	
Fiscal Year Ended June 30	**Total Grants and Contracts Awarded**
2015	$ 938,816
2016	1,030,626
2017	1,017,544
2018	1,091,438
2019	1,225,429

For the last decade, the University consistently has ranked in the top 20 universities performing sponsored research as tabulated by the National Science Foundation, based on obligations for research and development. Forecasts of future years' growth rates in externally reimbursed expenditures under sponsored research and instruction agreements are complicated by the uncertainty of future national policy decisions and budget priorities. For fiscal year 2017 (the most recent publicly available data) the University ranked 4th in total research expenditures in this survey.

Sponsored programs and research projects are funded as to both direct and indirect costs. Indirect costs are costs actually incurred, but differ from direct costs in that they have been incurred for purposes common to a number of projects, programs or activities of the University, and cannot be identified and charged directly to such specific projects, programs or activities with any reasonable degree of accuracy or without an inordinate amount of record keeping. Examples include utilities, maintenance, janitorial services and interest on debt issued to support research facilities, and such administrative services as accounting, purchasing, personnel and library.

Both direct and indirect cost activities are essential for the operation of the University. Without reimbursement for indirect costs, sponsored programs and research in the University would require additional institutional support of indirect services, to the detriment of other University activities. For most federal awards, the items included in each indirect cost category, the indirect cost rate and the appropriate base to be used in allocating such costs are reached through negotiation with the federal government.

In Fiscal Year 2019, the University received expendable grant and contract awards from the federal government (principally the Department of Health and Human Services) in the amount of $771.2 million, $226.5 million of which was awarded for indirect costs. Actual indirect cost revenues received, totaling $203.7 million for Fiscal Year 2019, represented approximately 5.9% of total unrestricted revenue. In Fiscal Year 2019, the University's Federal Indirect Cost Rate ("ICR") for research was 61% of modified total direct costs. Modified total direct costs requires that equipment, capital expenditures, charges for patient care, tuition remission, rental costs of off-site facilities, scholarships, and fellowships as well as the portion of each subgrant and subaward in excess of $25,000 are excluded from the calculation of ICR. The University's ICR for fiscal years 2020 and 2021 will be 62%. In fiscal year 2022, the University's ICR will increase to 62.5%. Certain types of federal awards include indirect costs at rates less than the research rate, such as training grants that are awarded at an 8% rate.

Some federal grants, especially for sponsored instructional and educational services, carry a stipulated limit on ICRs. Federal research grants and contracts are only infrequently subject to such limits.

Private foundations, corporations and other state and local agencies may also allow indirect costs as part of the sponsored program, contract or grant. In Fiscal Year 2019, the University received non-federal contracts and grants of $454.2 million, of which $ 103.8 million represented indirect cost recovery.

Endowment

As of June 30, 2019, the market value of the endowment totaled $14.7 billion, an increase of $872.3 million over the prior fiscal year. This increase was largely due to realized and unrealized gains from investments of $738.6 million, investment income of $76.0 million, new endowment gifts of $364.0 million, $270.8 million of transfers to create board designated funds, and a spending rule distribution outflow (as further described below) of $577.0 million to provide budgetary support for endowed programs. Investment income comprised approximately 6.1% of the University's total operating revenues for the fiscal year ended June 30, 2019.

Endowment Funds of the University
(in millions)

Fiscal Year ended June 30	Market Value
2015	10,134
2016	10,715
2017	12,213
2018	13,777
2019	14,650

The aggregate market value of the University's endowment funds at June 30, 2019 includes certain non-marketable real estate, private equity and natural resources investments, totaling approximately 37.5% of the portfolio, which are valued based on the most recent net asset value reported to the endowment by the managers of such investments, adjusted for cash flows where applicable.

The University is obligated under certain limited partnership agreements to advance additional funding periodically up to committed levels. At June 30, 2019, the University had unfunded commitments of $3.5 billion to a

variety of private equity, real estate, natural resources and other commitment funds. Based upon past experience, the University expects these commitments to be funded over the next five years depending on market conditions.

Endowment Spending Policy

In 1981, the University Trustees adopted an endowment spending policy governing the expenditure of funds invested in the University's Associated Investments Fund ("AIF"). The spending policy is designed: (i) to smooth the impact of short-term market moves that may affect the endowment's value; (ii) to make endowment distributions more predictable for purposes of managing and planning the University's operating budget; and (iii) to protect the real value of the endowment over time.

Under the current spending policy, the distribution for Fiscal Year 2020 is the sum of: (i) 70% of the prior fiscal year distribution adjusted by an inflation factor; and (ii) 30% of the prior fiscal year-end fair value of the AIF, lagged one year, multiplied by 5.0%.

Investment Policy

The objectives of the endowment are to provide both stable and perpetual support for the mission and programs of the University. Penn's well-designed spending rule provides for stability of endowment spending, and its equity-oriented investment strategy provides long-term returns high enough to ensure original purchasing power is maintained after spending. The vast majority of the University's endowment funds are invested in the AIF, an open-ended, pooled investment vehicle that had a market value of approximately $13.7 billion as of June 30, 2019. The AIF asset allocation as of June 30, 2019 is shown below.

Associated Investment Fund Asset Allocation Fiscal Year ended June 30, 2019	
Domestic Equity	5.7%
International Equity	10.8%
Emerging Market Equity	9.0%
Private Equity	27.3%
Real Estate	5.9%
Natural Resources	5.8%
	27.2%
Absolute Return	
Fixed Income/Cash	8.3%
Total	100.0%

Investment Performance

For Fiscal Year 2019, the AIF return was 6.5%. Longer measurement periods and comparisons with certain indices are reflected in the chart below.

Associated Investment Fund Annualized Returns for Periods ending June 30, 2019*	1-Year	3-Year	5-Year	10-Year
AIF (University Investment Pool)	6.5%	11.2%	7.8%	10.3%
Composite Benchmark**	6.3%	9.6%	5.7%	9.0%

* The investment returns shown above do not include expenses related to operating the Penn Office of Investments. Expenses related to the Penn Office of Investments are netted from returns on investments in the University's consolidated financial statements.

** The Composite Benchmark is a weighted average of the individual asset classes in the AIF, where the weights are set forth in accordance with AIF's strategic asset allocation.

Property, Plant and Equipment of the University

The book value of the University's investment in plant assets for the fiscal years ended June 30, 2019 and 2018 is shown below (in thousands):

Property, plant and equipment, net of depreciation *(in thousands)*	Fiscal Year Ended June 30,	
	2018	**2019**
Land and land improvements	$ 431,440	$ 438,885
Buildings	9,357,800	10,032,085
Moveable equipment and other	1,935,319	2,013,160
Construction-in-progress	929,115	1,354,708
Total property, plant, and equipment	12,653,674	13,838,838
Less accumulated depreciation	(5,335,055)	(5,809,846)
Property, plant and equipment, net	$7,318,619	$8,028,992

The University recorded $539,372,000 and $507,890,000 of depreciation expense for the years ended June 30, 2019 and 2018, respectively.

The University has conditional asset retirement obligations of $16,320,000 and $20,364,000 as of June 30, 2019 and 2018, respectively, which primarily relate to asbestos contained in buildings and underground steam distribution piping and are included within accrued expenses and other liabilities in the Consolidated Statements of Financial Position.

Indebtedness of the University's Academic Component

The following University indebtedness outstanding as of June 30, 2019, excluding any indebtedness of the Health System, is a general obligation of the University payable from the legally available assets and revenues of the University:

Long-Term Debt (Academic Component)	
Description	**Outstanding Principal Amount at June 30, 2019***
PHEFA The Trustees of the University of Pennsylvania Revenue Bonds, Series of 1990	$ 6,500,000
Washington County Authority Revenue Bonds, Series of 2004	51,200,000
PHEFA The Trustees of the University of Pennsylvania Revenue Bonds, Series B of 2009	4,435,000
PHEFA The Trustees of the University of Pennsylvania Revenue Bonds, Series C of 2009	4,095,000
PHEFA The Trustees of the University of Pennsylvania Revenue Bonds, Series of 2010	16,935,000
PHEFA The Trustees of the University of Pennsylvania Revenue Bonds, Series A of 2011	7,590,000
The Trustees of the University of Pennsylvania Taxable Bonds, Series 2012	300,000,000
PHEFA The Trustees of the University of Pennsylvania Revenue Bonds, Series A of 2015	191,090,000
PHEFA The Trustees of the University of Pennsylvania Revenue Bonds, Series B of 2015	160,950,000
PHEFA The Trustees of the University of Pennsylvania Revenue Bonds, Series C of 2015	8,020,000
PHEFA The Trustees of the University of Pennsylvania Refunding Revenue Bonds, Series A of 2016	167,435,000
PHEFA The Trustees of the University of Pennsylvania Revenue Bonds, Series A of 2017	178,395,000
PHEFA The Trustees of the University of Pennsylvania Revenue Bonds, Series A of 2018	183,145,000
Other Loans	12,774,000
Total Long-Term Debt (including current portion)	$1,292,564,000

On August 6, 2019, the University issued $300,000,000 of its 3.610% Taxable Bonds, Series 2019A (the "Series 2019A Bonds"). The proceeds of the Series 2019A Bonds, which mature and are payable in full on February

15, 2119, will be used for general corporate purposes of the University, including the financing or refinancing of capital projects and the payment of costs of issuing the Series 2019A Bonds.

On August 14, 2019, Pennsylvania Higher Educational Facilities Authority (PHEFA) issued Taxable Refunding Revenue Bonds, Series B of 2019 (the "Series 2019B Bonds"), in the aggregate principal amount of $213,585,000. The proceeds of the Series 2019B Bonds were used to refund and legally defease the University's obligations with respect to, $16,935,000 from the PHEFA Series of 2010, $136,745,000 from the PHEFA Series A of 2015 Bonds, and $45,570,000 from the PHEFA Series A of 2016 Bonds.

The limited obligation debt of the Health System is more particularly described under "CERTAIN FINANCIAL INFORMATION – Long Term Debt of the Health System" in APPENDIX A hereto.

Capital Expenditures

As a large and complex institution with substantial capital facilities, the University regularly invests in maintaining, updating and expanding its facilities to meet its operating needs. Capital expenditures of the University are funded from available resources of the University, which may include future fundraising activities or future capital borrowings.

Future Borrowing

Depending on market conditions, the University from time to time may incur additional indebtedness to refinance certain currently outstanding indebtedness of the University, convert interest rate modes to take advantage of market conditions, to finance future capital projects, or for other legally authorized purposes.

ADDITIONAL UNIVERSITY INFORMATION

Employee Relations

As of June 30, 2019, the University's academic component has an academic staff of approximately 12,421 (standing faculty, associated faculty and academic support staff) and 11,549 full-time administrative and support employees. Of these, 1,099 are covered by six collective bargaining agreements in the following general categories: housekeeping employees (533); groundskeepers (25); truck drivers (17); parking (7); mail (8); police officers (84); skilled trades (195); library workers (111); stage hands (4) and dining services (115). No other employees of the University's academic component are covered by collective bargaining agreements.

Collective bargaining agreements with respect to all unionized employees are in full force and effect. These contracts expire as follows: the skilled trade's contract, in June 2023; the dining services contract, in July 2020; the library contract, in July 2020; the police officers' contract, in August 2020; the housekeeping staff contract, in July 2022; and the stagehands' contract in September 2023.

Retirement Plan

Retirement benefits are principally provided to employees through contributory defined contribution plans. The Academic Component's policy with respect to its contribution is to provide up to 9% of eligible employees' salaries, while the Health System's contribution can be up to 6.5%. The University's contributions to these plans amounted to $212,316,000 and $194,597,000 for the fiscal years ended June 30, 2019 and June 30, 2018, respectively.

The University also has non-contributory defined benefit pension plans. Benefits under the plans generally are based on the employee's years of service and compensation during the years preceding retirement. Contributions to the plans are made in amounts necessary to at least satisfy the minimum required contributions as specified in the Internal Revenue Service Code and related regulations. The Academic Component's plan was frozen to new full-time entrants effective July 1, 2000 and part-time entrants effective July 1, 2018. UPHS's primary plan was frozen to new entrants effective July 1, 2010; the benefit accruals for all participants of the LGH and PHCS plans were frozen effective June 30, 2013 and June 30, 2011, respectively.

During the year ended June 30, 2018, certain terminated vested participants in the UPHS and LGH defined benefits pension plans were fully paid out as part of a one-time vested termination cashout offering (VTCO). The projected and accrued benefit obligations as of June 30, 2018, reflect the pay-out of benefits for these participants. The total lump sum payments from the VTCO were $156,928,000.

Insurance

The assets of the University, including assets of the Health System, are protected by a comprehensive program of insurance. The general liability coverage is placed with a reciprocal risk retention group known as "Pinnacle," which is owned by eighteen universities, including the University. The eighteen universities consist of both public and private institutions which have a united mission to maintain long-term stability while offering broad insurance coverage and minimize the total cost of risk. The general liability limit in the amount of $2,000,000 is subject to a $500,000 deductible, with the reciprocal risk retention group covering the next $1,500,000 of exposure. The University maintains all-risk property liability coverage with commercial insurance carriers at a limit of $2.50 billion for property, plant and equipment, with a $500,000 deductible per incident for University owned and leased properties and a $250,000 deductible per incident for the Health System owned and leased properties. The property policy does not include LG Health or PHCSH. In addition to Pinnacle and the all-risk property insurance program, the University's present coverage includes automobile liability insurance, professional liability, excess liability insurance, fine arts insurance, environmental impairment liability, surety bonds, workers' compensation, crime insurance, directors and officers insurance, fiduciary liability, cyber liability, helipad premises liability, non-owned aviation liability, student athlete injury liability, and an inventory of surety bonds that are contractually required to satisfy its obligations. The University conducts periodic reviews of its insurance needs in an effort to maintain adequate coverage at reasonable cost.

Litigation

The University is a party in various legal proceedings arising in the ordinary course of its operations. In the opinion of management, the University has adequate insurance to cover the estimated potential liability for damages in these cases, and, to the extent such liability is not covered by insurance, any adverse decision would not have a material adverse effect on the University's financial position.

Additional legal matters are pending and may arise in the future against the Health System. See "ADDITIONAL HEALTH SYSTEM INFORMATION - Litigation" in APPENDIX A to this Official Statement.

APPENDIX D

DEFINITIONS OF CERTAIN TERMS AND SUMMARY OF CERTAIN PROVISIONS OF THE BOND INDENTURE AND THE LOAN AGREEMENT

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SUMMARY OF CERTAIN PROVISIONS OF THE BOND INDENTURE AND THE LOAN AGREEMENT

The following are definitions of certain terms used in, and summaries of certain provisions of, the Bond Indenture and the Loan Agreement. The summaries set forth below should not be regarded as full statements of the documents themselves, or of the portions summarized. Reference is made to the documents in their entireties for the complete statements of the provisions thereof. Copies of the Bond Indenture and the Loan Agreement will be on file at the principal office of the Authority and the principal corporate trust office of the Bond Trustee. All capitalized terms used herein but not otherwise defined shall have the meanings given to them in the Bond Indenture.

The Bond Indenture provides that the 2019 Bonds will be issued in the Fixed Rate Mode under the terms therein. The Bond Indenture provides for conversion of all or a portion of the 2019 Bonds to other Interest Rate Modes; however, conversion to the another Interest Rate Mode is permitted only when the 2019 Bonds are subject to optional redemption at par, and the 2019 Bonds being converted are subject to mandatory tender for purchase on the conversion date. See, "THE 2019 BONDS – Purchase in Lieu of Redemption or Mandatory Tender for Purchase During Period When Bonds are Subject to Optional Redemption at Par" in the forepart of the Official Statement. The Summaries set forth below do not purport to describe the terms of the 2019 Bonds in an Interest Rate Mode other than the Fixed Rate Mode. If any 2019 Bonds are converted to another Interest Rate Mode, a new or supplemental disclosure document will be prepared that will describe such Bonds in the New Interest Rate Mode.

DEFINITIONS OF CERTAIN TERMS

"2008 Bonds" shall mean collectively, the Authority's The University of Pennsylvania Health System Variable Rate Revenue Bonds, Series A of 2008 and the Authority's The University of Pennsylvania Health System Revenue Bonds, Series B of 2008.

"2009 Bonds" shall mean the Authority's The University of Pennsylvania Health System Revenue Bonds, Series A of 2009.

"2012 Bonds" shall mean the Authority's University of Pennsylvania Health System Revenue Bonds, Series A of 2012.

"2014 Bonds" shall mean the Authority's University of Pennsylvania Health System Variable Rate Revenue Bonds, Series A of 2014.

"2015 Bonds" shall mean the Authority's University of Pennsylvania Health System Revenue Bonds, Series of 2015.

"2016 Bonds" shall mean the Authority's University of Pennsylvania Health System Health System Refunding Revenue Bonds, Series C of 2016.

"2017A Bonds" shall mean the Authority's University of Pennsylvania Health System Health System Revenue Bonds, Series A of 2017.

"2019 Bonds" shall mean the Authority's University of Pennsylvania Health System Health System Revenue Bonds, Series of 2019.

"2019 Master Note" shall mean the promissory note issued by the University, PPMC, Pennsylvania Hospital, CCA, TCCHHS, Wissahickon Hospice, LGH, LG Health, PHCS, PHCS System and PHCS Foundation to secure the 2019 Bonds under the Master Indenture.

"Additional Bonds" shall mean any bonds or series of bonds issued under the Bond Indenture subsequent to the issuance of the 2008 Bonds, the 2009 Bonds, the 2012 Bonds, the 2014 Bonds, the 2015 Bonds, the 2016 Bonds, the 2017A Bonds and the 2019 Bonds.

"Administrative Expenses" shall mean the reasonable fees and expenses of the Authority and the Bond Trustee, including reasonable legal fees and expenses, in connection with any Bonds or the administration of the Bond Indenture or the Loan Agreement.

"Authority Representative" shall mean the President, Vice President, Secretary, any Assistant Secretary, the Treasurer, any Assistant Treasurer, the Executive Director, any Assistant Executive Director, the Controller or any Assistant Controller of the Authority or any other officer, member or other person designated by a Certified Resolution of the Authority to act for any of the foregoing, either generally or with respect to the execution of any particular document or other specific matter, a copy of which shall be on file with the Bond Trustee.

