GALLAGHER
EVELIUS & JONES LLP
ATTORNEYS AT LAW

May 20, 2019

VIA EMAIL & COURIER

Ms. Ruby Potter
ruby.potter@maryland.gov
Health Facilities Coordination Officer
Maryland Health Care Commission
4160 Patterson Avenue
Baltimore, Maryland 21215

Re: Application for Certificate of Need
Construction of a Cancer Center at the University of Maryland Medical Center

Dear Ms. Potter:

On behalf of applicant University of Maryland Medical Center, enclosed are six copies of the "Response to Additional Information Questions 1-21 Dated April 18, 2019" with respect to the CON Application for construction of a cancer center at the University of Maryland Medical Center.

I hereby certify that a copy of this submission has also been forwarded to the appropriate local health planning agencies as noted below.

Sincerely,

Thomas C. Dame

Ella R. Aiken

TCD/ERA:blr
Enclosures

#663928
006551-0238

cc: Kevin McDonald, Chief, Certificate of Need
Paul Parker, Director, Center for Health Care Facilities Planning & Development
Suellen Wideman, Esq., Assistant Attorney General
Mary Beth Haller, Interim Baltimore City Health Commissioner
Megan M. Arthur, Esq., Senior Vice-President & General Counsel
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Nicholas Jaidar, Director of Oncology Operations, UMMC
Suzanne Cowperthwaite, Director of Oncology Nursing, UMMC
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Linda Whitmore, Director for Project Development, UMMC
Bret Elam, Project Manager, UMMS
Donald Steacy, Manager, Strategic Analytics & Program Development, UMMC
Deb Sheehan, Executive Director, Cannon Design
Andrew L. Solberg, A.L.S. Healthcare Consultant Services

UNIVERSITY OF MARYLAND MEDICAL CENTER
CONSTRUCTION OF ADDITION FOR CANCER CENTER
Matter No. 19-24-2438

Responses to Additional Information Questions 1—21
Dated April 18, 2019

Part I – Project Identification and General Information

1. **Regarding the Project Schedule, please clarify whether the applicant will sign with only one contractor, or enter into multiple construction contracts for the four phases of this construction project.**

Applicant Response

The University of Maryland Medical Center ("UMMC") intends to sign one contract with one construction manager to cover the four phases of construction.

2. **Please provide some details on how the applicant will logistically schedule construction for the proposed four-phase project covering a potential five-year construction period. How will the applicant coordinate this project to avoid adverse impact on patients and staff as well as the existing operations and services provided at UMMC? Will the applicant have to relocate services or perform some of the construction on off-peak hours or on weekends?**

Applicant Response

The project construction is planned in four phases to mitigate adverse impacts to patients, visitors, and staff. UMMC pursued a similar approach when it constructed the Shock Trauma critical care tower over the primary ambulance entrance and emergency department. In the Shock Trauma project, the new work and renovation was staged to maintain current treatment capacity throughout the construction. UMMC intends to accomplish the same with this project – no reduction in treatment capacity or bed count during construction.

Phase one will involve construction of an additional entrance to the building. This will enable the subsequent closing of the main entrance so that erection of the superstructure can commence.

Phase two will consist of the new building superstructure and enclosure (core and shell). Apart from a new elevator shaft, phase two construction will occur beyond/outside of current occupied spaces.

In phase three, new spaces will be fit out. This will involve building out each of the occupied floors per the approved space program.

Phase four will provide new space to house services in currently existing areas that are scheduled for renovation, thus maintaining services throughout the duration of the project.

While some aspects of the work, such as utility outages, may be carried out during nights and weekends to minimize risk and disruption, the working schedule assumes minimum premiums for off hour construction.

3. Please respond to the following:

a. Provide some history and background on the current UMMC Greenebaum Comprehensive Cancer Center. Where is the current location and operation of the Cancer Center as well as the current location within UMMC for the existing 62 beds designated for relocation to the proposed addition?

Applicant Response

This question refers to the relocation of 62 existing beds. UMMC's Greenebaum Comprehensive Cancer Center ("UM GCCC") currently consists of a 16-bed bone and marrow transplant ("BMT") unit and two medical oncology units containing a total of 36 beds, a total of 52 current beds dedicated to cancer services. UMMC seeks to expand its cancer service line capacity to 62 beds, comprised of 18 BMT and 44 medical oncology beds. Thus, UMMC will be relocating 52 cancer beds and dedicating an additional 10 beds to its Cancer Center. UMMC will remain within its licensed bed capacity.

UM GCCC is a National Cancer Institute-designated comprehensive cancer center located on the medical campus of the UMMC in downtown Baltimore. The National Cancer Institute UM GCCC first "designated" UMMC in 2008 and named it a "comprehensive" center in 2015. UM GCCC brings together expert researchers and clinicians from the University of Maryland School of Medicine and other University of Maryland schools to collaborate on preventing, detecting, and treating cancer. As part of an academic medical community, UMGCCC integrates cutting-edge cancer treatment with leadership in cancer research and a commitment to medical education.

UM GCCC is presently located in 10 separate areas of the UMMC complex on Greene Street. Outpatient services (comprised of more than 50 physicians from nearly 10 specialties practice and a pharmacy) occupy the first floor of the portion of the complex known as the North Hospital, and the B wing of the ninth floor, South Hospital (holding the Allogeneic Transplant Clinic). An apheresis and cell processing facility is also located on the ninth floor of the South Hospital. Two of the three existing inpatient units are located on the west wings of the eighth and ninth floors of the North Hospital. The BMT inpatient unit is located on the ninth floor of the Gudelsky Building. The cancer center offices are located in the east wing of the North Hospital and the D wing of the South Hospital. The investigational drug pharmacy is located on the ninth floor, North Hospital. An Image Renewal (skincare, wigs, compression garments) is housed on the first floor of the Weinberg building. This project will bring all these services together in one cohesive area that will align with the practice of safe collaborative academic medicine.

The Radiation Oncology department is in the basement of the Gudelsky building, and will not be moving.

The diagram attached as **Exhibit 14** shows the disparate locations throughout the hospital campus of the components of the existing cancer center.

b. Provide a broad description on the type of patients and medical oncology treatments currently provided at the Greenebaum Cancer Center.

Applicant Response

Nearly 20% of UM GCCC cancer cases are from Baltimore city and nearly 80% from UMMC's primary catchment area (Baltimore City, Baltimore County, Anne Arundel County, Prince George's County, Harford County, Howard County, Montgomery County, Frederick County, Washington County, Carroll County and Charles County).

Of those cases from UMMC's primary catchment area, 51% are male and 49% female. The racial breakdown of cases from UMMC's primary catchment area is 57% White, 36% Black, 3% Asian, and 4% other.

While Maryland ranks 28th nationally in highest age adjusted cancer incidences by state, Baltimore City, which accounts for 20% of UM GCCC cancer cases, has higher incidences compared to most other counties in Maryland, including the five most populous counties (Montgomery, Prince George's, Baltimore, Anne Arundel, and Howard Counties). *See* **Exhibit 15** (state incidence rates); **Exhibit 16** (Maryland incidence rates by County); *see also* https://www.maryland-demographics.com/counties_by_population (last accessed May 2, 2019).

UM GCCC is a leader in addressing cancer disparities, with research focused on improving access to care and treatment outcomes for minorities, who represent more than 35% of the patients in UM GCCC's clinical trials, compared to 16 percent nationally (according to the National Cancer Institute). UM GCCC's clinical trial portfolio is robust, exceeding 200 clinical trials.

UM GCCC takes pride in its comprehensive multidisciplinary care, often initiated at one of its many tumor board conferences, where specialists within a variety of services come together to craft an individualized plan of care for the patient. UM GCCC often serves as a hub for second opinions and maintains strong relationships with its referring provider base of physicians. UM GCCC depth and breadth of clinical expertise from up to 50 physicians in any given week continues to enable its clinical innovation and progressive therapy development.

Innovation and high quality care at UMMC is featured within UM GCCC's menu of services, including minimally invasive options such as stereotactic body radiation therapy, robot-assisted surgery, advanced thermal therapy and the newest, targeted drug therapies. UMMC provides one of only two Blood and Marrow Transplant centers in the state. In addition, UM GCCC is a national leader in trailblazing new immunotherapy approaches that train a patient's own immune system to fight cancer. Furthermore, UM GCCC enlists cutting edge treatment options, such as CAR-T cell therapy, Proton therapy, and Gamma Pod, a novel system that was developed by the expertise of UM faculty that is advancing the way UM GCCC treats early stage breast cancers.

c. Upon project implementation, please provide the future plans for re-purposing both the space previously populated by the cancer center and the inpatient beds. Are the costs and time frames for renovating these existing areas included with this project?

Applicant Response

While the exact use of the space where the 52 beds will be vacated by the existing BMT and Medical Oncology units has not been decided, most likely they will be utilized as general medicine beds at some point in the future. As shown in the chart attached as **Exhibit 17**, the occupancy rates for the Medicine units are quite high with all but one of the five units operating at over 85% and three of the five well over 90%. These high occupancy rates hinder efficient patient flow throughout the hospital. In particular, the high occupancy rates severely hinder the emergency department in admitting patients and leads to inefficiencies in their processes leading to long wait times.

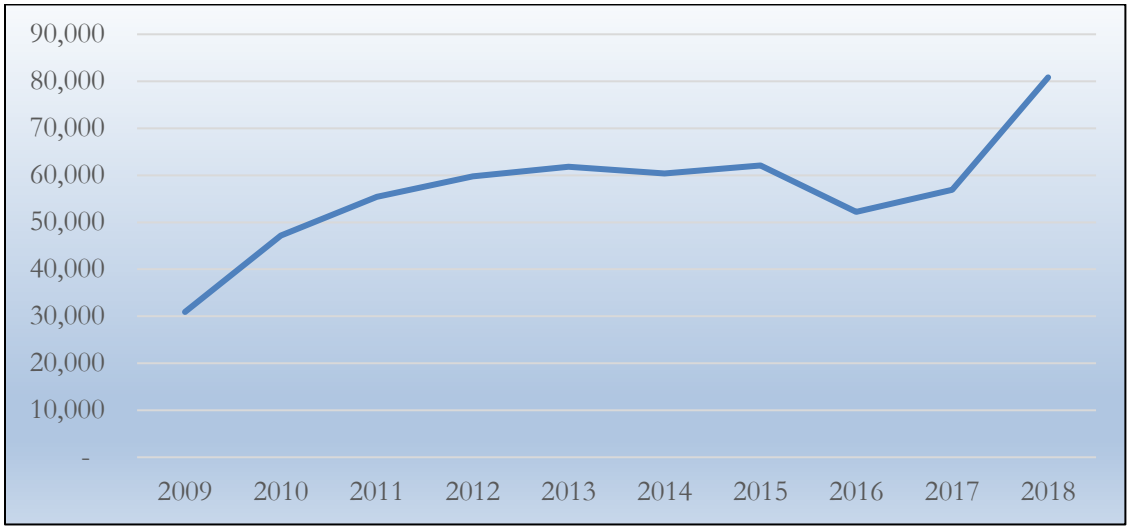
4. **Addressing *Rationale for the Project* on p. 5, please provide historical utilization at UMMC's Cancer Center to support the statement that patients served and treatments provided "has tripled in the last eleven years" and "staff/physician and patient/family areas are beyond capacity due to bottlenecks,…inefficiencies and delay." Go into more detail to support the statement "newer treatment options are often curtailed because UMMC lacks the space…to implement them."**

Applicant Response

UMMC's cancer center services have experienced tremendous growth since 2009. UM GCCC's multi-disciplinary outpatient center has more than 50 physicians practicing in any given week, along with a complement of nurse practitioners, fellows, nurses, medical assistants, patient care technicians, and pharmacists. The current layout of the cancer center was sized more than 10 years ago, from retro-fitted space, and has exhausted its intended utility.

As demonstrated in Table 20 and Table 21, the volume (exam room, infusion, lab and nurse visits) has nearly tripled from 2009 through 2018 (the drop in 2015-2017 was due to some changes in how lab visits were counted during the transition to the EPIC Electronic Medical Record). In 2018, UMMC was able to leverage the functionality in its system to track lab visits (approximately 100 per day), which partially contributes to the spike. The other contributors to the increase of volume are nursing visits associated with the acuity levels of our growing complement of Leukemia, Lymphoma and Myeloma patients referenced within Table 6 of 10.24.01.08G(3)(b). Patients have multiple touchpoints in a visit and this constant flow of patients is highly inefficient at times.

Table 20
UMMC Oncology Outpatient Visits (Exam Room, Infusion, Lab, Nurse), 2009-2018



Source: UMMC Internal Data

Table 21
UMMC Infusion Volume, 2009-2018

Source: UMMC Internal Data

UMMC also experiences a high bed occupancy for its UM GCCC services.

Table 22
UM GCCC Services, Occupancy Data
FY2019 March YTD

Occupancy Rate	
UMH-C9W-BMT	85%
UMH-N8/9W- MED ONCOLOGY	87%
Midnight Census	
Days Over 90% Occupancy	
UMH-C9W-BMT	99
UMH-N8/9W- MED ONCOLOGY	37

Source: UMMC Internal Data

UMMC continually seeks innovative care models and services for the patients UM GCCC serves. The center's current space constraints limit this potential, as demonstrated by the following examples.

- Inpatient beds are often completely full, so UMMC is unable to transfer patients from other facilities to offer UM GCCC's specialized cancer services. See **Exhibit 17**. Furthermore, it is not uncommon to have an oncology patient housed on a non-oncology medicine unit, which is not ideal as the staff and attending are not delivering the expert cancer care that would be available on an oncology unit.

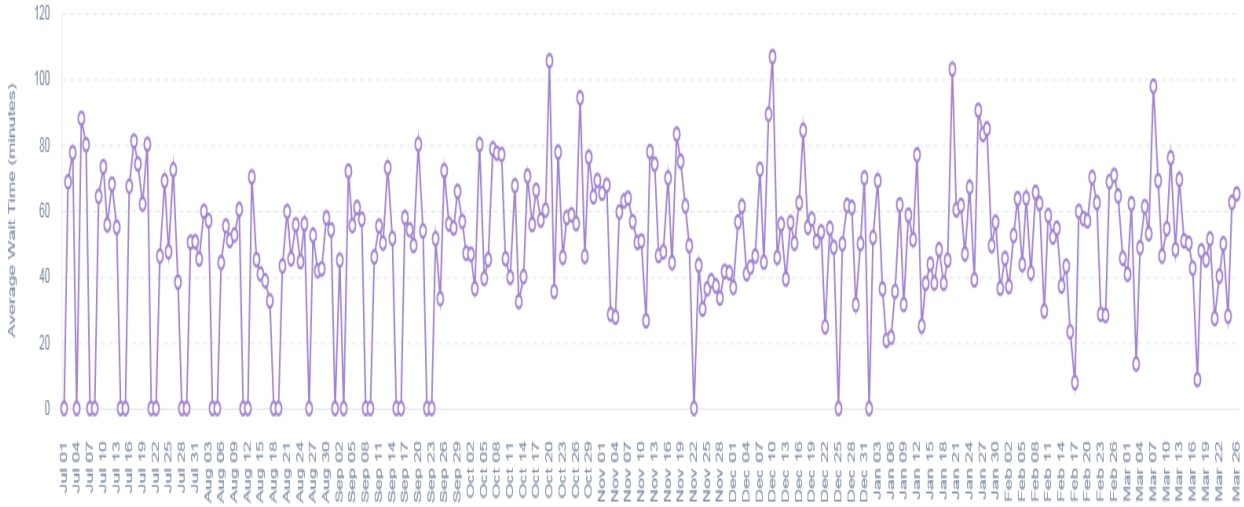
- UMMC's UM GCCC patients would greatly benefit from the establishment of an outpatient BMT program to supplement UM GCCCs inpatient program, which is running out of space due to the center's tremendous growth in transplants (over 60% in just the last five years). Expanding into an outpatient program will also reduce the expense of more costly inpatient transplant procedures. To establish this outpatient program requires additional general space, emergent triage locations, and infusion chairs for outpatient transplant patients that have to be monitored daily.

- The addition of new therapies, such as CAR-T for some leukemia patients, requires the use of a BMT bed. This furthers the need to free-up beds as note above. As CAR-T becomes used for other cancers, UM GCC will likely have to curtail the treatment for lack of beds.

Wait times for drug delivery to infusion patient are hindering UMMC's ability to treat UM GCCC patients efficiently. The following graph, spanning July 2018 through March 2019, indicates that the median time a patient waited for drugs to be mixed by a pharmacist was 56 minutes. Much of this delay can be attributed to the fact that dispensing volumes have increased considerably over the years in UM GCCC's pharmacy due to growth in new patients and thus compounded returning patients coming in for treatment, and new treatments not previously available. UM GCCC's one chemotherapy-mixing pharmacy must support inpatient and outpatient medical

oncology as well as pediatric oncology. The current layout does not have enough hazardous and non-hazardous hoods, thus limiting the throughput that can be delivered by the pharmacy team.

Table 23
Median Wait Time by Month for Cancer Drug Mixing by Pharmacist
July 2019 to March 2019



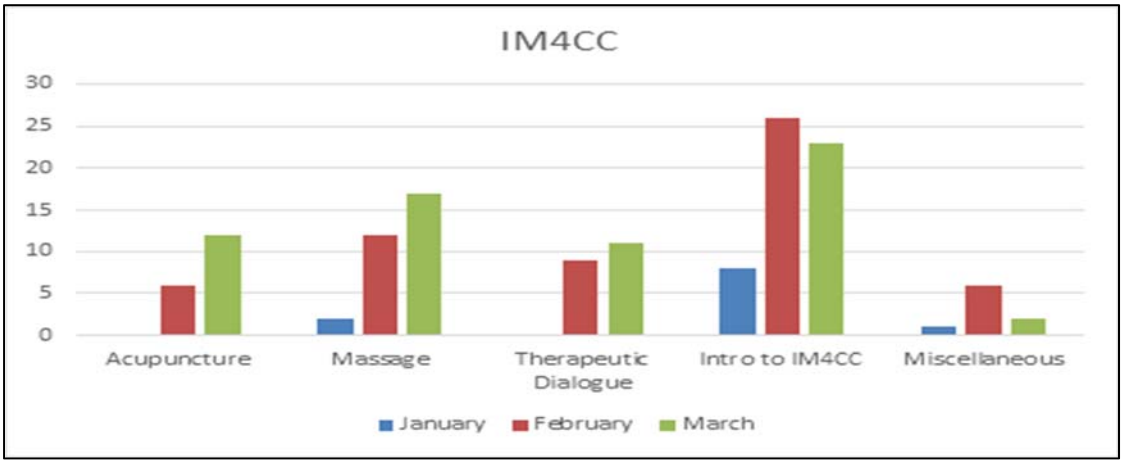
Source: UMMC Internal Data

- Several years ago, when UMMC wanted to add technology in UM GCCC pharmacy (a robot to mix some of the chemotherapies, it had to force it into space that simply minimized the resulting space for the pharmacists to do their work. This further limited the work flow, even though there were some efficiency gains with the robot.

- The multi-disciplinary clinic space used by more than 50 providers must also cater to existing services such as genetic counseling, social work consultation, bone marrow biopsies, survivorship care planning, and nurse education visits, among other services. The current infrastructure was never positioned for this type of robust multidisciplinary care. The lack of rooms and space limits UMMC's ability to add specialties to UM GCCC such as cardiovascular oncology, specialized high-risk breast disease services, and palliative care consults. As a result, several specialty providers have relocated clinics to other buildings, limiting the collaborative interactions among the specialty providers, when their coordinated care is instrumental to the patient's development of an individualized care plan.

- Integrative Medicine, which includes services such as acupuncture, massage therapy, therapeutic dialogue, etc., is an integral part of the care continuum for UM GCCC patients. In January of 2019, UMMC was able to offer UM GCCC patients a small product offering of these services. The graph below demonstrates the escalating interest, however, much of the opportunity is limited as UMMC is only able to offer these services a few times per week due to room constraints in the UM GCCC outpatient clinic.

Table 24
Patients Participating in Integrative Medicine Opportunities
January – March, 2019



Source: UMMC Internal Data

- Recently, UMMC embarked on a plan to utilize "Cold Caps", a product offering approved by the Federal Drug Administration, which studies have shown helps mitigate the onset of alopecia and preserve physical dignity of the solid tumor patient population when utilized during the infusion of chemotherapy drugs. Due to the physical constraints of UM GCCC's infusion chairs, the center is only able to have two machines, which restricts the number of patients UMMC can serve.

Part II – Project Budget

5. Please respond to the following for Table E:

a. Provide the assumptions or basis for (i) $15.0 million in Contingency Allowance; (ii) $8,868,000 in Gross Interest during construction; and (iii) $9,374,831 in Inflation Allowance.

Applicant Response

(i) Contingency – Contingency was calculated at 8.5% of total projected project cost (less contingency). Given that the design is at a concept level of detail UMMC determined that carrying this amount of contingency is appropriate at this stage.

(ii) Gross interest – The gross interest included in the project cost of $8,868,000 assumes the capitalization of 48 months of interest expense incurred from the date of issuance to the date of first occupancy. Please refer to response to Question 5(c) for the interest rate and total debt issuance information.

(iii) Inflation – The budget was developed in the second quarter of 2018. The midpoint of construction is the fourth quarter of 2021. Using the Building Cost Index in the IHS Markit Healthcare Cost Review data that is posted on the MHCC website (http://mhcc.maryland.gov/mhcc/pages/hcfs/hcfs_con/documents/con_cap_cost_index_

20190214.pdf), UMMC calculated the allowable inflation percentage. However, the Building Cost Index only projected inflation to the third quarter of 2020. UMMC had to project comparable data from the third quarter of 2020 to the fourth quarter of 2021. UMMC calculated the Compound Average Growth Rate ("CAGR") from the first quarter of 2018 through the third quarter of 2020 for both the CIS Proxy and the %MOVAVG and applied the CAGRs to calculate the values for the future quarters.

	CAGR	0.003628	0.006923
		CIS Proxy	%MOVAVG
Index	2018:01:00	1.166	1.4
Index	2018:02:00	1.17	1.4
Index	2018:03:00	1.173	1.4
Index	2018:04:00	1.178	1.5
Index	2019:01:00	1.183	1.5
Index	2019:02:00	1.187	1.5
Index	2019:03:00	1.191	1.5
Index	2019:04:00	1.196	1.5
Index	2020:01:00	1.201	1.5
Index	2020:02:00	1.205	1.5
Index	2020:03:00	1.209	1.5
Calculated	2020:04:00	1.213	1.5
Calculated	2021:01:00	1.218	1.5
Calculated	2021:02:00	1.222	1.5
Calculated	2021:03:00	1.227	1.5
Calculated	2021:04:00	1.231	1.6

UMMC then applied these data to calculate the allowable inflation percentage.

Budget Development	2018.2				
Midpoint of Construction	2021.4				
Step 1	2019.2	%MOVAVG	1.5	1.015	*A*
Step 2	2020.2	%MOVAVG	1.5	1.015	*B*
Step 3	2021.2	%MOVAVG	1.5	1.015	*C*
	2021.2	CIS Proxy	1.222		*D*
	2021.4	CIS Proxy	1.231		*E*
	E/D			1.007365	*F*
	*A * B * C * F*			**1.05338**	**5.34%**

The $9,374,831 in the Project Budget is 5.08% of the $9,374,831 Total Current Capital Costs due to some subsequent changes to the project budget that were not reflected in the Inflation line. ($9,374,831/$184,493,169 = 0.0508).

b. Regarding Source of Funds, provide evidence that the state has approved $125.0 million in grants for the proposed Cancer Center.

Applicant Response

The State of Maryland has dedicated funds through its capital budget commitments. Relevant excerpts from the State's FY 2019 capital budget are attached as **Exhibit 18**. The capital budget commitment includes funding for projects that are not included in this CON application.

c. Provide details on the $49.3 million that UMMS describes as debt financing for this project. Will the applicant utilize bond financing or a mortgage loan for this portion of the project, and provide details on the terms and length of this debt.

Applicant Response

UMMC will issue tax-exempt bonds to fund the project. The details of the financing are found below:

Total debt issuance:	$49,268,000
Annual interest rate:	4.50%
Term of bonds:	30 years
48 months of interest expense incurred over the period from date of issuance to date of first occupancy	

Interest income on bond proceeds was excluded in the application. The exclusion is based on UMMC's conservative approach for planning capital sources for large projects in the five year planning period. An assumption could be made and included as a source of capital funding that would reduce sources coming from bond proceeds. Investment earnings rates on bond proceeds are less than 1.0% annually. Therefore, based on the estimated draw schedule of the source of capital, UMMC would estimate interest earnings on bond proceeds to be approximately $960k in additional sources.

Part IV – Consistency with General Review Criteria at COMAR 10.24.01.08G(3)

Information Regarding Charges

6. Regarding Exhibit 4, the instructions for UMMC's Representative List of Services and Charges states that UMMC updates these tables on a quarterly basis, but the table lists a date of July 1, 2018 when it was last updated. Please provide an updated list of the representative services and charges and provide evidence that this information has been updated on the UMMC website.

Applicant Response

See **Exhibit 19**, which contains an updated list, together with UMMC's policy for release of charge information to patients, which was inadvertently omitted from the application. The updated representative list of Services and Charges can be accessed at on the UMMC website at the following address, selecting the link for "estimated charges": https://www.umms.org/ummc/patients-visitors/for-patients/hospital-charges (last accessed May 6, 2019).

Charity Care Policy

7. Please respond to the following:

a. Quote where in Exhibit 5 of UMMC's Financial Assistance Policy the specific language that describes the determination of probable eligibility (and give a citation to the location within the policy).

Applicant Response

The Financial Assistance Policy states in Section 2(c) of the Procedures:

> Applications initiated by the patient will be tracked, worked, and eligibility determined within the third party data and workflow tool. A letter of final determination will be submitted to each patient that has formally requested financial assistance. Determination of Probable Eligibility will be provided within two business days following a patient's request for charity care services, application for medical assistance, or both.

CON Application, Exhibit 5, p. 5 (emphasis added).

b. Provide copies of any application and/or other forms involved in the process for making a determination of probable eligibility within two business days.

Applicant Response

The cover letter, application, and verification statement form are attached as **Exhibit 20**.

c. Provide a copy of your procedures, if any, and other documents that detail your process for making a determination of probable eligibility and your procedures, if any, for making a final determination.

***Note* that requiring the completion of an application with documentation does not comply with this standard, which is intended to ensure that a procedure is in place to inform a potential charity/reduced fee care recipient of his/her probable eligibility within two business days of initial inquiry or application for Medicaid based on a simple and expeditious process.**

Applicant Response

The policy, effective December 2, 2018 is attached as **Exhibit 21;** the applicable procedures are set forth beginning on page 6.

d. A two-step process that allows for a probable determination to be communicated within two days based on an abridged set of information, followed by a final determination based on a completed application with the required documentation is permissible. But the policy must include the more easily navigated determination of probable eligibility.

Applicant Response

Two-day communication is listed within the procedures starting on page 6 of **Exhibit 21**.

8. **Please provide an enlarged copy of Exhibit 6; the UMMC notice on Charity Care Policy is illegible and impossible to read.**

Applicant Response

See **Exhibit 22**.

9. **Regarding Exhibit 7, the applicant's response to subsection .04A(2)(a)(ii)(2) is that this notice is "posted by the registration desk in the hospital's main lobby." Please address whether this Charity Care notice is posted in the admissions office, business office, and emergency department areas within UMMC.**

Applicant Response

The Charity Care notice is posted in the emergency department, admissions office, and outpatient registration areas, in addition to the registration desk in the hospital's main lobby**.**

Quality of Care

10. **Regarding Exhibit 10, UMMC received a "below average" ranking for two additional quality measures. Please provide UMMC's action plan for the following:**

Heart surgeries and procedures
Death rate for CABG

Stroke
Rate of unplanned readmission for stroke patients.

Applicant Response

While reviewing the Maryland Health Care Quality Reports,[1] UMMC discovered that the symbols for two of the metrics were labeled incorrectly. *See* Quality of Care Action Plan, CON Application Exhibit 10, Note (final page of Exhibit 10). The first metric, rate of unplanned readmission for stroke patients, was labeled below average. UMMC's observed rate (10.9) is less than the National and State mean (12.7 and 12.4 respectively). The second metric, Death Rate for CABG, was also incorrectly labeled below average. UMMC's observed rate (1.6) is less than the National and State mean (3.2 and 3.2 respectively). According to a Commission staff representative, there was a programming error with a few of the mortality and readmission measures that caused the errors. The measures are still not corrected on the website for these two metrics, but the raw numbers are accurate.

[1] Available at https://healthcarequality.mhcc.maryland.gov/ (last accessed April 30, 2019).

Attached as **Exhibit 23** is the email from Sametria McCammon recognizing the error is the misidentification of the metrics as below average when in actuality they are average to above average based on the underlying data.

Adverse Impact

11. Has UMMC discussed the potential of renegotiating an increase in reimbursement rates with HSCRC? When did this occur, and what was the outcome of these discussions?

Applicant Response

UMMC submitted a full rate application to the HSCRC on January 22, 2019. Once the HSCRC has acted on that application, UMMC will be in a position to evaluate what rate relief is required for this project, and will discuss the matter with the HSCRC at that time.

12. Can UMMC sustain and maintain operations for the proposed Cancer Center addition if HSCRC does not approve a rate increase commensurate with the proposed Cancer Center project.

Applicant Response

UMMC's revenue estimates for this project assume an increase in rates equal to approximately 75% of the increase in capital cost (depreciation and interest), plus markup associated with the proposed project. If UMMC's full rate application submitted January 22, 2019 is approved, it will not require additional rate relief for this project. Once the HSCRC has acted on that application, UMMC will be in a position to evaluate what rate relief, if any, is required for this project.

Cost-Effectiveness

13. Please discuss how the construction of a 228,000 SF addition, at a cost of about $194.3 million, is a cost effective approach for UMMC "to expand the capacity of….the cancer center services." Identify the savings in costs, manpower, centralization of medical oncology services in one location, or any other cost effective approach as a result of this proposed construction of a nine-floor addition for the Cancer Center.

Applicant Response

UMMC analyzed two other building concepts for meeting the future clinical needs of the UM GCCC in addition to the proffered scheme:

1. Splitting the program between renovated space in the existing hospital and a new outpatient facility across the street on land owned by UMMC located catty-corner to the South Entrance of the medical center.

2. Relocating the outpatient and inpatient activities into a freestanding facility on land owned by UMMC located on the southeast corner of Greene and Lombard Streets, across the street intersection from the South Entrance of the medical center.

Splitting the program between two locations would not meet the project goal of co-locating inpatient and outpatient services. Furthermore, the program planning analysis indicates that additional square footage is needed for both inpatient and outpatient services. The split scheme would only provide additional space for outpatient services in the new building. Creating additional space for inpatient services within the existing space available in the main hospital could only be accomplished by taking space away from other programs, many of which are already operating at high levels of occupancy. See **Exhibit 17**. Moreover, UMMC was not able to identify a feasible solution to creating sufficient space needed for the inpatient units indicated by the demand analysis without re-blocking and stacking major areas of the existing hospital. This would be both unacceptably disruptive to ongoing patient care and not fiscally prudent. This scheme was not developed further, and due to its impracticality, no cost analysis was performed.

UMMC also considered locating cancer services in a freestanding facility. However, on further analysis, this option was forecasted to be more expensive to operate and presented serious logistical challenges to responding to clinical emergencies compared to the concept that is the subject of this proposal. Due to the need to duplicate some facilities and resources (labor and capital) that exist in the main hospital in a freestanding inpatient healthcare, the freestanding facility was estimated to be as much as 25% more expensive than the proposed plan. Attached as **Exhibit 24** is a discussion of marginal operating cost and stacking diagram for this option.

Efficiency

14. Please quantify the benefit of this proposed new addition in some measure such as dollars, manpower, or time saved as a result of efficiencies in operations, easier accessibility, or improved operational efficiency with regard to staffing, operations, patient safety, etc.

Applicant Response

A significant benefit of the proposed project is enabling UMMC to meet current demand for its cancer services, which it is currently unable to do. Moreover, as demonstrated in the CON Application, demand for cancer services at UMMC is expected to increase over time. As a result, the measurement of the benefit of this project should not be limited to efficiency as compared to the only *existing* services, but also the additional demand that UMMC will be able to meet as a result of this project.

A primary reason for a properly sized and designed space is patient safety. Aligning the number of inpatient beds, infusion bays and clinic exam rooms with projected volumes, UMMC will be better able to provide timely services to patients in the requisite space compared to the current state. The addition of an observation unit and an Evaluation and Treatment Center ("ETC") provide important patient safety improvements and facilitate care that may mitigate unnecessary admissions. The observation unit will reduce the likelihood that patients are discharged when there may be outstanding clinical concerns that cause re-admission. The ETC will provide a care site where outpatients undergoing an acute incident can be treated on an emergent basis by oncology specialists. This is a much better medical alternative to Emergency Department visits, and a less expensive option as well.

The design of the building will take into account a streamlined flow of patients, procedures, and staffing. While UMMC anticipates additional resources to operate in this new space due to increased volume, it believes there will be synergies in operation by co-locating the services and adopting technology that will help illuminate operational and patient satisfaction opportunities in a real time format.

See also the response to Question 28b below.

Shell Space

15. Regarding the shell space on the third and fourth floors, please discuss the future plans for these two floors. The applicant briefly states "the third floor will be used for future procedural space, and the fourth floor is for future inpatient clinical space." What are the future plans for these two floors, i.e., will it become part of the cancer center or address some future inpatient services within UMMC? Does UMMC have likely time frames for the completion and implementation of the shell space for these two floors?

Applicant Response

UMMC does not anticipate that the shell floors will be used for cancer center services in the future. UMMC likely will use the third floor for future procedural space as there are existing procedural services on that floor which align with this use, and those services will likely need to be renovated and expanded in the future. The fourth floor space is adjacent to a newly built Neonatal Intensive Care Unit (NICU) and is envisioned to be used for future improvements to pediatric inpatient services. As stated in the CON Application, the projected timeframe for both is within 48-72 months of completion of the cancer center expansion, but that is contingent upon population and utilization remaining consistent with current trends.

Need

16. Please respond to the following:

a. Regarding Tables 3 and 4, please provide an explanation for the decline in historical BMT use rate and total BMT discharge volume between 2016 to 2017, as opposed to the increase in these rates between 2017 to 2018. How can UMMC project an increase in both BMT use rate (26.4%) and total discharges (28.6%) when there was volatility observed during this four year span? Would going back several more years better reflect the growth observed in BMT use rate and total discharges at UMMC? If available, please provide information on the BMT use rate and total discharges between 2018 to year-to-date 2019?

Applicant Response

A high volume, physician leader of UMMC's BMT program, Dr. Saul Yanovich, left the organization in FY2017 and the position was vacant for a large part of that year. This explains the drop in UMMC discharges from FY2016 to FY2017. However, after hiring Dr. Yanovich's replacement, the volumes in 2018 continued to rise. During the first six months of FY2019, there were a total of 151 inpatient BMT discharges from Maryland Hospitals (89 at UMMC and 62 at Johns Hopkins). Annualized, this would put the inpatient discharges flat to FY2018. This

is expected as more bone marrow transplants are shifted to the outpatient setting. As shown in Table 8 of its CON Application, p. 39, UMMC expects its inpatient discharges for bone marrow transplants to initially decline to 174 in FY2023 before climbing back to FY2018 levels by FY2028.

b. Regarding Table 8, please provide the assumptions used to support the increase in use rate per 1,000 population from 2018 to 2028. What factors support your assumption that UMMC will maintain a 62.9% market share for BMT patients during this ten year period?

Applicant Response

According to Sg2, inpatient use rates for BMT are projected to rise due to an aging population and a subsequent projected increase in acute myeloid leukemia and non-Hodgkin lymphoma diagnosis which requires treatment through allogeneic transplant. See attached **Exhibit 25**, Sg2 Cancer Service Line Forecast 2018.

UMMC believes it will maintain its current market share of 62.9% based on the following factors.

- Limited competition: There is only one other hospital in Maryland offering this service and it is not anticipated any other Maryland hospital will enter this market due to the highly specialized nature of the treatment.

- Brand recognition: UMMC's UM GCCC has been consistently ranked in US News & World Report top 50 hospitals for cancer care and has developed a strong brand in Maryland and the region.

- University of Maryland Cancer Network: UMMC is part of the larger University of Maryland Medical System and has developed a formal cancer network anchored by UM GCCC.

c. Regarding Table 9 and CAR-T Cell Therapy patients, please provide the assumptions to support the applicant's projected 40 patient discharges from 2018 to 2028.

Applicant Response

CAR-T Cell Therapy is an emerging treatment and as such is difficult to predict future use. UMMC's volume projections were very conservative, holding volume at FY2019 levels. It is widely expected that CAR-T therapy will be approved to treat new indications, along with increased adoption among leukemia and lymphoma patients.

d. On p. 40, please explain why UMMC Midtown Campus and UM Capital Region Health are not a part of the University of Maryland Cancer Network and are not designated a UMMC partner cancer center.

Applicant Response

The UM Cancer Network is made up of formally affiliated cancer centers that have committed to particular organization structure, commitment to research, and quality goals. To-date, UMMC has affiliated with cancer centers at UM Baltimore Washington Medical Center, UM St. Joseph Medical Center, and UM Upper Chesapeake Medical Center. UMMC Midtown does not contain any components of medical oncology. The patients in the UM Capital Region Health market area are mainly treated in private physician offices and infusion centers at this point in time. The UM Capital Region Health on-campus oncology services are currently limited to a small infusion population. There is potential for UM Capital Region Health and UM Shore Regional Health to become members of the network in the future.

e. Provide evidence to support the statement on p. 43 that U.S. News considers UMGCCC one of the top cancer centers in the United States

Applicant Response

UMMC has been ranked in the top 50 cancer centers (out of more than 900 centers) in the United States, for each of the last 11 years, according to criteria utilized by *U.S. News and World Report*. *See, e.g.*, https://health.usnews.com/best-hospitals/rankings/cancer, last accessed April 30, 2019 (current U.S. News Cancer Center rankings).

Availability of More Cost-Effective Alternatives

17. On p. 46, the applicant references the Commission staff to a number of sections within the CON application to address "the need for the proposed project." The applicant should state in its own words these findings on Need for the construction of a $194.3 million addition for the Cancer Center.

Applicant Response

UMMC supplements its response to COMAR § 10.24.01.08G(3)(c), Availability of More Cost-Effective Alternatives, in the attached **Exhibit 26(a)**. **Exhibit 26(b)** is a redline comparing UMMC's initial response to this standard to the supplemental response.

18. Regarding Alternative #1, please provide a dollar amount associated with constructing the freestanding Cancer Center patient tower on a nearby location.

Applicant Response

UMMC conducted an internal analysis of this option, estimating its cost at $251,600,000.

19. Regarding Alternative #2, please provide further details as to the reason the existing space for the cancer program at UMMC is not sufficient to support the programed growth of the cancer program. Describe the limitations with the existing location with regard to size or other factors. Specify in detail the significant adverse impact on other programs that would be created by renovating these existing areas, and the estimated dollar cost for implementing Alternative #2.

Applicant Response

UMMC did not estimate the cost of Alternative 2. As noted in response to Question 13 above, UMMC was not able to identify a feasible solution to creating sufficient space needed for the inpatient units indicated by the demand analysis without re-blocking and stacking major areas of the existing hospital. This would be both unacceptably disruptive to ongoing patient care and not fiscally prudent. This scheme was not developed further, and due to its impracticality, no cost analysis was performed.

Viability of the Proposal

20. Please provide a copy of the Veterans Administration's *Mental Health Environment of Care Checklist (MHEOCC)* referenced on p. 49. Why was a checklist related to the mental health environment used with the design and construction of the new addition?

Applicant Response

UMMC included the text referred to in this question in error – the *Mental Health Environment of Care Checklist* was not used in the design of the new addition. The text should be stricken and replaced as follows:

Original CON Application, p. 49, second full paragraph:

> The completed work will be independently commissioned to confirm that dynamic systems are operating as designed and specified. As mentioned in response to Standard .04B(12) Patient Safety, the design and the construction will be evaluated for risk to patients using the Veterans Administration Mental Health Environment of Care Checklist (MHEOCC).

Revised text:

> The completed work will be independently commissioned to confirm that dynamic systems are operating as designed and specified. The project will be designed to conform to the applicable version of the International Building Codes, the NFPA Life Safety Code, and the Facility Guidelines for Design and Construction.

Impact

21. Please respond to the following:

a. Identify the assumptions used by Sg2 to project the growth rate in discharges and market share in Tables 18 and 19, respectively.

Applicant Response

Sg2 predicts a 3% decline in inpatient cancer discharges from 2018-2028:

> Although a growing aging and cancer survivor population, along with changing disease epidemiology, bolsters overall demand for cancer services and innovative technologies expand care to new patient populations, opportunities remain primarily in the outpatient setting. The use of new genetic-based diagnostic tests combined with the adoption of targeted therapies, improved care coordination, and more utilization of palliative care and hospice will lower treatment-related side effects and avoidable medical admissions. Similarly, the expansion of alternative care models and improved care coordination will also lower IP admissions for chemotherapy-related complications. While initial adoption of these types of care models is slow, expect some acceleration over the forecast period as payment structures continue to reward cost reduction through improved coordination and avoidance of unnecessary, high-cost inpatient care.

