CERTIFICATE OF NEED APPLICATION

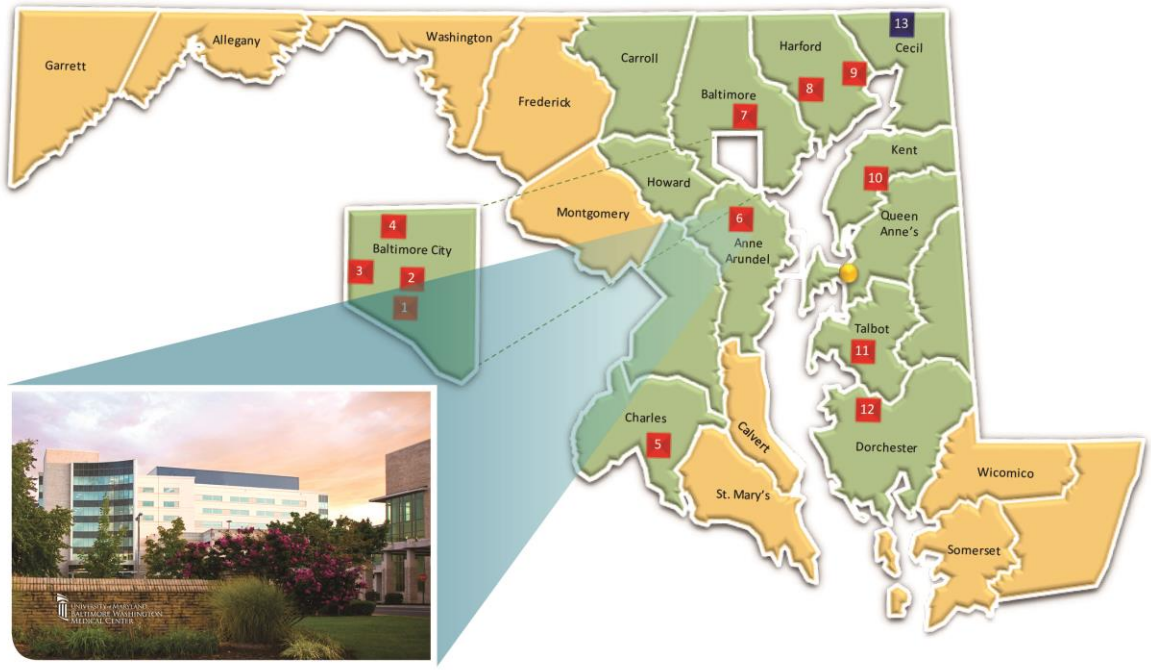
CARDIAC SURGERY, RESEARCH, AND TRAINING PROGRAM

AT THE UNIVERSITY OF MARYLAND

BALTIMORE WASHINGTON MEDICAL CENTER

AS PART OF THE UNIVERSITY OF MARYLAND DIVISION OF CARDIAC SURGERY

"One Program, Three Locations"



Applicant: Baltimore Washington Medical Center, Inc.
t/a University of Maryland Baltimore Washington Medical Center

February 20, 2015

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For internal staff use

MARYLAND HEALTH CARE COMMISSION

_____

MATTER/DOCKET NO.

_____

DATE DOCKETED

HOSPITAL
APPLICATION FOR CERTIFICATE OF NEED

PART I - PROJECT IDENTIFICATION AND GENERAL INFORMATION

1. FACILITY

Name of Facility: University of Maryland Baltimore Washington Medical Center

Address:

301 Hospital Drive	Glen Burnie	21061	Anne Arundel
Street	City	Zip	County

Name of Owner (if differs from applicant):

2. OWNER

Name of owner: Baltimore Washington Medical Center, Inc.

3. APPLICANT. *If the application has co-applicants, provide the detail regarding each co-applicant in sections 3, 4, and 5 as an attachment.*

Legal Name of Project Applicant
Baltimore Washington Medical Center, Inc. t/a University of Maryland Baltimore Washington Medical Center

Address:

301 Hospital Drive	Glen Burnie	21061	MD	Anne Arundel
Street	City	Zip	State	County

410-787-4000

Telephone:

Name of Owner/Chief Executive: Karen Olscamp, President/CEO

4. NAME OF LICENSEE OR PROPOSED LICENSEE, if different from applicant:
Baltimore Washington Medical Center, Inc. t/a University of Maryland Baltimore Washington Medical Center

5. LEGAL STRUCTURE OF APPLICANT (and LICENSEE, if different from applicant).

Check ☑ or fill in applicable information below and attach an organizational chart showing the owners of applicant (and licensee, if different).

A.	Governmental	☐	
B.	Corporation		
	(1) Non-profit	■	
	(2) For-profit	☐	
	(3) Close	☐	State & date of incorporation Maryland, 09/20/55
C.	Partnership		
	General	☐	
	Limited	☐	
	Limited liability partnership	☐	
	Limited liability limited partnership	☐	
	Other (Specify):		
D.	Limited Liability Company	☐	
E.	Other (Specify):		
	To be formed:	☐	
	Existing:	☐	

6. PERSON(S) TO WHOM QUESTIONS REGARDING THIS APPLICATION SHOULD BE DIRECTED

A. Lead or primary contact:

Name and Title: Kathleen McCollum, Sr. Vice President, Clinical Integration, and COO

Mailing Address:

301 Hospital Drive	Glen Burnie	21061	MD
Street	City	Zip	State

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Street	City	Zip	State

Telephone: 410-347-1331
E-mail Address (required): tdame@gejlaw.com
Fax: 410-468-2786

Name and Title: Ella R. Aiken, Esquire, Gallagher Evelius & Jones LLP
Mailing Address:

218 N. Charles Street, Suite 400	Baltimore	21201	MD
Street	City	Zip	State

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Fax: 410-468-2786

Name and Title: Andrew L. Solberg, President, A.L.S. Healthcare Consultant Services
Mailing Address:

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Street	City	Zip	State

Telephone: 410-730-2664
E-mail Address (required): asolberg@earthlink.net
Fax: 410-730-6775

7. TYPE OF PROJECT

The following list includes all project categories that require a CON under Maryland law. Please mark all that apply.

If approved, this CON would result in:

(1) A new health care facility built, developed, or established ☐
(2) An existing health care facility moved to another site ☐
(3) A change in the bed capacity of a health care facility ☐
(4) A change in the type or scope of any health care service offered by a health care facility ■
(5) A health care facility making a capital expenditure that exceeds the current threshold for capital expenditures found at: http://mhcc.maryland.gov/mhcc/pages/hcfs/hcfs_con/documents/con_capital_threshold_20140301.pdf ☐

8. PROJECT DESCRIPTION

A. Executive Summary of the Project: The purpose of this BRIEF executive summary is to convey to the reader a holistic understanding of the proposed project: what it is; why you need/want to do it; and what it will cost. A one-page response will suffice. Please include:

(1) Brief description of the project – what the applicant proposes to do;
(2) Rationale for the project – the need and/or business case for the proposed project;
(3) Cost – the total cost of implementing the proposed project; and
(4) Master Facility Plans – how the proposed project fits in long term plans.

Executive Summary of the Proposed Project

The University of Maryland Baltimore Washington Medical Center ("UM BWMC") proposes to develop a cardiac surgery services program located at 301 Hospital Drive, Glen Burnie, Maryland 21061, as a third location for the existing University of Maryland Cardiac Surgery Services Program.

The project is intended to provide cardiac surgery services for patients in the newly-defined UM BWMC cardiac surgery service area, principally in Anne Arundel County and in Maryland's Mid-Eastern Shore region (Queen Anne's, Talbot, and Caroline Counties). The proposed program will provide patients with high quality care in a convenient location, using the strength of UM BWMC's membership in the University of Maryland Medical System. The surgical procedures will be performed by the same excellent cardiac surgeons and staff who provide care for cardiac surgery patients at the University of Maryland Medical Center ("UMMC"), using the same quality programs and protocols, in a more convenient and accessible location at a lower cost to patients and payers.

The capital cost of the proposed project is not significant. As shown in Table E (included in Exhibit 1), for less than $1.3 million UM BWMC will be able to purchase the necessary additional equipment to open a new program location. Also, relative to other cardiac surgery programs, the proposed project will have lower variable costs because the costs will be shared with UMMC's existing costs.

Since the time of it's exploration of the eventual affiliation with UMMS, UM BWMC has examined the possibility of developing a cardiac surgery program primarily to serve patients in its service area. The proposed program would be yet another clinical benefit of UM BWMC's affiliation with UMMS for local residents. Other examples include: the Tate Cancer at UM BWMC (affiliated with the University of Maryland Marlene and Stewart Greenebaum Cancer Center); The University of Maryland Center for Diabetes and Endocrinology at UM BWMC; the obstetrical services program at UM BWMC (affiliated with the University of Maryland Center for Advanced Fetal Care); and the primary and elective angioplasty services (affiliated with the University of Maryland Comprehensive Heart Center).

B. Comprehensive Project Description: The description must include details, as applicable, regarding:

(1) Construction, renovation, and demolition plans;
(2) Changes in square footage of departments and units;
(3) Physical plant or location changes;
(4) Changes to affected services following completion of the project; and
(5) If the project is a multi-phase project, describe the work that will be done in each phase. If the phases will be constructed under more than one construction contract, describe the phases and work that will be done under each contract.

PROJECT DESCRIPTION

"One Program, Three Locations"

UM BWMC proposes this project for the purpose of providing cardiac surgery services primarily for cardiac patients in UM BWMC's service area at lower cost, and in a more accessible and convenient location for patients and their families and friend support networks. The cardiac surgery services will be performed by highly skilled, credentialed, and experienced cardiac surgeons in the University of Maryland School of Medicine's Division of Cardiac Surgery ("UM Division of Cardiac Surgery"). The proposed program at UM BWMC will be part of the existing University of Maryland Cardiac Surgery Program currently located at the University of Maryland Medical Center ("UMMC") and University of Maryland St. Joseph Medical Center ("UM SJMC"). UMMC and the UM SJMC joined services and are now one program operated by the UM Division of Cardiac Surgery, providing the most advanced cardiac surgery care and life-saving research in Maryland. With approval of the proposed project, UM BWMC will join the program, making one program at three locations.

Providing excellent cardiac care for patients residing in the area UM BWMC has identified as its likely cardiac surgery service area is a high priority for the board of directors, administration, physicians, and staff of UM BWMC. It is important that patients be able to stay close to home while undergoing cardiac care so that they may receive the support of their family, friends, and other community resources.

I. BACKGROUND.

A. University of Maryland Baltimore Washington Medical Center.

UM BWMC is a 310-bed community hospital affiliated with the University of Maryland Medical System ("UMMS"). It has approximately 2,700 employees and more than 700 members on its medical staff, representing more than 50 specialties. UM BWMC is located between Baltimore and Annapolis in Glen Burnie, Maryland, and is easily accessible due to its proximity to major thoroughfares including I-97, MD Route 100, I-695, I-195, MD Route 2 and MD Route 3. The medical center opened in 1965 to serve the residents of northern Anne Arundel County and has continuously grown to meet the needs of its local community and surrounding region.

UM BWMC provides comprehensive surgical, medical, obstetric, and pediatric services. The medical center's centers of excellence include the Maryland Vascular Center, Aiello Breast Center, Tate Cancer Center, Pascal Women's Center, Joint Replacement Center, Spine and Neuroscience Center, Wound Healing Center, and the University of Maryland Center for

Diabetes and Endocrinology. UM BWMC is a MIEMMS-designated cardiac interventional center as well as a primary stroke center. Also, UM BWMC is the only hospital in Anne Arundel County that offers inpatient psychiatric care. UM BWMC has one of the busiest emergency departments in the State, and its cardiac program includes general cardiology, interventional services (including primary and elective angioplasty), and cardiac rehabilitation.

In fiscal year 2014, UM BWMC admitted 18,362 patients, and the Emergency Department treated more than 99,500 patients. In that same time period, UM BWMC cared for more than 2,350 total cardiac patients and 2,955 cardiac care observation patients (i.e., those who stay less than 23 hours).

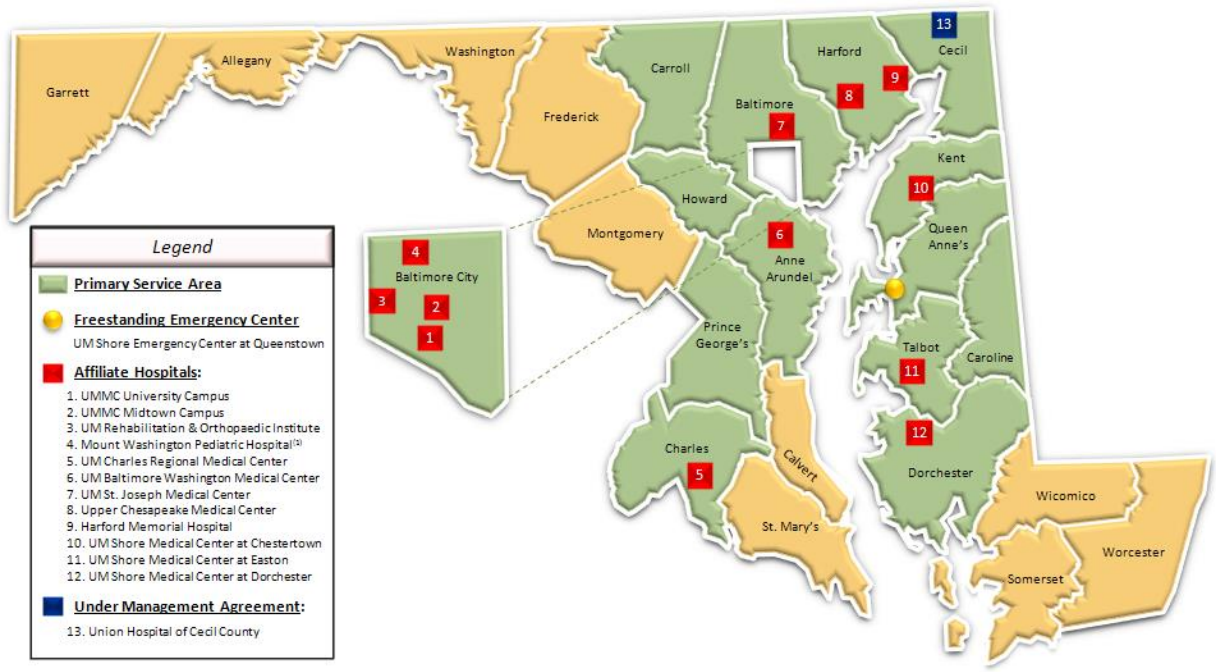
B. UM BWMC's Membership in the University of Maryland Medical System (UMMS).

In 2000, UM BWMC joined UMMS. UMMS is dedicated to providing quality health care through a market-responsive regional system composed of a world-class academic medical center partnered with the University of Maryland School of Medicine ("UM SOM") and premier community and specialty hospitals. Over the last 30 years, UMMS has grown significantly to become a twelve-hospital, Maryland-focused health care delivery system. UMMS' impact on the health and well-being of Marylanders is significant by any measure. UMMS generates nearly $5 billion in economic activity in Maryland. It has more than 23,000 employees, approximately 2,400 licensed beds, and 125,000 annual patient admissions. UMMS supports an estimated 13,400 additional jobs through the purchase of goods and services. As the largest health system dedicated to serving the State of Maryland, with 19.1% of the inpatient State market share, UMMS also provided approximately $350 million in community benefits. These community services include medical education, subsidized healthcare programs, community funding, civic involvement, community service programs, and charity care.

UMMS is a private 501(c)(3) corporation governed by an independent board of directors and is neither owned by the State of Maryland nor governed by the University of Maryland. The vision of UMMS is to be the premier healthcare system serving Maryland in partnership with UM SOM and UMMS affiliated community physicians to be distinguished by providing the highest quality patient care to the communities we serve, service excellence, medical advancements, and the education of future physicians and healthcare professionals to work in the communities it serves. UMMS is committed to building a dynamic health care delivery system with a reputation for outstanding patient care that is locally focused on each and every community served by member hospitals and their medical staffs. UMMS delivers a special blend of expertise, innovation, and caring in each community it serves

UMMS is a national and regional referral center for trauma, cancer care, neurocare, cardiac care, women's and children's health, and physical rehabilitation. It also has one of the world's largest kidney transplant programs, as well as scores of other programs that improve the physical and mental health of thousands of people daily.

Figure 1: UMMS Affiliated Facilities



C. The University of Maryland School of Medicine (UM SOM)

UM SOM, founded in 1807, is a preeminent biomedical research institution with 2,800 faculty members dedicated to training the next generation of physicians, scientists, and allied health professionals. According to the Association of American Medical Colleges, UM SOM is the fourth fastest-growing research enterprise in the country. Among all 76 public medical schools nationwide, UM SOM ranks sixth in research grant and contract expenditures. In FY 2012, grants and contracts to UM SOM totaled $429.9 million; among all medical schools, UM SOM ranks as the 8th most productive in terms of direct expenditures per principal investigator. US News and World Report ranks UM SOM 40th among all public and private medical schools nationwide. Together, UM SOM and UMMC train more than half of Maryland's medical professionals.

UMMS and UM SOM have a shared vision 2020 plan aimed to accelerate the pace of discovery, collaboration, innovation, and quality of patient-centered care across UM SOM and UMMS. The new course is meant to position the institutions for maximum and extraordinary success in the face of the challenging times. Together with UMMS partners, UMMS and UM SOM have decided to apply strategic, bold and different approaches to all key mission areas—**education**, **clinical care**, **finance and philanthropy**, and **research.** The development of a cardiac surgery program at UM BWMC is such an approach to furthering this plan.

II. THE PROPOSED CARDIAC SURGERY, RESEARCH, AND TRAINING PROGRAM

A. Overview.

Under this proposal, the UM BWMC will join UMMC and UM SJMC as the third location for the UM Division of Cardiac Surgery's program.[1] At UM BWMC, the program will offer comprehensive cardiac services, including state-of-the-art and fully-equipped cardiac operating rooms, a Maryland Institute for Emergency Medical Services Systems (MIEMSS)-designated Cardiac Interventional Center with six beds, a cardiovascular intensive care unit with specially trained staff and comfortable waiting areas for family and friends. Cardiac stress tests, echocardiograms, and other advanced diagnostic testing will be performed on-site. For outpatient rehabilitation following cardiac surgery or hospitalization, UM BWMC currently offers a successful cardiovascular rehabilitation program, featuring a fitness center-like atmosphere. Furthermore, UM BWMC will expand its existing robust cardiovascular education, prevention, early detection, and other outreach programs throughout Anne Arundel County and in the Mid-Shore region, coordinating with other hospitals and taking advantage of the UMMS network.

The cardiac surgery program will be staffed by an experienced team of highly-trained cardiac surgeons, anesthesiologists, cardiologists, nurses, rehabilitation specialists and other ancillary support staff, many of whom will be provided and shared by the UM Division of Cardiac Surgery, UMMC, and other UM SOM departments.

B. Goals of the UM BWMC Cardiac Surgery, Research, and Training Program.

UM BWMC has established five goals to assure the provision of high-quality cardiac surgery services to the patients and the communities it serves:

- Provide Excellent, High Quality Care through Integration with University of Maryland Medical Center, UM Division of Cardiac Surgery – One Cardiac Surgery Program at Three Locations;
- Provide cardiac services in the most appropriate setting within UMMS;
- Promote Continuous Process Improvement and Excellent Patient Outcomes;
- Offer Clinical Trials, Participate in Cardiac Surgery Research of National Significance, and Serve as a Training Site for University of Maryland School of Medicine Residents and Fellows; and
- Provide Comprehensive Cardiovascular Disease Outreach, Particularly for Minority, Low-Income, and other Disadvantaged Populations

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[1] Also, under an agreement with Dimensions Healthcare System, the UM Division of Cardiac Surgery provides surgeon staffing as well as clinical and administrative support for the cardiac surgery program at Prince George's Hospital Center in Cheverly, Maryland.

Detailed descriptions of the goals for the proposed cardiac surgery, research, and training program follow:

1. <u>Provide Excellent, High Quality Care through One Cardiac Surgery Program at Three Locations</u>

The primary goal of UM BWMC's proposed cardiac surgery program is to produce exceptional clinical outcomes with the convenience and benefits of patients being able to remain closer to their homes and local community support.

As a member of UMMS, UM BWMC also is affiliated with UMMC and UM SOM. UM BWMC and UMMC are proud to collaborate to offer a cardiac surgery program that will combine the world-class expertise of UM SOM cardiac surgeons and the community setting of UM BWMC. This innovative model was successfully implemented at UM SJMC in 2012, and it has allowed patients to receive academic university level of care in their local community. UM BWMC will become the third location in this successful model of combining UMMC clinical expertise and the advantage of keeping patients closer to home where they have easier access to friends, family, community supports, and other resources to help them thrive following cardiac surgery. UM BWMC estimates the proposed cardiac surgery program will provide these benefits to more than 200 patients each year.

As a nationally and internationally respected leader in medical and surgical techniques, The University of Maryland Comprehensive Heart Center is a national referral center for the most difficult cardiac cases, handling all of the cardiac-related activities within UMMC, including the clinical services provided by the divisions of Cardiovascular Medicine, Pediatric Cardiology, Cardiac Surgery, and Vascular Surgery. The vast expertise of the UMMC cardiac surgeons – all of whom are also UM SOM faculty members – distinguishes UMMC surgeons as part of an outstanding academic heart center of excellence. A list of these cardiac surgeons with biographies is attached as Exhibit 2. The UM Comprehensive Heart Center brings together the top cardiologists and cardiac surgeons who, together, devise unique treatment plans for each patient using innovative surgical techniques and leading-edge medicine. A list and map of UMMS facilities that offer cardiac surgery or cardiac interventional services is attached as Exhibit 3.

In his role as Chief of the UM Division of Cardiac Surgery, Dr. James Gammie will be the Clinical Director for UM BWMC's cardiac surgery program. Dr. Gammie has a proven track-record of successfully implementing the proposed blended academic medical center and community-based cardiac surgery program model, as he led the planning and implementation of the model's first site at UM SJMC, as well as the rejuvenation of the Prince George's Hospital Center Cardiac Surgery program.

Dr. Gammie is the Chief of Cardiac Surgery and Professor of Surgery at UM SOM. He is board certified by the American Board of Thoracic Surgery. Dr. Gammie graduated from Brown University with a degree in biochemistry. He received his M.D. from the University of Massachusetts Medical School and trained in both general and cardiothoracic surgery at the University of Pittsburgh Medical Center.

Since joining the University of Maryland Comprehensive Heart Center in 2002, Dr. Gammie's has focused his clinical and research efforts on the surgical treatment of heart

valve disease. He performs more than 225 mitral valve operations per year and leads a cardiac surgery team that performs more than 1200 open heart cases per year. He has a strong interest in outcomes research in heart valve surgery. He has published more than 100 scientific articles, and serves as Deputy Editor for the *Annals of Thoracic Surgery*. He serves as principal investigator at the University of Maryland for multiple prospective randomized multicenter clinical trials sponsored by the NHLBI.

Dr. Gammie's research interests also include the development of medical devices to enable beating-heart mitral valve repair. In 2010 he was the sole academic faculty recipient of a Maryland Biotechnology Center Translational BioMaryland LIFE Prize Award to further this technology and was chosen as the University of Maryland Baltimore's Entrepreneur of the year in 2014 for his role in inventing an image guided surgical tool inserted via a small incision between the ribs.

The "One Program, Three Locations" specialized care model makes it possible for patients to receive world-class cardiac surgery treatment, including participation in clinical trials, from UM SOM physicians within the comfort, convenience, and other benefits of their home community. The partnership between UMMC and UM BWMC will bring the most advanced cardiac surgery options and life-saving research to more patients than ever in Maryland with immediate access to quaternary care such as lung/heart transplantation, ventricular assist devices and extracorporeal membrane circulation care provided by national leaders. Also, UM BWMC will achieve efficiencies by sharing surgeons, anesthesiologists, perfusionists, and staff with UMMC and UM SJMC.

2. Provide Cardiac Services in the Most Appropriate Setting within UMMS

UMMS strives to improve access to health care, improve patient care, and reduce health care costs by providing clinical services in the most appropriate setting within UMMS. This is true for cardiac services and is consistent with the Institute of Medicine's Best Care at Lower Cost, Recommendation 7: Optimized Operations. This recommendation states that health care providers should "Continuously improve health care operations to reduce waste, streamline care delivery, and focus on activities that improve patient health." The "One Program, Three Locations" model allows for a streamlined and collaborative approach to providing cardiac surgery and associated cardiology services (pre and post operation) with a goal toward achieving the best outcomes, improved patient experience, and the lowest cost.

UMMC is an academic medical center that provides highly specialized cardiac care, including care for the most complicated cardiac patients and innovative clinical trials. The quaternary care provided by UMMC is of immense value to residents the State of Maryland and the country; however, it is not always a cost effective setting to provide care for relatively low-risk routine cardiac surgery patients. At UM SJMC, UMMS has successfully shifted some lower acuity cases to a community hospital setting without comprising patient safety and quality, while also reducing costs. Opening a cardiac surgery program location at UM BWMC would allow an additional shift in cardiac surgery patient volume away from UMMC to UM BWMC, a lower-cost community hospital.

UMMS cardiac surgery patients will receive surgery at the surgical facility that best meets their clinical needs and patient preference. Pre-operative and post-operative clinical care will be available at several locations convenient to patients' homes and work places including

UM BWMC's campus in Glen Burnie, UM Shore Medical Pavilion in Queenstown, and UMMC's campus in Baltimore. Cardiopulmonary rehabilitation programs accredited by the American Association of Cardiovascular and Pulmonary Rehabilitation are available at a number of UMMS locations including UM BMWC, UM Shore Medical Centers at Chestertown, Dorchester, and Easton, and UM Shore Medical Pavilion at Queenstown. This clinically integrated system of care allows for streamlined care delivery and a shared medical record, prevents duplication of effort, increases collaboration and communication between providers and ultimately promotes improved quality of care, patient safety, patient satisfaction and better health outcomes.

The costs of cardiac surgery services for patients will be significantly reduced by the addition of a cardiac surgery program location at UM BWMC. The cost to these stakeholders is measured in the charges they receive for the service. Charges for cardiac surgery services at UM BWMC would be significantly lower than at UMMC, from where most of the proposed case volume will be shifted. Furthermore, an analysis of the rate structure at all of the hospitals from which cardiac surgery volume will shift shows that UM BWMC's charges are lower than each of them. *See* Response to Standard .05A(4), *infra*.

Also, the direct costs associated with the movement of case volume from UMMC to UM BWMC will result in a reduction in costs at UMMC and a corresponding increase in revenue to support the program at UM BWMC. Since resources will be shared within the system, there is no differential in salaries or supply costs.

3. Promote Continuous Process Improvement and Excellent Patient Outcomes

Continuous Process Improvement is an important goal of UM BWMC's proposed cardiac surgery program. UM BWMC and UMMC are committed to providing the best possible clinical outcomes for cardiac surgery patients.

UM BWMC's cardiac surgery clinical outcomes will be benchmarked by the Society for Thoracic Surgeons' (STS) National Database™, the gold standard clinical registry for adult cardiac surgery The STS National Database™ was established in 1989 as an initiative for quality improvement and patient safety among cardiothoracic surgeons. The database contains more than five million cardiac surgery procedure records and currently has more than 3,000 participating surgeons. The database provides many advantages including a standardized format for data collection to assess the care of adult patients undergoing cardiac procedures and quarterly performance outcomes reports in a risk-adjusted format that allows comparison of local outcomes to regional benchmarks and national standards. Currently, UMMC, UM SJMC, and Prince George's Hospital Center use this database for quality improvement

Patients undergoing any cardiac surgical procedures at UM BWMC will be enrolled in this database. This database will provide UM BWMC with a validated measure of observed to expected mortality and a comparison of the results across all types of cardiac surgery with other programs in the state, region, and nation.

UM BWMC's program will also conduct monthly quality meetings focused on programmatic outcome goals, morbidity and mortality review, and educational focused events such as grand rounds, case review, and journal review.

4. Offer Clinical Trials, Participate in Cardiac Surgery Research of National Significance and Serve as a Training Site For University Of Maryland School of Medicine Residents and Fellows

The proposed UMMC – UM BWMC collaboration will involve research of national and international significance, bringing the clinical and scientific expertise of the UM Comprehensive Heart Center to patients who are more similar to the general population than those typically seen in academic medical centers.

UM SOM cardiac surgeons are internationally respected by other heart experts for leading and participating in clinical trials that advance surgical treatment of heart disease and for providing alternatives for patients for whom traditional surgical solutions are not an option. UMMC was selected to join the Cardiothoracic Surgical Trials Network, a National Heart, Lung, and Blood Institute-supported consortium of cardiac surgery centers, to evaluate new surgical techniques, technologies, devices and innovative pharmaceutical and bioengineered products directed at improving adult cardiovascular outcomes. The UM Division of Cardiac Surgery is also a member of IRAD (International Registry of Acute Aortic Dissections), a national consortium of research centers focused on aortic dissection evaluation, management, and outcomes.

The clinical trials within the UM Division of Cardiac Surgery include:

- New minimally invasive techniques for patients deemed too high-risk for traditional surgery;
- Investigation of new ventricular assist devices; and
- New approaches for valve procedures, including transapical and catheter-based procedures.

As appropriate, these trials will be offered to UM BWMC cardiac surgery patients to combine clinical services and innovative research in a community setting.

Participation in the training of the next generation of cardiac surgeons is a unique feature of this proposed program. All cardiac surgeons who will practice at UM BWMC will hold faculty appointments at UM SOM. UM BWMC will be a rotation site for UM SOM residents and fellows. UM Division of Cardiac Surgery surgeons will provide oversight of the program, and they will evaluate patients and perform procedures at UM BWMC with residents and fellows.

5. Provide Comprehensive Cardiovascular Disease Outreach, Particularly for Minority, Low-Income, and other Disadvantaged Populations

Community outreach, including outreach specific to cardiovascular disease, is a significant component of UM BWMC's Strategic Plan, Annual Operating Plan and Community Health Improvement Benefit Plan. UM BWMC's cardiovascular health outreach strategy combines health promotion, disease prevention education, and risk assessment screenings. UM BWMC's outreach strategy includes all residents in the service area, while also responding to documented community needs related to cardiovascular disease among minority, low-income

and other disadvantaged populations. UM BWMC is proud to be considered a trusted partner in the health of the communities that it serves.

UM BWMC's outreach initiatives place strong emphasis on educating patients about heart screenings and heart-healthy lifestyles, including proper nutrition, exercise, weight management and tobacco prevention/cessation. Many of UM BWMC's outreach initiatives are a collaborative effort with government and social assistance agencies, churches and other faith-based organizations, community and minority-based organizations, other health care providers, businesses and local residents.

UM BWMC's outreach priorities related to cardiovascular disease prevention are closely aligned with the Maryland State Health Improvement Process (SHIP) vision areas and objectives, and the priorities and objectives identified by the Healthy Anne Arundel Coalition. These synergies are important because the combined efforts of UM BWMC and the Coalition's partners allow for a greater impact on the community.

C. The UM BWMC Cardiac Service Area.

UM BWMC has defined its likely cardiac surgery service area for the proposed cardiac surgery program using a number of criteria, including:

- The Commission's definition of the region in which UM BWMC is located includes the metropolitan Baltimore jurisdictions and the Upper Eastern Shore;
- Existing UM BWMC patient desires for comprehensive cardiac care to be available conveniently on UM BWMC's campus;
- UM BWMC's existing primary and secondary service areas;
- UM BWMC's current cardiologist relationships and projected referral patterns to support a cardiac surgery program and a minimum volume of 200 cases per year;
- UMMC's historical cardiac surgery patient volume and distribution within the proposed service area;
- UMMC's existing cardiac surgery pre- and post- operative cardiac care available in Queenstown on the Eastern Shore;
- UM BWMC's existing presence and relationships on Maryland's Eastern shore through the vascular program at UM BWMC – clinics are held in Easton with surgeries performed at UM BWMC;
- Support of the Eastern Shore medical community for a cardiac surgery program at UM BWMC;
- UM BWMC's ability to provide comprehensive cardiovascular health education, outreach, and screening on the Eastern Shore in partnership with UM Shore Health;

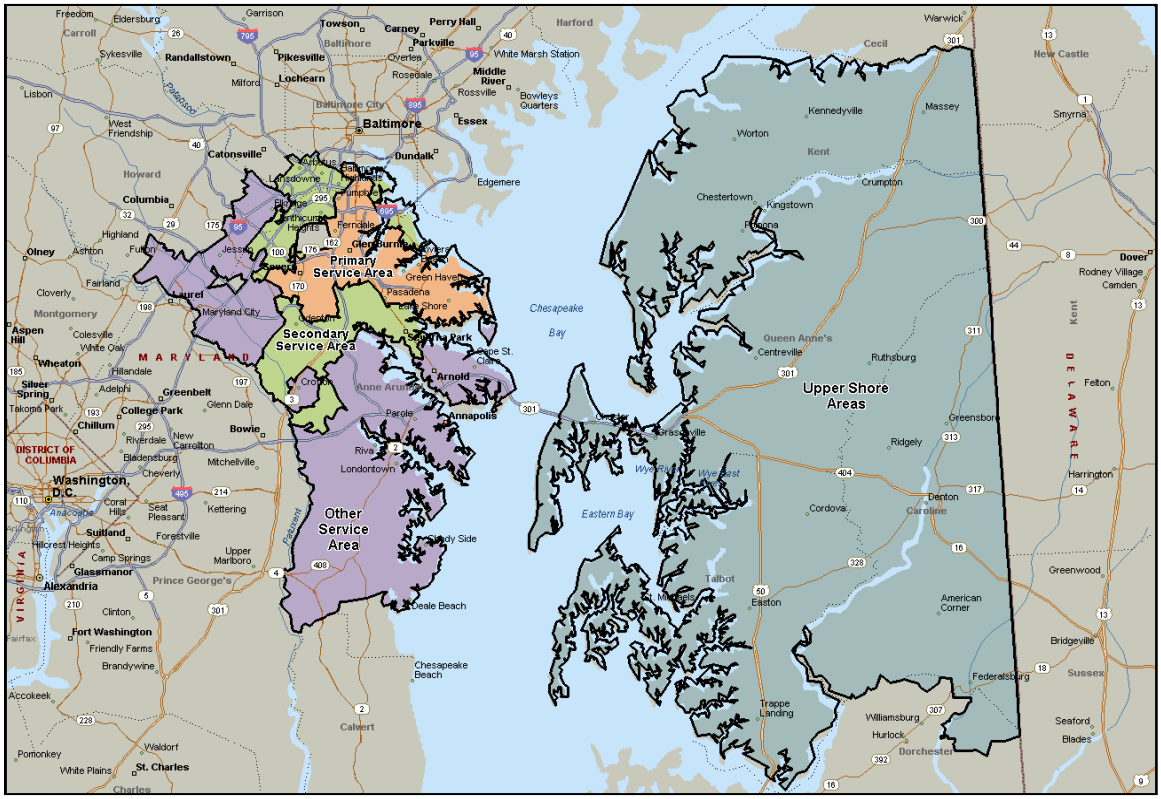
- Data demonstrating the burden of cardiovascular disease and related chronic health conditions such as diabetes and obesity in Anne Arundel County, including health disparities among minority and low-income population, particularly in the northern portion of the County close to UM BWMC's campus;

- Proximity of existing cardiac surgery locations to UM BWMC's campus; and

- Reasonableness of travel time for patients to seek cardiac surgery services at UM BWMC.