"Bond Indenture" or "Indenture" shall mean the Trust Indenture dated as of May 1, 1994 between the Authority and the Bond Trustee, as amended and supplemented by a First Supplemental Trust Indenture dated as of March 15, 1996, and amended and restated as of August 2, 1999, as amended and supplemented by a Second Supplemental Trust Indenture dated as of July 15, 1998, and amended and restated as of August 2, 1999, as amended and supplemented by a Third Supplemental Trust Indenture dated as of August 2, 1999, as amended and supplemented by a Fourth Supplemental Trust Indenture dated as of November 1, 2004, as amended and supplemented by a Fifth Supplemental Trust Indenture dated as of January 1, 2005, as amended and supplemented by a Sixth Supplemental Trust Indenture dated as of March 1, 2005, as amended and supplemented by a Seventh Supplemental Trust Indenture dated as of April 1, 2008, as amended and supplemented by an Eighth Supplemental Trust Indenture dated as of November 1, 2008, as amended and supplemented by a Ninth Supplemental Trust Indenture dated as of July 1, 2009, as amended and supplemented by a Tenth Supplemental Trust Indenture dated as of February 1, 2011, as amended and supplemented by an Eleventh Supplemental Trust Indenture dated as of April 1, 2012, as amended and supplemented by a Twelfth Supplemental Trust Indenture dated as of June 1, 2014, as amended and supplemented by a Thirteenth Supplemental Trust Indenture dated as of May 1, 2015, as amended and supplemented by a Fourteenth Supplemental Trust Indenture dated as of August 1, 2016, as amended and supplemented by a Fifteenth Supplemental Trust Indenture dated as of December 1, 2017 and as further amended and supplemented by a Sixteenth Supplemental Trust Indenture dated as of December 1, 2019, as the same may be further amended or supplemented from time to time.

"Bond Trustee" shall mean U.S. Bank National Association, acting as successor Trustee under the Bond Indenture, and all successors and assigns.

"Bondholder", **"holder"** or **"owner"** shall mean, when used with respect to Bonds, the Person in whose name any Bond is registered in the registration books kept pursuant to the Bond Indenture.

"Bonds" shall mean the 2008 Bonds, the 2009 Bonds, the 2012 Bonds, the 2014 Bonds, the 2015 Bonds, the 2016 Bonds, the 2017A Bonds, the 2019 Bonds and any Additional Bonds authenticated and delivered pursuant to the Bond Indenture.

"Business Day" means a day which is not (a) a Saturday, Sunday or legal holiday on which banking organizations in the State of New York or the city in which the Principal Office of the Trustee is

located, (b) a day on which the New York Stock Exchange is closed or (c) a day on which the payment system of the Federal Reserve System is not operational.

"Certificate" shall mean a certificate or report, in form and substance satisfactory to the Authority and not unsatisfactory to the Bond Trustee, executed: (a) in the case of an Authority Certificate, by an Authority Representative; (b) in the case of a University Certificate, by a University Representative; and (c) in the case of a Certificate of any other Person, by such Person, if an individual, and otherwise by an officer, partner or other authorized representative of such Person.

"Certified Resolution" shall mean, as the context requires: (a) one or more resolutions or ordinances of the governing body of the Authority, certified by the Secretary or Assistant Secretary of the Authority, under its seal, to have been duly adopted or enacted and to be in full force and effect as of the date of certification; or (b) one or more resolutions of the governing body of the University, PPMC, Pennsylvania Hospital, TCCHHS or LGH, as applicable, or a duly authorized committee thereof, certified by the Secretary or Assistant Secretary of the University, PPMC, Pennsylvania Hospital, TCCHHS or LGH, as applicable, or other officer serving in a similar capacity, under its corporate seal, to have been duly adopted and to be in full force and effect as of the date of certification.

"Code" shall mean the Internal Revenue Code of 1986, as amended, and the applicable Treasury regulations thereunder, as the same may be amended from time to time. Reference herein to any specific provision of the Code shall be deemed to refer to any successor provision of the Code.

"Counsel" shall mean an attorney-at-law or law firm (which may be counsel to the Authority or the University) not unsatisfactory to the Authority or the Bond Trustee.

"Event of Default" shall mean any of the events described as an event of default under the headings "THE BOND INDENTURE - Events of Default and Remedies" and "THE LOAN AGREEMENT - Events of Default and Remedies" in this Appendix D.

"Facilities" shall mean any or all of the University's, PPMC's, Pennsylvania Hospital's, TCCHHS's or LGH's land, buildings, fixtures, equipment, furnishings and other physical assets and facilities including any of the foregoing which is owned by the University, PPMC, Pennsylvania Hospital, TCCHHS or LGH or which is otherwise operated by the University, PPMC, Pennsylvania Hospital, TCCHHS or LGH under a lease, license, operating agreement or other comparable contractual arrangement, but only to the extent (in the case of the University) that the foregoing is attributable to the Designated Units.

"Government Obligations" shall mean:

(a) direct obligations of, or obligations the timely payment of the principal of and interest on which is guaranteed by, the United States of America;

(b) evidences of ownership of a proportionate interest in specified direct obligations of, or specified obligations the timely payment of the principal of and the interest on which are unconditionally and fully guaranteed by, the United States of America, which obligations are held by a bank or trust company organized and existing under the laws of the United States of America or any state thereof in the capacity of custodian;

(c) obligations issued by the Resolution Funding Corporation pursuant to the Financial Institutions Reform, Recovery and Enforcement Act of 1989 (the "FIRRE Act"), (i) the principal of which obligations is payable when due from payments of the maturing principal of non-interest bear-

ing direct obligations of the United States of America which are issued by the Secretary of the Treasury and deposited in the Funding Corporation Principal Fund established pursuant to the FIRRE Act, and (ii) the interest on which obligations, to the extent not paid from other specified sources, is payable when due by the Secretary of the Treasury pursuant to the FIRRE Act; and

(d) obligations which are (i) issued by any state or political subdivision thereof or any agency or instrumentality of such a state or political subdivision, (ii) fully secured as to principal and interest by obligations described in clause (a), (b) or (c) above and (iii) rated at the time of purchase by a Rating Agency in its highest Rating Category.

"Loan Agreement" shall mean the Loan Agreement dated as of May 1, 1994 between the Authority and the University, as amended and supplemented by a First Supplemental Loan Agreement dated as of March 15, 1996 among the Authority, the University and PPMC, as amended and supplemented by a Second Supplemental Loan Agreement dated as of July 15, 1998 among the Authority and the University, PPMC, Pennsylvania Hospital and Phoenixville Hospital, as amended and Supplemented by a Third Supplemental Loan Agreement dated as of November 1, 2004, among the Authority, the University, PPMC and Pennsylvania Hospital, as amended and supplemented by a Fourth Supplemental Loan Agreement dated as of January 1, 2005 among the Authority, the University, PPMC and Pennsylvania Hospital, as amended and supplemented by a Fifth Supplemental Loan Agreement dated as of March 1, 2005 among the Authority, the University, PPMC and Pennsylvania Hospital, as amended and supplemented by a Sixth Supplemental Loan Agreement dated as of April 1, 2008 among the Authority, the University, PPMC and Pennsylvania Hospital, as amended and supplemented by a Seventh Supplemental Loan Agreement dated as of November 1, 2008 among the Authority, the University, PPMC and Pennsylvania Hospital, as amended and supplemented by an Eighth Supplemental Loan Agreement dated as of July 1, 2009 among the Authority, the University, PPMC and Pennsylvania Hospital, as amended and supplemented by a Ninth Supplemental Loan Agreement dated as of February 1, 2011 among the Authority, the University, PPMC and Pennsylvania Hospital, as amended and supplemented by a Tenth Supplemental Loan Agreement dated as of April 1, 2012 among the Authority, the University, PPMC and Pennsylvania Hospital, as amended and supplemented by an Eleventh Supplemental Loan Agreement dated as of June 1, 2014 among the Authority, the University, PPMC, Pennsylvania Hospital and TCCHHS, as amended and supplemented by a Twelfth Supplemental Loan Agreement dated as of May 1, 2015 among the Authority, the University, PPMC, Pennsylvania Hospital and TCCHHS, as amended and supplemented by a Thirteenth Supplemental Loan Agreement dated as of August 1, 2016 among the Authority, the University, PPMC, Pennsylvania Hospital and TCCHHS, as amended and supplemented by a Fourteenth Supplemental Loan Agreement dated as of December 1, 2017 among the Authority, the University, PPMC, Pennsylvania Hospital and TCCHHS and as further amended and supplemented by a Fifteenth Supplemental Loan Agreement dated as of December 1, 2019 among the Authority, the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH, as the same may be further amended or supplemented from time to time.

"Master Indenture" shall mean the Master Trust Indenture dated as of May 1, 1994, as supplemented by a First Supplemental Master Trust Indenture dated as of May 1, 1994, a Second Supplemental Master Trust Indenture dated as of March 15, 1996, a Third Supplemental Master Trust Indenture dated as of July 15, 1998, a Fourth Supplemental Master Trust Indenture dated as of November 1, 2004, a Fifth Supplemental Master Trust Indenture dated as of January 1, 2005, a Sixth Supplemental Master Trust Indenture dated as of March 1, 2005, a Seventh Supplemental Master Trust Indenture dated as of February 1, 2008, an Eighth Supplemental Master Trust Indenture dated as of April 1, 2008, a Ninth Supplemental Master Trust Indenture dated as of November 1, 2008, a Tenth Supplemental Master Trust Indenture dated as of July 1, 2009, an Eleventh Supplemental Master Trust Indenture dated as of August 1, 2009, a Twelfth Supplemental Master Trust Indenture dated as of February 1, 2011, a Thirteenth Supplemental Master Trust Indenture dated as of April 1, 2011, a Fourteenth Supplemental Master Trust Indenture dat-

ed as of April 1, 2012, a Fifteenth Supplemental Master Trust Indenture dated as of June 1, 2014, a Sixteenth Supplemental Master Trust Indenture dated as of May 1, 2015, a Seventeenth Supplemental Master Trust Indenture dated as of April 1, 2016, an Eighteenth Supplemental Master Trust Indenture dated as of August 1, 2016, a Nineteenth Supplemental Master Trust Indenture dated as of December 1, 2017, a Twentieth Supplemental Master Trust Indenture dated as of December 1, 2017, a Twenty First Supplemental Master Trust Indenture dated as of June 1, 2018 and a Twenty Second Supplemental Master Trust Indenture dated as of December 1, 2019.

"Master Note" or **"Note"** shall mean any Note (including the 2019 Master Note) issued, authenticated and delivered under the Master Indenture.

"Master Trustee" shall mean U.S. Bank National Association, acting as successor Trustee under the Master Indenture, and all successors and assigns.

"Outstanding" shall mean all Bonds authenticated and delivered under the Bond Indenture as of the time in question, except:

(a) all Bonds theretofore cancelled or required to be cancelled pursuant to the Bond Indenture;

(b) Bonds for the payment or redemption of which provision has been made in accordance with the Bond Indenture; provided that, if such Bonds are being redeemed, the required notice of redemption shall have been given or provision satisfactory to the Bond Trustee shall have been made therefor, and that if such Bonds are being purchased, there shall be a firm commitment for the purchase and sale thereof; and

(c) Bonds in substitution for which other Bonds have been authenticated and delivered pursuant to the Bond Indenture.

"Permitted Investments" shall mean and include any of the following, to the extent permitted under the applicable laws of the Commonwealth:

(a) Government Obligations;

(b) Debt Obligations which are (i) issued by any state or political subdivision thereof or any agency or instrumentality of such a state or political subdivision, and (ii) at the time of purchase, rated by a Rating Agency in either of its two highest Rating Categories;

(c) any bond, debenture, note, participation certificate or other similar obligation which is either (i) issued by the Federal National Mortgage Association, the Federal Home Loan Bank System, the Federal Home Loan Mortgage Corporation or the Student Loan Marketing Association, or (ii) backed by the full faith and credit of the United States of America;

(d) certificates of deposit, whether negotiable or nonnegotiable, issued by any bank, trust company or national banking association (including the Bond Trustee), provided that, unless issued by a Qualified Financial Institution, such certificates of deposit must be (i) continuously and fully insured by the Federal Deposit Insurance Corporation and (ii) continuously and fully secured, to the extent not insured by the Federal Deposit Insurance Corporation, by Government Obligations having a market value (exclusive of accrued interest, other than accrued interest paid in connection with the purchase of such securities) at all times at least equal to the principal amount of such certificates of deposit (or portion thereof not insured as aforesaid), which securities shall be lodged with the Bond

Trustee, or any Federal Reserve Bank or Depositary, as custodian, by the issuer of such certificates of deposit;

(e) bonds, notes, debentures, investment agreements or other evidences of indebtedness issued or guaranteed by a corporation which are, at the time of purchase, rated by a Rating Agency in any of its three highest Rating Categories;

(f) investments in money market funds which are registered under the Investment Company Act of 1940, whose shares are registered under the Securities Act of 1933 and which, at the time of purchase, are rated by a Rating Agency in either of its two highest Rating Categories, including money market funds for which the Bond Trustee is an advisor, provided that sums not in excess of specified limits may be invested in money market instruments which do not satisfy the foregoing requirements for periods of up to six months; and

(g) repurchase agreements with respect to and secured by Government Obligations, which agreements may be entered into with any Qualified Financial Institution or with primary government securities dealers which report to, trade with and are recognized as primary dealers by a Federal Reserve Bank and are members of the Securities Investors Protection Corporation, provided the Bond Trustee has a perfected first security interest in the collateral, that the Bond Trustee or an agent has possession of the collateral and that the collateral is, to the knowledge of the Bond Trustee, based upon an opinion of counsel, free and clear of third party claims.

"Person" shall mean an individual, a corporation, a partnership, an association, a joint stock company, a trust, any unincorporated organization, a governmental body or a political subdivision, a municipality, a municipal authority or any other group or organization of individuals.

"Pledged Revenues" shall mean (a) the loan payments received or receivable by the Authority from the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH under the Loan Agreement (or under any Master Note relating thereto), except for certain payments reserved to the Authority in respect of its Administrative Expenses and indemnification rights, (b) any and all other amounts payable to the Bond Trustee as specified in the Bond Indenture, and (c) all income and receipts on the funds held by the Bond Trustee under the Bond Indenture.

"Qualified Financial Institution" shall mean a bank, trust company, national banking association, insurance company or other financial services company whose unsecured long term debt obligations or insurance claims paying abilities (as applicable) at the time of purchase of an investment are rated by a Rating Agency in either of its two highest rating categories.

"Rating Agency" shall mean any of the following organizations (or their respective successor organizations, if applicable) if such organization maintains a rating on any series of Bonds at the time in question: (a) Moody's Investors Service, Inc.; (b) Standard & Poor's Ratings Service, a Division of The McGraw-Hill Companies, Inc.; (c) Fitch Ratings, Inc.; or (d) such other nationally recognized credit rating organization as may be designated by the University.

"Rating Category" shall mean, with respect to a particular investment or the provider thereof, any of the principal rating categories which are assigned by a Rating Agency to investments or providers of the type in question; provided that distinctions within any such principal rating category (including distinctions identified by numerical symbols or symbols such as "+" or "-") shall be disregarded for purposes of any specific Rating Category or minimum Rating Category required under the Bond Indenture.

"Regulatory Body" shall mean any federal, state or local government, department, agency, authority or instrumentality (other than the Authority acting in its capacity as lender pursuant to the Loan Agreement) and any other public or private body, including accrediting organizations, having regulatory jurisdiction and authority over the University, PPMC, Pennsylvania Hospital TCCHHS or LGH, as applicable, or their respective properties or operations.

"Scheduled Interest Payment Date" shall mean when used with respect to the 2019 Bonds, February 15 and August 15 of each year, commencing February 15, 2020.

"Supplemental Indenture" or **"indenture supplemental thereto"** shall mean any indenture amending or supplementing the Bond Indenture which may be entered into in accordance with the provisions of the Bond Indenture.

"University Representative" means the person or persons at the time authorized to act on behalf of the University, either generally or with respect to the execution of any particular document or other specific matter, as set forth in By-Laws of the University or a Certified Resolution of the University, copies of which shall be on file with the Authority and the Bond Trustee.

THE BOND INDENTURE

Pledge and Assignment

Under the Bond Indenture, the Authority pledges to the Bond Trustee all of its right, title and interest in and to the Pledged Revenues, the Loan Agreement (except for certain rights to receive payment of its Administrative Expenses and indemnification against liabilities) and the Master Notes (which shall be issued directly in favor of the Bond Trustee, as the Authority's assignee), all funds held in trust pursuant to the Bond Indenture and all of the rights and interest of the Authority in and to any additional property subsequently acquired as security for the obligations of the University, PPMC, Pennsylvania Hospital TCCHHS and LGH under the Loan Agreement and the Master Notes. Except as otherwise provided in the Bond Indenture, the foregoing shall be held by the Bond Trustee for the equal and ratable benefit of all Bondholders.

Issuance of 2019 Bonds

Upon the issuance of the 2019 Bonds, the Bond Trustee shall apply the proceeds thereof, together with other available funds, to pay the costs of the Project.

Additional Bonds

The Authority may issue one or more series of Additional Bonds from time to time and lend the proceeds thereof to the University, PPMC, Pennsylvania Hospital, TCCHHS and/or LGH pursuant to the Loan Agreement to provide funds for any purpose permitted under the Act. Such Additional Bonds may be issued upon compliance with all applicable requirements under the Master Indenture for the incurrence by the University, PPMC, Pennsylvania Hospital, CCA, Wissahickon Hospice, TCCHHS, LGH LG Health, PHCS, PHCS System and PHCS Foundation (collectively the "Obligated Group") of the indebtedness represented by the Additional Bonds. In addition, the Bond Indenture requires (a) the delivery of certain opinions of Counsel pertaining to the Additional Bonds; (b) the execution of such amendments or supplements to the Bond Indenture or Loan Agreement and such other financing documents as may be necessary; (c) the issuance of a Master Note under the Master Indenture to evidence and secure the payment obligations of the Obligated Group in respect of the Additional Bonds; and (d) the adoption of cer-

tain Certified Resolutions of the Authority, the University, PPMC, Pennsylvania Hospital, TCCHHS, and LGH pertaining to the Additional Bonds.