Exhibit 27, Sg2 National-Disease Based Forecast, Service Line Expert Analysis, p. 1.

b. State the assumptions for UMMC's 1.2% growth (125 patients) in medical oncology volumes from 2019 to 2028.

Applicant Response

From FY2015 to FY2018 UMMC medical oncology volumes grew 19.4%, or a CAGR of 6.1%. This resulted in a market share increase of 2.4 percentage points. Due to the projected market declines and several initiatives under development at UMMC, this rate of growth is not expected to continue. The following UMMC initiatives are projected to reduce the rate of growth of medical oncology discharges:

- The opening of a walk-in care center within the UM GCCC
- Investments in palliative care services
- Investments in care management/coordination

The result of the projected market declines and above mentioned UMMC initiatives will result in a total growth in medical oncology volumes at UMMC of 10.8% from FY2018 to FY2028 or a CAGR of 0.75%.

c. Regarding Table 19, does UMMC have a transfer agreement or arrangement with all of these hospitals to refer medical oncology patients to UMMC's Greenebaum Cancer Center?

Applicant Response

UMMC has arrangements with all hospitals in Maryland related to the transfer of patients to UMMC via Maryland ExpressCare. Maryland ExpressCare Adult Transport Service offers inter-

facility transport by ground or air ambulance for patients requiring advanced monitoring and/or intervention while being transferred to UMMC.

Tables

Questions 22 - 28.

Applicant Response

UMMC requests an additional two week extension to provide responses to Questions 22-28, involving the tables attached as Exhibit 1 to UMMC's application.

Note Regarding Project Drawings:

The location of the functions and of the specific rooms on the 5th floor relative to one another is being reviewed and may be modified.

Table of Exhibits

No.	Description
14.	Diagram of Existing Locations of Cancer Center Units
15.	Cancer Incidence Rates by States
16.	Maryland County Incidence Rates
17.	UMMC Occupancy Rates – FY 2019 YTD
18.	Excerpts from State of Maryland Capital Budget FY 2019, as proposed (a) and as enacted (b)
19.	Policy and Representative List of Services and Charges
20.	Financial Assistance Policy cover letter, application, and verification statement form
21.	Financial Assistance Policy effective December 2, 2018
22.	UMMC Charity Care Policy Notice
23.	Sametria McCammon/MHCC email recognizing error in misidentification of metrics
24.	Cancer Center Operational Cost Summary and Stacking Diagram
25.	Sg2 Cancer Service Line Forecast 2018
26.	Supplemental response to COMAR § 10.24.01.08G(3)(c)—Availability of More Cost-Effective Alternatives
27.	Sg2 National-Disease Based Forecast, Service Line Expert Analysis

Table of Tables

No.	Description

I hereby declare and affirm under the penalties of perjury that the facts stated in this Response to Completeness Questions Dated April 18, 2019 and its attachments are true and correct to the best of my knowledge, information, and belief.

5/1/2019
Date

Dana Farrakhan
Senior Vice-President, Strategy,
Community & Business Development
UMMC

#651297
006551-0238

I hereby declare and affirm under the penalties of perjury that the facts stated in this Response to Completeness Questions Dated April 18, 2019 and its attachments are true and correct to the best of my knowledge, information, and belief.

5/1/19
Date

Joseph E. Hoffman III
Senior Vice President and Chief
Financial Officer
UMMC

#651302
006551-0238

I hereby declare and affirm under the penalties of perjury that the facts stated in this Response to Completeness Questions Dated April 18, 2019 and its attachments are true and correct to the best of my knowledge, information, and belief.

5-8-19
Date

Georgia Harrington
Senior Vice President, Operations
UMMC

#651305
006551-0238

I hereby declare and affirm under the penalties of perjury that the facts stated in this Response to Completeness Questions Dated April 18, 2019 and its attachments are true and correct to the best of my knowledge, information, and belief.

05/01/2019
Date

Leonard Taylor
Senior Vice President for Asset Planning
UMMS

#651300
006551-0238

I hereby declare and affirm under the penalties of perjury that the facts stated in this Response to Completeness Questions Dated April 18, 2019 and its attachments are true and correct to the best of my knowledge, information, and belief.

5/1/2019
Date

Brian Sturm
Vice President, UMMS Corporate Decision Support and Capital Planning

I hereby declare and affirm under the penalties of perjury that the facts stated in this Response to Completeness Questions Dated April 18, 2019 and its attachments are true and correct to the best of my knowledge, information, and belief.

5/1/19
Date

Marina Bogin
Senior Director, Finance Decision Support
UMMC

#651309
006551-0238

I hereby declare and affirm under the penalties of perjury that the facts stated in this Response to Completeness Questions Dated April 18, 2019 and its attachments are true and correct to the best of my knowledge, information, and belief.

5/02/2019
Date

Nicholas Jaidar
Director of Oncology Operations
UMMC

#651313
006551-0238

I hereby declare and affirm under the penalties of perjury that the facts stated in this Response to Completeness Questions Dated April 18, 2019 and its attachments are true and correct to the best of my knowledge, information, and belief.

05/01/2019
Date

DNP, RN, NEA-BC
Suzanne Cowperthwaite, RN
Director of Oncology Nursing
UMMC

I hereby declare and affirm under the penalties of perjury that the facts stated in this Response to Completeness Questions Dated April 18, 2019 and its attachments are true and correct to the best of my knowledge, information, and belief.

05/01/19
Date

Scott Tinsley-Hall
Director, Strategic Planning
UMMC

#651310
006551-0238

I hereby declare and affirm under the penalties of perjury that the facts stated in this Response to Completeness Questions Dated April 18, 2019 and its attachments are true and correct to the best of my knowledge, information, and belief.

5.6.19
Date

Linda Whitmore
Director for Project Development
UMMC

#651314
006551-0238

I hereby declare and affirm under the penalties of perjury that the facts stated in this Response to Completeness Questions Dated April 18, 2019 and its attachments are true and correct to the best of my knowledge, information, and belief.

5/2/19
Date

Bret Elam
Project Manager
UMMC

#651316
006551-0238

I hereby declare and affirm under the penalties of perjury that the facts stated in this Response to Completeness Questions Dated April 18, 2019 and its attachments are true and correct to the best of my knowledge, information, and belief.

5/1/2019
Date

Donald Steacy
Manager, Strategic Analytics &
Program Development
UMMC

#651317
006551-0238

EXHIBIT 14

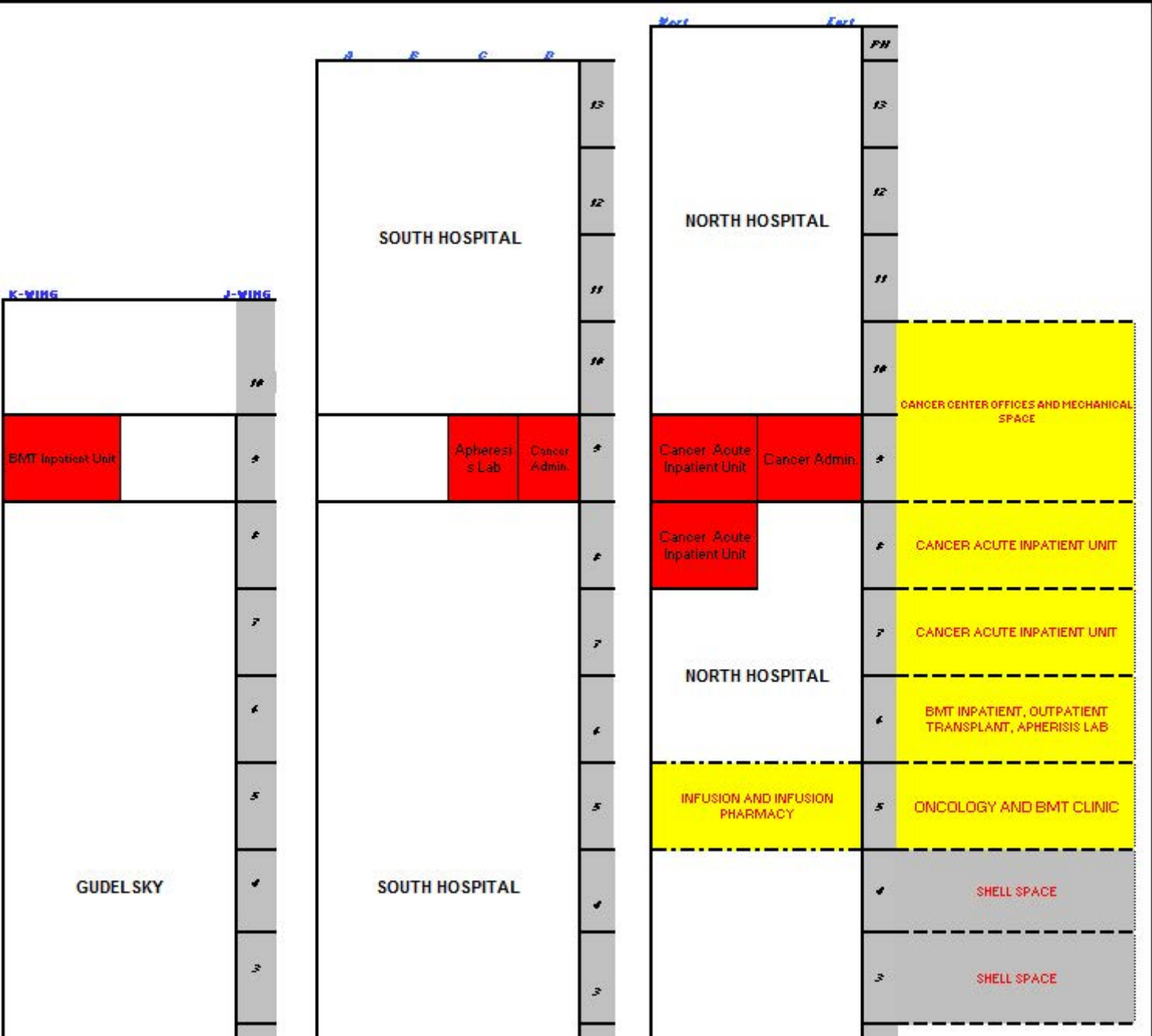

K-WING
J-WING
BMT Inpatient Unit
GUDELSKY
SOUTH HOSPITAL
Apheresis Lab
Cancer Admin.
SOUTH HOSPITAL
NORTH HOSPITAL
Cancer Acute Inpatient Unit
Cancer Admin.
Cancer Acute Inpatient Unit
NORTH HOSPITAL
INFUSION AND INFUSION PHARMACY
CANCER CENTER OFFICES AND MECHANICAL SPACE
CANCER ACUTE INPATIENT UNIT
CANCER ACUTE INPATIENT UNIT
BMT INPATIENT, OUTPATIENT TRANSPLANT, APHERISIS LAB
ONCOLOGY AND BMT CLINIC
SHELL SPACE
SHELL SPACE

EXHIBIT 15

CANCER INCIDENCE RATES BY STATE

Rank	Area	Age Adjusted Rate
1	Kentucky	512.0
2	Delaware	490.6
3	Pennsylvania	483.1
4	New York	482.0
5	New Jersey	479.5
6	Louisiana	477.5
7	Minnesota	475.0
8	Iowa	470.2
9	Arkansas	470.1
10	Connecticut	468.6
11	Illinois	468.0
12	Maine	468.0
13	West Virginia	467.7
14	New Hampshire	466.4
15	Ohio	460.8
16	North Carolina	460.6
17	Tennessee	459.8
18	Georgia	458.6
19	Rhode Island	458.0
20	Mississippi	456.7
21	Wisconsin	456.4
22	Nebraska	456.1
23	Kansas	452.9
24	Massachusetts	452.8
25	South Carolina	452.8
26	Missouri	449.4
27	Alabama	449.1
28	Maryland	448.7
29	Indiana	447.4
30	North Dakota	445.9
31	Montana	443.9
32	Oklahoma	442.1
33	Idaho	437.9
34	Michigan	435.8
35	Vermont	435.6
36	South Dakota	433.1
37	Washington	431.8
38	Hawaii	408.5
39	Florida	405.1
40	Virginia	401.7
41	Utah	400.8
42	Oregon	399.6
43	California	398.0
44	Alaska	397.3
45	Texas	396.0
46	Wyoming	391.9
47	Colorado	384.3
48	District of Columbia	380.0
49	Arizona	377.3
50	New Mexico	366.2
51	Nevada	348.8

Note: Year 2015, All Ages, All Cancer Types, Rate per 100,000

Source: U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on November 2017 submission data (1999-2015): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; www.cdc.gov/cancer/dataviz, June 2018

EXHIBIT 16

(https://www.cancer.gov/) (https://www.cdc.gov)

STATE CANCER PROFILES

Incidence Rates Table

Incidence Rate Report for Maryland by County

All Cancer Sites, 2011-2015

All Races (includes Hispanic), Both Sexes, All Ages

Sorted by Rate

County	Met Healthy People Objective of ***?	Age-Adjusted Incidence Rate† cases per 100,000 (95% Confidence Interval)	Average Annual Count	Recent Trend	Recent 5-Year Trend‡ in Incidence Rates (95% Confidence Interval)
Maryland [6,10]	***	446.2 (443.9, 448.5)	29,531	stable →	-0.5 (-1.7, 0.7)
US (SEER+NPCR) [1,10]	***	441.2 (440.9, 441.5)	1,580,653	falling ↓	-1.4 (-2.0, -0.7)
Wicomico County [6,10]	***	529.5 (510.2, 549.5)	592	stable →	0.6 (-5.8, 7.4)
Cecil County [6,10]	***	504.8 (486.0, 524.2)	579	rising ↑	3.1 (0.5, 5.7)
Harford County [6,10]	***	491.2 (479.6, 503.1)	1,423	stable →	0.8 (-1.0, 2.6)
Dorchester County [6,10]	***	488.7 (459.3, 519.5)	224	falling ↓	-5.0 (-7.6, -2.2)
Worcester County [6,10]	***	487.4 (464.8, 511.0)	407	stable →	1.4 (-4.1, 7.2)
Baltimore City [6,10]	***	485.9 (478.1, 493.7)	3,162	falling ↓	-1.3 (-2.5, -0.1)
Allegany County [6,10]	***	480.1 (460.7, 500.3)	482	stable →	0.6 (-4.8, 6.4)
Somerset County [6,10]	***	479.3 (444.4, 516.4)	146	stable →	-3.7 (-9.3, 2.2)
Baltimore County [6,10]	***	476.8 (470.6, 483.1)	4,748	stable →	0.8 (-0.8, 2.5)
Caroline County [6,10]	***	475.5 (444.7, 508.0)	185	stable →	-3.1 (-9.9, 4.3)
Carroll County [6,10]	***	471.0 (457.4, 485.0)	953	stable →	0.7 (-3.1, 4.6)
Calvert County [6,10]	***	465.2 (445.8, 485.4)	463	stable →	-2.5 (-10.5, 6.2)
Kent County [6,10]	***	462.3 (426.4, 500.7)	145	stable →	0.2 (-6.3, 7.3)
Anne Arundel County [6,10]	***	461.7 (453.9, 469.6)	2,810	stable →	0.1 (-1.1, 1.2)
Washington County [6,10]	***	456.6 (442.6, 471.1)	824	stable →	-1.6 (-5.4, 2.4)
Charles County [6,10]	***	442.0 (426.5, 457.9)	666	stable →	-0.1 (-2.5, 2.3)
Talbot County [6,10]	***	441.7 (416.9, 467.8)	281	stable →	-0.3 (-4.3, 3.8)
Frederick County [6,10]	***	441.1 (429.4, 453.0)	1,148	stable →	1.5 (-3.1, 6.3)
Queen Annes County [6,10]	***	436.3 (412.8, 460.9)	274	stable →	4.5 (-7.0, 17.6)
St. Marys County [6,10]	***	434.9 (417.4, 452.9)	491	stable →	1.4 (-3.1, 6.0)
Howard County [6,10]	***	408.7 (398.5, 419.2)	1,295	stable →	-2.7 (-7.3, 2.1)
Garrett County [6,10]	***	406.3 (378.4, 435.9)	170	stable →	-0.6 (-10.9, 11.0)
Prince Georges County [6,10]	***	403.2 (397.1, 409.4)	3,570	stable →	-0.3 (-2.5, 1.9)
Montgomery County [6,10]	***	381.8 (376.6, 387.0)	4,333	stable →	-2.1 (-4.4, 0.3)

Notes:
Created by statecancerprofiles.cancer.gov on 05/02/2019 2:17 pm.
Data for the United States does not include data from Nevada

*** No Healthy People 2020 Objective for this cancer.

State Cancer Registries (http://statecancerprofiles.cancer.govhttps://nccd.cdc.gov/dcpc_Programs/index.aspx#/3) may provide more current or more local data.
† Incidence rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (http://www.seer.cancer.gov/stdpopulations/stdpop.19ages.html) (19 age groups: <1, 1-4, 5-9, ... , 80-84, 85+). Rates are for invasive cancer only (except for bladder cancer which is invasive and in situ) or unless otherwise specified. Rates calculated using SEER*Stat. Population counts for denominators are based on Census populations as modified by NCI. The 1969-2015 US Population Data (http://statecancerprofiles.cancer.govhttps://seer.cancer.gov/popdata/) File is used for SEER and NPCR incidence rates.
‡ Incidence data come from different sources. Due to different years of data availability, most of the trends are AAPCs based on APCs but some are APCs calculated in SEER*Stat. Please refer to the source for each area for additional information.
Healthy People 2020 (http://statecancerprofiles.cancer.govhttps://www.healthypeople.gov/) Objectives provided by the Centers for Disease Control and Prevention (http://statecancerprofiles.cancer.govhttps://www.cdc.gov).

[1] Source: CDC's National Program of Cancer Registries Cancer Surveillance System (NPCR-CSS) November 2017 data submission and SEER November 2017 submission as published in *United States Cancer Statistics* (http://statecancerprofiles.cancer.govhttps://nccd.cdc.gov/uscs/).
[6] Source: State Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System (NPCR-CSS) November 2017 data submission.
[10] Source: Incidence data provided by the National Program of Cancer Registries (NPCR). (http://statecancerprofiles.cancer.govhttps://nccd.cdc.gov/uscs/) EAPCs calculated by the National Cancer Institute using SEER*Stat. (http://seer.cancer.gov/seerstat/) Rates are age-adjusted to the 2000 US standard population (http://www.seer.cancer.gov/stdpopulations/single_age.html) (19 age groups: <1, 1-4, 5-9, ... , 80-84,85+). Rates are for invasive cancer only (except for bladder cancer which is invasive and in situ) or unless otherwise specified. Population counts for

denominators are based on Census populations as modified by NCI. The 1969-2016 US Population Data (http://seer.cancer.gov/popdata/) File is used with NPCR November 2017 data.

Please note that the data comes from different sources. Due to different years (http://statecancerprofiles.cancer.gov/historicaltrend/differences.html) of data availablility, most of the trends are AAPCs based on APCs but some are APCs calculated in SEER*Stat. (http://statecancerprofiles.cancer.govhttps://seer.cancer.gov/seerstat/) Please refer to the source for each graph for additional information.

Interpret Rankings (http://statecancerprofiles.cancer.gov/interpretrankings.html) provides insight into interpreting cancer incidence statistics. When the population size for a denominator is small, the rates may be unstable. A rate is unstable when a small change in the numerator (e.g., only one or two additional cases) has a dramatic effect on the calculated rate.

Data for United States does not include Puerto Rico.

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EXHIBIT 17

UMMC OCCUPANCY RATES BY UNIT
(FY2019 YTD)

	DISCHARGES																DISCHARGES/OBSERVATIONS				ALOS										INPATIENT DAYS		OBSERVATION DAYS	
	FY2017			FY2018			FY2019 Feb YTD			FY2019(a)			CAGR FY17 - FY19(a)			Annual Growth Projection Rate		TOTAL DISCHARGE PROJECTIONS		OBSERVATION PROJECTIONS		FY2017			FY2018			FY2019 Feb YTD			PROPOSED ALOS					
Row Labels	INP	OBS	TOT	INP	OBS	TOT	INP	OBS	TOT	INP	OBS	TOT	INP	OBS	TOT	INP	OBS	Year 5	Year 10	Year 5	Year 10	INP	OBS	TOT	INP	OBS	TOT	INP	OBS	TOT	IP	OBS	Year 5	Year 10	Year 5	Year 10
Behavioral Health	**1,118**	**3**	**1,121**	**1,164**	**6**	**1,170**	**800**	**3**	**803**	**1,200**	**5**	**1,205**	**3.6%**	**29.1%**	**3.7%**		***0.0%***	***1,304***	***1,484***	***6***	***6***	**11.97**	**1.16**	**11.94**	**11.92**	**1.94**	**11.87**	**12.28**	**1.69**	**12.24**			***14,326***	***15,404***	***8***	***8***
Adult Psychiatry	522	3	525	553	5	558	411	3	414	617	5	622	8.7%	29.1%	8.8%	***0.0%***	***0.0%***	553	553	5	5	14.05	1.16	13.97	14.17	1.59	14.06	14.00	1.69	13.91	***13.41***	***1.69***	7,416	7,416	8	8
Child Psychiatry	372		372	424		424	282		282	423	0	423	6.6%		6.6%	***5.5%***	***0.0%***	554	724	0	0	5.71		5.71	5.49		5.49	5.13		5.13	***5.13***	***0.00***	2,842	3,714	0	0
Geriatric Psychiatry	224		224	187	1	188	107		107	161	0	161	-15.2%		-15.2%	***1.0%***	***0.0%***	197	207	1	1	17.54		17.54	19.87	3.70	19.78	24.48		24.48	***20.65***	***0.00***	4,068	4,275	0	0
Cancer Center	**1,207**	**22**	**1,229**	**1,191**	**21**	**1,212**	**865**	**23**	**888**	**1,298**	**35**	**1,333**	**3.7%**	**26.1%**	**4.1%**		***0.0%***	***1,389***	***1,625***	***21***	***21***	**11.06**	**1.61**	**10.89**	**12.33**	**1.48**	**12.15**	**11.83**	**1.77**	**11.57**			***15,411***	***17,875***	***38***	***38***
Bone Marrow	195	9	204	224	2	226	185	5	190	278	8	286	19.4%	-5.7%	18.4%	***1.1%***	***0.0%***	236	251	2	2	15.97	1.76	15.35	17.64	1.58	17.50	16.66	1.52	16.26	***16.20***	***1.52***	3,823	4,066	3	3
Medicine Oncology	1,012	13	1,025	967	19	986	680	18	698	1,020	27	1,047	0.4%	44.1%	1.1%	***3.6%***	***0.0%***	1,153	1,374	19	19	10.12	1.50	10.01	11.10	1.46	10.92	10.52	1.84	10.29	***10.05***	***1.84***	11,588	13,809	35	35
Family Medicine	**478**	**355**	**833**	**651**	**443**	**1,094**	**373**	**293**	**666**	**560**	**440**	**1,000**	**8.2%**	**11.3%**	**9.6%**	***0.0%***	***0.0%***	**651**	**651**	**443**	**443**	**5.01**	**2.16**	**3.80**	**4.64**	**2.24**	**3.67**	**5.07**	**2.46**	**3.92**	***5.07***	***2.46***	**3,300**	**3,300**	**1,090**	**1,090**
Heart & Vascular	**3,840**	**487**	**4,327**	**3,916**	**504**	**4,420**	**2,498**	**415**	**2,913**	**3,747**	**623**	**4,370**	**-1.2%**	**13.1%**	**0.5%**		***0.0%***	***3,988***	***4,081***	***504***	***504***	**9.10**	**1.21**	**8.21**	**9.03**	**1.21**	**8.14**	**9.16**	**1.34**	**8.05**			***36,105***	***37,752***	***675***	***675***
Cardiac Surgery	1,462	29	1,491	1,549	53	1,602	948	45	993	1,422	68	1,490	-1.4%	53.1%	0.0%	***2.0%***	***0.0%***	1,711	1,889	53	53	12.65	1.25	12.43	13.06	1.50	12.68	13.23	1.17	12.68	***12.39***	***1.17***	21,199	23,405	62	62
Cardiology	1,788	383	2,171	1,825	395	2,220	1,216	326	1,542	1,824	489	2,313	1.0%	13.0%	3.2%	***-1.0%***	***0.0%***	1,735	1,650	395	395	6.49	1.21	5.56	6.19	1.20	5.30	6.70	1.36	5.57	***6.57***	***1.36***	11,399	10,841	535	535
Vascular Surgery	590	75	665	542	56	598	334	44	378	501	66	567	-7.9%	-6.2%	-7.7%	***0.0%***	***0.0%***	542	542	56	56	8.20	1.20	7.41	7.06	0.96	6.49	6.58	1.38	5.98	***6.47***	***1.38***	3,507	3,507	77	77
Medicine	**4,396**	**1,900**	**6,296**	**4,881**	**2,384**	**7,265**	**2,982**	**1,607**	**4,589**	**4,473**	**2,411**	**6,884**	**0.9%**	**12.6%**	**4.6%**		***0.0%***	***4,881***	***4,881***	***2,384***	***2,384***	**8.20**	**1.93**	**6.31**	**8.22**	**1.81**	**6.11**	**8.58**	**2.09**	**6.31**			***35,998***	***35,998***	***5,129***	***5,129***
DASH Hospitalist	258	496	754	350	655	1,005	332	657	989	498	986	1,484	38.9%	41.0%	40.3%	***0.0%***	***0.0%***	350	350	655	655	5.33	1.62	2.89	5.51	1.56	2.93	6.74	1.68	3.38	***5.43***	***1.68***	1,901	1,901	1,103	1,103
General Internal	1,050	525	1,575	1,025	635	1,660	465	218	683	698	327	1,025	-18.5%	-21.1%	-19.3%	***0.0%***	***0.0%***	1,025	1,025	635	635	6.49	2.09	5.02	7.26	1.85	5.19	7.67	2.26	5.94	***6.86***	***2.26***	7,032	7,032	1,434	1,434
Hospitalist	1,209	515	1,724	1,489	618	2,107	1,013	502	1,515	1,520	753	2,273	12.1%	20.9%	14.8%	***0.0%***	***0.0%***	1,489	1,489	618	618	7.31	2.07	5.74	7.12	1.99	5.61	7.77	2.45	6.00	***6.81***	***2.45***	10,140	10,140	1,512	1,512
Infectious Disease	502	185	687	817	358	1,175	400	192	592	600	288	888	9.3%	24.8%	13.7%	***0.0%***	***0.0%***	817	817	358	358	7.21	1.97	5.80	6.77	1.89	5.28	7.22	2.31	5.62	***6.07***	***2.31***	4,959	4,959	828	828
Intermediate Care	589	12	601	486	20	506	354	17	371	531	26	557	-5.1%	47.2%	-3.7%	***0.0%***	***0.0%***	486	486	20	20	11.58	1.47	11.38	13.09	1.83	12.65	11.56	2.56	11.14	***10.30***	***2.56***	5,006	5,006	51	51
Pulmonary	508	6	514	579	7	586	374	4	378	561	6	567	5.1%	0.0%	5.0%	***0.0%***	***0.0%***	579	579	7	7	12.98	0.97	12.84	12.71	1.18	12.57	12.64	1.84	12.52	***11.23***	***1.84***	6,502	6,502	13	13
Sub Specialties	280	161	441	135	91	226	44	17	61	66	26	92	-51.4%	-59.8%	-54.3%	***0.0%***	***0.0%***	135	135	91	91	7.07	2.00	5.22	6.55	1.86	4.66	4.84	2.07	4.07	***3.40***	***2.07***	459	459	188	188
Neuroscience	**2,089**	**252**	**2,341**	**2,228**	**336**	**2,564**	**1,452**	**216**	**1,668**	**2,178**	**324**	**2,502**	**2.1%**	**13.4%**	**3.4%**		***0.0%***	***2,428***	***2,649***	***336***	***336***	**6.91**	**1.15**	**6.29**	**7.37**	**1.25**	**6.57**	**7.78**	**1.81**	**7.01**			***17,943***	***19,595***	***621***	***621***
Neurology	987	169	1,156	1,071	245	1,316	684	149	833	1,026	224	1,250	2.0%	15.1%	4.0%	***2.0%***	***0.0%***	1,182	1,306	245	245	7.33	1.29	6.44	7.84	1.37	6.64	8.70	2.09	7.52	***7.98***	***2.09***	9,432	10,422	512	512
Neurosurgery	1,102	83	1,185	1,157	91	1,248	768	67	835	1,152	101	1,253	2.2%	10.3%	2.8%	***1.5%***	***0.0%***	1,246	1,343	91	91	6.54	0.87	6.15	6.94	0.91	6.50	6.95	1.19	6.49	***6.83***	***1.19***	8,510	9,173	109	109
Newborn	**989**		**989**	**1,033**		**1,033**	**723**		**723**	**1,085**	**0**	**1,085**	**4.7%**		**4.7%**	***1.0%***	***0.0%***	**1,086**	**1,141**	**0**	**0**	**2.46**		**2.46**	**2.60**		**2.60**	**2.60**		**2.60**	***2.62***	***0.00***	**2,845**	**2,989**	**0**	**0**
Ophthalmology		**4**	**4**	**2**	**1**	**3**		**1**	**1**	**0**	**2**	**2**		**-29.3%**	**-29.3%**	***0.0%***	***0.0%***	**2**	**2**	**1**	**1**		**0.85**	**0.85**	**1.50**	**0.83**	**1.28**		**1.01**	**1.01**	***0.00***	***1.01***	**0**	**0**	**1**	**1**
Oral Maxxilofacial	**338**	**303**	**641**	**350**	**219**	**569**	**197**	**142**	**339**	**296**	**213**	**509**	**-6.4%**	**-16.2%**	**-10.9%**	***0.8%***	***0.0%***	**365**	**380**	**219**	**219**	**5.04**	**0.67**	**2.98**	**4.25**	**0.78**	**2.92**	**5.34**	**1.20**	**3.60**	***5.27***	***1.20***	**1,924**	**2,003**	**263**	**263**
Orthopaedics	**886**	**297**	**1,183**	**837**	**293**	**1,130**	**516**	**169**	**685**	**774**	**254**	**1,028**	**-6.5%**	**-7.5%**	**-6.8%**	***-1.0%***	***0.0%***	**797**	**757**	**293**	**293**	**5.71**	**1.05**	**4.54**	**5.93**	**1.08**	**4.67**	**5.03**	**1.19**	**4.08**	***5.01***	***1.19***	**3,993**	**3,793**	**349**	**349**
Otorhinolaryngology	**334**	**457**	**791**	**377**	**461**	**838**	**196**	**292**	**488**	**294**	**438**	**732**	**-6.2%**	**-2.1%**	**-3.8%**	***1.0%***	***0.0%***	**397**	**417**	**461**	**461**	**5.64**	**1.03**	**2.97**	**6.07**	**1.14**	**3.36**	**6.43**	**1.19**	**3.30**	***5.84***	***1.19***	**2,318**	**2,435**	**550**	**550**
Pediatrics	**2,059**	**545**	**2,604**	**2,282**	**519**	**2,801**	**1,479**	**346**	**1,825**	**2,219**	**519**	**2,738**	**3.8%**	**-2.4%**	**2.5%**		***0.0%***	***2,504***	***2,746***	***519***	***519***	**11.53**	**1.40**	**9.41**	**11.38**	**1.19**	**9.49**	**11.94**	**1.38**	**9.94**			***29,155***	***31,509***	***691***	***691***
Cardiology	19	106	125	56	95	151	42	43	85	63	65	128	82.1%	-21.7%	1.2%	***2.0%***	***0.0%***	61	66	95	95	8.63	0.82	2.01	14.38	0.73	5.79	16.33	0.91	8.53	***16.33***	***0.91***	996	1,078	87	87
Critical Care	258	53	311	204	69	273	128	57	185	192	86	278	-13.7%	27.4%	-5.5%	***3.0%***	***0.0%***	236	274	69	69	7.82	1.02	6.66	13.83	0.87	10.55	16.05	1.11	11.45	***14.91***	***1.11***	3,519	4,085	77	77
Gastroenterology	169	92	261	151	74	225	94	45	139	141	68	209	-8.7%	-14.0%	-10.5%	***2.0%***	***0.0%***	166	183	74	74	5.23	1.82	4.03	5.56	1.53	4.23	7.35	1.53	5.47	***5.94***	***1.53***	986	1,087	113	113
General Internal	430	111	541	670	121	791	325	61	386	488	92	580	6.5%	-9.0%	3.5%	***2.0%***	***0.0%***	740	817	121	121	4.52	1.75	3.95	5.14	1.45	4.58	6.09	1.48	5.36	***5.97***	***1.48***	4,418	4,877	180	180
Hematology/Oncology	266	72	338	286	63	349	177	32	209	266	48	314	0.0%	-18.4%	-3.6%	***2.0%***	***0.0%***	316	349	63	63	5.09	1.40	4.30	5.00	1.24	4.32	4.93	1.40	4.39	***4.96***	***1.40***	1,568	1,732	88	88
Hospitalist	253	79	332	325	92	417	332	108	440	498	162	660	40.3%	43.2%	41.0%	***2.0%***	***0.0%***	360	397	92	92	4.94	1.50	4.12	3.35	1.26	2.89	5.63	1.59	4.64	***4.41***	***1.59***	1,588	1,751	147	147
Nephrology	104	32	136	31	5	36				0	0	0	-100.0%	-100.0%	-100.0%	***2.0%***	***0.0%***	36	41	5	5	4.65	1.23	3.85	5.58	1.68	5.04				***0.00***	***0.00***	0	0	0	0
Neonate	560		560	559		559	381		381	572	0	572	1.1%		1.1%	***1.0%***	***0.0%***	589	619	0	0	27.93		27.93	27.49		27.49	24.97		24.97	***27.30***	***0.00***	16,080	16,899	0	0
Shock Trauma	**4,665**	**268**	**4,933**	**4,102**	**205**	**4,307**	**2,556**	**109**	**2,665**	**3,834**	**164**	**3,998**	**-9.3%**	**-21.8%**	**-10.0%**		***0.0%***	**4,102**	**4,102**	**205**	**205**	**8.66**	**1.04**	**8.25**	**8.64**	**1.35**	**8.29**	**9.95**	**1.49**	**9.61**			**38,282**	**38,282**	**304**	**304**
Shock Trauma	4,025	134	4,159	3,524	129	3,653	2,233	54	2,287	3,350	81	3,431	-8.8%	-22.3%	-9.2%	***0.0%***	***0.0%***	3,524	3,524	129	129	9.21	1.06	8.94	9.19	1.35	8.91	10.54	1.46	10.33	***9.93***	***1.46***	34,993	34,993	188	188
Trauma Orthopaedics	640	134	774	578	76	654	323	55	378	485	83	568	-12.9%	-21.3%	-14.3%	***0.0%***	***0.0%***	578	578	76	76	5.26	1.02	4.53	5.29	1.36	4.84	5.88	1.53	5.25	***5.69***	***1.53***	3,289	3,289	116	116

UMMC OCCUPANCY RATES BY UNIT
(FY2019 YTD)

	DISCHARGES																DISCHARGES/OBSERVATIONS				ALOS													
	FY2017			FY2018			FY2019 Feb YTD			FY2019(a)			CAGR FY17 - FY19(a)			Annual Growth Projection Rate		TOTAL DISCHARGE PROJECTIONS		OBSERVATION PROJECTIONS		FY2017			FY2018			FY2019 Feb YTD			*PROPOSED ALOS*		INPATIENT DAYS		OBSERVATION DAYS	
Row Labels	**INP**	**OBS**	**TOT**	**INP**	**OBS**	**TOT**	**INP**	**OBS**	**TOT**	**INP**	**OBS**	**TOT**	**INP**	**OBS**	**TOT**	***INP***	***OBS***	**Year 5**	**Year 10**	**Year 5**	**Year 10**	**INP**	**OBS**	**TOT**	**INP**	**OBS**	**TOT**	**INP**	**OBS**	**TOT**	***IP***	***OBS***	**Year 5**	**Year 10**	**Year 5**	**Year 10**
Surgical Specialties	**2,427**	**1,032**	**3,459**	**2,554**	**873**	**3,427**	**1,460**	**679**	**2,139**	**2,190**	**1,019**	**3,209**	**-5.0%**	**-0.6%**	**-3.7%**		***0.0%***	**2,589**	**2,634**	**873**	**873**	**6.54**	**1.19**	**4.95**	**6.75**	**1.28**	**5.35**	**7.45**	**1.37**	**5.52**			**19,720**	**20,310**	**1,192**	**1,192**
Emergency Surgery	409	39	448	642	68	710	307	65	372	461	98	559	6.2%	58.5%	11.7%	***1.0%***	***0.0%***	675	710	68	68	9.65	1.43	8.93	10.46	1.63	9.62	12.11	1.81	10.31	***11.55***	***1.81***	7,796	8,201	123	123
General Surgery	703	250	953	592	229	821	412	176	588	618	264	882	-6.2%	2.8%	-3.8%	***-1.0%***	***0.0%***	562	535	229	229	4.23	1.28	3.46	3.78	1.22	3.07	4.54	1.31	3.57	***5.45***	***1.31***	3,063	2,916	300	300
Pediatric Surgery	285	139	424	316	135	451	163	114	277	245	171	416	-7.3%	10.9%	-0.9%	***0.0%***	***0.0%***	316	316	135	135	4.55	1.22	3.46	4.65	1.25	3.63	6.04	1.26	4.07	***6.04***	***1.26***	1,909	1,909	170	170
Plastic Surgery	101	123	224	151	161	312	81	123	204	122	185	307	9.9%	22.6%	17.1%	***-0.5%***	***0.0%***	146	141	161	161	4.23	1.21	2.57	4.17	1.21	2.65	5.67	1.35	3.06	***4.15***	***1.35***	606	585	217	217
Surgical Oncology	343	84	427	247	77	324	143	50	193	215	75	290	-20.8%	-5.5%	-17.6%	***2.5%***	***0.0%***	279	316	77	77	8.24	0.92	6.80	8.10	1.23	6.47	7.48	1.17	5.85	***7.67***	***1.17***	2,140	2,424	90	90
Thoracic Surgery	400	14	414	397	23	420	236	16	252	354	24	378	-5.9%	30.9%	-4.4%	***0.5%***	***0.0%***	407	417	23	23	8.86	1.02	8.59	8.87	1.10	8.45	10.06	1.39	9.51	***8.67***	***1.39***	3,529	3,615	32	32
Urology	186	383	569	209	180	389	118	135	253	177	203	380	-2.4%	-27.2%	-18.3%	***-0.5%***	***0.0%***	204	199	180	180	4.63	1.16	2.30	3.13	1.33	2.30	3.40	1.44	2.36	***3.32***	***1.44***	677	661	260	260
Transplant	**1,410**	**88**	**1,498**	**1,385**	**245**	**1,630**	**952**	**400**	**1,352**	**1,428**	**600**	**2,028**	**0.6%**	**161.1%**	**16.4%**		***0.0%***	**1,442**	**1,502**	**245**	**245**	**8.28**	**1.13**	**7.86**	**8.81**	**1.57**	**7.72**	**9.72**	**1.80**	**7.38**			**13,524**	**14,119**	**430**	**430**
Medical Transplant	354	19	373	263	178	441	321	319	640	482	479	961	16.7%	402.1%	60.5%	***0.0%***	***0.0%***	263	263	178	178	6.37	1.72	6.13	6.69	1.74	4.69	7.49	1.94	4.72	***6.95***	***1.94***	1,828	1,828	345	345
Surgical Transplant	1,056	69	1,125	1,122	67	1,189	631	81	712	947	122	1,069	-5.3%	33.0%	-2.5%	***1.0%***	***0.0%***	1,179	1,239	67	67	8.92	0.97	8.43	9.31	1.10	8.85	10.86	1.27	9.77	***9.92***	***1.27***	11,696	12,291	85	85
Women's Services	**2,156**	**522**	**2,678**	**2,313**	**533**	**2,846**	**1,514**	**322**	**1,836**	**2,271**	**483**	**2,754**	**2.6%**	**-3.8%**	**1.4%**		***0.0%***	**2,449**	**2,596**	**533**	**533**	**3.91**	**1.28**	**3.40**	**4.13**	**1.22**	**3.59**	**4.32**	**1.09**	**3.76**			**9,929**	**10,597**	**572**	**572**
Gynecology	70	92	162	93	150	243	54	110	164	81	165	246	7.6%	33.9%	23.2%	***1.0%***	***0.0%***	98	103	150	150	2.37	1.29	1.76	2.58	1.18	1.72	3.35	1.14	1.87	***3.15***	***1.14***	309	324	171	171
Gynecology Oncology	186	69	255	231	84	315	95	57	152	143	86	229	-12.3%	11.6%	-5.2%	***2.5%***	***0.0%***	261	296	84	84	6.39	1.19	4.98	6.58	1.35	5.19	7.91	1.28	5.42	***7.40***	***1.28***	1,931	2,190	108	108
Obstetrics	1,900	361	2,261	1,989	299	2,288	1,365	155	1,520	2,048	233	2,281	3.8%	-19.7%	0.4%	***1.0%***	***0.0%***	2,090	2,197	299	299	3.72	1.30	3.34	3.92	1.21	3.56	4.11	0.98	3.79	***3.68***	***0.98***	7,689	8,083	293	293
Other	**151**	**719**	**870**	**42**	**144**	**186**	**34**	**134**	**168**	**51**	**201**	**252**	**-41.9%**	**-47.1%**	**-46.2%**	***0.0%***	***0.0%***	**42**	**42**	**144**	**144**	**2.72**	**1.09**	**1.37**	**5.83**	**0.72**	**1.87**	**4.91**	**0.77**	**1.61**	***4.91***	***0.77***	**206**	**206**	**111**	**111**
Grand Total	**28,543**	**7,254**	**35,797**	**29,308**	**7,187**	**36,495**	**18,597**	**5,151**	**23,748**	**27,896**	**7,727**	**35,623**	**-1.1%**	**3.2%**	**-0.2%**			**30,416**	**31,690**	**7,187**	**7,187**	**7.92**	**1.40**	**6.60**	**8.04**	**1.47**	**6.74**	**8.52**	**1.66**	**7.03**			**244,978**	**256,168**	**12,026**	**12,026**

UMMC OCCUPANCY RATES BY UNIT
(FY2019 YTD)

Behavioral Health	N11W Adult Psych	66.1%
	N12W Adult Psych	72.0%
	N12E Geriatric Psych	96.4%
	P4G Child Psych	56.9%
	Sub Total	**73.3%**
Cancer	C9W BMT	88.5%
	N8/9W Med Onc	88.0%
	Sub Total	**88.2%**
Cardiac Surgery	W6ABC CSICU	84.0%
	C6EW/W6D	85.1%
	Sub Total	**84.6%**
Cardiology	C3W CCU	85.2%
	C3E PCU/P3H	84.6%
	Sub Total	**84.8%**
Medicine	N10E	87.0%
	N10W IMC	93.5%
	N11E/A	74.2%
	N13E/W Med Surg	97.6%
	W7AB MICU	94.6%
	Sub Total	**88.9%**
Neuroscience	C4E Neuro IMC	77.0%
	C5W Neuro	92.6%
	C7EW Neuro ICU	92.7%
	Sub Total	**88.7%**
Pediatrics	N4 NICU	89.1%
	S5ABCD PPCU	61.2%
	S5U PICU	82.7%
	Sub Total	**78.0%**
Surgery	C8E/W Transplant	97.5%
	C5E PCU	85.4%
	T3S SICU	88.8%
	T6N Ortho	98.9%
	W5AB Surgical	88.2%
	C9E/W5C	88.2%
	Sub Total	**91.3%**
Shock Trauma	T4H STA	98.2%
	T4N Neurotrauma IMC	95.0%
	T4S Neurotrauma ICU	94.4%
	T5N MT IMC	101.3%
	T5S MT ICU	96.9%
	T6/CCRU	48.4%
	T6/LRU	90.3%
	T6M IMC	98.7%
	Sub Total	**94.0%**
Women's	S6MBU	96.0%
	FTN - Nursery	73.0%
	Sub Total	**87.9%**
Total		**88.68%**

Source: UMMC Internal Data

EXHIBIT 18A

DEPARTMENT OF BUDGET AND MANAGEMENT

David R. Brinkley
Secretary of Budget and Management

Marc L. Nicole
Deputy Secretary

OFFICE OF CAPITAL BUDGETING

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R Adams Cowley Shock Trauma Center Renovation - Phase III
(Baltimore City)

Renovate the R Adams Cowley Shock Trauma Center at the University of Maryland Medical Center (UMMC) which includes replacing the current Trauma Resuscitation Unit (TRU) with a trauma and critical care resuscitation center, relocating the Acute Care Transfusion Service, constructing an observation unit, expanding the outpatient pavilion, and modernizing the hyperbaric chamber. The TRU opened in 1987 and is in need of a renovation in order to meet the needs of patients. The limited capacity of TRU bays has caused patients to be double-bunked. This project will colocate the Critical Care Resuscitation Unit and the Acute Care Transfusion Service to streamline blood supply, equipment, and staff resources. The total project cost is $40,000,000 with a State commitment of $20,000,000.

