GALLAGHER
GALLAGHER EVELIUS & JONES
ATTORNEYS AT LAW

January 8, 2021

VIA EMAIL & FEDEX DELIVERY

Ms. Ruby Potter
Health Facilities Coordination Officer
Maryland Health Care Commission
4160 Patterson Avenue
Baltimore, Maryland 21215

Re: University of Maryland Medical Center, LLC
Certificate of Need Application to Add a Pediatric Hybrid Operating Room at University of Maryland Medical Center Downtown Campus
Matter No. 20-24-2445

Dear Ms. Potter:

On behalf of applicant, University of Maryland Medical Center, LLC, per Commission Staff's standing request we are submitting four copies of applicant's Response to Additional Information Questions dated December 14, 2020 in the above-reference matter. A word and excel version will be forwarded in a separate email.

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

Sincerely,

Thomas C. Dame

Mallory Regenbogen

Mallory M. Regenbogen

#726962

Enclosures
Cc via email:

Ben Steffen, Executive Director, MHCC
Paul Parker, Director, Center for Health Care Facilities Planning & Development, MHCC
Kevin McDonald, Chief, Certificate of Need, MHCC
Suellen Wideman, Esq., Assistant Attorney General, MHCC
Bert O'Malley, MD, President & CEO, UMMC
Dana Farrakhan, FACHE, Senior Vice President, Strategy, Community and Business Development, UMMC
Joseph Hoffman III, Senior Vice President and Chief Financial Officer, UMMC
Scott Tinsley-Hall, Director, Strategy & System Market Intelligence, UMMC
James McGowan, DHA, Vice President of Perioperative/Procedural Services, UMMC
Craig Fleischmann, Vice President, Finance, UMMC
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Eveena Felder, MS, RN, Nurse Manager, Heart Center Pediatric Program, UMMC
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Andrew Solberg, ALS Healthcare Consultant Services
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UNIVERSITY OF MARYLAND MEDICAL CENTER
PEDIATRIC HYBRID OPERATING ROOM CON
Matter No. 20-24-2445

Responses to Additional Information Questions
Dated December 14, 2020

UMMC received an additional letter of support for this project from Edmondson-Westside High School that is attached as **Exhibit 20**.

Part I - Project Identification and General Information

1. **Please state the number of mixed-use general purpose operating rooms and mixed-use special purpose operating rooms at UMMC upon project completion.**

Applicant Response

UMMC currently has 23 mixed-use general purpose ORs and 12 special purpose ORs. Upon completion of the project, UMMC will have one additional special purpose OR to bring its total to 23 mixed-use general purpose ORs and 13 special purpose ORs.

2. **Confirm whether this CON project includes the costs for the upgrade/replacement of equipment for the existing hybrid OR. Provide the timeline when the renovations for the existing hybrid OR will occur**

Applicant Response

This CON project does not include the costs for the upgrade and replacement of equipment for the existing hybrid OR, which will occur after the new hybrid OR is built and operational. This will ensure UMMC Children's Heart Program has an operational hybrid OR available at all times.

3. **Please respond to the following:**

   a) **The current age and dimensions for the existing hybrid OR and the two mixed-use general purpose ORs that will be renovated as a result of this project;**

Applicant Response

Occupancy of the existing OR suite began October 9, 2008. The existing hybrid OR is 46 feet by 23 feet (including the control room). The two general purpose ORs are 23 feet by 26 feet.

   b) **The historical and projected breakdown on the number and percentage of pediatric versus adult cardiac cases performed in the existing hybrid OR;**

Applicant Response

There are no adult cardiac surgery cases performed in the existing hybrid OR. Error! Reference source not found. below provides the historical and projected cardiac catheterization cases and percentage of cases by age group from FY 2017 to FY 2025.

Table 7
Historical and Projected Cardiac Catheterization Cases by Age Grouping
FY 2017 to FY 2025

Historical and Projected Cardiac Catheterization Cases by Age Grouping								
Cases by Age Grouping	Historical Volumes							
	FY 17		FY 18		FY 19		FY 20	
	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent
Pediatrics (0-17)	131	63.9%	120	65.6%	117	67.2%	124	73.8%
Adults (18+)	74	36.1%	63	34.4%	57	32.8%	44	26.2%

Historical and Projected Cardiac Catheterization Cases by Age Grouping										
Cases by Age Grouping	Projected Volumes*									
	FY 21		FY 22		FY 23		FY 24		FY 25	
	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent
Pediatrics (0-17)	114	67.2%	114	67.2%	114	67.2%	115	67.2%	115	67.2%
Adults (18+)	55	32.8%	55	32.8%	56	32.8%	56	32.8%	56	32.8%

*Projections based on the average historical case volumes by age groupings from FY 2017-FY 2020

c) The current and projected hours of operation for the pediatric hybrid ORs; and

Applicant Response

The hours of operation are 7:15am to 5:00pm Monday through Friday and for all emergencies.

d) The average wait time for patient/physician to schedule procedures in the hybrid OR.

Applicant Response

Scheduling for the hybrid OR is complicated in the current circumstances. A single hybrid OR must support the performance of congenital heart surgeries and congenital cardiac catheterization procedures of the UMMC Children's Heart Program. Coordination must occur between the physicians performing pediatric cardiac surgery and cardiac catheterizations and their administrative teams to accommodate all cases. These teams communicate frequently and balance interests to determine the priority of various procedures in conjunction with the physicians who must weigh in on patient acuity levels and clinical criteria.

In order to share the existing hybrid OR, UMMC has implemented the following schedule for elective/scheduled procedures:

- Cardiac surgery – Monday, Wednesday, 1st and 3rd Thursdays of each month
- Cardiac catheterization – Tuesday, Friday, and 2nd and 4th Thursdays of each month

When an emergency case arises, scheduling is determined on a case-by-case basis based on clinical criteria and urgency. For example, if an emergency case requires a cardiac catheterization and the hybrid OR is scheduled for cardiac surgeries that day, the cardiac surgery is either moved to another day or to a general OR, but only if there is appropriate staff to support the surgery in the general OR. If an emergency case requires cardiac surgery and the hybrid OR is scheduled for cardiac catheterizations that day, the cardiac catheterization must be cancelled and rescheduled and the patient is sent home untreated, which upsets patients and their families.

UMMC estimates that patient wait times for elective/scheduled cardiac catheterization procedures is one to two months on average. Cardiac surgeries do not have a current backlog in scheduling, in part because urgent cases are prioritized, requiring other patients to be rescheduled to accommodate the more urgent procedure or the case will be moved to the general purpose ORs in the Weinberg Building. For example, congenital heart surgeries for many newborns must occur within a particular timeframe. If the hybrid OR is unavailable, the case must be moved to a general purpose OR, which sometimes results in rescheduling an adult case in order to perform the newborn case timely.

Adding a new hybrid OR, which will serve as the primary room for interventional procedures, will greatly minimize the scheduling issues currently experienced by patients and their families, including wait times, delays, and procedure cancellations.

4. **Please provide the current conditions/problems with the two adjacent mixed-use general purpose ORs that will be relocated. Besides providing space for the second hybrid OR, state whether there is a need for the relocation and renovation of these two ORs?**

Applicant Response

There are no problems with the two general purpose ORs other than they have to relocate to provide enough space for the second hybrid OR as described in response to question 21 below.

Part II-Project Budget

5. **Provide the basis of or assumptions used to calculate the following:**

   a) $220,000 identified as Other Costs (overhead and PM cost); and

Applicant Response

UMMC calculated Other Costs (Overhead and PM cost) as a standard percentage of total construction costs. They were calculated as follows:

Internal Overhead	$4,182,374 X 4.0% =	$167,295
Internal Project Management Costs	$4,182,374 X1.25% =	$52,280
Total		$219,575

UMMC rounded the sum up to $220,000.

b) $223,626 in Inflation Allowance.

Applicant Response

UMMC calculated the Inflation Allowance using the Inflation Index posted on the MHCC website at the time of the development of the budget (https://mhcc.maryland.gov/mhcc/pages/hcfs/hcfs_con/documents/con_cap_cost_index_20200127.pdf).

Budget Developed	2020:04				
Midpoint of Construction	2022:02				
Step 1	2021:04	%MOVAVG	1.5	1.015	A
Step 3	2021:04	CIS Proxy	1.233		B
	2022:02	CIS Proxy	1.244		C
	C/B			1.008921	D
	A*D			1.024055	2.406%

$223,626 (Inflation Allowance)/$9,296,374 (TOTAL CURRENT CAPITAL COSTS) = 2.406%.

6 Cite the line item in your audited financial statements from which the $6,555,000 in cash will be drawn.

Applicant Response

The cash will come from the "Current assets" section of the balance sheet of the supplied audited financial statements on page 3 of **Exhibit 14** of the CON application. More specifically, it will come from the line of "Cash and cash equivalents" which has a balance of $961,647,000.

7. Do you have the $3 million in philanthropic gifts in hand? If so, cite the sources for the philanthropic gift. If not, when do you expect to collect the gift? If you are unable to collect the entire gift in time, what is your contingency plan?

Applicant Response

UMMC has already received the $3 million gift from a grateful patient donor.

Part IV CONSISTENCY WITH GENERAL REVIEW CRITERIA (COMAR 10.24.01.08G(3))

(A) THE STATE HEALTH PLAN

COMAR 10.24.10 - ACUTE CARE HOSPITAL SERVICES STANDARDS

Charity Care Policy

8. **The Financial Assistance policy (with an effective date of 7/1/2020) on the UMMC website is different from the Financial Assistance policy (with a Revision Date of 10/19/2020) in Exhibit 4 of your CON application. Please ensure we have the most up to date version of your financial policy and that it is available on your website.**

Applicant Response

The Financial Assistance Policy submitted with the CON application (Revision Date of 10/19/2020) has not been officially implemented as planned due to some ongoing discussions though it is expected to be implemented at some point in the future. The policy on the website (effective date of 7/1/2020) is the current policy in effect and is attached as **Exhibit 21**.

Quality of Care

9. **Please provide a response as to how UMMC will address the following two quality measures reported as "below average" on the most recent Maryland Hospital Performance Evaluation Guide:**

   a) How often were the patients' rooms and bathrooms always kept clean?

Applicant Response

UMMC has assigned dedicated EVS staff to each unit. Daily tasks include morning, afternoon, evening, and night trash removal, and a 10-step thorough room cleaning process as well as re-cleaning as needed. In addition, UMMC has a dedicated Patient Experience Manager within EVS and a team of patient ambassadors that round on patients in all units. Patient satisfaction scores are shared with EVS and nursing staff.

   b) How often was the area around patients' rooms always kept quiet at night?

Applicant Response

To improve its quietness at night, UMMC is piloting a program to play soothing music in the entryways of units and will be adding quiet packs to its inventory for use.

Efficiency

10. **The applicant states on p. 29 that "the configuration of the new pediatric cardiac hybrid OR will enhance cross utilization and more efficient utilization of staff, supplies and equipment, and will provide for more timely communication and responses by physicians and staff serving this patient population." As the guidance that MHCC staff has provided to help applicants interpret the Acute Care**

standards indicates, an applicant would *ideally* compare productivity and staffing metrics to illustrate improvements resulting from the proposed project in response to subsection .04B(11)(a) and (b). Accordingly, please provide either quantitative measures or other tangible improvements that will demonstrate these claims of operational efficiency.

Applicant Response

Patient safety and clinical efficiency will be improved due to the new hybrid OR's proximate location to the existing hybrid OR in comparison to the status quo of utilizing the Weinberg ORs for congenital cardiac surgeries. The Weinberg ORs are about a city block away from the north building pediatric OR suite, and by co-locating the hybrid ORs that will serve the UMMC Children's Heart Program so that they are mere feet from one another, it will allow staff to move quickly from one room to the another as needs arise and to share equipment. It also allows for better communication between cardiac surgical and interventional clinicians and more timely access to surgical and anesthesia providers.

UMMC Children's Heart Program requires highly trained staff with pediatric competencies to support congenital cardiac surgeries and cardiac catheterization procedures. Due to the availability issues with the existing hybrid OR, when a cardiac catheterization procedure and cardiac surgery both require support staff or equipment at the same time or in close proximity, staff have to travel back and forth between the existing hybrid OR on the seventh floor of the north building and the Weinberg ORs to provide support and/or equipment to both locations. The increased volume the program is handling has made this situation more difficult and untenable, such that UMMC is now using Weinberg OR staffing resources to support pediatric surgeries and paying overtime compensation for use of this staff, or must call in different pediatric trained surgical support staff. Many of the Weinberg OR staff do not have pediatric competency to support the hybrid procedures that occur in the hybrid OR.

If UMMC is required to continue relying on the Weinberg ORs for pediatric cardiac surgery as a long-term plan, it would need to hire at least two to three additional FTEs that would not otherwise be required if the ORs are located adjacent to one another to ensure it has adequate support staff with pediatric competencies to provide coverage in these two distant locations. UMMC would also need to purchase additional equipment if pediatric cardiac surgeries were to continue in the Weinberg ORs as it is untenable to continue sharing equipment between these distant locations when cases are occurring simultaneously. By co-locating the two hybrid ORs adjacent to one another, UMMC estimates that it would save approximately $420K in equipment costs that would otherwise need to be purchased.

Exhibit 22 provides applicable portions of floor plans for the second and seventh floors to demonstrate the long distances physicians and surgical staff must travel between the general ORs in the Weinberg Building and the pediatric suite on the seventh floor of the north building. A pediatric surgical case being performed in the Weinberg ORs that support cardiac cases (each marked with an "X" on page 2, **Exhibit 22**) requires pediatric surgical staff to respond from this location on second floor, down the bridge to the rotunda then proceed to the north building elevator bank, take the elevator to the seventh floor (shown on page 1 of **Exhibit 22**), enter the suite and proceed to the far north west corner to enter the hybrid room to assist. Staff members often need to push equipment, which slows the process and places equipment at risk for breakage in crossing many corridors and three different buildings to reach the existing hybrid OR. The longer travel distance is inefficient and leads to slower response times, which is not in the best interest of patients.

11. **Please provide more details and/or documentation regarding your statement on p. 29 as to how the renovation to the pediatric prep and recovery areas "will also result in operational efficiencies, including reduced patient and staff travel time."**

Applicant Response

Note that the changes described to the pediatric prep and recovery areas – very minor updates and its dedication solely to serving pediatric patients – are not part of this project. However, they are part of UMMC's master facility plan for the seventh floor of the north building. Currently, pediatric surgery patients' recovery area depends on where their surgery occurred. Co-locating the ORs serving pediatric patients and the prep and recovery areas will reduce staff and patient travel time, such as the travel distances shown in **Exhibit 22** and described in response to question 10 above.

Patient Safety

12. **Please provide evidence that supports the statement on p. 29 regarding the "essential, industry wide standard configuration" for the pediatric hybrid OR.**

Applicant Response

UMMC wishes to modify its prior statement. UMMC considers the proximity of the existing and new hybrid ORs as an essential feature in order to maximize clinical and operational efficiencies as well as patient safety. Pediatric cardiac surgery and cardiac catheterization cases both require specialty trained staff and equipment that can be shared if these cases are performed in close proximity. In addition, the proximity improves and makes more efficient the collaboration that must occur between cardiac surgeons and interventional cardiologists. As described in response to question 21, due to building constraints, the proposed location of the new hybrid OR is the only space large enough in the seventh floor surgical suite to fit the new hybrid OR and achieve proximity to the existing hybrid OR, which is why UMMC is proposing to move the two general purpose ORs that are currently in that space.