The proposed cardiac surgery service area based on the above criteria is depicted in Figure 2 below. The table attached as Exhibit 4 identifies the zip codes included in the service area (also, a larger map is attached as Exhibit 5).

Figure 2: Map of Proposed Cardiac Surgery Service Area



D. Existing Cardiovascular Facilities and Services at UM BWMC.

UM BWMC has been caring for patients with heart disease since it opened in 1965. As the process for caring for the disease has progressed, UM BWMC has consistently included clinical advances to enhance its services and technology for the benefit of patients.

UM BWMC's cardiovascular program offers the following diagnostic/treatment services and facilities:

- Primary PCI
- Non-primary PCI
- Diagnostic catheterization
- Transesophageal echocardiograms (TEE)
- Cardioversion
- Stress testing
- Electrophysiology studies
- Pacemaker / Automatic Implantable Cardioverter Defibrillators (AICD) insertion
- Transthoracic echocardiography
- Intra-aortic balloon (IABP) insertion
- Dedicated state-of-the-art cardiac catheterization laboratory
- Dedicated vascular center for outpatient consultations to include diagnostic ultrasound
- Endovascular suite dedicated to minimally invasive treatment of peripheral vascular disease, renal artery disease, carotid stenting, etc. UM BWMC's interventional cardiologists perform peripheral vascular procedures in the dedicated, state-of-the-art endovascular suite which is separate from the main cardiac catheterization laboratory.
- Cardiopulmonary rehabilitation program
- 24-bed critical care unit, an additional 12-bed surgical intensive care unit and inpatient monitoring capabilities for over 50% of adult inpatients beds

UM BWMC's cardiac care program has been and will remain flexible, and will continue to respond to the evolution of diagnostic and treatment methods for patients with cardiac disease.

1. Department of Cardiology.

The cardiology physician leadership at UM BWMC works hard to continually develop, implement, and evaluate initiatives to strengthen the cardiac services program to provide the highest quality patient care. Dr. Jorge Ramirez, a cardiologist, chairs the Department of Cardiology. Dr. Samuel Yoon, an interventional cardiologist, serves as Medical Director of the Cardiac Catheterization Laboratory and the Cardiac Interventional Center (described below). These physician leaders provide oversight and expertise for all areas of the existing UM BWMC cardiac services program. Collectively, Dr. Ramirez and Dr. Yoon have more than 35 years of tenure at UM BWMC, developing strong relationships within the medical center and throughout UMMS. The cardiac leadership team strongly encourages physician and staff participation in quality improvement initiatives.

2. UM BWMC Cardiac Interventional Center

a. The UM BWMC Percutaneous Coronary Intervention (PCI) Program.

UM BWMC has provided cardiac catheterization services for almost 30 years. In 1986, the hospital (then known as North Arundel Hospital) began offering diagnostic cardiac catheterization services. In 2001, the hospital joined the C-PORT Registry and began performing primary (emergency) angioplasty, and in 2009 UM BWMC performed its first non-primary (elective) angioplasty under the C-PORT E study. As described below, UM BWMC has two state-of-the-art catheterization laboratory suites and a six-bed prep / recovery unit.

UM BWMC offers primary percutaneous coronary intervention (PCI) 24 hours a day, 7 days per week, 365 days a year. UM BWMC has maintained unimpeded and uninterrupted compliance with the primary PCI (C-PORT) registry since 2001.

The clinical team treating ST-segment elevation myocardial infarction (STEMI) has been focused on consistently meeting or exceeding the standards set forth by the MHCC and MIEMSS for Primary PCI, including that 75% of STEMI patients receive PCI in no more than 90 minutes after arrival. UM BWMC has achieved this standard in every quarter since June 2010.

Another strength of UM BWMC's program is its stable and motivated STEMI treatment team. The catheterization laboratory is staffed by interventional cardiologists, registered nurses, cardiovascular radiology technicians and other support staff. UM BWMC's telecommunications system activates the on-call STEMI team using the single call activation process. During non-working hours the department maintains a rotating call schedule. The catheterization laboratory staff each take call two to three nights a week and every other weekend.

b. Cardiac Catheterization Laboratory.

UM BWMC's cardiac catheterization laboratory was renovated in 2010. The renovated catheterization laboratory has two procedure rooms with the most technologically advanced imaging equipment available. It offers intravascular ultrasound (IVUS) and fractional flow reserve (FFR) capabilities, as well as rotational imaging, quantitative coronary and quantitative left ventricular analysis. In October 2014, UM BWMC updated the hemodynamic system for the catheterization laboratory. The laboratory's advanced imaging provides cardiologists with the most sophisticated tools possible to diagnose and treat patients with cardiac disease. A six bed prep/recovery area is located immediately outside the laboratory.

With advances in imaging and technology, UMMC is presently able to view cardiac catheterization imaging remotely, allowing immediate consultations between the interventional cardiologists onsite at UM BWMC and cardiac physicians at UMMC.

c. LifeNet.

The LifeNet system is another strength of UM BWMC's program because it significantly improves the quality and speed of ECG transmissions from the field to the providers. LifeNet transmits the ECG from the field directly to the emergency department. An alert sounds in the emergency department as the ECG automatically prints out. This ECG is handed to the emergency physician at which time activation can take place. The ECGs are then transmitted by the LifeNet system directly to the interventional cardiologist's cell phone, while the activation call is sent out. The LifeNet ECGs are also transmitted to the catheterization laboratory, and the cardiac catheterization manager's office at the same time. All of this is done before the patient arrives at UM BWMC for care.

The addition of LifeNet to UM BWMC's already strong early activation process allows patients to receive treatment as quickly as possible. This early activation process fosters success in door-to-balloon times for PCI. As shown in Exhibit 6, UM BWMC's performance in door-to-balloon time has been consistently strong over the last several years, out-performing applicable standards since at least mid-2010.

UM BWMC has invested $40,000 and facilitated the installation of the LifeNet ECG transmission system in 20 Anne Arundel County EMS units, as well as two at Thurgood Marshall BWI Airport EMS. The hospital spends approximately $6,000 annually to maintain these life-saving units.

d. Collaboration and Quality Improvement.

The cardiac collaborative practice team is comprised of physicians, administrators, nursing leaders, and staff from many disciplines across UM BWMC who care for PCI patients. To ensure prompt quality patient care, the cardiac catheterization laboratory personnel have strong collaborative relationships, at all levels, with other UM BWMC departments and personnel, including the Emergency Department, physicians, telecommunications personnel, EMS, critical care staff, the progressive care unit staff, and cardiac rehabilitation staff, among many others. These disciplines are active in collaborative practice team meetings.

The clinical case review team meets weekly to achieve more timely review and implementation of performance improvement initiatives. The meeting is open to all disciplines that care for cardiac patients, including cardiologists, Emergency Department staff, EMS providers, rehabilitation therapists and others throughout the hospital. The program's interventional cardiologists are central to the clinical case review team and to the evaluation of every diagnostic cardiac catheterization that is either transferred for bypass or an intervention case (both STEMI and non-STEMI) that occurs in the catheterization laboratory. The catheterization laboratory and cardiac rehabilitation staff are also members of this team and benefit greatly from the discussion and analysis of the material presented. These reviews create excellent teaching and learning opportunities for all involved and foster strong team building.

Cardiac care protocols are updated at least every three years, and are reviewed during each monthly cardiac collaborative practice team meeting and weekly clinical case review meeting. The team follows the American College of Cardiology recommendations and protocols, and will make changes to internal procedures if a recommendation is made or revised. The team proactively changes protocols to reflect the most current evidence-based practices and does not wait for the next scheduled review period to make a needed change to protocols. If an issue demonstrates a change in protocol is needed, the team immediately works together to implement the change and update the appropriate protocol.

In addition to strong local teamwork, the close collaboration between UM BWMC and UMMC also produces positive results for patients. For example, UM BWMC's interventional cardiologists have privileges and are active in the UMMC's catheterization laboratory. An interventional cardiologist at UMMC is also on staff and sees patients at UM BWMC. The staff members of both laboratories regularly collaborate on protocols, processes and procedures and share experiences and data.

Finally, UM BWMC has a strong commitment to collaborate with other hospitals offering PCI services. Sharing with other providers strengthens the quality of care for patients. UM BWMC frequently shares best practice initiatives with other PCI hospitals. UM BWMC plays an active part in the Cardiac Data Coordinators Meetings held quarterly at the MHCC. The manager of UM BWMC’s cardiac catheterization laboratory co-chairs this collaboration.

e. Recognition for Excellent Cardiac Services at UM BWMC.

In fiscal year 2013, UM BWMC received the American College of Cardiology Foundation's NCDR ACTION Registry-GWTG (Get With the Guidelines) Platinum Performance Achievement Award — one of only 164 hospitals in the nation to do so. UM BWMC has received an ACTION Registry-GWTG achievement award every year since its inception. The awards recognize UM BWMC's commitment and success in implementing a higher standard of care for heart attack patients, and they signify that UM BWMC has reached an aggressive goal of treating patients to standard levels of care as outlined by the American College of Cardiology/American Heart Association clinical guidelines and recommendations.

In fiscal year 2014, UM BWMC received the Mission: Lifeline® Gold Plus Receiving Center Quality Achievement Award for implementing specific quality improvement measures outlined by the American Heart Association for the treatment of patients who suffer severe heart attacks. In order to receive the Gold Plus award level, organizations must meet specific criteria for at least two consecutive calendar years. UM BWMC is the only hospital in Maryland listed as Gold Plus for Mission Lifeline.

3. The Maryland Vascular Center at UM BWMC.

The Maryland Vascular Center at UM BWMC is a multidisciplinary group of healthcare professionals who provide comprehensive specialty care services to patients with all forms of major vascular disorders including arterial, venous, lymphatic, inflammatory and congenital vascular problems. The Maryland Vascular Center is a member of UMMS that works closely with the Division of Vascular Surgery at UM SOM and participates in clinical, research, and educational opportunities. This relationship allows the team to customize care delivery to people from all parts of the State of Maryland and the surrounding region. Services are conveniently provided in a modern and easily accessible community hospital environment at UM BWMC. Patient education and community outreach are important elements of the Maryland Vascular Program.

The program is led by Dr. Marshall Benjamin, who came to UM BWMC in 2002 from a full-time faculty position at UM SOM to lead BWMC’s surgical services, and to establish a second location of the Maryland Vascular Center. Dr. Benjamin also serves as Chairman of Surgery at UM BWMC and holds a faculty appointment at UM SOM.

UM BWMC offers a vascular clinic in Easton, Maryland to provide needed specialty care to residents of Maryland’s Eastern Shore region. Patients requiring surgery receive surgical care at UM BWMC’s campus.

4. The Endovascular Suite

In 2008, UM BWMC opened a new endovascular suite, bringing the latest technology for minimally invasive vascular treatments to the region, including arteriogram, venogram, and angioplasty procedures. The suite includes a highly advanced patient monitoring system, as well as an intravascular ultrasound system. UM BWMC is one of the first locations in the country to combine these technologies in a single, interventional operating room.

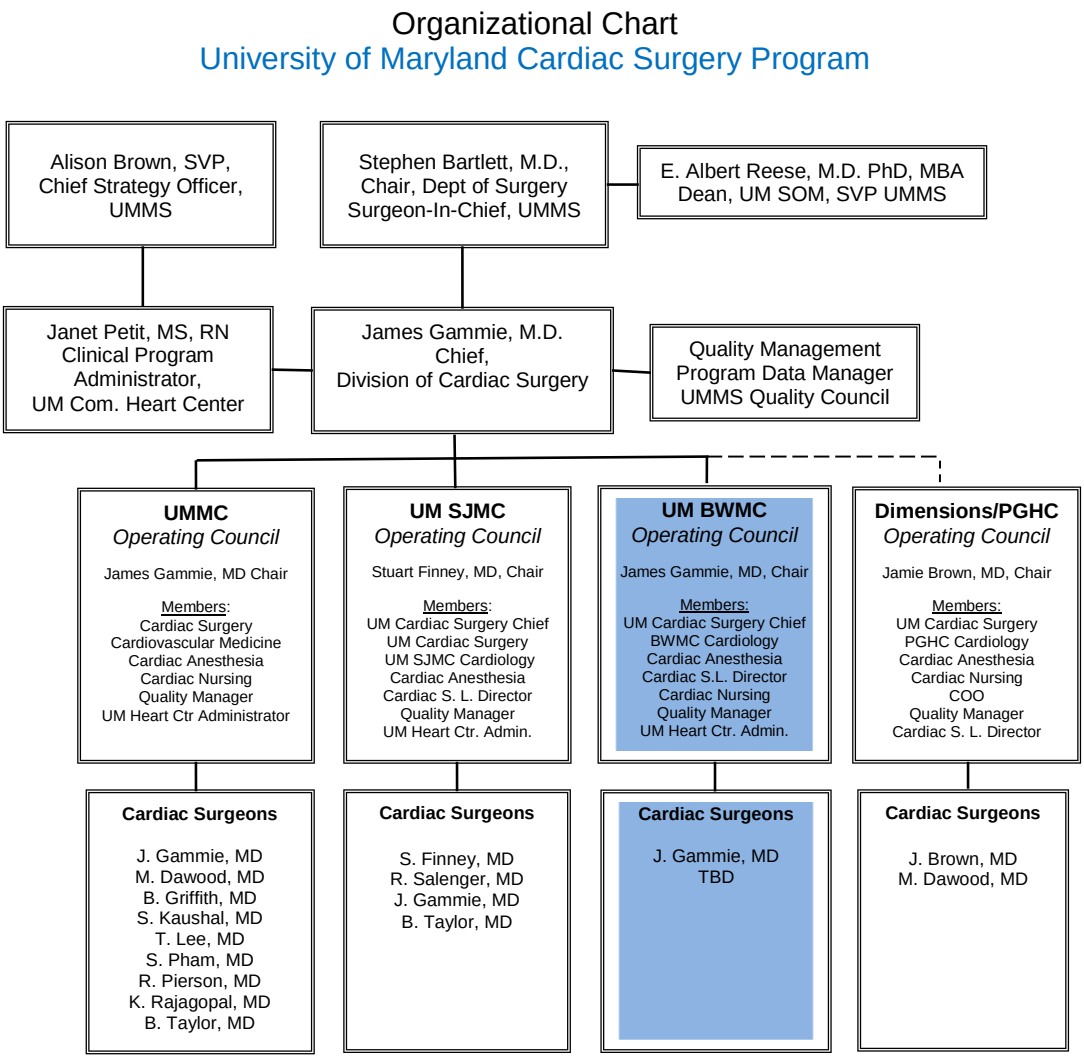
E. Provision of Cardiac Surgery Services at UM BWMC.

1. Management of the Cardiac Surgery Program.

As discussed above, the proposed cardiac surgery program at UM BWMC will be part of the existing program managed by the UM Division of Cardiac Surgery. This arrangement will enhance quality care by ensuring cardiac surgeons perform high volumes to maintain proficiency. Also, the cardiac surgeons will receive oversight from UMMC Heart Center leadership, and they will be part of the peer review processes of the UMMC Heart Center.

The organizational chart below reflects the oversight of the various components of the UM Division of Cardiac Surgery, including the proposed cardiac surgery program at UM BWMC.

Figure 3: Division of Cardiac Surgery Organizational Chart



2. Implementation Planning and Training.

As shown in the organizational chart above, the cardiac surgery program at UM BWMC will be a new location for the existing program. Implementing the addition of UM BWMC as part of the UM Division of Cardiac Surgery will be a well-planned and organized process. Maintaining an active Emergency Department and cardiac catheterization laboratory provide UM BWMC with a solid foundation in the complexities involved with implementation of a cardiac surgery program. A critical component of this process will be extensive training and rehearsals under various scenarios. Written protocols will be used, and rehearsals will serve as a practical critique of the written protocols. A collaborative training agreement will be entered into for UMMC cardiac nurses to provide on-site training for the nursing staff at UM BWMC. A summary of the collaborative training planned for the nursing staff is attached as Exhibit 7.

a. Cardiac Physician Services

Physician coverage for cardiac surgery at UM BWMC will be provided on a contract basis by existing cardiac surgeons within the UM Division of Cardiac Surgery. Experienced UMMC cardiac surgeons will provide surgical services, office based consultation services, medical directorship, and other non-clinical services.

b. Perfusionist Services

UMMC will provide permanent perfusionist staffing, including a part-time director who will oversee the UM BWMC perfusion services during the implementation phase of the cardiac surgery program, and any necessary oversight following implementation. To promote efficiency, perfusionists will be shared between UM BWMC, UMMC, and UM SJMC.

c. Cardiac Nursing Care Staff Training

The Clinical Education and Development Department at UM BWMC ("CED") is responsible for the education and training of clinical staff. CED has responsibility for conducting orientation of new staff, validating staff on skill competency levels, coordinating the New Graduate Residency Program, Preceptor Programs, Charge Nurse Seminars, Non-Aggressive Patient Management Training, Basic Life Support (BLS) Heart Saver and Health Care Provider Certification and Recertification, and Advanced Cardiovascular Life Support (ACLS) Provider Classes and Recertification Classes. CED also provides education on an ongoing basis for new policies, procedures, protocols and equipment.

In addition to the typical training from CED, UM BWMC's perioperative and post-operative (critical care and step-down) nursing teams also will receive training and support from UMMC's cardiac nursing care team. The training will occur before, during and after the implementation of the cardiac surgery program at UM BWMC, and will occur at both UM BWMC and UMMC. UMMC has successfully provided similar training services for the clinical staff within the cardiac surgery program at Prince George's Hospital Center.

3. Pathways and Referrals for Cardiac Surgery at UM BWMC

a. Cardiac Services Referrals for UM BWMC.

Currently, cardiac catheterization patients are referred to UM BWMC from the following sources:

- UM BWMC's Emergency Department (self-referral, physician-referred, or transported by EMS);
- UM BMWC's inpatient unit through a cardiologist's consultation;
- UM BWMC's post-anesthesia care unit (due to post-surgery symptoms);
- UM BWMC's ambulatory care units;

Cardiac surgery patients likely would be referred to UM BWMC from any one of the following sources:

- UM BWMC's catheterization laboratory;
- Cardiologist and other physician referrals in Anne Arundel County and the Mid-Shore; and
- Cardiac surgery programs in other UMMS member facilities for patients who prefer UM BWMC;
- UM Division of Cardiac Surgery at Queenstown (UM Shore Regional Health)

UM BWMC expects the cardiac surgery team will perform all types of conventional adult heart procedures at UM BWMC, such as coronary artery bypass (CABG) and heart valve procedures. More complex procedures requiring specialized quaternary care will be performed at UMMC. These procedures include adult extracorporeal membrane oxygenation (ECMO), emergency aortic operations (primarily type A dissections), heart and lung transplantation, and ventricular assist device implantation. One of the benefits of UM BWMC's membership in UMMS is that the cardiac clinical teams can ensure the most appropriate setting within the system for each type of cardiac surgical case. Also, directing more complex cardiac surgery procedures to UMMC will promote high quality care by increasing the volumes of similar types of cases in each setting.

b. Typical Patient Pathway for Cardiac Surgery.

Once a cardiac surgeon determines that surgery is necessary, surgery will be scheduled. Appropriate tests will be performed based on the patient's history and physical examination, and the guidelines established by the Cardiac Surgery Team. The patient will also be evaluated by an anesthesiologist.

Upon admission, patients will be placed on a pathway. Use of critical pathways will be supported by standing physician orders that reflect the specific monitoring, treatments, tests, consults and medications.

Cases will be scheduled five days a week. One operating room will be available for emergency procedures 365 days per year, 24 hours per day. The surgical team for each operating room will include a cardiac surgeon, nurse, surgical physician assistant, cardiac

anesthesiologist, perfusionist, and operating room technician or scrub tech. Coverage for the entire surgical team will be available 24 hours per day, 365 days per year.

Immediately following a patient's cardiac surgery, the patient will be transported from the operating room to the Cardiovascular Recovery Room ("CVRR") in a designated recovery area adjacent to the operating rooms, allowing the patient to recover and be extubated while still in close proximity to the surgeon and the operating room team in the event the patient needs to be taken back to the operating room. An Intensivist and a primary cardiovascular ICU nurse ("CVICU RN") will receive the patient in CVRR.[2] A second CVICU RN will be available to assist if required. The Intensivist will receive report from the cardiovascular surgeon. The CVICU RN will receive a report from anesthesiologist. One-to-one nursing care will be provided by the CVICU RN during the patient's recovery phase; secondary support will be provided by post-anesthesia care unit staff and/or the secondary CVICU RN. The patient will remain in the CVRR until extubated and hemodynamically stable.

Following surgery, the extubated, hemodynamically stable cardiac surgery patient will be transported to Critical Care West ("CCW") accompanied by a CVICU RN. CCW is a state-of-the-art critical care unit with 24 private, spacious rooms with glass entry doors. CCW is conveniently located on the same floor as the cardiac catheterization laboratory and the cardiology department. The nurses' stations are centrally located between every two rooms, allowing the skilled staff to care for and monitor patients. All 24 beds are staffed with qualified staff and technology.

Six beds in CCW will be designated to care for post-surgical cardiac patients. The care of these patients will be provided by nurses trained in the care of post-surgical cardiac patients. Staffing mix in CCW will include no less than two cardiovascular trained nurses at all times. The Patient will remain in CCW until: (1) pressors and drips are no longer required; (2) temporary pacing is no longer required; and (3) the hemodynamic monitoring lines are removed.

After an expected average one-day critical care stay in CCW, the patient will be discharged to a 30-bed surgical step-down telemetry unit. In 2014, UM BWMC developed a centralized telemetry unit, which allows as many as 144 monitored patients throughout the hospital.

Average length of stay is expected to be 8.8 days. Physical therapists and occupational therapists typically will see these patients for approximately 3-5 daily visits beginning on post-op day one or two, as ordered. Other staff members will ambulate the patients 3-5 times per day. Patients will be referred for outpatient cardiac rehabilitation which is a key component of the patient's recovery.

Patients receive educational materials prior to surgery and after surgery. A description of the materials currently used and some samples are attached as Exhibit 9.

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[2] UM BWMC maintains intensivist (hospital-based critical care physicians) staffing. A summary of the UM BWMC intensivist program is attached as Exhibit 8.

F. Facilities and Services Supporting the Proposed Cardiac Surgery Program.

In recent years, UM BWMC has dedicated substantial resources to improve its facilities and services, especially for surgical and cardiac care, to ensure UM BWMC provides the highest quality patient care. As a result of these improvements, no capital project is required to implement the proposed cardiac surgery program at UM BWMC.

1. Surgical Capacity.

UM BWMC has a modern, state-of-the-art surgical suite consisting of 16 mixed use operating rooms. Pursuant to a Certificate of Need granted on December 17, 2009 (Docket No. 09-02-2299), UM BWMC renovated the surgical suite and expanded the number of operating rooms from 14 to 16. This $31 million project was completed in 2011. The surgical suite project enabled UM BWMC surgeons to increase the complexity of surgical cases in neurosurgery, vascular, orthopedics, and robotics. The project also involved the relocation and expansion of the surgical prep area.

Also, UM BWMC soon will replace three existing operating rooms with larger rooms at an estimated cost of $5.1 million.[3] The three new operating rooms will be constructed in existing shell space, and three existing smaller operating rooms will be taken out of service.

The existing surgical suite is well-equipped to accommodate cardiac surgery with almost no modification required.

2. Outpatient Cardiac Surgery Clinic

If the Commission approves the proposed cardiac surgery program, UM BWMC will establish an outpatient clinic for cardiac surgery patients on the campus of UM BWMC. The clinic will be located in the Maryland Vascular Center at UM BWMC, and will be staffed for a minimum of one day each week by a cardiac surgeon from the UM Division of Cardiac Surgery. The clinic will also have a dedicated fulltime nurse practitioner. Administrative support for the outpatient clinic will be shared with the Vascular Center.

Dr. James Gammie, Chief of the UM Division of Cardiac Surgery, will serve as the medical director of the outpatient clinic. The outpatient clinic model has been implemented successfully at both UM SJMC and Prince George's Hospital Center (where the UM Division of Cardiac Surgery provides surgeon staffing as well as clinical and administrative support).

3. Emergency Department

UM BWMC's Emergency Department has historically been one of the busiest emergency departments in Maryland, treating an average of almost 103,000 patients yearly.[4] The Emergency Department includes 69 different treatment areas. The ED team includes

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[3] Pursuant to a determination dated January 14, 2015, the Commission Staff determined that a Certificate of Need is not required for the project.

[4] Source: UM BWMC billing data FY10-FY14.

physicians, physician assistants, nurse practitioners, nurses, respiratory therapists, technicians, registrars, and volunteers.

The median door-to-provider time is 11 minutes for all walk-in patients in the UM BWMC Emergency Department. Any patient with chest pain is brought to the front of the queue for immediate evaluation. The registration staff of the Emergency Department is trained to bring patients with complaints of chest pain immediately to triage/screening for prompt evaluation, thus bypassing any potential waiting time. Triage/screening has the capability for a STAT ECG. Blood work (including point of care troponin I), and IV access may then be established. The triage/screening area is immediately accessible from the emergency department front entrance and the emergency department registrar.

The Emergency Department serves as primary receiver for all Anne Arundel County ambulances covering the north, central, and western sections of the County. The Emergency Department also receives ambulances from eastern Howard County and the Baltimore Washington International Thurgood Marshall Airport EMS. On October 1, 2006, UM BWMC became a base station for Anne Arundel County, providing medical control for the paramedic units of the County. On May 1**,** 2012, UM BWMC was reaccredited by MIEMSS as a Base Station for the full five years. The MIEMSS reaccreditation report stated (in part):

> the reviewer's general impressions were that the Baltimore Washington Medical Center's staff and administration were very enthusiastic, motivated, and organized in their approach to be redesignated as a base station. The physical layout of the ED is conductive to easy, quick access to the radio throughout the central division of the ED. The base station policy is thorough. They have a standardized radio report form, and an established standardized log book which allow for quality assurance review. They audit a minimum of 10% of consults. They have developed a radio report audit tool which allows them to identify trends at a glance. ***This tool is considered a best practice for quality assurance review and should be shared with other hospitals***. The updated EMS treatment protocols are located next to the radio. BWMC provides many opportunities for clinical rotations for EMS students including an operating room rotation for endotracheal intubations and observation in the cardiac catheterization lab. (Emphasis added)

All Emergency Department staff members are trained in the management of acute coronary syndrome ("ACS"). Ongoing education ensures that the staff remains competent and that clinical practice is reflective of the most current standards of care. All registered nurses maintain Advanced Cardiac Life Support ("ACLS") certification as well. ECGs can be performed immediately in the screening/triage area, 24 hours a day. All ECGs are shown immediately to a physician for evaluation and interpretation. ECGs are not permitted to be batched, but rather brought to a physician immediately upon each one's completion. All providers in the Emergency Department have spectralink phones to connect with the charge nurse to obtain a bed immediately for ACS patients should the ECG show a STEMI.

Patients arriving by ambulance with ACS symptoms are called in by the medics. Should there be evidence of a STEMI, the cardiac catheterization team is activated while the medic is in the field. Early activation is routinely performed based on either paramedic interpretation or an electronically sent image of the ECG, which the emergency department physician interprets immediately. If a patient arrives by ambulance but is not early activated, the Emergency

Department nurse has a standing order to obtain an ECG immediately upon arrival to a room. If a room is not available immediately, an ECG is performed in the ambulance bay if immediate action is necessary.

4. Rehabilitation Services Department.

UM BWMC's Rehabilitation Services Department consists of Cardiopulmonary Rehabilitation, Occupational Therapy, Physical Therapy and Speech Language Pathology. Experienced therapists and rehabilitation staff work with patients' health care providers to ensure each patient receives thorough rehabilitation to address his or her health status.

The staff evaluates and treats patients suffering from physical and communicative problems due to disease, disability or injury. The rehabilitation services are designed to promote health and well-being, prevent or reduce disability, maximize independence, and facilitate the highest quality of life possible. Patients have expressed strong satisfaction with UM BWMC's outpatient rehabilitation services. Since July 1, 2011, nearly 9 out of every 10 respondents on the Hospital Consumer Assessment of Healthcare Providers and Systems Survey indicate they are strongly likely to recommend UM BWMC's rehabilitation services. Also, UM BWMC's Rehabilitation Services Department is usually in the top quarter of Health Stream surveyed sites in this area (question H17).

UM BWMC's Rehabilitation Services Department is part of the University of Maryland Rehabilitation Network, a coordinated system of inpatient and outpatient rehabilitation providers. The network offers a full range of rehabilitation services and brings together expert teams of committed care providers from twenty facilities throughout Central Maryland and the Eastern Shore. All UM cardiopulmonary rehabilitation programs are accredited by the American Association of Cardiovascular and Pulmonary Rehabilitation.

Patients receiving cardiac surgery at UM BWMC will be transitioned seamlessly into outpatient care at UM BWMC or in another UM Rehabilitation Network facility. For patients residing on Maryland's Eastern Shore, University of Maryland Shore Regional Health provides cardiovascular rehabilitation services at UM Shore Medical Centers at Chestertown, Dorchester, and Easton, and UM Shore Medical Pavilion at Queenstown. If a patient chooses to receive outpatient rehabilitation care at another facility, UM BWMC's program will work with the patient and facility to assure open communication between all parties and monitor rehabilitation treatment progress.

a. Cardiopulmonary Rehabilitation

For more than 30 years, UM BWMC's cardiopulmonary rehabilitation program has served adults diagnosed with cardiovascular or pulmonary disease. The program helps patients to undergo cardiovascular reconditioning in a safe and supportive setting. UM BWMC's cardiopulmonary rehabilitation staff consists of nurses, exercise physiologists, and respiratory therapists. Two cardiopulmonary rehabilitation staff members have been with the Rehabilitation services Department since 1985.

Referrals for patients are received from physicians affiliated with all hospitals in the Baltimore, Annapolis, and Washington areas. Therapists treat patients who are recovering from a variety of ailments or procedures, including: myocardial infarction, coronary artery bypass

graft, valve disease, repair and replacements, percutaneous transluminal coronary angioplasty, congestive heart failure, left ventricular assist device, heart and lung transplants, chronic obstructive pulmonary disease, diabetes, and pulmonary fibrosis.

UM BWMC meets the Gold Standard for American Association of Cardiovascular and Pulmonary Rehabilitation Programs. Program objectives include:

- Improving cardiovascular and respiratory fitness without exceeding safe exercise limits;
- Educating patients about their diseases, long-term self-management, and risk factors; and
- Enhancing levels of physical and psychosocial functioning.

UM BWMC currently offers monitored outpatient cardiac rehabilitation services, in which patients are connected to an electrocardiogram monitor, and non-monitored (self-directed) outpatient cardiac rehabilitation services. In 2014, the program had a total of 14,611 visits, including 4,442 cardiac monitored visits, 777 pulmonary monitored visits, and 9,392 non-monitored or maintenance visits.

Upon opening a cardiac surgery program, UM BWMC will provide patients with inpatient cardiac rehabilitation protocol. Physical therapists and occupational therapists will assist patients to achieve safe mobility (PT) and self-care (OT) in preparation for the patient's return to home. During the patient's hospital stay, the emphasis will be on patient education for self-care at home.

b. Physical Therapy

Following cardiac surgery, physical therapists will work with patient on safe mobility.

Physical Therapy is the evaluation and treatment of joint motion, muscle strength, endurance, balance, gait, functional ability, muscle tone, and pain. Therapists complete a thorough evaluation of musculoskeletal & neuromuscular dysfunctions and devise individualized treatment plans. Treatment may include thermal, electric, water or sound modalities and therapeutic exercise or manual techniques to improve balance, gait, mobility and strength, as well as to reduce pain.

c. Occupational Therapy

Occupational therapists will also work with patients following cardiac surgery on safe self-care and independent functioning.

Occupational therapy is the use of activity or interventions that develop, improve, sustain, or restore the highest possible level of independence in activities. Occupational therapy helps promote health, prevent disability and facilitate independence. UM BWMC offers occupational therapy services to help patients achieve their highest possible level of self-sufficiency.