Source	Prior Auth.	**FY 2019**	FY 2020	FY 2021	FY 2022	FY 2023	TOTAL
GO Bonds	-	**-**	4,000	4,000	4,000	4,000	16,000
Non-Budgeted Funds	150	**600**	2,200	5,100	11,950	-	20,000
TOTAL	150	**600**	6,200	9,100	15,950	4,000	36,000
Use							
Planning	150	**500**	1,000	2,000	1,500	100	5,250
Construction	-	**-**	4,200	5,100	10,900	2,900	23,100
Equipment	-	**100**	1,000	2,000	3,550	1,000	7,650

Comprehensive Cancer Center (Baltimore City)

Construct new facilities to support the expanding clinical programs of the Marlene and Stewart Greenebaum Comprehensive Cancer Center and other high acuity ambulatory and inpatient programs. The new building includes an expanded parking garage, outpatient areas for the Cancer Center, and specialty outpatient centers for heart and vascular medicine, organ transplant, neurology, and neurosurgery. This project will also expand the main hospital at the entrance of the Gudelsky building. Finally, with the relocation of outpatient programs to the new ambulatory facility on Lombard and Greene Streets, improvements will be made to the main hospital at 22 Greene Street. It will also provide the necessary support space for clinical, training, and staff needs. The estimated cost of this project totals $275,000,000 with a total State share of $125,000,000.

Source	Prior Auth.	**FY 2019**	FY 2020	FY 2021	FY 2022	FY 2023	TOTAL
GO Bonds	-	**-**	3,000	25,000	25,000	25,000	78,000
Non-Budgeted Funds	150	**300**	-	15,800	79,700	52,050	148,000
TOTAL	150	**300**	3,000	40,800	104,700	77,050	226,000
Use							
Planning	150	**300**	3,000	15,000	4,000	3,550	26,000
Construction	-	**-**	-	25,800	88,200	61,000	175,000
Equipment	-	**-**	-	-	12,500	12,500	25,000

Subtotals for Grants and Loans

Source	**FY 2019**	FY 2020	FY 2021	FY 2022	FY 2023	TOTAL
GO Bonds	**31,000**	63,200	58,000	29,000	29,000	210,200
TOTAL	**31,000**	63,200	58,000	29,000	29,000	210,200

EXHIBIT 18B

SUMMARY OF FY 2019 CAPITAL BUDGET AS ENACTED

Agency	GO Bonds	Bond Premium	General Funds	Special Funds	Federal Funds	Revenue Bonds	Totals
Department of Aging	1,600,000						1,600,000
Department of Agriculture	13,475,000			49,975,142			63,450,142
Baltimore City Community College	365,000						365,000
Maryland School for the Deaf	586,000						586,000
Maryland Energy Administration				2,050,000			2,050,000
Department of the Environment	22,653,000		500,000	220,280,000	43,300,000	150,000,000	436,733,000
Maryland Environmental Service	9,590,000						9,590,000
Department of Health	8,404,000						8,404,000
Maryland Higher Education Commission	60,095,000						60,095,000
Historic St. Mary's City Commission	3,827,000						3,827,000
Department of Housing and Community Development	69,800,000	25,000,000	9,000,000	33,450,000	16,200,000		153,450,000
Department of Information Technology	10,500,000						10,500,000
Maryland State Library Agency	9,831,000						9,831,000
Military Department	9,428,000						9,428,000
Morgan State University	46,521,000						46,521,000
Department of Natural Resources	12,495,000			169,593,533	5,500,000		187,588,533
Department of Planning	5,487,000			300,000			5,787,000
Maryland Public Broadcasting Commission	1,256,000				2,847,000		4,103,000
Department of Public Safety and Correctional Services	12,541,000						12,541,000
Public School Construction Program	391,709,000	28,500,000	10,000,000				430,209,000
Board of Public Works	49,299,000						49,299,000
St. Mary's College of Maryland	6,005,000						6,005,000
Department of State Police	2,300,000						2,300,000
University of Maryland Medical System	33,500,000		29,000,000				62,500,000
University System of Maryland	185,732,000	12,980,000				24,000,000	222,712,000
Department of Veterans Affairs					2,000,000		2,000,000
Miscellaneous	124,180,000	1,500,000	2,073,500	500,000			128,253,500
SUBTOTALS	**1,091,179,000**	**67,980,000**	**50,573,500**	**476,148,675**	**69,847,000**	**174,000,000**	**1,929,728,175**
2019 DEAUTHORIZATIONS	**(16,179,000)**						**(16,179,000)**
GRAND TOTALS	**1,075,000,000**	**67,980,000**	**50,573,500**	**476,148,675**	**69,847,000**	**174,000,000**	**1,913,549,175**

AGENCY FY 2019 CAPITAL BUDGET AS ENACTED DETAIL

Project Title	GO Bonds	Bond Premium	General Funds	Special Funds	Federal Funds	Revenue Bonds	Total
Department of Aging							
Senior Centers Capital Grant Program (*)	1,600,000						1,600,000
Subtotals	1,600,000						1,600,000
Department of Agriculture							
Salisbury Animal Health Laboratory Replacement (PCE)	4,975,000						4,975,000
Agricultural Land Preservation Program				48,976,142			48,976,142
Maryland Agricultural Cost-Share Program	8,500,000						8,500,000
Tobacco Transition Program				999,000			999,000
Subtotals	13,475,000			49,975,142			63,450,142
Baltimore City Community College							
Liberty Campus: Loop Road, Inner Loop and Entrance Improvements (P)	365,000						365,000
Subtotals	365,000						365,000
Maryland School for the Deaf							
Veditz Building Renovation (P)	586,000						586,000
Subtotals	586,000						586,000
Maryland Energy Administration							
State Agency Loan Program				1,200,000			1,200,000
Jane E. Lawton Loan Program				850,000			850,000
Subtotals				2,050,000			2,050,000
Department of the Environment							
Bay Restoration Fund Wastewater Program (*)				70,000,000			70,000,000
Energy - Water Infrastructure Program				8,000,000			8,000,000
Hazardous Substance Clean-up Program (*)			500,000				500,000
Maryland Drinking Water Revolving Loan Fund (*)	5,650,000			16,880,000	10,300,000		32,830,000
Maryland Water Quality Revolving Loan Fund (*)	13,200,000			110,400,000	33,000,000	150,000,000	306,600,000
Mining Remediation Program (*)	500,000						500,000
Septic System Upgrade Program				15,000,000			15,000,000
Water Supply Financial Assistance Program (*)	3,303,000						3,303,000
Subtotals	22,653,000		500,000	220,280,000	43,300,000	150,000,000	436,733,000
Maryland Environmental Service							
State Water and Sewer Infrastructure Improvement Fund (*)	9,590,000						9,590,000
Subtotals	9,590,000						9,590,000

Project Title	GO Bonds	Bond Premium	General Funds	Special Funds	Federal Funds	Revenue Bonds	Total
Department of Health							
Renovation of Clifton T. Perkins Hospital North Wing (P)	375,000						375,000
Community Health Facilities Grant Program (*)	5,529,000						5,529,000
Federally Qualified Health Centers Grant Program (*)	2,500,000						2,500,000
Subtotals	8,404,000						8,404,000
Maryland Higher Education Commission							
Community College Construction Grant Program (*)	60,095,000						60,095,000
Subtotals	60,095,000						60,095,000
Historic St. Mary's City Commission							
Dove Pier (C)	550,000						550,000
Maryland Dove Replacement (C)	2,000,000						2,000,000
Maryland Heritage Interpretive Center (C)	1,000,000						1,000,000
Pavilion (C)	277,000						277,000
Subtotals	3,827,000						3,827,000
Department of Housing and Community Development							
Baltimore Regional Neighborhoods Initiative	3,000,000		5,000,000				8,000,000
Community Development Block Grant Program					9,000,000		9,000,000
Community Legacy Program	8,000,000						8,000,000
Homeownership Programs	12,000,000			1,500,000			13,500,000
Housing and Building Energy Programs	1,000,000			8,350,000	700,000		10,050,000
MD-BRAC Preservation Loan Fund				2,500,000			2,500,000
National Capital Strategic Fund	1,000,000						1,000,000
Neighborhood Business Development Program	3,300,000			2,200,000			5,500,000
Partnership Rental Housing Program	6,000,000						6,000,000
Rental Housing Programs		25,000,000		15,500,000	4,500,000		45,000,000
Seed Community Development Anchor Institution Fund			4,000,000				4,000,000
Shelter and Transitional Housing Facilities Grant Program	3,000,000						3,000,000
Special Loan Programs	4,000,000			3,400,000	2,000,000		9,400,000
Strategic Demolition Fund	28,500,000						28,500,000
Subtotals	69,800,000	25,000,000	9,000,000	33,450,000	16,200,000		153,450,000
Department of Information Technology							
Public Safety Communications System (C)	10,500,000						10,500,000
Subtotals	10,500,000						10,500,000
Maryland State Library Agency							
Public Library Capital Grant Program (*)	5,000,000						5,000,000

Project Title	GO Bonds	Bond Premium	General Funds	Special Funds	Federal Funds	Revenue Bonds	Total
State Library Resource Center - Renovation (CE)	4,831,000						4,831,000
Subtotals	9,831,000						9,831,000
Military Department							
Freedom Readiness Center (PC)	9,428,000						9,428,000
Subtotals	9,428,000						9,428,000
Morgan State University							
New Health and Human Services Building, Phase I (P)	461,000						461,000
New Student Services Support Building (PC)	46,060,000						46,060,000
Subtotals	46,521,000						46,521,000
Department of Natural Resources							
Coastal Resiliency Program (*)	4,725,000						4,725,000
Critical Maintenance Program (*)				13,000,000			13,000,000
Natural Resources Development Fund (*)				14,756,000			14,756,000
Community Parks and Playgrounds (*)	2,500,000						2,500,000
Ocean City Beach Replenishment and Hurricane Protection Program				2,000,000			2,000,000
Oyster Restoration Program	270,000						270,000
Program Open Space (*)				107,319,829	3,000,000		110,319,829
Rural Legacy Program	5,000,000			20,017,704			25,017,704
Waterway Improvement Capital Projects (*)				12,500,000	2,500,000		15,000,000
Subtotals	12,495,000			169,593,533	5,500,000		187,588,533
Department of Planning							
Patterson Center Renovations (PCE)	3,887,000						3,887,000
African American Heritage Preservation Grant Program	1,000,000						1,000,000
Maryland Historical Trust Capital Grant Fund	600,000						600,000
Maryland Historical Trust Revolving Loan Fund				300,000			300,000
Subtotals	5,487,000			300,000			5,787,000
Maryland Public Broadcasting Commission							
Maryland Public Television (MPT) Transmission Systems Replacement (E)	1,156,000				2,847,000		4,003,000
Maryland Public Television - Studio "A" Renovation and Addition (P)	100,000						100,000
Subtotals	1,256,000				2,847,000		4,103,000
Department of Public Safety and Correctional Services							
Demolition of Buildings at the Baltimore City Correctional Complex (PC)	4,980,000						4,980,000
Jessup Region Electrical Infrastructure Upgrade (P)	229,000						229,000

Project Title	GO Bonds	Bond Premium	General Funds	Special Funds	Federal Funds	Revenue Bonds	Total
Local Jails and Detention Centers (*)	7,332,000						7,332,000
Subtotals	12,541,000						12,541,000
Public School Construction Program							
Aging Schools Program	6,109,000						6,109,000
Baltimore City Public Schools - Mechanical System Upgrades		15,000,000					15,000,000
Non-Public Aging Schools Program	3,500,000						3,500,000
Non-Public School Security Program		3,500,000					3,500,000
Public School Construction Program (*)	313,900,000						313,900,000
Safety Improvements to Public Schools		10,000,000	10,000,000				20,000,000
Supplemental Capital Grant Program (*)	68,200,000						68,200,000
Subtotals	391,709,000	28,500,000	10,000,000				430,209,000
Board of Public Works							
Annapolis Post Office Renovation (PCE)	8,209,000						8,209,000
Facilities Renewal Fund (*)	20,586,000						20,586,000
Harriet Tubman and Frederick Douglass Statues - State House (PC)	500,000						500,000
New Catonsville District Court (C)	12,019,000						12,019,000
Renovation of the Legislative Services Building (P)	2,000,000						2,000,000
Replacement of Lawyer's Mall Underground Infrastructure (PC)	5,000,000						5,000,000
Shillman Building Conversion - Baltimore City District Court Civil Division (P)	985,000						985,000
Subtotals	49,299,000						49,299,000
St. Mary's College of Maryland							
Campus Infrastructure Improvements (PC)	2,405,000						2,405,000
New Academic Building and Auditorium (PCE)	3,600,000						3,600,000
Subtotals	6,005,000						6,005,000
Department of State Police							
Barrack C - Cumberland: New Barrack and Garage (PC)	2,300,000						2,300,000
Subtotals	2,300,000						2,300,000
University of Maryland Medical System							
Capital Region Medical Center (C)	19,000,000		29,000,000				48,000,000
Comprehensive Cancer and Organ Transplant Treatment Center (P)	2,500,000						2,500,000
Neonatal Intensive Care Unit, Labor and Delivery Suite, Infrastructure Upgrades, Outpatient Center (PCE)	10,000,000						10,000,000
R Adams Cowley Shock Trauma Center Renovation - Phase II (C)	2,000,000						2,000,000
Subtotals	33,500,000		29,000,000				62,500,000

Project Title	GO Bonds	Bond Premium	General Funds	Special Funds	Federal Funds	Revenue Bonds	Total
University System of Maryland							
BSU: Boiler and Chiller Replacement (PCE)	1,500,000						1,500,000
CU: Percy Julian Building Renovation for the College of Business (P)	1,634,000						1,634,000
FSU: Education and Health Sciences Center (P)	2,000,000						2,000,000
TU: New Science Facility (C)	45,764,000	12,980,000				2,000,000	60,744,000
TU: Practice Field Improvements (PCE)	3,000,000						3,000,000
UMB: Central Electric Substation and Electrical Infrastructure Upgrades (C)	8,564,000						8,564,000
UMB: MD Center for Advanced Molecular Analysis (PCE)	2,500,000						2,500,000
UMBC: Interdisciplinary Life Sciences Building (CE)	57,799,000					5,000,000	62,799,000
UMBC: Athletic Facilities (PCE)	4,000,000						4,000,000
UMBC: Utility Upgrades (P)	1,360,000						1,360,000
UMCP: New Cole Field House (PC)	22,289,000						22,289,000
UMCP: Brendan Iribe Center for Computer Science and Innovation (CE)	3,900,000						3,900,000
UMCP: A. James Clark Hall - New Bioengineering Building (CE)	3,608,000						3,608,000
UMCP: Chemistry Building Wing 1 Replacement (P)	2,700,000						2,700,000
UMCP: School of Public Policy Building (PC)	2,000,000						2,000,000
USMO: Shady Grove Educational Center - Biomedical Sciences and Engineering Building (CE)	23,114,000						23,114,000
USMO: Capital Facilities Renewal (*)						17,000,000	17,000,000
Subtotals	185,732,000	12,980,000				24,000,000	222,712,000
Department of Veterans Affairs							
Cheltenham Veterans Cemetery Burial Expansion and Improvements (C)					2,000,000		2,000,000
Subtotals					2,000,000		2,000,000
Miscellaneous							
Hagerstown Revitalization (PCE)	750,000						750,000
Historic Annapolis Restoration (APCE)	1,000,000						1,000,000
Kennedy Krieger Institute - Comprehensive Autism Center (PCE)	1,000,000						1,000,000
Legislative Initiatives (*)	16,000,000						16,000,000
Lexington Market Revitalization (APCE)	500,000						500,000
Maryland Zoo in Baltimore - Infrastructure Improvements (PCE)	4,000,000						4,000,000
Merriweather Post Pavilion (PCE)	8,000,000						8,000,000
MICUA - Private Higher Education Facilities Grant Program (*)	12,000,000						12,000,000
Miscellaneous Projects (*)	70,050,000	1,500,000	2,073,500	500,000			74,123,500
Private Hospital Grant Program (*)	5,500,000						5,500,000
Stevenson University - Rosewood Property Environmental Abatement (PC)	5,000,000						5,000,000
Woodbourne Center Vocational Program (APCE)	380,000						380,000
Subtotals	124,180,000	1,500,000	2,073,500	500,000			128,253,500

Project Title	GO Bonds	Bond Premium	General Funds	Special Funds	Federal Funds	Revenue Bonds	Total
Totals	1,091,179,000	67,980,000	50,573,500	476,148,675	69,847,000	174,000,000	1,929,728,175
2019 DEAUTHORIZATIONS	(16,179,000)						(16,179,000)
GRAND TOTALS	1,075,000,000	67,980,000	50,573,500	476,148,675	69,847,000	174,000,000	1,913,549,175

* Refer to attached FY 2019 Lists for specific projects funded under this program.

FY 2019 CAPITAL BUDGET AS ENACTED PROGRAM PROJECT LISTS BY AGENCY

AGENCY Program	Project	AMOUNT
Department of Aging		
Senior Centers Capital Grant Program		
Prince George's	Hampton Park Senior Activity Center (PCE)	800,000
Talbot	St. Michaels Family YMCA and Senior Center (PCE)	800,000
	TOTAL	**1,600,000**
Department of the Environment		
Bay Restoration Fund Wastewater Program		
Allegany	Bedford Road Sanitary Sewer Rehabilitation - Phase VI (PC)	875,000
Allegany	Frostburg Combined Sewer Overflow Elimination Project, Phase IX-A Charles Street Corridor (PC)	1,779,049
Allegany	LaVale Basin 6 Sewer Improvements (PC)	3,500,000
Anne Arundel	Edgewater Beach Septic to Sewer Conversion Project (PC)	3,140,000
Anne Arundel	Piney Orchard Wastewater Treatment Plant - Enhanced Nutrient Removal Upgrade (PC)	1,830,000
Baltimore City	Herring Run Sewershed Collection System Improvements, Part 1 Sanitary Sewer (SC-956) (C)	7,807,500
Baltimore City	Herring Run Sewershed Sewer Improvements - Part 2 Chinquapin Run (SC-910) (C)	1,807,201
Baltimore City	North East Baltimore Sewer Improvements (SC-965) (PC)	13,308,750
Baltimore City	South West Baltimore Sewer Improvements - Maidens Choice Assessment/Replace Uplands Sewer (SC-963) (PC)	13,387,500
Cecil	Chesapeake City Wastewater Treatment Plant - Biological and Enhanced Nutrient Removal Upgrade (PC)	2,720,000
Cecil	Holloway Beach Sewer Collection System (PC)	1,380,000
Cecil	Port Deposit Wastewater Treatment Plant Replacement (PC)	3,680,000
Frederick	Lewistown Wastewater Collection System (PC)	985,000
Frederick	Lewistown Wastewater Treatment Plant - Enhanced Nutrient Removal Upgrade (PC)	960,000
Garrett	Deep Creek Lake Wastewater Treatment Plant - Enhanced Nutrient Removal (PC)	7,200,000
Howard	Ashleigh Knolls Shared Sewage Disposal Facility (PC)	1,090,000
Prince George's	Sanitary Sewer Reconstruction - Broad Creek Basin - PGC - Section 2 (PC)	4,550,000
	TOTAL	**70,000,000**
Hazardous Substance Clean-up Program		
Baltimore City	1600 Harford Avenue (Former Stop, Shop and Save) (P)	100,000
Baltimore City	Chemical Metals, Site No. 1 (C)	50,000
Harford	Former Ames Shopping Plaza (P)	100,000
Prince George's	Mister G's Cleaners (C)	50,000

AGENCY Program	Project	AMOUNT
Statewide	Site Assessments (P)	200,000
	TOTAL	**500,000**
Maryland Drinking Water Revolving Loan Fund		
Allegany	Bedford Road Area Water - Phase 1 (PC)	500,000
Allegany	Frostburg Continuous Supply To Water Treatment Plant (PC)	226,750
Allegany	Westernport Water Distribution System Improvements - Phase IV (PC)	2,500,000
Anne Arundel	Edgewater Beach Petition (PC)	3,844,000
Baltimore City	Ashburton Reservoir Improvements (WC-1211) (C)	3,346,055
Baltimore City	Druid Lake Tanks (WC-1204) (C)	6,830,000
Baltimore Co.	Ashburton Reservoir Improvements (WC-1211) (C)	3,346,055
Baltimore Co.	Druid Lake Tanks (WC-1204) (C)	4,000,000
Calvert	St. Leonard Tower Well and Elevated Storage Tank (PC)	2,292,800
Cecil	North East Water Quality Improvements - Storage Tanks/Mixers (PC)	1,044,000
Cecil	North East Water Quality Improvements - Treatment (PC)	42,000
Talbot	Oxford Water Main Replacement (PC)	2,461,368
Wicomico	Delmar Poplar Street Water Main Replacement (PC)	437,012
Wicomico	Wicomico Regional Airport Water Extension (PC)	1,959,960
	TOTAL	**32,830,000**
Maryland Water Quality Revolving Loan Fund		
Allegany	Bedford Road Sanitary Sewer Rehabilitation - Phase VI (PC)	125,000
Allegany	LaVale Basin 6 Sewer Improvements (PC)	100,000
Anne Arundel	Edgewater Beach Septic to Sewer Conversion Project (PC)	5,354,820
Baltimore City	Back River Headworks Improvement (SC-918) (C)	47,770,800
Baltimore City	Baltimore City Municipal Separate Storm Sewer System (MS4) Upgrades (PC)	46,728,000
Baltimore City	Herring Run Sewershed Sewer Improvements - Part 2 Chinquapin Run (SC-910) (PC)	3,737,003
Baltimore City	North East Baltimore Sewer Improvements (SC-965) (PC)	1,901,250
Baltimore City	South West Baltimore Sewer Improvements - Maidens Choice Assessment/Replace Uplands Sewer (SC-963) (PC)	1,912,500
Baltimore Co.	Back River Headworks Improvement (SC-918) (C)	47,500,000
Baltimore Co.	Herring Run Sewershed Sewer Improvements (SC-956) (PC)	350,000
Baltimore Co.	Herring Run Sewershed Sewer Improvements - Part 2 Chinquapin Run (SC-910) (PC)	963,770
Calvert	Solomons Wastewater Treatment Plant - Enhanced Nutrient Removal Upgrade (PC)	3,007,000
Caroline	Caroline County Detention Center Pump Station Repair/Rehabilitation (PC)	542,000
Caroline	Denton Wastewater Treatment Plant Enhanced Nutrient Removal Refinement (C)	1,329,200

AGENCY

Program	Project	AMOUNT
Caroline	Greensboro-Goldsboro Regional Wastewater Project, Phase 5 (PC)	472,600
Cecil	Construct Connection from CECO to Cherry Hill Wastewater Treatment Plant (PC)	2,850,000
Cecil	Harbour View Wastewater Treatment Plant Replacement (PC)	1,239,000
Cecil	Holloway Beach Sewer Collection System (PC)	1,220,000
Cecil	Indian Acres Dam Repair (PC)	541,756
Cecil	Port Deposit Wastewater Treatment Plant Replacement (PC)	7,020,000
Cecil	Rock Run Sewer Extension (PC)	1,250,000
Montgomery	Sanitary Sewer Reconstruction - Cabin John Basin - MC - Section 2 (PC)	5,278,000
Montgomery	Sanitary Sewer Reconstruction - Little Falls Basin - MC - Section 2 (PC)	4,914,000
Montgomery	Sanitary Sewer Reconstruction - Muddy Branch Basin - MC - Section 2 (PC)	5,824,000
Montgomery	Sanitary Sewer Reconstruction - Rock Creek Basin - MC - Section 2 (PC)	4,901,000
Prince George's	Piscataway Wastewater Treatment Plant Bio Energy Project (PC)	86,623,072
Prince George's	Sanitary Sewer Reconstruction - Beaverdam Basin - PGC - Section 2 (PC)	4,758,000
Prince George's	Sanitary Sewer Reconstruction - Broad Creek Basin - PGC - Section 2 (PC)	650,000
Prince George's	Sanitary Sewer Reconstruction - Lower Anacostia Basin - PGC - Section 2 (PC)	4,225,000
Prince George's	Sanitary Sewer Reconstruction - Sligo Creek Basin - PGC - Section 2 (PC)	4,576,000
Queen Anne's	Barclay Sewer Development (PC)	2,705,729
Washington	Edgemont Reservoir Rehabilitation (Emergency Repair) Project (PC)	5,650,000
Wicomico	Salisbury City Service Center Comprehensive Environmental Site Design (PC)	471,200
Wicomico	Salisbury Sewer Extension - Mt. Hermon Road (PC)	109,300
	TOTAL	**306,600,000**

Mining Remediation Program

Allegany	Upper Georges Creek: Borden Shaft Restoration Project (C)	500,000
	TOTAL	**500,000**

Water Supply Financial Assistance Program

Caroline	Denton Water Main Replacements (PC)	810,250
Cecil	North East Water Quality Improvements - Source (PC)	35,250
Cecil	North East Water Quality Improvements - Storage Tanks/Mixers (PC)	348,000
Cecil	North East Water Quality Improvements - Treatment (PC)	14,000
Talbot	Trappe Water Main Replacement (PC)	595,500
Wicomico	Wicomico Regional Airport Water Extension (PC)	1,500,000
	TOTAL	**3,303,000**

AGENCY Program	Project		AMOUNT
Maryland Environmental Service			
State Water and Sewer Infrastructure Improvement Fund			
Baltimore Co.	Woodstock - Wastewater Treatment Plant Upgrades (C)		216,000
Cecil	Fair Hill NRMA - Water Treatment Plant and Distribution System Upgrade (C)		2,864,000
Garrett	State Well Upgrades - Backbone Mountain Youth Center (C)		301,000
Garrett	Swallow Falls State Park - Water and Wastewater Treatment Plant Improvements (PC)		955,000
Queen Anne's	Eastern Pre-Release - Wastewater Treatment Plant (C)		132,000
Somerset	Eastern Correctional Institution - Co-Generation Plant Upgrades (P)		115,000
Somerset	Eastern Correctional Institution - Wastewater Treatment Plant Upgrade (C)		4,587,000
Somerset	State Water Towers - ECI Front Tank (C)		320,000
St. Mary's	St. Mary's College - Water Distribution and Treatment Facilities Improvements (P)		100,000
		TOTAL	**9,590,000**
Department of Health			
Community Health Facilities Grant Program			
Baltimore City	People Encouraging People, Inc. (APC)		754,271
Baltimore Co.	Key Point Health Services, Inc. (A)		675,000
Howard	iHomes, Inc. (A)		554,400
Montgomery	Housing Unlimited, Inc. (A)		940,500
Montgomery	Main Street Connect, Inc. (PC)		884,600
Montgomery	Montgomery County Government/Avery Road Treatment Center (ARTC)- New Facility Construction (CE)		1,504,772
Talbot	Channel Marker, Inc. Regional Wellness Center (C)		250,000
Worcester	Joan W. Jenkins, Inc. (PC)		171,453
Regional	Anthony Wayne Rehabilitation Center for the Handicapped and Blind (APCE)		618,338
Statewide	Available Funds Adjustment (A)		(824,334)
		TOTAL	**5,529,000**
Federally Qualified Health Centers Grant Program			
Caroline	Choptank Community Health System, Inc. (PCE)		441,019
Montgomery	Mary's Center for Maternal and Child Care, Inc. (PCE)		818,086
Wicomico	Three Lower Counties Community Services, Inc. (A)		1,252,823
Statewide	Available Fund Adjustment (A)		(11,928)
		TOTAL	**2,500,000**

AGENCY / Program	Project	AMOUNT
Maryland Higher Education Commission		
Community College Construction Grant Program		
Allegany	Technology Building Renovation, Phase 1 (PC)	525,000
Allegany	Technology Building Renovation, Phase 2 (P)	656,000
Anne Arundel	Health Sciences and Biology Building (C)	2,500,000
Baltimore Co.	CCBC Catonsville Medium Voltage Switchgear Replacement (C)	2,009,000
Baltimore Co.	CCBC Essex Health Careers and Technology Building (C)	5,035,000
Carroll	Carroll Community College Systemic Renovation (PC)	2,753,000
Frederick	Building E Renovation and Addition (P)	300,000
Harford	Fallston Hall Renovation (CE)	3,460,000
Howard	Renovations to N and ST Buildings (CE)	9,888,000
Montgomery	Rockville Student Services Center (CE)	13,824,000
Montgomery	Takoma Park/Silver Spring Math and Science Center (P)	1,741,000
Prince George's	Marlboro Hall Renovation and Addition (P)	2,065,000
Prince George's	Queen Anne Academic Center Renovation and Addition (CE)	9,099,000
Washington	Center for Business and Entrepreneurial Studies - Hagerstown Community College (P)	278,000
Regional	Hughesville Health Sciences Center - College of Southern Maryland (C)	8,962,000
Statewide	Community College Construction Grant Program Balance/Surplus (C)	(3,000,000)
	TOTAL	**60,095,000**
Maryland State Library Agency		
Public Library Capital Grant Program		
Baltimore Co.	Reisterstown Library Renovation (PCE)	1,050,000
Carroll	Westminster Library Renovation (CE)	1,000,000
Cecil	New North East Library (C)	1,000,000
Frederick	New Myersville Library (CE)	750,000
Harford	Abingdon Library Window Replacement (C)	500,000
Montgomery	New Wheaton Library (C)	200,000
St. Mary's	New Leonardtown Library (CE)	500,000
	TOTAL	**5,000,000**
Department of Natural Resources		
Coastal Resiliency Program		
Anne Arundel	Franklin Point Park - Shoreline Improvements (C)	1,500,000

AGENCY Program	Project	AMOUNT
Anne Arundel	Long View Community - Shoreline Improvements (C)	125,000
Prince George's	Eagle Harbor - Shoreline Improvements (C)	875,000
Somerset	Deal Island - Shoreline Improvements (C)	1,230,000
St. Mary's	St. Catherine's Island - Shoreline Improvements (C)	595,000
Statewide	FY 2019 Project Solicitation (P)	400,000
	TOTAL	**4,725,000**
Community Parks and Playgrounds		
Allegany	Constitution Park Improvements (C)	179,000
Allegany	Glendening Park Improvements (C)	33,200
Baltimore City	Baltimore City Parks - Playground Surfacing Improvements (2 sites) (C)	115,000
Calvert	Callis Park Improvements (C)	79,534
Caroline	Goldsboro Community Park Improvements (C)	170,186
Caroline	James T. Wright Park Improvements (C)	48,485
Carroll	Hampstead Panther Park Basketball Court (C)	48,203
Cecil	Meadow Park Lighting Project (C)	210,000
Cecil	Perryville Community Park Improvements (C)	45,300
Charles	Tilghman Lake - Exercise Stations (C)	28,000
Dorchester	Vienna Playground and Basketball Court Improvements (C)	21,453
Frederick	Burkittsville Memorial Park Improvements (C)	83,230
Frederick	Stonegate Park Basketball Court Improvements (C)	84,000
Garrett	Friendsville Community Park Improvements (C)	32,910
Garrett	Town Park West Upgrades (C)	20,000
Kent	Louisa d'Andelot Carpenter Park Improvements (C)	138,400
Kent	Rock Hall Town Ballfield - New Playground (C)	74,500
Montgomery	Dolores R. Miller Park Improvements (C)	67,362
Montgomery	St. Paul Park Picnic Pavilion (C)	33,779
Montgomery	Wootton's Mill Park Aintree Drive Playground (C)	94,065
Prince George's	Martin Luther King Community Park Renovation - Phase 2 (C)	182,000
Prince George's	Whitemarsh Playground Replacement (C)	275,000
Queen Anne's	Wharf Park Playground Improvements (C)	198,430
Wicomico	Cherry Beach Area Pavilion Improvements (C)	13,463
Wicomico	Mason-Dixon Sports Complex - Lighting (C)	104,000
Wicomico	Waterside Park Improvements (C)	120,500
	TOTAL	**2,500,000**

AGENCY Program	Project	AMOUNT
Critical Maintenance Program		
Allegany	Dan's Mountain State Park - Renovate Pool Building (C)	500,000
Allegany	Rocky Gap State Park - Licensing Building - HVAC Replacement (C)	20,000
Anne Arundel	Sandy Point State Park - Renovate South Beach Bathhouse (C)	600,000
Anne Arundel	Severn Run Natural Resources Management Area - Raze Feuerhardt House (C)	35,000
Baltimore Co.	North Point State Park - Storm Drain Replacement (C)	15,000
Baltimore Co.	Patapsco Valley State Park - Patch and Resurface 1,100 Linear Feet of the Avalon Entrance Road (C)	83,000
Baltimore Co.	Patapsco Valley State Park - Replace Concrete Floors in Five Shelters (C)	40,000
Baltimore Co.	Patapsco Valley State Park - Resurface Day Use Area and Campground - Hilton Area (C)	400,000
Baltimore Co.	Soldiers Delight Natural Environment Area - House Assessment - Doors and Windows - Williams Property (C)	24,000
Caroline	Martinak State Park - Replace "B" Pavilion (C)	125,000
Caroline	Martinak State Park - Replace Doors - Equipment Storage Building (C)	20,000
Caroline	Martinak State Park - Update Boat Ramp Exterior Breaker Panel (C)	10,000
Carroll	Patapsco Valley State Park - Replace Sidewalks at McKeldin Day Use Bathrooms (3) (C)	30,000
Carroll	Patapsco Valley State Park - Resurface Entrance Road and "A" Area Roads and Parking Lots - McKeldin (C)	400,000
Carroll	Patapsco Valley State Park - Upgrade Water Supply - McKeldin Area (C)	95,000
Cecil	Earlville Wildlife Management Area - Culvert Replacement (C)	5,000
Cecil	Elk Neck State Park - House Assessment - Roof Replacement - Abbott Property (C)	10,000
Cecil	Elk Neck State Park - Resurface Roads and Parking Lots - Day Use Area (C)	750,000
Cecil	Elk Neck State Park - Shop Overhead Door, Entry Door, and Window Replacement (C)	55,091
Cecil	Fair Hill Natural Resources Management Area - Exterior Repairs - Beers Barn (C)	58,499
Cecil	Fair Hill Natural Resources Management Area - Guardrail Replacement (C)	64,025
Cecil	Fair Hill Natural Resources Management Area - House Assessment - Caretaker House (C)	24,000
Cecil	Fair Hill Natural Resources Management Area - Overhead Utility Line and Panel Box Replacement (C)	40,000
Cecil	Fair Hill Natural Resources Management Area - Paving Kennel Road (C)	93,000
Cecil	Fair Hill Natural Resources Management Area - Renovate Hunter Barn (C)	400,000
Cecil	Fair Hill Natural Resources Management Area - Repairs to Aintree and Fair Hill Grand Stands (C)	150,000
Cecil	Fair Hill Natural Resources Management Area - Repairs to Appleton Road Bridge (C)	125,000
Cecil	Fair Hill Natural Resources Management Area - Resurface Roads and Parking Lots (C)	400,000
Charles	Cedarville State Forest - Maintenance Shop Renovations (C)	25,000
Charles	Doncaster State Forest - Garage Renovation Red Barn (C)	35,000
Charles	Nanjemoy Wildlife Management Area - Replace Culverts and Resurface Gravel Road (C)	70,000
Charles	Smallwood State Park - Renovate Footbridge (C)	45,000
Charles	Smallwood State Park - Resurface Roads and Parking Lots - Day Use Area (C)	500,000
Dorchester	Chesapeake Forest - Access Road Enhancement - Arthur's Seat Area (C)	98,750
Frederick	Cunningham Falls State Park - Resurface D Loop Shower Building Access Road (C)	20,000
Frederick	Cunningham Falls State Park - Resurface Entrance Road and Parking Lot at the Administration Building (C)	45,000