As UMMC stated in the CON application on page 29, the configuration of the new pediatric hybrid OR was a key consideration in planning the design of this project. However, UMMC modifies its prior description of an "industry-wide standard configuration" as there is no one-size-fits-all configuration for hybrid ORs. Rather, there are commonly employed design standards, which UMMC used to plan the design of the new pediatric hybrid OR. The key considerations in planning the design of the room are summarized in the Facility Guidelines Institute article *Hybrid Operating Room Design Basics*, attached as **Exhibit 23,** on page 4**:**

> Primary considerations in developing a functional program [for an effective hybrid OR design] are identification of the characteristics of the patient population to be served (e.g., pediatric patients, patients of size, etc.), the procedures that will be performed, and the imaging equipment needed. The imaging equipment is the most expensive component of a hybrid OR, so it must be chosen carefully to support the clinical services identified in the functional program. As well, the imaging equipment specified for a

hybrid OR will drive design decisions about shielding, structural support, and equipment placement.

The technology selected is particularly important because it drives the size and configuration of the room due to its large dimensions. For UMMC's hybrid OR, the biplane imaging technology is the key driver of the size and configuration. In addition, as described on page 9 of this same FGI article, the hybrid OR must have sufficient space allocated for an equipment control room for staff to operate the imaging equipment during a procedure, moveable equipment and staff to circulate, and the provision of anesthesia, among other features. *See id.* at p.9. UMMC has reserved sufficient space in its design for all of these features as well as for sterile storage of supplies.

13. **Provide details that illustrate how the new hybrid OR's space allocation and placement of other support functions will resolve shortcomings with the existing hybrid OR. The applicant needs to support these statements with details or descriptions related to the patient safety design and improvements for the new hybrid OR.**

Applicant Response

The new room size and configuration will address issues regarding the ability to quickly and efficiently acquire supplies required for procedures being performed.

As described on page 29 of the CON application in response to the Patient Safety Standard and the Need Standard, the existing hybrid OR is small for a hybrid OR, creating operational challenges for the interventional and hybrid procedures, which require large equipment and lots of people in the room due to the acuity of the cases. The size of the technology used in the room generally dictates the size of the hybrid OR. In the existing hybrid OR, when all of the necessary equipment and staff are in the room for cardiac catheterization or hybrid procedures, it is difficult to maneuver within the room and work efficiently in the space. The space limitations of the existing hybrid OR cannot be resolved due to building structure constraints. Challenges arise when a pediatric patient undergoing an interventional procedure needs to be quickly transitioned to open cardiac surgery. In these instances, timing and expertise is critical and the patient must be transitioned to surgery as quickly as possible. Due to the space limitations of the existing hybrid OR, procedures must often be paused and some staff must exit the room in order to setup or rearrange the necessary equipment.

The space allocation of the new hybrid OR will resolve these issues by reducing crowding and allowing support staff to better maneuver within the room with all equipment present during transition to surgery or cardiac procedure. Currently, equipment such as a perfusion machine, echocardiography machine, vascular access, ventrical assist devices, and a Baylis machine, all of which are vital and used regularly, cannot be kept in the hybrid OR due to space limitations. Strategic placement of this equipment in the new room will resolve the need to shuffle much needed equipment from space to space, wasting critical time and resources.

As described on page 30 of the CON application, the technology that the new hybrid OR will be equipped with will also be a key improvement in patient safety. The existing hybrid OR's technology is dated and exposes patients to higher levels of x-ray. The new hybrid OR will be equipped with a new biplane x-ray imaging system which will dramatically reduce levels of x-ray exposure for the vulnerable patient population undergoing these procedures.

COMAR 10.24.11 – GENERAL SURGICAL SERVICES STANDARDS

Need – Minimum Utilization for Expansion of an Existing Facility

14. **The MHCC's Annual Report on Selected Maryland General and Special Hospital Services for FY 2018 reports on p. 28 that UMMC has 22 mixed use general purpose and 13 mixed use special purpose ORs. In the application it was reported that UMMC has 23 mixed use general purpose and 12 special purpose ORs for FY 2020. What is the correct number of mixed use general purpose and special purpose ORs?**

Applicant Response

In FY 2016 and FY 2017, the UMMC Downtown Supplemental Survey of Surgery Capacity submitted to MHCC showed 22 general purpose and 13 special purpose operating rooms. These inventories were adjusted in the FY 2018 and FY 2019 submissions to reflect 23 general purpose and 12 special purpose operating rooms. It appears the MHCC's latest version of the Annual report on Selected Maryland General and Special Hospital Services issued in FY 2018 was not updated to reflect this change. The correct inventory should show 23 mixed-use general purpose and 12 special purpose ORs.

15. **The State Health Plan standard assumes a 25-minute turnaround time (TAT) between operating room procedures. In response to the standard at Paragraph 7A(2)(c), please provide a justification for the use of 57-minute and 61-minute turnaround times for both the 23 mixed-use general purpose and 12 special purpose ORs in your OR need methodology.**

Applicant Response

The State Health plan Chapter section on Operating Room Capacity and Need Assumptions - General Assumptions states that: "[w]hen reliable information on average room turnaround time is not available from an applicant, it is assumed that an average room turnaround time of 25 minutes can be achieved." COMAR 10.24.11.07A(2)(a). UMMC has reliable information on its average turnaround times from its EHR system, which is where it obtained the TAT averages of 57 minutes in FY 2019 for all surgical cases and 61 minutes in FY 2019 for pediatric cardiac and catheterization cases, which is why it has employed this assumption.

16. **Provide details and evidence to support the anecdotal statement from p. 48 that "UMMC's general purpose ORs are not as well equipped….due to staffing, equipment, and distance from the pediatric unit."**

Applicant Response

UMMC general purpose ORs are not remotely equipped to handle the types of cases that a pediatric hybrid OR is equipped to handle. They cannot be used for any cardiac catheterization cases. A few of the general purpose ORs in the Weinberg Building are designed and equipped for cardiac surgery cases, however, even these ORs are not designed or equipped for pediatric patients, who require different types and sizes of equipment and technology and surgical staff trained to support pediatric patients.

As described in response to question 10 above, UMMC has been sharing support staff and equipment between the Weinberg ORs and existing hybrid OR, but due to the long distance between these locations and the increased frequency of overlapping cases, this is not a viable long-term solution. The Weinberg Building are about a city block away from the pediatric cardiac surgical suite on the seventh floor of the north building. The distance and time it takes for support staff to travel and transport necessary equipment back and forth between the two units eliminates virtually all proximity support. If UMMC were required to rely on the general purpose ORs in Weinberg to continue supporting pediatric cardiac surgery cases, it would need to hire two to three FTEs with pediatric competencies to have on reserve in this area and spend approximately $420K to equip the ORs with the necessary equipment. Even if UMMC were to add additional pediatric staff and equipment to cover the Weinberg ORs, continued use of these ORs for pediatric cardiac surgeries is not ideal for patient care as certain cases require support and coordination with interventional cardiologists who will continue to be located at a distance on the seventh floor of the north building and who would not have adequate interventional imaging equipment available in the Weinberg ORs to provide full support for these cases. As noted on pages 49-50 of the CON application:

> Time is critical for many of these patients and the additional transport and response time can negatively affect the patient's outcome, especially if additional equipment or supplies are required mid-procedure. During certain surgeries, the pediatric cardiac surgeons need to collaborate with the interventional cardiologists and collaboration is more difficult when the cases are moved to the general purpose ORs. Although the interventional cardiologists can provide some support during the case, the support is more limited without the availability of the biplane x-ray and other technologies that are available in the existing hybrid OR.

17. **The applicant states on p. 49 "(W)hen the existing hybrid OR is unavailable for a pediatric cardiac surgery, the case must either be delayed or moved to the general purpose ORs in the main hospital building." Please explain why these pediatric cardiac cases are not performed in the two adjacent mixed-use general purpose ORs located on the seventh floor, eliminating the need for relocating staff and equipment to the main hospital.**

Applicant Response

The mixed-use general purpose ORs on the seventh floor are not set up for cardiac surgery and so could not be used to perform pediatric cardiac surgery cases. If UMMC were to convert them to be cardiac ORs it would reduce the availability of that OR to be used for other cases. These ORs are fully scheduled, so by using them for urgent cardiac surgery cases it would disrupt the block time schedule for these rooms and displace other cases that would need to be rescheduled or delayed.

18. **Please document the number of times within the last year that staff has had to cancel and reschedule procedures for the pediatric hybrid OR.**

Applicant Response

UMMC tracks cancellations using the OR electronic medical records (EMR) system, however, because many cancellations occur prior to being scheduled within this EMR system that data is not available; therefore, reliable documentation to demonstrate frequency of cancellations is not available.

19. **For the operating rooms located in UMMC's seventh floor Pediatric Cardiac Program please provide:**

    a. **The surgical case volume for the last two complete years in the two - mixed-use general purpose and the one hybrid OR.**

    b. **The projected surgical case volume for the two mixed use general purpose and two hybrid ORs after completion of construction and initiation of these surgical services.**

Applicant Response

Table 8 below provides the historical surgical case volumes for the two mixed-use general purpose ORs and the hybrid OR located on the seventh floor of the UMMC's north building from FY 2017 to FY 2020 as well as the projected surgical case volumes for these rooms and the new hybrid OR from FY 2021 to FY 2025.

Table 8
UMMC's Seventh Floor Pediatric Cardiac Program Impacted Operating Rooms

UMMC's 7th Floor Pediatric Cardiac Program Impacted Operating Rooms									
Operating Room	Actual Volumes				Projected Volumes**				
	FY 17	FY 18	FY 19	FY20	FY 21	FY 22	FY 23	FY 24	FY 25
UMH NORTH OR - N35	558	564	570	521*	572	575	577	579	581
UMH NORTH OR - N36	608	595	547	365*	549	551	554	556	558
UMMC HYBRID OR - N34	345	332	399	447	280	281	282	283	285
PROPOSED HYBRID OR	0	0	0	0	169	169	170	171	171
UMMC Total Cases	1,511	1,491	1,516	1,333	1,570	1,576	1,582	1,589	1,596

*Volumes impacted due to COVID-19 postponement of elective cases.
**Assumes population growth rate of 0.4% annually or 1.92% over the next five years beginning in FY 2021.

Availability of More Cost-Effective Alternatives

20. **Please discuss why the existing surgical resources at Johns Hopkins Children's Center Pediatric and Congenital Heart Program are not considered a cost-effective alternative to handle projected future need for such surgical services.**

Applicant Response

UMMC Children's Heart Program is one of only two pediatric cardiac heart programs in the State of Maryland and the current project is aimed at better serving its existing patient base and case volumes that are inadequately served by a single hybrid OR. UMMC's patient population has built relationships and trust with the providers and specialists within the University of Maryland Medical System. Patients and families have built strong relationships with providers and other services that provide excellent coordination of care within the system and across the care continuum. This includes UMMC Children's Heart and Congenital program. UMMC is

already serving these patients and families, many of which are served by the program for a period of years or over their lifetime for those patients with congenital heart issues, and ultimately it is the patients' choice which program they choose.

21. **Please discuss the alternative of constructing the second hybrid OR in the support service areas where the two existing mixed-use general purpose ORs are planned to be relocated. This would leave the two existing mixed-use general purpose ORs where they are. Why did the applicant not consider this option, as it seems to be a less costly alternative, take less time for completion of construction, and cause less disturbance to the Pediatric Cardiac program?**

Applicant Response

This was the first option UMMC considered. Based on the existing building constraint of the distance between a major mechanical shaft and the exterior wall, the greatest width that can be achieved in this location is 23 feet. This is not sufficient for the new equipment and functionality needed for the new hybrid OR.

Tables

22. **Regarding Table C, please provide the square footage and the perimeter in linear feet for Phase 1 (moving two mixed-use general purpose ORs) and Phase 2 (creating one hybrid OR) of the project.**

Applicant Response

Phase 1 is 468 linear feet and 4,320 SF. Phase 2 is 232 linear feet and 3,200 SF.

23. **Regarding Table D, please disaggregate and show the construction costs for Phase 1 and Phase 2 individually. Also, please clarify whether these construction costs are for new construction (as indicated in your table) or for renovations (as stated in your narrative).**

Applicant Response

The information in the original Table D was inadvertently placed in the New Construction column. The project includes no new construction, as described throughout the application. **Exhibit 19** includes a full MHCC Table Set with a revised Table D with the information disaggregated between Phase 1 and Phase 2.

24. **Regarding Tables G and H, please clarify whether these tables are in millions (000s) and for CY or FY.**

Applicant Response

UMMC confirms that Tables G and H are in millions of dollars and are presented by fiscal year.

25. Regarding Table L, please provide the current number of FTEs that staff UMMC's Pediatric Cardiac Program.

Applicant Response

Table 9 below provides the current FTEs that staff UMMC Children's Heart Program.

Table 9
Current FTEs Staffing UMMC Children's Heart Program

Job Category	Current FTEs
Operating Room RNs	3.6
Operating Room Surgical Technicians	1.0
First Assistant/PA	2.0
Perfusionist	1.0
Anesthesia Technician	0.5
Surgical Support Technicians	0.5
Cardiac Cath RNs	2.0
Interventional Technicians (RCIS)	3.0
Sonographer	1.0
Total	14.6

Table of Exhibits

Table of Tables

I hereby declare and affirm under the penalties of perjury that the facts stated this Response to Request for Additional Information Questions Dated December 14, 2020 and its attachments are true and correct to the best of my knowledge, information, and belief.

1/5/2021
Date

Eveena Felder MS RN
Eveena Felder, MS, RN
Nurse Manager, Heart Center Pediatric Program
University of Maryland Medical Center

I hereby declare and affirm under the penalties of perjury that the facts stated this Response to Request for Additional Information Questions Dated December 14, 2020 and its attachments are true and correct to the best of my knowledge, information, and belief.

1/7/21
Date

Craig Fleischmann
Vice President, Finance
University of Maryland Medical Center

I hereby declare and affirm under the penalties of perjury that the facts stated this Response to Request for Additional Information Questions Dated December 14, 2020 and its attachments are true and correct to the best of my knowledge, information, and belief.

1/04/2021
Date

Michael Glancey

Michael Glancey
Strategic Planning Project Manager
University of Maryland Medical Center

I hereby declare and affirm under the penalties of perjury that the facts stated this Response to Request for Additional Information Questions Dated December 14, 2020 and its attachments are true and correct to the best of my knowledge, information, and belief.

1/4/2021
Date

James McGowan, DHA
Vice President of
Perioperative/Procedural Services
University of Maryland Medical Center

I hereby declare and affirm under the penalties of perjury that the facts stated this Response to Request for Additional Information Questions Dated December 14, 2020 and its attachments are true and correct to the best of my knowledge, information, and belief.

1/4/2021
Date

Patrick Morris
Senior Manager, Finance Decision Support
University of Maryland Medical System

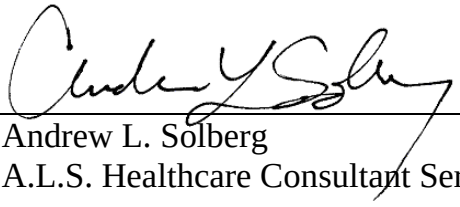
I hereby declare and affirm under the penalties of perjury that the facts stated this Response to Request for Additional Information Questions Dated December 14, 2020 and its attachments are true and correct to the best of my knowledge, information, and belief.