5. Other Ancillary Services.

UM BWMC's Ancillary Services are prepared to support a cardiac surgery program. The ancillary services are already well-established to support the acuity of the current patient population served by UM BWMC.

a. Lab/Blood Bank/Pathology

UM BWMC's Laboratory and Blood Bank are operational 24 hours a day and will be able to support a cardiac surgery program. Additionally, the emergency department uses I-STAT Point of Care for STEMI patients that arrive in the department to obtain pre-procedure Blood Urea Nitrogen (BUN), creatinine, potassium and Troponin I levels. The catheterization laboratory staff uses I-STAT for BUN, creatinine, potassium and Activated Clotting Times (ACT) during the procedure, and for ACT's in the critical care unit post procedure.

b. Radiology/Electrocardiogram Studies (ECG)

UM BWMC's Radiology Department is also operational 24 hours a day and provides chest radiographs anywhere in the medical center with a portable machine. CT technology is also available by call 24 hours a day, 7 days a week, if necessary.

Electrocardiogram and echocardiogram studies can be obtained around the clock by qualified staff members. If an emergent echocardiogram is required, the catheterization laboratory staff will bring the echocardiogram machine to the catheterization laboratory, where the physician can perform the emergent test. The emergency room is equipped with two ultrasound machines that can provide a quick look echocardiogram if necessary.

c. Pharmacy

UM BWMC's pharmacy is staffed 24 hours a day, seven days a week, 365 days a year. More than 60,000 orders are processed and more than 155,000 medications are dispensed each month. UM BWMC pharmacists respond to medication related questions from throughout the hospital, as well as from physician offices and home patients. Pharmacists also provide patient care on a clinical level.

With the addition of cardiac surgery services, UM BWMC will expand the clinical pharmacy services. Medication management will be a large component of the treatment of cardiac surgery patients who will require a dedicated clinical pharmacist who specializes in the medication management for cardiac surgery patients. A summary of the type of clinical pharmacy services that will be provided to cardiac surgery patients is attached as Exhibit 10.

UM BWMC is focused on improving pharmacy services that support perioperative care, which is one of the most medication intensive areas of a hospital and where complex, high-velocity care is delivered. UM BWMC has decided to implement a decentralized model in which a clinical pharmacist will be dedicated to the immediate needs of this critical area. This model will be in place before the proposed cardiac surgery program becomes operational. In addition, the pharmacy will establish a satellite location devoted specifically to this area, which studies show will produce improvements in medication management, including medication safety as well as significant returns on investment in terms of inventory reduction, reduction in lost drug charges, and reduction in delays.

Medication errors occurring in the perioperative area have been shown to produce disproportionately more harm than those from other hospital locations.[5] A clinical pharmacist who specializes in perioperative care can contribute to error reduction through development and implementation of meaningful changes to medication policies, such as standardization of medications and available concentrations, medication labeling, contents of anesthesia carts and automatic dispensing cabinets, and protocols and order sets. A satellite pharmacy that is specifically stocked and strategically managed to accommodate the perioperative area can drastically reduce wait times for essential medications.

Also, establishment of a fully staffed operating room satellite pharmacy is an effective way to recover lost revenue, regulate controlled substances, and monitor inventory. One year after satellite implementation, one 22 suite hospital saw a greater than 50% reduction in perioperative inventory, a 2.6% reduction in pharmaceutical costs, and an 8% reduction in average cost per patient.[6]

d. Respiratory Therapy

UM BWMC's respiratory therapists evaluate, treat and manage patients of all ages with respiratory and cardiopulmonary disease. Working with physicians, respiratory therapists are involved in clinical decision-making and patient education. Respiratory therapists assess the clinical status of patients and perform diagnostic testing with patients throughout the hospital.

e. Nutrition Services

Nutrition therapy is an integral part of patients' treatment and recovery. Patients receive daily selective menus with the diet order that is prescribed by their physician. Cardiac surgery patients will receive heart-healthy menus. Registered Dieticians will provide nutrition education and medical nutrition therapy services for prevention, wellness, and disease management. These services can improve patient health and well-being, thus enabling patients to make individualized, positive lifestyle changes.

f. Spiritual Care

Spiritual care helps patients adjust to new medical conditions, cope with traumatic events and explore their spirituality.

UM BWMC offers spiritual care daily with a staff chaplain, volunteer clergy, and non-denominational services at its chapel, open 24 hours a day. UM BWMC also has emergency on-call clergy and other spiritual leaders available to help meet the spiritual needs of all patients, their families, and other caregivers. At any time during their stay, patients can let staff know if they would like a visit from a spiritual care representative and their religious affiliation, if they have one. UM BWMC also provides spiritual care to patients with no religious affiliations.

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[5] Schimpff SC. Improving operating room and perioperative safety: Background and specific recommendations. *Surg Innov.* 2007 Jun;14(2): 127-135.; Hicks RW, Becker SC, Krenzischeck D, et al. Medication errors in the PACU: a secondary analysis of MEDMARX findings. J Perianesth Nurs. 2004 Feb;19(1):18-28.

[6] Stroup JW, Iglar AM. Implementation and financial analysis of an operating room satellite pharmacy. Am J Hosp Pharm. 1992 Sep;49(9):2198-202.

Complete the DEPARTMENTAL GROSS SQUARE FEET WORKSHEET (Table B) in the CON TABLE PACKAGE for the departments and functional areas to be affected.

9. CURRENT PHYSICAL CAPACITY AND PROPOSED CHANGES

Complete the Bed Capacity (Table A) worksheet in the CON Table Package if the proposed project impacts any nursing units.

MHCC Required Tables, including Table A, are attached as **Exhibit 1**.

10. REQUIRED APPROVALS AND SITE CONTROL

A. Site size: 22.19 acres

B. Have all necessary State and local land use approvals, including zoning, for the project as proposed been obtained? YES_X_ NO _____ (If NO, describe below the current status and timetable for receiving necessary approvals.)

C. Form of Site Control (Respond to the one that applies. If more than one, explain.):

(1) Owned by: Baltimore Washington Medical Center, Inc.
Please provide a copy of the deed. Deed attached as Exhibit 11.

(2) Options to purchase held by: _____
Please provide a copy of the purchase option as an attachment.

(3) Land Lease held by: _____
Please provide a copy of the land lease as an attachment.

(4) Option to lease held by: _____
Please provide a copy of the option to lease as an attachment.

(5) Other: _____
Explain and provide legal documents as an attachment.

11. PROJECT SCHEDULE

In completing this section, please note applicable performance requirement time frames set forth at COMAR 10.24.01.12B & C. Ensure that the information presented in the following table reflects information presented in Application Item 7 (Project Description).

	Proposed Project Timeline	
Single Phase Project		
Obligation of 51% of capital expenditure from CON approval date	**1**	month
Initiation of Construction within 4 months of the effective date of a binding construction contract, if construction project	N/A	months
Completion of project from capital obligation or purchase order, as applicable	**6**	months
Multi-Phase Project for an existing health care facility (Add rows as needed under this section)		
One Construction Contract		months
Obligation of not less than 51% of capital expenditure up to 12 months from CON approval, as documented by a binding construction contract.		months
Initiation of Construction within 4 months of the effective date of the binding construction contract.		months
Completion of 1st Phase of Construction within 24 months of the effective date of the binding construction contract		months
Fill out the following section for each phase. (Add rows as needed)		
Completion of each subsequent phase within 24 months of completion of each previous phase		months
Multiple Construction Contracts for an existing health care facility (Add rows as needed under this section)		
Obligation of not less than 51% of capital expenditure for the 1st Phase within 12 months of the CON approval date		months
Initiation of Construction on Phase 1 within 4 months of the effective date of the binding construction contract for Phase 1		months
Completion of Phase 1 within 24 months of the effective date of the binding construction contract.		months
To Be Completed for each subsequent Phase of Construction		
Obligation of not less than 51% of each subsequent phase of construction within 12 months after completion of immediately preceding phase		months
Initiation of Construction on each phase within 4 months of the effective date of binding construction contract for that phase		months
Completion of each phase within 24 months of the effective date of binding construction contract for that phase		months

12. PROJECT DRAWINGS

A project involving new construction and/or renovations must include scalable schematic drawings of the facility at least a 1/16" scale. Drawings should be completely legible and include dates.

Project drawings must include the following before (existing) and after (proposed) components, as applicable:

A. Floor plans for each floor affected with all rooms labeled by purpose or function, room sizes, number of beds, location of bathrooms, nursing stations, and any proposed space for future expansion to be constructed, but not finished at the completion of the project, labeled as "shell space".

B. For a project involving new construction and/or site work a Plot Plan, showing the "footprint" and location of the facility before and after the project.

C. For a project involving site work schematic drawings showing entrances, roads, parking, sidewalks and other significant site structures before and after the proposed project.

D. Exterior elevation drawings and stacking diagrams that show the location and relationship of functions for each floor affected.

Not Applicable – the project does not involve new construction or renovations.

13. FEATURES OF PROJECT CONSTRUCTION

A. If the project involves new construction or renovation, complete the Construction Characteristics (Table C) and Onsite and Offsite Costs (Table D) worksheets in the CON Table Package.

B. Discuss the availability and adequacy of utilities (water, electricity, sewage, natural gas, etc.) for the proposed project, and the steps necessary to obtain utilities. Please either provide documentation that adequate utilities are available or explain the plan(s) and anticipated timeframe(s) to obtain them.

Not Applicable – the project does not involve new construction or renovations.

PART II - PROJECT BUDGET

Complete the Project Budget (Table E) worksheet in the CON Table Package.

Note: Applicant must include a list of all assumptions and specify what is included in all costs, as well the source of cost estimates and the manner in which all cost estimates are derived.

TABLE E. PROJECT BUDGET					
			Hospital Building	*Other Structure*	*Total*
A.	**USE OF FUNDS**				
	1.	**CAPITAL COSTS**			
		a.	**Land Purchase**		**$0**
		b.	**New Construction**		
		(1)	Building	$0	$0
		(2)	Fixed Equipment	$0	$0
		(3)	Site and Infrastructure	$0	$0
		(4)	Architect/Engineering Fees	$0	$0
		(5)	Permits (Building, Utilities, Etc.)	$0	$0
			SUBTOTAL	**$0**	**$0**	**$0**
		c.	**Renovations**		
		(1)	Building	$0	$0
		(2)	Fixed Equipment (not included in construction)	$0	$0
		(3)	Architect/Engineering Fees	$0	$0
		(4)	Permits (Building, Utilities, Etc.)	$0	$0
			SUBTOTAL	**$0**	**$0**	**$0**
		d.	**Other Capital Costs**		
		(1)	Movable Equipment	$1,042,717	$1,042,717
		(2)	Contingency Allowance	$116,400	$116,400
		(3)	Gross interest during construction period		$0
		(4)	Other *(Specify/add rows if needed)*		$0
			SUBTOTAL	***$1,159,117***	**$1,159,117**	**$1,159,117**
			TOTAL CURRENT CAPITAL COSTS	**$1,159,117**	**$0**	**$1,159,117**
		e.	**Inflation Allowance**			$0
			TOTAL CAPITAL COSTS	**$1,159,117**	**$0**	**$1,159,117**
	2.	**Financing Cost and Other Cash Requirements**			
		a.	**Loan Placement Fees**		$0
		b.	**Bond Discount**		$0
		c.	**Legal Fees**	**$50,000**	$50,000
		d.	**Non-Legal Consultant Fees**	**$50,000**	$50,000
		e.	**Liquidation of Existing Debt**		$0
		f.	**Debt Service Reserve Fund**		$0
		g.	**Other *(Specify/add rows if needed)***		$0
			SUBTOTAL	***$100,000***	**$100,000**
	3.	**Working Capital Startup Costs**			$0
			TOTAL USES OF FUNDS	***$1,259,117***	***$0***	***$1,259,117***
B.	**Sources of Funds**				
	1.	**Cash**	**$1,259,117**		$1,259,117
	2.	**Philanthropy (to date and expected)**			$0
	3.	**Authorized Bonds**			$0
	4.	**Interest Income from bond proceeds listed in #3**			$0
	5.	**Mortgage**			$0
	6.	**Working Capital Loans**			$0
	7.	**Grants or Appropriations**			
		a.	**Federal**		$0
		b.	**State**		$0
		c.	**Local**		$0
	8.	**Other *(Specify/add rows if needed)***			$0
			TOTAL SOURCES OF FUNDS	***$1,259,117***	**$1,259,117**

PART III - APPLICANT HISTORY, STATEMENT OF RESPONSIBILITY, AUTHORIZATION AND RELEASE OF INFORMATION, AND SIGNATURE

1. List names and addresses of all owners and individuals responsible for the proposed project.

   Karen Olscamp, President / CEO

A copy of the Resolution of the Board of Directors of UM BWMC is attached as Exhibit 12.

2. Is any applicant, owner, or responsible person listed above now involved, or has any such person ever been involved, in the ownership, development, or management of another health care facility? If yes, provide a listing of each such facility, including facility name, address, the relationship(s), and dates of involvement.

   No

3. In the last 5 years, has the Maryland license or certification of the applicant facility, or the license or certification from any state or the District of Columbia of any of the facilities listed in response to Question 2, above, ever been suspended or revoked, or been subject to any disciplinary action (such as a ban on admissions) ? If yes, provide a written explanation of the circumstances, including the date(s) of the actions and the disposition. If the applicant(s), owners, or individuals responsible for implementation of the Project were not involved with the facility at the time a suspension, revocation, or disciplinary action took place, indicate in the explanation.

   No

4. Other than the licensure or certification actions described in the response to Question 3, above, has any facility with which any applicant is involved, or has any facility with which any applicant has in the past been involved (listed in response to Question 2, above) ever received inquiries from a federal or any state authority, the Joint Commission, or other regulatory body regarding possible non-compliance with Maryland, another state, federal, or Joint Commission requirements for the provision of, the quality of, or the payment for health care services that have resulted in actions leading to the possibility of penalties, admission bans, probationary status, or other sanctions at the applicant facility or at any facility listed in response to Question 2? If yes, provide, for each such instance, copies of any settlement reached, proposed findings or final findings of non-compliance and related documentation including reports of non-compliance, responses of the facility, and any final disposition or conclusions reached by the applicable authority.

   None, except a Settlement Agreement with the Maryland Department of the Environment, dated August 4, 2011, concerning alleged violations of State regulations governing the use of radiation machines arising out of a single incident. A copy of the Settlement Agreement is attached as Exhibit 13.

5. Has any applicant, owner, or responsible individual listed in response to Question 1, above, ever pled guilty to, received any type of diversionary disposition, or been convicted of a criminal offense in any way connected with the ownership, development, or management of the applicant facility or any of the health care facilities listed in response to Question 2, above? If yes, provide a written explanation of the circumstances, including as applicable the court, the date(s) of conviction(s), diversionary disposition(s) of any type, or guilty plea(s).

   No

One or more persons shall be officially authorized in writing by the applicant to sign for and act for the applicant for the project which is the subject of this application. Copies of this authorization shall be attached to the application. The undersigned is the owner(s), or Board-designated official of the applicant regarding the project proposed in the application.

I hereby declare and affirm under the penalties of perjury that the facts stated in this application and its attachments are true and correct to the best of my knowledge, information, and belief.

February 20, 2015
Date

Karen E. Olscamp
Signature of Owner or Board-designated Official

President and Chief Executive Officer
Position/Title

Karen Olscamp
Printed Name

PART IV - CONSISTENCY WITH GENERAL REVIEW CRITERIA AT COMAR 10.24.01.08G(3):

INSTRUCTION: Each applicant must respond to all criteria included in COMAR 0.24.01.08G(3), listed below.

An application for a Certificate of Need shall be evaluated according to all relevant State Health Plan standards and other review criteria.

If a particular standard or criteria is covered in the response to a previous standard or criteria, the applicant may cite the specific location of those discussions in order to avoid duplication. When doing so, the applicant should ensure that the previous material directly pertains to the requirement and the directions included in this application form. Incomplete responses to any requirement will result in an information request from Commission Staff to ensure adequacy of the response, which will prolong the application's review period.

10.24.01.08G(3)(a). <u>THE STATE HEALTH PLAN</u>.

To respond adequately to this criterion, the applicant must address each applicable standard from each chapter of the State Health Plan that governs the services being proposed or affected, and provide a direct, concise response explaining the project's consistency with each standard. <u>In cases where demonstrating compliance with a standard requires the provision of specific documentation, documentation must be included as a part of the application.</u>

Every acute care hospital applicant must address the standards in **COMAR 10.24.10: Acute Care Hospital Services**. A Microsoft Word version is available for the applicant's convenience on the Commission's website. Use of the *CON Project Review Checklist for Acute Care Hospitals General Standards* is encouraged. This document can be provided by staff.

Other State Health Plan chapters that may apply to a project proposed by an acute care hospital are listed in the table below. A pre-application conference will be scheduled by Commission Staff to cover this and other topics. It is highly advisable to discuss with Staff which State Health Plan chapters and standards will apply to a proposed project before application submission. Applicants are encouraged to contact Staff with any questions regarding an application.

COMAR 10.24.10 ACUTE CARE CHAPTER

.04A. GENERAL STANDARDS

The following general standards encompass Commission expectations for the delivery of acute care services by all hospitals in Maryland. Each hospital that seeks a Certificate of Need for a project covered by this Chapter of the State Health Plan must address and document its compliance with each of the following general standards as part of its Certificate of Need application. Each hospital that seeks a Certificate of Need exemption for a project covered by this Chapter of the State Health Plan must address and demonstrate consistency with each of the following general standards as part of its exemption request.

Standard .04A (1) – Information Regarding Charges.

Information regarding hospital charges shall be available to the public. After July 1, 2010, each hospital shall have a written policy for the provision of information to the public concerning charges for its services. At a minimum, this policy shall include:

(a) Maintenance of a Representative List of Services and Charges that is readily available to the public in written form at the hospital and on the hospital's internet web site;

(b) Procedures for promptly responding to individual requests for current charges for specific services/procedures; and

(c) Requirements for staff training to ensure that inquiries regarding charges for its services are appropriately handled.

Applicant Response:

UM BWMC has a written policy governing the provision of information to the public concerning charges for services. A copy of the written policy is attached as Exhibit 14.

(a) Maintenance of a Representative List of Services and Charges that is readily available to the public in written form at the hospital and on the hospital's internet web site;

UM BWMC currently makes information regarding representative charges for common procedures and services available to the public. This information, attached as Exhibit 15, is available in the hospital's pre-registration office and on the hospital's website: http://www.mybwmc.org/financial-information.

(b) Procedures for promptly responding to individual requests for current charges for specific services/procedures;

UM BWMC Pre-Registration staff promptly replies to individual requests for current charges for specific procedures and services. Cost estimates for inpatient and outpatient procedures performed in regulated space at UM BWMC can be obtained by calling the Pre-Registration Department at 410-787-4437. In order to obtain a cost estimate for an inpatient procedure, the staff person will need the ICD-9-CM procedure code(s). In order to obtain a cost estimate for an outpatient procedure, the staff person will need the CPT-4 procedure code(s). In order to maximize the accuracy of the cost estimate, it is preferable for the referring physician to provide the procedure code(s) to the requestor. If the requestor is unable to provide the procedure code(s), the Pre-Registration staff can look up this information using a software program available to staff.

If the charge estimate needed is not for a procedure, the specific cost can be found in the current fiscal year's Charge Description Master (CDM) which is located on UM BWMC's shared network drive. Charges are located by staff on the CDM by searching for the appropriate charge description.

(c) Requirements for staff training to ensure that inquiries regarding charges for its services are appropriately handled.

The Pre-Registration Department has a dedicated department trainer who trains all department staff in calculating cost estimates for procedures, tests and other services. The trainer utilizes a training manual, Power Point presentation, and other supplemental materials as appropriate. The trainer provides individualized one-on-one instruction as well as class trainings.

Standard .04A(2) – <u>Charity Care Policy</u>.

Each hospital shall have a written policy for the provision of charity care for indigent patients to ensure access to services regardless of an individual's ability to pay.

(a) The policy shall provide:

(i) Determination of Probable Eligibility. Within two business days following a patient's request for charity care services, application for medical assistance, or both, the hospital must make a determination of probable eligibility.

(ii) Minimum Required Notice of Charity Care Policy.

1. Public notice of information regarding the hospital's charity care policy shall be distributed through methods designed to best reach the target population and in a format understandable by the target population on an annual basis;

2. Notices regarding the hospital's charity care policy shall be posted in the admissions office, business office, and emergency department areas within the hospital; and

3. Individual notice regarding the hospital's charity care policy shall be provided at the time of preadmission or admission to each person who seeks services in the hospital.

(b) A hospital with a level of charity care, defined as the percentage of total operating expenses that falls within the bottom quartile of all hospitals, as reported in the most recent Health Service Cost Review Commission Community Benefit Report, shall demonstrate that its level of charity care is appropriate to the needs of its service area population.

Applicant Response:

UM BWMC provides emergency, inpatient, and other care regardless of ability to pay. UM BWMC's Financial Assistance Policy (FAP), attached as Exhibit 16**,** was established to assist patients in obtaining financial aid when the services rendered are beyond a patient's ability to pay. A patient's inability to obtain financial assistance does not in any way preclude the patient's right to receive and have access to medical treatment at UM BMWC. UM BWMC's FAP complies with Maryland regulations, and includes a statement that a determination on probable eligibility will be made within two business days following receipt of a patient's application for financial assistance.

UM BWMC's financial assistance program provides assistance ranging up to 100% of the total cost of hospital services. Physician charges for non-hospital employees, which are billed separately, are excluded from UM BWMC's FAP. Patients are encouraged to contact their physicians directly for financial assistance related to physician charges. A patient who qualifies for financial assistance at any other UMMS affiliated hospital will be offered the same terms at UM BWMC (and other UMMS hospitals).

UM BWMC informs patients and persons who would otherwise be billed for services about their eligibility for assistance under federal, state or local government programs or under the hospital's financial assistance policy in the following manner:

1. UM BWMC publishes annual notices informing the public that financial assistance is available at UM BWMC. A copy of the advertisement notice is attached as Exhibit 17. The notices are published in the *Baltimore Sun*, *Maryland Gazette* and *The Capital*, the three main newspapers distributed in the UM BWMC service area.

2. UM BWMC prepares its financial assistance information in a culturally sensitive manner, at a reading level appropriate for the service area's population and in Spanish.

3. UM BWMC posts information about its FAP and financial assistance contact information in the business office, all admission areas, the emergency department,

and all other outpatient areas throughout the facility. Photographs of some of the notices appear collectively as Exhibit 18.

4. UM BWMC provides individualized notice regarding the hospital's FAP at the time of preadmission or admission to each person who seeks services in the hospital. Individuals are given a copy of the Financial Assistance Patient Information Sheet and asked to sign it to indicate that they have read and understood the information about the FAP and how to apply for financial assistance. Copies of the Financial Assistance Patient Information Sheet, in both English and Spanish, are attached collectively as Exhibit 19.

5. For emergency services, applications to the financial assistance program are completed and evaluated after treatment is commenced and the process will not delay patients from receiving necessary emergency care.

6. UM BWMC provides each patient a patient handbook upon admission that contains information about its FAP and answers to common billing questions.

7. UM BWMC provides information about its FAP and financial assistance contact information in patient bills.

8. UM BWM employs dedicated on-site staff to assist patients with applying for its financial assistance program and other financial assistance programs for health care services. UM BWMC discusses with patients or their families the availability of various government benefits, such as Medicaid and other federal, state and local programs. Programs include, but are not limited to, the Maryland Health Connection for enrollment in Medicaid and Qualified Health Plans and the Anne Arundel County Department of Health's REACH (Residents Accessing a Coalition of Health) low-cost health care program for uninsured Anne Arundel County residents. UM BWMC is a participating provider in the REACH program.

9. UM BWMC offers medication assistance for uninsured patients and also refers Anne Arundel County residents to the Anne Arundel County Department of Health's free Prescription Discount Program that is available to all county residents.

UM BWMC's Financial Assistance Application is available in English and Spanish and includes the information and forms needed to apply for financial assistance.

As shown in Table 1 below, UM BWMC is among the top Maryland hospitals for providing charity care. In the most recent Health Service Cost Review Commission Community Benefit Report (2013), UM BWMC was ranked eighth in the percentage of charity care to total operating expenses. By comparison, Anne Arundel Medical Center ranked near the bottom of Maryland hospitals for charity care.

Table 1
HSCRC Community Benefit Report, Data Excerpts
FY2013

Rank	Hospital	Total FY13 Operating Expense	Total FY13 Charity Care Expense	Percentage
1st Quartile				
1	University of Maryland Medical Center - Midtown	$ 190,985,000	$ 23,597,000	12.36%
2	Bon Secours Hospital	$ 123,096,854	$ 13,885,743	11.28%
3	Prince George's Hospital Center	$ 211,129,800	$ 21,929,900	10.39%
4	Doctor's Community Hospital	$ 178,022,901	$ 15,889,496	8.93%
5	University of Maryland – Chestertown	$ 51,866,000	$ 4,169,000	8.04%
6	Garrett County Memorial Hospital	$ 37,345,320	$ 2,848,631	7.63%
7	Holy Cross Hospital	$ 379,906,397	$ 26,812,613	7.06%
8	**University of Maryland Baltimore Washington Medical Center**	$ **364,852,000**	$ **25,709,288**	**7.05%**
9	University of Maryland Shore Health-Dorchester	$ 42,329,000	$ 2,768,000	6.54%
10	Calvert Memorial Hospital	$ 18,592,518	$ 7,447,389	6.28%
11	Western Maryland Health System	$ 290,611,752	$ 17,477,763	6.01%
12	St. Agnes Health Care	$ 386,454,162	$ 22,405,394	5.80%
2nd Quartile				
13	Laurel Regional Hospital	$ 101,679,200	$ 5,836,000	5.74%
14	University of Maryland Shore Health-Easton	$ 156,018,000	$ 8,301,400	5.32%
15	MedStar St. Mary's Hospital	$ 122,895,946	$ 6,250,461	5.09%
16	Washington Adventist Hospital	$ 220,596,102	$ 10,766,757	4.88%
17	Johns Hopkins Bayview Hospital	$ 541,313,000	$ 26,313,000	4.86%
18	Peninsula Regional Medical Center	$ 369,259,350	$ 16,680,700	4.52%
19	MedStar Union Memorial Hospital	$ 397,895,616	$ 17,514,687	4.40%
20	Upper Chesapeake Health-Harford	$ 83,530,000	$ 3,648,200	4.37%
21	Meritus Medical Center	$ 285,886,346	$ 12,006,630	4.20%
22	Montgomery General	$ 143,428,725	$ 5,999,259	4.18%
23	Mercy Medical Center	$ 413,737,200	$ 17,220,776	4.16%
24	McCready Memorial Hospital	$ 15,337,808	$ 633,321	4.13%
3rd Quartile				
25	MedStar Harbor Hospital	$ 198,800,877	$ 8,102,570	4.08%
26	University of Maryland Medical Center	$ 1,280,648,000	$ 50,504,000	3.94%
27	Atlantic General Hospital	$ 94,139,531	$ 3,700,771	3.93%
28	MedStar Franklin Square Hospital	$ 450,358,826	$ 14,943,857	3.32%

Rank	Hospital	Total FY13 Operating Expense	Total FY13 Charity Care Expense	Percentage
	Center			
29	Fort Washington Medical Center	$ 38,806,279	$ 1,241,478	3.20%
30	University of Maryland Rehabilitation and Orthopedic Institute	$ 101,635,160	$ 3,248,000	3.20%
31	Carroll Hospital Center	$ 207,816,000	$ 6,198,891	2.98%
32	Frederick Memorial Hospital	$ 339,915,000	$ 9,980,036	2.94%
33	Howard County General Hospital	$ 223,533,000	$ 6,093,350	2.73%
34	Union Hospital of Cecil County	$ 141,135,143	$ 3,767,210	2.67%
35	Upper Chesapeake Health - Upper Chesapeake	$ 225,852,000	$ 5,760,273	2.55%
36	Shady Grove Adventist Hospital	$ 292,521,487	$ 7,088,997	2.42%
4th Quartile				
37	MedStar Good Samaritan Hospital	$ 307,783,651	$ 7,360,438	2.39%
38	Suburban Hospital	$ 218,872,188	$ 5,177,296	2.37%
39	University of Maryland -St. Joseph Medical Center	$ 312,000,000	$ 6,346,817	2.03%
40	Northwest Hospital	$ 206,698,000	$ 3,957,922	1.91%
41	**Anne Arundel Medical Center**	**$ 516,696,000**	**$ 8,859,700**	**1.71%**
42	Johns Hopkins Hospital	$ 1,897,158,000	$ 31,612,000	1.67%
43	Sinai Hospital of Baltimore	$ 674,192,000	$ 11,038,200	1.64%
44	University of Maryland - Charles Regional	$ 115,151,000	$ 1,436,027	1.25%
45	Greater Baltimore Medical Center	$ 379,063,000	$ 4,616,593	1.22%
46	MedStar Southern Maryland Hospital Center	$ 126,371,201	$ 981,819	0.78%
47	Mt. Washington Pediatric Hospital	$ 49,158,000	$ 106,878	0.22%

Source: 2013 HSCRC Community Benefit Data Report: http://www.hscrc.state.md.us/init_cb.cfm

Standard .04A (3) – Quality of Care.

An acute care hospital shall provide high quality care.

(a) Each hospital shall document that it is:

(i) Licensed, in good standing, by the Maryland Department of Health and Mental Hygiene;

(ii) Accredited by the Joint Commission; and

(iii) In compliance with the conditions of participation of the Medicare and Medicaid programs.

(b) A hospital with a measure value for a Quality Measure included in the most recent update of the Maryland Hospital Performance Evaluation Guide that falls within the bottom quartile of all hospitals' reported performance measured for that Quality Measure and also falls below a 90% level of compliance with the Quality Measure, shall document each action it is taking to improve performance for that Quality Measure.

Applicant Response:

(a) Each hospital shall document that it is:

(i) Licensed, in good standing, by the Maryland Department of Health and Mental Hygiene;

(ii) Accredited by the Joint Commission; and

(iii) In compliance with the conditions of participation of the Medicare and Medicaid programs.

UM BWMC is licensed by the Department of Health and Mental Hygiene, is accredited by The Joint Commission, and is in compliance with all Medicare and Medicaid conditions of participation. UM BWMC's most recent operating license (License No. 02-015; Issued May 10, 2013; expires August 10, 2016) from the Maryland Department of Health and Mental Hygiene's Office of Health Care Quality is attached as Exhibit 20. UM BWMC's most recent Joint Commission letter and certificate are attached as Exhibit 21.

(b) A hospital with a measure value for a Quality Measure included in the most recent update of the Maryland Hospital Performance Evaluation Guide that falls within the bottom quartile of all hospitals' reported performance measured for that Quality Measure and also falls below a 90% level of compliance with the Quality Measure, shall document each action it is taking to improve performance for that Quality Measure.

The MHCC launched a new and significantly re-designed Maryland Hospital Performance Evaluation Guide (the "Guide"). Under the new Guide, quality measure performance within the bottom quartile of all hospitals, which the standard requires an applicant to assess, is not readily apparent. However, UM BWMC calculated the bottom quartile scores for each of the measures.

Attached as Exhibit 22 is a chart showing the quality measures for which UM BWMC is calculated as scoring within the bottom quartile for measures included in the Guide for the time period October 1, 2012 through September 30, 2013. The chart also describes the actions UM BWMC is taking to improve performance.

COMAR 10.24.17 — CARDIAC SURGERY AND PERCUTANEOUS CORONARY ARTERY INTERVENTION SERVICES

.05 Certificate of Need Review Standards for Cardiac Surgery Programs.

An applicant for a Certificate of Need to establish or relocate cardiac surgery services shall address and meet the applicable general standards in COMAR 10.24.10.04(A), in addition to the applicable standards in this chapter.

.05A. Cardiac Surgery Standards.

(1) Minimum Volume Standard

An applicant proposing establishment or relocation of cardiac surgery services shall document that the proposed cardiac surgery program will meet the following standards:

(a) For an adult cardiac surgery program, demonstrate the ability to meet a projected volume of 200 cardiac surgery cases in the second full year of operation; the program shall attain a minimum annual volume of 200 cardiac surgery cases by the end of the second year of operation.

(b) For a pediatric cardiac surgery program, demonstrate the ability to meet a projected minimum case volume of 130 cardiac surgery cases per year; the program shall attain a minimum annual volume of 130 cases by the end of the second year of operation.

(c) For a program performing both adult and pediatric cardiac surgery, demonstrate the ability to meet a projected minimum of 50 pediatric cardiac surgery cases per year, and 200 adult cardiac surgery cases per year; the program shall attain a minimum annual volume of each type of cardiac surgery cases by the end of the second year of operation.

(d) The applicant's demonstration of compliance with the Minimum Volume and Impact standards of this chapter shall address the most recent published utilization projection of cardiac surgery cases in Regulation .08 for the health planning region in which the applicant hospital is located and any other health planning regions from which it projects drawing 20 percent of more of its patients. The applicant shall demonstrate that its volume projections and impact analysis are consistent with the projection in Regulation .08 or, alternatively, demonstrate why the methods and assumptions employed in the Regulation .08 projections are not reasonable as a basis for forecasting case volume.

Applicant Response:

As shown in Exhibit 23, UM BWMC calculated the expected volume of cardiac surgery cases to be performed at UM BWMC during the first six years after the program commences.

Beginning in the second year of operation and continuing, the cardiac surgery program volume will exceed 200 cases per year.

A summary of the projected volume of UM BWMC cardiac surgery cases within the projected cardiac surgery service area, by year, appears in Table 2 below.

Table 2
Summary of Projections of Volume of
Cardiac Surgery Cases at UM BWMC (FY 2016 – FY 2021)

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Shift from UMMC	64	145	151	157	154	150
Shift from Other Maryland Hospitals	12	36	47	57	67	74
Shift from D.C. Hospitals	8	23	30	36	43	46
TOTAL	81	204	228	250	264	270

Source: Detailed volume projections contained in Exhibit 23.