AGENCY

Program	Project	AMOUNT
Garrett	Big Run State Park - Pavilion Renovations - Monroe Run Pavilion (C)	15,000
Garrett	Deep Creek Lake State Park - Install Automatic Handicap Accessible Doors (C)	40,000
Garrett	Deep Creek Lake State Park - Renovate Deck (C)	50,000
Garrett	Deep Creek Lake State Park - Replace Roof - Lake Management Office Building (C)	30,000
Garrett	Deep Creek Lake State Park - Replace Siding - Campground Shower Buildings 3 and 4 (C)	60,000
Garrett	Deep Creek Lake State Park - Resurface Road and Parking Lots at Discovery Center (C)	64,000
Garrett	Deep Creek Lake State Park - Resurface Roads and Parking Lots - Day Use Area (C)	500,000
Garrett	Herrington Manor State Park - Exterior Log Replacement (C)	150,000
Garrett	Mount Nebo and Green Ridge Forest, Western Maryland - Replace Underground Tanks (C)	550,000
Garrett	New Germany State Park - Driveway Repairs and Foundation Waterproofing - Cabin No. 11 (P)	25,000
Garrett	New Germany State Park - Exterior Renovations - Four Cabins (C)	25,000
Garrett	Potomac Garrett State Forest - Repairs to Snaggy Bridge (C)	125,000
Garrett	Savage River State Forest - High Rock Tower Security Fencing (P)	25,000
Garrett	Swallow Falls State Park - Re-roof MCC Building (C)	9,800
Harford	Madonna Work Center - Garage Door Replacement - Old Shop (C)	26,835
Howard	Hugg Thomas Wildlife Management Area - House Assessment - Renovate Operational House (P)	40,000
Howard	Pocomoke River State Park - House Assessment - CMU Wall Repairs - Corkers Creek (C)	15,000
Montgomery	Seneca Creek State Park - House Assessment - Replace Deck, Porch, and Door - Ballenger Residence (C)	20,000
Montgomery	Seneca Creek State Park - Replace Breaker Panel in Visitor's Center (C)	12,000
Montgomery	Seneca Creek State Park - Resurface Roads and Parking Lots - North of Dam (C)	600,000
Prince George's	Merkle - House Assessment - Replace Roof, Siding, and Windows - MCC House (C)	25,000
Prince George's	Merkle Natural Resources Management Area - Fenno House and Outbuildings Razing (C)	35,000
Prince George's	Rosaryville State Park - Rosaryville Mansion Renovation (C)	100,000
Queen Anne's	Unicorn Fish Hatchery - Ceiling and Lights in Lower Building (C)	30,000
Queen Anne's	Wye Mills Office - Re-roof Office (C)	16,000
Somerset	Janes Island State Park - Overlay Maintenance Lot (C)	100,000
Somerset	Janes Island State Park - Resurface Roads and Parking Lots - Day Use Area (C)	500,000
St. Mary's	Piney Point Hatchery - Replace Culvert Pipes - 7 Locations (C)	49,000
St. Mary's	St. Inigoes State Forest - House Assessment - Interior Renovations - 46997 Beechville Road (C)	30,000
St. Mary's	St. Mary's River State Park - Evans Property House and Outbuildings Razing (C)	20,000
Washington	Albert Powell Fish Hatchery - Foultz Bank Barn Razing (C)	10,000
Washington	Albert Powell Fish Hatchery - Stream Bank Restoration (C)	95,000
Washington	Fort Frederick State Park - Renovate Barracks (C)	500,000
Washington	Gathland State Park - Repair Windows and Add Inserts (C)	25,000
Washington	Greenbrier State Park - House Assessment - Manager Residence (C)	20,000
Washington	Greenbrier State Park - Lawson Property Metal Storage Building Razing (C)	20,000
Washington	Greenbrier State Park - Renovate Ash Loop Shower Building (C)	250,000
Washington	Greenbrier State Park - Renovate Birch Loop Shower Building (C)	250,000

AGENCY Program	Project	AMOUNT
Washington	Greenbrier State Park - Resurface Roads and Parking Lots - Day Use Area and Campground (C)	750,000
Washington	Greenbrier State Park - Washington Co. Railroad Bridge and Coffman Livestock Shelter Razing (C)	95,000
Washington	Indian Springs Wildlife Management Area - Bragunier House and Outbuildings Razing (C)	35,000
Wicomico	Powellville Forestry Work Center - House Assessment - Re-roof Two Houses (C)	30,320
Worcester	Assateague State Park - Breaker Panel Replacement - 3 Maintenance Shop Buildings (C)	40,000
Worcester	Assateague State Park - Renovate Day Use Bathhouse (C)	450,000
Worcester	Pocomoke River State Park - House Assessment - Driveway Repairs - Corkers Creek Residence (C)	11,680
Worcester	Pocomoke River State Park - Re-roof Nature Center (C)	20,000
Worcester	Pocomoke River State Park - Renovate Bathhouse at Shad Landing (C)	500,000
Worcester	Pocomoke River State Park - Resurface Main Loop Road - Shad Landing (C)	600,000
Worcester	Pocomoke River State Park - Resurface Roads and Parking Lots - Milburn Landing (C)	600,000
	TOTAL	**13,000,000**
Natural Resources Development Fund		
Allegany	Rocky Gap State Park Parking Lot Improvements (C)	3,104,000
Garrett	Casselman River Bridge (PC)	1,380,000
Garrett	New Germany State Park Day-use and Beach Improvements (PC)	4,375,000
Kent	Sassafras Natural Resources Management Area Day Use Improvements (Phase II) (PC)	2,543,000
Somerset	Janes Island State Park Cabin Replacement and Sitework (C)	1,525,000
Washington	Albert Powell Fish Hatchery Improvements (P)	429,000
Statewide	Contingency for Prior Year Approved Projects (C)	1,000,000
Statewide	Dam Assessments and Rehabilitation	400,000
	TOTAL	**14,756,000**
Program Open Space		
Baltimore City	Baltimore City Direct Grant - Special Funds (C)	5,500,000
Statewide	Program Open Space - Federal Funds (A)	3,000,000
Statewide	Program Open Space - Local - Acquisition and Development Projects (A)	53,287,825
Statewide	Program Open Space - Stateside - Land Acquisitions (A)	48,532,004
	TOTAL	**110,319,829**
Waterway Improvement Capital Projects		
Anne Arundel	Annapolis City Dock Improvements (C)	99,000
Anne Arundel	Bodkin Creek - Channel Dredging (C)	329,000

AGENCY

Program	Project	AMOUNT
Anne Arundel	Cattail Creek - Channel Dredging (C)	133,000
Anne Arundel	Cornfield Creek - Maintenance Dredging (C)	267,750
Anne Arundel	Cox Creek - Channel Dredging (C)	196,250
Anne Arundel	Cypress Creek - Channel Dredging (C)	379,000
Anne Arundel	Eli, Sloop, and Long Coves - Channel Dredging (C)	353,000
Anne Arundel	Lake Ogleton - Channel Dredging (C)	329,000
Anne Arundel	Sandy Point State Park - Renovate Marina Comfort Station (C)	200,000
Anne Arundel	Snug Harbor - Channel Dredging (C)	161,500
Anne Arundel	Solley Cove Park Boat Launch (C)	500,000
Baltimore City	Baltimore City Fire Department - Fire/Rescue Boat Acquisition (A)	20,000
Baltimore City	Middle Branch Park - Pier and Parking Lot Improvements (C)	99,000
Baltimore Co.	Bowleys Quarters Volunteer Fire Department - Fire/Rescue Boat Acquisition (A)	50,000
Baltimore Co.	Merritt Point Park - Boat Launch Improvements (C)	99,500
Calvert	Calvert County Fire and Emergency Medical Services - Fire/Rescue Boat Acquisition (A)	10,000
Calvert	Calvert Marine Museum - Pier and Bulkhead Replacement (C)	75,000
Calvert	Hallowing Point State Park - Natural Resources Police Boat Lift (C)	30,000
Caroline	Choptank Marina - Boat Ramp and Marina Renovations (C)	98,000
Caroline	Crouse Park - Floating Dock Installation (C)	95,825
Cecil	Elk River Park - Channel Dredging (C)	55,000
Charles	Smallwood State Park - Marina Parking Lot Lighting Improvements (C)	60,000
Dorchester	Cambridge Marine Terminal - New Steel Bulkhead (C)	2,000,000
Dorchester	Elliott Island Marina - Jetty Replacement (C)	150,000
Dorchester	Taylors Island Landing - Bulkhead Replacement and Parking Area Improvements (C)	80,000
Dorchester	Town of Secretary Boat Ramp - Pier Replacement (C)	60,000
Dorchester	Vienna Waterfront Park - Boat Ramp and Dock Improvements (C)	99,000
Garrett	Deep Creek Lake - Dredging of Arrowhead Cove (C)	1,115,000
Garrett	Deep Creek Lake State Park - Dock Replacement (C)	150,000
Harford	Havre de Grace City Yacht Basin - Re-Deck Piers (C)	29,000
Harford	Otter Point Creek and Bush River - Maintenance Dredging (C)	750,000
Harford	Otter Point Creek Boat Launch - Repairs to Piers, Boat Launch, and Parking Lot (C)	99,000
Harford	Rumsey Island and Taylor Creek - Maintenance Dredging (C)	45,000
Harford	West Taylors Creek - Maintenance Dredging (C)	63,250
Kent	Chestertown Marina - Ramp, Piers, Bulkhead, and Parking Improvements (C)	99,000
Kent	Quaker Neck Landing Road - Replace Pier (C)	97,500
Montgomery	Seneca Landing Park - Boat Ramp Improvements (C)	99,500
Prince George's	Fort Washington Marina - Dock Removal (C)	99,500
Queen Anne's	Centreville Wharf - Boat Slip Improvements (C)	85,000
Queen Anne's	Chesapeake Heritage and Visitor Center - Bulkhead Replacement and Maintenance Dredging (C)	202,500

AGENCY Program	Project	AMOUNT
Queen Anne's	Grasonville Volunteer Fire Department - Thermal Imaging Camera Acquisition (A)	10,000
Queen Anne's	Kent Narrows - Maintenance Dredging (C)	400,000
Queen Anne's	Matapeake Marine Terminal - Natural Resources Police Patrol Boat Acquisition (A)	100,000
Queen Anne's	Prices Creek - Maintenance Dredging (C)	800,000
Somerset	Ewell County Dock Repairs (C)	50,000
Somerset	Rumbley Harbor - Replace Dock and Retaining Walls (C)	99,000
St. Mary's	Leonardtown Wharf - Construct Transient Dock and Slips (C)	99,500
St. Mary's	Ridge Volunteer Fire Department - Fire Boat Sonar Acquisition (A)	14,000
Talbot	Oxford Boating Facilities - Install Floating Dock (C)	50,000
Talbot	St. Michaels Back Creek Park - Dredging Project (C)	36,000
Talbot	Tongers Basin - Maintenance Dredging (C)	100,000
Washington	Four Locks Boat Ramp Improvements (C)	183,427
Washington	Greenbrier State Park - Boating Facility Improvements (C)	75,000
Wicomico	Cedar Hill Marina - Bulkhead and Pier Replacement (C)	99,000
Regional	Eastern Region Boating Facility Improvements (C)	50,000
Statewide	Replace JM Tawes Ice Breaking Buoy Tender (A)	1,000,000
Statewide	Shallow Water Dredging and Navigation Needs (C)	370,998
Statewide	U.S. Fish and Wildlife Projects (C)	2,500,000
	TOTAL	**15,000,000**

Department of Public Safety and Correctional Services

Local Jails and Detention Centers		
Anne Arundel	Anne Arundel County Central Holding and Processing Center (C)	2,035,000
Calvert	Calvert County Detention Center Inmate Program Space (Addition) (PC)	500,000
Montgomery	Montgomery County Pre-Release Center Dietary Center Renovation (CE)	1,618,000
Prince George's	Prince George's County Medical Unit Renovation and Expansion (CE)	2,448,000
St. Mary's	St. Mary's County Adult Detention Center Upgrades, Housing & Medical Units (P)	731,000
	TOTAL	**7,332,000**

Public School Construction Program

Public School Construction Program		
Allegany	Allegany High School (C)	3,950,000
Anne Arundel	Arnold Elementary School (C)	5,791,000
Anne Arundel	Arundel Middle School (C)	690,000
Anne Arundel	Bodkin Elementary School (C)	2,614,000

AGENCY Program	Project	AMOUNT
Anne Arundel	Broadneck Elementary School (C)	890,000
Anne Arundel	Broadneck High School (C)	205,000
Anne Arundel	Chesapeake Bay Middle School (C)	108,799
Anne Arundel	George Cromwell Elementary School (C)	962,216
Anne Arundel	Glen Burnie Park Elementary School (C)	3,139,000
Anne Arundel	Jessup Elementary School (C)	3,271,792
Anne Arundel	Marley Elementary School (C)	85,000
Anne Arundel	Maryland City Elementary School (C)	1,514,000
Anne Arundel	Riviera Beach Elementary School (C)	781,000
Anne Arundel	Solley Elementary School (C)	798,000
Baltimore City	Baltimore Polytechnic Institute High School #403 (C)	5,292,000
Baltimore City	Belmont Elementary School #217 (C)	428,000
Baltimore City	Brehms Lane Elementary School #231 (C)	479,000
Baltimore City	Dickey Hill Elementary/Middle School #201 (C)	633,000
Baltimore City	Diggs-Johnson Building (C)	582,000
Baltimore City	Edgecombe Circle Elementary/Middle School #062 (C)	685,000
Baltimore City	Edgewood Elementary School #067 (C)	445,000
Baltimore City	Federal Hill Preparatory School #045 (C)	778,000
Baltimore City	Garrett Heights Elementary/Middle School #212 (C)	4,047,000
Baltimore City	Graceland Park/ O'Donnell Heights Elementary/Middle School #240 (C)	7,000,000
Baltimore City	Hazelwood Elementary/Middle School #210 (C)	496,000
Baltimore City	Highland Town Elementary/Middle School #215 (C)	622,000
Baltimore City	Hilton Elementary School #021 (C)	462,000
Baltimore City	Holabird Elementary/Middle School #229 (C)	10,000,000
Baltimore City	Maryland School for the Blind - Newcomer, Case and Campbell Halls (C)	14,000,000
Baltimore City	Matthew A. Henson Elementary School #029 (C)	514,000
Baltimore City	Mt. Royal Elementary/Middle School #066 (C)	719,000
Baltimore City	Roland Park Elementary/Middle School #233 (C)	5,058,000
Baltimore City	Samuel Coleridge-Taylor Elementary School #122 (C)	6,615,000
Baltimore City	Thomas Jefferson Elementary/Middle School #232 (C)	496,000
Baltimore City	Western High School #407 (C)	3,813,000
Baltimore City	William S. Baer School #301 (C)	3,891,000
Baltimore City	Windsor Hills Elementary/Middle School #087 (C)	360,000
Baltimore City	Woodhome Elementary/Middle School #205	320,000
Baltimore Co.	Franklin High School (C)	3,166,000
Baltimore Co.	Kenwood High School (C)	4,763,000
Baltimore Co.	Lansdowne Elementary School (C)	7,074,000
Baltimore Co.	Northeast Area at Joppa Road Elementary School (C)	4,105,569

AGENCY

Program	Project	AMOUNT
Baltimore Co.	Orems Elementary School (C)	746,000
Baltimore Co.	Patapsco High School and Center for the Arts (C)	8,917,758
Baltimore Co.	Victory Villa Elementary School (C)	2,239,396
Calvert	Northern High School (C)	9,312,000
Calvert	Patuxent High School (C)	450,500
Caroline	Lockerman Middle School (C)	423,000
Carroll	Liberty High School (C)	813,000
Carroll	Linton Springs Elementary School (C)	836,746
Carroll	Sandymount Elementary School (C)	3,558,000
Carroll	South Carroll High School (C)	465,000
Carroll	Westminster High School (C)	1,180,000
Cecil	Bohemia Manor Middle/High School (C)	830,000
Cecil	Cherry Hill Middle School (C)	564,000
Cecil	Gilpin Manor Elementary School (C)	3,758,294
Charles	Berry Elementary School (C)	726,000
Charles	Billingsley Elementary School #22 (C)	8,105,000
Charles	Dr. Samuel A. Mudd Elementary School (C)	6,025,000
Dorchester	New Directions Learning Academy (C)	1,005,000
Dorchester	North Dorchester High School (C)	10,021,000
Frederick	Butterfly Ridge Elementary School (C)	4,600,000
Frederick	Carroll Manor Elementary School (C)	347,000
Frederick	Catoctin High School (C)	2,123,328
Frederick	Middletown Elementary School (C)	230,000
Frederick	Sugarloaf Elementary School (C)	8,137,000
Frederick	Thurmont Middle School (C)	380,000
Frederick	Urbana Elementary School (C)	2,902,000
Frederick	Valley Elementary School (C)	242,000
Frederick	Woodsboro Elementary School (C)	217,000
Harford	Bel Air Elementary School (C)	568,000
Harford	Fallston Middle School (C)	554,000
Harford	Havre de Grace Middle/High School (C)	11,156,472
Howard	Atholton Elementary School (C)	548,000
Howard	Harpers Choice Middle School (C)	1,862,000
Howard	Long Reach High School (C)	2,516,715
Montgomery	Bethesda-Chevy Chase High School (C)	3,682,000
Montgomery	Briggs Chaney Middle School (C)	624,000
Montgomery	Burtonsville Elementary School (C)	624,000
Montgomery	Clarksburg Cluster Elementary School (C)	1,323,577

AGENCY

Program	Project	AMOUNT
Montgomery	Damascus High School (C)	272,000
Montgomery	Highland View Elemenary School (C)	584,000
Montgomery	Oakland Terrace Elementary School (C)	599,000
Montgomery	Richard Montgomery Elementary School #5 (C)	6,853,000
Montgomery	Seqouyah Elementary School (C)	562,000
Montgomery	Shady Grove Middle School (C)	529,000
Montgomery	Walt Whitman High School (C)	649,000
Montgomery	Wayside Elementary School (C)	1,000,000
Montgomery	Wheaton High School (C)	16,500,089
Prince George's	Bowie-Belair Annex High School (C)	6,174,000
Prince George's	Dwight D. Eisenhower Middle School (C`)	8,070,000
Prince George's	Glenridge Elementary School (C)	4,060,137
Prince George's	North Forestville Elementary School (C)	722,000
Prince George's	Phyllis E. Williams Elementary School (C)	1,932,000
Prince George's	Stephen Decatur Middle School (C)	8,200,000
Prince George's	Tulip Grove Elementary School (C)	197,000
Prince George's	Woodridge Elementary School (C)	1,335,000
Queen Anne's	Church Hill Elementary School (C)	107,000
Queen Anne's	Kent Island High School (C)	699,000
Somerset	J.M. Tawes Technology and Replacement Technology Career Center (C)	17,500,000
St. Mary's	Great Mills High School (C)	850,000
St. Mary's	Green Holly Elementary School (C)	859,000
St. Mary's	Hollywood Elementary School (C)	2,260,000
St. Mary's	Park Hall Elementary School (C)	2,378,000
Talbot	Easton Elementary School - Dobson Building (C)	8,390,040
Washington	Sharpsburg Elementary School (C)	6,511,000
Washington	Urban Educational Campus (C)	5,531,115
Wicomico	Delmar Elementary School (C)	4,616,631
Wicomico	Glen Avenue Elementary School (C)	1,646,000
Wicomico	West Salisbury Elementary School (C)	3,708,800
Worcester	Showell Elementary School (C)	4,336,000
Statewide	Recycled Funds (C)	(17,986,974)
	TOTAL	**313,900,000**

Supplemental Capital Grant Program

Anne Arundel	Arundel Middle School (C)	1,000,000

AGENCY Program	Project	AMOUNT
Anne Arundel	Chesapeake Bay Middle School (C)	3,868,318
Anne Arundel	George Cromwell Elementary School (C)	2,613,766
Anne Arundel	Riviera Beach Elementary School (C)	500,000
Baltimore	Battle Grove Elementary School (C)	402,000
Baltimore	Featherbed Lane Elementary School (C)	402,000
Baltimore	McCormick Elementary School (C)	517,000
Baltimore	Northeast Area @ Joppa Road Elementary School (C)	6,044,000
Baltimore	Owings Mill Elementary School (C)	488,000
Baltimore	Patapsco High School and Center for the Arts (C)	3,000,000
Howard	Fulton Elementary School (C)	831,000
Howard	Glenwood Middle School (C)	789,000
Howard	Long Reach High School (C)	2,196,285
Montgomery	Ashburton Elementary School (C)	434,000
Montgomery	Bethesda-Chevy Chase High School (C)	3,000,000
Montgomery	Clarksburg Cluster Elementary School (C)	6,725,423
Montgomery	Diamond Elementary School (C)	1,441,500
Montgomery	Dr. Sally K. Ride Elementary School (C)	328,000
Montgomery	Flower Hill Elementary School (C)	526,000
Montgomery	Highland Elementary School (C)	328,000
Montgomery	Jackson Road Elementary School (C)	369,000
Montgomery	Julius West Elementary School (C)	497,000
Montgomery	Kensington-Parkwood Elementary School (C)	431,000
Montgomery	North Bethesda Middle School (C)	4,145,000
Montgomery	Springbrook High School (C)	408,000
Montgomery	Thomas Edison High School of Technology (C)	7,279,077
Prince George's	Glenridge Elementary School (C)	3,582,863
Prince George's	Lamont Elementary School (C)	4,687,000
Prince George's	Walker Mill Middle School (C)	8,564,000
Statewide	Recycled Funds (C)	(335,578)
Statewide	Unallocated	3,138,346
	TOTAL	**68,200,000**

University System of Maryland

Capital Facilities Renewal		
Allegany	FSU: Dunkle Hall Interior Renovations (C)	245,000

AGENCY Program	Project	AMOUNT
Allegany	FSU: HVAC Control Systems Renovations and Updates (C)	400,000
Baltimore City	CSU: Campuswide Buildings and Grounds Improvements, Phased (C)	100,000
Baltimore City	CSU: Campuswide Signage Upgrade, Phased (C)	59,000
Baltimore City	CSU: HVAC Repair, Replacement and Mechanical Upgrades, Phased (C)	150,000
Baltimore City	UB: Charles Royal Project (C)	418,000
Baltimore City	UMB: Electrical Infrastructure Upgrades, Campuswide (C)	990,000
Baltimore City	UMB: Facade Stabilization and Roof Replacements Campuswide (C)	695,000
Baltimore City	UMB: Mechanical Infrastructure Upgrades, Campuswide (C)	990,000
Baltimore Co.	TU: Renew Building Envelopes (various buildings) (C)	525,000
Baltimore Co.	TU: Replace Mechanical/Electrical Plumbing Systems (various buildings) (C)	575,000
Baltimore Co.	TU: Utility Infrastructure Renewal and Replacement (C)	489,000
Baltimore Co.	UMBC: Building Envelope Restoration (various buildings) (C)	1,452,000
Dorchester	UMCES: Morris Marine Lab Phase 2 Renovation - Horn Point Laboratory (C)	317,000
Prince George's	BSU: Classroom/ Laboratory/ Lecture Hall Improvements (various buildings) (C)	400,000
Prince George's	BSU: Mechanical System Replacements (various buildings) (C)	154,000
Prince George's	UMCP: Building Electro - Mechanical Infrastructure, Phased (C)	990,000
Prince George's	UMCP: Building Exterior Shell and Structural Infrastructure Improvement, Phased (C)	990,000
Prince George's	UMCP: Building HVAC Infrastructure Improvement, Phased (C)	990,000
Prince George's	UMCP: Building Mold and Asbestos Abatement, Phased (C)	150,000
Prince George's	UMCP: Campus Central Control and Monitoring System Improvement, Phased (C)	300,000
Prince George's	UMCP: Campus Exterior Infrastructure Improvement, Phased (C)	550,000
Prince George's	UMCP: Campus Water, Sanitary and Drain Infrastructure Improvement, Phased (C)	295,000
Prince George's	UMCP: Maryland Agricultural Experiment Station Facilities Improvements (C)	100,000
Prince George's	UMCP: Office Area Interior Improvements (various buildings) (C)	900,000
Prince George's	UMCP: Public Area Interior Improvements (various buildings) (C)	550,000
Prince George's	UMCP: Research/ Laboratory/ Data Facilities Improvements (various buildings) (C)	975,000
Prince George's	UMCP: Teaching Facilities Improvements (various buildings) (C)	510,000
Somerset	UMES: Roof Replacement at Pool Section of William P. Hytche Center (PC)	642,000
Wicomico	SU: Bathroom Renovations in Maggs and Devilbiss (C)	536,000
Statewide	USMO: Emergency and Systemwide Projects (C)	563,000
	TOTAL	**17,000,000**

Board of Public Works

Facilities Renewal Fund		
Anne Arundel	DGS - HVAC and Building Envelope Repairs, MD State Archives (C)	2,400,000
Anne Arundel	DGS - Replace Fire Alarm System, State House (C)	285,000

AGENCY

Program	Project	AMOUNT
Anne Arundel	DGS - Replace Fire Alarm System, Tawes Complex (C)	350,000
Anne Arundel	DGS - Replace Fire Alarm, Data Center (C)	300,000
Anne Arundel	DGS - Replace Fire Alarm, Government House (C)	180,000
Anne Arundel	DPSCS - Replace 24 Doors, Main Building Brock Bridge Correctional Facility (C)	300,000
Baltimore City	DGS - Replace Caterpillar Switch Gear, 300 Preston St (C)	540,000
Baltimore City	DGS - Replace Roof, William Donald Schaefer Tower (C)	685,000
Baltimore City	DGS - Upgrade Elevators, 301 Preston Street (C)	827,000
Baltimore City	MSDE - Modernize Elevators 3, 4 & Frieght, MD Rehabilitation Center (C)	770,000
Baltimore City	MSDE - Replace AHU 10 and Provide Access, MD Rehabilitation Center (C)	193,500
Calvert	MAC Lab - Mechanical System upgrade (C)	1,800,000
Calvert	MAC Lab - Metal Roof replacement (C)	2,250,000
Calvert	MAC Lab - Replace foundation waterproofing (C)	1,125,000
Calvert	MAC Lab - Siding Replacement (C)	439,000
Frederick	MSD - Replace Roof, Veditz Building Frederick Campus (C)	450,000
Howard	DGS - Replace Roof, Records Center and Central Warehouse (C)	250,100
Howard	DPSCS - Replace Fire Alarm System, DD Building Patuxent Inst. (C)	453,400
Howard	DPSCS - Replace Hot Water Tank, Central Kitchen ECI (C)	260,000
Howard	DPSCS - Upgrade Elevator, Patuxent Institution (C)	322,000
Montgomery	DHMH - Replace Roof, RICA Montgomery (C)	442,000
Montgomery	DHMH - Replace Snow Guard System, RICA Montgomery (C)	120,000
St. Mary's	MDP - Replace Roof, Historic St. Mary's City State House (C)	200,000
St. Mary's	MDVA - Replace 30 "B" Wing Heat Pumps, Main Building Charlotte Hall Veterans Home (C)	125,000
Washington	DPSCS - Replace Fire Alarm System, Roxbury Correctional Institution (C)	250,000
Washington	DPSCS - Replace Roof, Central Warehouse MCI Hagerstown (C)	890,000
Washington	DPSCS - Replace Roof, Main Building MCI Hagerstown (C)	365,000
Wicomico	DHMH - Replace Roof - Holly Center Activities Building (C)	880,000
Wicomico	DHMH - Replace Roof, Cottage 300 Holly Center (C)	175,000
Wicomico	DHMH - Replace Roof, Cottage 600 Holly Center (C)	200,000
Wicomico	DHMH - Replace Roof, Cottage 700 Holly Center (C)	200,000
Wicomico	DHMH - Replace Roof, Infirmary Building Holly Center (C)	270,000
Wicomico	DHMH - Replace Roof, Service Building Holly Center (C)	405,000
Wicomico	DHMH - Upgrade Fire Control System, Holly Center (C)	178,000
Wicomico	MDH Mold Remediation and HVAC Repairs-Deer's Head Hospital (C)	1,660,000
Statewide	Unallocated	46,000
	TOTAL	**20,586,000**

AGENCY	Program	Project	AMOUNT
Miscellaneous			
	Legislative Initiatives		
	Allegany	Camp Potomac (APCE)	50,000
	Allegany	Frostburg Museum Relocation Project (APCE)	150,000
	Anne Arundel	Annapolis Maritime Museum and Park (APCE)	125,000
	Anne Arundel	Annapolis Masonic Lodge No. 89 (APCE)	80,000
	Anne Arundel	Hancock's Resolution Visitor Center and Barn (APCE)	250,000
	Anne Arundel	Light House Bistro and Culinary Training Center (APCE)	310,000
	Anne Arundel	Lloyd Keaser Community Center (APCE)	35,000
	Anne Arundel	Samaritan House (APCE)	100,000
	Anne Arundel	Severn Danza Park (APCE)	200,000
	Anne Arundel	St. Philip Neri Community Hall (APCE)	75,000
	Anne Arundel	The Arc of the Central Chesapeake Region (APCE)	125,000
	Anne Arundel	The Bernie House (APCE)	130,000
	Baltimore City	40 West Assistance and Referral Center (APCE)	125,000
	Baltimore City	Baltimore Police Mounted Unit Stables (APCE)	250,000
	Baltimore City	Carmel Community Reaching Out Center (APCE)	90,000
	Baltimore City	Chesapeake Shakespeare Company (APCE)	25,000
	Baltimore City	Creative Alliance (APCE)	25,000
	Baltimore City	EMAGE Center (APCE)	125,000
	Baltimore City	Epiphany House Project (APCE)	100,000
	Baltimore City	Habitat for Humanity of the Chesapeake (APCE)	50,000
	Baltimore City	Garrett-Jacobs Mansion (APCE)	200,000
	Baltimore City	HARBEL Community Building (APCE)	100,000
	Baltimore City	Harford House Project (APCE)	225,000
	Baltimore City	Harvey Johnson Community Center (APCE)	200,000
	Baltimore City	Hollins Market (APCE)	250,000
	Baltimore City	Kappa Alpha Psi Youth and Community Center (APCE)	102,000
	Baltimore City	Langston Hughes Community, Business and Resource Center (APCE)	250,000
	Baltimore City	Liberty Ship S.S. John W. Brown (APCE)	50,000
	Baltimore City	Maryland Art Place (APCE)	125,000
	Baltimore City	Paul's Place (APCE)	35,000
	Baltimore City	Port Discovery Children's Museum (APCE)	250,000
	Baltimore City	St. Elizabeth School (APCE)	50,000
	Baltimore City	Village Learning Place (APCE)	100,000
	Baltimore City	Westport Community Land Trust (APCE)	25,000
	Baltimore Co.	Hatzalah of Baltimore (APCE)	125,000

AGENCY Program	Project	AMOUNT
Baltimore Co.	Lansdowne Volunteer Fire Department (APCE)	100,000
Baltimore Co.	Mayes-Burton Barn at Hereford High School (APCE)	100,000
Baltimore Co.	Morning Star Family Life Center (APCE)	100,000
Baltimore Co.	National Center on Institutions and Alternatives (APCE)	350,000
Baltimore Co.	Natural History Society of Maryland (APCE)	390,000
Baltimore Co.	New Town High School Stadium (APCE)	175,000
Baltimore Co.	Penn-Mar Human Services Day Learning Center (APCE)	200,000
Baltimore Co.	The Glenn L. Martin Maryland Aviation Museum (APCE)	50,000
Baltimore Co.	Vehicles for Change (APCE)	250,000
Baltimore Co.	Windsor Mill Community Outreach Center (APCE)	100,000
Calvert	East-John Youth Center Pools (APCE)	50,000
Calvert	North Beach Volunteer Fire Department (APCE)	100,000
Carroll	Boys and Girls Club of Westminster (APCE)	150,000
Carroll	Carroll County Veterans Independence Project (APCE)	100,000
Carroll	Gamber and Community Fire Company Carnival Grounds (APCE)	25,000
Cecil	Perryville Railroad Monument Sign (APCE)	25,000
Charles	Farming 4 Hunger Community Agricultural Facility (APCE)	100,000
Charles	Indian Head Center for the Arts (APCE)	60,000
Charles	Indian Head Recreation Center (APCE)	200,000
Charles	Maryland Veterans Memorial Museum (APCE)	125,000
Charles	Velocity Center (APCE)	75,000
Dorchester	Maces Lane Community Center (APCE)	200,000
Dorchester	Patriot Point (APCE)	175,000
Frederick	Boys and Girls Club of Frederick County (APCE)	200,000
Frederick	Brunswick Junior Railroaders (APCE)	20,000
Frederick	CrossRoads Freedom Center Recovery Housing (APCE)	55,000
Frederick	Culler Lake Revitalization (APCE)	150,000
Frederick	Helen Smith Studio (APCE)	25,000
Frederick	Heritage Frederick Capital Improvements (APCE)	25,000
Frederick	Northwest Trek Conservation and Education Center (APCE)	50,000
Garrett	Bloomington Water Distribution System (APCE)	164,000
Garrett	Grantville Volunteer Fire Company (APCE)	25,000
Harford	Aberdeen Proving Ground Discovery Preview Center (APCE)	250,000
Harford	Historic Colored School (APCE)	96,000
Harford	Sexual Assault/Spouse Abuse Resource Center (APCE)	125,000
Howard	Ellicott City Public Arts Project (APCE)	175,000
Howard	Howard County Youth Program (APCE)	100,000
Howard	Lisbon Volunteer Fire Department (APCE)	125,000

AGENCY

Program	Project	AMOUNT
Howard	PHILLIPS School Commercial Kitchen (APCE)	150,000
Kent	Camp Fairlee (APCE)	200,000
Montgomery	Arts on the Block Studio Expansion (APCE)	100,000
Montgomery	Bender Jewish Community Center of Greater Washington (APCE)	75,000
Montgomery	Dream Catcher Meadows (APCE)	50,000
Montgomery	Easter Seals Inter-Generational Center (APCE)	100,000
Montgomery	Gandhi Brigade Youth Media (APCE)	150,000
Montgomery	Ivymount School (APCE)	65,000
Montgomery	Josiah Henson Park (APCE)	200,000
Montgomery	Metropolitan Ballet Theatre Expansion (APCE)	100,000
Montgomery	National Center for Children and Families (APCE)	75,000
Montgomery	Nonprofit Village Center (APCE)	100,000
Montgomery	Noyes Children's Library Renovation (APCE)	100,000
Montgomery	Our House Youth Home (APCE)	200,000
Montgomery	RCI Group Home Renovations (APCE)	175,000
Montgomery	Rockville Senior Center (APCE)	200,000
Montgomery	Rockville Welcome Center (APCE)	100,000
Montgomery	Round House Theatre (APCE)	350,000
Montgomery	Sandy Spring Odd Fellows Lodge (APCE)	15,000
Montgomery	TLC's Katherine Thomas School (APCE)	200,000
Montgomery	Winter Growth (APCE)	30,000
Prince George's	Armory Plaza (APCE)	200,000
Prince George's	Bishop McNamara High School Gymnasium (APCE)	50,000
Prince George's	Bowie Emergency Operations Center (APCE)	100,000
Prince George's	Bowie Senior Center (APCE)	200,000
Prince George's	Bowie Volunteer Fire Department (APCE)	75,000
Prince George's	Boys and Girls Club Sports Park (APCE)	100,000
Prince George's	Broad Creek Recreation and Wellness Project (APCE)	25,000
Prince George's	Calvary Breath of Life Community Center (APCE)	100,000
Prince George's	Camp Springs Elks Lodge No. 2332 (APCE)	25,000
Prince George's	College Park Early Learning Center (APCE)	250,000
Prince George's	Eagle Harbor Town Office (APCE)	130,000
Prince George's	Fort Washington Baptist Church (APCE)	200,000
Prince George's	Greenbelt Station Hiker and Biker Trail (APCE)	75,000
Prince George's	Lanham Boys and Girls Club Sports Park Renovation (APCE)	75,000
Prince George's	Maryland Intergenerational Family Life Center (APCE)	50,000
Prince George's	Mount Rainier Civic Center (APCE)	100,000
Prince George's	Potomac Watershed Study Center (APCE)	150,000

AGENCY Program	Project		AMOUNT
Prince George's	Prince George's County Volunteer Marine, Fire and Rescue Department (APCE)		50,000
Prince George's	Public Plaza and Community Overlook (APCE)		25,000
Prince George's	Riverfront Park Hiker and Biker Path (APCE)		100,000
Prince George's	South County Dog Park (APCE)		250,000
Prince George's	St. Thomas Methodist Church Restoration (APCE)		25,000
Prince George's	The Arc of Prince George's County (APCE)		100,000
Prince George's	The Ivy Village Incubator for Nonprofit Excellence (APCE)		180,000
Prince George's	The Training Source (APCE)		250,000
Queen Anne's	Talisman Therapeutic Riding Farm (APCE)		250,000
Somerset	Teackle Mansion and the Sarah Martin Done House (APCE)		100,000
St. Mary's	St. Mary's Nursing Center (APCE)		75,000
Talbot	Avalon Theatre (APCE)		200,000
Washington	National Road Museum (APCE)		50,000
Washington	Smithsburg Town Hall Tower (APCE)		12,000
Washington	The Maryland Theatre (APCE)		200,000
Wicomico	Rotary Labyrinth (APCE)		100,000
Worcester	Pocomoke Little League (APCE)		75,000
Statewide	Bay Community Support Services Group Homes (APCE)		26,000
		TOTAL	**16,000,000**
MICUA - Private Higher Education Facilities Grant Program			
Baltimore City	Johns Hopkins University - School of Nursing Pinkard Building Renovation and Addition (PCE)		4,000,000
Baltimore City	Loyola University Maryland - Construction of Center for Innovation and Collaborative Learning (PCE)		4,000,000
Kent	Washington College - Phase II Construction of New Academic Complex (PCE)		4,000,000
		TOTAL	**12,000,000**
Miscellaneous Projects			
Allegany	Allegany Museum (APCE)		300,000
Allegany	Cumberland Investment Plan (APCE)		420,000
Anne Arundel	Annapolis Flood Mitigation (PCE)		2,000,000
Anne Arundel	Broadneck High School Stadium (APCE)		1,500,000
Anne Arundel	Camp Woodlands Restoration Project (APCE)		250,000
Anne Arundel	Chesapeake High School Turf Field (APCE)		600,000
Anne Arundel	Glen Burnie High School Field House and Concession Stand (APCE)		1,500,000
Anne Arundel	Historic Annapolis Museum (APCE)		125,000

AGENCY

Program	Project	AMOUNT
Anne Arundel	Hot Sox Park (APCE)	500,000
Anne Arundel	Resiliency and Education Center at Kuhn Hall (APCE)	250,000
Anne Arundel	Maryland Hall for the Creative Arts (APCE)	1,500,000
Anne Arundel	National Cryptologic Museum (PCE)	250,000
Anne Arundel	The Arc of the Central Chesapeake Region (APCE)	350,000
Anne Arundel	William Brown House (APCE)	150,000
Anne Arundel	YWCA Domestic Violence and Trafficking Shelters (APCE)	1,000,000
Baltimore City	American Visionary Arts Museum (APCE)	250,000
Baltimore City	Baltimore Museum of Art (APCE)	2,000,000
Baltimore City	Baltimore Museum of Industry (APCE)	225,000
Baltimore City	Baltimore Recreation Centers Renovations (PCE)	400,000
Baltimore City	Baltimore Regional Employment and Education Center (APCE)	750,000
Baltimore City	BARCO Playhouse Theater (APCE)	250,000
Baltimore City	Bnos Yisroel of Baltimore (APCE)	250,000
Baltimore City	Bon Secours Youth Development Center (APCE)	1,000,000
Baltimore City	Chesapeake Shakespeare Company (APCE)	75,000
Baltimore City	Center Stage (APCE)	1,000,000
Baltimore City	Downtown Partnership of Baltimore - McKeldin Plaza (APCE)	500,000
Baltimore City	East Baltimore Biotechnology Park (APCE)	2,500,000
Baltimore City	Federal Hill Streetscape Improvements (APCE)	250,000
Baltimore City	Helping Up Mission (APCE)	500,000
Baltimore City	Hippodrome Foundation (PCE)	2,000,000
Baltimore City	Hoen Lithograph Building (APCE)	1,000,000
Baltimore City	J. Van Story Branch Building (APCE)	250,000
Baltimore City	Johns Hopkins University - Maryland Center for Cell Therapy Manufacturing (APCE)	5,000,000
Baltimore City	Maryland Science Center (APCE)	890,000
Baltimore City	National Aquarium in Baltimore (PCE)	2,000,000
Baltimore City	Northwood Commons (APCE)	2,000,000
Baltimore City	Port Discovery Children's Museum (APCE)	750,000
Baltimore City	Pratt Street and Howard Street Plaza (APCE)	350,000
Baltimore City	Roberta’s House (APCE)	2,000,000
Baltimore City	Ronald McDonald House (APCE)	500,000
Baltimore City	Sellers Mansion (APCE)	250,000
Baltimore City	The Compound (APCE)	250,000
Baltimore City	West Arlington Water Tower (APCE)	250,000
Baltimore Co.	Dulaney High School - Athletic Fields (APCE)	150,000
Baltimore Co.	Franklin High School Infrastructure Improvements (PCE)	750,000
Baltimore Co.	Habitat for Humanity of the Chesapeake Homes (APCE)	100,000

AGENCY

Program	Project	AMOUNT
Baltimore Co.	Maryland Equine Education Center (APCE)	250,000
Baltimore Co.	Maryland State Fairgrounds (PCE)	1,000,000
Baltimore Co.	MedStar Franklin Square Hospital (APCE)	6,000,000
Baltimore Co.	Randallstown High School (PCE)	30,000
Baltimore Co.	Road and Intersection Improvements for the Intersection of MD 30 and Mount Gilead Road (APCE)	1,400,000
Baltimore Co.	Sound Walls Baltimore County (APCE)	300,000
Carroll	Westminster Rescue Mission (PCE)	250,000
Cecil	NorthBay Environmental Education Center (APCE)	200,000
Dorchester	Chesapeake Grove - Senior Housing and Intergenerational Center (PCE)	1,000,000
Dorchester	Patriot Point (APCE)	200,000
Frederick	Camp Shoresh (APCE)	73,500
Frederick	Frederick Road Improvements (APCE)	250,000
Frederick	New Spire Arts (APCE)	250,000
Howard	Ellicott City Flood Mitigation (APCE)	750,000
Howard	Harriet Tubman Community Center and Museum (APCE)	500,000
Howard	New Cultural Center (APCE)	500,000
Howard	Sheppard Pratt Hospital (APCE)	4,000,000
Kent	Echo Hill Outdoor School (APCE)	30,000
Kent	Revitilization of Chestertown Marina (PCE)	500,000
Montgomery	A Wider Circle Community Services Center (APCE)	750,000
Montgomery	Charles E. Smith Life Communities Facility Improvements (APCE)	250,000
Montgomery	Melvin J. Berman Hebrew Academy (PCE)	150,000
Montgomery	Olney Theatre Center for the Arts (APCE)	2,000,000
Montgomery	Poolesville Grape Crushing Economic Development Facility (APCE)	1,000,000
Montgomery	Strathmore Hall (PCE)	3,000,000
Montgomery	UpCounty Nonprofit Hub (APCE)	1,000,000
Montgomery	RCI Group Homes Renovation (APCE)	75,000
Prince George's	Armory Plaza (APCE)	100,000
Prince George's	City of District Heights Senior Day Facility Expansion (APCE)	500,000
Prince George's	Hillel Student Center (APCE)	1,000,000
Prince George's	Liberty Sports Park (APCE)	2,500,000
Queen Anne's	Compass Regional Hospice (APCE)	1,000,000
St. Mary's	Innovative Center for Autonomous Systems (APCE)	750,000
Talbot	YMCA Senior Center in St. Michaels (APCE)	500,000
Washington	Hagerstown Paper and Plastic Plant (APCE)	1,000,000
Washington	Maryland Theatre (APCE)	50,000
Washington	Thomas Kennedy Memorial Park (APCE)	300,000
Wicomico	Arthur Perdue Stadium Improvements (PCE)	580,000

AGENCY

Program	Project		AMOUNT
Wicomico	Salisbury Revitalization (PCE)		500,000
Worcester	Coastal Hospice (APCE)		500,000
		TOTAL	**74,123,500**

Private Hospital Grant Program

Baltimore City	MedStar Good Samaritan Hospital Chronic Disease Management Center Renovation (PCE)		1,000,000
Baltimore City	Mt. Washington Pediatric Hospital Rosenberg Outpatient Building Expansion (PCE)		750,000
Calvert	Calvert Memorial Hospital Behavioral Health Renovation (PCE)		1,727,000
Howard	Howard County General Hospital Cardiac Catheterization Lab Improvements (APCE)		220,000
Montgomery	Holy Cross Health Network Integrated Senior Health Center Construction (PCE)		500,000
Worcester	Atlantic General Hospital Inpatient Care Areas Renovation (PCE)		1,303,000
		TOTAL	**5,500,000**

EXHIBIT 19

University of Maryland Medical Center (UMMC)

Subject: Information Regarding Charges

Policy for Release of Charge Information to Patients

To provide information regarding charges, UMMC will provide the following:

(a) A Representative List of Services and Charges will be made readily available to the public in written form available on UMMCs internet web site and by contracting the Patient Financial Services Department. (example attached)

(b) Estimated average charges for common inpatient and outpatient procedures at University of Maryland Medical Center. These tables are updated quarterly and are based on the patient charges actually incurred for these services during the previous nine months. They may be used by patients to estimate the charge for services that they may incur.