1-5-2021
Date

Janet Petit
Executive Director, Heart and Vascular Center
University of Maryland Medical Center

I hereby declare and affirm under the penalties of perjury that the facts stated this Response to Request for Additional Information Questions Dated December 14, 2020 and its attachments are true and correct to the best of my knowledge, information, and belief.

1/4/2021
Date



Andrew L. Solberg
A.L.S. Healthcare Consultant Services

I hereby declare and affirm under the penalties of perjury that the facts stated this Response to Request for Additional Information Questions Dated December 14, 2020 and its attachments are true and correct to the best of my knowledge, information, and belief.

01/07/2021

Date

Scott Tinsley-Hall
Director, Strategy and System Market Intelligence
University of Maryland Medical Center

I hereby declare and affirm under the penalties of perjury that the facts stated this Response to Request for Additional Information Questions Dated December 14, 2020 and its attachments are true and correct to the best of my knowledge, information, and belief.

1.4.2021
Date

Linda Whitmore, RA, MBA
Director for Project Development
University of Maryland Medical Center

EXHIBIT 19

Table Number	Table Title	Instructions
Table A	**Physical Bed Capacity Before and After Project**	All applicants whose project impacts any nursing unit, regardless of project type or scope, must complete Table A.
Table B	**Departmental Gross Square Feet**	All applicants, regardless of project type or scope, must complete Table B for all departments and functional areas affected by the proposed project.
Table C	**Construction Characteristics**	All applicants proposing new construction or renovation must complete Table C.
Table D	**Site and Offsite Costs Included and Excluded in Marshall Valuation Costs**	All applicants proposing new construction or renovation must complete Table D.
Table E	**Project Budget**	All applicants, regardless of project type or scope, must complete Table E.
Table F	**Statistical Projections - Entire Facility**	Existing facility applicants must complete Table F. All applicants who complete this table must also complete Tables G and H.
Table G	**Revenues & Expenses, Uninflated - Entire Facility**	Existing facility applicants must complete Table G. The projected revenues and expenses in Table G should be consistent with the volume projections in Table F.
Table H	**Revenues & Expenses, Inflated - Entire Facility**	Existing facility applicants must complete Table H. The projected revenues and expenses in H should be consistent with the projections in Tables F and G.
Table I	**Statistical Projections - New Facility or Service**	Applicants who propose to establish a new facility, existing facility applicants who propose a new service, and applicants who are directed by MHCC staff must complete Table I. All applicants who complete this table must also complete Tables J and K.
Table J	**Revenues & Expenses, Uninflated - New Facility or Service**	Applicants who propose to establish a new facility and existing facility applicants who propose a new service and any other applicant who completes a Table I must complete Table J. The projected revenues and expenses in Table J should be consistent with the volume projections in Table I.
Table K	**Revenues & Expenses, Inflated - New Facility or Service**	Applicants who propose to establish a new facility and existing facility applicants who propose a new service and any other applicant that completes a Table I must complete Table K. The projected revenues and expenses in Table K should be consistent with the projections in Tables I and J.
Table L	**Work Force Information**	All applicants, regardless of project type or scope, must complete Table L.

TABLE B. DEPARTMENTAL GROSS SQUARE FEET AFFECTED BY PROPOSED PROJECT

INSTRUCTION: Add or delete rows if necessary. See additional instruction in the column to the right of the table.

DEPARTMENT/FUNCTIONAL AREA	DEPARTMENTAL GROSS SQUARE FEET				
	Current	To be Added Thru New Construction	To Be Renovated	To Remain As Is	Total After Project Completion
North 7 OR suite	20,800	0	7,520	13,280	20,800
	20,800 s.f.				0
					0
					0
					0
					0
					0
					0
					0
					0
					0
					0
					0
					0
					0
					0
					0
Total					

TABLE C. CONSTRUCTION CHARACTERISTICS

INSTRUCTION : If project includes non-hospital space structures (e.g., parking garges, medical office buildings, or energy plants), complete an additional Table C for each structure.

	NEW CONSTRUCTION	RENOVATION
BASE BUILDING CHARACTERISTICS	**Check if applicable**	
Class of Construction (for renovations the class of the building being renovated)*		
Class A	☐	☑
Class B	☐	☐
Class C	☐	☐
Class D	☐	☐
Type of Construction/Renovation*		
Low	☐	☐
Average	☐	☐
Good	☐	☑
Excellent	☐	☐
Number of Stories		7

*As defined by Marshall Valuation Service

PROJECT SPACE	**List Number of Feet, if applicable**	
Total Square Footage	**Total Square Feet**	
Basement		
First Floor		
Second Floor		
Third Floor		
Seventh Floor		7,520
Average Square Feet		
Perimeter in Linear Feet	**Linear Feet**	
Basement		
First Floor		
Second Floor		
Third Floor		
Seventh Floor		560
Total Linear Feet		
Average Linear Feet		
Wall Height (floor to eaves)	**Feet**	
Basement		
First Floor		
Second Floor		
Third Floor		
Seventh Floor		12'
Average Wall Height		
OTHER COMPONENTS		
Elevators	**List Number**	
Passenger		
Freight		
Sprinklers	**Square Feet Covered**	
Wet System		
Dry System		
Other	**Describe Type**	
Type of HVAC System for proposed project		
Type of Exterior Walls for proposed project		

TABLE D. ONSITE AND OFFSITE COSTS INCLUDED AND EXCLUDED IN MARSHALL VALUATION COSTS

INSTRUCTION: If project includes non-hospital space structures (e.g., parking garges, medical office buildings, or energy plants), complete an additional Table D for each structure.

	NEW CONSTRUCTION COSTS	RENOVATION COSTS Phase 1	RENOVATION COSTS Phase 2	RENOVATION COSTS Total
SITE PREPARATION COSTS				
Normal Site Preparation	$0	$0	$0	$0
Utilities from Structure to Lot Line				
Subtotal included in Marshall Valuation Costs	**$0**	**$0**	**$0**	**$0**
Site Demolition Costs				
Storm Drains				
Rough Grading				
Paving				
Deep Foundation				
Yard Lighting				
Dewatering				
Sediment Control & Stabilization				
Premium for Constrained Site				
Underground utility work for Foundations / Total Shoring for excavation				
Premium for Prevailing Wage				
Premium for Minority Business Enterprise Requirement				
Subtotal On-Site excluded from Marshall Valuation Costs	**$0**	**$0**	**$0**	**$0**
OFFSITE COSTS				
Roads				
Utilities				
Jurisdictional Hook-up Fees				
Other *(Specify/add rows if needed)*				
Subtotal Off-Site excluded from Marshall Valuation Costs	**$0**	**$0**	**$0**	**$0**
TOTAL Estimated On-Site and Off-Site Costs not included in Marshall Valuation Costs	**$0**	**$0**	**$0**	**$0**
TOTAL Site and Off-Site Costs included and excluded from Marshall Valuation Service*	**$0**	**$0**	**$0**	**$0**
BUILDING COSTS				
Normal Building Costs	$0	$1,626,232	$1,970,610	$3,596,842
Subtotal included in Marshall Valuation Costs	$0	$1,626,232	$1,970,610	$3,596,842
Infection Prevention	$0	$94,548	$114,570	$209,119
Premium for Constrained Site	$0	$94,548	$114,570	$209,119
Premium for Minority Business Enterprise Requirement	$0	$75,639	$91,656	$167,295
Subtotal Building Costs excluded from Marshall Valuation Costs	**$0**	**$264,735**	**$320,797**	**$585,532**
TOTAL Building Costs included and excluded from Marshall Valuation Service*	**$0**	**$1,890,967**	**$2,291,407**	**$4,182,374**
A&E COSTS				
Normal A&E Costs	$0	$158,245	$191,755	$350,000
Subtotal included in Marshall Valuation Costs	**$0**	$158,245	$191,755	$350,000
Amount Spent on the 2012 Project that is not now Usable:				
Subtotal A&E Costs excluded from Marshall Valuation Costs	**$0**	**$0**	**$0**	**$0**
TOTAL A&E Costs included and excluded from Marshall Valuation Service*	**$0**	**$158,245**	**$191,755**	**$350,000**
PERMIT COSTS				
Normal Permit Costs	$0	$1,809	$2,191	$4,000
Subtotal included in Marshall Valuation Costs	**$0**	**$1,809**	**$2,191**	**$4,000**
Jurisdictional Hook-up Fees				
Impact Fees				
Amount Spent on the 2012 Project that is not now Usable				
Subtotal Permit Costs excluded from Marshall Valuation Costs	**$0**	**$0**	**$0**	**$0**
TOTAL Permit Costs included and excluded from Marshall Valuation Service*	**$0**	**$1,809**	**$2,191**	**$4,000**

TABLE E. PROJECT BUDGET

INSTRUCTION: Estimates for Capital Costs (1.a-e), Financing Costs and Other Cash Requirements (2.a-g), and Working Capital Startup Costs (3) must reflect current costs as of the date of application and include all costs for construction and renovation. Explain the basis for construction cost estimates, renovation cost estimates, contingencies, interest during construction period, and inflation in an attachment to the application. See additional instruction in the column to the right of the table.

NOTE: Inflation should only be included in the Inflation allowance line A.1.e. The value of donated land for the project should be included on Line A.1.a as a use of funds and on line B.8 as a source of funds

	Hospital Building	Other Structure	Total
A. USE OF FUNDS			
1. CAPITAL COSTS			
a. Land Purchase			**$0**
b. New Construction			
(1) Building			$0
(2) Fixed Equipment			$0
(3) Site and Infrastructure			$0
(4) Architect/Engineering Fees			$0
(5) Permits (Building, Utilities, Etc.)			$0
SUBTOTAL	**$0**	**$0**	**$0**
c. Renovations			
(1) Building	$4,182,374		$4,182,374
(2) Fixed Equipment (not included in construction)			$0
(3) Architect/Engineering Fees	$350,000		$350,000
(4) Permits (Building, Utilities, Etc.)	$4,000		$4,000
SUBTOTAL	**$4,536,374**	**$0**	**$4,536,374**
d. Other Capital Costs			
(1) Movable Equipment	$4,000,000		$4,000,000
(2) Contingency Allowance	$540,000		$540,000
(3) Gross interest during construction period			$0
(4) Other *(Specify/add rows if needed)*			$0
Owners cost (overhead and PM cost)	$220,000		$220,000
SUBTOTAL	***$4,760,000***		**$4,760,000**
TOTAL CURRENT CAPITAL COSTS	**$9,296,374**	**$0**	**$9,296,374**
e. Inflation Allowance	$223,626		$223,626
TOTAL CAPITAL COSTS	**$9,520,000**	**$0**	**$9,520,000**
2. Financing Cost and Other Cash Requirements			
a. Loan Placement Fees			$0
b. Bond Discount			$0
c. Legal Fees	**$35,000**		$35,000
d. Non-Legal Consultant Fees			$0
e. Liquidation of Existing Debt			$0
f. Debt Service Reserve Fund			$0
g. Other *(Specify/add rows if needed)*			$0
SUBTOTAL	***$35,000***		**$35,000**
3. Working Capital Startup Costs			$0
TOTAL USES OF FUNDS	***$9,555,000***	***$0***	***$9,555,000***
B. Sources of Funds			
1. Cash	**$6,555,000**		$6,555,000
2. Philanthropy (to date and expected)	$3,000,000		$3,000,000
3. Authorized Bonds			$0
4. Interest Income from bond proceeds listed in #3			$0
5. Mortgage			$0
6. Working Capital Loans			$0
7. Grants or Appropriations			
a. Federal			$0
b. State			$0
c. Local			$0
8. Other *(Specify/add rows if needed)*			$0
TOTAL SOURCES OF FUNDS	***$9,555,000***		**$9,555,000**
Annual Lease Costs (if applicable)			
1. Land			$0
2. Building			$0
3. Major Movable Equipment			$0
4. Minor Movable Equipment			$0
5. Other *(Specify/add rows if needed)*			$0

Describe the terms of the lease(s) below, including information on the fair market value of the item(s), and the number of years, annual cost, and the interest rate for the lease.

TABLE F. STATISTICAL PROJECTIONS - ENTIRE FACILITY

INSTRUCTION: Complete this table for the entire facility, including the proposed project. Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). For sections 4 & 5, the number of beds and occupancy percentage should be reported on the basis of licensed beds. In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are reasonable. See additional instruction in the column to the right of the table.

	Two Most Recent Years (Actual)		Current Year Projected	Projected Years (ending at least two years after project completion and full occupancy) Include additional years, if needed in order to be consistent with Tables G and H				
Indicate CY or FY	**FY19**	**FY20**	**FY21**	**FY22**	**FY23**	**FY24**	**FY25**	**FY26**
1. DISCHARGES								
a. General Medical/Surgical*	18,462	17,007	18,214	18,742	18,820	18,897	19,071	19,245
b. ICU/CCU	3,834	3,757	3,890	3,531	3,546	3,560	3,593	3,626
Total MSGA	**22,296**	**20,764**	**22,104**	**22,273**	**22,366**	**22,457**	**22,664**	**22,871**
c. Pediatric	2,153	2,397	2,533	2,227	2,236	2,245	2,266	2,286
d. Obstetric	2,116	2,253	2,382	2,646	2,658	2,668	2,693	2,717
e. Acute Psychiatric	1,197	813	1,141	1,435	1,441	1,447	1,460	1,474
Total Acute	***27,762***	***26,227***	***28,160***	***28,581***	***28,701***	***28,818***	***29,083***	***29,348***
f. Rehabilitation	0	0	0	0	0	0	0	0
g. Comprehensive Care	0	0	0	0	0	0	0	0
h. Other (Specify/add rows of needed)	0	0	0	0	0	0	0	0
TOTAL DISCHARGES	***27,762***	***26,227***	***28,160***	***28,581***	***28,701***	***28,818***	***29,083***	***29,348***
2. PATIENT DAYS								
a. General Medical/Surgical*	122,047	111,543	118,654	124,205	124,712	125,219	126,371	127,524
b. ICU/CCU	79,568	78,148	80,616	71,577	71,870	72,162	72,825	73,490
Total MSGA	**201,615**	**189,691**	**199,270**	**195,782**	**196,582**	**197,380**	**199,196**	**201,014**
c. Pediatric	5,621	5,047	5,516	5,492	5,514	5,536	5,587	5,638
d. Obstetric	7,937	8,383	8,961	6,138	6,163	6,188	6,245	6,302
e. Acute Psychiatric	13,404	9,564	12,197	13,179	13,233	13,287	13,409	13,531
Total Acute	***228,577***	***212,685***	***225,944***	***220,591***	***221,492***	***222,391***	***224,438***	***226,485***
f. Rehabilitation	0	0	0	0	0	0	0	0
g. Comprehensive Care	0	0	0	0	0	0	0	0
h. Other (Specify/add rows of needed)	0	0	0	0	0	0	0	0
TOTAL PATIENT DAYS	***228,577***	***212,685***	***225,944***	***220,591***	***221,492***	***222,391***	***224,438***	***226,485***
3. AVERAGE LENGTH OF STAY (patient days divided by discharges)								
a. General Medical/Surgical*	6.6	6.6	6.5	6.6	6.6	6.6	6.6	6.6
b. ICU/CCU	20.8	20.8	20.7	20.3	20.3	20.3	20.3	20.3
Total MSGA	9.0	9.1	9.0	8.8	8.8	8.8	8.8	8.8
c. Pediatric	2.6	2.1	2.2	2.5	2.5	2.5	2.5	2.5

TABLE F. STATISTICAL PROJECTIONS - ENTIRE FACILITY

INSTRUCTION: Complete this table for the entire facility, including the proposed project. Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). For sections 4 & 5, the number of beds and occupancy percentage should be reported on the basis of licensed beds. In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are reasonable. See additional instruction in the column to the right of the table.