The projected volumes are based on the following methodology and assumptions:

1. FY 2014 baseline cardiac surgery volumes for the defined UM BWMC cardiac surgery service area were obtained from the Maryland MSA Database. All patients with an extreme severity were excluded as it was assumed the majority of the extreme cases would continue to be referred to larger tertiary/quaternary facilities, such as UMMC. To complete FY14 baseline, volumes that out-migrated to Washington DC hospitals were added. The out-migration information was obtained from the CY2011 DC Inpatient Database.

2. The FY14 baseline volumes were segmented into two categories: (1) those that were discharged from UMMC; and (2) those that were discharged from other hospitals in Maryland and Washington DC.

3. Year to year decline from the FY14 baseline market volumes were calculated based on the percentage decline as projected by the Commission's projected utilization of cardiac surgery services for the Baltimore / Upper Shore Health Planning Region.

4. Assumptions were made year by year as to the percentage of volumes that would shift to a UM BWMC cardiac surgery program. It was assumed since the UM BWMC program would be part of the larger University of Maryland program, a much larger percentage shift would occur in these patients than those patients being discharged at non University of Maryland hospitals. As the years progress, the percentage of the market volumes shifting to a UM BWMC program gradually increased.

The reliability of the volume projections is verified and corroborated by letters of support from several cardiology practices which estimate that they will refer a combined total of 312 cardiac surgery cases based on their referral of cases in CY 2014. Copies of the letters are attached collectively as Exhibit 24. Table 3 below shows a breakdown of the estimated referred cases. While UM BWMC does not expect that every referral will result in a surgical procedure performed in the new program, the number of referrals supports the reasonableness of the volume projections.

Table 3
Estimated Referrals of Cardiac Surgery Cases
to UM BWMC by Cardiology Practice

Cardiology Practice	Estimated Referred Cardiac Cases
Arundel Heart Associates, P.A.	**71**
The Heart Center of Northern Anne Arundel County, P.A.	**89***
Chesapeake Cardiology at Shore Health	**57**
UM SOM Division of Cardiovascular Medicine	**54****
Maryland Heart Associates, LLC	**41**
TOTAL	**312**

* The estimated surgery referrals of the Heart Center of Northern Anne Arundel County, P.A. are based on the FY14 actual referrals plus an expected 10% increase based on the projected addition of another physician to the practice.

** In FY14, 200 patients were referred directly from the UM SOM Division of Cardiovascular Medicine to the UM Division of Cardiac surgery, resulting in a cardiac surgery discharge. While zip code origin data is not available for these patients, Dr Rajagopolan, Chief of Cardiovascular Medicine (see letter) stated that patients in this category who live in UM BWMC's service area would be patients whose surgery could be done at UM BWMC by the same faculty cardiac surgeons. In FY14, of the 828 cardiac surgery discharges at UMMC, 27% originated from UM BWMC's service area (224) (Source: UM BWMC volume projection detail). Applying this same patient origin ratio to the 200 cardiac surgery referrals from the UM SOM Division of Cardiovascular Medicine results in another 54 cardiac surgery discharges that could be performed at UM BWMC.

(2) Impact

(a) A hospital that projects that cardiac surgery volume will shift from one or more existing cardiac surgery hospitals as a result of the relocation or establishment of cardiac surgery services shall quantify the shift in volume and the estimated financial impact on the cardiac surgery program of each such hospital.

(b) An applicant shall demonstrate that other providers of cardiac surgery in the health planning region or an adjacent health planning region will not be negatively affected to a degree that will:

(i) Compromise the financial viability of cardiac surgery services at an affected hospital; or

(ii) Result in an existing cardiac surgery program with an annual volume of 200 or more cardiac surgery cases and an STS-ACSD composite score for CABG of two stars or higher for two of the three most recent rating cycles prior to Commission action on an application dropping below an annual volume of 200 cardiac surgery cases; or

(iii) Result in an existing cardiac surgery program with an annual volume of 100 to 199 cardiac surgery cases and an STS-ACSD composite score for CABG of two stars or higher for two of the three most recent rating cycles prior to Commission action on an application dropping below an annual volume of 100 cardiac surgery cases.

Applicant Response:

UM BWMC's projection of the shift of cardiac surgery volume as a result of the opening of a cardiac surgery program is shown in Exhibit 23, p. 2. Consistent with the goals of the proposed cardiac surgery project, almost all of the volume shift will occur between UMMC and UM BWMC. To a much lesser extent, UM BWMC projects some volume to shift to UM BWMC from Johns Hopkins Hospital, MedStar Union Memorial Hospital, Sinai Hospital, Peninsula Regional Medical Center, Washington Adventist Hospital, and UM St. Joseph's Medical Center. The impact on any single cardiac surgery program will not cause the number of cases for that program to drop below the thresholds set forth in Standard .05A(2)(b)(ii) or (iii).

A summary of the projected impact on hospitals, as detailed in Exhibit 23, appears in Table 4 below.

Table 4
Summary of Impact of Shifted Volume of
Cardiac Surgery Cases to UM BWMC (FY 2016 – FY 2021)

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
UMMC	64	145	151	157	154	150
Johns Hopkins	6	17	21	26	31	34
Union Memorial	3	8	11	14	16	17
Sinai Hospital	0	1	2	2	2	3
Peninsula Regional	1	3	4	4	5	6
Washington Adventist	1	2	2	3	3	3
UM SJMC	1	5	7	8	10	11
Shift from D.C. Hospitals	8	23	30	36	43	46
TOTAL	81	204	228	250	264	270

Source: Projections contained in Exhibit 23, at 2.

(3) Quality

(a) An applicant shall demonstrate its commitment to provide high quality health care. An applicant seeking to establish cardiac surgery services shall have utilization or peer review and control programs with regularly scheduled conferences to:

(i) Establish protocols that govern the referral, admission, and discharge of cardiac surgery patients;

(ii) Establish and review a list of indications and contraindications to govern selection of patients for cardiac surgery;

(iii) Establish a program to educate patients about treatment options;

(iv) Establish mechanisms for monitoring long-term outcomes of discharged patients.

(v) Review morbidity and mortality rates and other indicators of patient outcomes, and compliance with established processes of care as compared with regional or national averages;

(b) Prior to first use approval, an applicant shall provide documentation of (i)-(iv).

Applicant Response:

UM BWMC is committed to providing high quality health care to all patients.[7] If granted approval for a cardiac surgery program, UM BWMC will implement utilization or peer review and control programs for the program. UM BWMC will participate in the same quality assurance and performance improvement programs that are used in the existing cardiac surgery program at UMMC, as described below.

A. <u>UM Division of Cardiac Surgery's Quality Assurance and Performance Improvement Plan</u>.

The primary purpose of the UM Division of Cardiac Surgery's Quality Assurance and Performance Improvement Plan ("QAPI Plan") is to identify opportunities for improvement, promote best practices, facilitate patient safety, and ensure that optimal clinical outcomes and patient, family, and staff satisfaction is achieved in the safest care environment possible. The primary goal is to improve the quality of life and optimize the surgical experience for the heart surgery patient. The QAPI Plan serves to facilitate compliance with external regulatory agencies and their directives, as well as those of local, regional, and national regulatory and accreditation entities to ensure the services provided are of the highest quality with the best possible clinical

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[7] Attached as Exhibit 25 is a summary of the existing quality improvement programs and initiatives in place at UM BWMC.

outcomes. The program strives to be the regional leader as a “Center of Excellence in Heart Surgery.”

The UMMC Division of Cardiac Surgery’s QAPI is established within the University of Maryland Comprehensive Heart Center. The Center is composed of four centers of excellence: Cardiovascular Medicine, Cardio-thoracic Surgery, Pediatric Cardiac Care, and Vascular Surgery. The QAPI program is established to ensure all cardiac medicine and surgery patients receive the safest, most efficacious, clinically driven, evidenced based care possible while undergoing evaluation, medical, surgical, diagnostic, and interventional heart care services. The UM Cardiac Surgery leadership team and the multidisciplinary quality team recognize and support the patient and their family as the center of the cardiac surgery program.

Quality of the care provided is continually assessed, reviewed and monitored through all the phases of cardiac surgery and is inclusive of both ambulatory and inpatient cardiac surgery care. The Cardiac Surgery Quality Program is supported by a full time dedicated Senior Nurse Quality Improvement Coordinator from the UMMC’s Division of Quality and Safety.

The UM Division of Cardiac Surgery holds a multidisciplinary quality forum at least bi-monthly to review quality of care, establish protocols and guidelines, review outcomes data, and identify both clinical and process improvement projects. In addition, dedicated performance improvement sub-groups are established on an as needed basis to review quality data, identify any urgent areas improvement, implement specific interventions, and track data and clinical outcomes for any process which upon review, requires immediate focused improvement efforts. The intent of these sub-groups is to provide rapid assessment, review and successful intervention. Examples of routine tracking and reporting elements include: readmissions, returns to the operating room, mortalities, complications to care, and adverse events.

1. Quality Assurance & Performance Improvement Organizational and Reporting Structures

At UMMC, each medical/surgical department is responsible to identify a “Quality Physician Champion” who leads the quality journey for that division or department. It is the responsibility of the designated Quality Physician(s) to lead initiatives and work closely with the hospital’s Senior Quality Improvement Nurse from the UMMC Division of Quality and Safety. The Senior Quality Nurse is responsible for supporting the Cardiac Surgery clinical team in their quality journey. The Quality Nurse possesses quality assessment and improvement expertise, and utilizes tools to identify potential or actual quality issues related to process, outcomes, high risk, high volume, and/or problem prone issues. The Quality Nurse is also responsible for working with and supporting the clinical team and the Maryland Heart Center’s administrative leadership to formulate and implement the QAPI program, and works directly with the Quality Physician to create quality related meeting agendas and identify opportunities for improvement. The Quality Nurse facilitates reporting of compliance and mandatory reporting requirements to external state and federal regulatory agencies. The Quality Nurse for the UM Division of Cardiac Surgery facilitates quality related tasks, oversees completion of objectives in conjunction with the QAPI team, and is responsible for facilitating cardiac care staff education regarding quality and patient safety initiatives, related topics, and quality data trending and reporting. This position reports directly to the UMMC Director of Quality and Safety.

Bi-monthly quality meetings provide a forum for the identification of opportunities for improvement in process issues, patient clinical outcomes, patient safety, patient satisfaction, and regulatory and compliance issues according to local, state and federal guidelines. Senior leadership of the Division of Cardiac Surgery report directly to the UM Comprehensive Heart Center's Executive Committee and the UMMC Performance Improvement Steering Committee. Membership and participation in all quality forums is expected and representative of UMMS' diverse multi-disciplinary medical and surgical cardiac clinical teams, hospital leadership, and heart center administration.

When opportunities for improvement are identified, interventions are put into place. Key individuals are identified and the work to improve patient clinical outcomes and experiences, process issues, and staff and patient safety begins. Quality Assurance and Performance Improvement are recognized as a dynamic process and are inclusive of all phases of care for the cardiac patient from clinical/medical management, patient assessment to surgical interventions to correct structure and function of the human heart. These include: Coronary Artery Bypass, Aortic Value Replacement, Mitral Valve Replacement, Combined or Hybrid procedures, and Aortic Aneurysms and Dissections, as well as advanced heart failure therapies such as: intra-aortic balloon placement, Ventricular Assistive Device Implants aka VADs, ECMO and both orthotopic and artificial heart transplantation.

All Quality Committees report directly to the hospital's Performance Improvement Steering Committee (aka PISC). The PISC meets monthly. Reporting schedules and participant departments are identified a year in advance. The quality objectives, and plans for future departmental based quality improvement initiatives are reviewed in this outcomes meeting by the Quality Physician Champions with oversight by the hospital's senior most leadership (Chief Nursing Officer, Chief Medical Officer, and Chief Operations Officer).

The Medical Executive Committee (MEC) is the supervisory body of the Performance Improvement Steering Committee and all things quality, regulatory, practice and compliance related at the Medical Center. All quality data, outcomes and initiatives are ultimately reported to the UMMC Executive Board's Quality Committee, the UMMS Executive Board and The UMMS Quality Division led by the UMMS Senior Vice President and Chief Medical Officer who is also the Chief Quality Officer.

The UMMC System Quality Division produces a monthly "Quality Briefing Newsletter" that serves to provide a linkage and communication forum for the sharing quality information, outcomes data, success stories, and regulatory compliance updates throughout the University of Maryland Medical System.

2. Reporting, Tracking, Trending of Adverse Events

The UM Division of Cardiac Surgery participates in both voluntary and mandatory internal and external reporting. Hospital leadership under the direction and oversight of the Chief Medical Officer, the Chief Nursing Officer and the Director of Quality and Safety conduct Quality of Care Reviews on any Level 1 or Level 2 events that occur as recommended by Risk Management. Risk Management at UMMC is conducted by the Office of the Maryland Medicine Comprehensive Insurance Program (MMCIP). Incidents reported are reviewed via the root cause analysis process. The results of the analysis and any associated action plans are provided to licensing, regulatory and accreditation organizations as required. Identified changes

in processes are communicated back to the Quality Physicians and Quality Teams for management and integration of best and safest practices.

The Maryland State Office of HealthCare Quality requires mandatory reporting of Level 1 and Level 2 events within 5 days of the occurrence. An investigation is initiated and action plans submitted. Joint Commission reporting of adverse events at Level 1 and Level 2 is voluntary. If these events occur, the Joint Commission requires the event be reported within 45 days of the incident and submission of an action plan. Events are internally tracked, trended and reported to the Executive, Administrative and Risk Management offices of the Medical Center as well as those within the Division of Organ Transplantation. Ultimately reports of adverse events are reviewed by the Medical Executive Committee and the Medical Center's Board of Directors.

Root causes are identified, interventions put into place and action plans generated and communicated back to the Quality Improvement Teams and leadership within the specific division or department. These events are internally tracked and reviewed via trending and analysis. Findings are communicated by managers, directors and hospital leadership. Success stories are encouraged and shared amongst hospital staff, departments and disciplines in an effort to prevent the next adverse event. Hospital leadership appreciates, encourages and supports "blame-free" reporting of all events. "Great Catch Awards" are given by hospital leadership to recognize, support and acknowledge quick and innovative thinking by staff regarding near misses to facilitate patient, visitor and staff safety.

3. Examples of Incidents Reported Through the Incident Reporting Process

The following list includes frequently reported incidents and does not constitute an exhaustive inventory of reportable incidents.

1. Any event that may adversely affect patient safety;

2. Any incident capable of precipitating a claim;

3. Any incident or complication which constitutes a major or minor injury to a patient or visitor;

4. An incident which results in an unexpected adverse outcome (also called unanticipated outcome);

5. Any act that has a potential to create a complication involving patient care and that may constitute a risk to the health status of the patient (near miss);

6. Incidents involving inconsistencies with established hospital or ambulatory policies and procedures, such as lack of informed consent, release of confidential patient information, failure to monitor patient, and patients leaving the institution against medical advice;

7. Unexpected complications or delays related to diagnostic or therapeutic treatment, particularly those that result in significant change in patient outcome possibly requiring prolonged care or additional treatment;

8. Patient complaints involving allegations of negligent care or threats to sue, non-anticipated and non-routine patient and visitor injuries resulting from accidents or errors, falls for any reason with or without injuries, medication errors, needle punctures, patient misidentification, burns, pressure sores from casts, etc.; and

9. Any death, injury or illness in which there is a reasonable probability that a medical device (e.g. patient care equipment) caused or contributed to that adverse outcome.

B. UM BWMC's Cardiac Surgery Program Will Participate in Peer Review and Control Programs

If approved, the cardiac surgery program at UM BWMC will comply with Standard .05A(3), as follows:

1. UM BWMC will establish protocols that govern the referral, admission, and discharge of cardiac surgery patients.

UM BWMC protocols for referral, admission and discharge will follow best practice guidelines and UMMC established guidelines. Referral protocols will include diagnostic evaluation including consultation by a cardiologist, labs, radiology evaluation and ultrasound. Where indicated, two cardiac surgeons will evaluate patients to diagnosis risk and appropriate plan of care. All patients scheduled for admission will be evaluated at the surgery prep center including evaluation by the anesthesiologist, sign a consent form and have a current history and physical (within 30 days of surgery). They will receive pre-op instructions for cleansing and taking nothing by mouth for a determined time prior to procedure. Education of the procedure will take place in the pre-operative visit. Patients and family members will have the opportunity to meet with the nurse practitioner and/or the surgeon to review all procedures and ask questions. Discharge planning for patients will begin on the day that surgeries are scheduled. Care plans will follow ICU established guidelines for care and keep patients and family members informed of progress toward discharge. Patients will be evaluated by physical therapy prior to discharge to determine a post care plan and location. Patients discharged to home will have access to a home health nurse for three days post discharge. Cardiac rehabilitation will be available through the UM BWMC rehabilitation program. Inpatient nurse practitioners will consult with social workers in establishing the appropriate plan of care for post op patients. Patients will be seen at one week and/or thirty-days as indicated. Providers are available for emergencies 24/7.

2. UM BWMC will establish and review a list of indications and contraindications to govern selection of patients for cardiac surgery.

The UM Division of Cardiac Surgery follows STS (Society for Thoracic Surgery) Guidelines for appropriateness for indications for surgery and types of cardiac surgery performed (which speaks to candidate selection), and this protocol will apply at UM BWMC as well. Physicians use the STS risk calculator to assist in evaluation of a patient's risk profile for surgery. Indications and contraindications for surgery will be established by disease progression and symptomatology using best practice guidelines. STS guidelines promote early intervention where indicated.

3. UM BWMC will establish a program to educate patients about treatment options

Patients will receive education regarding treatment options at the time of the referral for cardiac surgery by the attending cardiac surgeon who will be performing the procedure, and by the cardiac surgery nurse practitioners when they see the patients in clinic and once they have determined they are an appropriate surgical candidate. Educational videos are available for patient viewing. The UM Comprehensive Heart Center website is also a source of patient education, containing information categorized by disease, links to helpful sites, and patient stories. Information about the cardiac surgeons and their biographies are also a source for patients seeking information and making choices about their surgery options.

4. UM BWMC will establish mechanisms for monitoring long-term outcomes of discharged patients.

Post-procedure follow up will be determined on an individual basis for each patient, based both on the type of procedure and individual patient need. All patients will be seen within 1-2 weeks of discharge, or sooner if the individual patient's needs require. For long term monitoring, patients will be followed per STS guidelines post-operatively from date of procedure through discharge, and both 30 days post-procedure and 30 days from the acute hospital inpatient admission during which the cardiac surgery procedure was performed. Cardiac surgeons will partner with community cardiologists and will communicate frequently regarding patient care. Once a patient is discharged from the care of the surgeon, there will be a seamless transfer of care back to the referring cardiologist for life long follow-up care, as indicated. The cardiac surgery practitioners will remain a part of the care team.

5. UM BWMC will review morbidity and mortality rates and other indicators of patient outcomes, and compliance with established processes of care as compared with regional or national averages;

The UM Division of Cardiac Surgery currently conducts Cardiac Surgery Monthly Morbidity and Mortality reviews. All patient clinical outcomes are tracked, trended and followed on a quarterly and annual basis and are based upon nationally established STS benchmarks. Other sources for clinical benchmarking include UHC (University Hospitals Consortium) for similar large, urban, medical teaching hospitals with greater than 500 beds performing similar cardiac surgical procedures. The program also participates in the recently launched Maryland Cardiac Surgery QI (MCSQI) Collaborative. Individual Physician Scorecards are created and utilized for surgeon re-credentialing and privileging based on clinical outcome objectives.

4. (4) Cost Effectiveness

An applicant proposing establishment or relocation of cardiac surgery services shall demonstrate that the benefits of its proposed cardiac surgery program to the health care system as a whole exceed the cost to the health care system.

(a) An applicant that proposes new construction of one or more operating rooms, cardiac catheterization laboratories, or intensive care units, or any combination thereof, as necessary infrastructure for its proposed new cardiac surgery program shall document why existing resources at the applicant hospital cannot be used to accommodate the proposed cardiac surgery services.

(b) An applicant shall provide an analysis of how the cost of cardiac surgery services for cardiac surgery patients in its proposed service area and for the health care system will change as a result of the proposed cardiac surgery program, quantifying these changes to the extent possible.

(c) An applicant shall provide an analysis of how the establishment of its proposed cardiac surgery program will alter the effectiveness of cardiac surgery services for cardiac surgery patients in its proposed service area, quantifying the change in effectiveness to the extent possible. The analysis of service effectiveness shall include, but need not be limited to, the quality of care, care outcomes, and access to and availability of cardiac surgery services.

Applicant Response:

(a) An applicant that proposes new construction of one or more operating rooms, cardiac catheterization laboratories, or intensive care units, or any combination thereof, as necessary infrastructure for its proposed new cardiac surgery program shall document why existing resources at the applicant hospital cannot be used to accommodate the proposed cardiac surgery services.

Not applicable.

(b) An applicant shall provide an analysis of how the cost of cardiac surgery services for cardiac surgery patients in its proposed service area and for the health care system will change as a result of the proposed cardiac surgery program, quantifying these changes to the extent possible.

The costs of cardiac surgery services for patients and payers will be significantly reduced by the addition of a program at UM BWMC. The cost to these stakeholders is measured in the charges they receive for the service. Charges at UM BWMC are markedly lower than at UMMC, from which most of the proposed case volume will be derived. Moreover,

as shown in Exhibit 26, an analysis of the rate structure at all of the hospitals from which cardiac surgery volume will transfer shows that UM BWMC's current (FY14) charges are lower than each of these hospitals except Washington Adventist Hospital (Note: charge per case data not available from DC hospitals). As shown in Table 5 below, based on Year 3 of program operations, UM BWMC cardiac surgery service area's patients will save more than $2.4 million by having cardiac surgery at UM BWMC rather than at the hospitals where they currently have these procedures. The data included below are case mix adjusted to reflect the same case types at each hospital that would be moving to UM BWMC, and do not include the case types that would likely remain at UMMC.

Table 5
Analysis of Savings if Cardiac Surgery Services Provided at UM BWMC

Hospital	Charge per case	Variance from UM BWMC	Cases to transfer (Yr 3)	Savings
UM BWMC	$ 51,952	$ -		
UMMC	$ 66,211	$ 14,259	151	$ 2,153,109
Hopkins	$ 57,279	$ 5,327	21	$ 111,867
Union Memorial	$ 61,076	$ 9,124	11	$ 100,364
Sinai	$ 62,624	$ 10,672	2	$ 21,344
Peninsula			4	$ -
Washington Adventist	$ 51,086	$ (866)	2	$ (1,732)
UM SJMC	$ 55,688	$ 3,736	7	$ 26,152
DC Hospitals	Unknown		30	
TOTAL SAVINGS TO SERVICE AREA				$ 2,411,104

(The full analysis is attached as Exhibit 26)

The costs to the health care system also will be reduced as a result of approval of the proposed program.

Beyond the reduction on charges to patients, the ability for patients and families to remain closer to home yields additional savings, ranging from the avoidance of travel costs to and from more distant programs (parking, mileage, public transportation, hired vehicles) to potentially fewer disruptions in work schedules for family members who are caring for patients. These personal and societal costs impact underserved patient populations more significantly. These costs, while difficult to quantify, should be considered in determining cost effectiveness.

(c) An applicant shall provide an analysis of how the establishment of its proposed cardiac surgery program will alter the effectiveness of cardiac surgery services for cardiac surgery patients in its proposed service area, quantifying the change in effectiveness to the extent possible. The analysis of service effectiveness shall include, but need not be limited to, the quality of care, care outcomes, and access to and availability of cardiac surgery services.

I. Quality of Care and Care Outcomes

The cardiac surgery program at UM BWMC will benefit from the UMMS system-wide collaborative initiatives to improve quality performance and maintain the highest quality of care.

One of UMMS' strategic priorities centers on improving clinical performance at the enterprise level. This work is physician led and organized by clinical specialty to create a high performing network of providers delivering high quality, coordinated patient care through UMMS. The process encourages academic and community physicians, and other clinicians, to share their knowledge base and demonstrate top performance in both clinical and patient-oriented outcomes across all UMMS facilities, enabling UMMS to provide the highest quality care at the lowest possible cost. This strategic priority is led by Dr. Stephen Bartlett, Senior Vice President for System Integration and System Surgeon-in-Chief, and Dr. Walter Ettinger, Senior Vice President and Chief Medical Officer.

UMMS has organized specific clinical performance improvement in ten distinct areas, including interventional cardiology and cardiac surgery. The interventional cardiology performance improvement team is led by Dr. Anuj Gupta, Assistant Professor of Medicine and Director of Peripheral Vascular Interventions at UM SOM, and Dr. David Zimrin, Associate Professor of Medicine at UM SOM, Chief of Cardiac Surgery at UM SJMC, and Director of the Cardiac Catheterization Laboratory at UM SJMC, with participation from interventional cardiologists throughout UMMS facilities. The cardiac surgery team is led by Dr. James Gammie, Chief of the Division of Cardiac Surgery. Both groups are developing specific dashboard metrics by which to measure the outcome of their efforts.

For interventional cardiology, specific areas of focus include:

- Mortality rates
- Complications – observed over expected
- 30 day readmission rates
- Overall cost of care

For cardiac surgery, the focus is on the following initiatives:

- Blood conservation
- Reducing prolonged intubation occurrences
- Reducing 30 day mortality
- Continued reduction of SSI (Surgical Site Infections)
- Complications – observed over expected
- 30 day readmissions
- Overall cost of care

The resulting recommendations from these teams will be implemented and tracked for impact over time. Examples of recommendations could include modifications to standard clinical order sets across the System to reflect best practice. Recently, changes to transfusion protocols across UMMS were made to reduce utilization, with the intended result to both improve clinical outcomes and lower the cost of blood.

II. Access to Cardiac Surgery Services

The establishment of a cardiac surgery service line at UM BWMC will have a substantial impact on the accessibility of these services to members of UM BWMC's current service area that do not have access to a vehicle. The policy objectives that guide the Maryland Heath Care Commission's regulation of cardiac surgery services and serve as the foundation for this application require that "Cardiac surgery…services will be financially and geographically accessible consistent with efficiently meeting the health care needs of patients." COMAR § 10.24.17.03. Although geographic access to cardiac surgery is not considered a problem in Maryland "with respect to patient travel time or survival", *id*., it can have a significant impact on a patient's support system.

UM BWMC expects the average length of stay for cardiac surgeries to be 8.8 days. The travel time imposed on a patient's family and friend support network during this time can create secondary stress and disruption to patient families. See, *e.g.*, Exhibit 33 (in which patients and friends describe burden of visiting loved ones when distance and public transportation is involved). Access to a vehicle is more difficult for low-income households.

A significant portion of the population in UM BWMC's primary service area do not have access to a vehicle – a total of 7,303 occupied households, representing 9.42% of the occupied houses in UM BWMC's PSA. Members of these households would currently spend significant resources or travel time to visit family members undergoing procedures.

This population could continue to face such hardship even if a new service line is established within the county but away from UM BWMC's PSA. While there are zip codes across the state and county with large populations of people without vehicle access, access is not uniform throughout the state, or throughout the Anne Arundel County. In AAMC's PSA, 3,569 households do not have access to a vehicle, representing 3.68% of occupied households in the PSA, or almost half the number of people without such access in UM BWMC's PSA.

Table 6[8]
Percentage of Households with No Access to Vehicle,
UM BWMC and AAMC PSAs

	Total Occupied Housing Units	Total Units with No Vehicle	% no vehicle
UM BWMC PSA Subtotal	77,512	7,303	9.42%
AAMC PSA Subtotal	96,905	3,569	3.68%
Maryland State Average			9.50%

Source: 2009-2013 American Communities Survey 5-Year Estimates

Thus, the establishment of a cardiac surgery service line at UM BWMC rather than at AAMC will improve access for a greater number of households without vehicles, and reach more members of the population that currently suffers the greatest impact of not having cardiac surgery services available in the County.

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8 A more detailed table containing data for each PSA zip code is attached as Exhibit 27.

(5) Access

(a) An applicant that seeks to justify establishment of cardiac surgery services, in whole or in part, based on inadequate access to cardiac surgery services in a health planning region shall:

a. Demonstrate that access barriers exist; and

b. Present a detailed plan for addressing such barriers.

(b) Closure of an existing program, in and of itself, is not sufficient to demonstrate the need to establish a new or replacement cardiac surgery program.

Applicant Response:

Not applicable.

(6) Need

(b) An applicant shall demonstrate that a new or relocated program can generate at least 200 cardiac surgery cases per year based on projected demand for cardiac surgery by the population in its proposed service area and an analysis of the market share that the applicant expects to capture for each zip code area in the proposed service area. An applicant shall demonstrate the reasonableness of the assumptions relied upon in defining its proposed service area.

(c) An applicant's need analysis for a new or relocated program shall account for the utilization trends in the most recent published utilization projections of cardiac surgery cases in Regulation .08 for:

(i) The health planning region in which the applicant hospital is located; and

(ii) Any other health planning regions from which it projects drawing, or from which available evidence indicates that it will draw, 20 percent of more of its patients.

(d) An applicant's need analysis for a new program shall include current information about the number of patients referred for cardiac surgery following a diagnostic cardiac catheterization at the applicant hospital and address how this information supports the applicant's demonstration that the proposed new program can generate at least 200 cardiac surgery cases per year.

(e) Closure of an existing program, in and of itself, is not sufficient to demonstrate the need to establish a new or replacement program.

Applicant Response:

(a) An applicant shall demonstrate that a new or relocated program can generate at least 200 cardiac surgery cases per year based on projected demand for cardiac surgery by the population in its proposed service area and an analysis of the market share that the applicant expects to capture for each zip code area in the proposed service area. An applicant shall demonstrate the reasonableness of the assumptions relied upon in defining its proposed service area.

Please see response to Standard .05A(1) (Minimum Volume). As shown in Exhibit 23, UM BWMC calculated the expected volume of cardiac surgery cases to be performed at UM BWMC during the first six years after the program commences. Beginning in the second year of operation, the cardiac surgery program volume will exceed 200 cases per year. An analysis of the market share UM BWMC expects to capture by zip code and by hospital (shift of cases) is included in Exhibit 23, at 3.

(b) An applicant's need analysis for a new or relocated program shall account for the utilization trends in the most recent published utilization projections of cardiac surgery cases in Regulation .08 for:

(i) The health planning region in which the applicant hospital is located; and

(ii) Any other health planning regions from which it projects drawing, or from which available evidence indicates that it will draw, 20 percent of more of its patients.

UM BWMC expects to capture cardiac surgery cases only within the UM BWMC cardiac surgery service area (as defined in Exhibit 3 and 4), which is part of only the Baltimore / Upper Shore planning region for cardiac surgery services. In developing its projections of volume UM BWMC assumed the correctness of the Commission's annual rates of decrease in utilization in the Baltimore / Upper Shore planning region as set forth in the utilization projections published in the *Maryland Register* on February 6, 2015 (Volume 42, Issue 3, page 402).

(c) An applicant's need analysis for a new program shall include current information about the number of patients referred for cardiac surgery following a diagnostic cardiac catheterization at the applicant hospital and address how this information supports the applicant's demonstration that the proposed new program can generate at least 200 cardiac surgery cases per year.

In fiscal year 2014, 979 diagnostic catheterization procedures were performed at UM BWMC, and 145 of these patients were referred for coronary artery bypass surgery (CABG). In fiscal year 2013, of a total of 1,003 diagnostic catheterization procedures performed, and 133 patients were referred for CABG procedure.

These data corroborate UM BWMC's assessment that there are a significant number of patients in the UM BWMC service area who need cardiac care and would choose to be treated locally at UM BWMC. In addition, Exhibit 33 includes letters from cardiac surgery patients who state a strong preference for receiving services locally at UM BWMC. *See, e.g.,* letters of John Burrel and Harry A. Calendar.

(7) Financial Feasibility

A proposed new or relocated cardiac surgery program shall be financially feasible and shall not jeopardize the financial viability of the hospital.

(a) Financial projections filed as part of a Certificate of Need application shall be accompanied by a statement containing each assumption used to develop the projections.

(b) An applicant shall document that:

(i) Its utilization projections for cardiac surgery are consistent with observed historic trends in the use of cardiac surgery by the population in the applicant's proposed service area;

(ii) Its revenue estimates for cardiac surgery are consistent with utilization projections and account for current charge levels, rates of reimbursement, contractual adjustments and discounts, bad debt, and charity care provision, for cardiac surgery, as experienced by similar hospitals;

(iii) Its staffing and overall expense projections for cardiac surgery are based on current expenditure levels and are consistent with utilization projections and with reasonably anticipated future staffing levels as experienced by the applicant hospital, or, if applicable, the recent experience of similar hospitals; and

(iv) Within three years or less of initiating a new or relocated cardiac surgery program, it will generate excess revenues over total expenses for cardiac surgery, if utilization forecasts are achieved for cardiac surgery services.

Applicant Response:

As a stand-alone cardiac surgery program, the proposed project would not achieve excess revenue over total expenses within three years.[9] See Tables J and K (Exhibit 1). However, since the proposed program would be integrated with the UM Division of Cardiac Surgery, UM BWMC analyzed the feasibility of the combination of the proposed program with the existing cardiac surgery program at UMMC and determined that the combined program would be financially feasible immediately. The financial analysis showing financial feasibility of the proposed cardiac surgery program at UM BWMC, as a new location in the larger cardiac

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[9] Under the Global Budget Revenue agreements between the HSCRC and most Maryland hospitals, it is not possible to achieve financial feasibility of a new stand-alone cardiac surgery program because revenue can only be achieved through market share adjustments and certain other adjustments to revenue.

surgery program managed by the UM Division of Cardiac Surgery, is attached as Exhibit 28. The analysis is based on the projected cardiac surgery case volumes set forth in Exhibit 23

A summary of the financial feasibility appears below in Table 7.