(c) Response to individuals requesting current charges for specific services/procedures will be accommodated within 2 days and staff training will occur to ensure that inquiries regarding charges for its services will be appropriately handled.

(d) The request should be directed to the Patient Financial Services Department who are trained in patient billing, patient financial assistance and HSCRC approved rate

(e) The team member granting the request should note the average inpatient charge per case figure is an estimate based on historical data and that the actual charge per case can vary significantly depending on the outcome of the patient's stay.

UNIVERSITY of MARYLAND MEDICAL SYSTEM

Reimbursement and Revenue Advisory Services

Estimated Average Charges for Common Procedures (updated 03/31/19)

The tables below provide estimated average charges for common inpatient and outpatient procedures at University of Maryland Medical Center. These tables are updated quarterly and are based on the patient charges actually incurred for these services during the previous nine months. They may be used by patients to estimate the charge for services that they may incur. Please note that these are only estimates and are subject to change without notice. The actual cost of your procedure may be higher or lower based on factors specific to your case, such as your length of stay in the hospital and the complexity of your medical condition.

These estimates reflect hospital charges only. They do not include physician or other provider fees that are billed separately from the hospital fees. You may receive bills from multiple physicians for their services, including but not limited to your anesthesiologist, hospitalist, pathologist, radiologist, cardiologist, emergency room physician, and other specialist who participate in your care. If you have questions regarding the bill for their services, please contact the individual provider.

Most Frequent Inpatient Medical/Surgical Cases	Estimated Average Charge
SEPTICEMIA & DISSEMINATED INFECTIONS	$36,210.55
CRANIOTOMY EXCEPT FOR TRAUMA	$69,210.53
PERCUTANEOUS CORONARY INTERVENTION W/O AMI	$63,193.85
HEART FAILURE	$16,505.76
DORSAL & LUMBAR FUSION PROC EXCEPT FOR CURVATURE OF BACK	$62,985.47
EXTRACRANIAL VASCULAR PROCEDURES	$51,759.91
CARDIAC CATHETERIZATION FOR OTHER NON-CORONARY CONDITIONS	$28,883.48
OTHER CHEMOTHERAPY	$22,079.66
SICKLE CELL ANEMIA CRISIS	$13,160.86
MALFUNCTION, REACTION, COMPLIC OF GENITOURINARY DEVICE OR PROC	$19,423.48

Most Frequent Inpatient Pediatric Cases	Estimated Average Charge
NEONATE BIRTHWT >2499G, NORMAL NEWBORN OR NEONATE W OTHER PROBLEM	$2,978.32
NEONATE BIRTHWT >2499G W MAJOR ANOMALY	$25,913.30
NEONATE BWT 2000-2499G, NORMAL NEWBORN OR NEONATE W OTHER PROBLEM	$5,940.49
NEONATE BIRTHWT >2499G W OTHER SIGNIFICANT CONDITION	$12,521.94
NEONATE, BIRTHWT >2499G W RESP DIST SYND/OTH MAJ RESP COND	$21,663.94
NEONATE BWT 1500-1999G W RESP DIST SYND/OTH MAJ RESP COND	$51,253.37
NEONATE BWT 1500-1999G W OR W/O OTHER SIGNIFICANT CONDITION	$30,355.25
NEONATE BWT 2000-2499G W MAJOR ANOMALY	$33,620.13
NEONATE BWT 1250-1499G W RESP DIST SYND/OTH MAJ RESP OR MAJ ANOM	$73,781.26
NEONATE BWT 1000-1249G W RESP DIST SYND/OTH MAJ RESP OR MAJ ANOM	$147,393.04

UNIVERSITY of MARYLAND MEDICAL SYSTEM

Reimbursement and Revenue Advisory Services

Most Frequent Inpatient Obstetric Cases	Estimated Average Charge
VAGINAL DELIVERY	$10,081.18
CESAREAN DELIVERY	$14,830.34
OTHER ANTEPARTUM DIAGNOSES	$13,394.43
VAGINAL DELIVERY W STERILIZATION &/OR D&C	$12,233.58
PRETERM LABOR	$9,543.88
POSTPARTUM & POST ABORTION DIAGNOSES W/O PROCEDURE	$7,600.12
VAGINAL DELIVERY W COMPLICATING PROCEDURES EXC STERILIZATION &/OR D&C	$11,596.08
OTHER O.R. PROC FOR OBSTETRIC DIAGNOSES EXCEPT DELIVERY DIAGNOSES	$14,081.48
FALSE LABOR	$5,923.89

Most Frequent Inpatient Psychiatric Cases	Estimated Average Charge
SCHIZOPHRENIA	$37,624.84
BEHAVIORAL DISORDERS	$16,466.50
MAJOR DEPRESSIVE DISORDERS & OTHER/UNSPECIFIED PSYCHOSES	$26,405.85
BIPOLAR DISORDERS	$21,860.45
DEPRESSION EXCEPT MAJOR DEPRESSIVE DISORDER	$13,267.50
ADJUSTMENT DISORDERS & NEUROSES EXCEPT DEPRESSIVE DIAGNOSES	$13,686.20
ACUTE ANXIETY & DELIRIUM STATES	$14,852.14
ORGANIC MENTAL HEALTH DISTURBANCES	$25,255.76
DISORDERS OF PERSONALITY & IMPULSE CONTROL	$23,113.71
OTHER MENTAL HEALTH DISORDERS	$11,688.67

Most Frequent Outpatient Surgical Services	Estimated Average Charge
TRANSFUSION, BLOOD OR BLOOD COMPONENTS	$324.80
FETAL NON-STRESS TEST	$507.61
UPPER GASTROINTESTINAL ENDOSCOPY INCLUDING ESOPHAGUS, STOMACH, AND EITHER THE DUODENUM AND/OR JEJUNUM AS APPROPRIATE; WITH BIOPSY, SINGLE OR MULTIPLE	$1,258.74
LARYNGOSCOPY, FLEXIBLE FIBEROPTIC; DIAGNOSTIC	$246.22
COLONOSCOPY, FLEXIBLE, PROXIMAL TO SPLENIC FLEXURE; WITH BIOPSY, SINGLE OR MULTIPLE	$1,634.00
UNLISTED PROCEDURE, DENTOALVEOLAR STRUCTURES	$2,245.10
LARYNGOSCOPY, FLEXIBLE OR RIGID FIBEROPTIC, WITH STROBOSCOPY	$421.83
COLONOSCOPY, FLEXIBLE, PROXIMAL TO SPLENIC FLEXURE; DIAGNOSTIC, WITH OR WITHOUT COLLECTION OF SPECIMEN(S) BY BRUSHING OR WASHING, WITH OR WITHOUTCOLON DECOMPRESSION (SEPARATE PROCEDURE)	$1,543.03
NASAL ENDOSCOPY, DIAGNOSTIC, UNILATERAL OR BILATERAL (SEPARATE PROCEDURE)	$205.85
COLONOSCOPY, FLEXIBLE, PROXIMAL TO SPLENIC FLEXURE; WITH REMOVAL OF TUMOR(S), POLYP(S), OR OTHER LESION(S) BY SNARE TECHNIQUE	$2,250.20

UNIVERSITY of MARYLAND MEDICAL SYSTEM

Reimbursement and Revenue Advisory Services

Most Frequent Laboratory Services	Estimated Average Charge
COMPREHENSIVE METABOLIC PANEL	$35.62
BLOOD COUNT; COMPLETE (CBC), AUTOMATED (HGB, HCT, RBC, WBC AND PLATELET COUNT) AND AUTOMATED DIFFERENTIAL WBC COUNT	$23.25
MAGNESIUM	$14.64
PHOSPHORUS INORGANIC (PHOSPHATE);	$4.92
BLOOD COUNT; COMPLETE (CBC), AUTOMATED (HGB, HCT, RBC, WBC AND PLATELET COUNT)	$20.96
PROTHROMBIN TIME;	$20.33
LACTATE DEHYDROGENASE (LD), (LDH);	$9.25
URINALYSIS, BY DIP STICK/TABLET REAGENT FOR BILIRUBIN, GLUCOSE, HEMOGLOBIN, KETONES, LEUKOCYTES, NITRITE, PH, PROTEIN, SPEC GRAV, UROBILINOGEN,ANYNUMBER OF CONSTITUENTS; AUTOMATED, W/ MICROSCOPY	$22.55
BLOOD TYPING; ABO	$9.24
BLOOD TYPING; RH (D)	$9.24

Most Frequent Outpatient Diagnostic Imaging Services	Estimated Average Charge
DOPPLER ECHOCARDIOGRAPHY, FETAL, CARDIOVASCULAR SYSTEM, PULSED WAVE AND/OR CONTINUOUS WAVE WITH SPECTRAL DISPLAY; FOLLOW-UP OR REPEAT STUDY	$103.26
COMPUTED TOMOGRAPHY, HEAD OR BRAIN; WITHOUT CONTRAST MATERIAL	$94.38
US, PRGNANT UTERUS, REAL TME W IMG DOCUMENTATION, F/U (EG, RE-EVAL, ORGAN SYST(S) SUSPECTED/CONFMED BE ABNORM PREVIOUS SCAN), TRANSABDOM APPR,/FETUS	$309.19
FETAL BIOPHYSICAL PROFILE; WITHOUT NON-STRESS TESTING	$402.37
COMPUTED TOMOGRAPHY, THORAX; WITH CONTRAST MATERIAL(S)	$207.84
ULTRASOUND, PREGNANT UTERUS, REAL TIME WITH IMAGE DOCUMENTATION, LIMITED (EG, FETAL HEART BEAT, PLACENTAL LOCATION, FETAL POSITION AND/OR QUALITATIVE AMNIOTIC FLUID VOLUME), ONE OR MORE FETUSES	$296.21
RADIOLOGIC EXAMINATION, KNEE; ONE OR TWO VIEWS	$144.36
RADIATION TREATMENT DELIVERY, >=3 SEPARATE TREATMENT AREAS, CUSTOM BLOCKING, TANGENTIAL PORTS, WEDGES, ROTATIONAL BEAM, COMPENSATORS, SPEC PARTICLEBEAM (EG, ELECTRON OR NEUTRONS); UP TO 5 MEV	$1,372.58
ULTRASOUND, PREGNANT UTERUS, REAL TIME WITH IMAGE DOCUMENTATION, FETAL AND MATERNAL EVALUATION PLUS DETAILED FETAL ANATOMIC EXAMINATION,TRANSABDOMINAL APPROACH; SINGLE OR FIRST GESTATION	$290.29
RADIOLOGIC EXAMINATION, ANKLE; COMPLETE, MINIMUM OF THREE VIEWS	$148.07

EXHIBIT 20

UNIVERSITY of MARYLAND MEDICAL SYSTEM

The attached Financial Assistance application is in response to your request for assistance with your hospital bill(s). All other billing services including physician, radiology, anesthesiology, ect… are not included in this agreement.

If your injuries/illness result in a Third Party Liability Claim (Auto Accident, Workers Comp, Bodily Injury or other legal claim) the Financial Assistance Application will be denied. Third Party Liability Claims are ineligible for Financial Assistance until all means of payment are exhausted. Failure to disclose information pertaining to any third party liability claim will deem the patient ineligible for Financial Assistance.

Please mail your completed Financial Assistance application, along with the following documents to **UMMS, 11311 McCormick Rd., Suite 230, Hunt Valley, MD 21031, Attn: Financial Assistance Dept**., or you may fax the application to 410-630-5341. In the event that you are having difficulties obtaining these documents or completing this application, please do not hesitate to contact our office at 410-821-4140 for assistance.

Social Security Award Letter (if applicable)
~ This will only apply to individuals who are currently receiving Social Security income.

Copy of Mortgage / Rent bill
*~ If you are currently living with family/friend(s) / landlord, and **are not paying** toward their Mortgage/Rent bill, please write a letter of explanation of your housing situation.*
*~ If you are currently living with family/friend(s) / landlord, and **are paying** toward their Mortgage/Rent bill, please write a letter of explanation of your housing situation, stating the amount paid each month, to whom, and have all parties sign as verification.*

Copy of 2 most recent pay stubs or Most Recent Tax Return / (W-2)
~ If you are not currently working, please write a letter of explanation of your unemployment and financial situation signed and dated by you, the patient/guarantor..

Copy / proof of any additional income

Copy of Medical Assistance Denial / Approval letter (if applicable)
*~If you have been deemed ineligible for Medical Assistance by our hospital or the Dept. of Social Services, without actually applying, you will **not** need to obtain or supply this letter. Please state this fact on page 2 of the application.*

11311 McCormick Road, Suite 230, Hunt Valley, MD 21031
(410)821-4140 ~ Fax (410)630-5341

UNIVERSITY of MARYLAND MEDICAL SYSTEM

Financial Assistance Program Application

Please complete, sign, and return this application with the following required documentation:

- **Income (Including all of the following documents you currently receive):**
  Copy of last 2 pay stubs or copy of W-2 form from most recent tax year filed for all who apply; including patient, patient spouse, patient guarantor (Parent(s) of children under 21 yrs old) living in the household. Documentation of Social Security/Social Security Disability or any other additional household income.
- **Copy of Mortgage/Rent Bill.**
- **If you applied for Medical Assistance, a copy of your approval or denial letter.**

If you are unable to supply any of the required documents above, please complete form FAF 116 attached.

Patient Information		
Last Name:	First:	M.I.:
Social Security #:	Date of Birth:	

Guarantor (Responsible Party) If same as Patient skip to Part II, otherwise complete all fields.			
Last Name:	First:		M.I.:
Social Security #:	Date of Birth:	Relationship to Patient:	
Part II (Copy of W-2 form(s) from most recent year filed OR last two pay check stubs required)			
Street Address:			Apt:
City:	State:	ZIP:	
Home Phone: ( )	Cell Phone: ( )	Marital Status:	
Employers Name and Address:			
Monthly Gross Income: $	Monthly Net Income: $		
Position/Title:	Length of Current Employment:		
Are you a Legal Resident of the United States: Yes ☐	No ☐		

Spouse		
Last Name:	First:	M.I.:
Employer Name/Address:	Phone #:	
Position/Title:	Length of Employment:	
Monthly Gross Income: $	Monthly Net Income: $	

Household Information (Name and Date Of Birth of all persons in household, excluding self or spouse)		
Name:	DOB:	Relation to Patient:
Name:	DOB:	Relation to Patient:
Name:	DOB:	Relation to Patient:
Name:	DOB:	Relation to Patient:
Name:	DOB:	Relation to Patient:

Additional Household income

Checking Account Balance:	Monthly Unemployment Amount:
Savings Account Balance:	Monthly Social Security Amount:
Public Assistance/ Food Stamps:	Monthly Workers Compensation Amount:
Monthly Child Support Amount:	Other:

Monthly Expenses (Copy of Mortgage/Rent payment required)	
Mortgage/Rent Payment:	Cable:
Utilities:	Visa:
Telephone:	Mastercard:
Cell Phone:	Department Store:
Car Payment:	Other:

Health Insurance Information (Copy of Medical Assistance Approval or Denial letter you received is required)		
Name Of Company:		Effective Date:
Have you applied for Medical Assistance: Yes ☐ No ☐		When:
Where:	Name of Caseworker & phone #:	
Outcome/Reason for Denial:		

Disability Information	
Is the Patient Disabled: Yes ☐ No ☐	Length Of Disability:
Name of Physician:	Physician Phone Number:

Third Party Liabilities (Auto Accident, Workers Compensation, Bodily Injury, or other legal claim)			
Injuries/Illness result of an Auto Accident	Yes ☐	No ☐	Date of Incident:
Injuries/Illness occuring at your workplace?	Yes ☐	No ☐	Date of Incident:
Injuries/Illness result of a Crime?	Yes ☐	No ☐	Date of Incident:
Injuries/Ilness resulting in legal action?	Yes ☐	No ☐	Date of Incident:

Third Party Liability Claims are ineligible for Financial Assistance until all means of payment are exhausted. Failure to disclose information pertaining to any third party liability claim will deem patient ineligible for Financial Assistance.

I declare that I have examined this application and to the best of my knowledge all information in it or otherwise provided to UMMS and it's practices is true, correct, and complete. I understand that misrepresentation of this information may cancel any financial assistance I may be provided and that I will then be liable for all medical charges. By signing and submitting this request, I give UMMS, and it's facility practices permission to determine my need for financial assistance; including review of my credit file. I also give permission to UMMS to release or disclose this information to University Physicians Inc. for the purpose of evaluating my financial status in response for assistance with my physician bills. I understand that it is my responsibility to advise UMMS of any changes in status in regards to my income or assets while this application is in process.

Patient/Guarantor Signature _____ Date _____

Spouse's Signature _____ Date _____

If you have any questions or need assistance completing this application, please call the Financial Assistance Dept. (410) 821-4140, Monday through Friday, 8:00am - 4:30pm. Mail this application, **along with required documents to: UMMS, 11311 McCormick Rd, Suite 230, Hunt Valley, MD 21031**.

UNIVERSITY of MARYLAND MEDICAL SYSTEM

Verification of Living, Financial, and Income Statement

This form will need to be completed by a Financial Assistance applicant who:

- Receives assistance with food and/or shelter
- Currently unemployed
- Hospital bills due to injuries from an auto accident, workers compensation, personal injury, or any other third party liability claim

Patient: Name: _____ Date: _____

Phone Number: _____ Cell Phone Number: _____

Date of Birth: _____ Patient Signature: _____

If receiving assistance with food and shelter, complete the following**:**

I have been receiving assistance from _____, who has been assisting me with food and shelter. Relationship to patient: _____.

(Check one)

_____ Providing room and board free

_____ I have been paying $ _____ per month for room and board

_____ Other, please explain below:

_____

_____

_____

If unemployed and receiving no income, complete the following**:**

(Check one) _____ I have been unemployed since ___/___/___ and receiving assistance with food and shelter per above. Expected date to return to work? _____

_____ I have been unemployed since ___/___/___ and living off of savings or other monetary assets.

Please explain in detail: _____

_____

Expected date to return to work? _____

Why are you not receiving unemployment income?

(Check one) _____ Eligibility Expired - Patient has exhausted all eligible unemployment benefits.

_____ Not Eligible, reason: _____

If you have a third party liability claim (Auto accident, workers compensation, personal injury) complete the following:

Attorney: Name: _____

Address: _____

Phone Number: _____

Insurance Company: Name: _____

Address: _____

Phone Number: _____

Expected Settlement Date: ____/____/____

EXHIBIT 21

University of Maryland Medical Center University of Maryland Medical Center Midtown Campus University of Maryland Rehabilitation & Orthopaedic Institute University of Maryland St. Joseph Medical Center University of Maryland Baltimore Washington Medical Center University of Maryland Shore Medical Center at Chestertown University of Maryland Shore Medical Center at Dorchester University of Maryland Shore Medical Center at Easton University of Maryland Charles Regional Medical Center	**The University of Maryland Medical System** **Central Business Office** **Policy & Procedure**	*Policy #:*	TBD
		Effective Date:	12/02/2018
	Subject: **FINANCIAL ASSISTANCE**	*Page #:*	1 of 13
		Supersedes:	07-01-2017

POLICY

This policy applies to the following hospital facilities of the University of Maryland Medical System ("UMMS hospitals"):

- University of Maryland Medical Center (UMMC)
- University of Maryland Medical Center Midtown Campus (MTC)
- University of Maryland Rehabilitation & Orthopaedic Institute (UMROI)
- University of Maryland St. Joseph Medical Center (UMSJMC)
- University of Maryland Baltimore Washington Medical Center (UMBWMC)
- University of Maryland Shore Medical Center at Chestertown (UMSMCC)
- University of Maryland Shore Medical Center at Dorchester (UMSMCD)
- University of Maryland Shore Medical Center at Easton (UMSME)
- University of Maryland Charles Regional Medical Center (UMCRMC)

The University of Maryland Medical System ("UMMS") is committed to providing financial assistance to persons who have health care needs and are uninsured, underinsured, ineligible for a government program, or otherwise unable to pay, for emergent and medically necessary care based on their individual financial situation.

It is the policy of the UMMS hospitals to provide Financial Assistance based on indigence or high medical expenses for patients who meet specified financial criteria and request such assistance. The purpose of the following policy statement is to describe how applications for Financial Assistance should be made, the criteria for eligibility, and the steps for processing applications.

UMMS will post notices of financial assistance availability in each UMMS hospital's emergency room (if any) and admissions areas, as well as the Billing Office. Notice of availability will also be sent to the patient with patient bills. Signage in key patient access areas will be made available. A Patient Billing and Financial Assistance Information Sheet will be provided before discharge, and it (along with this policy and the Financial Assistance Application) will be available to all patients upon request and without charge, both by mail and in the emergency

room (if any) and admissions areas. This policy, the Patient Billing and Financial Assistance Information Sheet, and the Financial Assistance Application will also be conspicuously posted on the UMMS website (www.umms.org).

Financial Assistance may be extended when a review of a patient's individual financial circumstances has been conducted and documented. This should include a review of the patient's existing medical expenses and obligations (including any accounts having gone to bad debt except those accounts that have gone to lawsuit and a judgment has been obtained) and any projected medical expenses. Financial Assistance Applications may be offered to patients whose accounts are with a collection agency.

UMMS retains the right in its sole discretion to determine a patient's ability to pay. All patients presenting for emergency services will be treated regardless of their ability to pay. For emergent/urgent services, applications to the Financial Clearance Program will be completed, received, and evaluated retrospectively and will not delay patients from receiving care.

This policy was adopted for University of Maryland St. Joseph Medical Center (UMSJMC) effective June 1, 2013.

This policy was adopted for University of Maryland Medical Center Midtown Campus (MTC) effective September 22, 2014.

This policy was adopted for University of Maryland Baltimore Washington Medical Center (UMBWMC) effective July 1, 2016.

This policy was adopted for University of Maryland Shore Medical Center at Chestertown (UMSMCC) effective September 1, 2017.

This policy was adopted for University of Maryland Shore Medical Center at Dorchester (UMSMCD) effective September 1, 2017.

This policy was adopted for University of Maryland Shore Medical Center at Easton (UMSMCE) effective September 1, 2017.

This policy was adopted for University of Maryland Charles Regional Medical Center (UMCRMC) effective December 2, 2018.

PROGRAM ELIGIBILITY

Consistent with their mission to deliver compassionate and high quality healthcare services and to advocate for those who do not have the means to pay for medically necessary care, UMMC, MTC, UMROI, UMSJMC, UMBWMC, UMSMCC, UMSMCD, UMSMCE, and UMCRMC hospitals strive to ensure that the financial capacity of people who need health care services does not prevent them from seeking or receiving care.

Specific exclusions to coverage under the Financial Assistance Program:

The Financial Assistance Program generally applies to all emergency and other medically necessary care provided by each UMMS hospital, as well as certain entities related to such hospitals listed in Attachment B. However, the Financial Assistance Program does not apply to any of the following:

1. Services provided by healthcare providers not affiliated with UMMS hospitals (e.g., durable medical equipment, home health services).
2. Patients whose insurance program or policy denies coverage for services by their insurance company (e.g., HMO, PPO, or Workers Compensation), are not eligible for the Financial Assistance Program.
    a. Generally, the Financial Assistance Program is not available to cover services that are denied by a patient's insurance company; however, exceptions may be made on a case by case basis considering medical and programmatic implications.
3. Cosmetic or other non-medically necessary services.
4. Patient convenience items.
5. Patient meals and lodging.
6. Physician charges related to the date of service are excluded from this UMMS financial assistance policy. Patients who wish to pursue financial assistance for physician-related bills must contact the physician directly.
    a. A list of providers, other than the UMMS hospital itself, delivering medically necessary care in each UMMS hospital that specifies which such as providers are not covered by this policy (as well as certain such providers that are covered) may be obtained on the website of each UMMS Entity.

Patients may be ineligible for Financial Assistance for the following reasons:

1. Have insurance coverage through an HMO, PPO, Workers Compensation, Medicaid, or other insurance programs that deny access to the Medical Center due to insurance plan restrictions/limits.
2. Refusal to be screened for other assistance programs prior to submitting an application to the Financial Clearance Program.
3. Refusal to divulge information pertaining to a pending legal liability claim.
4. Foreign-nationals traveling to the United States seeking elective, non-emergent medical care.

Patients who become ineligible for the program will be required to pay any open balances and may be submitted to a bad debt service if the balance remains unpaid in the agreed upon time periods.

Unless they meet Presumptive Financial Assistance Eligibility criteria, patients shall be required to submit a complete Financial Assistance Application (with all required information and documentation) and determined to be eligible for financial assistance in order to obtain financial assistance. Patients who indicate they are unemployed and have no insurance coverage shall be required to submit a Financial Assistance Application before receiving non-emergency medical care unless they meet Presumptive Financial Assistance Eligibility criteria. If the patient qualifies for COBRA coverage, patient's financial ability to pay COBRA insurance premiums shall be reviewed by the Financial Counselor/Coordinator and recommendations shall be made to Senior Leadership. Individuals with the financial capacity to purchase health insurance shall be encouraged to do so, as a means of assuring access to health care services and for their overall personal health.

Those with income up to 200% of Maryland State Department of Health and Mental Hygiene Medical Assistance Planning Administration Income Eligibility Limits for a Reduced Cost of Care (“MD DHMH”) are eligible for free care. Those between 200% to 300% of MD DHMH are eligible for discounts on a sliding scale, as set forth in Attachment A.

Presumptive Financial Assistance

Patients may also be considered for Presumptive Financial Assistance Eligibility. There are instances when a patient may appear eligible for financial assistance, but there is no financial assistance form on file. There is adequate information provided by the patient or through other sources, which provide sufficient evidence to provide the patient with financial assistance. In the event there is no evidence to support a patient's eligibility for financial assistance, UMMS reserves the right to use outside agencies or information in determining estimated

income amounts for the basis of determining financial assistance eligibility and potential reduced care rates. Once determined, due to the inherent nature of presumptive circumstances, the only financial assistance that can be granted is a 100% write-off of the account balance. Presumptive Financial Assistance Eligibility shall only cover the patient's specific date of service. Presumptive eligibility may be determined on the basis of individual life circumstances that may include:

a. Active Medical Assistance pharmacy coverage
b. Specified Low Income Medicare (SLMB) coverage
c. Primary Adult Care (PAC) coverage
d. Homelessness
e. Medical Assistance and Medicaid Managed Care patients for services provided in the ER beyond the coverage of these programs
f. Medical Assistance spend down amounts
g. Eligibility for other state or local assistance programs
h. Patient is deceased with no known estate
i. Patients that are determined to meet eligibility criteria established under former State Only Medical Assistance Program
j. Non-US Citizens deemed non-compliant
k. Non-Eligible Medical Assistance services for Medical Assistance eligible patients
l. Unidentified patients (Doe accounts that we have exhausted all efforts to locate and/or ID)
m. Bankruptcy, by law, as mandated by the federal courts
n. St. Clare Outreach Program eligible patients
o. UMSJMC Maternity Program eligible patients
p. UMSJMC Hernia Program eligible patients

Specific services or criteria that are ineligible for Presumptive Financial Assistance include:

a. Uninsured patients seen in the Emergency Department under Emergency Petition will not be considered under the presumptive financial assistance program until the Maryland Medicaid Psych program has been billed.

PROCEDURES

1. There are designated persons who will be responsible for taking Financial Assistance applications. These staff can be Financial Counselors, Patient Financial Receivable Coordinators, Customer Service Representatives, etc.
2. When possible effort will be made to provide financial clearance prior to date of service. Where possible, designated staff will consult via phone or meet with patients who request Financial Assistance to determine if they meet preliminary criteria for assistance.
   a. Staff will complete an eligibility check with the Medicaid program for Self Pay patients to verify whether the patient has current coverage.
   b. Preliminary data will be entered into a third party data exchange system to determine probably eligibility. To facilitate this process each applicant must provide information about family size and income. To help applicants complete the process, we will provide an application that will let them know what paperwork is required for a final determination of eligibility.
   c. Applications initiated by the patient will be tracked, worked and eligibility determined within the third party data and workflow tool. A letter of final determination will be submitted to each patient that has formally requested financial assistance. Determination of Probable Eligibility will be provided within two business days following a patient's request for charity care services, application for medical assistance, or both.
   d. If a patient submits a Financial Assistance Application without the information or documentation required for a final determination of eligibility, a written request for the missing information or documentation will be sent to the patient. This written request will also contain the contact information (including telephone number and physical location) of the office or department that can provide information about the Financial Assistance Program and assistance with the application process.

e. The patient will have thirty (30) days from the date this written request is provided to submit the required information or documentation to be considered for eligibility. If no data is received within the 30 days, a letter will be sent notifying the patient that the case is now closed for lack of the required documentation. The patient may re-apply to the program and initiate a new case by submitting the missing information or documentation 30 days after the date of the written request for missing information/documentation.

f. For any episode of care, the Financial Assistance Application process will be open up to at least 240 days after the first post-discharge patient bill for the care is sent.

g. Individual notice regarding the hospital's Financial Assistance Policy shall be provided at the time of preadmission or admission to each person who seeks services in the hospital.

3. There will be one application process for UMMC, MTC, UMROI, UMSJMC, UMBWMC, UMSMCC, UMSMCD, UMSMCE, and UMCRMC. The patient is required to provide a completed Financial Assistance Application orally or in writing. In addition, the following may be required:

   a. A copy of their most recent Federal Income Tax Return (if married and filing separately, then also a copy spouse's tax return); proof of disability income (if applicable), proof of social security income (if applicable). If unemployed, reasonable proof of unemployment such as statement from the Office of Unemployment Insurance, a statement from current source of financial support, etc ...

   b. A copy of their most recent pay stubs (if employed) or other evidence of income.

   c. A Medical Assistance Notice of Determination (if applicable).

   d. Copy of their Mortgage or Rent bill (if applicable), or written documentation of their current living/housing situation.

If a patient submits both a copy of their most recent Federal Income Tax Return and a copy of their most recent pay stubs (or other evidence of income), and only one of the two documents indicates eligibility for financial assistance, the most recent document will dictate eligibility. Oral submission of needed information will be accepted, where appropriate.

4. In addition to qualifying for Financial Assistance based on income, a patient can qualify for Financial Assistance either through lack of sufficient insurance or excessive medical expenses based on the Financial Hardship criteria discussed below. Once a patient has submitted all the required information, the Financial Counselor will review and analyze the application and forward it to the Patient Financial Services Department for final determination of eligibility based on UMMS guidelines.

a. If the patient's application for Financial Assistance is determined to be complete and appropriate, the Financial Coordinator will recommend the patient's level of eligibility and forward for a second and final approval.

i) If the patient does qualify for Financial Assistance, the Financial Coordinator will notify clinical staff who may then schedule the patient for the appropriate hospital-based service.

ii) If the patient does not qualify for Financial Assistance, the Financial Coordinator will notify the clinical staff of the determination and the non-emergent/urgent hospital-based services will not be scheduled.

(1) A decision that the patient may not be scheduled for hospital-based, non-emergent/urgent services may be reconsidered by the Financial Clearance Executive Committee, upon the request of a Clinical Chair.

5. Once a patient is approved for Financial Assistance, Financial Assistance coverage is effective for the month of determination and a year prior to the determination. However, an UMMS hospital may decide to extend the Financial Assistance eligibility period further into the past or the future on a case-by-case basis. If additional healthcare services are provided beyond the eligibility period, patients must reapply to the program for clearance. In addition, changes to the patient's income, assets, expenses or family status are expected to be communicated to the Financial Assistance Program Department. All Extraordinary Collections Action activities, as defined below, will be terminated once the patient is approved for financial assistance and all the patient responsible balances are paid.

6. Account balances that have not been paid may be transferred to Bad Debt (deemed uncompensated care) and referred to an outside collection agency or to the UMMS hospital's attorney for legal and/or collection activity. Collection activities taken on behalf of the hospital by a collection agency or the hospital's attorney may include the following Extraordinary Collection Actions (ECAs):

a. Reporting adverse information about the individual to consumer credit reporting agencies or credit bureaus.

b. Commencing a civil action against the individual.

c. Placing a lien on an individual's property. A lein will be placed by the Court on primary residences within Baltimore City. The hospital will not pursue foreclosure of a primary residence but my maintain its position as a secured creditor if a property is otherwise foreclosed upon.

d. Attaching or seizing an individual's bank account or any other personal property.

e. Garnishing an individual's wage.

7. ECAs may be taken on accounts that have not been disputed or are not on a payment arrangement. ECAs will occur no earlier than 120 days from submission of first post-discharge bill to the patient and will be preceded by a written notice 30 days prior to commencement of the ECA. This written notice will indicate that financial assistance is available for eligible individuals, identify the ECAs that the hospital (or its collection agency, attorney, or other authorized party) intends to obtain payment for the care, and state a deadline after which such ECAs may be initiated. It will also include a Patient Billing and Financial Assistance Information Sheet. In addition, the hospital will make reasonable efforts to orally communicate the availability of financial assistance to the patient and tell the patient how he or she may obtain assistance with the application process. A presumptive eligibility review will occur prior to any ECA being taken. Finally, no ECA will be initiated until approval has been obtained from the CBO Revenue Cycle.
8. If prior to receiving a service, a patient is determined to be ineligible for financial assistance for that service, all efforts to collect co-pays, deductibles or a percentage of the expected balance for the service will be made prior to the date of service or may be scheduled for collection on the date of service.
9. A letter of final determination will be submitted to each patient who has formally submitted an application. The letter will notify the patient in writing of the eligibility determination (including, if applicable, the assistance for which the individual is eligible) and the basis for the determination. If the patient is determined to be eligible for assistance other than free care, the patient will also be provided with a billing statement that indicates the amount the patient owes for the care after financial assistance is applied.
10. Refund decisions are based on when the patient was determined unable to pay compared to when the patient payments were made. Refunds will be issued back to the patient for credit balances, due to patient payments, resulting from approved financial assistance on considered balance(s). Payments received for care rendered during the financial assistance eligibility window will be refunded, if the amount exceeds the patient's determined responsibility by $5.00 or more.
11. If a patient is determined to be eligible for financial assistance, the hospital (and/or its collection agency or attorney) will take all reasonably available measures to reverse any ECAs taken against the patient to obtain payment for care rendered during the financial assistance eligibility window. Such reasonably available measures will include measures to vacate any judgment against the patient, lift levies or liens on the patient's property, and remove from the patient's credit report any adverse information that was reported to a consumer reporting agency or credit bureau.
12. Patients who have access to other medical coverage (e.g., primary and secondary insurance coverage or a required service provider, also known as a carve-out), must utilize and exhaust their network benefits before applying for the Financial Assistance Program.

13. The Financial Assistance Program will accept the Faculty Physicians, Inc.'s (FPI) completed financial assistance applications in determining eligibility for the UMMS Financial Assistance program. This includes accepting FPI's application requirements.
14. The Financial Assistance Program will accept all other UMMS hospital's completed financial assistance applications in determining eligibility for the program. This includes accepting each facility's application format.
15. The Financial Assistance Program does not cover Supervised Living Accommodations and meals while a patient is in the Day Program.
16. Where there is a compelling educational and/or humanitarian benefit, Clinical staff may request that the Financial Clearance Executive Committee consider exceptions to the Financial Assistance Program guidelines, on a case-by-case basis, for Financial Assistance approval.
    a. Faculty requesting Financial Clearance/Assistance on an exception basis must submit appropriate justification to the Financial Clearance Executive Committee in advance of the patient receiving services.
    b. The Chief Medical Officer will notify the attending physician and the Financial Assistance staff of the Financial Clearance Executive Committee determination.

Financial Hardship

The amount of uninsured medical costs incurred at either, UMMC, MTC, UMROI, UMSJMC, UMBWMC, UMSMCC, UMSMCD, UMSMCE, and UMCRMC will be considered in determining a patient's eligibility for the Financial Assistance Program. The following guidelines are outlined as a separate, supplemental determination of Financial Assistance, known as Financial Hardship. Financial Hardship will be offered to all patients who apply for Financial Assistance and are determined to be eligible.

Medical Financial Hardship Assistance is available for patients who otherwise do not qualify for Financial Assistance under the primary guidelines of this policy, but for whom:

1) Their medical debt incurred at UMMC, MTC, UMROI, UMSJMC, UMBWMC, UMSMCC, UMSMCD, UMSMCE and/or UMCRMC exceeds 25% of the Family Annual Household Income, which is creating Medical Financial Hardship.

For the patients who are eligible for both, the Reduced Cost Care under the primary Financial Assistance criteria and also under the Financial Hardship Assistance criteria, UMMC, MTC, UMROI, UMSJMC, UMBWMC,

UMSMCC, UMSMCD, UMSMCE, and UMCRMC will grant the reduction in charges, which is balance owed that is greater than 25% of the total annual household income.

Financial Hardship is defined as facility charges incurred at UMMC, MTC, UMROI, UMSJMC and/or UMBWMC for medically necessary treatment by a family household over a twelve (12) month period that exceeds 25% of that family's annual income.

Medical Debt is defined as out of pocket expenses for the facility charges incurred at UMMC, MTC, UMROI, UMSJMC, UMBWMC, UMSMCC, UMSMCD, UMSMCE and/or UMCRMC for medically necessary treatment.

Once a patient is approved for Financial Hardship Assistance, coverage will be effective for the month of the first qualifying date of service and a year prior to the determination. However, an UMMS hospital may decide to extend the Financial Hardship eligibility period further into the past or the future on a case-by-case basis according to their spell of illness/episode of care. It will cover the patient and the eligible family members living in the household for the approved reduced cost and eligibility period for medically necessary care.

All other eligibility, ineligibility, and procedures for the primary Financial Assistance program criteria apply for the Financial Hardship Assistance criteria, unless otherwise stated above.

Appeals

- Patients whose financial assistance applications are denied have the option to appeal the decision.
- Appeals can be initiated verbally or written.
- Patients are encouraged to submit additional supporting documentation justifying why the denial should be overturned.
- Appeals are documented within the third party data and workflow tool. They are then reviewed by the next level of management above the representative who denied the original application.
- If the first level of appeal does not result in the denial being overturned, patients have the option of escalating to the next level of management for additional reconsideration.
- The escalation can progress up to the Chief Financial Officer who will render a final decision.
- A letter of final determination will be submitted to each patient who has formally submitted an appeal.