Special Clearing Fund

The Bond Trustee shall establish and maintain within the Special Clearing Fund a 2019 Bonds Special Clearing Fund into which it shall deposit a portion of the proceeds of the 2019 Bonds for the payment of certain costs associated with the issuance thereof. Any moneys remaining in the 2019 Bonds Special Clearing Fund as of the initial Scheduled Interest Payment Date shall be transferred to the 2019 Bonds Account of the Debt Service Fund.

Debt Service Fund

The Bond Trustee shall establish and maintain within the Debt Service Fund, a 2019 Bonds Account into which it shall deposit (i) all payments made by the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH for deposit in the 2019 Bonds Account of the Debt Service Fund pursuant to the Loan Agreement, and (ii) all other amounts required or permitted under the Bond Indenture to be deposited in the Debt Service Fund with respect to the 2019 Bonds. Moneys so deposited shall be used to pay the principal of the 2019 Bonds coming due at maturity or upon mandatory sinking fund redemption and to pay the interest coming due on the 2019 Bonds from time to time.

Redemption Fund

The Bond Trustee shall establish an account within the Redemption Fund into which it shall deposit any moneys provided by the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH for optional or extraordinary redemptions of Bonds. The moneys so deposited shall be used to pay the redemption price of Bonds called for any such optional or extraordinary redemption.

Funds Held for All Bondholders; Certain Exceptions

The moneys and investments held in the foregoing Funds established under the Bond Indenture shall be held in trust for the equal and ratable benefit of the holders of all Outstanding Bonds, except that: (a) on and after the date on which the interest on or principal or redemption price of any particular Bond or Bonds is due and payable from the Debt Service Fund or Redemption Fund, the unexpended balance of the amount deposited or reserved in either or both of such Funds for the making of such payments shall, to the extent necessary therefor, be held for the benefit of the Bondholder or Bondholders entitled thereto; (b) any special redemption fund established in connection with the issuance of any Additional Bonds for a refunding shall be held for the benefit of the holders of Bonds being refunded; and (c) the rights of any Bondholders with respect to principal or interest payments extended beyond their due dates by such holders shall be subordinate to the rights of Bondholders with respect to payments not so extended.

The Bond Indenture also permits the establishment of additional Funds (other than those referred to above) in connection with the issuance of any future series of Bonds, if so provided in the applicable Supplemental Indenture for such series of Bonds. Such Funds (which may include a debt service reserve fund for a particular series of Bonds or a purchase fund for Bonds which are subject to tender for purchase) may be held solely for the benefit and security of the series of Bonds for which they are established.

Investment or Deposit of Funds

All moneys on deposit in any Fund established under the Bond Indenture shall be considered trust funds, shall not be subject to lien or attachment and shall, except as provided in the Bond Indenture, be deposited in the commercial department of the Bond Trustee, until or unless invested or deposited as provided below. All deposits in the commercial department of the Bond Trustee shall, to the extent not insured, be fully secured as to principal by Government Obligations.

All investments shall be made at the direction of a University Representative or, in the absence of a specific direction, in the investments described in paragraph (f) under the definition of Permitted Investments in the Bond Indenture. No investments shall be made which would cause the Bonds to become "arbitrage bonds" within the meaning of Section 148 of the Code.

The principal of the Permitted Investments and the interest, income and gains received in respect thereof shall be applied as follows: (a) unless otherwise provided in an applicable Supplemental Indenture, all interest, income and profits received in respect of the Permitted Investments or upon the sale or other disposition thereof shall (after deduction of any losses) be retained in or transferred to the Debt Service Fund and credited against subsequent deposit requirements as provided in the Bond Indenture; and (b) whenever any other transfer or payment is required to be made from any particular Fund, such transfer or payment shall be made from such combination of maturing principal, redemption or repurchase prices, liquidation proceeds and withdrawals of principal as the Bond Trustee deems appropriate for such purpose.

Neither the Authority nor the Bond Trustee shall be accountable for any depreciation in the value of the Permitted Investments or any losses incurred upon any authorized disposition thereof.

The Bond Trustee shall determine the value of the assets in each of the Funds established under the Bond Indenture quarterly. As soon as practicable after each such valuation date, the Bond Trustee shall furnish to the Authority and the University a report of the status of each Fund as of such date. The Bond Trustee shall also advise the University at such time of the amount then available in the Debt Service Fund as a credit against future deposits prior to the next valuation date in direct order of the due dates of such deposits. In computing the value of assets in any Fund or Account, investments shall be valued at the market value thereof, and all investments and accrued interest thereon shall be deemed a part of such funds and accounts.

Covenants of the Authority

The Authority covenants, among other things, promptly to pay, but only from Pledged Revenues, the principal of and interest on all Bonds. The Authority shall enforce all of its rights and privileges under the Loan Agreement, and honor all of its obligations thereunder. The Authority shall not make any investment or other use of the proceeds of any series of Bonds issued under the Bond Indenture which would cause such series of Bonds to be "arbitrage bonds" as that term is defined in Section 148(a) of the Code.

Events of Default and Remedies

Each of the following is an Event of Default under the Bond Indenture:

(a) If the principal, purchase price or redemption price of any Bond is not paid when the same shall become due and payable at maturity, upon redemption or otherwise; or

(b) If an installment of interest on any Bond is not paid when the same shall become due and payable; or

(c) If the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH shall fail to pay, when due and payable, any sum due pursuant to the provisions of the Loan Agreement and such failure continues to exist as of the expiration of any grace period provided in the Loan Agreement; or

(d) If the Bond Trustee receives notice from the Master Trustee that an event of default under the Master Indenture has occurred and is continuing; or

(e) If any event of default under the Loan Agreement shall occur and be continuing (other than an event of default resulting from an occurrence described in paragraph (c) or (d) above); or

(f) If the Authority fails to comply with any provision of the Act which renders it incapable of fulfilling its obligations thereunder or under the Bond Indenture; or

(g) If the Authority fails to perform any of its covenants, conditions, agreements and provisions contained in the Bonds or in the Bond Indenture (other than as specified in paragraphs (a) and (b) above);

provided, however, that no default under paragraph (e), (f) or (g) above shall constitute an Event of Default until actual notice of such default by registered or certified mail shall be given to the Authority and the University by the Bond Trustee or by the holders of not less than 25% in aggregate principal amount of all Bonds Outstanding and until the Authority and the University shall have had 30 days after receipt of such notice to correct such default, and shall not have corrected it; provided, further that, if the default is such that it cannot be corrected within such 30 day period, it shall not constitute an Event of Default if corrective action is instituted by the Authority or the University within such 30 day period and is diligently pursued to completion by the Authority or the University.

Should any Event of Default occur and be continuing, then the Bond Trustee may, by notice in writing delivered to the Authority, the University and the Bondholders, declare the principal of all Bonds then Outstanding to be due and payable immediately, and upon such declaration the said principal, together with interest accrued thereon, shall become due and payable immediately; provided, however, that no such declaration shall be made if the University cures such Event of Default prior to the date of the declaration. The Bond Trustee shall be required to take the foregoing actions if requested in writing to do so by the holders of at least 25% in aggregate principal amount of all Outstanding Bonds. The Bond Trustee may annul any such declaration and its consequences if all Events of Default are cured after the declaration is made. Any such annulment shall be binding upon the Bond Trustee and upon all holders of Outstanding Bonds; but no such annulment shall extend to or affect any subsequent default.

The above provisions are subject to the further condition that the Bonds shall be accelerated only if and to the extent that the Master Note or Notes issued to secure the same have been accelerated pursuant to the Master Indenture, and that any such acceleration of Bonds shall be annulled if and to the extent that the acceleration of the Master Note or Notes securing the same has been annulled.

Upon the happening and continuance of any Event of Default, the Bond Trustee may, and upon the written request of the holders of not less than a majority in aggregate principal amount of the Bonds then Outstanding under the Bond Indenture shall: (i) proceed to protect and enforce its rights and the rights of the Bondholders under the laws of the Commonwealth of Pennsylvania and under the Loan

Agreement and the Bond Indenture by such suits, actions or special proceedings in equity or at law, or by proceedings in the office of any board or officer having jurisdiction, either for the specific performance of any covenant, condition or agreement contained herein or in aid of execution of any power granted to the Bond Trustee or for the enforcement of any proper legal or equitable remedy, as the Bond Trustee, being advised by Counsel, shall deem most effectual to protect and enforce such rights; and (ii) proceed to protect and enforce its rights as a Master Noteholder, on behalf of the Bondholders, in accordance with the Master Indenture.

Upon the occurrence and continuance of an Event of Default and upon the filing of a suit or other commencement of judicial proceedings to enforce the rights of the Bond Trustee and of the Bondholders under the Bond Indenture, the Bond Trustee shall be entitled, as a matter of right, to the appointment of a receiver or receivers with respect to the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH, their respective Facilities and the rents, revenues, issues, earnings, income, products and profits thereof, pending such proceedings, with such powers as the court making such appointment shall confer.

If any proceeding taken by the Bond Trustee on account of any Event of Default is discontinued or abandoned for any reason, or determined adversely to the Bond Trustee, then and in every case the Authority, the Bond Trustee and the Bondholders shall be restored to their former positions and rights under the Bond Indenture.

Actions by Bondholders

The holders of a majority in principal amount of the Outstanding Bonds under the Bond Indenture shall have the right to direct the method and place of conducting all remedial proceedings by the Bond Trustee. No Bondholder shall have any right to pursue any remedy under the Bond Indenture unless (a) the Bond Trustee shall have been given written notice of an Event of Default, (b) the holders of at least 25% in principal amount of the Outstanding Bonds shall have requested the Bond Trustee, in writing, to exercise the powers granted under the Bond Indenture or to pursue such remedy in its or their name or names, (c) the Bond Trustee shall have been offered security and indemnity satisfactory to it against costs, expenses and liabilities, and (d) the Bond Trustee shall have failed to comply with such request within a reasonable time.

Application of Moneys Upon Default

Following an Event of Default, any moneys on deposit in any Fund established under the Bond Indenture and any moneys received by the Bond Trustee upon the exercise of remedies under the Bond Indenture shall be applied:

First: to the payment of the costs of the Bond Trustee, including counsel fees, any disbursements of the Bond Trustee with interest thereon and its reasonable compensation;

Second: subject to the provisions described under "Funds Held for all Bondholders; Certain Exceptions" above to the payment of all interest then due or overdue on Outstanding Bonds or, if the amount available before the payment of interest is insufficient for such purpose, to the payment of interest ratably in accordance with the amount due in respect of each Bond; and

Third: subject to the provisions described under "Funds Held for all Bondholders; Certain Exceptions" above to the payment of the outstanding principal amount due or overdue, by acceleration or otherwise, with respect to all Bonds or, if the amount available for the payment of principal is insufficient for such purpose, to the payment of principal ratably in accordance with the amount due in respect of each Bond.

Employment and Duties of the Bond Trustee

The Bond Trustee accepts the trusts imposed upon it by the Bond Indenture, and agrees to observe and perform those trusts; all in the manner provided therein and subject to the conditions and terms thereof.

Removal and Resignation of the Bond Trustee

The Bond Trustee may resign by notifying the Authority and the University. The Authority or the Authority, at the request of the University Representative, or the holders of at least 25 percent in principal amount of the Outstanding Bonds may remove the Bond Trustee by notifying the Bond Trustee, and may appoint a successor Bond Trustee. Upon any such removal or resignation, the Authority shall promptly appoint a successor Bond Trustee by an instrument in writing, which successor Bond Trustee shall give notice of such appointment to all Bondholders as soon as practicable; provided, that in the event the Authority does not appoint a successor Bond Trustee prior to the date specified in the notice of resignation as the date when such resignation shall take effect, the resigning Bond Trustee or any Bondholder may petition any appropriate court having jurisdiction to appoint a successor Bond Trustee.

Amendments to Bond Indenture

The Bond Indenture may be amended or supplemented from time to time, without the consent of the Bondholders, for one or more of the following purposes: (a) in connection with the issuance of Additional Bonds, to set forth matters which are specifically required or permitted by the Bond Indenture or other matters which will not adversely affect the holders of the Bonds then Outstanding; (b) to add additional covenants of the Authority or to surrender any right or power conferred upon the Authority; (c) to add, revise or remove provisions relating to the payment of arbitrage rebate to the United States, provided that the Bond Trustee receives a written opinion of nationally recognized bond counsel to the effect that the amendment will not adversely affect the exclusion from federal income taxation of the interest on any Bonds then Outstanding; (d) to authorize the issuance of unregistered Bonds bearing coupons, provided that the Bond Trustee receives a written opinion of nationally recognized bond counsel that the amendment will not adversely affect the exemption from federal income taxation of the interest on any Bonds then Outstanding; (e) to make conforming changes in connection with any amendment of the Loan Agreement; (f) to add provisions for the delivery and utilization of a liquidity facility for the payment of the purchase price of Bonds to be purchased in accordance with the Bond Indenture; and (g) to cure any ambiguity or to cure, correct or supplement any defective (whether because of any inconsistency with any other provision of the Bond Indenture or otherwise) provision of the Bond Indenture or make any other amendments, provided that, in either case, the amendment in question does not materially impair the security of the Bond Indenture or materially adversely affect the Bondholders.

The Bond Indenture may be amended or supplemented from time to time with the approval of the holders of at least 51% in aggregate principal amount of the Outstanding Bonds; provided, that (a) no amendment shall be made which adversely affects one or more but less than all series of Bonds without the consent of the holders of at least 51% of the then Outstanding Bonds of each series so affected, (b) no amendment shall be made which affects the rights of some but less than all the Outstanding Bonds of any one series without the consent of the holders of 51% of the Bonds so affected, and (c) no amendment which alters the interest rates on any Bonds, the maturities, interest payment dates or redemption provisions of any Bonds or the security provisions of the Bond Indenture may be made without the consent of the holders of all Outstanding Bonds adversely affected thereby.

Amendments to Loan Agreement

The Loan Agreement may be amended without the consent of the Bondholders (a) to cure any ambiguity, inconsistency or formal defect or omission in the Loan Agreement, (b) in connection with the issuance of Additional Bonds, to set forth such matters as are permitted or required under the Bond Indenture in connection with such issuance or to set forth such other matters as will not adversely affect the holders of the Bonds then Outstanding, or (c) to make any other change in the Loan Agreement which, in the judgment of the Bond Trustee, does not materially adversely affect the rights of the holders of any Bonds. No prior notice of any amendments described in this paragraph shall be required.

Except for amendments, changes or modifications described above, neither the Authority nor the Bond Trustee shall consent to any amendment, change or modification of the Loan Agreement or waive any obligation or duty of the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH under the Loan Agreement without the written consent of the holders of not less than 51 percent in aggregate principal amount of the Outstanding Bonds affected thereby; provided, however, that no such waiver, amendment, change or modification shall permit termination or cancellation of the Loan Agreement, reduce the amounts payable by the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH under the provisions described under the heading "THE LOAN AGREEMENT - Repayment of Loan" herein or change the date when such payments are due without the consent of the holders of all the Bonds then Outstanding.

Defeasance

When interest on and principal or redemption price (as the case may be) of all Outstanding Bonds have been paid, or there shall have been deposited with the Bond Trustee an amount, evidenced by moneys or Government Obligations, the principal of and interest on which, when due, will provide sufficient moneys fully to pay the Bonds at the maturity date or date fixed for redemption thereof, as well as all other sums payable under the Bond Indenture by the Authority, the right, title and interest of the Bond Trustee under the Bond Indenture shall thereupon cease and the Bond Trustee, on demand of the Authority, shall release the Bond Indenture and shall execute such documents to evidence such release as may be reasonably required by the Authority and shall turn over to the University or to such person, body or authority as may be entitled to receive the same all balances remaining in any funds established under the Bond Indenture.

Unclaimed Moneys

Moneys deposited with the Bond Trustee for the payment of Bonds which remain unclaimed four (4) years after the date payment thereof becomes due shall, upon written request of the Authority, if the Authority is not at the time to the knowledge of the Bond Trustee in default with respect to any covenant in the Bond Indenture or the Bonds contained, be paid to the Authority or, at the direction of the Authority, to the University; and the holders of the Bonds for which the deposit was made shall thereafter be limited to a claim against the Authority; provided, however, that before making any such payment to the Authority or the University, the Bond Trustee shall mail notice of such payment to the holders of all Bonds for which unclaimed moneys are being held.

THE LOAN AGREEMENT

The Loan

Upon the issuance of the 2019 Bonds, the Authority will lend the proceeds thereof to the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH for application toward the costs of the Project.

The loan will be made by depositing the proceeds of the 2019 Bonds with the Bond Trustee for application toward the purposes set forth in the Bond Indenture.

Upon compliance with the applicable requirements under the Bond Indenture, the Authority may issue Additional Bonds for the purpose of making additional loans to the University, PPMC, Pennsylvania Hospital, TCCHHS and/or LGH. Such additional loans will be made to and repaid by the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH under the Loan Agreement.

The Loan Agreement will remain in effect until such time as all Outstanding Bonds and all other expenses payable by the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH under the Loan Agreement have been paid or provisions for such payment has been made as described under the heading "THE BOND INDENTURE - Defeasance" herein.

Repayment of Loan

Subject to modification in connection with the issuance of any Additional Bonds, the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH will be jointly and severally required to pay to the Bond Trustee, as the assignee of the Authority, or to the tender agent, as applicable, the following sums:

(a) To the Bond Trustee, on or before the 6th day preceding each principal maturity date or mandatory sinking fund redemption date for the Bonds, an amount equal to the principal of the Bonds becoming due on the immediately succeeding principal payment date in respect of the principal or redemption price of the Bonds, subject to credit for other available funds in the manner provided in the Bond Indenture.

(b) To the Bond Trustee, (i) on or before the 6th day preceding each Scheduled Interest Payment Date for Bonds bearing interest at rates per annum which are fixed or which vary or are subject to change or adjustment no more frequently than semiannually, and (ii) on or before the day preceding each Scheduled Interest Payment Date for Bonds in all other cases, an amount equal to the interest on the Bonds becoming due on the immediately succeeding Scheduled Interest Payment Date, subject to credit for other available funds in the manner provided in the Bond Indenture.