Table 7
Financial Feasibility of Combined UMMC Cardiac Surgery Program and Proposed Program at UM BWMC

	FY14	FY16	FY17	FY18	FY19	FY20	FY21
UMMC Cases	1,359	1,289	1,255	1,222	1,191	1,164	1,141
UMMC Net Revenue	$ 126,574,136	$ 120,093,540	$ 116,899,052	$ 113,824,607	$ 110,922,079	$ 108,426,332	$ 106,257,806
UMMC Direct Expenses	84,558,291	80,228,907	78,094,818	76,040,924	74,101,880	72,434,588	70,985,896
UMMC Operating Margin	$ 42,015,845	$ 39,864,633	$ 38,804,234	$ 37,783,683	$ 36,820,199	$ 35,991,744	$ 35,271,910
UMMC Case Shift		64	145	151	157	154	150
Net Revenue Shift		$ 1,183,241	$ 2,685,095	$ 2,826,147	$ 2,931,758	$ 2,862,647	$ 2,804,555
UMMC Direct Variable Expense Savings		1,978,098	4,481,629	4,667,075	4,852,522	4,759,799	4,636,168
UMMC Direct Fixed Savings		793,193	793,193	793,193	793,193	793,193	793,193
UMMC Direct Expense Savings		2,771,292	5,274,822	5,460,269	5,645,715	5,552,992	5,429,361
UMMC Operting Margin after shift		41,452,684	41,393,961	40,417,805	39,534,157	38,682,090	37,896,715
BWMC Net Operating Margin		(1,398,539)	(1,820,630)	(1,885,665)	(1,966,833)	(1,989,243)	(1,893,950)
System Operating Margin		40,054,145	39,573,331	38,532,139	37,567,324	36,692,846	36,002,765
Net System Improvement		$ 189,511	$ 769,097	$ 748,456	$ 747,125	$ 701,102	$ 730,855
Key Components of Net system improvement:							
Labor Savings from productivity - Floor ($1,553/case)		99,392	225,185	234,503	243,821	239,162	232,950
Drug and Supply savings ($100/case)		12,800	29,000	30,200	31,400	30,800	30,000
OR Labor Savings (one less OR team@$3,000 per case)		192,000	435,000	453,000	471,000	462,000	450,000

As of the date of the filing of this application, no specific policies or procedures have been published by the HSCRC that allow for a definitive analysis of revenue shifts as the result of volume movement between hospitals under the new GBR system. As a result, UM BWMC makes the following assumptions in its analysis of financial feasibility of the combination of the cardiac surgery program at UMMC with the proposed program at UM BWMC:

1. Since the entirety of UMMS is covered under a single Agreement with the HSCRC regarding Global Budget Revenue and Non-Global Budget Revenue with the base revenue components allocated by facility in Appendix A, revenue associated with volume transferring to UM BWMC from UMMC will be treated differently than volume coming from non-UMMS hospitals within Maryland.

2. Revenue associated with patients who move from UMMC to BWMC will remain within UMMS.

3. Revenue associated with Maryland hospitals not within UMMS will be treated as a market share shift, with revenue recognized at UM BWMC at 50% of current charges.

4. Revenue associated with cases projected to come to UM BWMC from out-of-state hospitals (i.e., the District of Columbia) was assumed to be paid at 50% of FY 2014 Statewide average case rate.

5. The direct costs associated with the movement of case volume from UMMC to UM BWMC will result in a reduction in costs at UMMC and a corresponding increase to support the program at UM BWMC. This will be achieved by:

    a. A lower length of stay for comparable patients, from 11.0 days at UMMC to 8.8 days (State average) at UM BWMC, from the ability to focus on the patients

        i. The lower length of stay in conjunction with UM BWMC's more efficient nurse to patient and PCT to patient ratio will achieve a savings of $1,553 per case; and

        ii. The lower length of stay will result in a drug and supply savings of $100 per case (based on med/surg daily average).

    b. Staffing at UMMC and UM BWMC will be more efficient as a result of the program at UM BWMC. UMMC will run two fewer cardiac surgery teams for the same amount of case volume, and UM BWMC will run one cardiac surgery team based on the relative staffing models. The cardiac cases at UM BWMC can be staffed differently because of the focus on the lower acuity CABG and valve procedures rather than all levels of cardiac surgery. This will result in a $3,500 per case in savings.

(8) Preference in Comparative Reviews

In the case of a comparative review of applications in which all policies and standards have been met by all applicants, the Commission will give preference based on the following criteria.

(a) The applicant whose proposal is the most cost effective for the health care system.

(b) An applicant with an established record of cardiovascular disease prevention and early diagnosis programming that includes provisions for educating patients about treatment options.

(c) An applicant with an established record of cardiovascular disease prevention and early diagnosis programming, with particular outreach to minority and indigent patients in the hospital's regional service area.

(d) An applicant whose cardiac surgery program includes a research, training, and education component that is designed to meet a local or national need and for which the applicant's circumstances offer special advantages.

Applicant Response:

(a) The applicant whose proposal is the most cost effective for the health care system.

Please see response to Standard .05A(4) for a discussion of the cost effectiveness of the proposed UM BWMC cardiac surgery program. In sum, the charges associated with the proposed program will be lower than the charges of the existing cardiac surgery programs from which surgical cases would shift to UM BWMC.

In addition to cost savings, the proposed cardiac surgery program at UM BWMC, as the third location of the UM Division of Cardiac Surgery, will most effectively meet the needs of patients, providing high quality health care through the sharing and integration of staffing (including the cardiac surgeons), quality of care protocols and initiatives, electronic medical records, outreach programs, and the administration of the locations.

Also, the effect of shared staffing at multiple locations will provide additional case volume, allowing cardiac surgeons and staff to maintain high proficiency. The Cardiac Surgery CON Standards require that an applicant demonstrate the ability to achieve at least 200 cases by the end of the second year of operation. Standard .05A(1)(a). Also, the State Health Plan provides for the possibility of the closure of a program if it fails to meet the minimum volume standard. Standard .04B(1)(b). As noted in the State Health Plan, "numerous studies show that a strong inverse relationship exists between the volume of cardiac surgery performed and

patient mortality and surgical complications."[10] COMAR 10.24.17.03 (Issues and Policies – Quality of Care).

Finally, as discussed in response to Standard .05A(4)(c), the proposed cardiac surgery program will most effectively provide geographically accessible services to patients and families in the UM BWMC cardiac surgery service area, especially for those indigent people living in UM BWMC's PSA, many of whom do not own a car.

(b) An applicant with an established record of cardiovascular disease prevention and early diagnosis programming that includes provisions for educating patients about treatment options.

UM BWMC has an extensive and successful history of conducting community outreach for general health promotion and well-being, as well as for specific health issues and populations. As a part of its broad outreach efforts, UM BWMC provides comprehensive cardiovascular disease prevention and early diagnosis activities throughout its service area, educating residents about their health, healthy behaviors, screenings, and treatment options. UM BWMC takes advantage of its membership in the UMMS network to leverage clinical expertise and community outreach efforts as it works to prevent and treat cardiovascular disease. If UM BWMC is approved for a cardiac surgery program, it will expand its cardiovascular outreach services to other parts of the expected Cardiac Surgery Service Area, relying on its current programming and the strength and reach of the UMMS network.[11]

I. ASSESSING THE HEALTH NEEDS OF UM BWMC'S SERVICE AREA

A. UM BWMC Community Benefit Area Profile

Community outreach, including outreach specifically addressing cardiovascular disease, is a significant component of UM BWMC's Strategic Plan, Annual Operating Plan, and Community Benefit Plan. UM BWMC uses a variety of data sources to inform strategic planning efforts. Because most of UM BWMC's service area is within Anne Arundel County, its outreach efforts focus on that jurisdiction.[12]

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[10] However, the State Health Plan also notes that the relationship between volume and outcomes appears weaker in more contemporary studies and with proper risk adjustment based on clinical data. *Id.* Nevertheless, the Commission determined to include minimum volume standards, presumably to address concerns about outcomes and quality of care.

[11] UMMS, through UM Shore Regional Health, has a particularly strong presence on Maryland's eastern shore. UM Shore Regional Health serves Queen Anne's, Talbot, and, Dorchester counties.

[12] One zip code in UM BWMC's primary service area is shared in part with Baltimore City (21225; Brooklyn); one zip code in the secondary service area is shared in part with Baltimore City (21226; Curtis Bay); and one zip code in the secondary service area is located in Baltimore City and Baltimore County (21227; Halethorpe). The remainder of the primary and secondary

UM BWMC, in collaboration with the Healthy Anne Arundel Coalition and other organizations, recently conducted a comprehensive Anne Arundel County Community Health Needs Assessment (CHNA) to identify community needs. Planning is currently underway to conduct another collaborative Community Health Needs Assessment in FY2016. The CHNA's three-pronged approach included a review of secondary data, key informant interviews, and focus groups. UM BWMC uses the CHNA and other data to inform its planning processes. UM BWMC then develops and implements clinical care and outreach and strategies to address documented community needs.

The CHNA examines a variety of indicators, including demographics, social determinants of health, health behaviors, chronic health conditions, mortality rates and access to health care from both primary and secondary data sources.[13] Social determinants of health, such as income, education, and living conditions can significantly impact health status, health behaviors, and ultimate health outcomes. Research has shown that lower educational attainment, poverty, and race/ethnicity are risk factors for certain health conditions.

The Key Informant Survey component of the CHNA demonstrated that area professionals regard cardiovascular disease and related health conditions, such as obesity/overweight, diabetes and tobacco use, to be health issues of significant concern. Obesity/overweight, a major risk factor for heart disease, was ranked as the County's most significant health issue. Obesity/overweight was selected by 84.3% of informants as among the County's top five health issues, with more than a quarter of respondents (26.5%) indicating that it is the County's most significant health issue. In Anne Arundel County, 37% of adults eighteen years of age and older are overweight (body mass index or BMI of 25-29.9) (36% in Maryland) and 27% of Anne Arundel County adults are obese (BMI of 30 or more) (28% in Maryland). (Source: Report Card of Community Health Indicators, Anne Arundel County Department of Health, May 2014).

Heart disease was ranked as the County's fifth leading health issue by the CHNA key informants. Heart disease was selected by 58.7% of informants as being among the County's top five health issues and as the most significant health issue facing the County by 19.7% of informants. Diabetes and tobacco use, also risk factors for cardiovascular disease, were ranked as the County's third and fifth key health issues. The CHNA focus group participants echoed these concerns, particularly related to obesity/overweight, hypertension/heart disease and diabetes.

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service areas are in Anne Arundel County, including a significant portion of the tertiary patient population.

[13] As part of the CHNA's primary data collection, a key informant survey (n=121) was conducted with participants representing a variety of sectors, including public health and medical services, non-profit and social organizations, children and youth agencies, faith-based organizations and the business community. The other component of the primary data collection process involved five focus groups with County residents (n=55) held in locations throughout the County.

Table 8
Ranking of Key Health Issues in Anne Arundel County per CHNA Key Informants

Ranking of Top Five Key Health Issues Health Issues:		Percent of respondents selecting issue among top 5	Percent of respondents (selecting this issue) who marked it as the most significant issue
1	Obesity/ Overweight	84.3%	26.5%
2	Cancer	66.1%	28.8%
3	Diabetes	64.5%	7.7%
4	Substance Abuse/Alcohol Abuse	63.6%	18.2%
5	Heart Disease	58.7%	19.7%

Source: Anne Arundel County Community Health Needs Assessment, Healthy Anne Arundel Coalition, October 2012

CHNA key informants identified the resources most needed to improve the County's health and well-being. Awareness/ Education/Prevention/Outreach was identified as the most significant resource needed, followed by Affordable Health Insurance & Health Care Services. UM BWMC has undertaken many steps to address these community needs and barriers through community outreach activities and other initiatives. Some of these initiatives are described below, and some more fully in response to review standard 8(c).

B. Cardiovascular Health in the UM BWMC Service Area

Heart disease is a major health issue in Anne Arundel County, with 1,344 County residents admitted to a Maryland hospital for this reason in calendar year 2013. The mortality rates in Anne Arundel County for cardiovascular-related conditions, including heart disease, stroke, and diabetes, are high. In 2013, heart disease was the second leading cause of death in Anne Arundel County, accounting for 892 lives lost. The age adjusted death rate in Anne Arundel County was 165 per 100,000—the second largest death rate, just under that for malignant neoplasms at 166.1. In comparison, the statewide death rate for heart disease was 171.7 per 100,000. Stroke was the fourth leading cause of death (205 deaths) in Anne Arundel County (a rate of 37.6, compared to the statewide rate of 36.5), and diabetes was the sixth leading cause of death (94 deaths) (a rate of 20.2, compared to the statewide rate of 19.6).[14]

In addition to inpatient admissions, much of UM BWMC's service area also experiences higher rates of Emergency Department ("ED") visits for cardiovascular-related conditions, including chest pain, hypertension, and diabetes, than the County as a whole. In the Brooklyn zip code, the ED visit rate for chest pain is nearly 3.5 times higher than the County rate; the ED visit rate for hypertension is nearly 4.5 times as high; and the diabetes rate is more than five times as high. The Glen Burnie, Severn, and Curtis Bay areas also all have ED visits rates for these conditions higher than the County rate.

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[14] Maryland Vital Statistics Annual Reports, 2013, Maryland Department of Health and Mental Hygiene, Vital Statistics Administration, available at http://dhmh.maryland.gov/vsa/sitepages/reports.aspx.

Table 9
ED Visit Rate for Chest Pain, Hypertension and Diabetes per 100,000 Population, UM BWMC Primary and Secondary Service Areas in Anne Arundel County
July 2009 – June 2011
(Highlighted Cells Indicate Rates Above County Average)

Service Area	Zip Code	City Name	Chest Pain	Hypertension	Diabetes
Primary	21060	Glen Burnie (East)	1,962.50	219.01	280.6
Primary	21061	Glen Burnie (West)	2,229.71	219.8	306.42
Primary	21122	Pasadena	1,463.45	105.65	153.53
Primary	21144	Severn	1,623.07	205.43	186.61
Primary	21225*	Brooklyn	4,723.47	738.91	11,011.68
Primary Subtotal			2,284.07	269.08	1,986.60
Secondary	21054	Gambrills	1,076.33	133.31	103.68
Secondary	21076*	Hanover	1,468.57	125.3	215.52
Secondary	21090	Linthicum Heights	1,129.39	168.64	137.98
Secondary	21108	Millersville	1,155.09	100.2	119.68
Secondary	21113	Odenton	1,030.56	126.36	177.23
Secondary	21146	Severna Park	934.28	74.89	119.83
Secondary	21226*	Curtis Bay	3,465.96	396.11	581.79
Secondary Subtotal			1,252.79	132.54	177.24
Primary and Secondary Total			1,915.70	220.31	1,340.30
ANNE ARUNDEL COUNTY			**1,372.63**	**166.09**	**196.04**

* Zip code shared with other Counties; data and rates are for Anne Arundel County only.
Shaded cells highlight where the measure exceeds the county-wide average.
Source: Anne Arundel County Community Health Needs Assessment, Healthy Anne Arundel Coalition, October 2012; original data from Maryland Health Services Cost Review Commission, U.S. 2010 Census

Several zip codes are in need of additional outreach according to the Anne Arundel County Community Health Needs Assessment, October 2013 and the Health Data by Councilmanic Districts and Zip Codes, May 2014 (both published by Anne Arundel County Department of Health). These zip codes are 21060 (Glen Burnie), 21061 (Glen Burnie), 21122 (Pasadena), 21144 (Severn), 21225 (Brooklyn Park), and 21226 (Curtis Bay). All of these zip codes are in UM BWMC's primary service area, which also includes the addition of 21226 (Curtis Bay). These zip codes have disproportionately higher percentages of minority residents when compared to the County average and a higher prevalence of cardiovascular disease indicators, including admissions and re-admission for heart failure, and Emergency Department visits for chest pain, hypertension and diabetes. Zip codes in the south and west community benefit service area, also in the secondary service area, are disproportionately impacted by these indicators.

UM BWMC is proactively responding to these concerns, particularly related to cardiovascular disease and related chronic health conditions and influencing health behaviors through many community outreach efforts. In addition to these many community outreach activities, UM BWMC is proud to offer the University of Maryland Center for Diabetes and Endocrinology at UM BWMC. The University of Maryland Center for Diabetes and Endocrinology at UM BWMC is part of the University of Maryland Diabetes Network, which has more than 150 experts in five locations with one mission: to stop diabetes. The teams of endocrinologists, certified diabetes nurse educators, and nutritionists use a multidisciplinary approach to help patients control their blood sugar level, optimize their quality of life, understand their treatment options, and prevent or minimize the complications of diabetes. The Center offers each patient extensive clinical expertise, the latest available therapies, clinical trials and quality care, and individualized care plans to help patients and their families live well with diabetes.

II. UM BWMC OUTREACH PROGRAMS AND HEALTH INITIATIVES

There are readily identifiable and documented health problems and disparities in UM BWMC's service area. UM BWMC is responding to these risks by implementing various outreach and educational programs. These outreach programs include general health promotion strategies as well as targeted initiatives for high-prevalence health conditions, including cardiovascular disease and related chronic conditions.

A. Community Outreach – Overview

UM BWMC's community outreach programs have been designed to address all of the stages in the education, identification, and treatment continuum, including:

- Community education, information, and awareness enhancement,
- Screening and Referral in partnership with community groups,
- Interventions with community groups, and
- Case Management

UM BWMC's community outreach priorities include:

- Chronic diseases (obesity, heart disease, diabetes and cancer)
- Wellness and access
- Maternal and child health
- Access to healthy food and healthy food education
- Influenza education and prevention
- Violence prevention

Of UM BWMC's six community outreach priorities, three of them (chronic disease, wellness and access, and access to healthy food and healthy food education) are directly related to lowering the incidence of cardiovascular disease in the community. However, UM BWMC utilizes all of the programs to educate people and identify community residents who would benefit from the programs that address cardiovascular disease.

The Maryland Department of Health and Mental Hygiene launched Maryland's State Health Improvement Process (SHIP) in 2011. SHIP provides a framework for continual progress toward a healthier Maryland, and includes 41 measures in five vision areas to provide a framework of what it means for Marylanders to be healthy. These measures are aligned with the Healthy People 2020 framework for the nation's health. Many of these measures are identified as having significant racial/ethnic health disparities. SHIP also requires local jurisdictions to have a local health improvement to prioritize SHIP measures at the local level and develop and implement a community action plan to address local health priorities.

UM BWMC's priorities are closely aligned with the SHIP vision areas and objectives, and the priorities and objectives identified by Anne Arundel County's local health improvement coalition, the Healthy Anne Arundel Coalition (HAAC). UM BWMC serves as a co-chair of the Healthy Anne Arundel Coalition. The Healthy Anne Arundel Coalition selected obesity and behavioral health conditions as its two priorities focus areas. Obesity was selected as priority due to the tremendous burden of overweight and obesity in the County and the fact that weight status underlies many health behaviors such as healthy eating physical activity and impacts many health conditions (cardiovascular disease, diabetes cancer). The chart below illustrates

the synergies between UM BWMC, Healthy Anne Arundel Coalition, and SHIP priorities and objectives as they relate to cardiovascular disease.

Table 10
Synergies between UM BWMC, Healthy Anne Arundel Coalition, and SHIP Priorities and Objectives

SHIP Vision Area	Healthy Living	Access to Health Care
UM BWMC Priorities	1. Reduce, prevent and manage chronic diseases (heart disease, obesity, diabetes and cancer) 2. Access to Healthy Food and Healthy Food Education	Wellness and Access
UM BWMC Objectives	1. Decrease cardiovascular disease, obesity, lung cancer morbidity and mortality 2. Increase access to healthy food 3. Increase access to safe and affordable opportunities for physical activity	Expand access to primary care
Healthy Anne Arundel Objectives	1. Increase the availability, accessibility and usability of affordable, healthy foods and beverages based on CDC Strategies to Prevent Obesity. 2. Increase advocacy and public support for initiatives, policies and legislation that address health disparities and eliminate barriers to healthy food choices. 3. Increase the availability and accessibility of affordable places to be physically active based on CDC Strategies to Prevent Obesity. 4. Increase advocacy and public support for initiatives, policies and legislation that address health disparities and eliminate barriers to physically active lifestyles.	Reduce health disparities
SHIP/HAAC Outcome Indicators	1. Adults who are a healthy weight* 2. Children and adolescents who are obese* 3. Increase physical activity* 4. Adults who currently smoke 5. Adolescents who use tobacco products 6. Life expectancy	1. Adolescents who received a wellness checkup in the last year. 2. People who cannot afford to see a doctor 3. Adults with health insurance

*Indicates the objective is for both SHIP and HAAC.

These synergies are important because the combined efforts of UM BWMC and the Coalition's partners allow the entities to have a greater impact on the community and present unified health education messages, leverage collective strengths, increase interagency collaboration and maximize available resources.

UM BWMC's programs are provided in a variety of settings to reach minority and indigent patients, including churches, community centers, other community settings, and at the BWMC campus. BWMC's campus is located in Glen Burnie zip code 21061, which has a higher

than average percentage of minority residents, a higher Medicaid enrollment rate, a higher uninsured rate, and higher rates of Chest Pain, Hypertension, and Diabetes than the county average, and the hospital serves as a center for community health education, early detection, and treatment.

B. Responding to Concerns Expressed by the Community

Because the health care system can seem complex and overwhelming to patients and their families, especially when they are coping with a medical problem, UM BWMC takes active steps to help patients and their families understand their treatment options and navigate the health care system. For example, UM BWMC employs care managers, social workers and navigators to help patients and their families coordinate the care that they need in the community and in the medical setting. Also, UM BWMC has a Patient and Family Advisory Council to advise the medical center on how to foster a patient and family centered care environment that meets the needs of patients and their family members in the hospital and in the community. The Council is comprised of patients, families, community members, and representatives from the hospital. These resources will be available to cardiac surgery patients.

The CHNA focus groups provided valuable input about how residents of Anne Arundel County prefer to be engaged in community outreach, receive health information, and what strategies they would like to see adopted to promote health and wellness. Participants indicated that they get health information from newspapers, hospital newsletters, flyers, brochures, churches, doctor offices, libraries, and community agencies. UM BWMC uses all of these mediums to convey health education and outreach to the communities it serves. Additionally, focus group participants indicated they are increasingly using the internet, social media, e-mail, and text messaging for health information. UM BWMC has a robust online presence with a hospital web site, a Facebook page, and a Twitter page. The UM BWMC web site includes a Health Resources section with health education tools and resources to help improve the health of patients, families and communities. This section includes:

- Emmi –web-based patient education multimedia programs (http://www.mybwmc.org/emmi)
- Health library – a comprehensive library featuring a variety of health topics (http://www.mybwmc.org/library)
- Health calculators - to help individuals determine if they could be at risk for certain health conditions (http://www.mybwmc.org/health-calculators-2)
- Maryland's Health Matters Online -- UM BWMC's health magazine online portal (http://www.mybwmc.org/mhm)

In addition, Women and Children's section of the UM BWMC website encourages pregnant women to sign-up for "text4baby," an award-winning free service that offers text message tips for a health pregnancy and the first year of life.

CHNA focus group participants specifically recommended healthy recipes and healthy cooking tips as a strategy to encourage people in the community to eat healthier. In choosing the recipes, UM BWMC pays particular attention to affordability and whether the ingredients are easily found. UM BWMC provides this information through a variety of channels, including its

newsletter *Maryland Health Matters*, Facebook, Twitter, health fairs and other community events.

Participants mentioned that although farmers markets can increase access to fresh produce, the available food choices can be expensive. Recognizing this concern, UM BWMC hosts farmers markets at two County locations (UM BWMC and Van Bokkelen Elementary School in Severn) that offer a variety of mechanisms to allow people to purchase fresh, healthy food at a lower cost. CHNA focus group participants specifically recommended reasonable prices for healthy food and coupons/vouchers for healthy food as a strategy to encourage people in the community to eat healthier. Electronic Benefit Transfer (EBT), WIC Fruit & Vegetable Checks (FVC), and Farmers' Market Nutrition Program (FMNP) are accepted to ensure easy access to recipients of these supplemental programs. To stimulate supplemental nutrition assistance program (SNAP) spending at the Van Bokkelen Farmers Market, UM BWMC offered a Market Match program using grant funding secured through the Local Development Council (LDC).

Additionally, CHNA focus group participants identified the accessibility of physical activity options as a significant concern. Accessibility concerns revolved around cost as well as safety concerns, such as walking alone outside. UM BWMC's physical activity offerings are provided at free or nominal cost. UM BWMC's Arundel Mills Milers Walking Program provides a safe, free and fun indoor option for physical activity. UM BWMC donated a shade structure for the playground at Kinder Farm Park in Millersville to encourage children and families to play and be active outside together.

The CHNA focus group also recommended programs to help people live well and proactively manage chronic health conditions and prevent further disease progression. In partnership with the Anne Arundel County Department of Aging, UM BWMC offers Living Well with Chronic Disease Self-Management Program and Living Well with Diabetes Self-Management Program. These six-week evidence-based programs have proven to increase healthful behaviors, improve health status, and decrease emergency room visits for participants managing chronic conditions such as heart disease, hypertension, and diabetes. Four to six sessions are held annually with 12-20 participants attending each six-week session free of charge.

C. UM BWMC Cardiovascular Health Initiatives

Heart disease is the second leading cause of death of residents of Anne Arundel County. As detailed below, UM BWMC currently has many outreach efforts underway to increase cardiovascular disease awareness, screenings, and disease management options. In addition to community outreach activities, UM BWMC is proud to offer the University of Maryland Center for Diabetes and Endocrinology at UM BWMC. The University of Maryland Center for Diabetes and Endocrinology at UM BWMC is part of the University of Maryland Diabetes Network, which has more than 150 experts in five locations with one mission: to stop diabetes. The teams of endocrinologists, certified diabetes nurse educators, and nutritionists use a multidisciplinary approach to help patients control their blood sugar level, optimize their quality of life, understand their treatment options, and prevent or minimize the complications of diabetes. The Center offers each patient extensive clinical expertise, the latest available therapies, clinical trials and quality care, and individualized care plans to help patients and their families live well with diabetes.

These programs include addressing significant risk factors for heart disease such as hypertension and diabetes. To prevent and control cardiovascular disease in people living and working in Anne Arundel County, UM BWMC combines education, screenings, clinical care, cardiac rehabilitation, and support groups. Many of the programs and services offered are a collaborative effort with community organizations, corporations, volunteers and other partners who have made a similar priority commitment to the improvement of community health. Together, these efforts are making a difference and improving health and well-being, among individuals, families and communities.

2. HeartAware (screening and referral)

UM BWMC is pleased to begin providing HeartAware to its community. HeartAware is a free screening tool for early detection of heart disease. The screening involves an online test that can identify risk for heart disease. If the online evaluation shows an increased risk for cardiovascular disease, participants will be urged to follow-up promptly with their primary care physician. If the participant does not have a primary care physician, immediate access to UM BWMC's online physician search tool is provided. Samples of HeartAware promotional materials are attached as Exhibit 29.

3. CVS Partnership (community education, information, and awareness interventions, screening and referral, case management)

In order to expand prevention, early detection and early treatment in its community, UM BWMC is partnering with CVS Pharmacies' Minute Clinics to pilot a joint clinical program in support of our patients (measure results), reduce the risk of chronic disease, improve the health of specific populations, and improve access to follow-up care for elevated blood pressure

MinuteClinic providers will identify and refer patients with elevated blood pressure. Patients will be strongly advised of importance of follow-up for elevated blood pressure, and will be educated on lifestyle modification for reducing blood pressure and be referred to a UM BWMC affiliated physician, or other physicians of their choice, to be seen within predefined window of time for further evaluation. MinuteClinics will available for further blood pressure checks. It is expected that patients will be seen within one month of identification of elevated blood pressure. Patients with significantly elevated blood pressure will be referred appropriately as would patients with borderline elevations. MinuteClinic providers will be available for additional blood pressure visits as deemed appropriate by the patients' physicians.

The MinuteClinic Hypertension Evaluation Visit would include:

- Blood pressure monitoring
- Body mass index (BMI)
- Cholesterol test (optional)
- Review and coaching to address modifiable risk factors
- Phase 2 Identification, medication initiation and referral
- Medication co-management of hypertension population

In addition to the MinuteClinic Hypertension Evaluation elements, providers would add kidney function test and measurement of electrolytes.

This program enables residents to obtain patient education, identification, treatment and receive assistance with compliance, including the ability to obtain reliable relevant information, prevention, and follow-up near their homes on the patient's own schedule. UM BWMC believes that the value of this program, in addition to its clinical value, is that it brings prevention, early detection, and ongoing follow-up to the neighborhood pharmacy, with which many residents already have an existing relationship, familiarity, and trust.

4. Vascular Health Awareness and Screenings (screening and referral in partnership with community groups)

The mission of The Maryland Vascular Center at University of Maryland Baltimore Washington Medical Center's Community Screening Program is to educate the community and detect all major vascular problems including abdominal aortic aneurysms (AAA), peripheral arterial disease (PAD) and carotid artery disease. People over sixty years of age, particularly men, have a higher risk of vascular disease. Additional risk factors for vascular disease include:

- High blood pressure
- High blood cholesterol
- Smoking
- Diabetes
- Family history of vascular disease
- Prior stroke

The diagnosis of vascular disorders is done using non-invasive, state-of-the-art ultrasound and Doppler technology. Performed by registered vascular technologists, exams usually take less than 20 minutes to complete. All screening results are reviewed with a physician or nurse practitioner from The Maryland Vascular Center at UM BWMC immediately following the screening. Participants leave the screening with a copy of their results to share with their primary health care provider. Assistance with locating a primary care physician is provided to participants who do not have a primary care physician. The screening includes:

a. Aortic Scan – A painless risk-free ultrasound scan can diagnose an AAA and accurately measure its size to determine the need for treatment.
b. PAD Screen – A simple Doppler exam can accurately diagnose PAD. When PAD is treated, people are usually able to walk farther and have a reduced risk of heart attack and stroke.
c. Carotid Scan – Carotid artery disease can be easily and accurately diagnosed using an ultrasound scan that is simple, painless and takes only a few minutes.

UM BWMC partners with community-based organizations such as senior centers, places of worship and civic organizations to host vascular screenings. As part of its commitment to the community, UM BWMC provides vascular screenings at no cost.

5. Diabetes Prevention, Screening and Management (community education, information, and awareness interventions with community groups, and case management)

The University of Maryland Center for Diabetes and Endocrinology at UM BWMC is part of the University of Maryland Diabetes Network, which has more than 150 experts in five

locations with one mission: stop diabetes. The Center uses a multidisciplinary approach to help patients control their blood sugar level, optimize their quality of life, and prevent or minimize the complications of diabetes. A team of UM BWMC endocrinologists, certified diabetes nurse educators, and nutritionists help people take charge of their own physical health and emotional well-being. Our programs offer the latest available therapies, clinical trials and custom, individualized care plans. Services include:

- Diabetes screening
- Complication screening, prevention and treatment programs
- Medication management and insulin injection techniques
- Home blood-glucose monitoring
- Insulin pump management
- Medical nutrition therapy
- Gestational diabetes program
- Continuous glucose monitoring
- Weight loss program
- Intensive insulin management

6. Exercise Classes (an intervention with community groups)

UM BWMC offers a variety of exercise classes to help improve health and cardiovascular fitness for all fitness levels in both Glen Burnie and in Hanover. Four 10-week sessions are offered each year for a nominal fee of $5 per class. Classes include yoga, Pilates, Zumba, Tai Chi and Yoga for Stroke Patients.

7. Arundel Mills Milers Walking Program (an intervention with community groups program)

In partnership with Simon Properties, UM BWMC sponsors the Arundel Mills Milers Walking Program at Arundel Mills in Hanover. Participants are encouraged to walk at their own pace Monday through Friday from 7:00 a.m. to 10: 00 a.m. before regular mall shopping hours. This free program offers a safe and friendly environment for cardiovascular exercise and to improving overall health. Guest speakers and an annual health fair remind participants of the importance of making healthy decisions.

8. Farmers Markets (an intervention with community groups program)

UM BWMC's Farmers Markets offer convenient access to healthy, fresh, local produce, meat and dairy products. Area residents are able to speak directly with the farmers who produce the food, learn more about how it is grown and how to prepare it, enabling them to make educated food choices. Markets are offered every Saturday from 9:00 a.m. to 1:00 p.m. on UM BWMC's Glen Burnie campus and every Thursday from 4:00 p.m. to 7:00 p.m. at Van Bokkelen Elementary School in Severn (market opened in June 2014), June through October 2013 and then again June through October 2014. As stated previously, Electronic Benefit Transfer (EBT), WIC Fruit & Vegetable Checks (FVC) and Farmers' Market Nutrition Program (FMNP) are accepted to ensure easy access to recipients of these supplemental programs. To stimulate supplemental nutrition assistance program (SNAP) spending at the Van Bokkelen market, UM BWMC offered a Market Match program using grant funding secure through the Local Development Council (LDC). Market Match provided SNAP recipients up to $15 weekly in

matching funds. For example, if a SNAP beneficiary spent $12 of SNAP funds on produce at the market, he/she received $12 in tokens to spend at the market to purchase additional vegetables, fruit, poultry, meat or dairy products. Tokens could not be used to purchase non-food items at the market. The program encouraged SNAP recipients to shop at the market, take advantage of fresh, locally-grown fruits and vegetables, consume less processed food and improve food knowledge and the overall health of their families. Increasing access to healthy food is directly linked to reducing obesity rates and cardiovascular disease.