ATTACHMENT A

Sliding Scale – Reduced Cost of Care

MD DHMH 2018 Income Elig Limit Guidelines		Income Level Up to 200% Pt Resp 0%	S L I	Income Level Pt Resp 10%	Income Level Pt Resp 20%	Income Level Pt Resp 30%	Income Level Pt Resp 40%	Income Level Pt Resp 50%	Income Level Pt Resp 60%	Income Level Pt Resp 70%	Income Level Pt Resp 80%	Income Level Pt Resp 90%
HH	100% MD DHMH	100% Charity	D	90% Charity	80% Charity	70% Charity	60% Charity	50% Charity	40% Charity	30% Charity	20% Charity	10% Charity
Size	Max	Max	I	Max	Max	Max	Max	Max	Max	Max	Max	Max
1	$16,753	$33,506	N	$34,430	$36,857	$38,532	$40,207	$41,883	$43,558	$45,233	$46,908	$50,258
2	$22,715	$45,430	G	$47,702	$49,973	$52,245	$54,516	$56,788	$59,059	$61,331	$63,602	$68,144
3	$28,676	$57,352		$60,220	$63,087	$65,955	$68,822	$71,690	$74,558	$77,425	$80,293	$86,027
4	$34,638	$69,276	S	$72,740	$76,204	$79,667	$83,131	$86,595	$90,059	$93,523	$96,986	$103,913
5	$40,600	$81,200	C	$85,260	$89,320	$93,380	$97,440	$101,500	$105,560	$109,620	$113,680	$121,799
6	$45,561	$91,122	A	$95,678	$100,234	$104,790	$109,346	$113,903	$118,459	$123,015	$127,571	$136,682

*All discounts stated above shall be applied to the amount the patient is personally responsible for paying after insurance reimbursements.

*Amounts billed to patients who qualify for Reduced-Cost of Care on a sliding scale (or for Financial Hardship Assistance) will be less than the amounts generally billed to those with insurance (AGB), which in Maryland is the charge established by the Health Services Cost Review Commission (HSCRC). UMMS determines AGB by using the amount Medicare would allow for the care (including the amount the beneficiary would be personally responsible for paying, which is the HSCRC amount; this is known as the "prospective Medicare method".

Effective 12/02/18

EXHIBIT 22

hits by Broad-
e No. 9 Falcons
er the first two
o defeat No. 15
e innings, on

b Way reached
ed three runs
while Brendan
ree runs and
Falcons, who

as coming out
ns in the first
'That changed
ut from what it

e more than
an Lewis, who

all looking — in the second, before giving up his first hit on a bloop single in the third.

"I was a little nervous after last game, but with support like that, you have to get excited," Lewis said. "I know we're very capable. We have a lot of talent on our team. I know some people are sleeping on us, especially after (Tuesday's) game, but we have a lot of talent."

Way led off the game with a double and later scored on an errant pickoff attempt. Parker Jones drove in a pair of runs with a single and scored on Mark Sasse's single to round out the four-run first inning.

Way singled with one out in the second, then after a double from Camden Handwerger, Brendan Si-

was good to see him get back on track today."

The Falcons (3-1) made it 8-0 in the fourth when Jordan Hallet's infield single scored Josh Horgan (three runs). The Wildcats finally got on the board in their half of the fourth on a two-run single with two outs from Greg Borges to spoil the shutout.

The Falcons blew the game open in the fifth with five runs on four hits and a pair of Arundel (2-1) errors. Way doubled in a pair of runs and scored on Handwerger's second double of the game and the Falcons scored on an error and a double steal to put the 10-run rule in play.

bhough@capgaznews.com
twitter.com/bobhoke74

LEGAL NOTICES

THE UNIVERSITY OF MARYLAND MEDICAL CENTER MIDTOWN CAMPUS CHARITY CARE POLICY

The University of Maryland Medical Center maintains accessibility to all services regardless of an individual's ability to pay. The hospital policy on charity care is that the hospital will provide necessary emergency medical care to all persons regardless of their ability to pay and will consider for charity care those patients who cannot pay the total cost of hospitalization due to lack of insurance coverage and/ or inability to pay. For more information on our financial assistance policy for patients who qualify for help for their hospital bills, please call 1-800-492-5538. If you require translation services to understand this policy, please call the University of Maryland Patient Advocacy Office at 410-328-8777.

LEGAL NOTICES

IN THE CIRCUIT COURT FOR BALTIMORE CITY
Case No.: 24D19000424

IN THE MATTER OF ALEXIS PAIGE MARTIN FOR A CHANGE OF NAME TO PAIGE MARTIN WASSER

ORDER FOR NOTICE BY PUBLICATION

The Object of this suit is to officially change the name of the petitioner from
ALEXIS PAIGE MARTIN
to
PAIGE MARTIN WASSER
It is this 20TH DAY OF MARCH, 2019, by the Circuit Couty for Baltimore City,
ORDERED, that publication be given one time in a newspaper of general circulation in Baltimore City on or before the 22ND DAY OF APRIL, 2019, which shall warn all interested persons to file an affidavit in opposition to the relief requested on or before the 20TH DAY OF MAY, 2019

MARILYN BENTLEY

THE UNIVERSITY OF MARYLAND MEDICAL CENTER CHARITY CARE POLICY

The University of Maryland Medical Center maintains accessibility to all services regardless of an individual's ability to pay. The hospital policy on charity care is that the hospital will provide necessary emergency medical care to all persons regardless of their ability to pay and will consider for charity care those patients who cannot pay the total cost of hospitalization due to lack of insurance coverage and/ or inability to pay. For more information on our financial assistance policy for patients who qualify for help for their hospital bills, please call 1-800-492-5538. If you require translation services to understand this policy, please call the University of Maryland Patient Advocacy Office at 410-328-8777.

THE UNIVERSITY OF MARYLAND REHABILITATION AND ORTHOPAEDIC INSTITUTE CHARITY CARE POLICY

The University of Maryland Medical Center maintains accessibility to all services regardless of an individual's ability to pay. The hospital policy on charity care is that the hospital will provide necessary emergency medical care to all persons regardless of their ability to pay and will consider for charity care those patients who cannot pay the total cost of hospitalization due to lack of insurance coverage and/ or inability to pay. For more information on our financial assistance policy for patients who qualify for help for their hospital bills, please call 1-800-492-5538. If you require translation services to understand this policy, please call the University of Maryland Patient Advocacy Office at 410-328-8777.

EXHIBIT 23

From: Sametria McCammon1 -MDH- [mailto:sametria.mccammon1@maryland.gov]
Sent: Wednesday, January 16, 2019 11:14 AM
To: Steacy, Donald <dsteacy@umm.edu>
Cc: Courtney Carta -MDH- <courtney.carta@maryland.gov>
Subject: Re: Maryland Healthcare Quality Reports Question

Hi Donald,

For the stroke measure, the data comes from Hospital Compare and the time frame is July 1, 2014- June 30, 3017. Also, you are correct, UMMC is performing better than the state and national average for the CABG measure. It appears that there is a programming error with a few of the mortality and readmission measures. However, the raw data is correct and can be used in the meantime as we work with our contractor on resolving this issue. Let me know if you have any further questions.

Sincerely,

Sametria McCammon, MSPH
Program Manager, Hospital Quality Initiatives
Center for Quality Measurement and Reporting
Maryland Health Care Commission
Maryland Department of Health
4160 Patterson Ave
Baltimore, MD 21215
Phone: 410-764-3263
Email: sametria.mccammon1@maryland.gov
Visit our website at: healthcarequality.mhcc.maryland.gov
MHCC is committed to customer service. Click here to take the Customer Satisfaction Survey.

On Wed, Jan 16, 2019 at 10:36 AM Steacy, Donald <dsteacy@umm.edu> wrote:

Sametria,

Thank you, again for all of your help. Would you help me with another area, please

Our Death Rate for CABG is 1.6 where the state average is 3.2. Should that mean we are better than average?

I just want to be sure. Thank you

-Donald

Donald Steacy, MBA
Manager Strategic Analytics & Program Development
Department of Strategic Planning
University of Maryland Medical Center
Phone: 410-328-6338
Fax: 410-328-6815
110 S. Paca Street
8th Floor, 8-S-111
Baltimore, MD 21201

From: Sametria McCammon1 -MDH- [mailto:sametria.mccammon1@maryland.gov]
Sent: Wednesday, January 16, 2019 9:08 AM
To: Steacy, Donald <dsteacy@umm.edu>
Cc: courtney.carta@maryland.gov
Subject: Re: Maryland Healthcare Quality Reports Question

Hello Donald,

UMMC's Combined Quality and Safety Ratings indicates that UMMC is performing below or worse than the State of Maryland and the National Average for this measure. For more detailed information about each measure including the metric definition and details on interpreting the result, click the actual measure and/or the green question mark. Lastly, you can view the raw data and bar charts by clicking on the measure and changing the "display type" at the top of the page. Feel free to reach out again should you have any additional questions.

Sincerely,

Sametria McCammon, MSPH
Program Manager, Hospital Quality Initiatives
Center for Quality Measurement and Reporting
Maryland Health Care Commission
Maryland Department of Health
4160 Patterson Ave

Baltimore, MD 21215
Phone: 410-764-3263
Email: sametria.mccammon1@maryland.gov
Visit our website at: healthcarequality.mhcc.maryland.gov
MHCC is committed to customer service. Click here to take the Customer Satisfaction Survey.

On Wed, Jan 16, 2019 at 8:16 AM Steacy, Donald <dsteacy@umm.edu> wrote:

Sametria,

Good morning. I have a random question regarding the Maryland Health Care Quality Reports. I hope you are the person to speak to about this.

Under Combined Quality and Safety Ratings / Deaths our Hospital (UMMC) rating is below average. Just to be clear is that better or worse than average? So is below average mean that we have less patients who die after having one of six common conditions or does it mean we have more and are performing worse?

Just wanted to be sure before we have our executive meeting.

Thank you and have a wonderful day!

Here is the link to our profile:

https://www.marylandqmdc.org/MarylandHospitalCompare/index.html#/professional/quality-ratings/profile/13025

-Donald

Donald Steacy, MBA
Manager Strategic Analytics & Program Development
Department of Strategic Planning
University of Maryland Medical Center
Phone: 410-328-6338
Fax: 410-328-6815
110 S. Paca Street
8th Floor, 8-S-111
Baltimore, MD 21201

EXHIBIT 24

UNIVERSITY of MARYLAND MEDICAL CENTER

More staff are needed to safely operate a new integrated standalone cancer center that includes inpatient and outpatient services in one building than would be needed to operate a new outpatient cancer facility and to house cancer inpatients in the hospital. The marginal analysis indicates 138 additional FTEs are needed to support an integrated standalone facility on the Lombard Greene site than are needed if the inpatients remain in 22 South Greene Street.

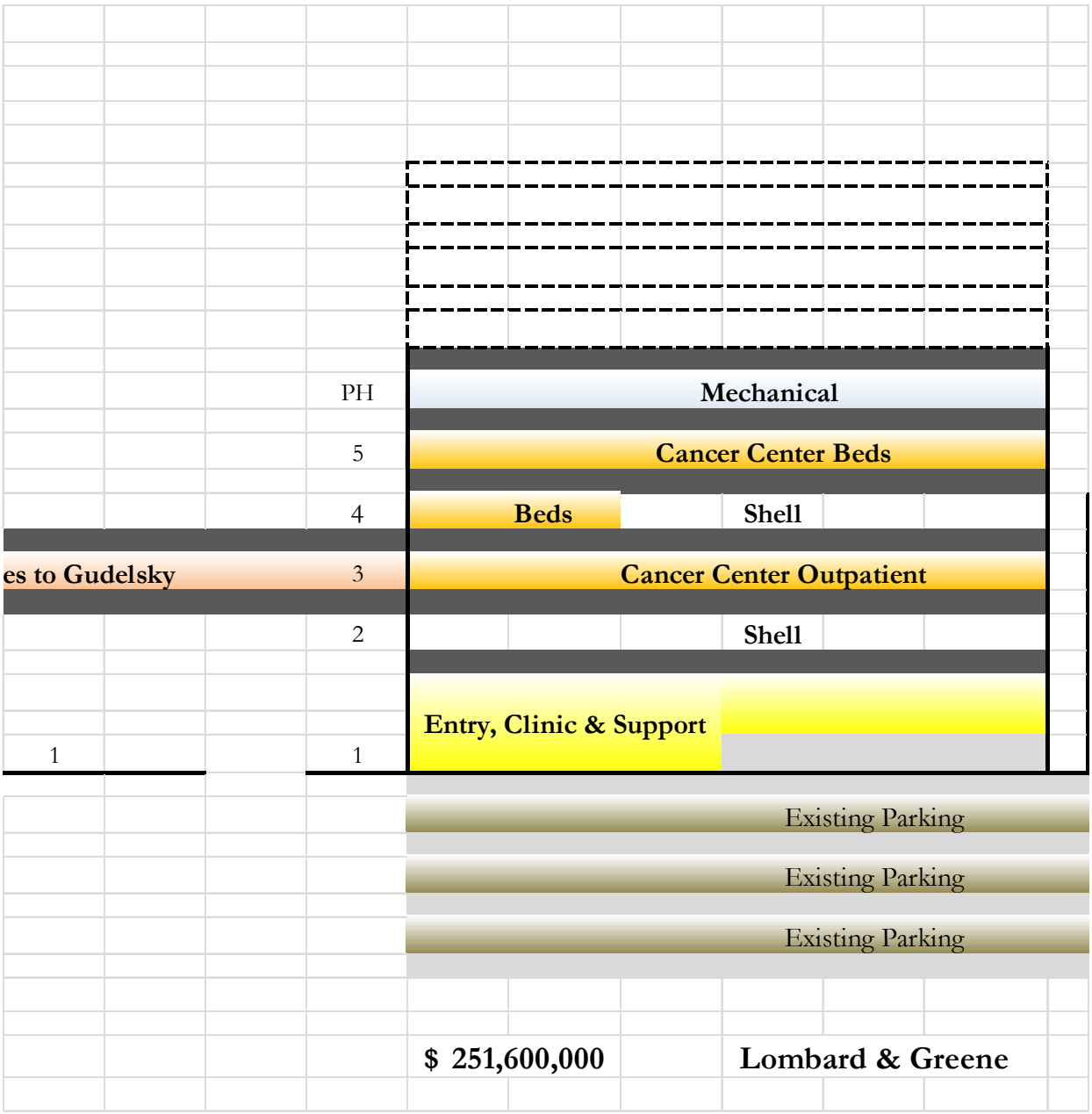
The analysis identified the marginal difference in work that is a consequence of the location and operating hours. A team from across the hospital identified the services needed to support operations in a new ambulatory building and in a new inpatient and outpatient center. The FTE estimate above is the marginal difference between the two operating plans. For example in the ambulatory building security is projected to need two guard "posts" each 55 hours per week. The integrated center would operate two guard "posts" each 168 hours per week. The marginal difference is 11,752 "post" hours per year. At standard UMMC productivity rate 6.4 FTEs are needed to cover 11,752 hours.

Specific assumptions include:

- Clinic and unit staff are not included in this estimate their numbers should not change.
- This does not address potential marginal costs in the medical model.
- The ambulatory building operates 5.5 days (approximately 10 hours per week day) per week, the integrated center 24X7.
- Radiology, Lab and Pharmacy would require staffed facilities in the new building.
- Patient Transport and Code Teams will be required to maintain patient safety.
- ICU patients would continue to be admitted to the appropriate ICU in the main hospital.
- A bridge f or patient and materials transport can be constructed to connect a new inpatient building to the existing hospital.
- 1840 productive hours per FTE.
- Labor costs include 25% benefit markup

Service	Marginal FTE	Total cost	
Support Services	38.2	$1,460,000	Security EVS, Mmgt, M&O, EQD all require satellite locations and will support 24x7 from within the building
Laboratory Services	9.1	640,000	24X7 staffed lab required for inpatient building
Pharmacy	11	848,000	24X7 staffed pharmacy for inpatient building, Katz will have to be duplicated to provide Chemo in both locations
Radiology	37.2	2,300,000	1 ea. CT, MRI, PET\CT, General Rad on site during nights and weekend for inpatients
Nurse Practitioner	2.4	326,000	Night provider coverage, currently covered by Medicine
Patient Transport	15	555,000	Additional staff due to location of inpatients
Rapid Response Team	17.75	1,200,000	Additional staff due to location of inpatients
Rehab & Dietary	2.25	130,000	Additional staff due to location of inpatients
TOTAL		$7,459,000	

Participants: Leonard Taylor, Tina Cafeo, Stan Whitbey, Dana Farrakhan, Carmel McComiskey, Joe Dicubellis, Jonathan Cooper, Teri Amelung, Sherrie Stephens-Hunt, Marina Bogin, Linda Whitmore.


PH
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Existing Parking
Existing Parking
$ 251,600,000
Lombard & Greene

EXHIBIT 25

Sg2 INTELLIGENCE

CANCER

Service Line Forecast 2018

health care intelligence

Sg2 Staff

Project Director
Tim Remus, PhD

Project Associates
Janelle Kwan
Jennifer Donnelly

Production Team
Katie James
Melissa Summaria
Melissa Wilson
Emily Wong

CANCER
SERVICE LINE FORECAST 2018

At Sg2, we know that projecting patient demand for key services and procedures is foundational to successful strategic planning. To effectively and sustainably grow their service lines, health care leaders must understand exactly where growth opportunities lie and how to increase the value of services delivered across the care continuum. That's why each year we refresh and release a series of forecast reports across 9 key service lines: cancer, cardiovascular services, orthopedics, neurosciences, women's health, pediatrics, behavioral health, surgery and medicine.

This report, *Cancer Service Line Forecast 2018,* is Sg2's guide to building high-performing services in the competitive, challenging cancer arena. As in previous years, it begins with an overview of the current landscape, including top trends. Details from our most recent Impact of Change® national demand forecast then highlight inpatient and outpatient services offering the best growth potential within this service line.

To help provider systems capitalize on those opportunities, the report dives into 7 unique analyses of select tumor types, highlighting both short- and long-term impacts. It then offers strategic guidance in essential areas (eg, program development, staffing, channel management) that organizations must explore to compete effectively. The report concludes with a road map of basic to comprehensive program types, a description of our forecast methodology and a list of robust resources readers can further leverage in pursuit of sustainable service line growth.

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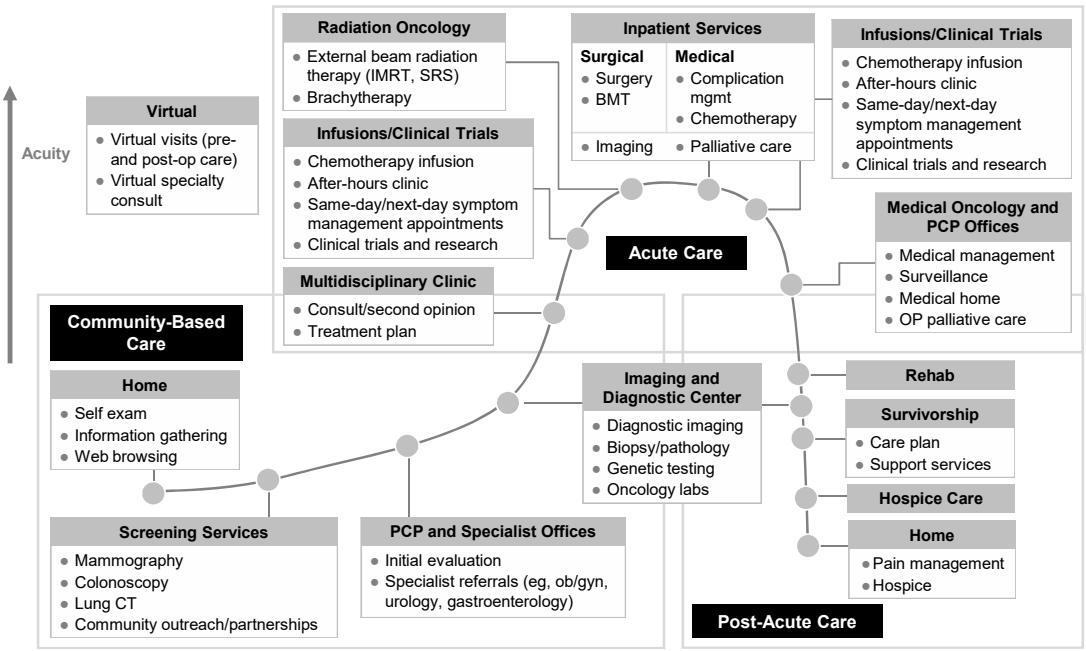
CANCER SYSTEM OF CARE



BMT = bone marrow transplant; CARE = Clinical Alignment and Resource Effectiveness; IMRT = intensity-modulated radiation therapy; mgmt = management; ob/gyn = obstetrician/gynecologist; PCP = primary care physician; post-op = postoperative; pre-op = preoperative; SRS = stereotactic radiosurgery.

Relevance in today's cancer landscape relies on a well-designed System of CARE.

- Whether organizations are building a new cancer program or optimizing an existing one, a comprehensive view of essential patient care services across the care continuum is necessary to pinpoint optimal access points, effectively position clinical products, and identify opportunities for coordination across community-based, acute and post-acute settings.

A continuum-wide perspective helps shape strategic priorities in cancer.

- Acquisition of independent oncology practices and market consolidation have enabled many health systems to expand their footprint and strengthen their market position. To remain competitive, however, cancer programs must coordinate patient-centered services across the full care continuum, addressing gaps that diminish quality and lead to patient leakage.
  - **Acute Care:** Improved care coordination and management will reduce inpatient medical admissions, but select surgeries still offer inpatient growth. Competing for shrinking surgical volumes will require strategies that seamlessly integrate multidisciplinary care and create efficient care pathways.
  - **Community-Based Care:** A diversified set of avenues to acquire and retain patients will be essential to drive growth. Tumor-specific clinics, high-risk and genetic screening services, virtual health interactions, relationships with community-based specialists (eg, urologists, gastroenterologists), and second opinion offerings are key access channels worth leveraging.
  - **Post-Acute Care:** A burgeoning survivor population is increasing demand for downstream services (eg, imaging, rehab, visits) and disease management. Organizations that provide robust survivorship offerings will be well positioned to compete effectively for market share.

TOP TRENDS IMPACTING CANCER

Care Delivery

- Precision medicine is playing an increasingly integral role in the cancer care pathway. Regardless of size, programs will need to determine how best to invest in these advancements. Partnerships can help smaller organizations expand precision medicine and enable larger organizations to expand the pool of potential patients**.**
- Strong short-term growth in chemotherapy is on the horizon, but capitalizing on it will require strategy that accounts for both clinical opportunities and financial challenges.
  - Targeted therapies and immunotherapies will increase chemotherapy demand in the next 5 years due to expanding indications and additional treatment options for patients with recurrence and those unresponsive to initial chemotherapy treatment.
  - However, the ability to offer novel therapies in a cost-effective manner is a work in progress, complicated by proposed reforms to 340B policy (ie, loss of discounts for OP infusions) that will put financial pressure on hospitals to make up lost revenue.
- Hospital-based IP and OP services continue to be in demand. Despite the appeal of consolidating cancer care on the hospital campus, however, providers must closely evaluate future hospital-based expansion in light of payer scrutiny around cost.

Payment and Policy

- With today's emphasis on site neutrality and increased efforts to control the ballooning cost of cancer care, organizations—whether or not they are taking on financial risk for care—must reevaluate how they measure and track performance and deliver value.
  - Cost scrutiny continues to drive payer interest in developing and/or piloting alternative payment models (eg, bundled payment, episode of care). The advancement of oncology-specific payment pilots (CMS's Oncology Care Model) and quality measures (OP-35) have made unnecessary ED utilization and inpatient admissions primary targets for cost-control efforts.
  - Though the Medicare Part B Pilot Program was shelved, reform models aimed at controlling drug costs are expected given public scrutiny about the currently unsustainable degree of drug spending.

Consumerism

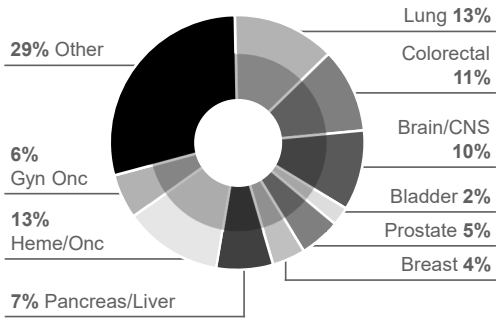
- Patient-centered services, including navigation, ancillary support and survivorship programs, remain essential to extending reach and enhancing the patient experience.
- Leading organizations striving to align care with patient treatment goals are increasing access to palliative care and hospice services given their known benefits, including reduced hospitalizations in the last 30 days of life and improved quality of life.

Technology

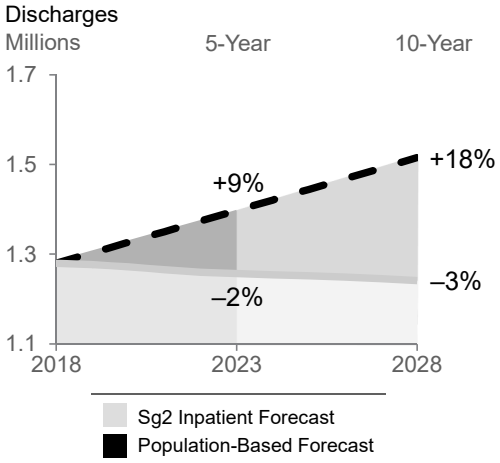
- Strategic technology investments, including tools that support patient care (eg, virtual health consultations), can differentiate cancer programs in competitive markets but must take into account the likely impact on efficiency and cost.
- Clinical validation of its efficacy, investment in new equipment and the gradual adoption of alternative payment methods all favor the adoption of hypofractionation. However, in traditional fee-for-service markets, adoption will be much slower.
- Cancer programs unsure of their data-sharing positioning will need to put a stake in the ground soon, as the business model quickly evolves from collaborative partnerships (eg, CancerLinQ) into priced offerings from third-party data companies.

INPATIENT OVERVIEW

Inpatient Cancer Discharges
US Market, 2018
Total Volume: 1.28M



Inpatient Cancer Forecast
US Market, 2018–2028



Note: Analysis excludes 0−17 age group. Tumors are grouped by Sg2 CARE Families: Heme/Onc includes Leukemia, Non-Hodgkin Lymphoma, Multiple Myeloma and Hodgkin Lymphoma; Gyn Onc includes Cervical and Other Female Genital Cancers, including Precancer, Uterine and Ovarian Cancers. Gyn onc = gynecologic oncology; heme/onc = hematology/oncology.
Sources: Impact of Change®, 2018; HCUP National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP) 2015. Agency for Healthcare Research and Quality, Rockville, MD; Claritas Pop-Facts®, 2018; Sg2 Analysis, 2018.

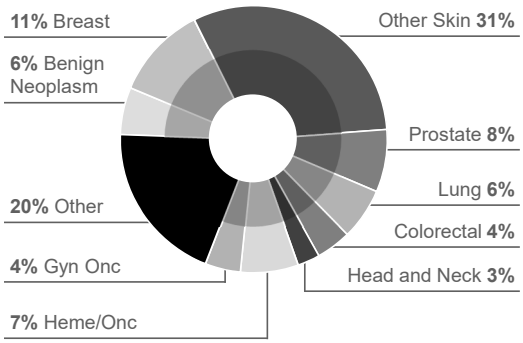
Select surgical opportunities exist, but overall cancer discharges continue their decline.

- Inpatient cases will be increasingly high acuity, requiring complex surgical care for tumor types such as lung and pancreatic, both of which will experience a significant (>25%) increase in discharges over the next decade.
- Overall IP demand, however, will decline over the decade due to reduced nonsurgical admissions (eg, sepsis, dehydration), increased OP treatment options (eg, outpatient surgery, chemotherapy and radiation) and improvements in early detection (eg, liquid biopsy).
- The reduction in nonsurgical admissions will be driven by better care management in the ambulatory setting, improved patient education, and increased access to both after-hours care for symptom management and palliative care and hospice services.
- Demand for mastectomy will persist, particularly among high-risk women (eg, BRCA carriers, patients with high recurrence risk) who continue to require ipsi- or contralateral mastectomy. However, growing clinical evidence supporting outpatient lumpectomy plus chemotherapy and/or radiation in average-risk women will steer many future patients toward these less invasive, outpatient procedures.
- Historical declines in prostatectomy volumes will slow due to the USPSTF's recently reversed PSA screening guidelines, which now recommend men aged 55 to 69 make an individual decision about the need for prostate cancer screening with their clinician.
- Hysterectomy procedure volumes for cervical and uterine cancers, many of which have already migrated from the inpatient setting, will continue their shift to outpatient sites.

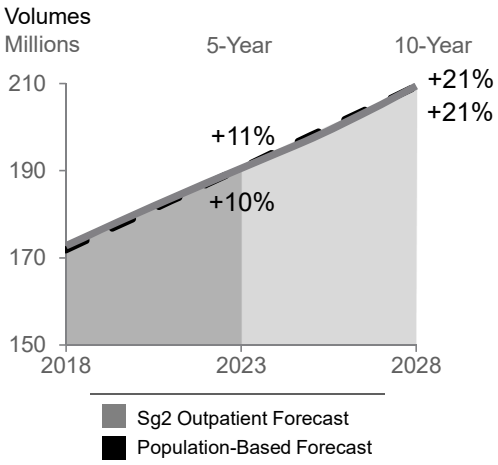
PSA = prostate-specific antigen; USPSTF = US Preventive Services Task Force.

OUTPATIENT OVERVIEW

Outpatient Cancer Volumes
US Market, 2018
Total Volume: 173M



Outpatient Cancer Forecast
US Market, 2018–2028



Note: Analysis excludes 0−17 age group. Tumors are grouped by Sg2 CARE Families: Heme/Onc includes Leukemia, Non-Hodgkin Lymphoma, Multiple Myeloma and Hodgkin Lymphoma; Gyn Onc includes Cervical and Other Female Genital Cancers, including Precancer, Uterine and Ovarian Cancers; Other Skin includes Nonmelanoma Skin Cancer. **Sources:** Impact of Change®, 2018; OptumInsight, 2016; The following 2016 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; Claritas Pop-Facts®, 2018; Sg2 Analysis, 2018.

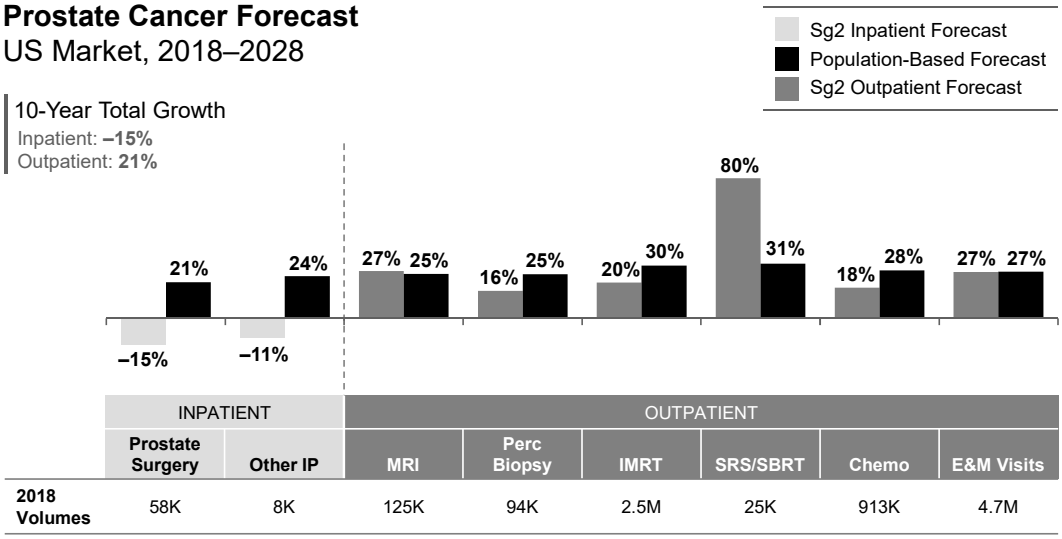
A steady rise in demand for most outpatient cancer services continues.

- Minimally invasive technologies, new outpatient treatment opportunities, expanded reimbursement and patient preference continue to shift some inpatient procedures to the outpatient setting.
- The growing and aging population, along with an increasing number of cancer survivors, is driving continued demand for ongoing surveillance and downstream services (eg, imaging, physician visits, minor procedures).
- Advanced imaging (eg, CT, MRI, PET) will grow at or slightly above population-based rates given the continued reliance on imaging in diagnosis, staging and treatment monitoring.
- In the short-term, demand for infused chemotherapy will outpace population-based estimates. However, volume growth will soften toward the end of the decade due to the expansion of precision medicine and targeted therapies, downward pressure from oral drug utilization, and a slowdown in aggressive chemotherapy treatments at the end of life.
- The number of new radiation therapy patients will rise, although increased adoption of hypofractionated treatment regimens in progressive markets will lower overall radiation therapy treatment volumes.
- Home and virtual care will grow as technologies such as mobile health, telemedicine and remote monitoring become more integrated into the cancer care path.
  - By 2028, home care will grow 27%; virtual visits will be largely for lower-acuity services such as survivorship care and routine diagnostic or follow-up consults.

PET = positron emission tomography.

TRENDS IN PROSTATE CANCER CARE

Prostate Cancer Forecast
US Market, 2018–2028



	INPATIENT		OUTPATIENT					
	Prostate Surgery	Other IP	MRI	Perc Biopsy	IMRT	SRS/SBRT	Chemo	E&M Visits
2018 Volumes	58K	8K	125K	94K	2.5M	25K	913K	4.7M

Note: Analysis excludes 0–17 age group. Inpatient forecast indicates discharges; outpatient forecast indicates volumes. Prostate Surgery includes prostatectomy. Other IP includes other major and minor therapeutic procedures, diagnostics, and no procedures. Chemo = chemotherapy; E&M = evaluation and management; perc = percutaneous; SBRT = stereotactic body radiation therapy.
Sources: Impact of Change®, 2018; HCUP National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP) 2015. Agency for Healthcare Research and Quality, Rockville, MD; OptumInsight, 2016; The following 2016 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; Claritas Pop-Facts®, 2018; Sg2 Analysis, 2018.

Conservative disease management remains the cornerstone of prostate cancer care.

- Prostate cancer's high survival rates necessitate ongoing patient monitoring and surveillance. Despite the potential of recent updates to USPSTF guidelines to modestly boost PSA screening volumes, use of active surveillance among low-risk men will remain common, reducing the percentage of men treated for their prostate cancer.

Short- to mid-term (1–5 years) impacts include:

- Active surveillance will continue to be recommended for low-risk cancer patients. Ongoing monitoring of slow-growing tumors will sustain moderate growth in biopsies, routine imaging and visits but also depress prostatectomy volumes and dampen IMRT growth.
- High-risk patients with aggressive forms of cancer and those diagnosed with late-stage disease will still require IP and OP services.
- Development of tumor-aggressiveness genetic tests, the use of multiparametric MRI and new radiopharmaceutical tracers for PET imaging will improve diagnostic and treatment accuracy.

Long-term (≥6 years) impacts include:

- Although current volumes are low, SBRT's demonstrated clinical efficacy and the broader shift to value have the potential to spur adoption.
- The removal of prostatectomy from CMS's "IP-only list" and the procedure's short average length of stay (2.2 days) will enable a reclassification to observation and an eventual shift to the OP setting. Over the next decade, approximately 60% OP growth is anticipated.
- As medical oncology regimens become more effective and complex, availability of new drugs for high-risk patients, including those most susceptible for a recurrence, will drive growth in chemotherapy.

STRATEGIC IMPERATIVES

Program Components

- Ensure primary care physicians and urologists are up-to-date on current clinical research and guidelines so they can better educate patients about the risks and benefits of treatment (eg, surgery, radiation therapy) vs active surveillance.
- Adopt active surveillance protocols that support timely identification of disease progression through formalized schedules for in-person and virtual visits.
- Establish multidisciplinary clinics that integrate evidence-based input from multiple specialties (eg, urology, radiation oncology) into a single treatment plan.
- Prepare for the OP shift of prostatectomy, keeping in mind that the IP-to-OP shift often reflects a change in billing status only. Patients will still spend time in a hospital bed (ie, hospital outpatient department or observation), making a combined IP/OP volume assessment vital in forecasting future resource utilization.

Channel Management

- Structure your program—through owned care sites or referral partnerships—as a 1-stop shop that coordinates the full spectrum of prostate cancer services, from screening through treatment. A convenient, comprehensive offering can help retain some volumes in markets with a strong presence of independent urology practices that offer most services in their offices.
- Leverage second opinion consults to attract newly diagnosed patients weighing treatment options.
- Ease scheduling for both referring physicians and patients by providing a central access point for initial referrals and consultations.

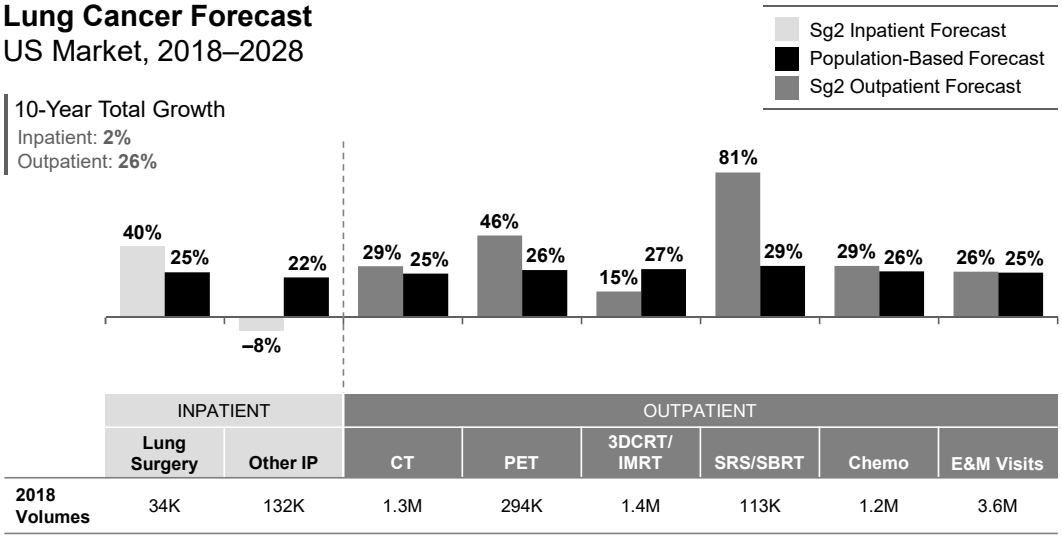
Workforce

- Forge strategic partnerships with urologists. Consider formalizing alignment with independent urologists who have strong footholds in the community (via professional service agreements, comanagement, clinical affiliations) to address urology workforce shortages, build capacity and increase service offerings.
- Utilize nurse navigators to streamline patient onboarding, improve communication among patients and referring physicians, and educate patients about ongoing treatment side effects and optimal management of coexisting conditions.

Technology

- When upgrading radiation equipment, prepare for hypofractionated protocols by considering devices that offer stereotactic capabilities and add-on technologies (eg, volumetric arc, trackable sensors, sophisticated image guidance), as they improve throughput, increase accuracy and attract patients seeking particular treatment options.
- Stay attuned to advances in molecular profiling testing. Although development efforts are still in progress, these tests have been shown to better inform disease management and more confidently stratify care options.
- Adopt multiparametric MRI and use of MRI-ultrasound fusion for biopsies, which are becoming standard of care for prostate cancer management.
- While the availability of a single-room system lowers capital costs, approach proton beam acquisition with caution. Clinical evidence supporting superior outcomes in prostate cancer is lacking, and reimbursement is under scrutiny.

Lung Cancer Forecast
US Market, 2018–2028



	INPATIENT		OUTPATIENT					
	Lung Surgery	Other IP	CT	PET	3DCRT/ IMRT	SRS/SBRT	Chemo	E&M Visits
2018 Volumes	34K	132K	1.3M	294K	1.4M	113K	1.2M	3.6M

Note: Analysis excludes 0–17 age group. Inpatient forecast indicates discharges; outpatient forecast indicates volumes. Lung surgery includes lobectomy and pneumonectomy procedures. Other IP includes other major and minor therapeutic procedures, diagnostics, and no procedures. 3DCRT = 3D conformal radiation therapy.
Sources: Impact of Change®, 2018; HCUP National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP) 2015. Agency for Healthcare Research and Quality, Rockville, MD; OptumInsight, 2016; The following 2016 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; Claritas Pop-Facts®, 2018; Sg2 Analysis, 2018.

Expanded lung screening boosts opportunities across inpatient and outpatient settings.

- Baby boomers with an extensive smoking history will increase demand for lung cancer services even as overall smoking rates decline.
- Expansion of programs offering low-dose CT (LDCT) lung screening for high-risk individuals will increase screening adoption and early cancer detection.
- Earlier identification of lung cancer, both through LDCT and genetic tests (eg, liquid biopsy), will increase the proportion of earlier-stage diagnoses—which are more amenable to surgery—subsequently yielding significant growth in IP surgery demand.
- As screening compliance improves, capturing downstream services will require highly coordinated multidisciplinary programs and consumer-focused access points such as lung nodule clinics.

Short- to mid-term (1−5 years) impacts include:

- Use of immunotherapies (eg, pembrolizumab, nivolumab) will increase due to impressive clinical results and expansion of approved indications, including use as first-line therapy.
- Steady PET growth continues as use of this modality expands from disease staging to treatment planning and monitoring.
- Though adoption rates will vary by market, noninvasive SBRT will experience strong growth due to increased utilization by patients whose preexisting medical conditions preclude surgery.

Long-term (≥6 years) impacts include:

- Earlier detection, less invasive therapies and improved end-of-life care will reduce disease severity and complication rates, curbing downstream medical admissions and leading to improvements in survival rates.