(c) To the Bond Trustee, at the times required under the Bond Indenture, such additional amounts as are required to make up any deficiency which may occur in any of the Funds established under the Bond Indenture, including each Debt Service Reserve Fund established for the Bonds of any series.

(d) To the tender agent at its discretion, such amounts as are required to pay the purchase price of the Bonds bearing interest in certain variable rate modes, which are tendered for purchase, to the extent amounts on deposit in any remarketing account or liquidity facility purchase account of any bond purchase fund established under the Bond Indenture with respect to such Bonds are insufficient therefor.

(e) To the Trustee, on or before the due date therefor, such amounts as are required to pay the special mandatory sinking fund redemption price of Bonds pledged to liquidity providers, and accrued interest thereon.

Payments received under the related Master Notes shall be credited against the foregoing. In addition, if the principal of the Bonds of any series coming due at maturity or upon mandatory redemption has been reduced pursuant to the Bond Indenture, the corresponding payments in respect of such principal under subsection (a) above shall be reduced accordingly.

Additional Payments

The University, PPMC, Pennsylvania Hospital, TCCHHS and LGH will be required to pay, upon requisition therefor, all Administrative Expenses of the Authority and the Bond Trustee.

The University shall compute and pay to the United States government all sums representing arbitrage rebate pursuant to Section 148(f) of the Code. Such computations shall be made with respect to the 2019 Bonds on specified dates occurring every five years and upon retirement of the last 2019 Bond.

Nature of Obligations

The obligations of the University under the Loan Agreement are limited as to payment to the assets and revenues of the Designated Units. The obligations of PPMC, Pennsylvania Hospital, TCCHHS and LGH under the Loan Agreement are unsecured general obligations of PPMC, Pennsylvania Hospital, TCCHHS and LGH. The payment obligations of the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH in respect of the 2019 Bonds are evidenced and secured by the 2019 Master Note issued in favor of the Bond Trustee. In connection with the issuance of any Additional Bonds, an additional Master Note will be issued under the Master Indenture to evidence and secure the payment obligations of the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH in respect of such Additional Bonds.

Termination of PPMC's, Pennsylvania Hospital's, TCCHHS's and LGH's Obligations under the Loan Agreement

PPMC, Pennsylvania Hospital and TCCHHS shall be released from their obligations under the Loan Agreement effective upon (i) their withdrawal from the Obligated Group in accordance with the terms of the Master Indenture and (ii) delivery to the Bond Trustee of an opinion of nationally recognized bond counsel to the effect that such release will not adversely affect the validity of the Bonds or the exclusion from gross income for federal income tax purposes of the interest thereon.

Insurance Proceeds and Condemnation Awards

The University shall notify the Authority and the Bond Trustee promptly of the receipt by any Member of the Obligated Group of any insurance proceeds or condemnation awards which are to be applied to the redemption or prepayment of the 2019 Master Note pursuant to the Master Indenture. Any amount so applied shall in turn be used to make a corresponding extraordinary redemption of 2019 Bonds pursuant to the Bond Indenture.

Additional Covenants

In addition to the foregoing, the Loan Agreement contains covenants which will require the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH, among other things, to: (a) comply in all material respects with applicable laws affecting the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH and the Facilities and operations of the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH; (b) perform and observe all of the covenants and agreements under the Master Indenture; (c) deliver to the Bond Trustee annually the audited financial statements for the Designated Units; (d) indemnify the Bond Trustee for certain liabilities arising out of the issuance of Bonds or actions taken or omitted under the Bond Indenture or the Loan Agreement; and (e) neither take or omit to take any action which would cause the Bonds to be "arbitrage bonds" under Section 148 of the Code.

Events of Default and Remedies

Each of the following shall constitute an Event of Default:

(a) If the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH fail to make any payment when due pursuant to the Loan Agreement, as described under paragraph (a) or (b) under "Repayment of Loan" above; or

(b) If the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH fail to make any payment in respect of the purchase price of Bonds when due under the Loan Agreement; or

(c) If the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH fail to make any other payment or to perform any other covenant, condition or agreement to be performed by them under the Loan Agreement; or

(d) If the University, PPMC, Pennsylvania Hospital, TCCHHS or LGH proposes or makes an assignment for the benefit of creditors or a composition agreement with all or a material part of its or their creditors, or a trustee, receiver, executor, conservator, liquidator, sequestrator or other judicial representative, similar or dissimilar, is appointed for the University, PPMC, Pennsylvania Hospital, TCCHHS or LGH or any of its assets or revenues, or there is commenced any proceeding in liquidation, bankruptcy, reorganization, arrangement of debts, debtor rehabilitation, creditor adjustment or insolvency, local, state or federal, by or against the University, PPMC, Pennsylvania Hospital or TCCHHS and if such is not vacated, dismissed or stayed on appeal within sixty (60) days; or

(e) If the Bond Trustee receives notice from the Master Trustee that an Event of Default under the Master Indenture has occurred and is continuing; or

(f) If for any reason the Bonds are declared due and payable by acceleration in accordance with the Bond Indenture;

provided, however, that no default under paragraph (c) above shall constitute an Event of Default until actual notice of such default by registered or certified mail shall be given to the University by the Authority or the Bond Trustee or any issuer of a bond insurance policy supporting Bonds and the University shall have had 30 days after receipt of such notice to correct the default and shall not have corrected it; and provided further that, if a default cannot be corrected within such 30-day period, it shall not constitute an Event of Default if corrective action is instituted by the University, PPMC, Pennsylvania Hospital, TCCHHS or LGH within the period and diligently pursued until the default is corrected.

If any Event of Default occurs and is continuing, the Authority (or the Bond Trustee as its assignee) may at its option exercise any one or more of the following remedies: (a) by mandamus, or other suit, action or proceeding at law or in equity, enforce all rights of the Authority, and require the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH to carry out any agreements with or for the benefit of the Bondholders and to perform its duties under the Act or the Loan Agreement; or (b) by action or suit in equity require the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH to account as if it were the trustee of an express trust for the Authority; or (c) by action or suit in equity enjoin any acts or things which may be unlawful or in violation of the rights of the Authority; or (d) upon the filing of a suit or other commencement of judicial proceeding to enforce the rights of the Bond Trustee and the Bondholders, have appointed a receiver or receivers with respect to the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH and their respective Facilities, with such powers as the court making such appointment shall confer; or (e) upon notice to the University, PPMC, Pennsylvania Hospital, TCCHHS and LGH, to accelerate the due dates of all sums due or to become due under the Loan Agreement, if and to

the extent that the Bonds have been accelerated under the Bond Indenture and such acceleration has not been annulled; or (f) enforce all rights and remedies as a Master Noteholder under the Master Indenture.

Amendments

The Loan Agreement may be amended from time to time in accordance with the provisions described under "THE BOND INDENTURE - Amendments to Loan Agreement" herein.

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APPENDIX E

SUMMARY OF CERTAIN PROVISIONS OF THE MASTER INDENTURE

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SUMMARY OF CERTAIN PROVISIONS OF THE MASTER INDENTURE

The following are summaries of certain provisions of the Master Indenture. The summaries should not be regarded as full statements of the Master Indenture or of the portions summarized. For complete statements of the provisions thereof, reference is made to the document in its entirety, copies of which will be available for inspection during normal business hours at the principal corporate trust office of the Master Trustee.

Definitions

The following are definitions of certain terms used in the Master Indenture, and in the following summaries of provisions of the Master Indenture:

"Accounts" shall mean any right to payment for goods sold or leased or for services rendered which is not evidenced by an instrument or chattel paper, whether or not it has been earned by performance.

"Accountant" shall mean any Entity who or which is appointed by any Member of the Obligated Group for the purpose of examining and reporting on or passing on questions relating to the financial statements of one or more Members of the Obligated Group, one or more Designated Units or the entire Obligated Group, has all certifications necessary for the performance of such services, and has a favorable reputation for skill and experience in performing similar services in respect of entities of a comparable size and nature.

"Affiliate" shall mean any Entity directly or indirectly controlling or controlled by or under direct or indirect common control with the University. For purposes of this definition, "control" when used with respect to any specified Entity means the power to direct the policies of such Entity, directly or indirectly, whether through the power to appoint and remove its directors, the ownership of voting securities, by contract, membership or otherwise; and the terms "controlling" and "controlled" have meanings correlative to the foregoing.

"Book Value" shall mean, with respect to any Property, the cost of such Property, net of accumulated depreciation, calculated in conformity with generally accepted accounting principles.

"Capitalization" shall mean the principal amount of all outstanding Long Term Indebtedness of the Obligated Group, plus the equity accounts of the Obligated Group (i.e., unrestricted fund balances, including any shareholder equity); provided that, with respect to the University, only the equity accounts of the Designated Units shall be taken into account.

"Clinical Care Associates" or **"CCA"** means Clinical Care Associates of the University of Pennsylvania Health System, a Pennsylvania non-profit corporation or any legal successor thereto.

"Code" shall mean the Internal Revenue Code of 1986, as amended from time to time, and any successor thereto.

"Completion Indebtedness" shall mean any Long-Term Indebtedness incurred by any Entity (a) for the purpose of financing the completion of acquisition or construction of Facilities with respect to which Long-Term Indebtedness was previously incurred in accordance with the provisions of the Master Indenture, and (b) in a principal amount not in excess of the amount required to (i) provide a completed and equipped Facility of substantially the type and scope contemplated at the time such prior Long-Term Indebtedness was originally incurred, (ii) capitalize interest during the period of construction, (iii) provide a reserve with respect to such Completion Indebtedness and (iv) pay the costs and expenses of issuing such Completion Indebtedness.

"Consultant" shall mean an Entity who or which (a) is not, and no member, stockholder, director, officer or employee of which is, an officer or employee of any Member of the Obligated Group or Affiliate, and (b) is appointed by any Member of the Obligated Group or Designated Unit for the purpose of passing on questions relating to the financial affairs, management or operations of one or more Members of the Obligated Group or the entire Obligated Group or one or more Designated Units and has a favorable reputation for skill and experience in performing similar services in respect of entities engaged in reasonably comparable endeavors. If any Consultant's report or opinion is required to be given with respect to matters partly within and partly without the expertise of any Consultant, such Consultant may rely upon the report or opinion of another Consultant possessing the necessary expertise.

"Counsel" shall mean an attorney-at-law or law firm (which may include counsel to a Member of the Obligated Group including inside counsel retained by a Member of the Obligated Group as an employee).

"CPUP" shall mean the division of the University the activities of which are recorded in the Financial Statements for the Clinical Practices of the University of Pennsylvania.

"Credit Facility" shall mean any letter of credit, line of credit, insurance policy, guaranty or other agreement constituting a credit enhancement or liquidity facility which is issued by a bank, trust company, savings and loan association or other institutional lender, insurance company or surety company for the benefit of the holder of any Indebtedness in order to provide a source of funds for the payment of all or any portion of the payment obligations of any Member of the Obligated Group under such Indebtedness.

"Debt Service Coverage Ratio" shall mean for any period of time the ratio determined by dividing the Income Available for Debt Service by the Debt Service Requirements.

"Debt Service Requirements" shall mean, for any period of time, the amounts payable or the payments required to be made with respect to Long-Term Indebtedness during such period. In determining Debt Service Requirements: (a) principal of and interest on a Guaranty shall equal 20% of the principal and interest on the indebtedness guaranteed (calculated as if it were Indebtedness), unless such Guaranty shall have been drawn upon, in which case, during the period beginning on the date such Guaranty is drawn upon and ending on the date the Entity whose obligation was guaranteed resumes paying currently scheduled principal and interest payments as they are scheduled to be due on such obligation, the amount of principal and interest taken into account shall equal 100% of the principal and interest on the indebtedness guaranteed (calculated as if it were Indebtedness) or unless the income available for debt service of the guaranteed Entity is at least 1.35 times maximum annual debt service of the guaranteed Entity for each of such Entity's immediately preceding three fiscal years in which case none of the principal of or interest on the Guaranty shall be taken into account; (b) Non-Amortizing Principal shall be (i) excluded from the calculation of Debt Service Requirements if, at the time of such calculation of Debt Service Requirements, the Non-Amortizing Principal does not exceed Unrestricted Assets as shown on the most recent Financial Statements of the Obligated Group, or (ii) if, at the time of such calculation, a Credit Facility secures payment of such Non-Amortizing Principal, such Non-Amortizing Principal shall be treated as due and payable in the amounts and at the times specified in the Credit Facility; (c) at the option of the obligor, Non-Amortizing Principal and principal of Interim Indebtedness may be assumed to be amortized from the date of incurrence thereof over a 30-year term with level debt service payments at an assumed interest rate equal to the then marginal borrowing cost of the obligor as certified in an Officer's Certificate (which as to such marginal interest rate shall be accompanied by and based on an opinion of a banking or investment banking institution knowledgeable in matters of health care financings); (d) Variable Rate Indebtedness shall be assumed to be Indebtedness the interest rate on which is equal to (i), in respect of any Outstanding Indebtedness, the average interest rate on such Indebtedness for the twelve (12) months immediately preceding the month prior to such calculation (or if such Indebtedness shall have had

a variable rate for less than a twelve (12) month period, the average of interest rates borne by such Indebtedness during the time in which it has borne interest at a variable rate) and (ii), in respect of any proposed Indebtedness, the initial rate established for such Indebtedness, as determined by an Officer's Certificate of the obligor; (e) any amounts payable from (i) funds available under an Escrow Deposit (other than amounts so payable solely by reason of the obligor's failure to make payments from other sources), (ii) funds available under a debt service reserve fund, or other similar reserve fund held by the holder of Long Term Indebtedness (or any trustee on its behalf) (provided that no Event of Default has occurred and is continuing under the Master Indenture and no default or event of default has occurred and is continuing with respect to the Long Term Indebtedness in question) or (iii) the proceeds of such Long Term Indebtedness (i.e. accrued and capitalized interest), shall be excluded from the determination of the Debt Service Requirements; (f) notwithstanding that the definition of Indebtedness excludes Credit Facilities, to the extent they are drawn upon to purchase, but not to retire, Indebtedness, interest expense incurred on any such Credit Facility in excess of the interest expenses on such Indebtedness shall be included in the determination of the Debt Service Requirements; (g) if an interest rate exchange agreement, interest rate cap or floor agreement or other similar arrangement or agreement is expressly identified pursuant to its terms as being entered into in connection with and in order to hedge interest rate fluctuations on any Long-Term Indebtedness and the unguaranteed debt of the obligated counterparty is rated in one of the three highest rating categories (without regard to any "+" or "-" or similar modifier) by a Rating Agency and no default exists under such agreement, the principal and interest payable during a period for such Long-Term Indebtedness for purposes of computing the Debt Service Requirements for such period shall be determined by reference to the net amount payable under, or after giving effect to, such agreement; and (h) if one or more guaranty agreements, put option agreements, credit support agreements or other similar arrangement or agreement is expressly identified pursuant to its terms as being entered into by one or more Members of the Obligated Group in connection with any Long-Term Indebtedness of any one or more Members of the Obligated Group and the unguaranteed debt of the obligated counterparty is rated in one of the three highest rating categories (without regard to any "+" or "-" or similar modifier) by a Rating Agency and no default exists under such agreement, the principal and interest payable during a period for such Long-Term Indebtedness for purposes of computing the Debt Service Requirements for such period shall be determined by reference to the net amount payable under, or after giving effect to, such arrangement or agreement including, without limitation, any fees, interest or other amounts payable to any one or more Members of the Obligated Group pursuant to such arrangement or agreement.

"Defeasance Obligations" shall mean (a) direct obligations of, or obligations the timely payment of the principal of and interest on which is guaranteed by, the United States of America; (b) evidences of ownership of a proportionate interest in specific direct obligations of, or specified obligations the timely payment of the principal of and the interest on which are unconditionally and fully guaranteed by, the United States of America, which obligations are held by a bank or trust company organized and existing under the laws of the United States of America or any state thereof in the capacity of custodian; (c) obligations issued by the Resolution Funding Corporation pursuant to the Financial Institutions Reform, Recovery and Enforcement Act of 1989 (the "FIRRE Act"), (i) the principal of which obligations is payable when due from payments of the maturing principal of non-interest bearing direct obligations of the United States of America issued by the Secretary of the Treasury and deposited in the Funding Corporation Principal Fund established pursuant to the FIRRE Act, and (ii) the interest on which obligations, to the extent not paid from other specified sources, is payable when due by the Secretary of the Treasury pursuant to the FIRRE Act; and (d) obligations that are (i) issued by any state or political subdivision thereof or any agency or instrumentality of such a state or political subdivision, (ii) fully secured as to principal and interest by obligations described in clause (a), (b) or (c) above and (iii) rated at the time of purchase by a Rating Agency in its highest rating category (without regard to any "+" or "-" or similar modifier).

"Designated Unit" shall mean HUP, CPUP and any other Unit which the University causes to become a Designated Unit in accordance with the Master Indenture.

"Entity" shall mean an individual, a corporation, a partnership, an association, a joint stock company, a joint venture, a trust, an unincorporated organization, a governmental unit or an agency, political subdivision or instrumentality thereof, a Unit or any other group or organization of individuals.

"Escrow Deposit" shall mean a segregated escrow fund or other similar fund, account or deposit in trust established with respect to any Indebtedness, consisting of (a) cash sufficient and irrevocably pledged to pay all or a portion of the principal of, and premium, if any, and interest on any Indebtedness, as the same shall become due or payable upon redemption, or (b) Defeasance Obligations the principal of and interest on which will be in an amount sufficient and irrevocably pledged to pay all or a portion of the principal of, and premium, if any, and interest on any Indebtedness, as the same shall become due or payable upon redemption, or (c) other investment securities the principal of and interest on which will be in an amount sufficient and irrevocably pledged to pay all or a portion of the principal of, and premium, if any, and interest on any Indebtedness, as the same shall become due or payable upon redemption, which result in the payments being deemed paid or the Indebtedness, or a portion thereof, being deemed no longer outstanding under the documents under which such Indebtedness was issued, or (d) any combination of the above.

"Event of Default," with respect to the Master Indenture, shall mean any event of default under the Master Indenture.

"Facilities" shall mean land, leasehold interests, buildings, fixtures and equipment of an Entity.