	Two Most Recent Years (Actual)		Current Year Projected	Projected Years (ending at least two years after project completion and full occupancy) Include additional years, if needed in order to be consistent with Tables G and H				
Indicate CY or FY	**FY19**	**FY20**	**FY21**	**FY22**	**FY23**	**FY24**	**FY25**	**FY26**
d. Obstetric	3.8	3.7	3.8	2.3	2.3	2.3	2.3	2.3
e. Acute Psychiatric	11.2	11.8	10.7	9.2	9.2	9.2	9.2	9.2
Total Acute	8.2	8.1	8.0	7.7	7.7	7.7	7.7	7.7
f. Rehabilitation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE F. STATISTICAL PROJECTIONS - ENTIRE FACILITY

INSTRUCTION: Complete this table for the entire facility, including the proposed project. Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). For sections 4 & 5, the number of beds and occupancy percentage should be reported on the basis of licensed beds. In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are reasonable. See additional instruction in the column to the right of the table.

	Two Most Recent Years (Actual)		Current Year Projected	Projected Years (ending at least two years after project completion and full occupancy) Include additional years, if needed in order to be consistent with Tables C and H				
Indicate CY or FY	**FY19**	**FY20**	**FY21**	**FY22**	**FY23**	**FY24**	**FY25**	**FY26**
g. Comprehensive Care	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
h. Other (Specify/add rows of needed)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL AVERAGE LENGTH OF STAY	8.2	8.1	8.0	7.7	7.7	7.7	7.7	7.7
4. NUMBER OF LICENSED BEDS								
a. General Medical/Surgical*	409	409	409	409	409	409	409	409
b. ICU/CCU	230	230	230	230	230	230	230	230
Total MSGA	**639**	**639**	**639**	**639**	**639**	**639**	**639**	**639**
c. Pediatric	59	59	59	59	59	59	59	59
d. Obstetric	35	35	35	35	35	35	35	35
e. Acute Psychiatric	56	56	56	56	56	56	56	56
Total Acute	***789***	***789***	***789***	***789***	***789***	***789***	***789***	***789***
f. Rehabilitation	0	0	0	0	0	0	0	0
g. Comprehensive Care	0	0	0	0	0	0	0	0
h. Other (Specify/add rows of needed)	0	0	0	0	0	0	0	0
TOTAL LICENSED BEDS	***789***	***789***	***789***	***789***	***789***	***789***	***789***	***789***
5. OCCUPANCY PERCENTAGE **IMPORTANT NOTE:* *Leap year formulas should be changed by applicant to reflect 366 days per year.*								
a. General Medical/Surgical*	81.8%	74.7%	79.5%	83.2%	83.5%	83.9%	84.7%	85.4%
b. ICU/CCU	94.8%	93.1%	96.0%	85.3%	85.6%	86.0%	86.7%	87.5%
Total MSGA	**86.4%**	**81.3%**	**85.4%**	**83.9%**	**84.3%**	**84.6%**	**85.4%**	**86.2%**
c. Pediatric	26.1%	23.4%	25.6%	25.5%	25.6%	25.7%	25.9%	26.2%
d. Obstetric	62.1%	65.6%	70.1%	48.0%	48.2%	48.4%	48.9%	49.3%
e. Acute Psychiatric	65.6%	46.8%	59.7%	64.5%	64.7%	65.0%	65.6%	66.2%
Total Acute	**79.4%**	**73.9%**	**78.5%**	**76.6%**	**76.9%**	**77.2%**	**77.9%**	**78.6%**
f. Rehabilitation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

TABLE F. STATISTICAL PROJECTIONS - ENTIRE FACILITY

INSTRUCTION: Complete this table for the entire facility, including the proposed project. Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). For sections 4 & 5, the number of beds and occupancy percentage should be reported on the basis of licensed beds. In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are reasonable. See additional instruction in the column to the right of the table.

	Two Most Recent Years (Actual)		Current Year Projected	Projected Years (ending at least two years after project completion and full occupancy) Include additional years, if needed in order to be consistent with Tables G and H				
Indicate CY or FY	**FY19**	**FY20**	**FY21**	**FY22**	**FY23**	**FY24**	**FY25**	**FY26**
g. Comprehensive Care	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
h. Other (Specify/add rows of needed)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL OCCUPANCY %	**79.4%**	**73.9%**	**78.5%**	**76.6%**	**76.9%**	**77.2%**	**77.9%**	**78.6%**

TABLE F. STATISTICAL PROJECTIONS - ENTIRE FACILITY

INSTRUCTION: Complete this table for the entire facility, including the proposed project. Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). For sections 4 & 5, the number of beds and occupancy percentage should be reported on the basis of licensed beds. In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are reasonable. See additional instruction in the column to the right of the table.

	Two Most Recent Years (Actual)		Current Year Projected	Projected Years (ending at least two years after project completion and full occupancy) Include additional years, if needed in order to be consistent with Tables G and H				
Indicate CY or FY	**FY19**	**FY20**	**FY21**	**FY22**	**FY23**	**FY24**	**FY25**	**FY26**
6. OUTPATIENT VISITS								
a. Emergency Department	68,301	58,215	51,620	69,641	69,915	70,211	70,864	71,521
b. Same-day Surgery	18,389	14,937	17,568	11,778	11,825	11,875	11,985	12,096
c. Laboratory	0	0	0	0	0	0	0	0
d. Imaging	0	0	0	0	0	0	0	0
e. Other (Specify/add rows of needed)	249,455	210,930	254,420	245,988	246,955	248,000	250,306	252,629
TOTAL OUTPATIENT VISITS	***336,145***	***284,082***	***323,608***	***327,407***	***328,695***	***330,086***	***333,155***	***336,246***
7. OBSERVATIONS**								
a. Number of Patients								
b. Hours								

* Include beds dedicated to gynecology and addictions, if separate for acute psychiatric unit.

** Services included in the reporting of the "Observation Center", direct expenses incurred in providing bedside care to observation patients; furnished by the hospital on the hospital's premises, including use of a bed and periodic monitoring by the hospital's nursing or other staff, in order to determine the need for a possible admission to the hospitals as an inpatient. Such services must be ordered and documented in writing, given by a medical practitioner; may or may not be provided in a distinct area of the hospital.

TABLE G. REVENUES & EXPENSES, UNINFLATED - ENTIRE FACILITY

INSTRUCTION: Complete this table for the entire facility, including the proposed project. Table G should reflect current dollars (no inflation). Projected revenues and expenses should be consistent with the projections in Table F and with the costs of Manpower listed in Table L. Manpower. Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are reasonable. Specify the sources of non-operating income. See additional instruction in the column to the right of the table.

	Two Most Recent Years (Actual)		Current Year Projected	Projected Years (ending at least two years after project completion and full occupancy) Add columns if needed in order to document that the hospital will generate excess revenues over total expenses consistent with the Financial Feasibility standard				
Indicate CY or FY	**FY19**	**FY20**	**FY21**	**FY22**	**FY23**	**FY24**	**FY25**	**FY26**
1. REVENUE								
a. Inpatient Services	1,195,693	1,257,425	1,382,702	1,325,996	1,331,963	1,337,957	1,343,978	1,350,026
b. Outpatient Services	616,071	599,167	610,872	666,261	669,662	673,087	676,535	678,914
Gross Patient Service Revenues	***$ 1,811,764***	***$ 1,856,592***	***$ 1,993,575***	***$ 1,992,258***	***$ 2,001,625***	***$ 2,011,044***	***$ 2,020,512***	***$ 2,028,940***
c. Allowance For Bad Debt	58,669	62,129	66,501	68,055	68,375	68,697	69,021	69,308
d. Contractual Allowance	23,112	24,475	26,197	26,810	26,936	27,062	27,190	27,303
e. Charity Care	173,673	183,911	196,852	201,457	202,405	203,357	204,315	205,167
Net Patient Services Revenue	***$ 1,556,310***	***$ 1,586,078***	***$ 1,704,026***	***$ 1,695,935***	***$ 1,703,910***	***$ 1,711,927***	***$ 1,719,987***	***$ 1,727,161***
f. Other Operating Revenues (Specify/add rows if needed)	117,238	198,740	151,191	137,877	137,877	137,877	137,877	137,877
NET OPERATING REVENUE	***$ 1,673,548***	***$ 1,784,818***	***$ 1,855,217***	***$ 1,833,812***	***$ 1,841,786***	***$ 1,849,804***	***$ 1,857,864***	***$ 1,865,038***
2. EXPENSES								
a. Salaries & Wages (including benefits)	631,042	649,408	685,610	665,487	669,314	683,795	686,529	689,286
b. Contractual Services	301,782	345,234	354,779	337,927	339,227	340,529	341,834	342,141
c. Interest on Current Debt	26,304	19,891	24,738	27,408	26,593	25,295	26,225	25,338
d. Interest on Project Debt	-	-	-	-	-	2,217	2,170	2,071
e. Current Depreciation	100,427	97,464	97,643	102,525	101,941	100,003	105,570	107,134
f. Project Depreciation	-	-	-	-	-	6,167	6,167	6,167
g. Current Amortization	-	-	-	-	-	-	-	-
h. Project Amortization	-	-	-	-	-	296	296	296
i. Supplies	420,982	403,198	422,305	441,586	443,294	448,071	451,967	455,862
j. Other Expenses (Specify/add rows if needed)	-	-	-	-	-	-	-	-
Professional Fees	131,562	142,454	155,845	152,870	152,870	152,870	152,870	152,870
Other Expense	27,297	34,530	32,324	47,706	47,706	47,706	47,706	47,706
TOTAL OPERATING EXPENSES	**$ 1,639,396**	**$ 1,692,179**	**$ 1,773,244**	**$ 1,775,509**	**$ 1,780,946**	**$ 1,806,948**	**$ 1,821,334**	**$ 1,828,871**
$								**1,459**

TABLE G. REVENUES & EXPENSES, UNINFLATED - ENTIRE FACILITY

INSTRUCTION: Complete this table for the entire facility, including the proposed project. Table G should reflect current dollars (no inflation). Projected revenues and expenses should be consistent with the projections in Table F and with the costs of Manpower listed in Table L. Manpower. Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are reasonable. Specify the sources of non-operating income. See additional instruction in the column to the right of the table.

	Two Most Recent Years (Actual)		Current Year Projected	Projected Years (ending at least two years after project completion and full occupancy) Add columns if needed in order to document that the hospital will generate excess revenues over total expenses consistent with the Financial Feasibility standard				
Indicate CY or FY	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26
a. Income From Operation	$ 34,152	$ 92,639	$ 81,973	$ 58,302	$ 60,841	$ 42,856	$ 36,530	$ 36,168

TABLE G. REVENUES & EXPENSES, UNINFLATED - ENTIRE FACILITY

INSTRUCTION: Complete this table for the entire facility, including the proposed project. Table G should reflect current dollars (no inflation). Projected revenues and expenses should be consistent with the projections in Table F and with the costs of Manpower listed in Table L. Manpower. Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are reasonable. Specify the sources of non-operating income. See additional instruction in the column to the right of the table.

	Two Most Recent Years (Actual)		Current Year Projected	Projected Years (ending at least two years after project completion and full occupancy) Add columns if needed in order to document that the hospital will generate excess revenues over total expenses consistent with the Financial Feasibility standard				
Indicate CY or FY	**FY19**	**FY20**	**FY21**	**FY22**	**FY23**	**FY24**	**FY25**	**FY26**
b. Non-Operating Income	9,492	(6,072)	10,157	13,672	13,961	14,339	14,672	14,920
SUBTOTAL	***$ 43,644***	***$ 86,567***	***$ 92,131***	***$ 71,974***	***$ 74,802***	***$ 57,195***	***$ 51,202***	***$ 51,088***
c. Income Taxes								
NET INCOME (LOSS)	***$ 43,644***	***$ 86,567***	***$ 92,131***	***$ 71,974***	***$ 74,802***	***$ 57,195***	***$ 51,202***	***$ 51,088***
4. PATIENT MIX								
a. Percent of Total Revenue								
1) Medicare	32.7%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%
2) Medicaid	30.8%	30.6%	30.6%	30.6%	30.6%	30.6%	30.6%	30.6%
3) Blue Cross	10.8%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%
4) Commercial Insurance	18.7%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
5) Self-pay	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
6) Other	5.0%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%
TOTAL	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***
b. Percent of Equivalent Inpatient Days								
1) Medicare								
2) Medicaid								
3) Blue Cross								
4) Commercial Insurance								
5) Self-pay								
6) Other								
TOTAL	***0.0%***	***0.0%***	***0.0%***	***0.0%***	***0.0%***	***0.0%***	***0.0%***	***0.0%***

TABLE H. REVENUES & EXPENSES, INFLATED - ENTIRE FACILITY

INSTRUCTION: Complete this table for the entire facility, including the proposed project. Table H should reflect inflation. Projected revenues and expenses should be consistent with the projections in Table F. Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are reasonable. See additional instruction in the column to the right of the table.

	Two Most Recent Years (Actual)		Current Year Projected	Projected Years (ending at least two years after project completion and full occupancy) Add columns if needed in order to document that the hospital will generate excess revenues over total expenses consistent with the Financial Feasibility standard.				
Indicate CY or FY	**FY19**	**FY20**	**FY21**	**FY22**	**FY23**	**FY24**	**FY25**	**FY26**
1. REVENUE								
a. Inpatient Services	1,195,693	1,257,425	1,382,702	1,363,618	1,408,617	1,455,102	1,503,120	1,552,723
b. Outpatient Services	616,071	599,167	610,872	684,427	706,676	729,651	753,378	776,789
Gross Patient Service Revenues	***$ 1,811,764***	***$ 1,856,592***	***$ 1,993,575***	***$ 2,048,045***	***$ 2,115,293***	***$ 2,184,753***	***$ 2,256,498***	***$ 2,329,512***
c. Allowance For Bad Debt	58,669	62,129	66,501	69,961	72,258	74,631	77,082	79,576
d. Contractual Allowance	23,112	24,475	26,197	27,560	28,465	29,400	30,366	31,348
e. Charity Care	173,673	183,911	196,852	207,099	213,899	220,923	228,177	235,561
Net Patient Services Revenue	***$ 1,556,310***	***$ 1,586,078***	***$ 1,704,026***	***$ 1,743,425***	***$ 1,800,671***	***$ 1,859,799***	***$ 1,920,874***	***$ 1,983,027***
f. Other Operating Revenues (Specify/add rows if needed)	117,238	198,740	151,191	140,571	143,318	146,121	148,980	151,896
NET OPERATING REVENUE	***$ 1,673,548***	***$ 1,784,818***	***$ 1,855,217***	***$ 1,883,996***	***$ 1,943,989***	***$ 2,005,921***	***$ 2,069,854***	***$ 2,134,924***
2. EXPENSES								
a. Salaries & Wages (including benefits)	631,042	649,408	685,610	682,911	708,631	741,838	768,353	793,632
b. Contractual Services	301,782	345,234	354,779	339,910	350,806	353,919	364,985	371,009
c. Interest on Current Debt	26,304	19,891	24,738	27,408	26,593	25,295	26,226	25,338
d. Interest on Project Debt	-	-	-	-	-	2,217	2,170	2,071
e. Current Depreciation	100,427	97,464	97,643	102,525	101,941	100,003	105,571	107,134
f. Project Depreciation	-	-	-	-	-	6,167	6,167	6,167
g. Current Amortization	-	-	-	-	-	-	-	-
h. Project Amortization	-	-	-	-	-	296	296	296
i. Supplies	420,982	403,198	422,305	456,907	474,699	496,360	517,980	540,482
j. Other Expenses (Specify/add rows if needed)	-	-	-	-	-	-	-	-
Professional Fees	131,562	142,454	155,845	156,288	159,789	163,376	167,051	170,815
Other Expense	27,297	34,530	32,324	48,385	49,077	49,783	50,503	51,237
TOTAL OPERATING EXPENSES	**$ 1,639,396**	**$ 1,692,179**	**$ 1,773,244**	**$ 1,814,334**	**$ 1,871,536**	**$ 1,939,251**	**$ 2,009,301**	**$ 2,068,181**
3. INCOME								

TABLE H. REVENUES & EXPENSES, INFLATED - ENTIRE FACILITY

INSTRUCTION: Complete this table for the entire facility, including the proposed project. Table H should reflect inflation. Projected revenues and expenses should be consistent with the projections in Table F. Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are reasonable. See additional instruction in the column to the right of the table.