STRATEGIC IMPERATIVES

Program Components

- Develop a highly coordinated multidisciplinary lung health offering. Build your program around multidisciplinary providers (eg, pulmonologists, thoracic surgeons, medical oncologists) specializing in lung cancer to drive referrals and grow downstream services.
- Increase patient/family satisfaction by providing patient-centered ancillary services such as educational resources, financial counseling, psycho-oncology and/or spiritual support.
- Maximize benefits of palliative services by incorporating palliative care specialists into the treatment team and connecting advanced lung cancer patients with them shortly after diagnosis and with hospice care when appropriate.
- Anticipate increased reliance on molecular diagnostics for risk assessment and early diagnosis. Consider transitioning from a traditional to a molecular tumor board to integrate genetic data into treatment decision making. Organizations lacking genetic testing capabilities should explore partnerships with academic medical centers, other large provider systems or genetic testing companies.

Channel Management

- Develop a lung nodule clinic, which serves as a key consumer-focused access point and coordinates downstream services for patients requiring ongoing monitoring/surveillance.
  - Focus on careful patient selection, physician education, robust performance tracking, clear protocols to manage follow-up and seamless transition of cancer patients into treatment. Pair smoking cessation counseling with screening.
- Participate in clinical trials to ensure patient access to emerging therapies such as immuno-oncology drugs targeting PD-1 and its ligand. Access to clinical trials strengthens a program's overall reputation and attracts patients and referring providers.
- Consider investment in advanced diagnostic (eg, endobronchial ultrasound, electromagnetic navigational bronchoscopy) and therapeutic (eg, interventional oncology, video-assisted thoracoscopic surgery) options to differentiate your program and build relationships with both aligned and unaffiliated referring physicians.
- Maximize outreach by tapping into established patient engagement channels developed by your women's or men's health programs.

Workforce

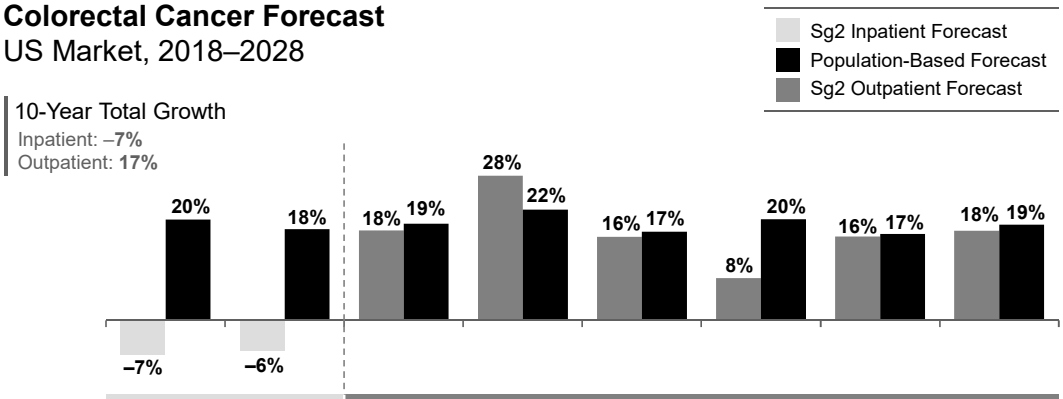
- Engage advanced practitioners and nurses across the lung cancer care continuum to improve care coordination and lower costs.
  - Physician assistants and advanced practice nurses can address medical oncology shortages, increasing capacity and generating additional revenue.
  - Navigators can provide clinical education, symptom management and key interventions to reduce ED visits, improve medication compliance and decrease readmissions while also supporting high-risk patients who require follow-up.

Technology

- Build up or outsource molecular profiling capabilities to guide selection of targeted therapies (eg, EGFR). Consider expanding from tissue-based to liquid biopsies.
- Evaluate lung SBRT volumes when acquiring or upgrading radiation therapy equipment. Although lung cancer patients account for the highest volume of SBRT use, offering this service requires significant investment in technology and in training to ensure safety.

EGFR = epidermal growth factor receptor.

Colorectal Cancer Forecast
US Market, 2018–2028



	INPATIENT		OUTPATIENT					
	Colorectal Surgery	Other IP	CT	PET	Endoscopy	Radiation Therapy	Chemo	E&M Visits
2018 Volumes	105K	33K	772K	130K	153K	517K	1.3M	2.9M

Note: Analysis excludes 0–17 age group. Inpatient forecast indicates discharges; outpatient forecast indicates volumes. Colorectal surgery includes large bowel resection, rectum resection and other major therapeutic procedures. Other IP includes minor therapeutic procedures, diagnostics and no procedures. Radiation therapy includes 3DCRT, IMRT and SRS/SBRT. **Sources:** Impact of Change®, 2018; HCUP National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP) 2015. Agency for Healthcare Research and Quality, Rockville, MD; OptumInsight, 2016; The following 2016 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; Claritas Pop-Facts®, 2018; Sg2 Analysis, 2018.

A competitive colorectal landscape requires emphasis on volume leakage and keepage.

- Though colorectal services are a cornerstone of most cancer programs, demand will decline as public health initiatives, recommendations for lower screening age and broader adoption of alternative screening methods improve screening compliance and better identify precancer.
- An emphasis on increasing colonoscopy screening compliance rates combined with technologies enabling more aggressive removal of precancerous lesions during colonoscopy will continue to drive down historic declines in colorectal surgery volumes.
- Well-coordinated programs will have an opportunity to capitalize on growth in follow-up services (eg, endoscopy, advanced imaging, visits) resulting from improved survival rates.

Short- to mid-term (1–5 years) impacts include:

- Medical admissions will decline as earlier detection, enhanced OP management and better access to end-of-life services reduce unnecessary IP care and increase utilization of hospice.
- Chemotherapy encounters will increase due to expanded use of combination therapies in both adjuvant and neoadjuvant protocols, immunotherapies and new targeted therapies.
- An increase in radiation therapy—more commonly used in rectal vs colon cancer—will occur as a growing number of organizations combine radiation with chemotherapy protocols, deliver intraoperative radiation therapy (IORT) and use radiation as noncurative/palliative treatment.

Long-term (≥6 years) impacts include:

- The use of new genetic and molecular profiling tests in early-stage and advanced colorectal cancer will guide chemotherapy options and improve response rates to therapy.
- Newer screening options that use biomarkers to identify disease and predict prognosis (eg, Cologuard, Epi proColon) will gain traction, contributing to continued surgery declines.

STRATEGIC IMPERATIVES

Program Components

- Create a well-coordinated, comprehensive colorectal cancer offering that spans the entire patient journey, from screening and diagnosis to surgery and survivorship.
  - Given the health care industry's current commitment to promoting wellness, find ways to better incorporate prevention and early detection into services.
  - Focus on differentiating your surgical program. Despite volume declines, surgery is still a key program component and a source of strong margins. Recruit surgeons trained in minimally invasive techniques to broaden offerings and increase patient satisfaction. Evaluate potential roles for robotic surgery in complex colorectal resections.
  - Further differentiate offerings with an enhanced recovery-after-surgery program that incorporates colon cancer–specific protocols for bowel preparation, reduces opioid use, and minimizes use of drains and catheters. Successfully implemented fast-track programs have significantly reduced length of stay without decreasing quality.
- Utilize a multidisciplinary staff approach, offering consults with medical and radiation oncologists, gastroenterologists, GI surgeons, and support staff in a single visit.

Channel Management

- Explore efforts to improve screening rates, which contribute to the program's bottom line through both direct revenue from colonoscopy and, more substantively, downstream diagnostic procedures and utilization of IP and OP services.
  - Target patients using personalized screening reminders and social media.
  - Offer genetic screening and molecular profiling tests for high-risk patients.
  - Train referring providers to discuss screening with patients. Provide physicians with screening metrics when possible.
  - Collaborate with large employers and/or community groups to increase awareness of screening benefits and options.
  - Be aware that regulatory leeway will allow payers greater discretion to offer plans that could hinder or restrict coverage of routine colonoscopy screening.
- Coordinate with PCPs and gastroenterologists to attract patients. Foster clear communication with these groups, distribute educational materials, develop straightforward referral structures and consider shared health IT systems to enhance alignment.
- Highlight the differentiating aspects of your colorectal cancer program (eg, new technologies, seamless access, high-touch care) to patients and referring physicians.

Patient Engagement

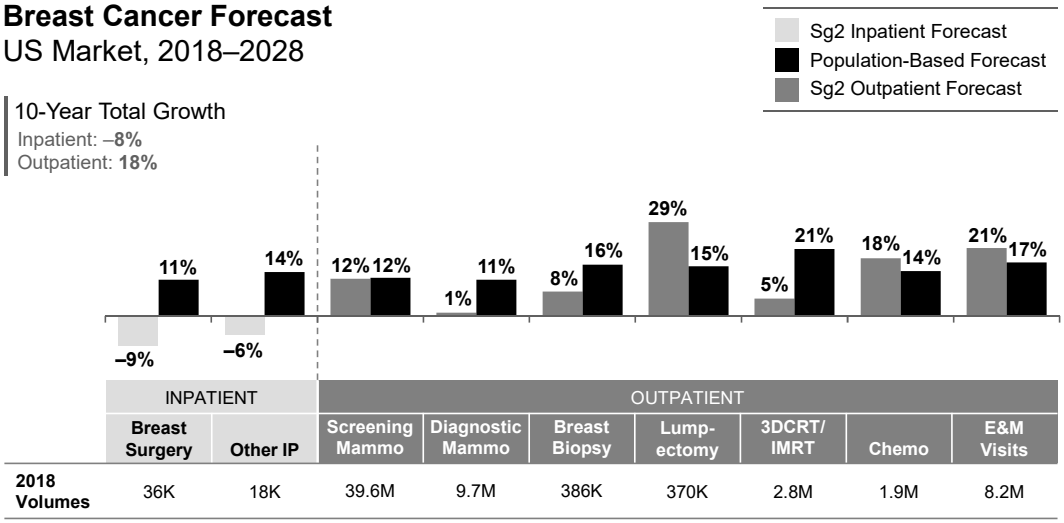
- Enhance patient satisfaction by offering patients and families ancillary services such as educational resources, financial counseling, psycho-oncology and/or spiritual support.
- Use navigation, nurse triage lines or extended hours to help patients manage side effects and thereby prevent readmissions. Track success in reducing unnecessary inpatient care to demonstrate value to referring physicians and during payer negotiations.

Technology

- Stay attuned to advancements in alternative screening tests (eg, Cologuard), which offer the potential to boost downstream diagnostic services (eg, colonoscopy, sigmoidoscopy).
- Capitalize on the explosion of novel treatments entering the market by participating in clinical trials testing new targeted therapies.

GI = gastrointestinal.

Breast Cancer Forecast
US Market, 2018–2028



Note: Analysis excludes 0–17 age group. Inpatient forecast indicates discharges; outpatient forecast indicates volumes. Breast surgery includes mastectomy. Other IP includes other major and minor therapeutic procedures, diagnostics, and no procedures. Screening and Diagnostic Mammography include both standard and 3D mammography (ie, tomosynthesis) for all service lines. Breast Biopsy includes open, percutaneous and percutaneous breast biopsies. Mammo = mammography.
Sources: Impact of Change®, 2018; HCUP National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP) 2015. Agency for Healthcare Research and Quality, Rockville, MD; OptumInsight, 2016; The following 2016 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; Claritas Pop-Facts®, 2018; Sg2 Analysis, 2018.

Clinical data, consumer preference and technology advances impact breast cancer care.

- While population growth and long-held perceptions about the need for annual mammography sustained historical volumes, recommendations for less frequent screenings and rapid adoption of tomosynthesis are projected to moderate overall screening demand over the decade.
- The surge in anticipated tomosynthesis adoption—driven by payer reimbursement, multiple vendor options and consumer preference for reduced false-positives—will also impact diagnostic mammography, displacing significant volumes by the end of the decade.
- Clinical evidence supporting lumpectomy plus radiation as an alternative to mastectomy, as well as new tumor localization technologies (eg, radioactive seeds), will shift patients toward OP options and lead to lumpectomy growth.

Short- to mid-term (1–5 years) impacts include:

- Niche IP growth may be found in complex reconstructive surgeries and rising demand for prophylactic mastectomy among high-risk patients, but this patient population remains small.
- Increased understanding of breast cancer subtypes will fuel genetic testing in high-risk patients, more complex diagnostic testing and increased use of targeted chemotherapies.
- Demand for traditional radiation therapy courses will decline as mounting clinical evidence and the shift to value steer breast cancer patients toward shorter-course hypofractionated regimens.

Long-term (≥6 years) impacts include:

- The growing number of breast cancer survivors will drive strong demand for survivorship services, including surveillance imaging and OP visits.
- Evidence supporting the use of stand-alone hormone therapy in treating early-stage hormone receptor positive tumors may lead to more judicious use of chemotherapy in the long-term.

STRATEGIC IMPERATIVES

Program Components

- Consider creating a consumer-focused 1-stop shop for breast health by housing all services, including wellness visits, imaging and surgery, within one program that both cancer and noncancer patients can utilize. Explore analytics capabilities to risk stratify patients for more personalized care and services.
- Provide multidisciplinary same-day treatment plans following consults with medical, radiation and surgical oncologists. Include second opinion services as a distinct offering.
- Develop rapid-results programs that decrease screening/diagnostic turnaround times (eg, same-day results, teleradiology, rapid tissue processors) to enhance convenience and patient satisfaction.
- Target high-risk patients through outreach programs, genetic counseling, early detection regimens and access to prophylactic interventions.
- Anticipate increased reliance on genetic data during treatment decision making. Consider transitioning from a traditional to a molecular tumor board. Explore partnerships (eg, with academic medical centers, genetic testing companies) if lacking genetic testing capabilities.

Channel Management

- Transition patients seamlessly through each phase of care to stem patient leakage, compete effectively for market share and capture growth opportunities.
- Build a well-developed consumer strategy (eg, social media, community outreach activities) to increase patient engagement.
- Facilitate increased utilization of screening services—an essential entry point. Provide scheduling reminders and awareness resources, ease access (eg, evening and weekend hours, same-day scheduling, walk-in appointments), and extend community outreach (eg, retail locations, mammography vans, community partnerships).
- Foster steady referral streams by monitoring physician satisfaction and streamlining data-sharing with PCPs. Consider dedicating schedulers to key physician practices.

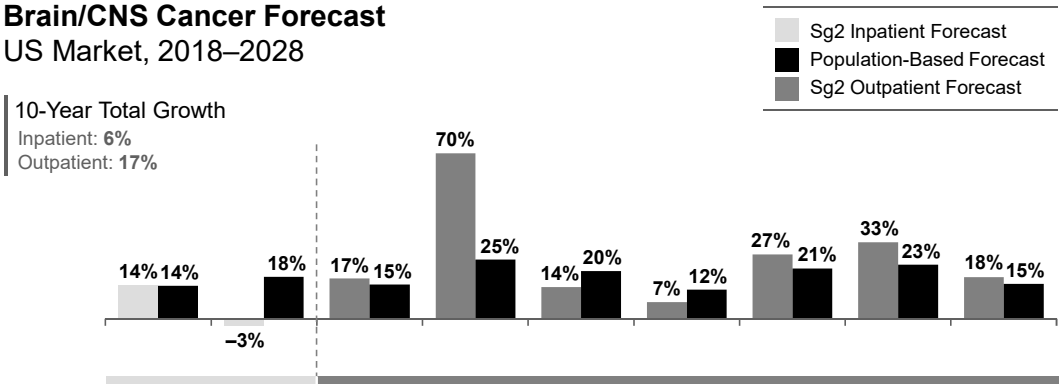
Workforce

- Recruit specialists (eg, fellowship-trained breast surgeons, breast radiologists, oncoplastic surgeons) where possible, but prepare for pushback from general surgeons.
- Offer key specialists alignment opportunities (eg, comanagement agreements, medical directorships, employment) to improve collaboration and gain a competitive advantage.
- Deploy nurse navigators to support and engage patients, ease the transition from abnormal findings to treatment planning and survivorship, retain patients in the system, and ensure timely access to services.

Technology

- Invest in tomosynthesis to capitalize on volume growth, but be aware that widespread adoption has reduced the opportunity for programmatic differentiation.
- Assess potential volumes and return on investment for both next-generation imaging tools (eg, ultrasound elastography, scintimammography) that improve diagnostic specificity as well as treatment modalities (eg, GammaPod, IORT) that diversify therapy options.
- Plan for the shift to hypofractionated radiation therapy protocols, which currently reduce per-patient revenue while increasing capacity on existing machines. This shift is already occurring in some markets, driven by patient demand, and adoption will accelerate as emerging payment models favor bundled services.

Brain/CNS Cancer Forecast
US Market, 2018–2028



	INPATIENT		OUTPATIENT						
	Brain Surgery	Other IP	MRI	SRS	Other Radiation Therapy	Chemo	OP Rehab	Post-Acute Services	E&M Visits
2018 Volumes	67K	64K	588K	41K	550K	105K	248K	379K	1.4M

Note: Analysis excludes 0–17 age group. Inpatient forecast indicates discharges; outpatient forecast indicates volumes. Brain Surgery includes brain/skull surgery including resection and other major therapeutic procedures. Other IP includes minor therapeutic, diagnostics and no procedure. Other Radiation Therapy includes 3DCRT, IMRT and proton therapies. Post-Acute Services include home nurse visits, hospice stays and skilled nursing facility stays. **Sources:** Impact of Change®, 2018; HCUP National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP) 2015. Agency for Healthcare Research and Quality, Rockville, MD; OptumInsight, 2016; The following 2016 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; Claritas Pop-Facts®, 2018; Sg2 Analysis, 2018.

Continuum-wide growth opportunities make multidisciplinary care essential.

- The development and subsequent adoption of minimally invasive therapies (eg, image-guided neurosurgery) and novel targeted therapies will drive growth in both inpatient and outpatient services.

Short- to mid-term (1–5 years) impacts include:

- Adoption of emerging technologies enabling minimally invasive procedures (eg, MR-guided laser ablation) will decrease length of stay while expanding the pool of surgical candidates.
- Medical admissions will decline as patients with advanced disease choose palliative and hospice services; outpatient care coordination minimizes adverse events; and new, targeted therapies curb complication rates.
- Clinical evidence demonstrating the superiority of SRS over whole brain radiotherapy will increase SRS utilization and lead to declines in other radiation therapy modalities. Rising incidence rates for metastatic disease will drive additional demand for SRS.
- Population growth, technological advancements and improved survival rates will yield growth in downstream monitoring services, including outpatient imaging and E&M visits.

Long-term (≥6 years) impacts include:

- Advances in minimally invasive surgical techniques will reduce deficits in postsurgical functioning, supporting a site downshift for continuing care services and further shifting care to the outpatient setting.
- Emerging treatments (eg, therapeutic brain cancer vaccines) will soften demand for traditional infusion therapy.

STRATEGIC IMPERATIVES

Program Components

- Build your brain/CNS cancer program on a strong multidisciplinary collaboration between neurosurgery and neuro-oncology.
- Develop comprehensive care pathways that include surgery, chemotherapy, radiation therapy (eg, SRS) and support services (eg, rehab, behavioral health, palliative care).
- Evaluate opportunities in minimally invasive surgery, proceeding only if volumes warrant it and appropriately trained neurosurgeons are available.
- Participate in clinical trials to ensure patient access to emerging therapies. Seek partnerships and build capabilities in trial enrollment and administration.
- Offer educational programs, neuropsychology services and social network support to guide patients and families through diagnosis, treatment, recovery and end-of-life care.

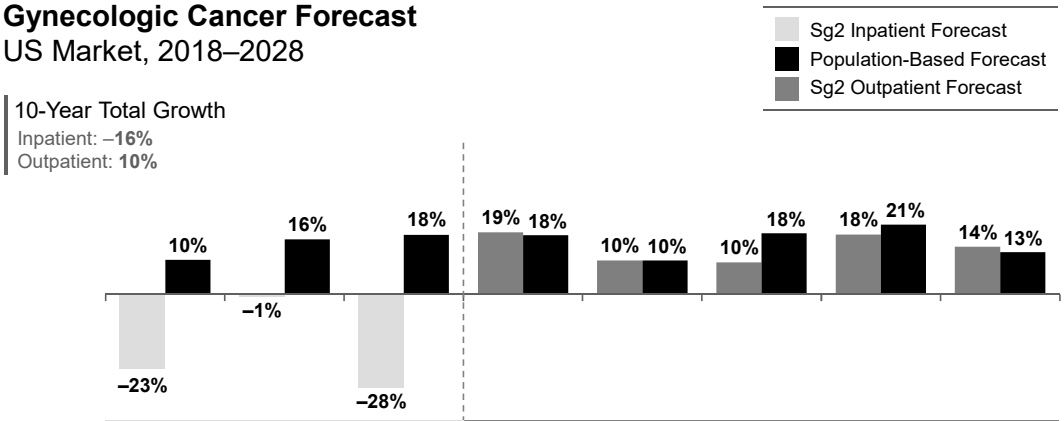
Channel Management

- Clearly define your organization's role in brain/CNS cancer care and foster appropriate partnerships to capture volumes and ensure quality.
  - Establish yourself as an access point for multidisciplinary cancer care.
  - Identify new areas to build expertise and differentiate your program.
  - Secure high-quality referral partners for services that you do not offer.
- Strengthen connectivity and cohesion across the System of CARE by utilizing nurse navigators.
- Establish a user-friendly website and a centralized telephone number to help attract patients seeking second opinions and self-referring patients for advanced services. Patients are often willing to travel for highly specialized brain cancer care.
- Strengthen referral relationships with general oncologists to better support patients with metastatic brain tumors and drive growth of SRS and neurosurgical services.
- Expand access to hospice and palliative care services and facilitate timely discussions about their place in patients' quality-of-life decisions.

Technology

- Maintain up-to-date image guidance technology in the neurosurgical operating room. However, be cautious in acquiring intraoperative imaging if specific physician skills are required to achieve clinical benefits and if the return on investment is limited.
- Include neurosurgeons, radiation oncologists and referring physicians in decisions regarding SRS technology purchases. Physician preferences are strong and can greatly influence adoption of new applications.
- Although still considered the gold standard, single-purpose SRS equipment (Gamma Knife) is facing growing competition from multipurpose machinery that can perform both intra- and extracranial radiosurgery.
- Explore adoption of emerging minimally invasive surgical approaches in the context of a comprehensive program. Consider impact on volumes, operations and outcomes. Also consider impact on downstream need for continuing care services (eg, IP rehab).
- Analyze SRS evidence-based protocols and referral patterns for the treatment of brain metastases to ensure all appropriate patients have access to this procedure.
- Prepare for the impact of innovative therapies (eg, alternating electrical field therapy, poliovirus vaccine and other immunotherapies) as they become increasingly accepted alternatives to additional chemotherapy for patients with difficult-to-treat brain cancers.

Gynecologic Cancer Forecast
US Market, 2018–2028



	INPATIENT			OUTPATIENT				
	Cervical	Ovarian	Uterine	Advanced Imaging	Major Procedures	Radiation Therapy	Chemo	E&M Visits
2018 Volumes	15K	28K	29K	544K	217K	485K	588K	3.2M

Note: Analysis excludes 0–17 age group. Inpatient forecast indicates discharges; outpatient forecast indicates volumes.
Sources: Impact of Change®, 2018; HCUP National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP) 2015. Agency for Healthcare Research and Quality, Rockville, MD; OptumInsight, 2016; The following 2016 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; Claritas Pop-Facts®, 2018; Sg2 Analysis, 2018.

Growth opportunities in gynecologic cancer care differ by tumor types.

- Despite an increase in demand for gynecologic cancer services—driven by an aging population with comorbidities (eg, obesity, diabetes) that increase cancer risk—prevention and treatment trends will impact growth for each tumor type differently.

Short- to mid-term (1–5 years) impacts include:

- Recommendations favoring both longer intervals between screens (ie, Pap smears) and "co-testing" (ie, Pap plus a human papillomavirus [HPV] test) to improve early detection continue to slow growth in OP services for precancerous lesions of the cervix.
- The OP shift of cervical and uterine cancer hysterectomies will continue due to improved care coordination and widespread adoption of laparoscopic procedures for uterine cancer.
- Some inpatient surgical growth remains for ovarian cancer, as definitive staging requires surgical exploration, a complex procedure best performed in the IP setting. For select patients, neoadjuvant chemotherapy can diminish perioperative morbidity, enabling surgical staging to be performed in the outpatient setting.
- Increased understanding of ovarian cancer pathogenesis, risk factors and risk mitigators (eg, birth control use) will lead to more complex testing protocols, including both imaging and advanced laboratory evaluation, and more targeted therapeutic regimens.

Long-term (≥6 years) impacts include:

- Vaccination against HPV is expected to reduce the incidence of precancerous cervix lesions and may have a modest impact on cervical cancer services in the longer-term, though current vaccination rates remain low, particularly among underserved populations.
- The decline in IP hysterectomies will soften near the end of the decade, as remaining inpatients will represent more complicated cases.

STRATEGIC IMPERATIVES

Program Components

- Coordinate multidisciplinary teams to optimize care delivery and streamline the patient journey. Engage gynecologic oncologists, medical oncologists, radiation oncologists, radiologists, pathologists, dietitians, gynecologic nurses, genetic counselors, research and administrative staff, care coordinators, and social workers.
- Take a regional approach to gynecologic cancer care, establishing partnerships with other providers in the market as needed to improve access to services and treatment options (eg, emerging technologies, clinical trials) as well as specialists.
- Invest in virtual health services to expand the service area while improving patient convenience and scheduling flexibility.
- Provide counseling services that ensure young women diagnosed with cancer (especially ovarian cancer) and facing chemotherapy or radiation therapy are educated on oncofertility and the availability of oocyte preservation.

Channel Management

- Tap into established patient engagement channels developed by your breast cancer service line or women's health program.
- Ease scheduling for patients and referring practitioners by providing a single access point for initial referrals and consultations.
- Proactively reach out to patients following referral from PCPs and obstetricians/ gynecologists to minimize leakage and to ensure appropriate follow-up.
- Tighten referral channels by ensuring gynecologic oncologists actively reach out to community gynecologists who manage their patients' care after treatment.

Workforce

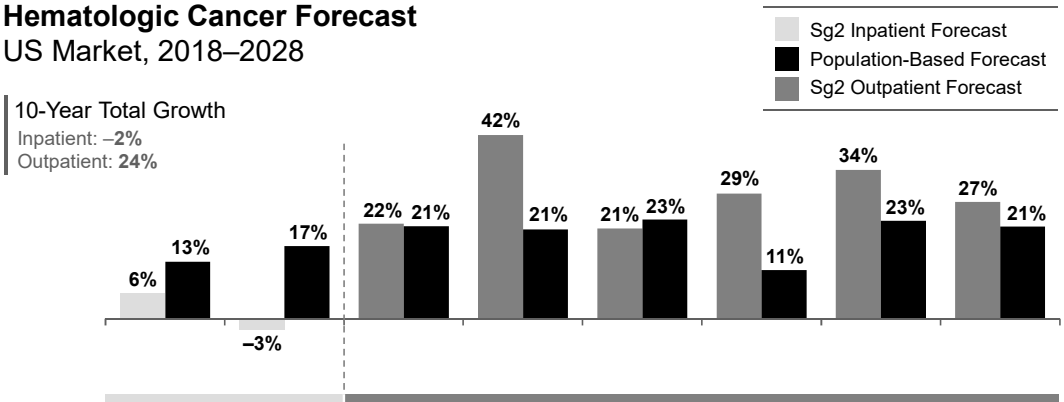
- Explore unique alignment opportunities (eg, comanagement agreements, medical directorships) to help recruit and retain gynecologic oncologists, who are in short supply nationwide, particularly in rural areas.
- Utilize nurse navigators to coordinate patient appointments, field treatment questions, address family concerns and handle disease management issues.
- Connect gynecologic cancer patients with palliative care teams shortly after diagnosis to address treatment-related side effects and refer to hospice care when appropriate.
  - Consider deploying social workers, pastoral care, therapists and grief counselors to support patients both within the hospital and after treatment.
- Use insurance coordinators to aid patients with reimbursement.
- Collaborate with community support services available to low-income patients.

Technology

- Evaluate potential roles for robotic surgery in minimally invasive gynecologic procedures (eg, hysterectomy, radical hysterectomy, pelvic lymphadenectomy). Ensure surgeons are properly trained and credentialed.
- Prepare for hypofractionated protocols by considering devices that offer stereotactic capabilities and add-on technologies that decrease treatment time and increase treatment accuracy.

TRENDS IN HEMATOLOGIC CANCER CARE

Hematologic Cancer Forecast
US Market, 2018–2028



	INPATIENT		OUTPATIENT					
	IP BMT	Other IP	CT	PET	Chemo	OP BMT	Post-Acute Services	E&M Visits
2018 Volumes	14K	147K	706K	294K	2.3M	3K	652K	5.3M

Note: Analysis excludes 0–17 age group. Inpatient forecast indicates discharges; outpatient forecast indicates volumes. Hematologic cancer includes Hodgkin lymphoma, leukemia, non-Hodgkin lymphoma and multiple myeloma. Other IP includes other major and minor therapeutic procedures, diagnostics, and no procedures.
Sources: Impact of Change®, 2018; HCUP National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP) 2015. Agency for Healthcare Research and Quality, Rockville, MD; OptumInsight, 2016; The following 2016 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; Claritas Pop-Facts®, 2018; Sg2 Analysis, 2018.

New, but niche, growth opportunities exist in hematologic cancer care.

- Early clinical findings suggest that chimeric antigen receptor (CAR) T-cell therapy holds tremendous promise in select leukemias and lymphomas, both as a second- or third-line therapy and as a potential alternative to bone marrow transplant.
- Advances in transplant conditioning regimens, the availability of different transplant options (eg, umbilical cord blood, peripheral blood stem cells) and the use of more effective drugs to combat complications have expanded the population eligible to receive BMT.

Short- to mid-term (1−5 years) impacts include:

- An aging population and a subsequent increase in acute myeloid leukemia and non-Hodgkin lymphoma diagnoses requiring treatment through allogeneic transplant are anticipated to increase IP volumes in the near-term.
- Better coordinated disease management protocols will continue to shift some autologous BMT volumes to the OP setting and increase IP volumes among select patient populations.
- Outpatient growth will be driven by an expansion in treatment options, facilitated by a robust drug pipeline (450+ clinical trials, >100 drugs), the emergence of targeted and cellular therapies, and the shift to outpatient bone marrow transplants.

Long-term (≥6 years) impacts include:

- Approval for CAR-T therapy to treat new indications, along with increased adoption among leukemia and lymphoma patients, may dampen or replace select inpatient BMT volumes.
- Increased adoption of genomics will improve risk assessment and early detection, increasing survival rates and steering some patients to more conservative treatment options.

STRATEGIC IMPERATIVES

Program Components

- Decide which programmatic imperatives to pursue based on an awareness that BMT programs are best operated at tertiary/quaternary centers. Programs require a host of services that are generally beyond the capabilities of small or medium-sized hospitals.
  - A full spectrum of transplant offerings typically includes autologous bone marrow and peripheral blood stem cell transplants, allogeneic-related and unrelated BMTs, and allogeneic-unrelated umbilical cord blood transplants. Some high-volume centers also offer outpatient autologous bone marrow transplantation.
  - Transplant centers must perform a minimum number of transplants annually to ensure high-quality care and meet outcomes and mortality benchmarks. The American Society for Blood and Marrow Transplantation recommends a minimum of 10 autologous and 10 allogeneic stem cell transplants annually. A number of commercial payers have established BMT distinction programs that provide other reference points for determining volumes to maintain a high-quality program.
- Carefully consider the requisite infrastructure, support staff and facility space, and secure sufficient reimbursement to offset the steep workforce and infrastructure costs.
- Evaluate the potential to offer pediatric transplants since the bulk of pediatric diagnoses are blood cancers and utilization of CAR T-cell therapy is revolutionizing the treatment of pediatric acute lymphocytic leukemia.

Channel Management

- Pursue center of excellence designation from private payers and large employers to extend market reach and boost volumes through narrow networks and brokers of destination transplant services.
- Strengthen referral relationships with community-based hematologists/oncologists to build reputation and secure transplant volumes.
- Utilize care coordinators or nurse navigators to streamline the patient journey by coordinating patient appointments, fielding treatment questions, addressing family concerns and handling disease management issues.
- Expand patient access points (eg, symptom management clinics, extended clinic hours) to reduce unnecessary ED utilization and risk of treatment-related complications.

Workforce

- Create dedicated transplant care teams comprising multidisciplinary clinicians and additional support staff. For lower-volume centers, consider leveraging the larger health system's organ transplant unit for infrastructure and staffing support.
- Partner with home health agencies to supply home infusions and supplies and to triage off-hour medical complications.

Technology

- Track advances in CAR T-cell therapy, keeping in mind that access is limited to select BMT-certified centers. Programs interested in offering the treatment will need to research clinical trial participation requirements, refer patients to participating sites or partner with these facilities to offer services.

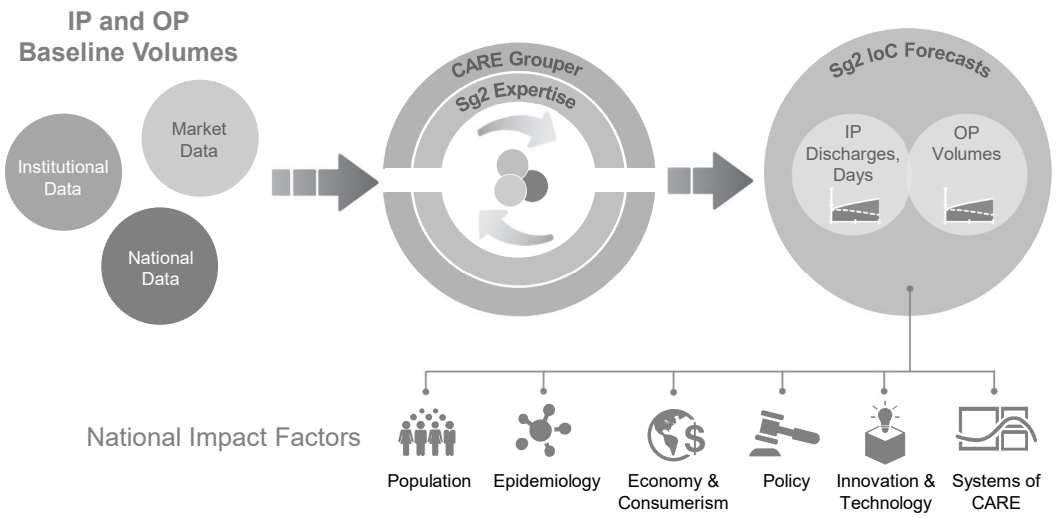
PROGRAM TYPE ROAD MAP

	Basic	Intermediate	Comprehensive
Services	• Basic cancer screening (eg, mammography, colonoscopy) • Diagnostic services for major tumor types • Chemotherapy infusion • Radiation therapy • Basic cancer surgery • Complication management • Survivorship services • Access to support services (eg, nutrition, social work)	• Comprehensive screening programs (eg, women's, high-risk) • Interventional oncology • Genetic risk assessment • Tumor-specific multidisciplinary conferences • Palliative care • Provision of support services • Participation in clinical trials • Personalized/precision medicine	• Advanced oncologic surgery • Bone marrow transplant • Pediatric oncology • Robust clinical trials program • Likely academic medical center with National Cancer Institute designation
Technologies	• Advanced imaging (CT, MRI) • Full-field digital mammography • Breast tomosynthesis • Image-guided radiation therapy, including IMRT	• PET/CT • SRS/SBRT • Surgical robotics • Molecular profiling, next-generation sequencing • Advanced breast imaging (eg, breast MRI) • Interventional imaging	• Super premium CT • High-dose-rate brachytherapy • Proton beam (select centers) • PET/MRI (select centers)
Staffing	• Medical oncologists • Radiation oncologists • Surgeons with oncology experience • Radiologists • Pathologists • General patient navigators	• Fellowship-trained oncology surgeons • Oncology-certified nurses • Palliative care specialists • Tumor-specific navigators • Research coordinators • Cancer rehabilitation specialists • Cancer ancillary services	• Niche oncology specialists (eg, neuro-oncologists) • Research staff, including nurses and coordinators
Tumor-Specific Programs	• Common tumor types (eg, lung, breast, colorectal, prostate)	• Head and neck, other GI (eg, stomach, esophagus), liver, gynecologic oncology	• All tumor types, including hematologic, brain and rare/complex tumors • Pediatric oncology

Note: Columns are additive. Comprehensive program will include all service offerings.

APPENDIX

APPENDIX A: Sg2'S IMPACT OF CHANGE® (IoC) FORECAST METHODOLOGY



Impact of Change Terminology

- **Service Lines:** Clinical areas of care (eg, orthopedics, spine, cancer, cardiovascular services, medicine and surgery) composed of multiple CARE Families
- **CARE Families:** Clinical groupings of diagnoses (eg, breast cancer, lung cancer) formed primarily from ICD-9/ICD-10 diagnosis codes
- **Procedure Groups:** Categorizations of procedures used to treat a given disease formed by groupings of ICD-9/ICD-10 procedure codes (inpatient) and CPT codes (outpatient)

Cancer Core CARE Families

- Benign neoplasm
- Bladder cancer
- Bone cancer and other sarcomas
- Bone metastases
- Brain/CNS cancer
- Breast cancer
- Cervical and other female genital cancers, including precancer
- Colorectal cancer
- Head and neck cancers
- Hodgkin lymphoma
- Leukemias
- Liver cancer
- Lung cancer
- Melanoma
- Multiple myelomas
- Non-Hodgkin lymphoma
- Not otherwise classified and other cancers
- Other GI cancers, including stomach and esophagus
- Other skin cancer
- Ovarian cancer
- Pancreas cancer
- Prostate cancer
- Renal cancer
- Testicular and other male genitourinary cancers
- Thyroid cancer
- Uterine cancer

Sg2 IMPACT FACTOR DEFINITIONS

Impact Factor	
Population 	Accounts for the effect of population growth and distribution on service utilization. Estimates are derived from Claritas demographic data and growth projections.
Epidemiology 	Addresses the impact of expected changes in disease incidence/prevalence rates on utilization by CARE Family. Disease-based changes include: • Sociocultural and behavioral factors (eg, obesity, smoking, diet) • New disease screening guidelines or definition changes impacting identification and diagnosis
Economy and Consumerism 	Considers micro- and macroeconomic factors that affect health care utilization: • Microeconomic factors involve the growing role of consumerism: – Rise in cost sharing (eg, copays) and high-deductible health plans – Availability of lower-cost care sites and services – Financial transparency tools/websites • Macroeconomic perspective examines the health of the national economy as measured by: – Employment rate – Gross domestic product growth or decline – Health care consumer price index
Policy 	Explores the impact of federal policy* and insurance coverage shifts on service utilization: • Federal policy includes national payment mandates for specific services (eg, behavioral health, concussion care, autism). • Insurance coverage includes policy changes that impact overall insurance payer benefits, subsidies and enrollment criteria, as well as federal changes to Medicaid funding and plan design.
Innovation and Technology 	Examines innovations or technologies that shift the site of care, utilization of resources or the health management paradigm, such as new technology and clinical innovations. For example: • New technology: artificial pancreas, gene therapy, liquid tumor biopsy, pharmacogenetics, transcatheter valve replacement devices, leadless pacemakers • Clinical innovation: microcraniotomy and laser ablation for epilepsy, nonoperative treatment for appendicitis, hospital in the home
Systems of CARE 	Accounts for changes in utilization due to efficiencies within the System of CARE. These efficiencies can include better care coordination and improved provider integration/alignment across various care sites, as demonstrated by patient-centered medical homes, clinical decision support tools, EMRs and evidence-based guidelines, etc. It also considers other factors, such as efforts to reduce potentially avoidable admissions, voluntary episode bundles, Medicare Advantage and Medicaid managed care.

*For example, Medicare Access and CHIP Reauthorization Act of 2015, 2-midnight rule update, Improving Medicare Post-Acute Care Transformation (IMPACT) Act of 2014, 30-day readmission penalty, value-based purchasing, site-neutral payment, mandatory bundles.

APPENDIX B: CANCER SERVICE LINE RESOURCE KIT

A wide array of Sg2 resources is available in the online resource kit Growing Your Cancer Service Line, which is updated regularly. A sample of the resources is provided below.