9. Tobacco Prevention and Cessation - Free Smoking Cessation Classes and Medication Support (community education, information, and awareness, interventions, and case management)

UM BWMC offers a smoking cessation program to help interested community members discontinue using tobacco, become educated on the health risks associated with tobacco use and provide the mechanisms (medication, counseling, etc.) for quitting. Participants will learn about the barriers to smoking cessation, the health benefits of choosing a smoke-free lifestyle, nicotine-replacement options, motivational exercises and techniques for stress management. UM BWMC offers these smoking cessation classes free of charge for any adult who lives or works in Anne Arundel County through a grant from the Anne Arundel County Department of Health. Free medication support including nicotine patches and nicotine gum are provided to eligible program participants.

Emmi, a web-based multi-media education program, is offered to smoking cessation program participants as a supplement to the information presented during each session. It serves as an additional to tool to assist in cessation efforts and encourages participants to take an active role in their health care.

10. Heartbeat for Health (community education, information, and awareness)

Heartbeat for Health increases education and awareness about cardiovascular disease and encourages community members to make healthy lifestyle choices to reduce the incidence of obesity and corresponding conditions including heart disease, high cholesterol and high blood pressure.

Heartbeat for Health celebrates the benefits of dance and exercise in the prevention of heart disease. Held annually in February to coincide with National Heart Month, participants have the opportunity to try various dance styles, enjoy dance and exercise demonstrations and participate in free health screenings such as cholesterol, blood pressure and body mass index. Educational information on heart disease, cancer, making healthy food choices and diabetes is also available. This event has been held annually since 2005 with an average of 500 attendees each year.

11. Engage with an Expert/Speakers Bureau/Community Lectures (community education, information, and awareness)

Each year, approximately 400 community members attend UM BWMC's monthly Engage with an Expert lecture series. This lecture series offers a variety of timely health topics presented by UM BWMC healthcare professionals in an easy to understand format. Topics related to cardiovascular disease risk reduction, related chronic conditions and heart health are

regularly featured. While this series is held at the hospital, BWMC also provides speakers at other community sites.

2014	Subject/Title
Jan.	Thyroid Health
Feb.	Maintaining Your Vascular Health*
March	Preventative Treatment for Aging Joints
April	The Basics of Wound Care and Healing
May	The Importance of a Good Night's Sleep
June	Managing Pain of the Neck and Spine
Sept.	Healthy Aging*
Oct.	Cancer Awareness
Nov.	Advances in Joint Replacement
Dec.	Planning for Pregnancy

2013	Subject/Title
Jan.	Forget Me Not: Memory Loss
Feb.	Mending a Broken Heart*
March	Chronic Sinusitis
April	Oral Cancer
May	Women's Pelvic Health
June	Aging Backs and Bones
Sept.	Prostate Health
Oct.	Foot & Ankle
Nov.	Lung Cancer*
Dec.	Fibromyalgia

2012	Subject/Title
Jan.	General Health and Wellness/Prevention*
Feb.	Diabetes*
March	March Maintenance (preventative health screenings)*
March	Preventing Sports Injuries
April	Disorders of the Aging Spine
May	Perimenopause
June	Gut Feeling
Sept.	Peripheral Arterial Disease*
Oct.	It's Not Breast Cancer: Navigating Lumps & Bumps
Nov.	Osteoarthritis: Hips & Knees

2011	Subject/Title
Jan.	Advancements in the Treatment of Liver Disease
Feb.	How to Survive a Heart Attack*
March	Treating Sinusitis
April	Preventing Sports Related Concussions
May	Preventing and Treating Hiatal Hernias
June	Preventing and Treating Neck and Back Pain
Sept.	Preventing and Treating Vascular Disease*
Oct.	Men's Urological Health
Nov.	Easing Joint Pain

*Indicated topic is related to cardiovascular health or related health behaviors/conditions.

In addition to this monthly lecture series, UM BWMC has a speaker's bureau comprised of experts on cardiovascular disease, aging, diabetes and cancer who are able to address specific health concerns of community groups, civic organizations and corporations.

12. CPR classes (community education, information, and awareness)

UM BWMC offers free quarterly adult and infant Heartsaver® CPR classes for community members with limited or no medical training. Heartsaver® classroom courses feature group interaction and hands-on coaching and feedback from an American Heart Association Instructor.

13. The Weight of the Nation (WOTN) (community education, information, awareness enhancement, interventions with community groups)

This program involves viewing a four-part ethnically diverse documentary developed by HBO which educates adults on weight, weight loss, and the obesity epidemic and gives participants the tools to make positive changes in their lifestyle, empowering them to educate their peers and children to do the same. A professional facilitator leads a discussion following the viewing of each part. This program also has a healthy recipe and cooking demonstration component. Participants are given 'homework' each week and are encouraged to consider how they can incorporate the information presented into their everyday lives, resulting in healthy changes for themselves and their family. WOTN is presented by HBO and the Institute of Medicine, in association with the Centers for Disease Control and Prevention and the National Institutes of Health (NIH), and in partnership with the Michael & Susan Dell Foundation and Kaiser Permanente.

14. Color My Heart 5K Fun Run (community education, information, and awareness enhancement)

UM BWMC is hosting the first ever color run in Anne Arundel County on Saturday, May 30, 2015. The whole family will enjoy this noncompetitive 5K run/walk that will feature color stations along a scenic route in Kinder farm Park in Millersville, Maryland.

15. American Heart Association Annual Heart Walk (an Intervention with community groups program)

UM BWMC is a corporate financial sponsor of this annual event held in Baltimore each October to raise funds to save lives from heart disease and stroke. Designed to promote physical activity and heart-healthy living, the Heart Walk creates and environment that's fun and rewarding for the entire family. Approximately 75 UM BWMC associates participate in this event each year.

16. Step Out: Walk to Stop Diabetes (American Diabetes Association) (an Intervention with community groups program)

UM BWMC is a corporate financial sponsor of this annual event held in Baltimore each October to raise funds to prevent and cure diabetes. More than 50 UM BWMC associates participate in this event each year.

Table 11, below, shows the number of Cardiovascular Outreach Programs and encounters that UM BWMC held during FY 2014.

Table 11
UM BWMC Cardiovascular Outreach Programs FY2014

Program	# of Events	# of Encounters	Zip Code
Community Screenings and Health Fairs			
Arundel Mills Health Fair	1	200	21076
Homeless Resource Day	1	495	21401
Back to School Bash/Van Bokkelen Elementary	1	200	21144
Heritage Community Church	1	350	21144
Anne Arundel Community College	1	150	21012
Heritage Community Church	1	350	21144
Anne Arundel Community College	1	150	21012
Blood Pressure Screening	21	530	21060,21061
Vascular Screening	6	208	21061,21076,21601
Classes/Workshops/Support Groups			
Heartsaver® CPR Instruction	5	156	21061
Smoking Cessation	3	21	21061
Exercise classes	48	201	21061,21076
Stroke Support Group	8	248	21061
Diabetes Support Group	9	57	21061
The Weight of the Nation	4	19	21076
Lectures/Education			
Maintaining Your Vascular Health	1	22	21061
Preventing Strokes	3	35	21061,21012,21113
Diabetes Education	3	39	21061,21076
Living Well with Chronic Conditions	2	22	21061
Community Walks/Fun Runs			
Mills Milers	Daily (Mon-Fri)	150+ (daily)	21076
Heart Walk	1	65	21202
Diabetes Walk	1	100+	21202
Building Hope Walk & 5K Run	1	75	21146
Miscellaneous			
Farmers' Market	30	800+	21060,21144

As discussed below, UM BWMC will coordinate expanded outreach services with Shore Health. Table 12 shows Shore Health's outreach programs in 2014.

Table 12
UM Shore Regional Health Cardiovascular Outreach Programs FY2014

Program	# of Events	# of Encounters
Community Screenings and Health Fairs		
Community Health Fair, Worton Community Center	1	200
Senior Summit Health Fair, Centreville, MD	1	200
Homeports Aging Symposium, Chestertown, MD	1	200
Kent Island Sr. Center Health Fair	1	25
Blood Pressure Screening Easton and Cambridge	4 days per week	400+
Tour De Cure- ADA/SHS Wellness Expo	1	200+
Senior Celebrations Queen Anne's county	1	200
Diabetes Alert Day	1	30
Senior Celebrations at Pleasant Day	1	230
Classes/Workshops/Support Groups		
Mended Hearts meetings	1	50
Congestive Heart Failure Clinic	3	156
Symptoms of Heart Disease	1	20
Stroke Support Group	12	420
Diabetes Support Group	12	420
Healthy Grocery Store Event	1	10
Lectures/Education		
Preventing Strokes	3	35
Diabetes Education	3	48
New Cholesterol Guidelines Lecture	1	12
Stroke Awareness Lecture Series	3	135
Heart Healthy Lecture Series, Dorchester County	3	75
Community Walks/Fun Runs		
Martin Luther King March & Health Fair	1	50
Heart Walk	1	65
Tour De Cure- ADA/Bike Ride	1	200+
Miscellaneous		
Shore Wellness Partners, community case management	Ongoing program	232
Anti-thrombosis Clinic	Ongoing program	1000+

Source: UM Shore Regional Health System Community Outreach Department

D. UM BWMC General Outreach Initiatives

Of course, outreach is not limited to cardiovascular related programs. UM BWMC's outreach staff uses every opportunity to try to identify residents of its service area who would benefit from its prevention or treatment services. For example, if the parents of a young mother

accompany her to UM BWMC's Prenatal Care class, outreach staff may talk to them about their own symptoms and needs. Below are the outreach programs provided by UM BWMC that are not specific to cardiovascular issues.

1. Stork's Nest (community education, information, and awareness, Interventions with community groups)

Prenatal care is essential to increasing chances of positive pregnancy outcomes. Stork's Nest is an incentive-based prenatal education program designed to encourage pregnant women to have a healthy pregnancy whereby giving their babies the best opportunity for healthy beginning. Primary objectives include preventing premature births, low birth weight babies and sudden infant death syndrome (SIDS), the leading causes of infant mortality. Educational topics include healthy eating for two, exercise, managing stress, breastfeeding, safe sleeping for baby.

Any pregnant Anne Arundel County resident is eligible to participate, however, the program targets pregnant women at the greatest risk for having poor pregnancy outcomes, specifically African-American women, teenagers, women of low socioeconomic status, and women with previous poor pregnancy outcomes. Each year, approximately 20 eight-week, hour-long education classes are held. English, Spanish (Esperando Bebe) and classes specifically for teenagers are offered. Since opening at UM BWMC in September 2006, more than 1,300 women have participated.

2. Emmi (community education, information, and awareness enhancement)

UM BWMC uses free web-based multimedia patient education programs, called Emmi®. These user-friendly programs educate patients about upcoming surgical procedures, chronic conditions, primary care and more. These online programs make complex medical information easy to understand and enable patients to play an active role in their health care. Patients can review Emmi programs at their convenience and in the comfort of their own homes. They can also share the programs with family and friends who assist in their care.

Emmi is available to patients and the general community. Surgical patients are often prescribed Emmi courses by their physician in order to help them prepare for their upcoming procedure.

Current Emmi programs related to cardiovascular disease and related conditions include:

- Atrial Fibrillation
- Coping with a Health Condition
- Diabetes Type 2
- Heart Failure
- Hypertension
- Medication History for the Patient
- Medication History for the Provider
- Patient Safety
- Patient Satisfaction
- Stroke – Preventing Stroke and TIA

- Stroke – Preventing Secondary Stroke
- Thinking About Quitting Smoking

3. Touch a Truck (community education, information, and awareness)

UM BWMC hosts this free community engagement event biannually. In addition to showcasing more than two dozen vehicles, including service and emergency vehicles and construction and public safety equipment, health education, health screenings (such as blood pressure and bone density) and flu vaccines are offered. This event offers something for every member of the family. Event attendance exceeded 2,500 in 2014.

4. Health Fairs (community education, information, and awareness)

UM BWMC participates in numerous health fairs in the community each year such as Homeless Resource Day and the Hispanic Health Festival at Heritage Community Church, educating at-risk, minority and medically underserved populations about preventing cardiac disease. UM BWMC also provides blood pressure and vascular screening at these events.

5. Healthy Anne Arundel Month (community education, information, and awareness)

UM BWMC is a member of the planning committee for the second annual Healthy Anne Arundel Month to be held in April 2015. Healthy Anne Arundel month features a variety of events and activities to encourage individuals, families, churches, communities, businesses and other to adopt healthy behaviors. UM BWMC was as an active participant in the planning and implementation of the inaugural Healthy Anne Arundel Month, held in April 2014.

6. Maryland's Health Matters (Community education, information, and awareness)

UMMS publishes a community health magazine, Maryland's Health Matters each quarter for the people of Maryland including UM Baltimore Washington Medical Center's service area. The magazine provides health tips, healthy recipes, exercise ideas and information to live a healthy lifestyle. It also provides information on the services that each hospital provides. The UM BWMC edition is mailed to 200,000 homes in Anne Arundel County on a quarterly basis.

7. 12 Charities in 12 Months

UM BWMC employees participate in a community outreach initiative called **"12 Charities in 12 Months"** to give back to local residents and organizations and help strengthen the community that helped to build us. Each month, employees have the opportunity to donate items to that month's designated charity if they chose to do so. Donation boxes are located throughout the hospital, and the marketing and communications/community outreach departments will collect the items every few days to donate to the organization at the end of the month.

Below is a summary of the 2015 12 Charities in 12 Months outreach initiative.

Month	Organization	What We Will Collect
January	Sarah's House in Fort Meade, which provides an emergency shelter for up to 66 people and transitional housing for 22 families	paper and plastic kitchen items to be donated to the families, including plastic forks, spoons and knives, paper/plastic plates, bowls and cups, paper towels, etc.
February	Global Links, Inc., which provides medical relief and development, promotes environmental stewardship and serves resource-poor communities in Latin America and the Caribbean	new or used scrubs, including those that you may want to recycle as we move to the new uniform standardization program
March	Maryland Food Bank, which provides meals to hungry families in Maryland	canned goods and non-perishable food items to be donated as part of National Nutrition Month
April	YWCA of Annapolis and Anne Arundel County, which serves local women and girls, especially those who are victims of domestic violence	new pajamas, undergarments and socks for women and children
May	Opportunity Builders in Millersville, which serves local adults with developmental disabilities and provides vocational training and employment services	new or gently used sports balls and jump ropes for recreational use
June	Anne Arundel County Public Schools and helping to build local school libraries	gently used or new books for kids and teens
July	Anne Arundel County Social Services, who sponsors a back to school program for Anne Arundel County Public Schools and its underprivileged school children	backpacks and school supplies to be donated before the new school year begins
August	Chesapeake Center for Youth Development in Brooklyn, which supports local at-risk youth	toiletries for teenagers, such as deodorant, lotion, soap, dental hygiene, etc.
September	Anne Arundel County Animal Control in Millersville, which serves as a shelter for homeless animals that are found or reside in the county	food, treats, toys, beds and hygiene products for cats and dogs
October	Operation Welcome Home Maryland, which serves veterans returning from overseas	bottles of water and snacks to be used for welcome home packages that veterans will receive at BWI Airport
November	Take Back Our Streets, which serves schools, children and families in Anne Arundel County	new and unwrapped toys and canned food items to be donated for the annual Holiday Sharing Party and distributed to families throughout the county.
December	Chrysalis House in Crownsville, which serves local women and their at-risk children who receive addiction treatment and prevention services	baby care items such as wipes, diapers and hygiene products

8. Social Media (Community education, information, and awareness)

UM BWMC utilizes social media including Facebook and Twitter to raise awareness and provide educational tips and information weekly on how to prevent cardiovascular disease and related chronic conditions.

E. Selected UM BWMC Community Outreach Partnerships

UM BWMC's ability to extend its outreach to meet the needs of the large and diverse community that it serves is benefited by the established, collaborative, and trusted relationships and partnerships it has formed with government and social assistance agencies, churches and other faith-based organizations, community organizations, minority and ethnically based organizations, other health care providers, businesses, and local residents.

1. Healthy Anne Arundel Coalition

UM BWMC is a key participant in the Healthy Anne Arundel Coalition, a partnership of public sector agencies, health care providers and payers, community-based partners, the business community and academic institutions. The coalition was formed in December 2011 in response to a Statewide Health Improvement Process (SHIP) and is co-chaired by the Anne Arundel County Department of Health, UM BWMC and Anne Arundel Medical Center (AAMC). After careful review of County health data, the Coalition's Steering Committee prioritized the potential health improvement areas and decided to focus the Coalition's efforts on two areas: (1) Obesity Prevention and (2) Management of Mental Health and Substance Abuse as Co-occurring Disorders. Obesity was selected as priority due to the tremendous burden of overweight and obesity in the County. Weight status underlies many health behaviors, such as healthy eating physical activity and impacts many health conditions (cardiovascular disease, diabetes cancer). UM BWMC is the only acute care hospital in Anne Arundel County with licensed inpatient psychiatric beds. The Coalition is committed to developing and implementing evidence-based initiatives that can improve the county's health in these two areas, particularly related to racial and ethnic health disparities. Local action is essential to public health progress and UM BWMC is pleased to be co-leading this initiative.

2. Anne Arundel County Partnership for Children, Youth and Families

UM BWMC has a strong relationship with the Anne Arundel County Partnership for Children, Youth and Families. UM BWMC and the Partnership currently collaborate on a variety of programming related to low-income residents in the areas of obesity prevention, nutrition, case management, and reduction in hospital readmissions. The Partnership works to promote the well-being of individuals and families with an emphasis on low-income and minority populations and is a trusted ally within these communities. UM BWMC's collaboration with the Partnership allows us to have a greater reach and impact on the health and well-being of low-income and minority Anne Arundel County residents.

3. Conquer Cancer Advisory Council

The Anne Arundel County Conquer Cancer Advisory Council is comprised of partners from UM BWMC and other local hospitals; medical providers; law enforcement; community and faith based organizations; Anne Arundel County Public Schools; Anne Arundel Community College; youth from local schools; and the community at large, with members representing the demographic, social and occupational sectors of Anne Arundel County. The Council serves as the community health coalition required by the Maryland Department of Health and Mental Hygiene Cigarette Restitution Fund Program.

The mission of the Conquer Cancer Advisory Council is to work collaboratively with local partners to promote publicly funded cancer and tobacco programs and identify and implement

tobacco use prevention and cessation programs and cancer prevention education, screening and treatment programs. Many cancer prevention strategies such as improving nutrition, weight loss and increasing physical activity are the same strategies proven to lower the risk of cardiovascular disease.

4. Anne Arundel County Department of Health

UM BWMC supports the health priorities established by the Anne Arundel County Department of Health, recognizing that collaboration and interagency communication is crucial to addressing local health needs. UM BWMC partnerships with the Department of Health include the Healthy Anne Arundel Coalition, Infant Mortality Community Action Team, and Conquer Cancer Advisory Council. Also, UM BWMC and the Department of Health collaborate on emergency preparedness planning, provider outreach, and other initiatives. UM BWMC and the Department of Health also cross-promote each other's outreach events and activities.

5. Anne Arundel County Department of Aging and Disabilities

Chronic disease has significant implications on the health and well-being of Anne Arundel County residents. In partnership with the Anne Arundel County Department of Aging and Disabilities, UM BWMC offers a Living Well with Chronic Disease Self-Management Program and a Living Well with Diabetes Self-Management Program. These six-week evidence-based programs have proven to increase healthful behaviors, improve health status and decrease emergency room visits for participants managing chronic conditions such as heart disease and hypertension. Four to six sessions are held annually with 12-20 participants attending each six-week session.

6. Infant Mortality Community Action Team (CAT)

Infant mortality is considered a critical measure for understanding the overall health and well-being of a community. The Community Action Team (CAT) was established to address the disparities in minority infant mortality in Anne Arundel County. A three-year demonstration grant from the Maryland Department of Health and Mental Hygiene will allow the CAT to develop and implement countywide strategies for expanded access to community resources and service delivery systems. The CAT will also monitor the effectiveness of those efforts moving forward. UM BWMC co-chairs this team. As a trusted partner on this action team, UM BWMC is committed to reducing the significant disparity that continues to exist between white and black infant mortality.

7. Anne Arundel County Mental Health Agency, Inc.

UM BWMC has a long-standing partnership with the Anne Arundel County Mental Health Agency, Inc. (AACMHA). UM BWMC is the only hospital in Anne Arundel County with psychiatric beds, a valuable resource to the local community and health system. UM BWMC works closely with AACMA to secure psychiatric care for uninsured patients who need to be seen quickly and others needing psychiatric care. UM BWMC also works with AACHMA on initiatives to reduce hospital readmissions and potentially avoidable utilization related to behavioral health conditions.

8. List of select community partners

- American Cancer Society
- American Diabetes Association
- American Heart Association
- American Lung Association
- Anne Arundel Community College
- Anne Arundel County Department of Aging and Disabilities
- Anne Arundel County Department of Detention Facilities
- Anne Arundel County Department of Health (including representatives from Women's Infants and Children (WIC) and Healthy Start)
- Anne Arundel County Department of Social Services
- Anne Arundel County Mental Health Agency, Inc.
- Anne Arundel County Office of the County Executive
- Anne Arundel County Partnership for Children , Youth and Families
- Anne Arundel County Public Schools
- Anne Arundel Department of Recreation and Parks
- Anne Arundel Economic Development Corporation
- Anne Arundel Medical Center
- Arundel House of Hope
- CareFirst BlueCross BlueShield
- Chase Brexton Health Care
- City of Annapolis Mayor's Office
- Community Foundation of Anne Arundel County
- CVS Health
- Glen Burnie Improvement Association
- Heritage Community Church
- Housing Authority of the City of Annapolis
- Housing Commission of Anne Arundel County
- March of Dimes-Maryland Chapter
- Meade Village
- MedStar Harbor Hospital
- NAACP-Anne Arundel County Branch
- Rite Aid Corporation
- Safe Sitter International
- Severna Park Community Center
- Simon Properties
- St. Mark United Methodist Church
- Sunrise Assisted Living of Severna Park
- University of Maryland School of Public Health
- Walgreens
- Zeta Phi Beta Sorority

F. UM BWMC Community Leadership

UM BWMC provides leadership to numerous community-based outreach and health improvement initiatives, including the following:

1. *Co-Chair, Healthy Anne Arundel Coalition* - UM BWMC has provided leadership, in-kind and financial support to the Healthy Anne Arundel Coalition since its inception in 2011. The Coalition develops and implements actionable strategies to improve local health and reduce health disparities.

2. *Co-Chair, Anne Arundel County Infant Mortality Community Action Team* - UM BWMC provides leadership for this important initiative to reduce disparities in minority infant mortality.

3. *Member and former Co-Chair, Healthy Anne Arundel Coalition Obesity Prevention Subcommittee* - UM BWMC actively participates in the committee to prevent and reduce overweight and obesity. The committee is actively involved in numerous activities to increase healthy eating and physical activity.

4. *Member, Healthy Anne Arundel Coalition Community Engagement Subcommittee* - UM BWMC is a member of this committee, whose purpose is to engage minority and other disadvantaged communities in the work of the Coalition and other initiatives to reduce health disparities.

5. *Member, Healthy Anne Arundel Coalition Co-Occurring Disorders Subcommittee* - UM BWMC, as the only hospital with psychiatric beds in Anne Arundel County is a key member of this committee that focuses on the prevention and management of individuals with co-occurring mental health and substance abuse disorders.

6. *Member, Healthy Anne Arundel Coalition Planning and Assessment Subcommittee* - UM BWMC plays an active role in the planning of a comprehensive community health needs assessment that is conducted every three years by the Healthy Anne Arundel Coalition and its key partner agencies.

7. *Member, Healthy Anne Arundel Coalition Promotion and Publicity Subcommittee* - UM BWMC is proud to support the Coalition's communication efforts and publicize the work of the Coalition so that it can have a greater impact on the lives of County residents.

8. *Member and Former Chair, Anne Arundel County Conquer Cancer Advisory Council* - UM BWMC has provided leadership for this planning group to reduce cancer-related morbidity and mortality and to implement strategies to reduce or eliminate cancer-related health disparities in Anne Arundel County.

IV. Community Recognition of UM BWMC / UMMS

A. <u>Cardiovascular-Related News Stories</u>

UM BWMC's professionals are frequent contributors to news articles covering a wide variety of health concerns, including cardiovascular health. Earlier this month, for example,

several UM BWMC professionals, together with other health care professionals, walked journalist Wendi Winters through the steps of a heart attack and treatment at UM BWMC. The experience included simulating a 9-1-1 call to relay the symptoms of a heart attack, a visit by paramedics, a visit to the UM BWMC Emergency Department, and a walk through of a catheterization procedure with Dr. Samuel Yoon in the UM BWMC cath lab. *See* Exhibit 30.

The table below contains examples of articles published in the past two years related to cardiovascular health, to which one or more member of the UM BWMC community has contributed. The table also contains selected articles to which UM SOM and/or UMMC professional contributed.

Table 13
Cardiovascular Health Articles Involving UM BWMC Community

UMMS Entity	Name of Article	Published by
UM BWMC	UM BWMC Will Celebrate Heart Month Throughout February	Severna Park Voice
UM BWMC	What Happens When You Have a Heart Attack? Inside a Fast Ride to a Life-Saving Procedure	Capital Gazette
UM BWMC	Health Talk—Here's Some Benefits of Practicing Healthy Habits	Maryland Gazette
UM BWMC	Putting Our Heart into Taking Care of Yours	Severna Park Voice
UM BWMC	Health Talk—The Link Between Obesity and Diabetes	Capital Gazette
UM BWMC	UM BWMC Physicians Named to Baltimore Magazine's 2014 Top Docs	Baltimore Magazine
UM BWMC	West County: Robots Raid the Mall During Family STEM Night	Capital Gazette
UM BWMC	Cholesterol: What's Good and Bad?	Capital Gazette
UM BWMC	Staying Healthy: How to Feel Young at Any Age	Capital Gazette
UM BWMC	UM BWMC Opens New Farmers Market in Severn	Capital Gazette
UM BWMC	Pasadena: Local Woman Named Nurse of the Year	Capital Gazette
UM BWMC	Health Talk—Top 10 Reasons to Get a Good Night's Sleep	Capital Gazette
UM BWMC	Kids Need Testing for High Cholesterol Too	Chesapeake Family
UM BWMC	Battling an Obesity Epidemic: BWMC Programs Help Residents Lose Weight	Capital Gazette
UM BWMC	Health Talk—How Exercise Benefits Your Heart	Capital Gazette
UM BWMC	Pasadena Heart Attack Survivor: "Don't be stupid. Call 911"	Capital Gazette
UM BWMC	Dancing—A Fun Way to Help Your Heart	Capital Gazette
UM BWMC	UM BWMC To Host Ninth-Annual Heartbeat For Health On Feb. 15	Severna Park Voice
UM BWMC	Health Talk—Know the Signs of Vascular Disease	Capital Gazette
UM BWMC	Health Talk—Healthy and Easy Resolutions for the New Year	Capital Gazette
UM BWMC	Health Talk—Ways to Avoid Holiday Weight Gain	Capital Gazette
UM BWMC	Health Talk—The Facts About Lung Cancer	Capital Gazette
UM BWMC	Health Talk—Trans Fat and Cholesterol—What Can I Eat?	Capital Gazette
UM BWMC	The Beat Goes On For Heart Health	Capital Gazette
UM BWMC	Health Talk—Ladies: Learn, Lower and Listen	Capital Gazette
UM BWMC	Health Talk—Know the Signs of a Heart Attack	Capital Gazette

UMMS Entity	Name of Article	Published by
UM BWMC	Health Talk—Your Most Important New Year's Resolution	Capital Gazette
UM BWMC	Cardiovascular Update: More Tailored Treatments	Maryland Physician Magazine
UMMC	Lower stress to protect your health, expert says	The Baltimore Sun
UMSOM	UM Ventures' First Equity Investment Could Change Open Heart Surgery	Technical.ly Baltimore
UMSOM	Skin Cells Can Be Engineered into Pulmonary Valves for Pediatric Patients	Newswise: The Society of Thoracic Surgeons
UMSOM	In Single Gene, A Path to Fight Heart Attacks	New York Times
UMSOM	Safety of Computed Tomography in Patients With Cardiac Rhythm Management Devices	Journal of the American College of Cardiology
UMMC/UMSOM	Teen Gymnast Competing Again After Heart Surgery	Cecil Daily
UMMC	Surgeon Brings Less-Invasive Technique to Implanting Heart Pump to UM	The Baltimore Sun
UMMC/UMSOM	Heart Pump with Behind-the-Ear Power Connector	Science Daily; Tech Briefs
UMMC	Death of One Teen Brings New Life to Classmate	WJZ

B. UM BWMC Awards & Recognition

UM BWMC has been recognized for its commitment to quality health and medical care in its community on many occasions. A sample of such recognition is below.

June 2014: Delmarva Foundation for Medical Care, the Medicare Quality Improvement Organization for Maryland, awarded the **2014 Delmarva Foundation Excellence Award for Quality Improvement** to UM BWMC. The award honors individual hospitals that excel in patient safety and quality improvement. To receive the Delmarva Foundation Excellence Award, the hospital must meet specific performance improvement criteria on 18 measures in four national inpatient clinical areas: immunization, heart failure, surgical care improvement and pneumonia.

May 2014: UM BWMC received the **Mission: Lifeline® Gold Receiving Quality Achievement Award** for implementing specific quality improvement measures outlined by the American Heart Association for the treatment of patients who suffer severe heart attacks. In order to receive the Gold award level, organizations must meet specific criteria for at least two consecutive calendar years. The American Heart Association's Mission: Lifeline program helps hospitals, emergency medical services and communities improve response times so people who suffer from a STEMI receive prompt, appropriate treatment. The program's goal is to streamline systems of care to quickly get heart attack patients from the first 9-1-1 call to hospital treatment.

April 2014: UM BWMC was recognized by the Maryland Patient Safety Center (MPSC) for achieving **"Top Performer"** status for the first quarter of 2014. Top performers score at least 90 percent overall hand hygiene compliance for three consecutive months. UM BWMC was among a select few of the more than 40 hospitals in the state to receive this status, the goal of which is to enhance the prevention of healthcare-associated infections in Maryland hospitals.

July 2013: The Aiello Breast Center at UM BWMC was recognized with HealthStream's **"Excellence Through Insight" Award** in overall clinic satisfaction, medical, for its commitment to excellence in patient care. To qualify, a clinic must consistently score in the 75th percentile or higher and show that it exceeds industry standards. The Aiello Breast Center received the highest ratings in medical clinic satisfaction from among HealthStream's clients - and to be exact, the center is consistently in the 99th percentile.

May 2013: The American Heart Association and American Stroke Association recognized UM BWMC with the **Get With The Guidelines Silver Performance Award** for having reached an aggressive goal of treating stroke patients with 85% or higher compliance to core standard levels of care as outlined by the AHA/ASA for 12 consecutive months (July 2011 through June of 2012).

August 2012: UM BWMC received the **American College of Cardiology Foundation's NCDR ACTION Registry–GWTG Platinum Performance Achievement Award for 2012** – one of only 164 hospitals nationwide to do so. The award recognizes UM BWMC's commitment and success in implementing a higher standard of care for heart attack patients, and signifies that the medical has reached an aggressive goal of treating these patients to standard levels of care as outlined by the American College of Cardiology/American Heart Association clinical guidelines and recommendations.

July 2012: Delmarva Foundation for Medical Care, the Medicare Quality Improvement Organization for Maryland, awarded the **2012 Delmarva Foundation Excellence Award for Quality Improvement** to UM BWMC. The award honors individual hospitals that excel in patient safety and quality improvement. To receive the Delmarva Foundation Excellence Award, the hospital must meet specific performance improvement criteria on 18 measures in four national inpatient clinical areas: acute myocardial infarction (heart attack), heart failure, surgical care improvement and pneumonia.

July 2009: U.S. News & World Report ranked UM BWMC as one of **America's Best Hospitals** in the country for neurology/neurosurgery (43rd) and digestive disorders (43rd). UM BWMC was one of 174 hospitals that scored high enough to be ranked in 16 specialties. The rankings are based on reputation, death rate, patient safety, and care-related factors such as nursing and patient services. Only the 50 highest hospitals were ranked in each category.

April 2009: The Aiello Breast Center at UM BWMC received national accreditation by the National Accreditation Program for Breast Centers (NAPBC). The NAPBC, administered by the American College of Surgeons, is a consortium of national, professional organizations dedicated to improving the quality of care and monitoring of outcomes of patients with breast diseases. It began surveying breast programs for accreditation in September 2008. Also, the American College of Surgeons Commission on Cancer recently reapproved UM BWMC as a "Community Hospital Comprehensive Cancer Program." The approval, which lasts for three years, signifies the medical center has met or exceeded a standard set of requirements for multidisciplinary and quality cancer care.

February 2009: HealthGrades, an independent health care rating organization, ranked UM BWMC in the top 5% of hospitals nationwide for clinical quality in a recent national study. The organization named UM BWMC a **"2009 Distinguished Hospital for Clinical Excellence"**

after the study reviewed hospitals' overall performance. UM BWMC was one of 270 community hospitals out of the 4,919 nationwide to receive the honor.

November 2008: The American College of Cardiology Foundation awarded UM BWMC with the **NCDR ACTION Registry-GWTG Silver Performance Achievement Award for 2008**. UM BWMC was one of only 93 hospitals nationwide and four in Maryland to receive the honor. The award recognizes UM BWMC's commitment and success in implementing a higher standard of care for heart attack patients. It also signifies that UM BWMC has reached an aggressive goal of treating coronary artery disease patients with 85% compliance to core standard levels of care outlined by the American College of Cardiology/American Heart Association.

June 2007: The BWI Partnership, Inc. named UM BWMC the **2007 Employer of the Year** for its award-winning contributions as a comprehensive health care provider and for its expanding presence throughout the Baltimore-Washington area.

May 2007: The Maryland Institute for Emergency Services Systems designated UM BWMC as a Primary Stroke Center, allowing the medical center to provide life-saving treatment to patients who may have suffered a stroke.