	Two Most Recent Years (Actual)		Current Year Projected	Projected Years (ending at least two years after project completion and full occupancy) Add columns if needed in order to document that the hospital will generate excess revenues over total expenses consistent with the Financial Feasibility standard.				
Indicate CY or FY	**FY19**	**FY20**	**FY21**	**FY22**	**FY23**	**FY24**	**FY25**	**FY26**
a. Income From Operation	**$ 34,152**	**$ 92,639**	**$ 81,973**	**$ 69,662**	**$ 72,453**	**$ 66,670**	**$ 60,553**	**$ 66,743**
b. Non-Operating Income	9,492	(6,072)	10,157	14,671	15,331	16,106	16,895	17,620
SUBTOTAL	***$ 43,644***	***$ 86,567***	***$ 92,131***	***$ 84,333***	***$ 87,784***	***$ 82,776***	***$ 77,448***	***$ 84,363***

TABLE H. REVENUES & EXPENSES, INFLATED - ENTIRE FACILITY

INSTRUCTION: Complete this table for the entire facility, including the proposed project. Table H should reflect inflation. Projected revenues and expenses should be consistent with the projections in Table F. Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are reasonable. See additional instruction in the column to the right of the table.

	Two Most Recent Years (Actual)		Current Year Projected	Projected Years (ending at least two years after project completion and full occupancy) Add columns if needed in order to document that the hospital will generate excess revenues over total expenses consistent with the Financial Feasibility standard.				
Indicate CY or FY	**FY19**	**FY20**	**FY21**	**FY22**	**FY23**	**FY24**	**FY25**	**FY26**
c. Income Taxes								
NET INCOME (LOSS)	***$ 43,644***	***$ 86,567***	***$ 92,131***	***$ 84,333***	***$ 87,784***	***$ 82,776***	***$ 77,448***	***$ 84,363***
4. PATIENT MIX								
a. Percent of Total Revenue								
1) Medicare	32.7%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%
2) Medicaid	30.8%	30.6%	30.6%	30.6%	30.6%	30.6%	30.6%	30.6%
3) Blue Cross	10.8%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%
4) Commercial Insurance	18.7%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
5) Self-pay	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
6) Other	5.0%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%
TOTAL	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***
b. Percent of Equivalent Inpatient Days								
Total MSGA								
1) Medicare	27.7%	27.7%	27.7%	27.7%	27.7%	27.7%	27.7%	27.7%
2) Medicaid	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%
3) Blue Cross	13.6%	13.6%	13.6%	13.6%	13.6%	13.6%	13.6%	13.6%
4) Commercial Insurance	11.4%	11.4%	11.4%	11.4%	11.4%	11.4%	11.4%	11.4%
5) Self-pay	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%
6) Other	3%	3%	3%	3%	3%	3%	3%	3%
TOTAL	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***

TABLE I. STATISTICAL PROJECTIONS - NEW FACILITY OR SERVICE

INSTRUCTION: After consulting with Commission Staff, complete this table for the new facility or service (the proposed project). Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). For sections 4 & 5, the number of beds and occupancy percentage should be reported on the basis of licensed beds. In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are reasonable. See additional instruction in the column to the right of the table.

	Projected Years (ending at least two years after project completion and full occupancy) Include additional years, if needed in order to be consistent with Tables L and K					
Indicate CY or FY	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
1. DISCHARGES						
a. General Medical/Surgical (PEDs Cardiac	280	281	282	283	285	285
a. General Medical/Surgical (PEDs Cardiac	56	56	56	57	57	57
b. ICU/CCU						
Total MSGA	**336**	**337**	**339**	**340**	**341**	**341**
c. Pediatric						
d. Obstetric						
e. Acute Psychiatric						
Total Acute	***336***	***337***	***339***	***340***	***341***	***341***
f. Rehabilitation						
g. Comprehensive Care						
h. Other (Specify/add rows of needed)						
TOTAL DISCHARGES	***336***	***337***	***339***	***340***	***341***	***341***
2. PATIENT DAYS						
a. General Medical/Surgical* (Cardiac Surge	1,960	1,967	1,977	1,984	1,992	1,992
a. General Medical/Surgical* (Cardiac Cath)	448	448	450	453	453	453
b. ICU/CCU						
Total MSGA	**2,408**	**2,415**	**2,427**	**2,437**	**2,445**	**2,445**
c. Pediatric						
d. Obstetric						
e. Acute Psychiatric						
Total Acute	***2,408***	***2,415***	***2,427***	***2,437***	***2,445***	***2,445***
f. Rehabilitation						
g. Comprehensive Care						
h. Other (Specify/add rows of needed)						
TOTAL PATIENT DAYS	***2,408***	***2,415***	***2,427***	***2,437***	***2,445***	***2,445***

TABLE I. STATISTICAL PROJECTIONS - NEW FACILITY OR SERVICE

INSTRUCTION: After consulting with Commission Staff, complete this table for the new facility or service (the proposed project). Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). For sections 4 & 5, the number of beds and occupancy percentage should be reported on the basis of licensed beds. In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are reasonable. See additional instruction in the column to the right of the table.

	Projected Years (ending at least two years after project completion and full occupancy) Include additional years, if needed in order to be consistent with Tables L and K					
Indicate CY or FY	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
3. AVERAGE LENGTH OF STAY						
a. General Medical/Surgical* (Cardiac Surge	7.0	7.0	7.0	7.0	7.0	7.0
a. General Medical/Surgical* (Cardiac Cath)	8.0	8.0	8.0	8.0	8.0	8.0
b. ICU/CCU	0.0	0.0	0.0	0.0	0.0	0.0
Total MSGA	7.2	7.2	7.2	7.2	7.2	7.2
c. Pediatric	0.0	0.0	0.0	0.0	0.0	0.0
d. Obstetric	0.0	0.0	0.0	0.0	0.0	0.0
e. Acute Psychiatric	0.0	0.0	0.0	0.0	0.0	0.0
Total Acute	7.2	7.2	7.2	7.2	7.2	7.2
f. Rehabilitation	0.0	0.0	0.0	0.0	0.0	0.0
g. Comprehensive Care	0.0	0.0	0.0	0.0	0.0	0.0
h. Other (Specify/add rows of needed)	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL AVERAGE LENGTH OF STAY	7.2	7.2	7.2	7.2	7.2	7.2

TABLE I. STATISTICAL PROJECTIONS - NEW FACILITY OR SERVICE

INSTRUCTION: After consulting with Commission Staff, complete this table for the new facility or service (the proposed project). Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). For sections 4 & 5, the number of beds and occupancy percentage should be reported on the basis of licensed beds. In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are reasonable. See additional instruction in the column to the right of the table.

	Projected Years (ending at least two years after project completion and full occupancy) Include additional years, if needed in order to be consistent with Tables L and K					
Indicate CY or FY	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
4. NUMBER OF LICENSED BEDS						
a. General Medical/Surgical*						
b. ICU/CCU						
Total MSGA	**0**	**0**	**0**	**0**	**0**	**0**
c. Pediatric						
d. Obstetric						
e. Acute Psychiatric						
Total Acute	***0***	***0***	***0***	***0***	***0***	***0***
f. Rehabilitation						
g. Comprehensive Care						
h. Other (Specify/add rows of needed)						
TOTAL LICENSED BEDS						
5. OCCUPANCY PERCENTAGE ***IMPORTANT NOTE:*** *Leap year formulas should be changed by applicant to reflect 366 days per*						
a. General Medical/Surgical*	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
b. ICU/CCU	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Total MSGA	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
c. Pediatric	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
d. Obstetric	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
e. Acute Psychiatric	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Total Acute	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**

TABLE I. STATISTICAL PROJECTIONS - NEW FACILITY OR SERVICE

INSTRUCTION: After consulting with Commission Staff, complete this table for the new facility or service (the proposed project). Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). For sections 4 & 5, the number of beds and occupancy percentage should be reported on the basis of licensed beds. In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are reasonable. See additional instruction in the column to the right of the table.

	Projected Years (ending at least two years after project completion and full occupancy) Include additional years, if needed in order to be consistent with Tables L and K					
Indicate CY or FY	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
f. Rehabilitation	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
g. Comprehensive Care	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
h. Other (Specify/add rows of needed)	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
TOTAL OCCUPANCY %	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**

TABLE I. STATISTICAL PROJECTIONS - NEW FACILITY OR SERVICE

INSTRUCTION: After consulting with Commission Staff, complete this table for the new facility or service (the proposed project). Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). For sections 4 & 5, the number of beds and occupancy percentage should be reported on the basis of licensed beds. In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are reasonable. See additional instruction in the column to the right of the table.

	Projected Years (ending at least two years after project completion and full occupancy) Include additional years, if needed in order to be consistent with Tables L and K					
Indicate CY or FY	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
6. OUTPATIENT VISITS						
a. Emergency Department						
b. Same-day Surgery						
c. Laboratory						
d. Imaging						
e. Other (Specify/add rows of needed)	113	114	114	114	114	114
TOTAL OUTPATIENT VISITS	***113***	***114***	***114***	***114***	***114***	***114***
7. OBSERVATIONS**						
a. Number of Patients						
b. Hours						

*Include beds dedicated to gynecology and addictions, if separate for acute psychiatric unit.

** Services included in the reporting of the “Observation Center”, direct expenses incurred in providing bedside care to observation patients; furnished by the hospital on the hospital’s premises, including use of a bed and periodic monitoring by the hospital’s nursing or other staff, in order to determine the need for a possible admission to the hospitals as an inpatient. Such services must be ordered and documented in writing, given by a medical practitioner; may or may not be provided in a distinct area of the hospital.

TABLE J. REVENUES & EXPENSES, UNINFLATED - NEW FACILITY OR SERVICE

INSTRUCTION: After consulting with Commission Staff, complete this table for the new facility or service (the proposed project). Table J should reflect current dollars (no inflation). Projected revenues and expenses should be consistent with the projections in Table I and with the costs of Manpower listed in Table L. Manpower. Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are

	Projected Years (ending at least two years after project completion and full occupancy) Add years, if needed in order to document that the hospital will generate excess revenues over total expenses consistent with the			
Indicate CY or FY	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
1. REVENUE				
a. Inpatient Services				
b. Outpatient Services				
Gross Patient Service Revenues	***$ -***	***$ -***	***$ -***	***$ -***
c. Allowance For Bad Debt				
d. Contractual Allowance				
e. Charity Care				
Net Patient Services Revenue	***$ -***	***$ -***	***$ -***	***$ -***
f. Other Operating Revenues (Specify)				
NET OPERATING REVENUE	***$ -***	***$ -***	***$ -***	***$ -***
2. EXPENSES				
a. Salaries & Wages (including benefits)	$ 1,459	$ 1,459	$ 1,459	$ 1,459
b. Contractual Services				
c. Interest on Current Debt				
d. Interest on Project Debt				
e. Current Depreciation				
f. Project Depreciation				
g. Current Amortization				
h. Project Amortization				
i. Supplies				
j. Other Expenses (Specify)				
TOTAL OPERATING EXPENSES	**$ 1,459**	**$ 1,459**	**$ 1,459**	**$ 1,459**

TABLE J. REVENUES & EXPENSES, UNINFLATED - NEW FACILITY OR SERVICE

INSTRUCTION: After consulting with Commission Staff, complete this table for the new facility or service (the proposed project). Table J should reflect current dollars (no inflation). Projected revenues and expenses should be consistent with the projections in Table I and with the costs of Manpower listed in Table L. Manpower. Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are

	Projected Years (ending at least two years after project completion and full occupancy) Add years, if needed in order to document that the hospital will generate excess revenues over total expenses consistent with the			
Indicate CY or FY	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
3. INCOME				
a. Income From Operation	**$ (1,458.79)**	**$ (1,458.79)**	**$ (1,458.79)**	**$ (1,458.79)**
b. Non-Operating Income				
SUBTOTAL	***$ (1,458.79)***	***$ (1,458.79)***	***$ (1,458.79)***	***$ (1,458.79)***
c. Income Taxes				
NET INCOME (LOSS)	***$ (1,458.79)***	***$ (1,458.79)***	***$ (1,458.79)***	***$ (1,458.79)***
4. PATIENT MIX				
a. Percent of Total Revenue				
1) Medicare	1.8%	1.8%	1.8%	1.8%
2) Medicaid	53.1%	53.1%	53.1%	53.1%
3) Blue Cross	17.8%	17.8%	17.8%	17.8%
4) Commercial Insurance	17.8%	17.8%	17.8%	17.8%
5) Self-pay	0.0%	0.0%	0.0%	0.0%
6) Other	9.4%	9.4%	9.4%	9.4%
TOTAL	***100.0%***	***100.0%***	***100.0%***	***100.0%***

TABLE J. REVENUES & EXPENSES, UNINFLATED - NEW FACILITY OR SERVICE

INSTRUCTION: After consulting with Commission Staff, complete this table for the new facility or service (the proposed project). Table J should reflect current dollars (no inflation). Projected revenues and expenses should be consistent with the projections in Table I and with the costs of Manpower listed in Table L. Manpower. Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the assumptions are

	Projected Years (ending at least two years after project completion and full occupancy) Add years, if needed in order to document that the hospital will generate excess revenues over total expenses consistent with the			
Indicate CY or FY	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
b. Percent of Equivalent Inpatient Days				
Total MSGA				
1) Medicare				
2) Medicaid				
3) Blue Cross				
4) Commercial Insurance				
5) Self-pay				
6) Other				
TOTAL	***0.0%***	***0.0%***	***0.0%***	***0.0%***

TABLE K. REVENUES & EXPENSES, INFLATED - NEW FACILITY OR SERVICE

INSTRUCTION: After consulting with Commission Staff, complete this table for the new facility or service (the proposed project). Table K should reflect inflation. Projected revenues and expenses should be consistent with the projections in Table I. Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the