"Financial Statements" shall mean, for any period, the financial statements for such period containing such statements necessary for a fair presentation of unrestricted fund financial position or net worth, results of operations and changes in unrestricted fund balance or net worth and financial position as at the end of such reporting period, all stated in accordance with generally accepted accounting principles consistently applied, which have been examined by an independent Accountant and contain such independent Accountant's report thereon, which report shall not be other than a standard accountant's report.

"Fiscal Year" shall mean a period of twelve consecutive months ending on June 30 or on such other date as may be specified in an Officer's Certificate of the University executed and delivered to the Master Trustee.

"Governing Body" shall mean, when used with respect to any Entity, its board of directors, board of trustees, or other board, committee or group of individuals in which the powers of a board of directors or board of trustees is vested generally or for the specific matters under consideration.

"Governmental Issuer" shall mean any state, territory or possession of the United States or any municipal corporation or political subdivision formed under the laws thereof or any constituted authority or agency or instrumentality of any of the foregoing empowered to issue obligations on behalf thereof.

"Governmental Restrictions" shall mean federal, state or other applicable governmental laws or regulations affecting any Member of the Obligated Group, any Designated Unit or the facilities thereof placing restrictions and limitations on the (a) fees and charges to be fixed, charged or collected or (b) the timing of the receipt of such revenues.

"Gross Receipts" shall mean, (a) with respect to the University, all revenues, income, receipts and money (other than proceeds of borrowing and income thereon) received in any period by or on behalf of the Designated Units, and (b) with respect to any Member of the Obligated Group other than the University, all revenues, income, receipts and money (other than proceeds of borrowing and income thereon) received in any period by or on behalf of such Member of the Obligated Group. Gross Receipts shall include, without limiting the generality of the foregoing, (a) revenues derived from operations, (b) gifts,

grants, bequests, donations and contributions and the income therefrom, excluding gifts, grants, bequests, donations and contributions to the extent specifically restricted by the donor to a particular purpose inconsistent with their use for the payment of Obligations, (d) rentals received from the leasing of real or tangible personal property, and (e) proceeds derived from (i) insurance, (ii) Accounts, (iii) securities and other investments, (iv) inventory and other tangible and intangible property, (v) medical or hospital insurance, indemnity or reimbursement programs or agreements and (vi) contract rights and other rights and assets now or hereafter owned, held or possessed.

"Guaranty" shall mean, with respect to any Member of the Obligated Group other than the University, any obligation of a Member of the Obligated Group guaranteeing in any manner, directly or indirectly, any obligation of any other Entity which obligation of such other Entity would, if such obligation were the obligation of a Member of the Obligated Group, constitute Indebtedness under the Master Indenture and, with respect to the University, any obligation of the University guaranteeing in any manner, directly or indirectly, any obligation of any other Entity if such obligation of the University is a limited obligation of the University payable solely from Property of Designated Units.

"Holder" shall mean the registered owner of any Obligation. In the case of an Obligation issued to a trustee or other fiduciary acting on behalf of the holders of any bonds, notes or other similar obligations that are secured by such Obligation, including any registered securities depositary then in the business of holding (for the benefit of beneficial owners whose interests may be evidenced by book-entry registration) substantial amounts of obligations of types comprising the Obligations, the term Holder shall mean the trustee or other fiduciary or, if so provided in the Related Financing Documents, the holders of the Related Bonds in proportion to their respective interests therein, including any registered securities depositary then in the business of holding (for the benefit of beneficial owners whose interests may be evidenced by book-entry registration) substantial amounts of obligations of types comprising the Obligations.

"HUP" shall mean the division of the University the activities of which are recorded in the Financial Statements for the Hospital of the University of Pennsylvania.

"Income Available For Debt Service" shall mean, with respect to any period of time, excess of revenues over expenses, or, in the case of for-profit entities, net income after tax, as determined in accordance with generally accepted accounting principles, to which shall be added depreciation, amortization, other non-cash charges and interest expense on Long-Term Indebtedness, and from which shall be excluded any extraordinary items, any gain or loss resulting from either the extinguishment of Indebtedness or the sale, exchange or other disposition of assets not made in the ordinary course of business and any revenues or expenses of any Entity not a Member of the Obligated Group; provided that, in determining Income Available for Debt Service, the only revenues or expenses of the University to be taken into account shall be the revenues or expenses of its Designated Units reflected on financial statements prepared in accordance with generally accepted accounting principles.

"Indebtedness" of any Entity shall mean (a) all liabilities (exclusive of reserves) properly recordable as indebtedness on the audited financial statements of such Entity (except that, with respect to the University, "Indebtedness" shall include only such liabilities as are properly recordable as indebtedness on the audited financial statements of the Designated Units), and (b) all other obligations for borrowed money (except that, with respect to the University, "Indebtedness" shall include only such obligations to the extent payable solely from or secured solely by Property of Designated Units); provided that Indebtedness shall not include: any Indebtedness of any Member of the Obligated Group to any Designated Unit of or to any Member of the Obligated Group other than the University; any obligation that does not constitute indebtedness under generally accepted accounting principles; obligations of any Member of the Obligated Group under any Credit Facility unless such Credit Facility has been drawn upon to retire Indebtedness; or interest rate exchange agreements, interest rate cap or floor agreements or other similar

arrangements or agreements expressly identified pursuant to their terms as being entered into in connection with and in order to hedge interest rate fluctuations on any Indebtedness.

"Initial Notes" shall mean the notes issued as Obligations under the Master Indenture to secure one or more series of Pennsylvania Higher Educational Facilities Authority The Trustees of the University of Pennsylvania Health Services Revenue Bonds in an original aggregate principal amount not in excess of $500,000,000.

"Insurance Consultant" shall mean an Entity who or which (a) is not, and no member, stockholder, director, officer or employee of which is, an officer or employee of any Member of the Obligated Group or Affiliate, and (b) is appointed by any Member of the Obligated Group or a Designated Unit for the purpose of reviewing and recommending insurance coverages for the facilities and operations of one or more Members of the Obligated Group or the entire Obligated Group or one or more Designated Unit and has a favorable reputation for skill and experience in performing such services in respect of facilities and operations of a comparable size and nature.

"Interim Indebtedness" shall mean any Indebtedness that matures more than one year and not more than five years from its date of issuance and that the obligor intends to refinance through issuance of Long-Term Indebtedness.

"LG Health" means Lancaster General Health, a Pennsylvania nonprofit corporation or any legal successor thereto.

"LG Hospital" or **"LGH"** means The Lancaster General Hospital, a Pennsylvania nonprofit corporation or any legal successor thereto.

"Lien" shall mean any mortgage, deed of trust or pledge of, security interest in or lien or encumbrance on any Property of any Designated Unit or any Property of any Member of the Obligated Group other than the University in favor of, or which secures any Indebtedness or other obligation to, any Entity other than a Designated Unit or any Member of the Obligated Group other than the University.

"Long-Term Indebtedness" shall mean all (a) Indebtedness which, at the time of incurrence or issuance, has a final maturity or term greater than one year or which is renewable at the option of the obligor thereof for a term greater than one year from the date of original incurrence or issuance and (b) Short Term Indebtedness for which a commitment by a financial lender exists to provide financing to retire such Short-Term Indebtedness and such commitment provides for the repayment of principal on terms that would, if such commitment were implemented, constitute Long-Term Indebtedness; provided, that, Long Term Indebtedness shall not include (i) Non-Recourse Indebtedness except that, to the extent that income directly attributable to facilities financed with Non-Recourse Indebtedness is included in Income Available for Debt Service in any computation of the Debt Service Coverage Ratio, principal of and interest on such Non-Recourse Debt shall be taken into account in computing such Debt Service Coverage Ratio; (ii) Subordinated Indebtedness; (iii) current obligations payable out of current revenues, including current payments for the funding of pension plans and contributions to self insurance programs; (iv) obligations under contracts for supplies, services or pensions, allocated to the current operating expenses of future years in which the supplies are to be furnished, the services rendered or the pensions paid; and (v) rentals payable under leases which are not properly capitalized under generally accepted accounting principles.

"Master Trustee" shall mean U.S. Bank National Association, as successor trustee, and its successors in the trusts created under the Master Indenture.

"Maximum Annual Debt Service Requirement" shall mean the greatest Debt Service Requirements among the Debt Service Requirements for the then current Fiscal Year and the Debt Service Requirements for each future Fiscal Year.

"Member of the Obligated Group" shall mean (a) the University, PPMC, Pennsylvania Hospital, CCA, Wissahickon Hospice, TCCHHS, LG Hospital, LG Health, PHCS, PHCS System, and PHCS Foundation and each other Entity that becomes a Member of the Obligated Group in accordance with the provisions of the Master Indenture, whether or not such Entity has issued any Obligations thereunder, and which has not withdrawn from the Obligated Group, and (b) when used in respect of any particular Obligation or other Indebtedness, shall mean the obligor thereunder.

"Non-Amortizing Principal" shall mean that portion of the principal of Long-Term Indebtedness (a) maturing within a period of twelve consecutive months in which 25% or more of the original principal amount of such Long-Term Indebtedness matures, which principal amount is not required by the documents governing such Long-Term Indebtedness to be amortized before the commencement of such twelve month period in amounts such that, following such amortization, the principal amount maturing during such twelve month period will be less than 25% of such original principal amount, or (b) that may be tendered for purchase or redemption prior to maturity at the option of the holder thereof (including any of such Long-Term Indebtedness that is payable on demand within 365 days from the date of incurrence), or (c) that is required to be tendered for purchase or redemption prior to maturity thereof (other than a purchase or redemption required upon the future occurrence of a condition or event) within a period of twelve consecutive months in which 25% or more of the original principal amount of such Long-Term Indebtedness is required to be redeemed or tendered for purchase.

"Non-Recourse Indebtedness" shall mean any Indebtedness incurred to finance or refinance the acquisition or construction of any Property secured by a Lien, liability for which is effectively limited to the acquired or constructed Property subject to such Lien, with no recourse, directly or indirectly, to any other Property of any Member of the Obligated Group.

"Obligated Group" shall mean all Members of the Obligated Group.

"Obligation" shall mean any obligation issued under the Master Indenture by a Member of the Obligated Group pursuant to the terms of the Master Indenture.

"Officer's Certificate" shall mean a certificate signed, in the case of a corporation, by the Chairman, Vice Chairman, President or Chief Financial Officer thereof or, in the case of a certificate delivered by any other Entity, the chief executive or chief financial officer thereof, or, in either case, by any other person authorized by resolution of the Governing Body of such Entity to execute such certificate. When an Officer's Certificate is required under the Master Indenture to set forth matters relating to one or more Members of the Obligated Group, such Officer's Certificate may be given in reliance upon another certificate, or other certificates, and supporting materials, if any, provided by any duly authorized officer of the applicable Member of the Obligated Group.

"Opinion of Bond Counsel" shall mean an opinion in writing signed by an attorney or firm of attorneys experienced in the field of municipal bonds whose opinions are generally accepted by purchasers of municipal bonds.

"Opinion of Counsel" shall mean an opinion in writing signed by any Counsel acceptable to the Master Trustee.

"Outstanding" (a) when used with reference to Obligations, shall mean, as of any date of determination, all Obligations theretofore issued or incurred and not paid and discharged other than (i) Obligations theretofore cancelled by the Master Trustee or delivered to the Master Trustee for cancel-

lation, (ii) Obligations deemed paid and no longer Outstanding as provided in the Master Indenture or for which an Escrow Deposit has been established, (iii) Obligations in lieu of which other Obligations have been authenticated and delivered or have been paid pursuant to the provisions of the Master Indenture regarding mutilated, destroyed, lost or stolen Obligations unless proof satisfactory to the Master Trustee has been received that any such Obligation is held by a bona fide purchaser for value without notice, and (iv) any Obligation held by any Member of the Obligated Group; or, (b) when referring to Indebtedness other than Obligations, shall mean, as of any date of determination, all Indebtedness theretofore issued or incurred other than (i) Indebtedness which has been paid, or for which an Escrow Deposit is established, (ii) Indebtedness for which an Opinion of Counsel stating that such Indebtedness has been discharged has been provided to the Master Trustee, (iii) evidence of Indebtedness for which new evidence of Indebtedness has been substituted in a manner analogous to clause (a)(iii) above and (iv) any evidence of Indebtedness held by any Member of the Obligated Group, provided that Obligations or evidences of Indebtedness held by any Member of the Obligated Group may be deemed by such Member of the Obligated Group to be continuously Outstanding if such Obligations or evidences of Indebtedness were acquired with an intent that they only be held temporarily in connection with an effort to remarket them to Entities other than the Member of the Obligated Group.

"Pennsylvania Hospital" shall mean Pennsylvania Hospital of the University of Pennsylvania Health System, a Pennsylvania nonprofit corporation or any legal successor thereto.

"Permitted Liens" shall mean the Master Indenture, all Related Financing Documents and, as of any particular time:

(a) Any lien from any Member of the Obligated Group to any Designated Unit or to any Member of the Obligated Group other than the University;

(b) Any judgment lien or notice of pending action against any Member of the Obligated Group so long as (i) such judgment or pending action is being contested and execution thereon has been stayed or the period for responsive pleading or appeal has not lapsed, or (ii) in the absence of such contest, neither the pledge and security interest of the Master Indenture nor any Property of any Member of the Obligated Group will be materially impaired or subject to material loss or forfeiture;

(c) (i) Rights reserved to or vested in any municipality or public authority by the terms of any right, power, franchise, grant, license, permit or provision of law affecting any Property; (ii) any liens on any Property for taxes, assessments, levies, fees, water and sewer charges, and other governmental and similar charges and any liens of mechanics, materialmen, laborers, suppliers or vendors for work or services performed or materials furnished in connection with such Property, which are not due and payable or which are not delinquent or which, or the amount or validity of which, are being contested and execution thereon is stayed or, with respect to liens of mechanics, materialmen, laborers, suppliers or vendors, which have been due for less than 90 days; (iii) easements, rights-of-way, servitudes, restrictions, oil, gas or other mineral reservations and other minor defects, encumbrances, and irregularities in the title to any Property, Plant and Equipment which do not materially impair the use of such Property, Plant and Equipment; (iv) to the extent that it affects title to any Property, the Master Indenture; and (v) landlord's liens;

(d) Any lease;

(e) Any Lien securing Indebtedness provided such Lien also secures all Obligations (other than Obligations representing Subordinated Indebtedness or Non-Recourse Indebtedness) on a parity basis;

(f) Any Lien arising by reason of good faith deposits with any member of the Obligated Group in connection with leases of real estate, bids or contracts (other than contracts for the payment of money), deposits by any member of the Obligated Group to secure public or statutory obligations, or to secure, or in lieu of, surety, stay or appeal bonds, and deposits as security for the payment of taxes or assessments or other similar charges;

(g) Any Lien arising by reason of deposits with, or the giving of any form of security to, any governmental agency or any body created or approved by law or governmental regulation for any purpose at any time as required by law or governmental regulation as a condition to the transaction of any business or the exercise of any privilege or license, or to enable any Member of the Obligated Group to maintain self-insurance or to participate in any funds established to cover any insurance risks or in connection with workers' compensation, unemployment insurance, pension or profit sharing plans or other similar social security plans, or to share in the privileges or benefits required for companies participating in such arrangements;

(h) Any Lien arising by reason of an Escrow Deposit;

(i) Any Lien in favor of a trustee or the holder of Indebtedness on the proceeds of Indebtedness prior to the application of such proceeds;

(j) Any Lien on moneys deposited by patients or others with any Member of the Obligated Group as security for or as prepayment for the cost of patient care;

(k) Any Lien on Property received by any Member of the Obligated Group through gifts, grants or bequests, such Lien being due to restrictions on such gifts, grants or bequests of Property or the income thereon and any Lien on pledges, gifts or grants to be received in the future including any income derived from the investment thereof;

(l) Statutory rights of the United States of America by reason of federal funds made available under 42 U.S.C. §291 et seq. and similar rights under other federal and state statutes;

(m) Liens existing at the time of a consolidation or merger pursuant to the Master Indenture, on the date of acquisition of any Property or at the time an Entity becomes an Member of the Obligated Group or a Unit becomes a Designated Unit;

(n) Any Lien existing on the date of authentication and delivery of the first Obligation under the Master Indenture provided that no such Lien (or the amount of Indebtedness secured thereby) may be increased, extended, renewed or modified to apply to any Property of any Member of the Obligated Group not subject to such Lien on such date or to secure Indebtedness not Outstanding as of that date, unless such Lien as so extended, renewed or modified otherwise qualifies as a Permitted Lien under the Master Indenture;

(o) A security interest in any funds or accounts established pursuant to the provisions of any Related Financing Documents;

(p) Liens in the form of purchase money security interests in Property financed with the proceeds of Indebtedness secured thereby;

(q) Any Lien on Property; provided, however, that the aggregate Book Value of all Property encumbered pursuant to this paragraph (q) shall not exceed 15% of the Book Value of all Property of the Obligated Group as shown in the Financial Statements for the most recent Fiscal Year or, if more recent, any period of 12 full consecutive calendar months for which the Financial Statements have been reported upon by an independent Accountant;

(r) Liens on accounts receivable arising as a result of sale of such accounts receivable with or without recourse or pledge thereof to secure Short-Term Indebtedness permitted to be incurred under the Master Indenture;

(s) Any Lien on inventory that does not exceed 25% of the Book Value thereof;

(t) Any Lien subordinate to the lien described in paragraph (e) of this definition required by a statute under which a Related Bond is issued or required by any Entity providing a Credit Facility securing payments of principal of and interest on Obligations;

(u) Liens on Property due to rights of third party payors for recoupment of amounts paid to any Member of the Obligated Group; and

(v) Any Lien existing for not more than ten days after the University shall have received notice thereof.

"PHCS" shall mean Princeton HealthCare System Holding, Inc., a New Jersey nonprofit corporation or any legal successor thereto.

"PHCS System" shall mean Princeton HealthCare System, a New Jersey Nonprofit Corporation, a New Jersey nonprofit corporation or any legal successor thereto.

"PHCS Foundation" shall mean Princeton HealthCare System Foundation, Inc., a New Jersey nonprofit corporation or any legal successor thereto.

"PPMC" shall mean Presbyterian Medical Center of the University of Pennsylvania Health System d/b/a Penn Presbyterian Medical Center, a Pennsylvania non-profit corporation or any legal successor thereto.