March 2007: UM BWMC was named one of the nation's **100 Top Hospitals** by Thomson Reuters, a leading provider of information and solutions to improve the cost and quality of healthcare. UM BWMC was the only hospital in Maryland and the District of Columbia to receive this award. The award recognizes hospitals that have achieved excellence in clinical outcomes, patient safety, financial performance, efficiency and growth on patient volume.

November 2006: UM BWMC ranked in the top 16% of 200 hospitals nationwide for its quality of care in five areas: pneumonia, total hip replacement, ischemic stroke, heart failure and medically managed myocardial infarction/heart attack. The ranking allowed UM BWMC to receive the **"CareScience Select Practice Customer Quality Leaders Award"** - a quality award given by CareScience to member hospitals with outstanding care.

(c) An applicant with an established record of cardiovascular disease prevention and early diagnosis programming, with particular outreach to minority and indigent patients in the hospital's regional service area.

UM BMWC's mission is to provide the highest quality health care services to the communities it serves. Recognizing that the role of a hospital extends beyond the physical walls, UM BWMC strengthens communities and provides for a better future through community outreach and health education and promotion, particularly among high-risk populations and for health conditions with a prevalence among the populations that served by UM BWMC. The information provided above regarding UM BWMC's outreach programs and partnerships demonstrates UM BWMC's commitment to responding to documented community needs related to cardiovascular disease among minority and other disadvantaged populations. Additional information about UM BWMC's diverse service area and efforts to support it is provided below.

I. DEMOGRAPHICS OF UM BWMC SERVICE AREA COMMUNITY

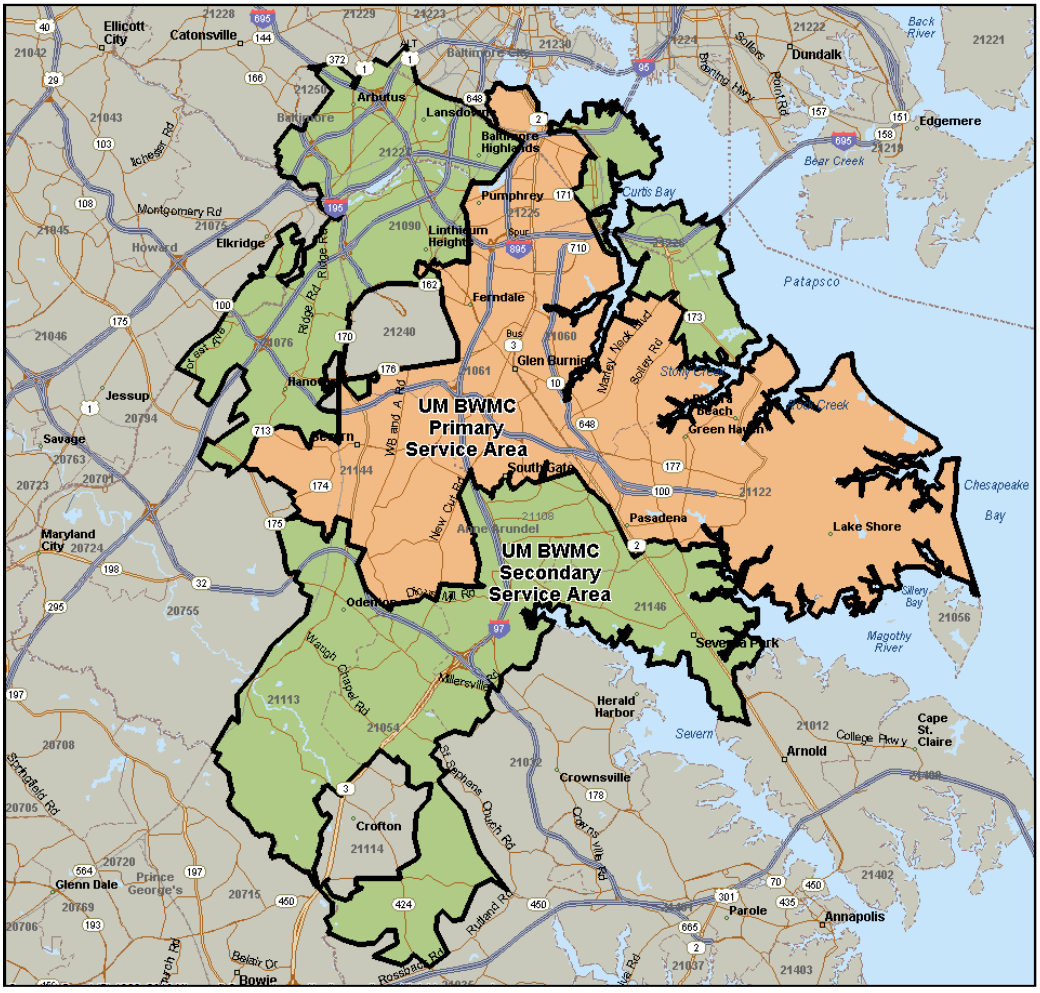
A. Minority Profile

Anne Arundel County is home to 554,426 residents. The County's population is diverse, and has the following racial mix: Whites (73.72%), Blacks (15.19%), Asians (3.49%), and other races (5.80%). The Hispanic (any race) population comprises 6.29% of the County's total population. The County's demographic profile is not spread uniformly across the County. Some areas have higher numbers and percentages of minority residents.

UMBWMC's primary service area, located in the County's northern region, has a disproportionately high minority population compared to the County's overall demographics.

Figure 4 below shows the primary and secondary service areas for UM BWMC.

Figure 4
UM BWMC's Primary and Secondary Service Areas



The table below demonstrates the County's race/ethnicity demographics in UM BWMC's service area.

Table 14
Race and Ethnicity Status by Zip Code, UM BWMC Primary and Secondary Service Areas in Anne Arundel County, 2013
(Highlighted Cells are Above the County Average)

Service Area	Zip Code	City Name	Total	White	Black	Asian	Other Race(s)	Hispanic (any race)
Primary	21060	Glen Burnie (East)	29,233	21,541	5,085	835	1,772	2,742
				73.69%	17.39%	2.86%	6.06%	9.38%
Primary	21061	Glen Burnie (West)	53,491	33,111	12,526	2,766	5,088	5,062
				61.90%	23.42%	5.17%	9.51%	9.46%
Primary	21122	Pasadena	60,968	54,394	3,497	906	2,171	1,880
				89.22%	5.74%	1.49%	3.56%	3.08%
Primary	21144	Severn	32,328	17,403	10,904	1,687	2,334	2,397
				53.83%	33.73%	5.22%	7.22%	7.41%
Primary	21225*	Brooklyn	34,315	15,043	15,346	1,056	2,870	2,128
				43.84%	44.72%	3.08%	8.36%	6.20%
Primary Subtotal			210,335	141,492	47,358	7,250	14,235	14,209
				67.27%	22.52%	3.45%	6.77%	6.75%
Secondary	21054	Gambrills	9,589	7,588	700	811	490	194
				79.13%	7.30%	8.46%	5.11%	2.02%
Secondary	21076*	Hanover	13,745	7,456	3,681	2,024	584	512
				54.25%	26.78%	14.73%	4.25%	3.72%
Secondary	21090	Linthicum Heights	9,986	9,015	664	171	136	120
				90.28%	6.65%	1.71%	1.36%	1.20%
Secondary	21108	Millersville	17,890	14,261	1,734	718	1,177	720
				79.71%	9.69%	4.01%	6.58%	4.02%
Secondary	21113	Odenton	31,219	18,916	8,366	1,722	2,215	496
				60.59%	26.80%	5.52%	7.10%	1.59%
Secondary	21146	Severna Park	26,703	24,031	991	1,121	560	334
				89.99%	3.71%	4.20%	2.10%	1.25%
Secondary	21226*	Curtis Bay	7,749	6, 002	1,269	68	410	205
				77.46%	16.38%	0.88%	5.29%	2.65%
Secondary Subtotal			116,881	87,269	17,405	6,635	5,572	2,581
				74.66%	14.89%	5.68%	4.77%	2.21%
Primary and Secondary Total			327,216	228,761	64,763	13,885	19,807	16,790
				69.91%	19.79%	4.25%	6.05%	5.13%
ANNE ARUNDEL COUNTY			554,426	408,715	84,230	19,326	32,155	34,854
				73.72%	**15.19%**	**3.49%**	**5.80%**	**6.29%**

*Zip codes shared with another County; data presented is for the entire zip code.
Shaded cells highlight where the measure exceeds the county-wide average.
Source: 2009-2013 American Community Survey 5-Year Estimates

Minority populations are more likely to experience disproportionate burden of preventable disease, death, and disability compared with non-minorities.[15] Minorities are also more likely to be disproportionately affected by the social determinants of health, including education attainment, income, and housing.[16] Cultural considerations need to be taken into account when developing and implementing health education and outreach strategies for minority populations. For example, programs are planned in collaboration with churches with African American, Latino, and Asian congregations and community centers with a large number of minority participants. Health promotion and outreach materials, educational videos and publications, marketing materials, social media postings and other materials reflect the diversity of UM BWMC's service area. UM BWMC staff members have long standing relationships in the minority communities where they collaborate. UM BWMC has many partnerships and activities to reduce health disparities for cardiovascular disease, diabetes, obesity, infant mortality, and other health conditions.

B. Economic Profile

Poverty and other indicators that represent social determinants of health are not distributed uniformly throughout Anne Arundel County. Of the five zip codes located in UM BWMC's primary service area, all but one has a higher percentage of poverty than the County as a whole. In the Brooklyn zip code (shared with Baltimore City and entirely in the UM BWMC primary service area), the poverty rate is more than four times greater than in Anne Arundel County as a whole. Poverty correlates with racial/ethnic minority status, lower educational attainment, substandard housing, less protective and more risk risky health behaviors, and poorer health outcomes.[17]

The following tables depict the disproportionate impact these factors have in the UM BWMC service area. As described below, UM BWMC has extensive experience in developing programming that is sensitive to the unique needs of low-income and disadvantaged populations.

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15 www.cdc.gov/minorityhealth; Accessed 12/22/14.

16 US Department of Health and Human Services, "National Partnership for Action to End Health Disparities," www.minorityhealth.hhs.gov/npa. See also AACOCHNA Secondary Data Profile 2012.

17 North Carolina Institute of Medicine, *Prevention for the Health of North Carolina: Prevention Action Plan, 2009*, www.nciom.org/wp-content/uploads/NCIOM/projects/prevention/finalreport/Prevention-Chpt11.pdf.

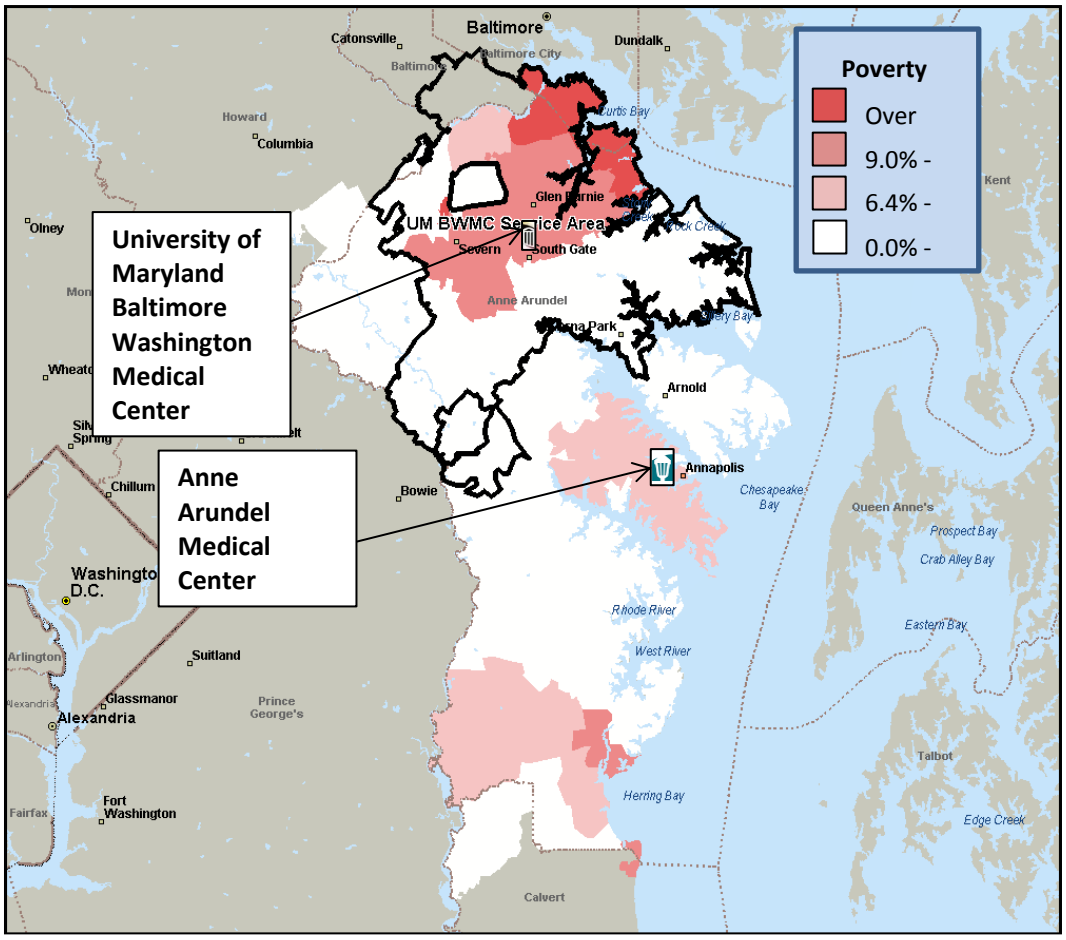
Table 15
Estimated Poverty Rates in the past 12 months, UM BWMC Primary and Secondary Service Areas in Anne Arundel County, 2013
(Highlighted Cells are Above the County Average)

Service Area	Zip Code	City Name	% Below Poverty Level
Primary	21060	Glen Burnie (East)	11.20%
Primary	21061	Glen Burnie (West)	10.80%
Primary	21122	Pasadena	5.70%
Primary	21144	Severn	9.20%
Primary	21225*	Brooklyn	26.50%
Primary Subtotal			11.69%
Secondary	21054	Gambrills	4.30%
Secondary	21076*	Hanover	3.90%
Secondary	21090	Linthicum Heights	8.00%
Secondary	21108	Millersville	3.40%
Secondary	21113	Odenton	4.50%
Secondary	21146	Severna Park	2.40%
Secondary	21226*	Curtis Bay	16.50%
Secondary Subtotal			4.86%
Primary and Secondary Total			9.25%
ANNE ARUNDEL COUNTY			**6.30%**

*Zip codes shared with another County; data presented is for the entire zip code.
Shaded cells highlight where the measure exceeds the county-wide average.
Source: Anne Arundel County Community Health Needs Assessment, Healthy Anne Arundel Coalition, October 2012; original data from 2007-2011 American Community Survey 5-Year Estimates, Poverty Status in the past 12 months.

The map below depicts the relative poverty rates within Anne Arundel County.

Figure 5
Map of Relative Poverty Rates in Anne Arundel County



C. Insurance Profile

Medicaid enrollment rates are also significantly higher in UM BWMC's service area when compared to Anne Arundel County as whole. Medicaid enrollment is associated with poverty, which correlates with racial/ethnic minority status, lower educational attainment, lower quality housing and poorer health behaviors and outcomes, as previously discussed.

Table 16
Medicaid Enrollment Rates per 1,000 population by Zip Code,
UM BWMC Primary and Secondary Service Areas in Anne Arundel County, 2011
(Highlighted Cells are Above the County Average)

Service Area	Zip Code	City Name	Medicaid Enrollment Rate
Primary	21060	Glen Burnie (East)	176.81
Primary	21061	Glen Burnie (West)	177.94
Primary	21122	Pasadena	83.28
Primary	21144	Severn	121.45
Primary	21225*	Brooklyn	408.58
Primary Subtotal			179.29
Secondary	21054	Gambrills	41.51
Secondary	21076*	Hanover	84.38
Secondary	21090	Linthicum Heights	71.66
Secondary	21108	Millersville	58.78
Secondary	21113	Odenton	65.06
Secondary	21146	Severna Park	37.05
Secondary	21226*	Curtis Bay	408.58
Secondary Subtotal			81.38
Primary and Secondary Total			144.32
ANNE ARUNDEL COUNTY AVERAGE**			**84.58**

*Zip codes shared with other Counties; data presented is for the entire zip code.
** County Average rate calculated by averaging the rates of all zip codes with the exception of four zip codes where rates could not be calculated due to a small sample size.
Shaded cells highlight where the measure exceeds the county-wide average.
Source: Anne Arundel County Community Health Needs Assessment, Healthy Anne Arundel Coalition, October 2012; original data from Maryland Health Enterprise Zone, Maryland Department of Health and Mental Hygiene.

Lack of health insurance is correlated with poverty, employment status, and educational attainment – all factors that affect health behaviors and health status. Historically, UM BWMC's service area has had higher percentages of people without health insurance as compared to Anne Arundel County as a whole. It is possible that this data may shift with the implementation of health care reform under the Affordable Care Act, beginning in 2014.

Table 17
Estimated Population without Health Insurance by Zip Code,
UM BWMC Primary and Secondary Service Areas in Anne Arundel County, 2012
(Highlighted Cells are Above the County Average)

Service Area	Zip Code	City Name	Percentage of Uninsured
Primary	21060	Glen Burnie (East)	12.50%
Primary	21061	Glen Burnie (West)	13.80%
Primary	21122	Pasadena	7.20%
Primary	21144	Severn	9.30%
Primary	21225*	Brooklyn	14.40%
Primary Subtotal			11.11%
Secondary	21054	Gambrills	3.10%
Secondary	21076*	Hanover	4.40%
Secondary	21090	Linthicum Heights	6.90%
Secondary	21108	Millersville	5.40%
Secondary	21113	Odenton	5.00%
Secondary	21146	Severna Park	3.30%
Secondary	21226*	Curtis Bay	14.00%
Secondary Subtotal			5.21%
Primary and Secondary Total			9.00%
ANNE ARUNDEL COUNTY AVERAGE**			**8.00%**

* Zip code shared with other Counties; data and rates are for Anne Arundel County only.
Shaded cells highlight where the measure exceeds the county-wide average.
** County Average rate calculated by averaging the rates of all zip codes with the exception of four zip codes where rates could not be calculated due to a small sample size.
Shaded cells highlight where the measure exceeds the county-wide average.
Source: Anne Arundel County Health Data by Councilmanic Districts and Zip Codes, Anne Arundel County Department of Health, May 2014; original data from 2008-2012 American Community Survey 5-Year Estimates

II. UM BWMC OUTREACH TO MINORITY AND INDIGENT PATIENTS

As the data above demonstrates, UM BWMC's service area has disproportionate minority, low-income and uninsured populations as compared to the rest of Anne Arundel County. Residents of these areas are more likely to be negatively impacted by the social determinants of health, including health care access, education, income, housing and community supports. UM BWMC has an extensive history of working within these communities to provide outreach, health education and promotion, clinical services, and other community investments to improve health status.

A. Past and Current Outreach Efforts

1. Affordability and Access Outreach Efforts

UM BWMC recognizes that paying health care costs is a challenge for many of the people it serves and limits their treatment options. In assessing barriers to accessing health care, CHNA key informants identified the inability to pay for out-of-pocket expenses, inability to navigate the health care system, availability of providers/appointments, and time limitations and language/culture as significant barriers. CHNA key informants also identified resources most needed to improve the County's health and well-being. Services for Awareness/Education/ Prevention/Outreach were identified as the most significant need, followed by Affordable Health Insurance & Health Care Services.

a. Financial Assistance

UM BWMC provides financial assistance to eligible patients and their families. UM BWMC's Financial Assistance Policy ("FAP," attached as Exhibit 16) assists patients in obtaining financial aid when paying for services is beyond their ability to pay. UM BWMC informs patients and responsible parties who would otherwise be billed for services about their eligibility for assistance under federal, state or local government programs or under the hospital's FAP. Data from the most recent HSCRC Community Benefit Report, posted on the HSCRC website, demonstrates the level of charity care provided by UM BWMC is in the first quartile of all Maryland hospitals, with UM BWMC spending $25,709,288 (7.05% of total operating expense) on charity care in fiscal year 2013. Additional information about UM BWMC's FAP is set forth in response to the Acute Hospital Services standard for charity care policies, COMAR 10.24.10.04A(2).

b. Primary Care Services

To increase access to affordable preventive health care services, UM BWMC has an established network of community-based primary care providers located in local communities. UM BWMC is proud to offer primary care services where there is a documented need – in Glen Burnie (one location) and Pasadena (two locations). UM BWMC also offers primary care services in Millersville and Hanover (in close proximity to the Severn area). UM BWMC is actively striving to increase the number of primary care providers in its networks to increase access to timely and convenient care.

c. Residents Access to a Coalition of Health (REACH)

In order to increase treatment options for uninsured residents, UM BWMC is a proud member of the REACH (Residents Access to a Coalition of Health) Program. In response to the growing number of uninsured adults in Anne Arundel County, the Anne Arundel County Department of Health and the Anne Arundel County Medical Society have partnered with community doctors and other health care providers to offer low-cost health care services through the REACH Program. The program is available for County residents between the ages of 19 and 64 who applied for insurance through the Maryland Health Connection, who were denied coverage, and who were unable to qualify for state and federal insurance plans. Residents who qualify for the REACH Program are able to obtain low cost doctor visits, check-ups, prescription medicines, lab work and tests, radiology services, and dental services. The Anne Arundel County Department of Health provides a case manager to assist residents in

obtaining care. UM BWMC is pleased to offer health care options on a sliding-scale basis to uninsured Anne Arundel County residents.

d. Chase Brexton Health Services Partnership

UM BWMC partners with Chase Brexton Health Services, a Federally Qualified Health Center (FQHC) to help reach and meet the health needs of minority and underserved populations.[18] Although Chase Brexton only recently became a health care partner in Anne Arundel County, it has a long and proven history of providing compassionate quality health care that honors diversity, inspires wellness, and improves communities.

Chase Brexton recently opened an outpatient clinic on Hospital Drive, directly across the street from UM BWMC. Meetings have begun between the leadership (administrative and clinical) of Chase Brexton and UM BWMC to determine how best to collaborate in responding to community healthcare needs. These partners specifically discussed programs related to opiod abuse, ED utilization and obstetrical care. Currently, UM BWMC works closely with Chase Brexton to reach out to pregnant, underserved women in Anne Arundel County. UM BWMC provides labor and delivery coverage for Chase Brexton patients who deliver at UM BWMC through its 24/7 Laborist service. This has developed into a seamless referral system for Chase Brexton pregnant patients into UM BWMC's Stork's Nest program; a program that educates area women on the importance of prenatal care, adopting healthy habits during pregnancy and safe sleep practices for infants and toddlers.

e. Collaboration with Anne Arundel County

UM BWMC was an active member of the Anne Arundel County planning group to implement the State of Maryland Department of Health and Mental Hygiene's proposed State Innovation Model Community Integrated Medical Home initiative. Although the State of Maryland was not awarded implementation grant funding from the Centers of Medicare and Medicaid Services, the local partners, including UM BWMC are committed to moving forward with aspects of this project. Anne Arundel County's planning team seeks to prevent hospital admissions, particularly among high-utilizing (three or more admissions within one year) Medicare and Medial dual-eligible individuals.

2. Minority and Low-Income Outreach Efforts

Many of the UM BWMC outreach services and programs previously discussed have had a substantial impact in Anne Arundel County.

a. Stork's Nest

UM BWMC implemented its Stork's Nest program in partnership with the Anne Arundel County Department of Health, the Zeta Phi Beta Sorority, a historically-black sorority, and the March of Dimes. The program is a culturally sensitive, incentive-based prenatal education

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[18] Prior to Chase Brexton providing services in Anne Arundel County, UM BWMC had a long-standing partnership with Peoples' Community Health Centers, Inc., a previous Anne Arundel County-based FQHC.

program for at-risk pregnant women that targets the low-income, Black, Hispanic and teenage populations.

b. Healthy Babies Initiative

UM BWMC was also a key partner in the countywide Healthy Babies Initiative to reduce infant mortality, particularly related to unsafe sleep practices. In 2008, UM BWMC funded nearly $19,000 worth of safe sleep educational materials and advertisements as part of Anne Arundel County's Healthy babies initiative. Between 2006 (when UM BWMC opened its Stork's Nest program and helped to fund the County's Healthy Babies Initiative) and 2013, infant mortality has declined in Anne Arundel County from 7.7 per thousand live births to 5.6, a decrease of 27.3%. (7.7-5.6=2.1; 2.1/7.7=0.2727) This improvement compares favorably to the statewide decline from 7.9 to 6.6, a decline of 16.5%. (7.9-6.6=1.3; 1.3/7.9=0.1646) Among African American residents in Anne Arundel County, the decline was even greater, from 21.4 to 10.5, a decline of 50.9%. (21.4-10.5=10.9; 10.9/21.4=0.5093) Again, the improvement compares favorably to the statewide decline of 17.3% for African American residents. (12.7-10.5=2.2; 2.2/12.7=0.1732)[19] UM BWMC is proud of its contribution to the improvement in infant mortality rates in the county and believes that its outreach programs are significant factors.

c. Healthy Anne Arundel Coalition

The Healthy Anne Arundel Coalition works to reduce health disparities. UM BWMC holds several leadership positions within the Coalition and is a member of the Community Engagement Subcommittee. This Subcommittee is specifically focused on engaging minority and disadvantaged communities in health-related initiatives.

The Coalition also serves as the planning body for most County-wide health initiatives, many of which target health disparities among minority and low-income populations. In addition to the Coalition's many standing subcommittees, UM BWMC has been an active participant on many ad hoc committees centered on health-disparities issues. Recent examples include:

- Reducing hospital admissions, readmissions, emergency department visits and other presentably avoidable utilization
- Improving access to behavioral health care, particularly related to co-occurring mental health and substance abuse disorders
- Creating healthier communities through changes in policy and the built environment

d. Chronic Disease Self-Management Classes

UM BWMC has partnered with the Anne Arundel County Department of Aging and Disabilities to offer chronic disease self-management classes, related to diabetes, high blood

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19 Maryland Vital Statistics Annual Reports, 2006 and 2013, Maryland Department of Health and Mental Hygiene, Vital Statistics Administration, available at http://dhmh.maryland.gov/vsa/sitepages/reports.aspx.

pressure, high cholesterol and other conditions. These classes are available to all adults with a chronic condition; however, a special emphasis is placed on engaging low-income and minority individuals in these classes since research demonstrates that they are more likely to be afflicted by these types of illness.

e. Farmers Market to Promote Healthy Eating

UM BWMC hosts farmers markets at two County locations (UM BWMC and Van Bokkelen Elementary School in Severn) that offer a variety of mechanisms to allow people to purchase fresh, healthy food at a lower cost. Electronic Benefit Transfer (EBT), WIC Fruit & Vegetable Checks (FVC), and Farmers' Market Nutrition Program (FMNP) are accepted to ensure easy access to recipients of these supplemental programs. This

To stimulate supplemental nutrition assistance program (SNAP) spending at the Van Bokkelen Farmers Market, UM BWMC applied for and received a grant to offer a Market Match program. The Market Match program provided SNAP recipients up to $15 weekly in matching funds. For example, if a SNAP beneficiary spent $12 worth of SNAP benefits on produce at the market, he/she received $12 in tokens to spend at the market to purchase additional vegetables, fruit, poultry, meat or dairy products.

The community surrounding Bokkelen Elementary school is in need of this service. The Severn area (21144) is home to a 46% minority population with 9.2% of the population estimated to be living in poverty. Additionally, at Van Bokkelen Elementary School, 96.8% of the student population is minority and 85.5% qualifies for a free or reduced price lunch.[20]

f. Faith-Based Outreach

UM BWMC partners with a number of minority churches. For example, UM BWMC is an active participant at the annual participant at Hispanic Health Festival at Heritage Community Church in Severn. UM BWMC offers health information, incentive items and screenings to the Hispanic community.

UM BWMC has also partnered with several African American churches, Wilson Memorial Church in Gambrills, Kingdom Builders Church in Hanover, and St. Mark's Methodist Church in Glen Burnie, to offer vascular screenings to the congregations.

g. Breast Health

UM BWMC was an active participant in the annual Girls Night Out breast cancer awareness events hosted by the Anne Arundel County Department of Health. Events were held targeted toward general outreach, African American Outreach and Korean outreach. Due to loss of grant funding this event is no longer offered.

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[20] National Center for Education Statistics, CCD Public school data 2012-201

h. Health Education

UM BWMC participates in numerous health fairs and other community events, including many in disadvantaged communities. In addition UM BWMC participates in Anne Arundel County's Homeless Resource Day to provide health education, screenings, referrals and other services to the county's most vulnerable residents.

UM BWMC is pleased to provide health education materials to organizations upon request. It has provided materials to minority organizations such as the Coalition of 100 Black Women, Asbury Town Neck Church, and others.

i. School Partnerships

UM BWMC is proud to partner with Anne Arundel County Public Schools. At Van Bokkelen Elementary School in Severn, UM BWMC hosts a Farmers Market (as discussed above), provides flu shots, and participates in the Back to School Bash, proving health tips and resources to promote learning. At Hebron Harman Elementary School, where 77.4% of the student population is minority and 46.3% qualifies for a free or reduced price lunch,[21] UM BWMC participates in the "Read for the Record" and serves as science fair judges. UM BWMC has offered a Mom's Morning Out healthy cooking program at the Judy Center at Hilltop Elementary. The Judy Center provides a central location for early childhood education and support services for children birth through Kindergarten and their families who reside in specific Title I school districts across the State of Maryland.

III. Plans to Enhance Outreach Efforts for Underserved Population

If UM BWMC is approved for a cardiac surgery program, it will expand its cardiovascular outreach services to other parts of the expected Cardiac Surgery Service Area, relying on its partnerships as well as the strength and reach of the UMMS network.

As part of UMMS, UM BWMC effectively collaborates with other UMMS hospitals to share and combine resources to ensure a broader reach in the community. UM BWMC recognizes its responsibility to reach underserved populations and increase access to needed health care services. A great example of this is UM BWMC's partnership with UM Shore Regional Health (UM SRH) to offer community vascular screenings in several communities in Queen Anne's, Talbot, and Kent Counties. Through this partnership, 187 individuals were screened for vascular disease and 30 of whom were determined to have abnormal results. This represents an abnormal screening rate of 16%. Individuals with abnormal results can receive additional care through the Easton vascular clinic held by The Maryland Vascular Center at UM BWMC, with vascular surgeries being performed at UM BWMC as needed. Patients may also choose to receive follow-up care by another provider of their own choosing.

Other programs and partnerships that will be expanded to Maryland's Easter Shore region, many of which are described in more detail above under standard 8(b), section II.C., include:

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[21] National Center for Education Statistics, CCD Public school data 2012-201.

- **HeartAware,** a free screening tool for early detection of heart disease;

- **Engage with an Expert**, "Food and Fitness: The Recipe for a Healthy Heart." Exercise physiologists and certified diabetes educators provide practical tips for physical activity and healthy eating to ensure a healthy heart for life;

- **Heartbeat for Health 2015,** celebrating the benefits of dance and exercise in the prevention of heart disease;

- **The Weight of the Nation,** a four-part educational series that will be offered in partnership with UM Shore Regional Health in disadvantaged communities;

- **Color My Heart 5K Fun Run**, is hosting the first ever color run in Anne Arundel County on Saturday, May 30, 2015, hosted by UM BWMC.

In addition, UM BWMC will be able to expand the services it currently coordinates with Chase Brexton. Chase Brexton serves patients throughout Maryland, with locations in Central Maryland (Glen Burnie, Columbia and multiple Baltimore-area locations) and the Eastern Shore (Easton). Chase Brexton's service area aligns with the UM BWMC's cardiac surgery service area, and the current partnership will help facilitate access to needed cardiac care for Chase Brexton's patients.

Additional collaboration will be needed to increase access to specialized health care services on Maryland's Eastern Shore, and partnerships will be necessary to accomplish the ultimate goal of population health management and the promotion of the overall health of a given population or community while reducing health disparities. UM BWMC will be able to leverage its membership in the University of Maryland Medical System to combine resources to offer additional vascular, cardiovascular, and other health outreach, education, screening and treatment services to individuals across Maryland.

(d) An applicant whose cardiac surgery program includes a research, training, and education component that is designed to meet a local or national need and for which the applicant's circumstances offer special advantages.

Research, training, and education are essential components of UM BWMC's proposed cardiac surgery program.

A. <u>Education of Medical Residents and Fellows</u>

1. UM BWMC's Existing Medical Education Programs.

UM BWMC has a strong medical education component, currently offering clinical rotations for residents in vascular surgery, general surgery, urology, orthopedics, radiation oncology, emergency medicine, and family medicine. If the Commission approves this proposal, UM BWMC will offer clinical rotations for cardiac surgery as well. Since 2001,

UM BWMC has provided medical training experience for an estimated 250 residents, 23 fellows, and 130 medical students. Eight of the residents have been hired as physicians at UM BWMC.

Depending upon the clinical specialty, residents rotate between one month and six months. Residents are assigned to work and train with experienced teams of physicians in the applicable group.

UM BWMC has received strong positive feedback from its residents, medical students, and fellows.

2. The Medical Education Programs within the UM Division of Cardiac Surgery.

The UM Cardiac Surgery Division places great emphasis on the training and education of future cardiothoracic (CT) surgeons through residency and fellowship programs. The division was one of the first programs in the country to adopt an integrated six-year residency program for cardiothoracic surgeons, commonly referred to as I-6. Dr. Bartley Griffith, a professor of surgery at the UM SOM, helped shape the curriculum for residents and provided a training model that is considered the exemplar by other esteemed programs throughout the United States. Graduates of the program will be able to perform all cardiothoracic operations and interventional treatments. Each is expected to focus on a particular specialty in the last years of training. The pool of graduate will enrich the talent to be recruited into the University of Maryland's own and other regional cardiothoracic centers. UM BWMC would complement the existing training by exposing trainees to a full spectrum of community cardiothoracic procedures.