	Projected Years (ending at least two years after project completion and full occupancy) Add years, if needed in order to document that the hospital will generate excess revenues over total expenses consistent with the			
Indicate CY or FY	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
1. REVENUE				
a. Inpatient Services				
b. Outpatient Services				
Gross Patient Service Revenues	***$ -***	***$ -***	***$ -***	***$ -***
c. Allowance For Bad Debt				
d. Contractual Allowance				
e. Charity Care				
Net Patient Services Revenue	***$ -***	***$ -***	***$ -***	***$ -***
f. Other Operating Revenues (Specify/add rows of needed)				
NET OPERATING REVENUE	***$ -***	***$ -***	***$ -***	***$ -***
2. EXPENSES				
a. Salaries & Wages (including benefits)	$ 1,459	$ 1,495	$ 1,533	$ 1,571
b. Contractual Services				
c. Interest on Current Debt				
d. Interest on Project Debt				
e. Current Depreciation				
f. Project Depreciation				
g. Current Amortization				
h. Project Amortization				
i. Supplies				
j. Other Expenses (Specify/add rows of needed)				
TOTAL OPERATING EXPENSES	**$ 1,459**	**$ 1,495**	**$ 1,533**	**$ 1,571**

TABLE K. REVENUES & EXPENSES, INFLATED - NEW FACILITY OR SERVICE

INSTRUCTION: After consulting with Commission Staff, complete this table for the new facility or service (the proposed project). Table K should reflect inflation. Projected revenues and expenses should be consistent with the projections in Table I. Indicate on the table if the reporting period is Calendar Year (CY) or Fiscal Year (FY). In an attachment to the application, provide an explanation or basis for the projections and specify all assumptions used. Applicants must explain why the

	Projected Years (ending at least two years after project completion and full occupancy) Add years, if needed in order to document that the hospital will generate excess revenues over total expenses consistent with the			
Indicate CY or FY	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
3. INCOME				
a. Income From Operation	**$ (1,459)**	**$ (1,495)**	**$ (1,533)**	**$ (1,571)**
b. Non-Operating Income				
SUBTOTAL	***$ (1,459)***	***$ (1,495)***	***$ (1,533)***	***$ (1,571)***
c. Income Taxes				
NET INCOME (LOSS)	***$ (1,459)***	***$ (1,495)***	***$ (1,533)***	***$ (1,571)***
4. PATIENT MIX				
a. Percent of Total Revenue				
1) Medicare	1.8%	1.8%	1.8%	1.8%
2) Medicaid	53.1%	53.1%	53.1%	53.1%
3) Blue Cross	17.8%	17.8%	17.8%	17.8%
4) Commercial Insurance	17.8%	17.8%	17.8%	17.8%
5) Self-pay	0.0%	0.0%	0.0%	0.0%
6) Other	9.4%	9.4%	9.4%	9.4%
TOTAL	***100.0%***	***100.0%***	***100.0%***	***100.0%***
b. Percent of Equivalent Inpatient Days				
1) Medicare				
2) Medicaid				
3) Blue Cross				
4) Commercial Insurance				
5) Self-pay				
6) Other				
TOTAL	***0.0%***	***0.0%***	***0.0%***	***0.0%***

TABLE L. WORK fORCE INFORMATION

INSTRUCTION: List the facility's existing staffing and changes required by this project. Include all major job categories under each heading provided in the table. The number of Full Time Equivalents (FTEs) should be calculated on the basis of 2,080 paid hours per year equals one FTE. In an attachment to the application, explain any factor used in converting paid hours to worked hours. Please ensure that the projections in this table are consistent with expenses provided in uninflated projections in Tables G and J. See additional instruction in the column to the right of the table.

	CURRENT ENTIRE FACILITY			PROJECTED CHANGES AS A RESULT OF THE PROPOSED PROJECT THROUGH THE LAST YEAR OF PROJECTION (CURRENT			OTHER EXPECTED CHANGES IN OPERATIONS THROUGH THE LAST YEAR OF PROJECTION			PROJECTED ENTIRE FACILITY THROUGH THE LAST YEAR OF PROJECTION (CURRENT	
Job Category	**Current Year FTEs**	**Average Salary per FTE**	**Current Year Total Cost**	**FTEs**	**Average Salary per FTE**	**Total Cost** *(should be consistent with projections in Table J)*	**FTEs**	**Average Salary per FTE**	**Total Cost**	**FTEs**	**Total Cost** *(should be consistent with projections in Table G)*
1. Regular Employees											
Administration *(List general categories, add rows if needed)*											
Operating Room RNs			$0	3.5	84,953.1	$297,336			$0	3.5	$297,336
Operating Room Surgical Technicians				1.5	56,274.4	$84,412					
First Assist/PA				2.0	134,316.0	$268,632					
Perfusionist				1.5	152,540.3	$228,810					
Anesthesia Technician				1.5	44,189.6	$66,284					
Surgical Support Tech				1.5	57,560.5	$86,341					
Cardiac Cath RNs				2.0	93,997.8	$187,996					
RCIS				2.5	95,592.6	$238,982					
			$0			$0			$0	0.0	$0
			$0			$0			$0	0.0	$0
			$0			$0			$0	0.0	$0
Total Administration			$0	16.0		$1,458,792			$0	16.0	$1,458,792
Direct Care Staff *(List general categories, add rows if needed)*											
			$0			$0			$0	0.0	$0
			$0			$0			$0	0.0	$0
			$0			$0			$0	0.0	$0
			$0			$0			$0	0.0	$0
Total Direct Care			$0			$0			$0	0.0	$0
Support Staff *(List general categories, add rows if needed)*											
			$0			$0			$0	0.0	$0
			$0			$0			$0	0.0	$0
			$0			$0			$0	0.0	$0
			$0			$0			$0	0.0	$0
Total Support			$0			$0			$0	0.0	$0
REGULAR EMPLOYEES TOTAL			$0			$0			$0	0.0	$0
2. Contractual Employees											

TABLE L. WORK fORCE INFORMATION

Administration *(List general categories, add rows if needed)*											
			$0			$0			$0	0.0	$0
			$0			$0			$0	0.0	$0
			$0			$0			$0	0.0	$0
			$0			$0			$0	0.0	$0
Total Administration			$0			$0			$0	0.0	$0
Direct Care Staff *(List general categories, add rows if needed)*											
Operating Room RNs			$0			$0			$0	0.0	$0
Operating Room Surgical Technicians						$0				0.0	$0
First Assist/PA						$0				0.0	$0
Perfusionist						$0				0.0	$0
Anesthesia Technician						$0				0.0	$0
Surgical Support Tech						$0				0.0	$0
Cardiac Cath RNs						$0				0.0	$0
RCIS						$0				0.0	$0
Total Direct Care Staff			$0	0.0		$0			$0	0.0	$0
Support Staff *(List general categories, add rows if needed)*											
			$0			$0			$0	0.0	$0
			$0			$0			$0	0.0	$0
			$0			$0			$0	0.0	$0
			$0			$0			$0	0.0	$0
Total Support Staff			$0			$0			$0	0.0	$0
CONTRACTUAL EMPLOYEES TOTAL			$0			$0			$0	0.0	$0
Benefits *(State method of calculating benefits belo*											
TOTAL COST	***0.0***		***$0***	***0.0***		***$0***	***0.0***		***$0***		***$0***

UNIVERSITY of MARYLAND MEDICAL SYSTEM

University of Maryland Medical Center

CON Planning Assumptions

	Seven Year Projection						
	2020	2021	2022	2023	2024	2025	2026
Assumptions to Revenue:							
Revenue Changes							
+ / - : HSCRC Inflation	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
+ / - : Demographics	0.69%	0.67%	0.40%	0.40%	0.40%	0.92%	0.92%
+ / - : Market Shift	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
+ / - : Quality	0.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
+ / - : Other	1.01%	0.42%	0.68%	0.67%	0.67%	0.15%	0.15%
Total Revenue Change	3.95%	3.09%	3.08%	3.07%	3.07%	3.07%	3.07%
CONTRACTUAL ALLOWANCES, UNCOMPENSATED CARE & BAD DEBT EXPENSE	14.4%	14.4%	14.4%	14.4%	14.4%	14.4%	14.4%
Summary Assumptions to Expense:							
The weighted average inflation factor for operating expense =	2.8%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
The weighted average variable cost factor =	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%
Detailed Assumptions to Operating Expenses:							
FTEs, SALARIES AND FRINGE BENEFITS - 50% Variable with Patient Days							
Salary inflation assumption	2.75%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Fringe benefits %	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%
SUPPLIES (All Supplies & Drugs) - 75% Variable with Patient Days							
Inflation assumption	2.75%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
PURCHASED SERVICES - 70% Variable with Patient Days							
Inflation assumption	2.50%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
PHYSICIAN SERVICES - 65% Variable with Patient Days							
Inflation assumption	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
INSURANCE & OTHER EXPENSE - 0% Variable							
Inflation assumption	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
OTHER FIXED EXPENSE COST CHANGES							
Intensity Factor Expense Adjustment (100% offsets Net Revenue Impact)	$13,600	$27,600	$42,000	$56,700	$72,000	$72,000	$72,000
Historical Fixed Cost Additions Above Inflation and Variable Cost	$17,600	$35,600	$54,000	$72,700	$92,000	$96,000	$100,000
Performance Improvement / Cost Reductions	$0	($9,500)	($24,000)	($43,500)	($52,000)	($62,000)	($69,500)
Net Impact	$17,600	$26,100	$30,000	$29,200	$40,000	$34,000	$30,500
New Building Fixed Cost Additions (excluding Depreciation and Interest)	$0	$0	$0	$0	$14,437	$21,232	$28,410

EXHIBIT 20

Edmondson-Westside High School
"Excellence Demands Sacrifice"
Karl E. Perry Sr., Principal

November 2, 2020

Mr. Ben Steffen
Executive Director, Maryland Health Care Commission
4160 Patterson Avenue
Baltimore, MD 21215

Dear Mr. Steffen,

To Whom It May Concern:

I write on behalf of Edmondson-Westside High School's Health Occupations Department to express my full support of the University of Maryland Medical Center's Certificate of Need (CON) application submitted to build a second pediatric hybrid operating room with biplane technology for the Abell Corporation's grant to fund the renovation of the Operating Room.

In the past, the Medical Center has partnered with our school to build a Nursing Simulation lab for our Certified Nursing Assistant students to practice in an environment that allows them to experience authentic learning opportunities. Currently, the Medical Center is completing the finishing touches on a Perioperative Simulation lab to grant the Surgical Technician students the opportunity to receive authentic real-world experiences in the classroom setting, as well.

We strongly support this grant application for a second pediatric hybrid operating room, as our surgical technician students are able to gain training in pediatric cardiac surgical and interventional cases, while doing their clinical rotations on site. Statewide only one other facility offers this capability.

UMMC, and the faculty of the University of Maryland School of Medicine who practice at the hospital provide high-quality and compassionate care to pediatric cardiac patients. The pediatric heart program at UMMC has been recognized by US News & World Report for the last three years as a top 50 program in cardiology and heart surgery. I strongly urge you to support their Certificate of Need application.

Sincerely,

Karl E. Perry

Karl E. Perry, Principal

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 University of Maryland Upper Chesapeake Health	**The University of Maryland Medical System Central Business Office Policy & Procedure**	*Policy:*	Financial Assistance
		Effective Date:	07/01/2020
	Subject: **FINANCIAL ASSISTANCE**	*Supersedes:*	09/18/19

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)
- University of Maryland Upper Chesapeake Health (UCHS)
- University of Maryland Capital Region Health (UM Capital)

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.

This policy was adopted for University of Maryland Upper Chesapeake Health (UCHS) effective July 1, 2019

This policy was adopted for University of Maryland Capital Region Health (UM Capital) effective September 18, 2019

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, UMCRMC, UCHS, and UM Capital 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, UMCRMC, UCHS, and UM Capital. 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 lien 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, UMCRMC, UCHS, and UM Capital 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, UMCRMC, UCHS, and UM Capital 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, UMCRMC, UCHS, and UM Capital 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, UMBWMC, UMSMCC, UMSMCD, UMSMCE, UMCRMC, UCHS, and UM Capital 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, UMCRMC, UCHS, and/or UM Capital 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

2020 Federal Poverty Limits (FPL) and Maryland Dept of Health & Mental Hygiene (DHMH) Annual Income Eligibility Limit Guidelines			UMMS 100% Charity	UMMS 90% Charity	UMMS 80% Charity	UMMS 70% Charity	UMMS 60% Charity	UMMS 50% Charity	UMMS 40% Charity	UMMS 30% Charity	UMMS 20% Charity	UMMS 10% Charity
			Equals Up to 200% of MD DHMH Annual Income limits	Equals Up to 210% of MD DHMH Annual Income limits	Equals Up to 220% of MD DHMH Annual Income limits	Equals Up to 230% of MD DHMH Annual Income limits	Equals Up to 240% of MD DHMH Annual Income limits	Equals Up to 250% of MD DHMH Annual Income limits	Equals Up to 260% of MD DHMH Annual Income limits	Equals Up to 270% of MD DHMH Annual Income limits	Equals Up to 280% of MD DHMH Annual Income limits	Equals Up to 290% of MD DHMH Annual Income limits
House-hold (HH) Size	2020 FPL Annual Income Elig Limits	2020 MD DHMH Annual Income Elig Limits	If your total annual HH income level is at or below:	If your total annual HH income level is at or below:	If your total annual HH income level is at or below:	If your total annual HH income level is at or below:	If your total annual HH income level is at or below:	If your total annual HH income level is at or below:	If your total annual HH income level is at or below:	If your total annual HH income level is at or below:	If your total annual HH income level is at or below:	If your total annual HH income level is at or below:
Size	Up to	Up to	Up to Max	Up to Max	Up to Max	Up to Max	Up to Max	Up to Max	Up to Max	Up to Max	Up to Max	Up to Max
1	12,490	$17,620	$35,240	$37,002	$38,764	$40,526	$42,288	$44,050	$45,812	$47,574	$49,336	$52,859
2	16,910	$23,797	$47,594	$49,974	$52,353	$54,733	$57,113	$59,493	$61,872	$64,252	$66,632	$71,390
3	21,330	$29,974	$59,948	$62,945	$65,943	$68,940	$71,938	$74,935	$77,932	$80,930	$83,927	$89,921
4	25,750	$36,167	$72,334	$75,951	$79,567	$83,184	$86,801	$90,418	$94,034	$97,651	$101,268	$108,500
5	30,170	$42,344	$84,688	$88,922	$93,157	$97,391	$101,626	$105,860	$110,094	$114,329	$118,563	$127,031
6	34,590	$48,521	$97,042	$101,894	$106,746	$111,598	$116,450	$121,303	$126,155	$131,007	$135,859	$145,562

*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 7/1/20

EXHIBIT 22

N

Elevators to North Building

A-WING

Rotunda/
Walkway to
Weinberg
ORs

C-WING

GOR 34 [HYBRID] 35, 36, 37

PEDs SDS

T OR 1

T OR 2

T OR 3

T OR 4

T OR 5

T OR 6

T OR 7

T OR 8

T OR 9

GOR 12 [CV]

GOR 11 [HYBRID]

GOR 10 [HYBRID]

POD 2

POD 3

POD 4

GOR 14

GOR 15

GOR 16

GOR 17

GOR 18

GOR 19

GOR 20

GOR 21

GOR 22

GOR 23

GOR 24

GOR 25

GOR 26

GOR 27

GOR 28

GOR 29

GOR 30

GOR 31

X

X

X

0 75 150 200

UMMC maintains CAD floor plans for planning purposes only. Consultants requesting these CAD files are responsible for field verifying the critical elements/dimensions that will impact their design as part of their services.

UMMC COMPOSITE DRAWING

SECOND FLOOR

FIELDWORK:	06-30-2017
DRAWING SCALE:	NTS
PREPARED BY:	FMD

University Of Maryland Medical Center

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N

Existing Hybrid OR

Elevator Access to 2nd Floor

ROOFTOP

COOLING TOWER #1

COOLING TOWER #2

COOLING TOWER #3

UMMC maintains CAD floor plans for planning purposes only. Consultants requesting these CAD files are responsible for field verifying the critical elements/dimensions that will impact their design as part of their services.