"Property" shall mean any and all rights, titles and interests in and to any and all assets whether real or personal, tangible or intangible, including cash, and wherever situated; provided that, with respect to the University, "Property" shall include only rights, titles and interests in and to assets included in financial statements of its Designated Units prepared in accordance with generally accepted accounting principles; further provided that, "Property" shall not include donor restricted funds as determined in accordance with generally accepted accounting principles.

"Property, Plant and Equipment" shall mean all Property classified as property, plant and equipment under generally accepted accounting principles.

"Rating Agency" shall mean any of the following organizations (or their respective successor organizations, if applicable) (a) Standard & Poor's Ratings Service, a Division of The McGraw-Hill Companies, Inc., (b) Moody's Investors Service, Inc., and (c) Fitch Ratings, Inc. If all of such Rating Agencies no longer perform the functions of a securities rating service for whatever reason, the term "Rating Agency" shall thereafter be deemed to refer to any other nationally recognized rating service or services as shall be designated in writing by the University to the Master Trustee, provided that such designee shall not be unsatisfactory to the Master Trustee.

"Related Bond Indenture" shall mean any indenture, bond resolution or other comparable instrument pursuant to which a series of Related Bonds is issued.

"Related Bond Issuer" shall mean the issuer of any issue of Related Bonds.

"Related Bond Trustee" shall mean the trustee and its successors in the trust created under any Related Bond Indenture, and if there is no such trustee, shall mean the Related Bond Issuer.

"Related Bonds" shall mean the revenue bonds or other obligations issued by Governmental Issuer pursuant to a Related Bond Indenture, the proceeds of which are loaned or otherwise made available to (a) a Designated Unit or a Member of the Obligated Group other than the University in consideration of the execution, authentication and delivery of an Obligation to or for the order of such Governmental Issuer, or (b) any Entity other than a Designated Unit or a Member of the Obligated Group other than the University in consideration of the issuance to such Governmental Issuer (i) by such Entity of any evidence of indebtedness or other obligation of such Entity, and (ii) by a Member of the Obligated Group of a Guaranty in respect of such indebtedness or other obligation, which Guaranty is represented by an Obligation.

"Related Financing Documents" shall mean:

(a) in the case of any Obligation, (i) all documents, including any Related Bond Indenture, pursuant to which the proceeds of the Obligation are made available to an Member of the Obligated Group, the payment obligations evidenced by the Obligation are created and any security for the Obligation (if permitted under the Master Indenture) is granted, and (ii) all documents creating any additional payment or other obligations on the part of an Member of the Obligated Group which are executed in favor of the Holder in consideration of the Obligation proceeds being loaned or otherwise made available to the Member of the Obligated Group; and

(b) in the case of Indebtedness other than Obligations, all documents relating thereto which are of the same nature and for the same purpose as the documents described in clause (a) above.

"Short-Term Indebtedness" shall mean all Indebtedness excluding: (a) a Guaranty of an obligation of a Member of the Obligated Group; (b) Long Term Indebtedness; and (c) the current portion of Long-Term Indebtedness.

"Subordinated Indebtedness" shall mean any Indebtedness that is expressly made subordinate and junior in right of payment of principal of, redemption premium, if any, and interest on, all Obligations, on terms and conditions which substantially require that (a) no payment on account of principal of, redemption premium, if any, or interest on such Subordinated Indebtedness shall be made, nor shall any property or assets be applied to the purchase or other acquisition or retirement of such Subordinated Indebtedness if, at the time of such payment or application, or immediately after giving effect thereto, there shall exist a default in the payment of the principal of, redemption premium, if any, or interest on any Obligations, or there shall have occurred an Event of Default with respect to any Obligations, as defined therein and in the Master Indenture, and such Event of Default shall not have been cured or waived or shall not have ceased to exist; and (b) in the event that any Subordinated Indebtedness is declared or otherwise becomes due and payable because of the occurrence of an event of default with respect thereto, the Holders of Obligations shall be entitled to receive payment in full thereof before the holders of the Subordinated Indebtedness shall be entitled to receive any payment on account of such Subordinated Indebtedness as a result of such event of default, and no holder of Subordinated Indebtedness, or a trustee acting on such holder's behalf, shall be entitled to exercise any control over proceedings to enforce the terms and conditions of the Master Indenture.

"Supplemental Indenture" shall mean an indenture supplemental to, and authorized and executed pursuant to, the terms of the Master Indenture.

"TCCHHS" shall mean The Chester County Hospital and Health System, a Pennsylvania nonprofit corporation or any legal successor thereto.

"Total Revenues" shall mean, as to any period of time, net operating revenue plus non-operating revenues less any allowance for uncollectible accounts, as determined in accordance with generally accepted accounting principles consistently applied; provided that any determination of Total Revenues of the University shall take into account only such revenues and allowances of uncollectible accounts includable in financial statements for the Designated Units prepared in accordance with generally accepted accounting principles.

"Transfer" shall mean any act or occurrence the result of which is to dispossess any Entity of an asset or interest therein, including specifically, but without limitation, the forgiveness of any debt; provided, however, that the payment of bills or other accounts in the ordinary course of business shall be excluded.

"Unit" shall mean any enterprise owned and operated by the University for which the University has obtained separate Financial Statements.

"University" shall mean The Trustees of the University of Pennsylvania, a Pennsylvania nonprofit corporation, or any legal successor thereto.

"University Debt" shall mean all obligations for borrowed money that, at the time of incurrence or issuance, have a final maturity or term greater than one year or which is renewable at the option of the obligor thereof for a term greater than one year from the date of original incurrence or issuance properly recordable as indebtedness on the audited financial statements of the University.

"University Property" shall mean any and all rights, titles and interests in and to any and all assets whether real or personal, tangible or intangible, including cash, and wherever situated; provided that, "Property" shall not include donor restricted funds as determined in accordance with generally accepted accounting principles.

"Unrestricted Assets" shall mean all assets of the Obligated Group not restricted as to use and available to pay debt service on indebtedness of the Obligated Group. References to the amount or value of Unrestricted Assets shall mean such amount or value at the market value thereof with respect to marketable securities, and such amount or value at the cost or appraised value thereof with respect to all other assets.

"Variable Rate Indebtedness" shall mean any portion of Indebtedness the interest rate on which fluctuates subsequent to the time of incurrence.

"Wissahickon Hospice" means the Wissahickon Hospice of The University of Pennsylvania Health System d/b/a Penn Medicine At Home, a Pennsylvania nonprofit corporation or any legal successor thereto.

Issuance of Obligations

Each Member of the Obligated Group is permitted to issue Obligations evidencing (a) Indebtedness, (b) obligations to issuers of Credit Facilities or (c) obligations to counterparties on interest rate exchange agreements, interest rate cap or floor agreements or other similar arrangements or agreements. All Members of the Obligated Group are jointly and severally liable for each Obligation (but the liability of the University is limited as described below). The number and aggregate principal amount of Obligations is not limited (except to the extent described in "Limitations on Issuance of Additional Indebtedness" below).

Limitation on Liability of University; Designated Units

The obligations of the University under the Master Indenture are limited as to payment to Property of Designated Units, except with respect to any obligation that the University has chosen to guaranty. Any actions, payments, covenants, obligations or other things to be done or performed by the University are based on the use of the Property of the Designated Units and not the Property of the University generally. The initial Designated Units are the Hospital of the University of Pennsylvania and the Clinical Practices of the University of Pennsylvania.

Conversion to General Obligation Debt

The University is permitted, without the consent of the owners of the Obligations, to convert all Outstanding Obligations under the Master Indenture to general obligations of the University if, and only if, each Rating Agency then currently rating Obligations confirms that such action will not cause its rating of the Obligations to be lowered. Upon conversion of the Obligations to general obligations of the University, the operational and financial covenants and restrictions in the Master Indenture will be removed, including the covenants described in the following headings of this Appendix E: "Limitations on Creation of Liens"; "Limitations on Issuance of Additional Indebtedness"; Rate Covenant"; and "Sale, Lease or Other Disposition of Property". In addition, all references to Designated Units in the Master Indenture would be amended to refer to the University as a whole.

Security for Obligations

The Master Trustee has been granted a security interest in the funds and accounts established under the Master Indenture and in the Gross Receipts. The Members of the Obligated Group have covenanted that, during the continuance of an Event of Default, they will deliver to the Master Trustee, in each month, Gross Receipts sufficient to pay (or, with respect to Debt Service Requirements payable less frequently than monthly, to accumulate through equal monthly installments) Debt Service Requirements on the Obligations and other amounts due under the Master Indenture during the following month. All Obligations will be secured on a parity basis, except that a particular Obligation may be secured by a Credit Facility or by a debt service reserve fund or account securing only payment of such Obligation.

Additional Obligated Group Members; Additional Designated Units

Entities of the University may become Members of the Obligated Group, and the University may name additional Designated Units, if, in addition to certain other requirements, (a) (i) an Officer's Certificate of the University demonstrating that the Debt Service Coverage Ratio of the Obligated Group for the most recent period of 12 full consecutive calendar months preceding the proposed date of such Entity becoming a Member of the Obligated Group or such Unit becoming a Designated Unit for which Financial Statements are available would not have been less than 1.10 had the Entity been a Member of the Obligated Group or the Unit a Designated Unit for such twelve-month period; or (ii) a report of a Consultant demonstrating that the forecasted Debt Service Coverage Ratio of the Obligated Group for each of the two financial reporting periods of 12 consecutive calendar months immediately succeeding the date of such Entity becoming a Member of the Obligated Group or such Unit becoming a Designated Unit (A) is not less than 1.50, or (B) is not less than 1.10 and not less than 65% of what it would have been if such Entity were not made a Member of the Obligated Group or such Unit had not been a Designated Unit, or (C) is higher than it would have been if such Entity had not become a Member of the Obligated Group or if such Unit had not become a Designated Unit; provided, however, that if the Debt Service Coverage Ratio of the Obligated Group calculated pursuant to clause (ii) is greater than 1.25, an Officer's Certificate of the University may be substituted for the required Consultant's report.

Withdrawal From the Obligated Group; Cessation of Status as a Designated Unit

No Member of the Obligated Group may withdraw from the Obligated Group and no Unit may be released from status as a Designated Unit unless, in addition to meeting other requirements, (a) an Officer's Certificate of the University demonstrating that the Debt Service Coverage Ratio of the Obligated Group for the most recent financial reporting period of 12 full consecutive calendar months preceding the proposed date of such action for which Financial Statements are available, if such action had actually occurred at the beginning of such period, would not have been less than 1.10; or (b) a report of a Consultant demonstrating that the forecasted Debt Service Coverage Ratio of the Obligated Group for each of the two financial reporting periods of 12 full consecutive calendar months immediately succeeding the date of such action (i) is at least 1.50, or (ii) is less than 1.50 but is at least 1.10 and is not less than 65% of what it would have been if such action had not taken place, or (iii) is higher than it would have been if such action had not taken place; provided, however, that if the Debt Service Coverage Ratio of the Obligated Group is greater than 1.25, an Officer's Certificate of the University may be substituted for the required Consultant's report.

The University may not withdraw as a Member of the Obligated Group unless, in addition to meeting the requirements of the preceding paragraph, the Property of the Designated Units has been conveyed to a separate corporation or corporations and such corporation or corporations have become Members of the Obligated Group.

Insurance

The University on behalf of each Designated Unit and each other Member of the Obligated Group agrees on behalf of itself that it will maintain insurance (including one or more self-insurance programs considered to be adequate by an Insurance Consultant) covering such risks and in such amounts as, in its reasonable judgment, is adequate to protect it and its Property and operations. At least once every five years, the University shall employ an Insurance Consultant to prepare and file with the Master Trustee a report on the adequacy of the insurance maintained by the University on behalf of each Designated Unit and the other Members of the Obligated Group. Within 60 days after the end of each Fiscal Year, the University is required to file with the Master Trustee an Officer's Certificate to the effect that the insurance coverage maintained by the University and the other Members of the Obligated Group complies with the requirements of the Master Indenture.

Insurance and Condemnation Proceeds

Amounts received by any Member of the Obligated Group as insurance proceeds with respect to any casualty loss or as condemnation awards with respect to any Property may be used in such manner as the recipient may determine unless the amount of such proceeds or awards received with respect to any casualty loss or condemnation exceeds 10% of the Book Value of the Property, Plant and Equipment of the Obligated Group, in which case such amounts must be applied (a) (i) in such a way that the Debt Service Coverage Ratio of the Obligated Group for each of the two periods of 12 full consecutive calendar months following the date on which such proceeds or awards are expected to have been fully applied is forecasted to be not less than 1.25; and (ii), if the Debt Service Coverage Ratio of the Obligated Group projected for either of the periods described in clause (i) is less than 1.50, a written report of a Consultant confirming such certification; or (b) a written report of a Consultant stating the Consultant's recommendations, including recommendations as to the use of such proceeds or awards, to cause the Debt Service Coverage Ratio of the Obligated Group for each of the periods described in sub-paragraph (a) above to be not less than 1.25, or, if in the opinion of the Consultant the attainment of such level is impracticable, to the highest practicable level.

Limitations on Creation of Liens

Each Member of the Obligated Group agrees not to create or suffer to be created any Liens upon any of its Property other than Permitted Liens.

Limitations on Issuance of Additional Indebtedness

Members of the Obligated Group are not permitted to issue Indebtedness other than the Initial Notes and Indebtedness permitted under the Master Indenture, including the following:

(a) Permitted Short-Term Indebtedness. Short-Term Indebtedness may be issued in an aggregate principal amount not exceeding 20% of the Total Revenues of the Obligated Group for the most recent period of 12 full consecutive calendar months for which Financial Statements are available, provided that the Obligated Group shall either (i) be free from all such Short-Term Indebtedness, except for an amount equal to 5.0% of Total Revenues of the Obligated Group, for a period of twenty consecutive calendar days in each Fiscal Year or (ii) deliver an Officer's Certificate of the University to the effect that such Short-Term Indebtedness was incurred or continues to exist as a result of a temporary delay in the receipt by any Obligated Group Member or Designated Unit of amounts due from third-party payors, governmental agencies or grantors and that the outstanding principal amount of Short-Term Indebtedness has been reduced to the minimum amount practicable under the circumstances.

(b) Permitted Long-Term Indebtedness. Long-Term Indebtedness as to which one of the following tests is met:

(i) Maximum Annual Debt Service Requirements of the Obligated Group following issuance of the Long-Term Indebtedness will not exceed 15% of operating expenses of the Obligated Group for the most recent period of 12 full consecutive calendar months preceding the date of issuance of such Long-Term Indebtedness; or

(ii) the principal amount of all Long-Term Indebtedness of the Obligated Group Outstanding immediately following issuance of the Long-Term Indebtedness will not exceed 66-2/3% of Capitalization; or

(iii) for the most recent period of 12 full consecutive calendar months for which Financial Statements are available, the Debt Service Coverage Ratio of the Obligated Group, taking into account the average annual Debt Service Requirements on the Long-Term Indebtedness to be incurred as if that amount had been payable during such period, was not less than 1.25; or

(iv) the forecasted Debt Service Coverage Ratio, taking into account the Long-Term Indebtedness to be incurred, for each of the two Fiscal Years next succeeding the date on which, in the case of Long-Term Indebtedness to be incurred to finance capital improvements (other than a Guaranty), such capital improvements are expected to be placed in operation, or, in the case of Long-Term Indebtedness not financing capital improvements or in the case of a Guaranty, each of the two full Fiscal Years next succeeding the date on which the Long-Term Indebtedness is to be incurred, is forecasted to be at least 1.10; or

(v) (A) for each of the two most recent periods of 12 full consecutive calendar months for which Financial Statements are available, the Debt Service Coverage Ratio of the Obligated Group, taking into account the average annual Debt Service Requirements on the Long-Term Indebtedness to be incurred as if that amount had been payable during each of such periods, was at least 1.00; and (B) a Consultant has determined that the failure by the Obligated Group to attain a Debt Service Coverage Ratio of at least 1.20 in each of such periods was caused by com-

pliance with Governmental Restrictions or changes in public or private third-party reimbursement programs and the Obligated Group has generated Income Available for Debt Service at the highest levels practicable; or

(vi) (A) for each of the two most recent periods of 12 full consecutive calendar months for which Financial Statements are available, the Debt Service Coverage Ratio of the Obligated Group (without taking into account Debt Service Requirements on the Long-Term Indebtedness to be incurred) was at least 1.00; (B) the forecasted Debt Service Coverage ratio, taking into account the Long-Term Indebtedness to be incurred, for each of the two Fiscal Years next succeeding the date on which, in the case of Long-Term Indebtedness to be incurred to finance capital improvements (other than a Guaranty), such capital improvements are expected to be placed in operation, or, in the case of Long-Term Indebtedness not financing capital improvements or in the case of a Guaranty, each of the two full Fiscal Years next succeeding the date on which the Long-Term Indebtedness is to be incurred, is forecasted to be at least 1.00; and (C) a Consultant has determined that the failure of the Obligated Group to attain a Debt Service Coverage Ratio of at least 1.20 for the period described in (A) and the failure to attain a forecasted Debt Service Coverage Ratio of the Obligated Group of at least 1.10 for the period described in (B) is caused by compliance with Governmental Restrictions or changes in public or private third-party reimbursement programs and the Obligated Group has generated and is expected to generate Income Available for Debt Service at the highest levels practicable.

(c) Completion Indebtedness. Completion Indebtedness may be incurred without limitation.

(d) Refunding Indebtedness. Refunding Indebtedness may be incurred without meeting the tests set forth in (b) above if (i) an Officer's Certificate certifying that the Debt Service Requirements on the Indebtedness proposed to be issued for each Fiscal Year (or, at the option of the University, for each period of 12 consecutive calendar months) is not in excess of 115% of the Debt Service Requirements on the Outstanding Indebtedness being refunded for the same Fiscal Year or 12-month period; or (ii) if the maximum Debt Service Requirements on the Indebtedness proposed to be issued for any Fiscal Year (or, at the option of the University, for any 12 consecutive calendar months) is in excess of 110% of the maximum Debt Service Requirements on the Outstanding Indebtedness being refunded for such Fiscal Year or 12-month period, such evidence as may be required to show that such proposed Indebtedness may be incurred in accordance with the requirements under the heading "Limitations on Issuance of Additional Indebtedness" herein.