Strategic Planning for Cancer Services

- Sg2's Impact of Change® Forecast [analytical tool]
- Cancer Landscape 2018 [webinar]
- Cancer Service Line Snapshot 2018 [publication]
- Analytics Step by Step: National Inpatient and Outpatient Cancer Service Line Forecasts [publication]
- Service Line Channel Strategy—Prioritizing Options [publication]

Cancer Service Line Program Development

Workforce and Organizational Structure

- Going With the Flow—Strategies for Aligning With Urologists [FAQ]
- Navigators Tackle Roadblocks to Cancer Care [expert insight]
- Building Successful Cancer Affiliations [FAQ]
- Cancer Care Affiliations: Academic Medical Centers and Community Centers Working Together [publication]
- Survey Says…Well-Matched Partners Are Key to Cancer Affiliation Success [expert insight]
- Cancer Update: Building a Regionalized Oncology Network [webinar]

Program Components and Services

- Liquid Biopsy Tests for Cancer Move Into the Mainstream [FAQ]
- Chimeric Antigen Receptor T-Cell Therapy [FAQ]
- Outpatient Urgent Cancer Care [FAQ]
- Cancer Update: Survivorship—Solutions to Improve Care [webinar]
- Establishing a Cardio-Oncology Program [FAQ]
- Trends in Outpatient Oncology Infusion [FAQ]
- Sg2 Technology Guide: Interventional Oncology [publication]
- Cancer Care 2.0: Oncology Comes of Age [expert insight]
- Sizing Opportunities for Genetic Testing [FAQ]
- Exploring Trends in Immuno-Oncology [FAQ]
- The New Era of Robotic Surgery [FAQ]
- What's Old Is New Again in Proton Therapy [expert insight]

Payment and Policy

- The Oncology Care Model [FAQ]
- Should We Be Running Toward or Away From Value-Based Payment in Oncology? [expert insight]

Palliative Care Across Service Lines

- Community-Based Palliative Care [FAQ]
- Early Intervention Eases End-of-Life Care [case study]
- Developing Palliative Care and Hospice Programs [FAQ]

(continued)

APPENDIX B: CANCER SERVICE LINE RESOURCE KIT (Cont'd)

Tumor-Specific Resources

Breast

- Sg2 Growth Guide: Breast Cancer [publication]
- Sg2 Technology Guide: Breast Imaging Technology [publication]
- Sg2 STEP™ Technology Profile: Ultrasound Elastography [publication]
- Planning for the Adoption of Tomosynthesis (3D Mammography) [FAQ]
- Developing a Comprehensive Breast Care Program [FAQ]
- Comprehensive Breast Care Programs Facilitate Wellness and Disease Prevention [expert insight]

Lung

- Sg2 Growth Guide: Lung Cancer [publication]
- Lung Cancer CT Screening: Implications, Opportunities [FAQ]
- Launching a Lung Cancer Screening Program [FAQ]
- Lung Screening Calculator [analytical tool]

Other Tumor Types

- Comprehensive Colorectal Cancer Programs [FAQ]
- Building a Stem Cell/Bone Marrow Transplant Program [FAQ] and [Infographic]
- Outlining Comprehensive Brain Cancer Programs [FAQ]
- Establishing Head and Neck Cancer Programs [FAQ]
- Growing a Gynecologic Cancer Program [FAQ]
- Sg2 Performance Guide: Improving Complication Management for Leukemia Patients [publication]
- Tracking Innovation Impacting Pediatric Chemotherapy [FAQ]

Radiation Therapy Sg2 Technology Guides

- External Beam Radiation Therapy [publication]
- Stereotactic Radiosurgery and Stereotactic Body Radiation Therapy [publication]
- Intraoperative Radiation Therapy [publication]
- Brachytherapy [publication]

Imaging Sg2 Technology Guides and Resources

- RSNA 2016 Overview—Beyond Imaging: The AI Will Read Your Images Now [expert insight]
- Computed Tomography [publication]
- Magnetic Resonance Imaging [publication]
- Positron Emission Tomography [publication]
- Single Photon Emission Computed Tomography (SPECT) and SPECT/CT [publication]
- Ultrasound [publication]

Other Sg2 Performance Guides and Case Studies

- H Lee Moffitt: Establishing Clinical Pathways to Standardize Cancer Care [case study]
- CHI: Building a Clinical Quality Dashboard for Cancer Services [case study]
- Sg2 Performance Guide: Improving Patient Management of Chemotherapy Toxicities [publication]
- Sg2 Performance Guide: Reducing 30-Day Readmission Rates for Cancer Patients [publication]
- Sg2 Performance Guide: Improving Patient Throughput in Radiation Therapy [publication]

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Anticipate the Impact of Change

Sg2, a Vizient company, is the health care industry's premier authority on health care trends, insights and market analytics.

Our analytics and expertise help hospitals and health systems achieve sustainable growth and ensure ongoing market relevance through the development of an effective System of CARE.

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health care intelligence

EXHIBIT 26A

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

UMMC has instituted robust patient management processes to avoid readmissions and maintain as many available beds as is possible. Despite these efforts, the influx of patients requiring inpatient admission is still more than the facility can accommodate.

As stated in Section I, 8(A2), Rationale for the project:

> The number of patients served and treatments provided in UMMC's Cancer Center has tripled in the last eleven years, while operating in roughly the same footprint. Staff/physician and patient/family areas are beyond capacity due to bottlenecks resulting from space constraints. This often creates inefficiencies and delay, including patients waiting for outpatient treatments to begin, and for inpatient rooms to open up to be able to admit patients. In addition, newer treatment options are often curtailed because UMMC lacks the space in which to implement them. This project will add the capacity UMMC needs for the Cancer Center's

future, while also allowing UMMC to renovate and create a modern, well-designed entry. The project also includes shell space for future investments in patient care.

CON Application, p. 5.

As stated in response to Standard .04B(11) – Efficiency, "[o]ver the past 11 years, volumes in the existing Greenebaum Cancer Center within UMMC have tripled. This has resulted in lengthy patient wait times for outpatient services, reduced access to medical oncology beds, increased inpatient length of stay, and less-than-desired patient satisfaction scores." CON Application, p. 27. As stated in response to Standard .04B(5) – Cost-Effectiveness, "[c]urrently, patients are denied admission and have delayed outpatient treatment due to current facilities being at maximum capacity." CON Application, p. 27.

UMMC projects need for increased Blood and Marrow Transplant and Medical Oncology beds in the future, as described in its detailed need analysis. CON Application, pp. 36-45. UMMC also currently experiences high occupancy rates for its cancer services:

UM GCCC Services, Occupancy Data
FY2019 March YTD

Occupancy Rate	
UMH-C9W-BMT	85%
UMH-N8/9W- MED ONCOLOGY	87%
Midnight Census	
Days Over 90% Occupancy	
UMH-C9W-BMT	99
UMH-N8/9W- MED ONCOLOGY	37

Source: UMMC Internal Data

Based on the need for increased capacity for its cancer services, and the inadequacy of UMMC's current cancer center to meet that need, UMMC identified that two alternative approaches to the proposed project, neither of which fully met the goals at a lower cost.

Alternative No. 1 – Construct a Freestanding Comprehensive Cancer Center

With the assistance of CannonDesign and Whiting Turner, UMMC explored the feasibility of constructing a freestanding cancer care patient tower at a site on the southeast corner of Lombard and Greene Streets. Preliminary studies involved a five-story building consisting of approximately 72 inpatient beds, outpatient clinics, infusion, imaging, laboratory, and pharmacy as well as space for support services annexes including materials management, food services, linen, and environmental services. A bridge would connect the building to the main hospital.

This option was found to be infeasible because of the risk to patient safety. Under this option, patients would be separated from code teams, operating rooms, and procedure areas by the distance of a city block, thereby increasing the risk of delayed care to the patients.

Also, this option was much more expensive to operate than one that kept services within the existing hospital block. The project was burdened with both the marginal capital and operating costs associated with duplicating lab, pharmacy, and support services.

Alternative No. 2 – Reassignment and Renovation

As a second option, UMMC considered addressing growing volumes through reassignment and renovation of existing space within the existing hospital. This option included renovation of all cancer inpatient units, 34,500 DGSF, plus reassignment of an additional floor in the North Hospital building to expand the clinic and infusion spaces by 22,000 DGSF. In total, this option assigned 56,500 DGSF of renovated space to the cancer program.

UMMC deemed this option to be infeasible for two reasons. First, it did not meet the space requirements needed to support the clinical growth. UMMC estimates the space needs to support the programed growth of the cancer center services at approximately 123,000 DGSF. The space identified is less than half of this need. There is not enough space anywhere in the existing hospital to convert to cancer center use without creating significant adverse impacts on other programs. The second problem with the option is logistical. It is effectively impossible to renovate the identified areas without loss of significant clinical service capacity during the renovation since there is no "swing" space available.

By contrast, the proposed project provides a means of providing the space needed to support program growth without requiring the duplication of other hospital functions nor displacement of other clinical services. Moreover, through the construction of temporary entrances and by staging the provision of new space ahead of renovating existing spaces provides a means for maintaining existing clinical capacity during the construction. Based on UMMC's landlocked campus and the importance of having cancer services co-located with other services within the hospital, UMMC determined that the proposed project is the only practical approach to increasing the capacity of its cancer service line.

UMMC provides further discussion regarding these two alternatives in UMMC's response to Completeness Questions regarding this standard. *See* UMMC's May 6, 2019 Responses to Completeness Questions dated April 18, 2019, Response to Question 13.

UMMC is not aware of any population health initiatives that would decrease the demand for cancer center services to an extent that would avoid the need for the proposed project.

EXHIBIT 26B

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

UMMC has instituted robust patient management processes to avoid readmissions and maintain as many available beds as is possible. Despite these efforts, the influx of patients requiring inpatient admission is still more than the facility can accommodate.

As stated in Section I, 8(A2), Rationale for the project:

The ~~need for the proposed project, and the inadequacy of UMMC's current cancer center to meet that need, is discussed more fully in response to the following sections of this application: Project Description (2), Rationale for the project; Standard .04B(5) – Cost-Effectiveness; Standard .04B(11) – Efficiency; Standard .04B(12) – Patient Safety; and COMAR § 10.24.01.08G(3)(b), Need.~~ number of patients served and treatments provided in UMMC's Cancer Center has tripled in the last eleven years, while operating in roughly the same footprint. Staff/physician and patient/family areas are beyond capacity due to bottlenecks resulting from

> space constraints. This often creates inefficiencies and delay, including patients waiting for outpatient treatments to begin, and for inpatient rooms to open up to be able to admit patients. In addition, newer treatment options are often curtailed because UMMC lacks the space in which to implement them. This project will add the capacity UMMC needs for the Cancer Center's future, while also allowing UMMC to renovate and create a modern, well-designed entry. The project also includes shell space for future investments in patient care.

CON Application, p. 5.

As stated in response to Standard .04B(11) – Efficiency, "[o]ver the past 11 years, volumes in the existing Greenebaum Cancer Center within UMMC have tripled. This has resulted in lengthy patient wait times for outpatient services, reduced access to medical oncology beds, increased inpatient length of stay, and less-than-desired patient satisfaction scores." CON Application, p. 27. As stated in response to Standard .04B(5) – Cost-Effectiveness, "[c]urrently, patients are denied admission and have delayed outpatient treatment due to current facilities being at maximum capacity." CON Application, p. 27.

UMMC projects need for increased Blood and Marrow Transplant and Medical Oncology beds in the future, as described in its detailed need analysis. CON Application, pp. 36-45. UMMC also currently experiences high occupancy rates for its cancer services:

UM GCCC Services, Occupancy Data
FY2019 March YTD

Occupancy Rate	
UMH-C9W-BMT	85%
UMH-N8/9W- MED ONCOLOGY	87%
Midnight Census	
Days Over 90% Occupancy	
UMH-C9W-BMT	99
UMH-N8/9W- MED ONCOLOGY	37

Source: UMMC Internal Data

Based on the need for increased capacity for its cancer services, and the inadequacy of UMMC's current cancer center to meet that need, UMMC identified that two alternative approaches to the proposed project, neither of which fully met the goals at a lower cost.

Alternative No. 1 – Construct a Freestanding Comprehensive Cancer Center

With the assistance of CannonDesign and Whiting Turner, UMMC explored the feasibility of constructing a freestanding cancer care patient tower at a site on the southeast corner of Lombard and Greene Streets. Preliminary studies involved a five-story building consisting of approximately 72 inpatient beds, outpatient clinics, infusion, imaging, laboratory, and pharmacy as well as space for support services annexes including materials management, food services, linen, and environmental services. A bridge would connect the building to the main hospital.

This option was found to be infeasible because of the risk to patient safety. Under this option, patients would be separated from code teams, operating rooms, and procedure areas by the distance of a city block, thereby increasing the risk of delayed care to the patients.

Also, this option was much more expensive to operate than one that kept services within the existing hospital block. The project was burdened with both the marginal capital and operating costs associated with duplicating lab, pharmacy, and support services.

Alternative No. 2 – Reassignment and Renovation

As a second option, UMMC considered addressing growing volumes through reassignment and renovation of existing space within the existing hospital. This option included renovation of all cancer inpatient units, 34,500 DGSF, plus reassignment of an additional floor in the North Hospital building to expand the clinic and infusion spaces by 22,000 DGSF. In total, this option assigned 56,500 DGSF of renovated space to the cancer program.

UMMC deemed this option to be infeasible for two reasons. First, it did not meet the space requirements needed to support the clinical growth. UMMC estimates the space needs to support the programed growth of the cancer center services at approximately 123,000 DGSF. The space identified is less than half of this need. There is not enough space anywhere in the existing hospital to convert to cancer center use without creating significant adverse impacts on other programs. The second problem with the option is logistical. It is effectively impossible to renovate the identified areas without loss of significant clinical service capacity during the renovation since there is no "swing" space available.

By contrast, the proposed project provides a means of providing the space needed to support program growth without requiring the duplication of other hospital functions nor displacement of other clinical services. Moreover, through the construction of temporary entrances and by staging the provision of new space ahead of renovating existing spaces provides a means for maintaining existing clinical capacity during the construction. Based on UMMC's landlocked campus and the importance of having cancer services co-located with other services within the hospital, UMMC determined that the proposed project is the only practical approach to increasing the capacity of its cancer service line.

UMMC provides further discussion regarding these two alternatives in UMMC's response to Completeness Questions regarding this standard. *See* UMMC's May 6, 2019 Responses to Completeness Questions dated April 18, 2019, Response to Question 13.

UMMC is not aware of any population health initiatives that would decrease the demand for cancer center services to an extent that would avoid the need for the proposed project.

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Format change	
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EXHIBIT 27

Service Line Expert Analysis

Analyses are for the adult population only unless otherwise noted.

Service Line	Inpatient	Outpatient
Allergy and Immunology	Inpatient volumes are low for adult patients with allergies and immunodeficiencies. For allergy, downward trends will continue over the next decade as these patients are efficiently managed with observation and channeled by payers to lower-cost sites of care. Immunological deficiency patient volumes are already low but are unlikely to further shift outpatient, as remaining patients are high acuity.	Overall allergy and immunology services will modestly increase in the outpatient setting. Allergy comprises 90% of this service line, and minimal volume gains remain as the continued shift to observation begins to taper. High-deductible health plans and access barriers will temper growth well below population growth. Immunodeficiency is a fraction of the total service line but will experience striking growth well above population growth. This is driven by improved survivorship for childhood immunological deficiencies through advances in medical management.
Breast Health	This includes all diagnoses associated with the diagnostic pathway for breast abnormalities, exclusive of a diagnosis of breast cancer (eg, breast lump, breast pain, abnormal mammogram), as well as specific known nonmalignant breast diagnoses (eg, mastitis, breast abscess). Diminishing length of stay and the transition to observation status lead to an overall decline in inpatient breast services, similar to trends seen for breast cancer inpatient services.	This includes all diagnoses associated with the diagnostic pathway for breast abnormalities, exclusive of a breast cancer diagnosis (eg, breast lump, breast pain, abnormal mammogram), as well as specific known nonmalignant breast conditions (eg, mastitis) and codes for specific nonmalignant breast neoplasms (ie, definitive diagnosis of nonmalignant breast condition). Diagnoses associated with breast screening are found in the medicine service line. Technical advances and controversy surrounding screening protocols for mammography will soften growth in diagnostic procedures over the next decade. Image-guided and minimally invasive biopsy will increasingly replace some of the remaining open biopsy volumes. Despite declining utilization rates, the aging population will drive growth in breast health services.
Burns and Wounds	Volumes will decline modestly due to the shift to outpatient care, especially for wound care.	Outpatient volumes will continue to grow as wound care centers become more prevalent and virtual health gains traction for care of chronic wounds.
Cancer	Over the forecast period, demand for inpatient services will decline. Although a growing aging and cancer survivor population, along with changing disease epidemiology, bolsters overall demand for cancer services and innovative technologies expand care to new patient populations, opportunities remain primarily in the outpatient setting. The use of new genetic-based diagnostic tests combined with the adoption of targeted therapies, improved care coordination, and more utilization of palliative care and hospice will lower treatment-related side effects and avoidable medical admissions. Similarly, the expansion of alternative care models and improved care coordination will also lower IP admissions for chemotherapy-related complications. While initial adoption of these types of care models is slow, expect some acceleration over the forecast period as payment structures continue to reward cost reduction through improved coordination and avoidance of unnecessary, high-cost inpatient care. Surgical growth opportunities do exist. Increased adoption of low-dose computed tomography screening and the use of liquid biopsy will drive demand for complex lung cancer surgical interventions (eg, lobectomy). Brain cancer surgeries represent another area of growth as technological advancements (eg, minimally invasive procedures) expand the pool of surgery-eligible patients. IP surgery declines will be the result of select inpatient services shifting out of the hospital and novel outpatient therapies offering new treatment alternatives. Continued declines are expected for other surgical cases, including prostatectomy and hysterectomy. Both have transitioned to less-invasive interventions (eg, active surveillance for prostate cancer) or to outpatient settings. CMS's removal of prostatectomy from the inpatient-only list will also lead to a reclassification of some patients to observation status and contribute to lower inpatient volumes.	Over the next decade, demand for outpatient oncology will grow at a rate on track with population growth. Demand for advanced imaging services will continue as volumetric and functional imaging continue to play an important role in tumor diagnosis, staging and treatment monitoring. Increased adoption of screening tests (eg, low-dose computed tomography screening for high-risk patients) and highly publicized screening campaigns (eg, 80% Pledge to increase colonoscopy screening compliance) will drive screening utilization as well as downstream diagnostic and therapeutic services. The continued shift of select surgical procedures from the inpatient setting to the outpatient setting will also yield growth (eg, hysterectomy, bone marrow transplant). Chemotherapy infusions will increase above population-based estimates in the first part of the decade as targeted therapies, combination treatment regimens and additional clinical indications expand both treatment options and the treatment-eligible patient population. However, towards the end of the forecast, increasing use of oral chemotherapy as a standalone option, lower recurrence rates due to immunotherapy and targeted treatments as well as more judicious use of aggressive end-of-life chemotherapy will start to soften growth. Radiation therapy is one treatment area where growth will continue to slow. The number of patients needing radiation therapy will continue to climb, but clinical validation and payer scrutiny accelerate adoption of new radiation therapy protocols (eg, hypofractionation, accelerated partial breast irradiation) for specific tumors. In turn, this will soften 3D conformal and intensity-modulated radiation therapy volumes in progressive markets. Outpatient evaluation and management visits are expected to increase given new diagnoses—estimated to be 1.6 million in 2018 alone—and additional survivors who require ongoing monitoring. To meet this demand, some of this care will need to be facilitated by advanced practitioners, as well as electronic and telehealth platforms.
Cardiology	The historic IP declines were largely due to shifts to observation and outpatient status; however, IP declines are slowing, as rising complexity and an aging population push the limits of OP management. This, along with the rise in prevalence of cardiovascular disease, will result in IP volumes remaining flat over the next decade. Many interventional procedures (eg, electrophysiology, vascular, interventional cardiology) will continue to shift to outpatient status, challenging organizations to improve efficiency to maintain margin. An increase in surgical procedures, such as coronary artery bypass graft and valve procedures, will be attenuated by innovations that offer patients minimally invasive options, such as transcatheter aortic valve replacement, which will continue to experience robust growth.	The overall growth in outpatient cardiovascular services over the next 10 years will be slightly higher than population-based estimates. Care coordination for patients with complex conditions, novel workforce solutions that leverage advanced practice providers, intensification of medical management in the OP setting and utilization of minimally invasive procedures will be major drivers of this growth. Evaluation and management (E&M) visits will remain the largest component of OP care due to a focus on improving chronic disease management and diagnosis of clinical conditions, which will require organizations to think creatively about workforce design. As technology and reimbursement models advance and expand the viability of remote patient monitoring and consultation, some physical E&M visits will shift to the virtual setting. This will be enabled by the use of patient-collected data—through either handheld or implantable devices—to help manage clinical conditions such as hypertension, heart rhythm abnormalities and congestive heart failure. Advanced imaging will replace some invasive diagnostic procedures. To capitalize on the OP opportunity, institutions must continue striving for operational excellence by integrating across the System of CARE.
Dermatology	Dermatology is primarily an outpatient service line, with most procedures performed in the office setting. That said, skin infections (cellulitis) compose the vast majority of inpatient activity. Discharges are forecasted to decline in the long-term due primarily to care delivery changes, such as inpatient dermatology consults and provider scaling through virtual health channels. Early recognition of pseudocellulitis will lower patient volumes. Remaining patients will exhibit higher acuity and rising lengths of stay.	Demand for outpatient dermatology services, which include skin rashes, infections, benign neoplasms and cosmetic offerings, will increase due to the growing aging population. Almost all dermatologic services can be provided on an outpatient basis. Virtual health, or teledermatology, will increasingly play an important role in dermatologic care delivery. A shift to observation in the short-term and, in the long-term, improved outpatient management for many chronic diseases that predispose skin infections will reduce IP admissions. Improved access to after-hours and virtual care will further support early diagnosis and management of skin infections.

Service Line	Inpatient	Outpatient
Endocrine	Rising inpatient admissions for the endocrine service line will largely be due to diabetes. People are living longer with diabetes, which accounts for the overall rise in prevalence. Access challenges continue for many patients affected by social determinants of health, contributing to poor disease management and inpatient admissions. The rise of high-deductible health plans and pharmacy copays will also impact patient access to timely mediciation and preventative care. Emerging technologies such as artificial pancreas will reduce inpatient admissions later in the decade and beyond. Collectively, these trends will propel higher acuity, later-stage diagnoses and longer average lengths of stay.	The prevalence of endocrine conditions, particularly diabetes, will continue to grow with the aging population, the increasing diabetic life span and the obesity epidemic. Outpatient thyroid disease services will grow modestly due to increased incidence, awareness and testing for subclinical hypothyroidism. Wireless transmission of blood sugar levels and web-enabled tracking of disease symptoms will emerge, allowing for remote care of diabetes. Computerized decision-support tools for primary care management will lead to an improved quality of care through better tracking and increased utilization of necessary follow-up visits, such as annual eye exams.
ENT	The majority of remaining adult inpatient admissions are for thyroidectomies and airway abnormalities. Together, these constitute low volumes overall, as the majority of ear, nose and throat cases are currently managed both medically and surgically in the physician office or outpatient surgical venues.	Outpatient growth will increase primarily due to a growing aging population with significant demand for ear, nose and throat services, especially hearing loss, which affects a significant portion of the elderly.
Gastroenterology	Inpatient volumes will grow overall. Growth in diseases such as noninfective liver disease (nonalcoholic fatty liver disease, nonalcoholic steatohepatitis, alcoholic fatty liver disease), pancreatic disease and other gastrointestinal (GI) disease (constipation) will rise due to a rise in comorbidity, especially obesity, in the aging population. GI hemorrhage remains a primary driver of transfer volumes for tertiary/quaternary centers.	Outpatient volumes in gastroenterology will grow at a significant rate due to an aging population, increased access to timely outpatient services, and continued improvement in diagnostic and therapeutic endoscopy. Colorectal cancer screening, gastroesophageal reflux disease, irritable bowel syndrome, inflammatory bowel disease and hepatitis will be significant volume drivers within this service line. Technological advances such as fecal immunochemical test–DNA testing (Cologuard), or even potentially, blood-based liquid biopsies, will shift initial endoscopic procedures from screening to diagnostic.
General Medicine	Overall, general medicine admissions will decrease in the coming decade. Better care management, access to urgent care facilities and shifts to observation will decrease inpatient admissions for abdominal pain, anemia and fluid/electrolyte disorders. Emerging gene therapies will result in smaller inpatient volumes for hematological diseases like sickle cell and hemophilia at the end of the decade.	Overall, expect to see outpatient growth in the medicine service line due to increases in outpatient shift and observation status. Wellness and screenings is an exception and will decline as a result of the evolving policy landscape, tempering overall growth.
General Surgery	A modest decline will occur overall due to the shift to outpatient venues. Trauma and Intestinal Obstruction and Diverticular Disease are CARE Families that will see IP growth.	The transition from inpatient venues to the outpatient setting will continue. Currently, about two-thirds of general surgery procedures are performed in OP venues; Sg2 estimates that percentage will rise to ~80% in coming years. Hernia repair, cholecystectomy, appendectomy and breast surgery are all poised to be performed primarily as outpatient procedures. Patients with comorbid illnesses or complicated illnesses will remain IP.
Gynecology	Nonmalignant gynecology procedures have shifted outpatient in recent years, and this shift will reach a floor in the next 3 to 5 years. Hysterectomy procedures in particular will largely be performed in hospital OP departments within 5 years. Benign uterine neoplasms (eg, fibroids) and excessive bleeding are increasingly being treated in the outpatient arena due to device innovation, pain management strategies and evolved surgical approaches. Additionally, alternatives to hysterectomy, including endometrial ablation and placement of intrauterine devices for excessive bleeding, are replacing the need for inpatient surgical services and can often be performed in the office setting. We anticipate declines for IP pelvic floor disorder procedures because, while more physicians are capable of performing these procedures and more women are seeking treatment due to reduced stigma, advances in minimally invasive surgery will shift these procedures to the OP setting.	In the outpatient setting, nonmalignant gynecology services will be flat over the next 10 years despite expected growth from population trends. We anticipate high-deductible health plans and underinsurance to contribute to some of the growth erosion. Changes in cervical cancer screening guidelines have driven down demand for annual gynecologic wellness exams. We expect further declines due to a shift to virtual and alternative sites for contraception management. The number of procedures performed in OP venues will continue to increase as certain gynecology diagnoses (eg, excessive bleeding) are treated in the OP setting. Incontinence-related diagnostics and treatment volumes will rise as more women seek care due to the aging population and reduced stigma. We expect demand for pelvic floor rehabilitation to increase later in the decade.
Infectious Disease	Inpatient admissions for infectious diseases will increase in the short-term due to increased sepsis admissions, followed by long-term tempering over the next decade driven primarily by decreases in pneumonia and urinary tract infection admissions. Improved prevention, such as an increase in pneumococcal vaccination rates and enhanced chronic disease management, will continue to shift volumes to the outpatient setting. Increased access to after-hours care, adoption of patient-centered medical homes, and improved methods to identify and treat sepsis will all lead to earlier diagnosis, treatment and appropriate care in the OP setting.	Outpatient volumes for infectious diseases will grow primarily due to the shift from the inpatient setting, enabled by increased use of observation units, increased access to after-hours care and virtual visits, and improved chronic disease management. Infections can be diagnosed and treated in a timely manner while keeping the patient in the OP setting.
Neonatology	Neonatology inpatient volumes will be flat through 5 years and will decline 5% in 10 years, largely due to declines in national birth rate. Short-term declines plateau (a reversal from historic declines) as the tail-end impact of obstetrics care advances on preterm birth rate reduction plays out. Expect short-term volume growth for full-term neonates with major problems (+5% by 2023) who require treatment of neonatal abstinence syndrome due to the opioid epidemic. In the long-term, expect advances in molecular diagnostics, preterm birth risk identification and precision medicine to aid in identification of at-risk women for premature birth and early intervention, resulting in modest reductions in preterm birth (compared to population trends) at the end of the decade. ALOS decline will be driven by private-room neonatal ICUs, rapid polymerase chain reaction testing for infections, respiratory support protocols, family-centered models and genetic testing.	No analysis available.
Nephrology	Overall inpatient admissions for the nephrology service line will decline modestly over the next decade due to triage to low-cost sites of care. However, the emergence of untreated diabetes will lead to an increase of end-stage renal disease admissions. The epidemiological prevalence of acute and chronic renal failure will continue to rise as survivorship improves and patients comorbid with diabetes and hypertension age. Remote monitoring technologies and improved patient engagement may facilitate identification of chronic kidney disease exacerbations, enabling treatment before IP admission is necessary, but this effect will only hit select markets in the near-term.	Outpatient nephrology services will grow significantly over the next decade due to increased demand for chronic renal failure services and early identification and disease management services for chronic kidney disease. Prevalence of acute and chronic renal failure is growing due to the increased prevalence of diabetes and hypertension, improved survivorship for renal failure patients, and the rise in the aging population, fueling growth in OP services. In addition, improvements in care coordination and expanded access to care will facilitate delivery of the full spectrum of preventive, acute and chronic disease care required by chronic renal failure patients. CMS payment incentives, including bundled payment and End-Stage Renal Disease Seamless Care Organizations, will emphasize OP disease management, remote monitoring and dialysis services to reduce costly inpatient care. The partnering of dialysis providers with retail pharmacies portends to disrupt your partnership landscape.

Service Line	Inpatient	Outpatient
Neurosciences	Inpatient volumes for the neurosciences service line are driven primarily by the Stroke and Neurovascular CARE Families, followed by epilepsy and trauma. Importantly, brain/central nervous system cancer volumes are included within the cancer service line rather than neurosciences. Sg2 forecasts IP neurosciences growth to be steady, influenced primarily by an aging population and the development of neurosciences care networks. Contributing to the increase will be both a moderate increase in stroke rates and strong growth in tertiary-level neurosciences IP diagnostics and treatments. Within the Stroke and Neurovascular CARE Families, an increasing number of patients will receive thrombolytic therapy and mechanical thrombectomy. Patients with transient ischemic attack who don't require an emergent procedure will increasingly be managed in observation units, reducing inpatient admissions for this patient population. Additional IP growth will be fueled by innovative neurosurgical approaches such as minimally invasive tumor and epileptic tissue resection, laser ablation, neurostimulator implantation, and inpatient video electroencephalogram monitoring. The evolution in post-acute payment will shift the mix of continuing care services for neurosciences patients; however, stroke and traumatic brain injury will continue to utilize IP rehab services. Medical admissions for chronic neurological diseases, such as Parkinson disease and multiple sclerosis, will continue to experience diminishing inpatient use rates. Here, clinical innovation and more fully integrated Systems of CARE will continue to drive nonprocedural care to the outpatient setting.	As Systems of CARE become more fully integrated across the country, patients are likely to utilize a more comprehensive set of services to manage Parkinson disease, epilepsy, multiple sclerosis and other chronic conditions. However, stronger Systems of CARE will enable a reduction in unnecessary repeat testing and ED visits. OP rehab services will support many patients with chronic neurological and neuromuscular diseases, but growth will be attenuated to some degree by high deductibles and copays. Stroke and traumatic brain injury recovery will also drive OP rehab growth. Many evaluation and management visits will be supplemented—and some replaced—by virtual visits. Observation units will see growth across acute neurologic conditions (eg, transient ischemic attack, seizures) as organizations increasingly focus on high-quality, lower-cost care. The aging population will play an increasingly important role as prevalence rates for chronic neurological diseases affecting the elderly increase.
Normal Newborn	The US birth rate has declined in recent years and will continue to decline over the next 10 years, influenced largely by maternal and cultural changes. This trend, coupled with the anticipated rise in high-risk pregnancies and a proportional increase in neonatology discharges, will contribute to declines for normal newborn discharges. Early access to prenatal care and perinatal networks will be imperative for healthy pregnancies and full-term, well newborns.	No analysis available.
Obstetrics	The number of total deliveries has declined in recent years due to changes in demographics, contraception access, immigration and collective childbearing choices. These trends will persist over the next decade; Sg2 expects the birth rate to decline as these trends continue. The cesarean section rate rose for more than 15 years but has declined in recent years. This decline will continue due to standardization and aligned payment structures.	Overall outpatient services will see slight growth in the next 5 years as high-risk pregnancies comprise a larger overall proportion of deliveries, but ultimately Sg2 expects growth to be constrained by declining birth rate. Care redesign models aimed at reducing preterm births will increasingly encourage high-touch prenatal care for women at heightened risk of delivering preterm, driving virtual and group visits. Ultrasound volumes will stay flat, with some payer pressure and standardization expected for ultrasound use during pregnancy, but growth is anticipated for Level 2 ultrasound as high-risk pregnancies increase. Diagnostics will soften due to advances in prenatal testing, which will decrease demand for nuchal translucency scans. Additionally, noninvasive prenatal testing advances will drive down invasive fetal diagnostics precipitously.
Ophthalmology	Inpatient demand comprises very low volumes. The shift to outpatient care has largely been completed for this service line in terms of both medical and surgical treatment.	Demand for outpatient services will increase due to an aging population and growing demand for cataract, glaucoma and macular disease screening services, diagnostics and treatments. OP growth will occur, and virtual visits, especially for screening, will increase OP demand for ophthalmology services.
Orthopedics	An aging and overweight US population will drive demand for total joint replacement procedures; however, inpatient surgical volume will flatten as improved anesthesia and surgical techniques, advances in postoperative care management, and growing consumer demand for elective outpatient procedures combine with an array of physician and payer pressures to influence a shift to ambulatory surgical centers and hospital outpatient settings. Innovations in technique and implant technology are driving growth in inpatient shoulder replacement, and as the population outlives its joint replacement implants, demand for revision surgeries will soar above population estimates. Total joint procedures and hip fractures continue to drive inpatient orthopedic volumes; however, particularly as we near the end of the decade, inpatients will, on average, be less healthy, be more prone to complications and require longer lengths of stay. Better screening for and management of osteoporosis reduce the incidence of fragility fractures among the elderly, decreasing inpatient estimates. Bundled payments encourage greater scrutiny of post-acute care, leading to dramatic reductions in the use of inpatient rehabilitation facilities for orthopedic conditions.	Orthopedics represents an opportunity for robust outpatient growth. Total joint replacement procedures of the hip, knee and shoulder will substantially outpace population-based estimates as improved anesthesia and surgical techniques, advances in postoperative care management, and growing consumer demand for elective outpatient procedures combine with an array of economic factors to drive these procedures to hospital outpatient departments and ambulatory surgery centers. Greater coordination of care across the Osteoarthritis and Musculoskeletal Injury CARE Families will drive growth for rehabilitation, particularly initial evaluations, as outcomes data highlight therapist efficiencies and as therapists play an increasingly important role in evaluation, triage and conservative management of conditions. Increased consumer sensitivity to rehabilitation copays and innovation in virtual rehabilitation technologies will encourage fewer visits per therapy episode. Care redesign efforts and clinical decision support systems will temper the growth in evaluation and management visits and shift these visits to lower-acuity settings.
Psychiatry	Psychiatric services, also referred to in Sg2 literature as behavioral health services, include treatment for substance use disorders including poisonings from commonly abused drugs, mental health diseases, learning disorders, dementias and other cognitive disorders. Growth of inpatient psychiatric services is expected over much of the decade. Increasing incidence and prevalence of many behavioral health disorders contribute to growth, as does the aging population as more geriatric psychiatry programs are added nationally. Positive margins for many IP providers create a disincentive for reshaping the care path for psychiatric conditions, but increasing capacity constraints, primarily driven by workforce limitations, will force innovation in care delivery. Growth estimates were increased in the 2018 forecast as erosion of the coverage gains achieved through the Patient Protection and Affordable Care Act are repealed or relaxed through state Medicaid waivers and elimination of the individual mandate. Increasing uninsured rates will reduce access to OP services, driving a resurgence in demand for IP acute care psychiatry. Poor enforcement of parity laws in all but a few states contributes to reduced access to OP services, further contributing to IP growth. In the latter half of the decade, payment incentives and movements toward value-based care will attenuate growth, as will advances in virtual health and other technologies. An increasing realization that patients with psychiatric and chemical dependency comorbidities who receive better care have overall lower costs of care will drive greater access to disease management services within the health system and the community but will be more slowly adopted as payment constraints emerge, limiting access.	Outpatient growth in psychiatric services is expected to be stronger in the latter half of the decade. Over the next 3 to 5 years, ED visits will grow significantly and will continue to burden the ED throughput in many markets. In 6 to 10 years, expect an increase in intensive outpatient programs, which allow many patients to avoid or manage a crisis in a lower-cost setting. Partial hospitalization program growth will be less robust, a result of ongoing payment restraints and regulatory restrictions. Patient acuity in both these programs will increase, however, as patients who would have been admitted to an inpatient-focused care delivery model are off-loaded. Individual psychotherapy services will experience a significant growth in demand, but workforce limitations will challenge organizations that do not adapt to more innovative care delivery models. Payment incentives via national, state and local payers will continue to shift their focus to supporting lower-cost OP services, but lower payments will support only slow investment in outpatient services. Organizations committed to the path to value will be more likely to invest in and partner to create a comprehensive System of CARE in the market. Well-integrated Systems of CARE will embed behavioral health early into their wellness initiatives to improve its management, as well as the comorbid conditions many individuals with mental health conditions must manage.
Pulmonology	Inpatient pulmonary services will increase modestly due to the aging population and as less complex cases complete the shift to outpatient settings. Expect ALOS to rise for chronic disease patients who remain inpatient. Within the pulmonary service line, the Acute Respiratory Failure CARE Family remains the principal inpatient driver.	Outpatient volumes for pulmonology services will increase over the next decade due to growing prevalence of pulmonary diseases, such as chronic obstructive pulmonary disease, asthma and obstructive sleep apnea. Aging, tobacco-use and longer-term cancer survivorship drive epidemiological increase. Incentives for improved disease management and penalties for avoidable inpatient admissions and readmissions will further drive growth in preventive and chronic disease care in many markets. Patient education, medication reconciliation, remote monitoring, self-management education and pulmonary rehabilitation, as well as increased rates of influenza and pneumococcal vaccination, will contribute to preventative care efforts and reduce ED and inpatient admissions.
Rheumatology	Growth in inpatient rheumatology services will decrease, then plateau over the next decade, despite a growing aging population. Patients with rheumatoid arthritis and other inflammatory arthropathies will benefit from better care coordination, more advanced diagnostics and emerging medical therapies, thereby avoiding IP admissions and surgical procedures and keeping these patients in the outpatient setting.	Rheumatoid arthritis and other inflammatory arthropathies will grow in the OP setting primarily due to the aging population. There are also emerging service offerings including advanced diagnostics/imaging, rehabilitation and new medication development that adds to the arsenal of disease-modifying antirheumatic drugs. Better care coordination involving partnerships with orthopedic programs that treat osteoarthritis and treatment plans for acute exacerbations will help keep patients out of the inpatient setting.

Service Line	Inpatient	Outpatient
Spine	Inpatient volumes for the spine service line are heavily influenced by the Degenerative Spine and Disc Injury CARE Family, followed by Spinal Fracture. Inpatient demand for spine services will experience a substantial decline over the next decade for 3 primary reasons: 1) an outpatient shift of the vast majority of cervical fusion and spinal decompressions and laminectomies, as well as an increasing outpatient shift of less complex lumbar fusion procedures, with improvements in minimally invasive techniques and improved pain management; 2) scrutiny of surgical procedures, particularly lumbar fusion, as payers continue to implement initiatives to reduce overutilization of spinal surgeries; and 3) expected reductions in coverage and increased prevalence of health savings accounts, which will encourage better management of back pain in the ambulatory setting, reducing the number of medical back inpatient admissions.	The outpatient spine forecast is heavily influenced by the growth of nonsurgical treatments. However, the shift of traditionally inpatient surgical procedures (particularly cervical fusion and less complex lumbar fusion) to hospital outpatient departments and ambulatory surgery centers drives substantial outpatient surgical growth. Increased payer scrutiny, a reduction in coverage for select patients and rising consumer price sensitivity temper growth of interventional pain procedures. Greater coordination of care drives rehabilitation growth, especially for initial evaluations, as therapists play an increasingly important role in evaluation, triage and conservative management of conditions. Although injections continue to face payer scrutiny, an evolving opioid epidemic sparks providers and patients to reconsider targeted interventions, such as injections and spinal cord stimulators, over opioids for pain management. Increased consumer sensitivity to rehabilitation copays and innovation in virtual rehabilitation technologies facilitate the treatment of patients in fewer visits per therapy episode. Care redesign efforts and clinical decision support systems curtail the use of unnecessary imaging procedures in the early diagnosis of spinal conditions and soften growth of evaluation and management visits, dampening overall OP growth.
Urology	The longstanding shift to the outpatient setting will continue. Complex procedures for urologic cancer (kidney, bladder, prostate) will continue to be performed in the IP setting, but early-stage manifestations of these conditions, along with the remainder of urologic diseases, will largely be treated in the OP setting. New technologies to manage kidney and bladder stones, including transurethral and percutaneous laser-based lithotripsy, will continue to reduce the necessity for open surgical procedures, also shifting the care of these patients to the outpatient setting.	Outpatient services will grow due to an aging population. OP treatment for many urologic diseases, including erectile dysfunction, bladder neck obstruction (due to benign prostatic hypertrophy), kidney and bladder stones, voiding dysfunction, and even some forms of urologic cancer will be OP based.
Vascular	Obesity- and diabetes-related comorbidities, patient education, improved care coordination, and new treatment options will drive some growth in inpatient vascular services. However, this growth will be minimized by medical therapies (eg, lipid-lowering and antihypertensive therapies) and lifestyle modification for peripheral atherosclerosis. The growth in IP procedures to treat vascular disease will be significantly mitigated by an OP shift of these procedures in both status and location to ambulatory sites. Program coordination will be essential to realizing these opportunities.	As the population ages and as epidemiology and patient comorbidities result in increased prevalence of vascular disease, the demand for outpatient vascular services will grow. Improved institutional coordination and alignment around vascular service delivery will be key to capturing this opportunity. Recent advances in the minimally invasive delivery of peripheral revascularization, such as drug-eluting balloons and peripheral vascular stents, will expand the therapeutic opportunities for these patients. Diagnostic techniques will continue to rely on noninvasive modalities, such as ankle brachial index and ultrasound, CT angiography and MR angiography.