0 75 150 200

UMMC COMPOSITE DRAWING 7TH FLOOR

FIELDWORK: 06-30-2017

DRAWING SCALE: NTS

PREPARED BY: FMD

University Of Maryland Medical Center

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EXHIBIT 23

Hybrid Operating Room Design Basics

November 2018

Mary Fearon, MSN, RN, CNOR

FACILITY GUIDELINES INSTITUTE

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About the Facility Guidelines Institute

The Facility Guidelines Institute is a not-for-profit corporation founded in 1998 to provide leadership and continuity to the revision process for the *Guidelines for Design and Construction* documents. FGI functions as the coordinating entity for development of the *Guidelines* series of documents using a multidisciplinary, consensus-based process and for provision of ancillary services that encourage and improve their application and use. FGI invests revenue from sales of the *Guidelines* documents to fund the activities of the next revision cycle as well as research that can inform the *Guidelines* development process.

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Contents

Hybrid Operating Room Design Basics

A hybrid operating room (OR) combines the capabilities of an operating room with the technologies of interventional imaging. With the combination of surgical facilities and imaging systems in one room, hybrid ORs can be used for traditional open surgeries, image-guided surgeries, or a combination of procedure types, offering greater flexibility and utility of the space.

Hybrid ORs offer many benefits to patients, clinicians, and health care organizations. In particular, state-of-the-art hybrid ORs facilitate provision of a broad range of procedures that are less invasive than traditional surgery and offer faster recovery times for patients. For example, complex cardiovascular and endovascular conditions that formerly required open heart surgery are now being diagnosed and treated with less invasive surgery in hybrid ORs. See Figure 1 for a representative list of procedures, by surgical specialty, typically performed in a hybrid OR.

Figure 1: Procedures that May Be Performed in a Hybrid Operating Room*

Surgical Specialty			
Cardiovascular	**Cardiothoracic**	**Neurovascular**	**Other**
Abdominal aortic aneurysm repair	Transcatheter valve replacement (TAVR)	Coil embolization or microsurgical clipping of cerebral aneurysms	Hemorrhage control in trauma patients
Aortic stent grafting	Percutaneous removal of cardiac device leads	Intracranial stenting of cerebral arteries	High-risk obstetrics
Carotid stent grafting	Minimally invasive endoscopic bypass surgery	Cerebral balloon angioplasty	Orthopedic trauma
Endovascular aortic repair (EVAR)	Minimally invasive direct coronary artery bypass grafting	Microneurosurgical resection of brain tumors	
Thoracic endovascular aortic repair (TEVAR)	Robotically enhanced minimally invasive direct coronary artery bypass	Combined carotid surgical cutdown followed by endovascular coiling for bypass of tortuous anatomy	
	Pediatric aortic and pulmonary stenosis	Combined arteriovenous malformation embolization followed by microneurosurgical resection	
	Hypoplastic left heart syndrome treatment	Cerebral vascular tumors	
	Off-pump coronary artery bypass	Spinal vascular tumors	
	Atrial fibrillation/flutter ablation		
	Hybrid maze		

*These procedures are referenced in the asterisked citations in the Resources section.

Planning and Design Tools

The inherent flexibility required of a hybrid OR environment challenges the design team to go beyond the design requirements for such spaces to create an efficient work environment that can support the planned uses of the room and the operational complexity that comes from combining surgical and imaging services in the

Types of Hybrid ORs

Hybrid ORs are typically characterized by the type of imaging equipment installed in the room and the clinical services offered. They can be found in cardiac catheterization suites, interventional imaging suites, and surgical suites. Regardless of where the room is located, the hybrid OR design must combine the requirements of an operating room and an imaging room to allow the flexible use expected of a hybrid OR.

Imaging equipment commonly installed in a hybrid OR includes single-plane or biplane angiography equipment, computed tomography (CT) scanners, and magnetic resonance imaging (MRI) scanners. The single-plane system is the most commonly installed and is used for an array of cardiac and vascular procedures.

The multi-axial robotic angiography system is a single-plane system with eight rotational axes that provides more images at different angles without using biplane technology. It provides images similar to a CT scan but offers more flexibility. These systems may be mounted on the floor or ceiling.

Biplane systems, which can acquire images from two reference points at the same time, have two C-arms—one mounted on the floor and one on tracks in the ceiling. These systems are used most often for small-vessel angiography in pediatric patients and neuro-angiography and are required for neurosurgical cerebral endovascular procedures. Using two C-arms reduces the amount of radiation exposure and the need for contrast media.

CT and MRI system design specifications each have personnel and patient safety requirements to protect against excessive radiation exposure. For example, if a hybrid OR will have an MRI system, the American College of Radiologists (ACR) requires the design team to define four zones that recognize screening requirements and safety checks to prevent the magnetic force from pulling objects into the imaging system. It is important for the design team to consult with a radiation physicist to assure all relevant safety measures are considered during design of a hybrid OR.

same space. To achieve the hoped-for clinical and cost benefits from building a hybrid OR, careful planning is vital at the outset of a project. To help design teams deliver a facility that supports a health care organization's goals, this white paper defines the purposes and types of hybrid ORs, discusses facility planning and design considerations, and looks ahead to future trends that will change the use of this type of facility.

The Functional Program

If designers are to deliver a functional, effective hybrid OR design, the project must begin with development of a functional program that communicates the owner's intent. The owner is responsible for this effort, but the functional program is often created by a multidisciplinary team composed of representatives of the health care organization and the design team, including clinicians, architects, engineers, acoustic/vibration consultants, and facility representatives. A well-written functional program provides a solid foundation for the schematic design and design development phases of the project and should reflect both the current needs and future plans of the organization.

Primary considerations in developing a functional program are identification of the characteristics of the patient population to be served (e.g., pediatric patients, patients of size, etc.), the procedures that will be performed, and the imaging equipment needed. The imaging equipment is the most expensive component of a hybrid OR, so it must be chosen carefully to support the clinical services identified in the functional program. As well, the imaging equipment specified for a hybrid OR will drive design decisions about shielding, structural support, and equipment placement.

Hybrid OR design is influenced and regulated by several federal, state, and local codes. Tools to assist the multidisciplinary design team include the Facility Guidelines Institute (FGI) *Guidelines for Design and Construction* documents and the Association of periOperative Registered Nurses (AORN) *Guidelines for Perioperative Practice*.

FGI *Guidelines for Design and Construction*

FGI provides baseline requirements for design of hybrid ORs in the 2018 FGI *Guidelines for Design and Construction of Hospitals*.[1] Section 2.2-3.3.4.1 (Hybrid Operating Room: Application) states a hybrid OR "shall be designed to comply with the requirements [for operating rooms] and the requirements [for imaging services] that

[1]Facility Guidelines Institute, *Guidelines for Design and Construction of Hospitals*, 2018 ed. (St. Louis: Facility Guidelines Institute, 2018).

apply to the imaging modality used in the hybrid operating room." Section 2.2-3.3.3.2 (2) (Operating room for image-guided surgery . . .) provides the relevant OR requirements, while Section 2.2-3.4.2.1 (Imaging Rooms: General) provides general imaging room requirements, which are modified by specific requirements for the imaging modality used.

Also in the 2018 Hospital *Guidelines*, an imaging classification system was introduced to help in the design of imaging facilities. An operating room in this classification system is a Class 3 imaging room, traditionally termed a "hybrid OR." Figure 2 demonstrates that the *Guidelines* requirements for operating rooms, both standard and hybrid, and for Class 3 imaging rooms are the same.

Application of the FGI *Guidelines* requirements provides a foundation for the physical design of a hybrid OR. Consideration of additional information provided in several *Guidelines* appendix sections can help designers determine when the baseline requirements are not sufficient for the procedures a health care organization plans for a particular facility. Highlights of the *Guidelines* requirements for a hybrid OR are included in this paper, but an in-depth review of them is crucial to the design effort.

Figure 2: Summary of 2018 FGI *Guidelines* Operating Room and Class 3 Imaging Room Design Requirements

Use	Design Requirements		
	Room Type	**Location**	**Surfaces**
Invasive procedures [as defined in the *Guidelines* glossary] Any procedure [or Class 2 procedure for imaging] during which the patient will require physiological monitoring and is anticipated to require active life support	Restricted area	Accessed from a semi-restricted area	*Flooring:* cleanable and wear-resistant for the location; stable, firm, and slip-resistant *Floor and wall base assemblies:* monolithic floor with integral coved wall base carried up the wall a minimum of 6 inches *Wall finishes:* washable; free of fissures, open joints, or crevices *Ceiling:* monolithic, scrubbable, capable of withstanding cleaning and/or disinfecting chemicals, gasketed access openings

Excerpted from Tables 2.2-1 and 2.2-2 in the 2018 FGI Hospital *Guidelines* and Tables 2.1-4 and 2.1-5 in the 2018 FGI Outpatient *Guidelines*

AORN *Guidelines for Perioperative Practice*

The AORN "Guideline for Minimally Invasive Surgery"[2] (MIS) and "Guideline for Design and Maintenance of the Surgical Suite"[3] documents are published as part of AORN's *Guidelines for Perioperative Practice*. The recommendations in these guidelines are evidence-based, intended to be achievable, and represent what is believed to be an optimal level of practice. Variations in practice settings and/or clinical situations determine the degree to which each guideline can be implemented. The AORN guidelines provide recommendations for establishing safe practices and decreasing the risk of injury and complications associated with procedures performed in operating rooms, including hybrid ORs.

The MIS guideline recommends that "the multidisciplinary team... select the imaging system and adjunct technologies that meet the identified requirements associated with the scope of services." The multidisciplinary team may be composed of the following members:

- Architect
- Engineer
- Equipment manufacturer
- Infection preventionist
- Circulating RN
- Radiology circulating nurse
- Surgeon
- Anesthesia care provider
- Radiology technician
- Interventional radiologist
- Interventional cardiologist
- Perfusionist

AORN also recommends considering provision of space for additional equipment, such as new adjunct technologies for digital manipulation of images acquired by the system. Such technologies used in the hybrid OR may include 3D imaging reconstruction, echocardiography, intravascular ultrasound, digital subtraction angiography, video integration systems with picture archiving, and audiovisual recording systems. Planning for the footprint required by these technologies will assure adequate space is provided.

To create a safe environment for the patient and personnel working in the hybrid OR, consideration should be given to the flow

[2]Association for periOperative Registered Nurses (AORN), "Guideline for Minimally Invasive Surgery" in *Guidelines for Perioperative Practice* (AORN, Inc., 2017).

[3]AORN, "Guideline for Design and Maintenance of the Surgical Suite" in *Guidelines for Perioperative Practice* (AORN, Inc., 2017).

of patients, personnel, and supplies that will be needed for the procedures to be performed. The use of evidence-based concepts in design of the surgical suite, as recommended in the AORN "Guideline for Design and Maintenance of the Surgical Suite," will facilitate this effort. This AORN guideline also defines the surgical suite zones (unrestricted, semi-restricted, and restricted), and these definitions are also included in the FGI *Guidelines*. The zones are determined by the activities performed in them; required access pathways; required staff surgical attire; and heating, ventilation, and air-conditioning (HVAC) system and surface requirements.

In determining the size and floor plan of an OR, AORN recommends dividing the room into four zones: sterile field, circulation pathway, movable equipment zone, and anesthesia zone. In a hybrid OR, it is particularly important to designate these zones during the planning process to ensure the OR is large enough to accommodate the added fixed equipment and adjunct technologies needed in a room with built-in imaging equipment.

VA *Design Guide*

Another respected source for hybrid OR design is the *Surgical and Endovascular Services Design Guide* distributed by the U.S. Department of Veterans Affairs. Developed to provide their multidisciplinary design teams with a better understanding of the design process and to enhance collaboration, the document has design templates for hybrid ORs that illustrate space, equipment, and related engineered system needs.[4]

[4]U.S. Department of Veterans Affairs, *Surgical and Endovascular Services Design Guide* (April 2016, rev. 5/18).

Design Considerations

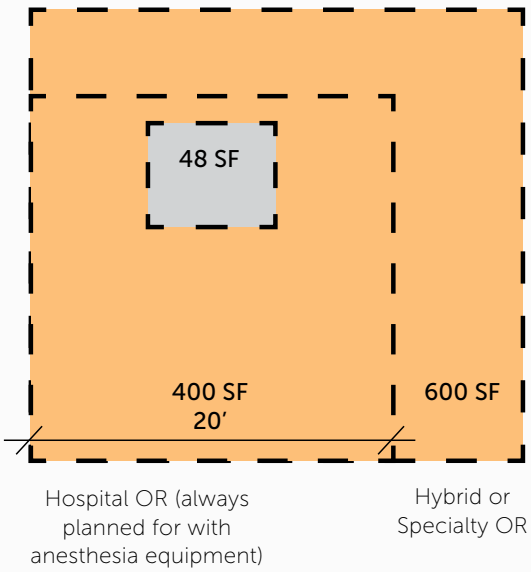
The functional program, discussed in greater detail above, provides the foundation on which the design team can base space planning decisions and health care administrators can base equipment purchase decisions during project delivery. Considerations essential for design of a hybrid OR include the following:

- Space requirements
- Imaging equipment
- Radiation protection
- Efficient workflow
- Acoustic considerations
- Environmental restrictions

Space Requirements

Because it must accommodate the space needed for both surgery and operation of the imaging equipment, a hybrid OR is larger than a standard operating room (see Figure 3). The 2018 FGI Hospital *Guidelines* requires a hybrid OR to "meet the clear floor area, clearance, and storage requirements for the imaging equipment contained in the room." In addition, it must provide at least the minimum clear floor area of 600 square feet the *Guidelines* requires for a hybrid OR or a specialty operating room "for image-guided surgery using portable imaging equipment or surgical procedures that require additional personnel and/or large equipment" in Section 2.2-3.3.3.2 (2).

Figure 3: FGI *Guidelines* Minimum Clear Floor Area for Operating Rooms



However, ultimately, the size of a particular hybrid OR is determined by two components: the four zones required for all operating rooms (sterile field, circulation pathway, movable equipment zone, and anesthesia zone) and the clearances required by the imaging equipment to be installed. How much these zones and clearances may, or may not, overlap should be determined early in the design process.

The AORN "Guideline for Minimally Invasive Surgery" states, "The team should account for the specifications of the imaging system since it will drive the placement of the HVAC system center diffuser array, ceiling-mounted equipment (i.e., equipment booms, video monitors, and surgical lights), and other equipment." In their 2013 *AORN Journal* article "Hybrid OR 101,"[5] Jennifer Schaadt and Bruce Landau recommend hybrid ORs of 1,000 to 1,200 square feet for optimal functionality, although this may not be realistic in institutions with limited space.

[5]Jennifer Schaadt and Bruce Landau, "Hybrid OR 101: A Primer for the OR Nurse," *AORN Journal* 97, no. 1 (2013): 81-100.

As recommended in appendix section A2.2-3.3.4.2 (Determining hybrid operating room size) in the 2018 Hospital *Guidelines* (see sidebar), it is important to consider how the imaging equipment, surgical field, ancillary fixed equipment, and clear floor area will interact when determining the size for a hybrid OR. As well, to assure adequate space for provision of anesthesia, the *Guidelines* establishes a minimum area of 48 square feet (6'x 8') for an anesthesia setup zone. Of this space, 32 square feet (4'x 8') is the anesthesia work zone. Once anesthesia setup is complete, the anesthesia equipment may be positioned closer to the head of the table, giving staff access to the remaining two feet from the setup zone to circulate during the procedure.