(e) Non-Recourse Indebtedness Subordinated Indebtedness. Non-Recourse Indebtedness and Subordinated Indebtedness may be incurred without limitation.

(f) Conversion of Indebtedness. For purposes of the covenant against incurrence of Indebtedness contained under the heading "Limitations on Issuance of Additional Indebtedness" herein, the conversion of Indebtedness from Variable Rate Indebtedness to Indebtedness bearing a fixed interest rate or from one type of Variable Rate Indebtedness to another type of Variable Rate Indebtedness or from Indebtedness bearing a fixed interest rate to Variable Rate Indebtedness pursuant to the terms of the documents providing for the issuance of such Indebtedness shall not be considered to be incurrence of Indebtedness.

Rate Covenant

The Obligated Group covenants to set rates and charges for its facilities, services and products such that the Debt Service Coverage Ratio of the Obligated Group, calculated at the end of each Fiscal Year, will not be less than 1.10. If the required Debt Service Coverage Ratio is not achieved in any Fiscal Year, the Members of the Obligated Group must retain a Consultant to make recommendations to in-

crease the Debt Service Coverage Ratio of the Obligated Group in the following Fiscal Year to the level required or, if in the opinion of the Consultant the attainment of such level is impracticable, to the highest level attainable. The Obligated Group is obligated to implement such recommendations to the extent such recommendations are feasible. So long as the provisions of this paragraph are complied with, failure to achieve the required Debt Service Coverage Ratio is not an Event of Default under the Master Indenture if the cash flow of the Obligated Group is sufficient to pay the total operating expenses of the Obligated Group and to pay the debt service on all Indebtedness of the Obligated Group.

If a Consultant's report is obtained to the effect that Governmental Restrictions have been imposed that make it impossible to achieve the required Debt Service Coverage Ratio, then such coverage requirement shall be reduced to the maximum coverage permitted by such Governmental Restrictions but in no event less than 1.00.

Sale, Lease or Other Disposition of Property

Each Member of the Obligated Group agrees that it will not make Transfers in any Fiscal Year of its Property except for Transfers of one or more of the following types:

(a) Of inventory, supplies and accounts receivable to any Entity, if such Transfer is made in the ordinary course of business.

(b) Of Property, Plant and Equipment, to any Entity if, prior to the sale, lease or other disposition, there is delivered to the Master Trustee an Officer's Certificate stating that, in the judgment of the signer, such Property, Plant and Equipment has become inadequate, obsolete, worn out, unsuitable, unprofitable, undesirable or unnecessary and the sale, lease, removal or other disposition thereof will not impair the structural soundness, efficiency or economic value of the remaining Property, Plant and Equipment; provided, however, that no such Officer's Certificate shall be required to be delivered to the Master Trustee with respect to the Transfer of any item of Property, Plant and Equipment having a Book Value of less than $500,000 or with respect to any Transfer of Property, Plant and Equipment otherwise permitted under the Master Indenture.

(c) To any Designated Unit or to any Member of the Obligated Group other than the University without limit.

(d) In an amount in any Fiscal Year not exceeding 10% of the Book Value of all Property of the Obligated Group as shown in the Financial Statements of the Obligated Group for the preceding Fiscal Year.

(e) Of Property, to any Entity (i) if a report of a Consultant is delivered to the Master Trustee demonstrating that after taking such Transfer into account, the forecasted Debt Service Coverage Ratio of the Obligated Group for each of the two Fiscal Years next succeeding the date on which such Transfer is expected to occur (A) would be not less than 1.75 (provided, however, that if the Debt Service Coverage Ratio is greater than 2.00, an Officer's Certificate may be substituted for the report of a Consultant), or (B) would be not less than 1.25 and not less than sixty-five percent of what it would have been in the absence of such transfer; or (C) would be higher than in the absence of such Transfer, or (ii) if the University shall unconditionally guarantee a principal amount of Obligations equal to the Book Value of the Property, Plant and Equipment transferred.

(f) Of cash or cash equivalents to any Entity, if prior to such Transfer, an Officer's Certificate of the Obligated Group Member making such Transfer is delivered to the Master Trustee stating that (i) such Transfer will be a loan evidenced in writing, (ii) such loan is for a reasonable term and bears a reasonable interest rate and (iii) such loan is reasonably expected to be repaid in accordance with its terms.

(g) To any Entity provided that the Member of the Obligated Group proposing to make such Transfer shall receive as consideration for such Transfer services or Property equal to the fair market value of the asset so transferred.

(h) To the University (other than to a Designated Unit of the University) if the University (whether or not an Obligated Group Member) shall unconditionally guarantee a principal amount of Obligations equal to the Book Value of the Property transferred.

(i) Any lease.

(j) Any Transfer in connection with a consolidation, merger, sale or conveyance described in the next section.

Consolidation, Merger, Sale or Conveyance

Each Member of the Obligated Group covenants that it will not merge or consolidate with, or sell or convey all or substantially all of its assets to, and the University covenants that it will not sell or convey all or substantially all of the assets of any Designated Unit to, any Entity unless either such Entity is a Designated Unit or a Member of the Obligated Group other than the University or the following requirements are met:

(a) Either it will be the surviving Entity, or the successor Entity (if other than an Member of the Obligated Group) will be an Entity organized and existing under the laws of the United States of America or a state thereof and such Entity shall become a Member of the Obligated Group or a Designated Unit; and

(b) No Member of the Obligated Group including such successor corporation immediately after such merger or consolidation, or such sale or conveyance, would be in default in the performance or observance of any covenant or condition of the Master Indenture and one of the tests for the incurrence of Long-Term Indebtedness would be met for the incurrence of one additional dollar of Long-Term Indebtedness; and

(c) If not all principal of and interest on any Related Bond has been paid, the Master Trustee shall have received an Opinion of Bond Counsel, in form and substance satisfactory to the Master Trustee, to the effect that the consummation of such merger, consolidation, sale or conveyance will not adversely affect the validity of the Related Bond nor cause interest payable on Related Bonds intended to be excludable from gross income for federal income tax purposes to become includable in gross income under the Code; and

(d) There shall be delivered to the Master Trustee an Officer's Certificate to the effect that the unrestricted fund balance or net worth of the Obligated Group following such merger, consolidation, sale or conveyance will not be less than 85% of the unrestricted fund balance or net worth of the Obligated Group prior to such merger, consolidation, sale or conveyance.

Notwithstanding the provisions above, the University may convey all of the Property of any Designated Unit to a separate corporation without complying with the provisions of clauses (b) and (d) above, if such corporation receiving such Property complies with the provisions of clauses (a) and (c) above and if after such conveyance, the unrestricted fund balance or net worth of such corporation is at least equal to 85% of the unrestricted fund balance of the Designated Unit immediately prior to such conveyance.

Events of Default

The following events constitute Events of Default under the Master Indenture:

(a) the Members of the Obligated Group shall fail to make any payment on any Obligation when due, subject to the expiration of any applicable grace period; or

(b) if any Member of the Obligated Group shall fail to observe or perform any covenant or agreement contained in the Master Indenture for a period of 30 days after written notice of such failure, requiring the same to be remedied, shall have been given by the Master Trustee to each of the Members of the Obligated Group, the giving of which notice shall be at the discretion of the Master Trustee unless the Master Trustee is requested in writing to do so by the Holders of at least 25% in aggregate principal amount of all Outstanding Obligations, in which event such notice shall be given; provided, however, that if such observance or performance requires work to be done, actions to be taken, or conditions to be remedied, which by their nature cannot reasonably be done, taken or remedied within such 30-day period, no Event of Default shall be deemed to have occurred or to exist if, and so long as, the defaulting Member of the Obligated Group shall commence such observance or performance within such 30-day period and shall diligently and continuously prosecute the same to completion; or

(c) An event of default shall occur under a Related Bond Indenture or upon a Related Bond; or

(d) (i) any Member of the Obligated Group shall default in the payment of any Indebtedness (other than Obligations issued and Outstanding under the Master Indenture) with a principal amount in excess of $1,000,000, and any period of grace with respect thereto shall have expired, or (ii) an event of default as defined in any mortgage, indenture or instrument under which there may be issued, or by which there may be secured or evidenced, any Indebtedness with a principal amount in excess of $1,000,000, resulting in acceleration of the Indebtedness; provided, however, that such default shall not constitute an Event of Default if within 30 days (or within the time allowed for service of a responsive pleading in any proceeding to enforce payment of the Indebtedness under the laws governing such proceeding) any Member of the Obligated Group in good faith shall commence proceedings to contest the obligation to pay or the existence of such Indebtedness; or

(e) (i) the University shall default in the payment of any University Debt (other than Obligations issued and Outstanding under the Master Indenture) with a principal amount in excess of $1,000,000, and any period of grace with respect thereto shall have expired, or (ii) an event of default as defined in any mortgage, indenture or instrument under which there may be issued, or by which there may be secured or evidenced, any University Debt with a principal amount in excess of $1,000,000, resulting in acceleration of the University Debt; provided, however, that such default shall not constitute an Event of Default if within 30 days (or within the time allowed for service of a responsive pleading in any proceeding to enforce payment of the University Debt under the laws governing such proceeding) the University in good faith shall commence proceedings to contest the obligation to pay or the existence of such University Debt; or

(f) the entry of a decree or order by a court having jurisdiction of an order for relief against any Member of the Obligated Group, or approving as properly filed a petition seeking reorganization, arrangement, adjustment or composition of or in respect of such Member under the United States Bankruptcy Code or any other similar applicable federal or state law, or appointing a receiver, liquidator, custodian, assignee, or sequestrator (or other similar official) of such Member or of any substantial part of its Property or any substantial part of the University Property, or ordering the winding up or liquidation of its affairs, and the continuance of any such decree or order unstayed and in effect for a period of 90 consecutive days; or

(g) the institution by any Member of the Obligated Group of proceedings for an order for relief, or the consent by it to an order for relief against it, or the filing by it of a petition to answer or consent seeking reorganization, arrangement, adjustment, compensation or relief under the United States Bankruptcy Code or any other similar applicable federal or state law, or the consent by it to the filing of any such petition or to the appointment of a receiver, liquidator, custodian, assignee, trustee or sequestrator (or other similar official) of such Member of the Obligated Group or of any substantial part of its Property or of any substantial part of the University Property, or the making by it of an assignment for the benefit of creditors, or the admission by it in writing of its inability to pay its debts generally as they become due.

Acceleration of Obligations

Upon the occurrence of an Event of Default, the Master Trustee may, by notice in writing to the Members of the Obligated Group declare the principal of all (but not less than all) Outstanding Obligations to be due and payable immediately. The Master Trustee is required to make such declaration (a) upon the occurrence of an Event of Default described in paragraph (a) under "Events of Default" above, (b) upon the occurrence of all Event of Default described in paragraph (c) of "Events of Default" above if the Related Bond Indenture or Related Bonds permit the Holders of such Related Bonds to declare (or to request the Master Trustee to declare) such Related Bonds to be immediately due and payable and if the Master Trustee is requested to make such a declaration by the Holders of not less than 25% in aggregate principal amount of such Obligations then Outstanding or such greater percentage as may be required under the Related Bond Indenture or Related Bonds, or (c) if the Master Trustee is requested to make such a declaration by the Holders of not less than 25% in aggregate principal amount of all Outstanding Obligations.

If, at any time after the principal of all Outstanding Obligations shall have been so declared due and payable but before any judgment or decree for the payment of the moneys due shall have been obtained or entered (a) the Master Trustee receives payment of a sum sufficient to pay all matured installments of interest upon all Outstanding Obligations and the principal and premium, if any, of all such Outstanding Obligations that shall have become due otherwise than by acceleration (with interest on thereon to the extent permitted by law) and any other amounts required to be paid pursuant to such Obligations, and to pay the expenses and fees of the Master Trustee; and (b) all Events of Default, other than the nonpayment of principal of and accrued interest on Outstanding Obligations that shall have become due by acceleration, shall have been remedied, then the Master Trustee shall, if requested by the Holders of 25% in aggregate principal amount of all Obligations then Outstanding, waive all Events of Default and rescind and annul such declaration and its consequences.

Application of Moneys Collected

Any amounts collected by the Master Trustee following an Event of Default, and, except as otherwise provided in the Master Indenture, any amounts held in funds established by the Master Trustee pursuant to the Master Indenture, shall be applied first to the payment of costs and expenses of collection, and then for the equal and ratable benefit of the Holders of Obligations as follows:

FIRST: To the payment to the Entities entitled thereto of all installments of interest then due on any Obligations in the order of the maturity of such installments and, if the amount available shall not be sufficient to pay in full any installment or installments maturing on the same date, then to the payment thereof ratably, according to the amounts due on such date, without any discrimination or preference;

SECOND: To the payment to the Entities entitled thereto of the unpaid principal installments which shall have become due, whether at maturity or by call for redemption, and on any

Obligations in order of their due dates and, if the amounts available shall not be sufficient to pay in full all principal installments due on the same date, then to the payment thereof ratably, according to the amounts of principal installments due on such date, without any discrimination or preference; and

THIRD: To the payment to the Entities entitled thereto of any additional amounts due and unpaid in respect of Obligations, in the order of the due dates of such amounts, and if the moneys available therefor shall not be sufficient to pay in full any such additional amounts due on the same date, then to the payment thereof ratably, according to the amounts due thereon, without any discrimination or preference;

provided that for the purpose of determining the amount of unpaid principal in respect of any Obligations, there shall be deducted the amount, if any, which has been realized by the Holder by exercise of its rights as a secured party with respect to any Permitted Liens or is on deposit in any fund established pursuant to any Related Financing Documents for such Obligations (other than amounts consisting of payments of principal and interest previously made and credited against the payments due under such Obligations).

Any amounts remaining after application as above provided, shall be paid to the University, its successors or assigns, to whomever may be lawfully entitled to receive the same, or as a court of competent jurisdiction shall direct.

Actions by Holders

The Holders of a majority in aggregate principal amount of Obligations Outstanding may direct the time, method, and place of conducting any proceeding for any remedy available to the Master Trustee, or exercising any trust or power conferred on the Master Trustee. The Master Trustee has the right to decline to follow any such direction if the Master Trustee, being advised by Counsel, determines that the action so directed may not lawfully be taken, or if the Master Trustee in good faith shall determine that the proceedings so directed would be illegal or involve it in personal liability.

No Holder of an Obligation may institute any suit, action or proceeding in equity or at law upon, under or with respect to the Master Indenture unless the Holders of at least 25% in aggregate principal amount of Obligations then Outstanding shall have made written request to the Master Trustee to institute such action, suit or proceeding and shall have offered to the Master Trustee such reasonable indemnity as it may require against the costs, expenses and liabilities to be incurred, and the Master Trustee, for 30 days after its receipt of such notice, request and offer of indemnity, shall have neglected or refused to institute any such action, suit or proceeding and no direction inconsistent with such written request shall have been given to the Master Trustee pursuant to the preceding paragraph.

Defeasance

If the Master Trustee receives: (a) an amount which is (i) in the form of cash or Defeasance Obligations, and (ii) in a principal amount sufficient, together with the interest thereon and any funds on deposit under the Master Indenture and available for such purpose, to provide for the payment of the principal of and premium, if any, and interest on all Outstanding Obligations to and including the maturity date or prior redemption or prepayment date thereof; (b) irrevocable instructions to redeem all Obligations to be redeemed prior to maturity and to notify the Holders of each such redemption; and (c) an amount sufficient to pay or provide for the payment of all other sums payable under the Master Indenture by the Members of the Obligated Group or any thereof, then the Master Indenture shall cease to be of further effect.

In like manner, a Member of the Obligated Group may provide for the payment of any particular Obligation (or of a portion thereof) at or prior to maturity and the Obligation (or portion thereof) so provided for shall thereupon cease to be Outstanding under the Master Indenture.

In lieu of the foregoing, the issuer of any particular Obligation may deliver to the Holder thereof the amount required under the Related Financing Documents to provide for the payment of the principal, premium, if any, and interest due or to become due in respect of such Obligation and such Obligation shall no longer be deemed Outstanding under the Master Indenture.