The I-6 program begins after medical school and provides a focused experience for cardiothoracic surgeons by quickly immersing them in their specialty where they immediately begin caring for CT patients. The objective of this novel training pathway is to provide residents with total immersion into the diagnosis and management of all aspects of cardiovascular and thoracic diseases through multi-disciplinary training. Residents benefit from training in a setting that supports clinical trials and administers surgical therapies using novel techniques and devices.

Education in the I-6 residency involves weekly journal club meetings to discuss publications regarding critical care, thoracic, congenital and adult cardiac care. Weekly conferences are led by faculty physicians from the UM SOM to evaluate CT cases.

I-6 residents are encouraged to participate in two years of research in a laboratory setting to increase their understanding of underlying causes of and treatments for cardiothoracic diseases. Resident research is also a critical component of UM SOM's commitment to advancing the science of medicine and improving patient outcomes. Resident research often takes place on the University of Maryland campus in either basic or clinical research in one of the many NIH-funded laboratories led by cardiothoracic surgeons.

The goals of residency research are to: (i) train the next generation of academic leaders in cardiothoracic surgery; (ii) provide training in clinical or basic research methods, depending upon a resident's area of interest; (ii) expose residents to research tools reflecting the leading edge of investigational methodology; and (iv) develop an interest in and motivation to conduct

clinical research of the highest quality. CT research should help distinguish residents as significant contributors to conversations surrounding state-of-the-art patient care.

Similarly, the primary goal of the Interventional Cardiovascular Fellowship at the University of Maryland is to prepare fellows for a career in academic cardiology. The emphasis is placed on research productivity and the acquisition of technical and cognitive skills. Fellows perfect coronary interventional procedures, including stenting, balloon angioplasty, and rotational atherectomy. Many procedures are performed in the setting of acute myocardial infarction and hemodynamic instability, and a full range of percutaneous ventricular assist devices are available, including many under clinical investigation. Training in structural heart disease is emphasized, including Patent Foramen Ovale and Atrial Septal Defect closure as well as balloon valvuloplasty. Training currently takes place at the UMMC and the UM SJMC, demonstrating a shared commitment to training future specialists to perform both within the community and academic settings.

The Office of Graduate Medical Education at the University of Maryland has long facilitated resident and fellow rotations at community and System hospitals, including UM BWMC and UM SJMC. Leadership understands the importance of providing a training experience for doctors within a community setting. For example, general surgery residents are required to complete a rotation in vascular surgery at UM BWMC, operating under the tutelage of local surgeons, many of whom hold appointments at the UM SOM. A solid training program for Interventional Cardiology is already thriving at UM SJMC. A similar set-up is proposed to grant CT and interventional cardiology residents and fellows a training experience in a community setting where they can support the UM BWMC cardiac staff and provide care for patients in need of treatments that are more commonly performed in non-academic medical centers. Such a program is currently in development for cardiac surgery training at UM SJMC through the joint Division of Cardiac Surgery.

B. Clinical Research

If the proposed project is approved, the cardiac surgery program at UM BWMC will be part of the UM Division of Cardiac Surgery and will participate in its ongoing clinical trials.

The University of Maryland Cardiovascular Medicine and Cardiac Surgery programs are steeped in basic science and clinical research, which are aimed at advancing medicine and improving patient outcomes. Investigational studies often require testing in community settings that better represent cardiac health of the general population. Both the cardiovascular medicine and cardiac surgery programs at UMMC offer, or currently provide, opportunities for collaboration with UM BWMC cardiac patients. Further collaboration would enable more patients at UM BWMC to benefit from the highly funded academic research from the University of Maryland cardiac specialties, including through participation in clinical trials designed to investigate medications, medical devices, surgical procedures, and investigational protocols.

1. Cardiovascular Medicine research

The Division of Cardiovascular Medicine has conducted multiple biomarker diagnostic protocols for acute cardiac presentations in the UM BWMC Emergency Department (“ED”) over the past six years. These include both multi-center and investigator initiated protocols. Collaboration with Emergency Department Director Joel Klein, M.D., and his staff has consistently resulted in high enrollment of the combined UM SOM / UM BWMC site in past and

ongoing studies. Currently, two University of Maryland coordinators staff the UM BWMC ED, actively enrolling patients into one study. Three additional studies are in process and review to ensure a long-term relationship between the two hospitals.

The FDA has specifically requested that cardiac biomarker diagnostic studies actively enroll in community hospitals, and UM BWMC fills this critical need. UM BWMC offers a balance in demographics to allow studies to test the diagnostic accuracy of a cardiac biomarker that is representative of the United States population as a whole. Results of past and ongoing studies conducted through this collaboration have resulted in the approval and preparation for approval of several novel diagnostic blood tests. These include new molecules as well as new point-of-care devices that improve the low-end accuracy of existing tests, and that can now be performed with similar accuracy at the bedside as on a large laboratory instrument. This is critical to bringing the same standard of care to community centers that is available at large tertiary institutions.

The collaborative spirit of the UM BWMC clinical staff has made each trial a success and has led to the long-term collaboration that has resulted in UMMS being one of the initial "go to" sites for most sponsors to conduct ED-based acute care biomarker research.

2. Cardiac Surgery research

The UM Division of Cardiac Surgery is the regional leader in clinical and pre-clinical cardiothoracic surgery research. The Division currently operates a Clinical Research Unit that coordinates a diverse, comprehensive portfolio of more than twenty industry funded and investigator initiated research protocols covering a wide spectrum of cardiothoracic surgical interventions and treatments.

The Clinical Research Unit currently has six clinical research coordinators, a team of research fellows, and is managed by a Clinical Research Manager. The Division has five faculty members (Drs. Griffith, Pierson, Kaushal, Strickland, and Azimzadeh) who are principal investigators on eight NIH-funded research awards, with $ 2.55 million in annual direct budgets in FY 2014.

The UM Division of Cardiac Surgery's Clinical Research Unit also is a robust enroller in a full portfolio of industry sponsored clinical research protocols over the entire surgical continuum, from open surgical valve options to percutaneous valve replacement and repair, to lung perfusion protocols to Left Ventricular Assist Device therapies.

It is the express goal of the UM Division of Cardiac Surgery to link industry sponsored and investigator initiated clinical research opportunities with all of the clinical sites that offer cardiac surgery services, including UM BWMC. *See* Exhibit 33, Dr. Reece letter. By doing so, the UM Division of Cardiac Surgery will afford patients the opportunity to become involved in industry sponsored and investigator initiated clinical research opportunities that they might otherwise not have access to, or which might be geographically desirable due to issues related to treatment location preference or other barriers to care.

Further details of the industry sponsored clinical research protocols currently available at the UMMC are as follows:

a. Structural Heart

- PARTNER (Edwards Life Sciences): The PARTNER Trial is the world's first randomized, controlled study to test the safety and effectiveness of trans catheter heart valves in patients with severe aortic stenosis. UMMC has been an enrolling site since 2011 and has participated in the P2 A/B, S3, S3i. Enrollment in the S3i Continue Access cohort will begin in spring 2015.

- SALUS (Direct Flow Medical): The UM Division of Cardiac Surgery started enrollment in Direct Flow Medical's SALUS Trial in January 2015. The SALUS Trial is a non-randomized, multi-center, core lab-adjudicated trial being conducted at up to thirty U.S. clinical sites and tests the fully repositionable, retrievable, and inflatable Direct Flow TAVR valve. The current patient cohort for this protocol is extreme surgical risk.

- COAPT (Abbot MitraClip): The COAPT Trial is a clinical trial designed to study the safety and effectiveness of the MitraClip trans catheter mitral valve repair device in heart failure patients who have functional mitral regurgitation and are considered extreme risk for open surgery. The UM Division of Cardiac Surgery started enrollment in the COAPT Trial in January 2014.

b. Surgical Valve

- COMMENCE (Edwards Lifesciences): The objective of the COMMENCE protocol is to confirm that the modifications to tissue processing, valve sterilization, and packaging do not raise any new questions of safety and effectiveness in subjects who require replacement of their native or prosthetic aortic or mitral valve. The valves are treated with GLX, a next-generation GLX tissue treatment that allows for dry packaging and sterilization and eliminates the need to rinse the valves before implantation. The UM Division of Cardiac Surgery started enrollment in COAPT Trial in July 2013 and is currently the worldwide enrollment leader.

- Perceval (Sorin Medical): The Sorin Perceval valve is a prosthetic aortic valve designed to replace a diseased native or malfunctioning prosthetic aortic valve utilizing a unique sutureless positioning and anchoring at the implantation site. The UM Division of Cardiac Surgery began enrollment in the Perceval Trial in August 2013.

c. Lung Perfusion

- Perfusix Lung Trial (Perfusix USA): The Perfusix Lung Trial is a multi-center open-label study to compare the safety of receiving a lung treated with the Toronto ex-vivo lung perfusion and ventilation (EVLP) system against standard lung transplantation. The UM Division of Cardiac Surgery anticipates enrollment in this study will begin in spring of 2015.

- Novel Lung Trial (XVivo): The NOVEL Lung Trial is a prospective, multicenter, controlled clinical trial that serves as an extension of the original NOVEL Lung Trial. The purpose of this study is to collect and submit data for both HDE and

PMA approval for XPS Perfusion System with STEEN Solution. The UM Division of Cardiac Surgery anticipates enrollment in this study will begin in spring of 2015.

d. Left Ventricular Assist Device Trials (LVAD)

- RELIVE DT (Jarvik Heart): The RELIVE (Randomized Evaluation of Long-term Intraventricular VAD Effectiveness) trial is a pivotal trial to evaluate the Jarvik 2000 heart for destination therapy (DT) in patients with late stage heart failure who require long-term, permanent support and who are not candidates for heart transplant. The DT approval permits fifty medical centers to participate in the study. The UM Division of Cardiac Surgery started enrollment in this Trial in July 2013 and is currently among the highest enrolling centers.

- Endurance (Heartware): The protocol for this cohort is designed to confirm clinical observations that sites adhering to more regular monitoring and management of patient blood pressure experience a notably lower incidence of neurological events. Enrollment at the 50 centers participating in the original ENDURANCE clinical trial began late 2013.

e. Cardiothoracic Surgical Trials Network

The UM Division of Cardiac Surgery is a high enrolling consortium site and participates in all of the clinical trials conducted by the prestigious Cardiothoracic Surgical Trials Network (CTSN) sponsored by the National Institute of Health's National Heart, Lung, and Blood Institute. Current trials from CTSN in which the UM Division of Cardiac Surgery maintains a robust enrollment include Rhythm vs. Rate Control to Control Postoperative Atrial Fibrillation, Safety and Efficacy of Intramyocardial Injection of Mesenchymal Precursor Cells on Myocardial Function in LVAD Recipients, and Neuroprotection with an Embolic Protection Device in AVR Patients. The UM Division of Cardiac Surgery anticipates extending enrollment in some or all of these trials to the UM BWMC cardiac surgery program.

f. Investigator Initiated Protocols

In addition to industry-sponsored clinical research protocols, the UM Division of Cardiac Surgery maintains a diverse portfolio of investigator initiated protocols.

Included in this portfolio is a prospective randomized protocol that examine whether there is a clinical significance to repairing the tricuspid valve in patients with moderate tricuspid valve regurgitation. Enrollment in this protocol started in July 2012 and currently has more than 40 randomized patients.

Additionally, the UM Division of Cardiac Surgery will begin enrollment in the Allogeneic Human Mesenchymal Stem Cell Injection in Patients with Hypoplastic Left Heart Syndrome study: an open label pilot study to evaluate the safety and feasibility of intramyocardial injection of allogeneic mesenchymal cells during Bi-Directional Cavopulmonary Anastomosis (BDCPA) surgery for hypoplastic left heart syndrome (HLHS) patients.

g. Program in Lung Healing

Launched in January of 2015, the University of Maryland Program in Lung Healing is a joint initiative of UMMC, UM SOM, and the University of Maryland Program in Trauma. The Program in Lung Healing supports a multi-disciplinary team approach to clinical care that is fully integrated with world-class basic, translational, and clinical research capabilities, and establishes the UM SOM / UMMC partnership as a national leader in research, education and clinical innovation for acute ailments of the lung and respiratory system. The Program in Lung Healing leverages unique access to cutting edge clinical and research tools, a proven model for high quality critical care, and a broad focus on research, education, and clinical innovation. The affiliated clinical extracorporeal membrane oxygenator (ECMO) program is among the busiest in the nation, and was offered an effective rescue strategy to 106 patients with acute cardiopulmonary emergencies in 2014 (an increase from 79 patients in 2013). The UMMC ECMO program was recognized in 2014 as an exemplary program for quality by the Extracorporeal Life Support Organization. UMMC is the only regional program to be recognized in this way.

h. Translational Research

The UM Division of Cardiac Surgery faculty are supported by NIH, State of Maryland/TEDCO, industry, and philanthropic sources for translational research on ambulatory pump-lung development, stem cell therapy, heart allograft tolerance, lung and liver xenotransplantation, and novel anticoagulant and anti-inflammatory approaches that are being specifically developed ("translated") for application in patients with cardiovascular disease. The Division is among the most productive and best-funded cardiac surgery research programs in the nation.

i. Future Cardiac Surgery Clinical Trials at UM BWMC

Industry sponsors routinely approach the UM Division of Cardiac Surgery's Clinical Research Unit to gauge interest in being a site in upcoming clinical trials. Due to restrictive signed non-disclosure agreements with potential sponsors, it is not possible to divulge those trials currently being reviewed for inclusion in the portfolio of clinical studies. However, protocols relate to ground-breaking open-surgical device therapies to address disorders of both the mitral and aortic valves, as well as percutaneous device implantation techniques and devices applicable to both valves. In addition, protocols are in advanced stages of development related to novel stem cell treatments for the regeneration of heart tissue in adult and pediatric patients. Other protocols relate to surgical (e.g., ambulatory pump-lung) and biologic devices (e.g. heart and lung xenografts) that will lead to better outcomes for patients afflicted with acute or chronic heart and lung disease, work that is supported by peer-reviewed NIH funding mechanisms. UM BWMC clinicians and patients will have the opportunity to participate and have access to these cutting-edge new therapies and surgical innovations once the cardiac surgery program is operating with sufficient volume and support. Without the presence of UM SOM cardiac surgeons at UM BWMC, it would be difficult for patients at UM BWMC to be included in these trials.

10.24.01.08G(3)(b). Need.

The Commission shall consider the applicable need analysis in the State Health Plan. If no State Health Plan need analysis is applicable, the Commission shall consider whether the applicant has demonstrated unmet needs of the population to be served, and established that the proposed project meets those needs.

INSTRUCTIONS: Please identify the need that will be addressed by the proposed project, quantifying the need, to the extent possible, for each facility and service capacity proposed for development, relocation, or renovation in the project. The analysis of need for the project should be population-based, applying utilization rates based on historic trends and expected future changes to those trends. This need analysis should be aimed at demonstrating needs of the population served or to be served by the hospital. The existing and/or intended service area population of the applicant should be clearly defined.

Fully address the way in which the proposed project is consistent with each applicable need standard or need projection methodology in the State Health Plan.

If the project involves modernization of an existing facility through renovation and/or expansion, provide a detailed explanation of why such modernization is needed by the service area population of the hospital. Identify and discuss relevant building or life safety code issues, age of physical plant issues, or standard of care issues that support the need for the proposed modernization.

Please assure that all sources of information used in the need analysis are identified. Fully explain all assumptions made in the need analysis with respect to demand for services, the projected utilization rate(s), the relevant population considered in the analysis, and the service capacity of buildings and equipment included in the project, with information that supports the validity of these assumptions.

Explain how the applicant considered the unmet needs of the population to be served in arriving at a determination that the proposed project is needed. Detail the applicant's consideration of the provision of services in non-hospital settings and/or through population-based health activities in determining the need for the project.

Complete the Statistical Projections (Tables F and I, as applicable) worksheets in the CON Table Package, as required. Instructions are provided in the cover sheet of the CON package.

Applicant Response:

See Responses to COMAR 10.24.17.05A(1) and COMAR 10.24.17.05A(6).

10.24.01.08G(3)(c). Availability of More Cost-Effective Alternatives.

The Commission shall compare the cost effectiveness of the proposed project with the cost effectiveness of providing the service through alternative existing facilities, or through an alternative facility that has submitted a competitive application as part of a comparative review.

INSTRUCTIONS: Please describe the planning process that was used to develop the proposed project. This should include a full explanation of the primary goals or objectives of the project or the problem(s) being addressed by the proposed project. The applicant should identify the alternative approaches to achieving those goals or objectives or solving those problem(s) that were considered during the project planning process, including:

a) the alternative of the services being provided through existing facilities;

b) or through population-health initiatives that would avoid or lessen hospital admissions.

Describe the hospital's population health initiatives and explain how the projections and proposed capacities take these initiatives into account.

For all alternative approaches, provide information on the level of effectiveness in goal or objective achievement or problem resolution that each alternative would be likely to achieve and the costs of each alternative. The cost analysis should go beyond development costs to consider life cycle costs of project alternatives. This narrative should clearly convey the analytical findings and reasoning that supported the project choices made. It should demonstrate why the proposed project provides the most effective method to reach stated goal(s) and objective(s) or the most effective solution to the identified problem(s) for the level of costs required to implement the project, when compared to the effectiveness and costs of alternatives, including the alternative of providing the service through existing facilities, including outpatient facilities or population-based planning activities or resources that may lessen hospital admissions, or through an alternative facility that has submitted a competitive application as part of a comparative review.

Applicant Response:

A. The Planning Process for Cardiac Surgery at UM BWMC

UM BWMC (then North Arundel Hospital) first considered and explored the strategic option of seeking approval for a cardiac surgery program (and angioplasty) in the context of affiliation discussions with UMMS in 1999. Over the past 16 years, the development of cardiac surgery at UM BWMC has been examined on several occasions.

1. Planning and Development of the PCI Programs at UM BWMC.

The development of both the primary and elective PCI programs (angioplasty) at UM BWMC resulted from collaboration among UM BWMC, UMMC, community cardiologists and the cardiology faculty of the UM SOM. These programs started as research projects/waivers due to then existing State regulations requiring angioplasty to be performed only at hospitals

with cardiac surgery on site. Research oversight for the program was provided jointly by a full-time UM SOM faculty member and a community interventional cardiologist with a voluntary faculty position at UM SOM. Protection of human subjects and data integrity was overseen by the Institutional Review Board of UM SOM. This close collaboration and focus on quality and the patient experience is reflected in the outstanding clinical results these institutions have had and the awards they have won.

2. Planning for Cardiac Surgery at UM BWMC.

Following affiliation with UMMS in 2000, UM BWMC sought to integrate services with other UMMS facilities to create efficiencies and quality care options for residents of Anne Arundel County. In fact, one of the considerations for UM BWMC (then North Arundel Health System) in affiliating with a partner was the possibility of enhancing cardiac care for patients, including the development of angioplasty and open heart surgery capability. *See* Exhibit 31 (NAHS Partnering Proposal – Cardiology).

In 2005, an assessment of the cardiac strategy at UM BWMC suggested an approach for cardiac surgery that would have UM BWMC participate in the overall development of the UMMS cardiac surgery program, with the possibility of relocating part of the program located at UMMC to UM BWMC. However, the Commission did not permit an existing cardiac program to add a new location without a new CON. *See Adventist Health Care, Inc. v. Maryland Health Care Commission*, 392 Md. 103 (2005) (Court of Appeals affirmed Commission's determination that a CON was required to add a new location for a cardiac surgery program).

The recent changes to the State Health Plan for Facilities and Services: Specialized Health Care Services – Cardiac Surgery and Percutaneous Coronary Intervention Services (COMAR 10.24.17) created the opportunity for the consideration of a CON for a new cardiac surgery program in the Baltimore / Upper Shore Region.

The absence of a cardiac surgery program in Anne Arundel County and its surrounding geography (including Howard County and the mid-Shore region) is notable when compared to the number of programs located in Baltimore City, (UMMC, Johns Hopkins, Sinai Hospital, and Union Memorial Hospital), Baltimore County (UM SJMC) and in the D.C. Suburbs (Washington Adventist Hospital, Suburban Hospital, and Prince George's Hospital Center). The State Health Plan identifies two geographic areas where access is a problem for emergent PCI services: the mid-Shore area and three counties in Southern Maryland (Calvert, Charles, and St Mary's).

In April 2014, as the new cardiac services chapter of the State Health Plan was under consideration and development, UMMS and UM BWMC began a collaborative process to propose a cardiac surgery program. UMMS provides services all over Maryland through its hospitals, ambulatory centers, a freestanding emergency department (Queen Anne's Emergency Center), and its physician network. It has a significant footprint in areas with access problems for emergent services, including the mid-Shore region through the UM Shore Health System and in Charles County with UM Charles Regional Medical Center.

B. <u>Consideration of Alternatives to the Proposed Cardiac Surgery Program</u>

The only alternative to establishing a cardiac surgery program at UM BWMC is not to seek a CON, and permit the *status quo* to continue with cardiac surgery patients receiving surgical procedures outside of the UM BWMC service area, principally at UMMC. UM BWMC

and UMMS rejected this alternative because there is a need for high-quality, locally available cardiac surgery services in Anne Arundel County.

Without the proposed program, the following benefits, among others, will not be realized:

- provision of high-quality cardiac surgery services in a convenient, lower cost setting for Anne Arundel County and Mid-Shore residents;
- integration of cardiac surgery programs between UM BWMC and UMMC, providing the experience and skill of UM SOM cardiac surgeons and UMMC staff at UM BWMC;
- enhanced geographic access for local residents, especially indigent patients living in UM BWMC's PSA who do not own a car;
- expanded and enhanced outreach programs for cardiovascular disease prevention and treatments; and
- integration and shared management of quality of care initiatives and programs for cardiac surgery care between UMMC, UM SOM, and UM BWMC.

10.24.01.08G(3)(d). Viability of the Proposal.

The Commission shall consider the availability of financial and nonfinancial resources, including community support, necessary to implement the project within the time frames set forth in the Commission's performance requirements, as well as the availability of resources necessary to sustain the project.

INSTRUCTIONS: Please provide a complete description of the funding plan for the project, documenting the availability of equity, grant(s), or philanthropic sources of funds and demonstrating, to the extent possible, the ability of the applicant to obtain the debt financing proposed. Describe the alternative financing mechanisms considered in project planning and provide an explanation of why the proposed mix of funding sources was chosen.

- Complete applicable Revenues & Expenses (Tables G, H, J and K as applicable), and the Work Force information (Table L) worksheets in the CON Table Package, as required. Instructions are provided in the cover sheet of the CON package. Explain how these tables demonstrate that the proposed project is sustainable and provide a description of the sources and methods for recruitment of needed staff resources for the proposed project, if applicable.

- Describe and document relevant community support for the proposed project.

- Identify the performance requirements applicable to the proposed project and explain how the applicant will be able to implement the project in compliance with those performance requirements. Explain the process for completing the project design, contracting and obtaining and obligating the funds within the prescribed time frame. Describe the construction process or refer to a description elsewhere in the application that demonstrates that the project can be completed within the applicable time frame.

- Audited financial statements for the past two years should be provided by all applicant entities and parent companies.

Applicant Response:

A. Financial Viability

The 2013 and 2014 audited financial statements of UMMS, including UM BWMC as a subsidiary organization, are attached as Exhibit 32. As shown in Table E, the proposed project involves relatively little capital cost, approximately $1.3 million. The financial statements demonstrate that UMMS and UM BWMC have the financial strength to pay the capital costs with cash.

B. Community Support

Members of the Maryland health care community, residents of UM BWMC's service area, and members of the general population have shown immense support for the establishment of a cardiac surgery program at UM BWMC. Exhibit 33 contains approximately 100 letters of community support, including statements of support from Anne Arundel County

Executive Steven R. Schuh, County Health Officer Jinlene Chan, State Senator Edward R. Reilly, four members of the Maryland House of Delegates, three members of the Maryland General Assembly, and leaders of several religious and community organizations. These letters not only support the proposed project, but highlight the high quality of care at UM BWMC and its recognition for excellence in the community. They also highlight the strength and quality of the UMMS network from which UM BWMC will benefit as it implements its cardiac surgery service line.

Dr. E. Albert Reece, Dean of UM SOM and Vice President for Medical Affairs at the University states that the proposed cardiac surgery program at BWMC would benefit the community and the SOM in many ways, including patient access to clinical trials. Dr. Reece notes, "The [SOM] Division [of Cardiac Surgery] also has a nationally recognized Clinical Research Unit (CRU) that is actively enrolling patients in over 40 prospective clinical trials. We anticipate extending enrollment in these and future key trials to the BWMC site- this will afford access to the latest in research-based protocols to the BWMC patient community and will enhance enrollment for the CRU." Exhibit 33, letter of Dr. Reece.

Donald P. Buntz, CEO of Maryland Primary Care Physicians, a group practice of physicians and credentialed staff with 70 board-certified providers, states that the availability of cardiac surgery services at UM BWMC will improve care for patients in the community, explaining, "[i]n calendar year 2014, our practice cared for 136,000 patients who live in the Central Maryland area. Of that total, our providers referred over 7500, or 6% of those patients to cardiologists. Having additional cardiac surgery services available at UM BWMC, conveniently located near the center of our service area, obviates the need to send seriously ill patients very far for the care they require." Exhibit 33, letter of Mr. Buntz.

Several recent cardiac surgery patients or those close to them not only support the proposed project, but explain on a personal level the great impact the availability of cardiac surgery in UM BWMC's service area would have. John Brunnett, a resident of Anne Arundel County and President of Grant Brunnett Architects, shared "recently . . . one of my younger employees suffered a heart related event that sent him to the emergency room. He lives within a few minutes of UM BWMC; however he had to be transported into Baltimore for the services needed. His wife and 4-children spent considerable time during this stressful period, negotiating the logistics of having him in a facility that required an hour of travel time so that they could comfort him while he underwent a bank of diagnostic testing."

A prior patient who had quadruple by-pass surgery at UMMC explained that he was "extremely grateful for the expertise of my surgeon and the excellent quality care and compassion I received from everyone involved. The only downside was the long trips my family and friends had to make to visit me in an unfamiliar and confusing area (Baltimore City). . . ." Exhibit 33, letter of John Burrel. Another patient who was transferred from BWMC to UMMC for by-pass surgery shares, "During the period of time I was in UMMC (July 11-17) my wife made the trip to Baltimore each day. Not comfortable with driving in Baltimore she would drive to Glen Burnie and take the light rail. This made some tough days even tougher…. Not having to be transferred from BWMC to UMMC would be a blessing for a family." Exhibit 33, letter of Harry A. Calendar.

10.24.01.08G(3)(e). Compliance with Conditions of Previous Certificates of Need.

An applicant shall demonstrate compliance with all terms and conditions of each previous Certificate of Need granted to the applicant, and with all commitments made that earned preferences in obtaining each previous Certificate of Need, or provide the Commission with a written notice and explanation as to why the conditions or commitments were not met.

INSTRUCTIONS: List all of the Certificates of Need that have been issued to the applicant or related entities, affiliates, or subsidiaries since 2000, including their terms and conditions, and any changes to approved CONs that were approved. Document that these projects were or are being implemented in compliance with all of their terms and conditions or explain why this was not the case.

Applicant Response:

The following certificates of need have been issued to UM BWMC by the Maryland Health Care Commission since 2000:

Docket #	Date Issued	Project Description	Status
09-02-2292	12/17/2009	Surgical suite expansion/renovation.	First Use Approval granted in 2011.
04-02-2154	11/22/2005	Construction of a new patient tower, emergency room expansion, and establishment of an obstetrics program.	First Use Approval granted in 2009.

Note: UM BWMC was known as Baltimore Washington Medical Center at the time of approval of these projects.

Docket No. 04-02-2154

The CON granted in 2005 (Docket No. 04-02-2154) was subject to the following conditions:

> Condition #1: BWMC will submit an annual report to the Commission which will include an evaluation of the status of achieving the goals and objectives of the Community Benefit Plan, updated information on the staffing levels and costs of all programs implemented as part of the Plan, and data on the progress toward improved outcomes measures over the current baseline measures as a result of the services provided through the Plan. This includes, but is not limited to, (1) documenting progress in achieving the reduction in the number of low birth weight births and the infant mortality rate, (2) documenting case management services for 330-450 low income/Medicaid clients annually, (3) documenting the number of non-English speaking (e.g., Korean and Spanish) served, and (4)

documenting the number of low income/Medicaid clients served who would not otherwise have received OB services in the primary service area.

Condition #2: If Baltimore Washington Medical Center fails to meet the minimum annual volume of 1,000 obstetric discharges for any 24 consecutive month period, beginning with the second full year of operation, BWMC agrees to provide to the Commission written documentation of good cause for its failure to attain the minimum volume, and a feasible corrective action plan for how it will achieve the minimum volume within a two year period. BWMC also agrees to close the obstetric program and relinquish its authority to operate an obstetric service if the Commission finds the documentation or the plan of correction to be unacceptable.

UM BWMC submits annual reports to the Commission which review both its progress on its OB Community Benefit plan as well as the overall volumes of the obstetrics program.

UM BWMC's obstetrics program began operating in October, 2010. Its second year of operation began in October, 2011 and a 24-month look back period began in October, 2013. At that time, UMBWMC was well on its way to achieving the minimum volume of 1,000 OB discharges for the most recent 12 months, having reached a high of 935 discharges. Of note, in FY11, UM BWMC, like most other hospitals in Maryland, saw a significant shift from discharges to observation status. This was also true in Obstetrics. By October of 2013, combined observations and discharges were 1,882. The dramatic shift from inpatient discharges to observation status is one reason why OB discharges have remained just below the 1,000 minimum discharge number.

Additionally, UM BWMC experienced the loss of two OB physician groups, one in July, 2013 as the group had several physicians leave to practice elsewhere. The other group was part of a local FQHC which closed its doors, but has since been replaced by Chase Brexton Health Services. Each of these departures resulted in volume reductions which were quickly restored by the addition of OB providers to BWMC's employed Obstetrics practice. For the 12 months ended January, 2015, OB discharges were 941 and combined discharges and Observations patients were 2,322.

Docket No. 09-02-2292

The CON granted in 2009 (Docket No. 09-02-2292) was subject to the following conditions:

Condition #1: BWMC will not finish the two floors of shelled-in space without obtaining the required Commission approval; and

Condition #2: BWMC will not request an adjustment in rates by HSCRC that includes depreciation or interest costs associated with construction of the proposed shell space until and unless BWMC has filed a CON application involving the finishing of the shell space, or has obtained CON approval for finishing the shell space.

UM BWMC has complied with the conditions contained in the 2009 CON Order.

10.24.01.08G(3)(f). Impact on Existing Providers and the Health Care Delivery System.

An applicant shall provide information and analysis with respect to the impact of the proposed project on existing health care providers in the health planning region, including the impact on geographic and demographic access to services, on occupancy, on costs and charges of other providers, and on costs to the health care delivery system.

INSTRUCTIONS: Please provide an analysis of the impact of the proposed project:

a) On the volume of service provided by all other existing health care providers that are likely to experience some impact as a result of this project;[22]

b) On access to health care services for the service area population that will be served by the project. (state and support the assumptions used in this analysis of the impact on access);

c) On costs to the health care delivery system.

If the applicant is an existing hospital, provide a summary description of the impact of the proposed project on costs and charges of the applicant hospital, consistent with the information provided in the Project Budget, the projections of revenues and expenses, and the work force information.

Applicant Response:

If approved, the addition of UM BWMC as a third location for the cardiac surgery program managed by the UM Division of Cardiac Surgery will improve access and offer more choice at a lower cost for residents of the UM BWMC cardiac service area.

Please see responses to Standard .05A(2) for discussion of the likely impact of the proposed project on existing providers.

Please see Tables G and H (attached as part of Exhibit 1) for projections of revenues and expenses for the entire UM BWMC facility, and Table L for work force information.

Please see response to Standard .05A(4) for discussion on the costs to the health care delivery system.

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[22] Please assure that all sources of information used in the impact analysis are identified and identify all the assumptions made in the impact analysis with respect to demand for services, the relevant populations considered in the analysis, and changes in market share, with information that supports the validity of these assumptions.

Table of Exhibits

Exhibit	Description
1	MHCC Tables
2	List of Cardiac Surgeons with Biographies
3	List and Map of UMMS Cardiac Locations
4	List of Zip Codes in UM BWMC Cardiac Service Area
5	Map of UM BWMC Cardiac Service Area
6	Door to Balloon Times Table
7	Summary of Collaborative Nursing Training
8	Summary of Intensivist Program
9	Cardiac Surgery Patient Education Materials
10	Summary of Clinical Pharmacy Services to be Provided
11	UM BWMC Land Deed
12	UM BWMC Board Resolution
13	Settlement Agreement with Maryland Department of the Environment
14	Written Policy regarding Provision of Charge Information
15	Representative Charges
16	Financial Assistance Policy
17	Financial Assistance Advertisement
18	Notice of Financial Assistance Policy Photos
19	Patient Information Sheet (English and Spanish)
20	DHMH Operating License
21	The Joint Commission Accreditation Certificate
22	Chart of Quality Measure Scores and Action Plans
23	Projected Cardiac Surgery Cases for UM BWMC, hospital impact, zip code market analysis
24	Cardiology Letters of Support
25	Discussion of Existing Quality Programs at UM BWMC
26	Charge Comparison Analyses (six spreadsheets)
27	Household Vehicle Analysis by Zip Code
28	Analysis of Financial Feasibility of Combined Cardiac Surgery Program
29	Sample HeartAware Promotional Materials
30	Cardiovascular Health Articles Involving UM BWMC Community
31	North Arundel Health System Partnering Proposal - 3/9/99
32	UMMS Audited Financial Statements 2013 - 2014
33	Letters of support

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AFFIRMATIONS