Two other design elements can also add to the footprint of a hybrid OR—a system component room and a control room. The system component room is a space for electronic components that need to be located in a room separate from the OR for heat load, infection control, noise, or serviceability reasons. The control room is the space from which staff operate the imaging equipment during a procedure. The large-format imaging modalities (i.e., CT, MRI, fluoroscopy)

Hybrid OR Space Requirements Excerpted from the 2018 FGI Hospital *Guidelines*

2.2-3.3.4.1 Application. Hybrid operating rooms (Class 3 imaging rooms) shall be designed to comply with the requirements in Section 2.2-3.3.3 (Operating Rooms) and the requirements in Section 2.2-3.4 (Imaging Services) that apply to the imaging modality used in the hybrid operating room.

***2.2-3.3.4.2 Space requirements**

(1) Each hybrid operating room shall meet the clear floor area, clearance, and storage requirements for the imaging equipment contained in the room.

(2) Where mobile storage units are used in lieu of fixed cabinets, placement of the storage units shall not encroach on the clear floor area and clearances needed for the equipment used.

A2.2-3.3.4.2 Determining hybrid operating room size. The size of a hybrid operating room is highly dependent on the functional requirements of the room as an operating environment as well as the requirements of the imaging equipment it contains, which generally increase the room area requirements. For example, in some hybrid operating rooms, imaging equipment is capable of sliding into and out of the surgical field to optimize clear floor area when it is not needed. In other examples, the hybrid operating room contains dual surgical fields—one adjacent to fixed imaging equipment and another outside of this sector.

The interaction of the imaging equipment, surgical field, ancillary fixed equipment (e.g., lights, service columns, etc.), and clear floor area for staff, floor equipment, and circulation should all be considered when determining the actual room size. The project team is strongly encouraged to perform a full-scale mockup of the room during design to ensure it will function properly as designed.

used in a hybrid OR each generally requires both a control room and a system component room.

The 2018 Hospital *Guidelines* requires provision of a system component room sized and configured "in compliance with manufacturer recommendations for installation, service, and maintenance" for a hybrid OR. A system component room may be

shared by more than one hybrid OR as long as the equipment manufacturer's recommendations are followed. Note that access to a system component room is permitted only from outside the OR to support infection prevention practices in the OR; in other words, no door from the system component room is permitted to open into the OR. This required arrangement may have an effect on OR layout.

The 2018 *Guidelines* does not require a control room for a hybrid OR, but the imaging equipment used in one is likely to require it. The control room generally must be separated from the hybrid OR with walls and a door; however, for hybrid ORs, the *Guidelines* permits omission of the door if the control room serves only one OR and meets the same requirements, including ventilation, as the OR itself. The orientation of the operating room table to the control room's shielded view window (designed for radiation protection) can also influence the size of an OR. It is preferable for the orientation to be determined by the interventionalist team and considered during the design phase to assure functionality in the completed space. In most hybrid ORs, the view from the control room is a "toe-view," although a "lateral or side view" is sometimes used. Room size, configuration, and geometry also affect the optimal view from the control room.[6]

Definitions for Support Spaces

System component room: A room that contains the electrical components for various imaging modalities (e.g., CT, MRI, fluoroscopy). ***Note:*** This room is not the same as the control room required for some imaging modalities.

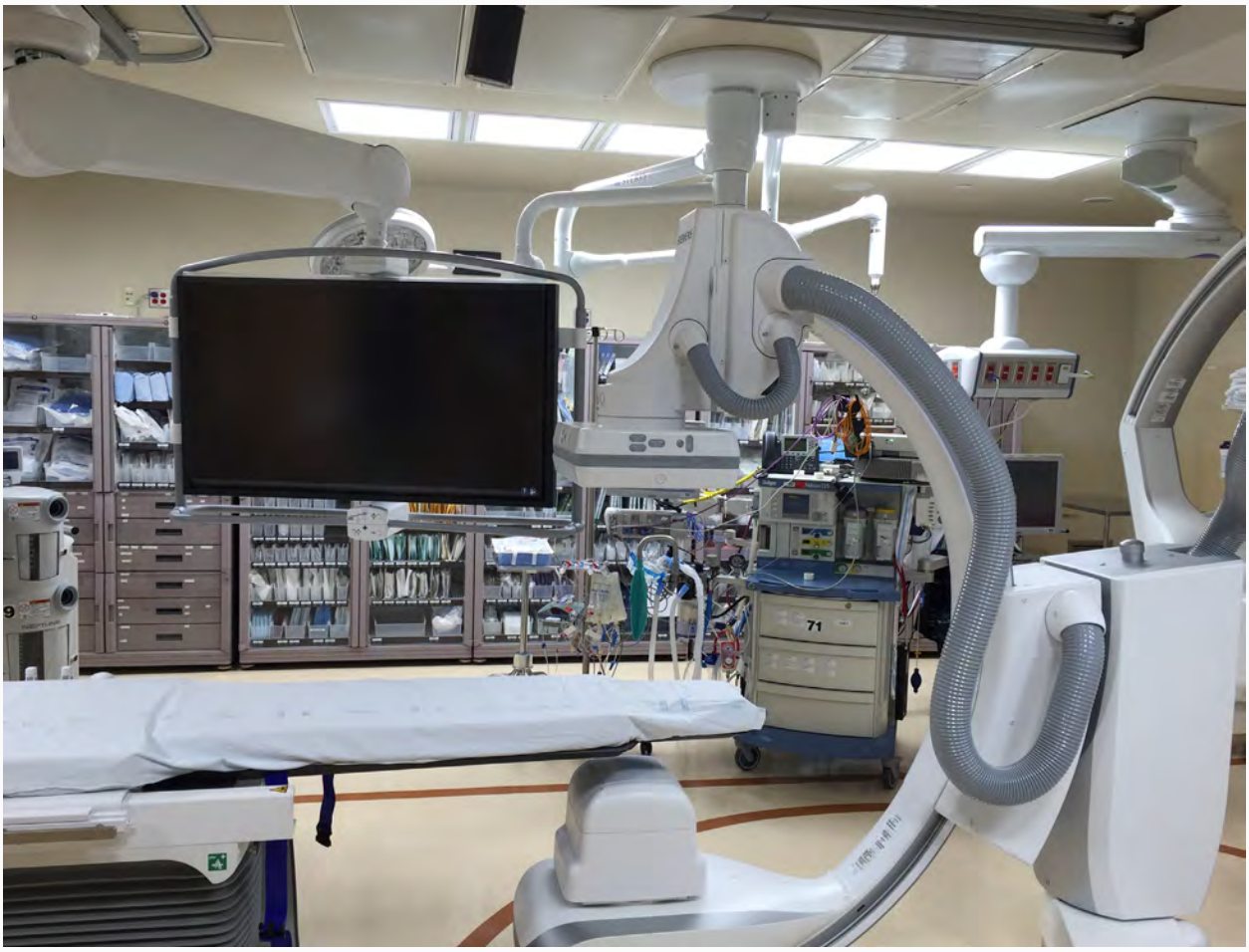
Control alcove or room: A fixed shielded alcove or room intended to minimize radiation exposure of technologists and others in imaging rooms that contain non-portable radiation-emitting imaging equipment or imaging equipment requiring shielding from external sources of interference.

[6]U.S. Department of Veterans Affairs, *Surgical and Endovascular Services Design Guide.*

Imaging Equipment

Determining equipment placement for a hybrid OR demands careful consideration as the imaging system dictates placement of some equipment based on the procedures to be performed and on the need to avoid interference with imaging equipment operation. Some systems have a fixed base mounted to the floor, while others have tracks in the ceiling that allow movement of the imaging equipment to different areas of a patient's body. These fixed points may affect placement of anesthesia equipment and access to the patient if the

imaging equipment must, for example, be located at the head of the operating table.



Imaging equipment is a safety concern when it is moving due to the potential for collision with staff or other equipment. Designating a collision-free or "no-fly" zone in which personnel, monitors, and other ceiling-mounted equipment cannot be present while the C-arm is in motion limits opportunities for damage or injury. The multidisciplinary team should determine locations for the fixed imaging equipment, the operating table, and overhead lights and booms. Two ways to help with this task include use of a safety checklist of potential collision points (e.g., OR lights, video monitor, endotracheal tube, IVS, and catheters, etc.) and creation of standardized room setups that define optimal locations for anesthesia

machines, equipment booms, and monitors based on procedures to be performed, OR table position, and the particular imaging equipment's no-fly zone.

Radiation Protection

If the imaging equipment installed in a hybrid OR is a type that emits ionizing radiation, radiation protection must be planned during design of the room. Imaging modalities such as MRI or CT have different shielding requirements, which should be based on the manufacturer's requirements and the American College of Radiologists guidelines. As stated in the FGI *Guidelines*, a certified radiation physicist or expert representing the owner or relevant state agency specifies the type, location, and amount of radiation protection needed for the final approved imaging services layout and selected equipment.

Radiation protection requirements are typically included in the design specifications and project drawings. The design team will need to work closely with the radiation consultant to finalize these shielding requirements.

Creating an Efficient Workflow

The unique challenges presented in designing a hybrid OR give the multidisciplinary project team an opportunity to improve workflow for all who will use the space. The interventional team traditionally has worked in a dimly lit room with the imaging equipment driving the design of the space and little to no flexibility in the location of the operating table. Development of a creative workflow model will support creation of an environment that accommodates imaging equipment and space for mobile equipment while still allowing flexibility for locating the operating table.

The traffic map shown in Figure 3, excerpted from a 2013 *Anesthesiology* article by G. Palmer et al.,[7] demonstrates the interruptions and traffic flow of a typical surgical team. In this study, the researchers observed 10 cardiothoracic operations to capture

[7]G. Palmer et al., "Realizing improved patient care through human-centered operating room design: A human factors methodology for observing flow disruptions in the cardiothoracic operating room," Anesthesiology 119, no. 5 (2013): 1066-77.

flow disruptions as they occurred. Observers watched the traffic flow of personnel in the room through each phase of the procedure: preoperative, intraoperative, and postoperative. The color-coded diagram shows movement of nurses (goldenrod), anesthesiologists (blue), surgeons (purple), and perfusionists (green). The red zones show areas of concern (e.g., the space required for administering anesthesia and the clearance surrounding the sterile field).

Figure 4: Observed Operating Room Traffic Flow Patterns

Mapping the flow of standard care tasks during the procedures performed in an OR will help designers plan a space that can accommodate an efficient workflow and support safe patient care. Studying the dynamics of the OR workflow, such as patient transfer to the operating table, the space required for anesthesia equipment, surgeon and other health care personnel ergonomics, and the nurses' ability to find equipment can have a profound influence on the design of the space. At minimum, creating a mock room setup—with movable temporary materials such as foam-core board or cardboard

boxes to simulate the fixed imaging equipment, equipment boom, and monitor locations—will allow the design team to assess the space required for the red zones (i.e., clearances around the sterile field or potential collision points of boom arms).

Finding design solutions that can decrease disruptions in the workflow in a hybrid OR will improve patient and staff safety. A multidisciplinary team that includes both imaging and perioperative personnel provides excellent perspectives for creating a successful workflow design and a safe patient care environment, according to the AORN "Guideline for Minimally Invasive Surgery." The design team can guide the multidisciplinary team through a simulation merging two workflows—imaging and surgical—to test assumptions, identify areas of conflict, and find opportunities that may:

- Save money by reducing modifications during design and after construction begins.
- Encourage better staff communication during procedures.
- Make the OR environment safer for patients and staff.
- Reduce complexity by placing equipment, supplies, and controls in easily accessible locations.
- Support better teaching by providing sufficient space.
- Reduce disruptions during procedures.
- Improve patient outcomes.

Acoustic Considerations

Vibrations and acoustic disturbances can degrade the quality of images created in a hybrid OR; thus, experts in acoustic engineering should be included on the multidisciplinary project team to make sure the design avoids issues caused by excessive noise and vibration. The FGI *Guidelines* requires protection of the hybrid OR from "disruptive environmental vibrations and other disturbances in accordance with the imaging equipment manufacturer's technical specifications." Site readiness testing may be required prior to equipment installation.

Restricted Environment

Both the FGI and AORN documents state that an OR is a restricted area that can be accessed only through a semi-restricted space. This requirement means the hybrid OR must be located in a suite with semi-restricted corridors connecting the rooms.

Designation as a restricted area brings certain surface and ventilation requirements to support infection prevention practices. The FGI surface requirements for operating rooms and Class 3 imaging rooms (including hybrid ORs) are summarized in Figure 2. Monolithic ceilings are required to prevent contaminants such as dust from falling onto the surgical field.[8] HVAC systems must meet the parameters for an operating room in ANSI/ASHRAE/ASHE 170: *Ventilation of Health Care Facilities*, which is included as Part 3 of the 2018 FGI Hospital *Guidelines*. A minimum of 20 air changes per hour (ACH) is required in a hybrid OR, and the room must have a positive pressure relationship to any adjacent space, including the control room and other semi-restricted areas such as corridors and storage rooms.

[8]AORN, "Guideline for Design and Maintenance of the Surgical Suite."

Challenges to Improve Design

Research to improve hybrid OR design is focused on human factor methodology, which takes a systematic approach to the evaluation of errors or disruptions in workflow that can lead to errors. Academic centers such as the Illinois Institute of Design and University of Chicago Medicine—Center for Care and Discovery are researching improved OR design. At University of Chicago Medicine, health care personnel and designers have worked together in teams to conceptualize an OR environment with improved ergonomics, equipment placement mapped to a specific surgeon, and improved cleanliness achieved with colored chemical tiles and bacteria-sensing mops.[9]

[9]Theresa Criscitelli, "Applying Human-Centered Design Thinking to Enhance Safety in the OR," AORN Journal 105, no. 4 (2017): 408-12.

Looking to the future of hybrid OR technology will facilitate design of hybrid ORs that are flexible enough to change as imaging technology evolves. For example, a 2016 *World Neurosurgery* article

by R. Ashour et al.[10] describes a change in the typical design of a hybrid OR using biplane equipment for neuroendovascular procedures to improve efficiency when a combined open procedure using angiographic images is performed. The floor-mounted C-arm was moved to allow surgical access to the head of the operating table while keeping the biplane angiographic system in place over the lower body of the patient. This human factor design change improved workflow efficiency and decreased procedure time by reducing the transition between surgical and angiographic positions. The footprint required for imaging systems, design of the system component and control rooms, and location of the hybrid OR in the facility may change as more research is conducted on hybrid OR design and outcomes.

[10]R. Ashour et al., "Refinement of the hybrid neuroendovascular operating suite: Current and future applications," *World Neurosurgery* 91 (2016): 6-11.

Further improvements in hybrid OR design can stem from studies of user-centered outcomes such as patient comfort on bed transfer, nurse ability to find important equipment, surgeon and anesthetist ergonomics during long procedures, and ability to communicate during patient hand-offs.[11, 12]

[11]Adrien Hertault et al., "What should we expect from the hybrid room?" *Journal of Cardiovascular Surgery* 58, no. 2 (2017): 264-69.

[12]Andrew M. Ibrahim; Justin B. Dimick; and Anjali Joseph, "Building a better operating room: Views from surgery and architecture," *Annals of Surgery* 265, no. 1 (2017): 34–36.

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