Amendments and Supplements to Master Indenture

Each Member of the Obligated Group, when authorized by a resolution of its Governing Body, and the Master Trustee may from time to time and at any time enter into a Supplemental Indenture for one or more of the following purposes:

(a) to provide for the issuance of any Obligations under the Master Indenture;

(b) to evidence the addition of a Member of the Obligated Group or a Designated Unit or the succession of another Entity to any Member of the Obligated Group or a Designated Unit, or successive successions, and the assumption by the new Member of the Obligated Group, new Designated Unit or successor Entity of the covenants, agreements and obligations of a Member of the Obligated Group or a Designed Unit, as applicable, under the Master Indenture;

(c) to add to the covenants of any Member of the Obligated Group such further covenants, restrictions or conditions as its Governing Body and the Master Trustee shall consider to be for the protection of the Holders of Obligations, and to make the occurrence, or the occurrence and continuance, of a default in any of such additional covenants, restrictions or conditions an Event of Default permitting the enforcement of all or any of the several remedies provided in the Master Indenture; provided, however, that in respect of any such additional covenant, restriction or condition, such Supplemental Indenture may provide for a particular period of grace after default (which period may be shorter or longer than that allowed in the case of other defaults) or may provide for an immediate enforcement upon such default or may limit the remedies available to the Master Trustee upon such default;

(d) to cure any ambiguity or to correct or supplement any provision contained in the Master Indenture or in any Supplemental Indenture which may be defective or inconsistent with any other provision contained in the Master Indenture or in any Supplemental Indenture, or to make such other provisions in regard to matters or questions arising under the Master Indenture or any Supplemental Indenture as shall not impair the security of the Master Indenture or adversely affect the interests of the Holders of any particular Obligations or series of Obligations issued thereunder;

(e) to modify or supplement the Master Indenture in such manner as may be necessary or appropriate to qualify the Master Indenture under the Trust Indenture Act of 1939 as then amended, or under any similar federal statute hereafter enacted, including provisions whereby the Master Trustee accepts such powers, duties, conditions and restrictions thereunder and each Member of the Obligated Group undertakes such covenants, conditions or restrictions additional to those contained in the Master Indenture as would be necessary or appropriate so to qualify the Master Indenture;

(f) to provide for the establishment of funds and accounts under the Master Indenture and administration thereof and transfers of moneys between any such funds and accounts, provided that, except as otherwise provided in the Master Indenture or Supplemental Indenture, all such

funds and accounts shall be established for the equal and ratable benefit of the Holders of all Outstanding Obligations;

(g) to reflect a change in applicable law;

(h) to modify, amend, change or remove any covenant, agreement, term or provision of the Master Indenture other than a modification of the type hereinafter described requiring the unanimous written consent of the Holders; provided that either (A) if at the time of the proposed amendment the Obligations or any series of Related Bonds are rated by a Rating Agency, written notice of the substance of such proposed amendment is given to such Rating Agency by the University not fewer than thirty days prior to the date such amendment is to take effect, and the University provides evidence satisfactory to the Master Trustee that the ratings on the Obligations or any series of Related Bonds will not be lowered or withdrawn by such Rating Agency as a result of such proposed amendment; or (B) a Consultant's report is delivered to the Master Trustee prior to the date such amendment is to take effect, to the effect that the proposed amendment is consistent with then current industry standards for comparable institutions and demonstrating either that (1) the Projected Debt Service Coverage Ratio of the Obligated Group for the full Fiscal Year immediately after the effective date of such proposed amendment is not less than 1.20, assuming the maximum implementation (or such lower implementation certified to the Master Trustee by the University as being a reasonable basis for assumption) by the Obligated Group of the proposed amendment; or (2) if the proposed amendment is to a provision of the Master Indenture that contains a quantitative restriction or covenant, the average of the Projected Debt Service Coverage Ratio of the Obligated Group for the two full Fiscal Years immediately after the effective date of such proposed amendment or supplement will be greater than the average of the Debt Service Coverage Ratio of the Obligated Group for such period had the proposed amendment not been implemented assuming the maximum implementation (or such lower implementation certified to the Master Trustee by the University as being a reasonable basis for assumption) of the proposed amendment; or (3) (a) the average of the Projected Debt Service Coverage Ratios of the Obligated Group for the two full Fiscal Years immediately after the effective date of such proposed amendment will not be less than 1.10, and (b) the average of the Projected Debt Service Coverage Ratios of the Obligated Group for the two full Fiscal Years immediately after the effective date of such proposed amendment will not be more than thirty-five percent lower than the average of the Debt Service Coverage Ratios of the Obligated Group had the proposed amendment not been implemented, assuming with respect to the projections made under (a) and (b) the maximum implementation (or such lower implementation certified to the Master Trustee by the University as being a reasonable basis for assumption) of the proposed amendment if the proposed amendment is to a provision of the Master Indenture that contains a quantitative restriction or covenant.

With the consent of the Holders of not less than a majority in aggregate principal amount of Obligations then Outstanding, each Member of the Obligated Group, when authorized by its Governing Body, and the Master Trustee, may from time to time and at any time enter into a Supplemental Indenture for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of the Master Indenture or of any Supplemental Indenture or of modifying in any manner the rights of the Holders of Obligations; provided, however, that (i) without the consent of the Holders of all Obligations whose Obligations are proposed to be modified, no such Supplemental Indenture shall effect a change in the times, amounts or currency of payment of the principal of, premium, if any, or interest on any Obligation or a reduction in the principal amount or redemption price of any Obligation or the rate of interest thereon or permit the preference or priority of any Obligation over any other Obligation, and (ii) without the consent of the Holders of all Obligations then Outstanding, no such Supplemental Indenture shall reduce the

aforesaid percentage or affected class of Obligations, the Holders of which are required to consent to any such Supplemental Indenture.

Certain supplemental master trust indentures contain certain covenants that are for the benefit of bond insurers and letter of credit banks and are not for the benefit of the Bondholders. These covenants may only be enforced by the respective bond insurers and letter of credit banks.

Twenty Second Supplemental Master Trust Indenture

In connection with the issuance of the 2019 Bonds, the Obligated Group and the Master Trustee will enter into an Twenty Second Supplemental Master Trust Indenture to the Master Indenture authorizing the issuance of the 2019 Master Note. The 2019 Master Note to be issued by the Obligated Group is numbered, bears interest at such times and at such rates, and matures on such dates as set forth in the Twenty Second Supplemental Master Trust Indenture.

Release and Substitution of Obligations Upon Delivery of Replacement Master Indenture

The Master Indenture as amended and supplemented by the Nineteenth Supplemental Master Trust Indenture includes provisions governing the release and substitution of Obligations upon delivery of a replacement Master Indenture.

(a) In connection with any merger, consolidation, member substitution or similar transaction involving an affiliation of the Obligated Group with an entity or entities, any Obligation issued under the Master Indenture shall be subject to surrender and cancellation by the Master Trustee, upon presentation to the Master Trustee prior to such surrender of the following:

(i) an original executed counterpart of a master indenture (the "Replacement Master Indenture") executed by or on behalf of a different credit group including one or more Members of the Obligated Group or a surviving, resulting or transferee entity thereof (collectively, the "New Group") and an independent corporate trustee, which may be the Master Trustee (the "Replacement Trustee");

(ii) original replacement notes or similar obligations issued by, or on behalf of the New Group (the "Substitute Obligations") under and pursuant to and secured by the Replacement Master Indenture, which Substitute Obligations have been duly authenticated by the Replacement Trustee;

(iii) an Opinion of Counsel addressed to the Master Trustee and each Related Bond Issuer and Related Bond Trustee (in form and substance not unacceptable to the Master Trustee and each Related Bond Issuer and Related Bond Trustee) to the effect that: (i) the Replacement Master Indenture has been duly authorized, executed and delivered by or on behalf of the New Group, the Substitute Obligations have been duly authorized, executed and delivered by or on behalf of the New Group and the Replacement Master Indenture and the Substitute Obligations are each a legal, valid and binding obligation of the New Group, subject in each case to customary exceptions for bankruptcy, insolvency and other laws generally affecting enforcement of creditors' rights and application of general principles of equity; (ii) all requirements and conditions to the issuance of the Substitute Obligations set forth in the Replacement Master Indenture have been complied with and satisfied; and (iii) registration of the Substitute Obligations under the Securities Act of 1933, as amended, is not required or, if registration is required, the Substitute Obligations have been so registered;

(iv) an Opinion of Bond Counsel addressed to the Master Trustee and each Related Bond Issuer and Related Bond Trustee (in form and substance not unacceptable to the Master Trustee and each Related Bond Issuer and Related Bond Trustee) to the effect that the surrender of the existing Obligations and the delivery of the Substitute Obligations will not adversely affect the validity of any Related Bonds or any Related Financing Documents or any exemption for the purposes of federal income taxation to which interest on any Related Bonds would otherwise be entitled;

(v) written notice from each Rating Agency then maintaining a rating on any Related Bonds confirming that such substitution will not cause the rating on such Related Bonds to be lowered or withdrawn from the rating in effect immediately prior to the substitution, provided that in connection with the request for a review of the ratings on such Related Bonds, each Rating Agency is provided a copy of the Replacement Master Indenture and such information as such Rating Agency may request with respect to the operations and financial condition of the New Group;

(vi) An Officer's Certificate to the effect that no Event of Default has occurred and is continuing, and no event has occurred and is continuing which, with the passage of time or the giving of notice or both, would result in an Event of Default; and

(vii) such other opinions and certificates as the Master Trustee may reasonably require, together with such reasonable indemnities as the Master Trustee may request.

(b) In connection with the delivery of a Replacement Master Indenture and the substitution of outstanding Obligations with Substitute Obligations, the provisions under this heading shall not permit, or be construed as permitting, (i) a change in the times, amounts or currency of payment of the principal of, premium, if any, and interest on any Obligation or Related Bonds, (ii) a reduction in the principal amount of any Obligations or Related Bonds, (iii) a change in the redemption premiums or rates of interest on any Obligations or Related Bonds, or (iv) a preference or priority of any Obligation over any other Obligation, unless the Master Trustee receives the prior written consent of the Holders of each Obligation or Related Bonds so affected.

(c) Upon the delivery of the Replacement Master Indenture and the Substitute Obligations, the Master Indenture and the Obligations issued thereunder shall be deemed terminated and discharged, except to the extent otherwise provided in the Replacement Master Indenture (including any supplement thereto) or as otherwise agreed to in writing by the Members of the Obligated Group and the Master Trustee.

(d) The amendment of the Master Indenture contained in the Nineteenth Supplemental Master Indenture shall become effective on the date that the Holders of a majority in aggregate principal amount of the Obligations then Outstanding shall have consented (or shall be deemed to have consented) to the amendment. The Holder of the 2019 Master Note, by acceptance of such Master Note will be deemed to have irrevocably consented to the amendment of the Master Indenture described under this heading.

(e) Upon the effectiveness of a Replacement Master Indenture and a Substitute Obligation for the 2019 Master Note, the security interest in the Gross Receipts created in the Twenty Second Supplemental Master Trust Indenture shall terminate, and the Master Trustee shall, at the request of the Obligated Group Agent, execute such instruments (including, without limitation, termination statements under the Uniform Commercial Code) as the Obligated Group Agent may specify to evidence the termination of such security interest; provided, however, that such security interest in the Gross Receipts shall not be terminated unless either (i) the Replacement Master Indenture has created a security interest in the Gross

Receipts for the benefit of the holders of the Substitute Obligations substantially similar in scope to the security interest in the Gross Receipts created by the Twenty Second Supplemental Master Trust Indenture or (ii) the Replacement Master Indenture does not create a security interest in the Gross Receipts and the security interest in the Gross Receipts created pursuant to the Master Indenture or any Supplemental Indenture entered into prior to the execution and delivery of the Nineteenth Supplemental Master Trust Indenture (a "Pre-Existing Security Interest") has been terminated or released upon (A) payment or discharge of the related Obligation or (B) the consent of the Holder of the related Obligation to the termination or release of such security interest.

(f) The Holder of the 2019 Master Note, by acceptance thereof, agrees that the security interest created by the Twenty Second Supplemental Master Trust Indenture will terminate upon delivery to such Holder of a Substitute Obligation in exchange for the 2019 Master Note unless at the time of such delivery there are other Holders of Obligations entitled to the benefit of a Pre-Existing Security Interest which has not been terminated or released as of such date, in which case the security interest created by the Twenty Second Supplemental Master Trust Indenture shall terminate upon termination of all Pre-Existing Security Interests.

APPENDIX F

PROPOSED FORM OF OPINION OF CO-BOND COUNSEL

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_____, 2019

Pennsylvania Higher Educational Facilities Authority
1035 Mumma Road
Wormleysburg, PA 17043

U.S. Bank National Association, as Trustee
Two Liberty Place, Suite 2000
50 S. 16th Street
Philadelphia, PA 19102

University of Pennsylvania Health System
Perelman Center for Advanced Medicine,
34th & Civic Center Blvd., Suite A5
Philadelphia, PA 19104

The Trustees of the University of Pennsylvania
721 Franklin Building
3451 Walnut Street
Philadelphia, PA 19104

BofA Securities, Inc., as Representative of the Underwriters
One Bryant Park, 12th Floor
New York, NY 10036

Re: $534,870,000 Pennsylvania Higher Educational Facilities Authority
University of Pennsylvania Health System
Health System Revenue Bonds, Series 2019

Ladies and Gentlemen:

We have acted as co-bond counsel to the Pennsylvania Higher Educational Facilities Authority (the "Authority") in connection with the issuance of $534,870,000 aggregate principal amount of its University of Pennsylvania Health System Health System Revenue Bonds, Series 2019 (the "Bonds"). The Bonds are issued under and pursuant to the laws of the Commonwealth of Pennsylvania, including the Pennsylvania Higher Educational Facilities Authority Act of 1967, the Act of December 6, 1967, P.L. 678, as amended and supplemented (the "Act") and a Trust Indenture dated as of May 1, 1994, as previously amended and supplemented, and as further amended and supplemented by a Sixteenth Supplemental Trust Indenture dated as of December 1, 2019 (collectively, the "Indenture"), between the Authority and U.S. Bank National Association, as successor trustee (the "Trustee").

The Bonds are being issued at the request of The Trustees of the University of Pennsylvania (the "University"), Presbyterian Medical Center of the University of Pennsylvania Health System d/b/a Penn Presbyterian Medical Center ("PPMC"), Pennsylvania Hospital of the University of Pennsylvania Health System ("Pennsylvania Hospital"), The Chester County Hospital and Health System ("TCCHHS") and The Lancaster General Hospital ("LGH" and, together with the University, PPMC, Pennsylvania Hospital and TCCHHS, the "Borrowers") to provide funds which will be used to finance the costs of a project (the "Project") consisting of: (a) the financing of certain capital projects of the Borrowers, including the financing of a portion of the projects in the Borrowers' capital budget, which may include construction of a new patient pavilion on the Hospital of the University of Pennsylvania campus and the Center for Health Care Technology, an office building and administrative center; (b) the payment of approximately $87,000,000 drawn on a bank line of credit used (i) to redeem the Lancaster County Hospital Authority Health System Revenue Bonds (The Lancaster General Hospital Refunding Project) Series A of 2012; and (ii) to purchase a building located at 800 Walnut Street in Philadelphia, Pennsylvania; (c) the payment of capitalized interest on the Bonds; and (d) the payment of costs of issuing the Bonds.

The proceeds of the Bonds are being loaned to the Borrowers pursuant to a Loan Agreement dated as of May 1, 1994, between the Authority and the University, as previously amended and supplemented, and as further amended and supplemented by a Fifteenth Supplemental Loan Agreement dated as of

December 1, 2019 among the Authority and the Borrowers (collectively, the "Loan Agreement"). Under the Loan Agreement, the Borrowers are obligated to make payments in amounts sufficient to pay, among other things, the principal or redemption price of and interest on the Bonds.

The Bonds are secured by the Indenture and by an assignment to the Trustee of all of the Authority's right, title and interest in and to the Loan Agreement (except for the Authority's rights thereunder to receive payments of administrative fees and expenses and indemnification against liability).

Each Borrower has represented in the Loan Agreement that it is an organization described in Section 501(c)(3) of the Internal Revenue Code of 1986, as amended (the "Code"). Each Borrower has covenanted that, throughout the term of the Loan Agreement, it will not carry on or permit to be carried on upon its Facilities (as defined in the Loan Agreement) any trade or business, nor will it take any action or permit any action to be taken on its behalf or cause or permit any circumstance within its control to arise or continue if the conduct of such trade or business or such other action or circumstance would cause the interest paid by the Authority on the Bonds to be subject to federal income tax in the hands of the holders thereof. Each Borrower has further covenanted that it will neither make nor instruct the Trustee to make any investment or other use of the proceeds of the Bonds, nor take or omit to take any other action, which would cause the Bonds to be arbitrage bonds under Section 148(a) of the Code.

Under the Indenture and the Loan Agreement, respectively, the Authority and the Borrowers have covenanted that they will comply with the requirements of Section 148 of the Code pertaining to arbitrage bonds. In addition, an officer of the Authority responsible for issuing the Bonds and the Borrowers have executed a certificate stating the reasonable expectations of the Authority and the Borrowers on the date of issue of the Bonds as to future events that are material for the purposes of such requirements of the Code.

In our capacity as co-bond counsel, we have examined such documents, records of the Authority and other instruments as we deemed necessary to enable us to express the opinions set forth below, including original counterparts or certified copies of the Indenture, the Loan Agreement and the other documents listed in the closing memorandum in respect of the Bonds filed with the Trustee. We have assumed that the Authority and the Borrowers will comply with their respective covenants in the Indenture and the Loan Agreement relating to the tax-exempt status of the Bonds. We have also examined an executed Bond, authenticated by the Trustee, and have assumed that all other Bonds have been similarly executed and authenticated. We have also assumed that the Indenture has been duly authorized, executed and delivered by the Trustee, and that the Loan Agreement has been duly authorized, executed and delivered by the Borrowers.

Based on the foregoing, it is our opinion that:

1. The Authority is a body corporate and politic validly existing under the laws of the Commonwealth of Pennsylvania, with full power and authority to undertake the Project, to execute and deliver the Indenture and the Loan Agreement and to issue and sell the Bonds.

2. The Indenture and the Loan Agreement have been duly authorized, executed and delivered by the Authority and the covenants of the Authority therein are valid and binding obligations of the Authority enforceable in accordance with their terms, except as the rights created thereunder and the enforcement thereof may be limited by bankruptcy, insolvency or other similar laws or equitable principles affecting the enforcement of creditors' rights generally.

3. The issuance and sale of the Bonds have been duly authorized by the Authority. Based on the assumption as to execution and authentication set forth above, the Bonds have been duly executed and delivered by the Authority and authenticated by the Trustee, are valid and binding obligations of the Authority and are entitled to the benefit and security of the Indenture, except as the rights created thereunder and the enforcement thereof may be limited as indicated in paragraph 2.

4. Under the laws of the Commonwealth of Pennsylvania as presently enacted and construed, the Bonds are exempt from personal property taxes in Pennsylvania, and interest on the Bonds is exempt from Pennsylvania personal income tax and corporate net income tax.

5. Interest (including original issue discount) on the Bonds is excludable from gross income for purposes of federal income tax under existing laws as enacted and construed on the date of initial delivery of the Bonds, assuming the accuracy of the certifications of the Authority and the Borrowers and continuing compliance by the Authority and the Borrowers with the requirements of the Code. Interest on the Bonds is not a specific tax preference for purposes of the individual federal alternative minimum tax.

Original issue premium on a Bond issued at an issue price that exceeds its principal amount is amortizable periodically over the term of a Bond through reductions in the holder's tax basis for the Bond for determining taxable gain or loss from sale or from redemption prior to maturity. Amortization of premium does not create a deductible expense or loss.

We express no opinion regarding other federal tax consequences relating to ownership or disposition of, or the accrual or receipt of interest on, the Bonds.

We express no opinion herein with respect to the adequacy of the security for the Bonds or the sources of payment for the Bonds or with respect to the accuracy or completeness of the preliminary or final Official Statement prepared in respect of the Bonds or as to any other matter not set forth herein.

We call your attention to the fact that the Bonds are limited obligations of the Authority, payable only out of certain revenues of the Authority and certain other moneys available therefor as provided in the Indenture, and that the Bonds do not pledge the credit or taxing power of the Commonwealth of Pennsylvania or any political subdivision, agency or instrumentality thereof. The Authority has no taxing power.

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Penn Medicine

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