

July 15, 2016

DELIVERED ELECTRONICALLY AND BY FIRST CLASS MAIL

Donna Jerry
Senior Health Policy Analyst
Green Mountain Care Board
89 Main Street, Third Floor, City Center
Montpelier, Vermont 05620

Re: Docket No. GMCB-010-15con, Proposed Ambulatory Surgery Center
Response to Questions posed 2/10/2016

Dear Donna:

ACTD LLC's responses to the questions posed on February 10, 2016 are as follows:

1. Tables 3 and 4 reflect a 15.4% increase in utilization for each of the two ORs and a 15.5% increase for each of the four procedure rooms from year 1 to year 2. For the two following years, the tables indicate an approximate 1.0% annual increase in each OR and procedure room, which is described on page 5 as "very conservative." Provide the expected ranges (low, medium, high) and percent increase for each of the four years for OR and procedure room utilization. Identify the geographic sources and breakdown of the expected growth (e.g. Chittenden County, Franklin County or other areas including outside Vermont) for each of the four years.

ACTD's response to this question is based on the information in Tables 3 (Operating Room Utilization) and 4 (Procedure Room Utilization) filed in the first round of responses on December 23, 2015. The tables are re-attached as Exhibit Q1. Because the utilization presented in Tables 3 and 4 is conservative, these projections represent our low utilization base case.

For purposes of both our base case and the additional projections of medium and high utilization presented below, our projections are based on historical volumes for the physicians who will be performing cases at GMSC, and each physician's expectations as to the percentage of surgeries and/or procedures he or she would perform at GMSC. We project a 15.4 percent growth in operating and procedure room utilization between Year 1 and 2 because volumes are being slowly ramped up in Year 1. We project that volume will stabilize in Year 2 and thereafter we expect it will grow at a conservative rate of 1.0 percent annually. The assumption of a 1.0 percent annual rate of growth following Year 2 was recommended by our consultant, Avanza, based on its research and experience.

The operating and procedure rooms intentionally have excess capacity to provide the highest level of access. We want to ensure that physicians have surgical room availability to allow for unexpected or last

minute cases. Given the capacity levels projected, physicians will have the ability to schedule patients for surgery within 48 hours of determining if a procedure is necessary. Planning in our low utilization base case for some extra capacity will also allow us to offer excess operating room time to other independent surgeons practicing in the community who have expressed an interest in the surgery center, but whose potential cases are not currently included in our projections. This group includes pediatric dentists, oral surgeons, and podiatrists who may currently have difficulty accessing enough operating room time at local hospitals. To the best of our knowledge, hospitals in Vermont do not typically employ these types of providers.

Please find below tables showing low, medium, and high utilization projections for operating rooms and procedure rooms in Years 1-4, 2018 – 2021. Note that we now expect that 2018 would be our first year of operation. We anticipate that the remainder of 2016 and 2017 will be spent finalizing approval and constructing the center.

Increased demand for surgical/procedural cases from the physicians we currently expect to perform cases at the ASC (beyond what was included in the projections), as well as surgical volumes from new physicians who were not included in the projections, would likely result in utilization in the medium to high range.

Also, in each scenario below, we have changed the average length of a procedure. Our medium utilization projection assumes a longer average length of procedure than our low utilization projection, and our high utilization projection assumes a longer average length of procedure than our medium utilization projection. All other variables remain the same. We do not have reason to believe that our total volume of procedures would be different from our base projections, or that our hours of operation would change from the base case. However, we believe there is some uncertainty around how fast we will be able to turn over the operating and procedure rooms, which is why we chose to flex the average length of procedure variable in each scenario. The average length of a procedure will be contingent upon several things including surgeon availability, case mix, patient health status, and our own ability to execute and run efficient operations.

Utilization was not projected based on the geography of the patients. Rather, the projections were based on historical volumes for the physicians who will performing cases at the Green Mountain Surgery Center (“GMSC”). Although it was not analyzed or built into the projections, it is assumed that these physicians will continue to draw from the same patient population.



Operating Year Calendar Year Equivalent (Est)	Year 1 2018	Year 2 2019	Year 3 2020	Year 4 2021
Operating Rooms	2	2	2	2
Low Assumptions				
Days/Year	250	250	250	250
Daily Hours	7	7	7	7
Total Available Hours (All Rooms)	3500	3500	3500	3500
Avg Length of Procedure (Minutes)	82	82	82	82
Annual Utilization	1138	1314	1326	1340
Annual Utilization/Room	569	657	663	670
Total Capacity (Cases)	2574	2574	2574	2574
% of Total Used	44.2%	51.0%	51.5%	52.1%
Notes: These assumptions presented by ACTD in Response to Question 1 of questions posed 8.28.2015				
Medium Assumptions				
Days/Year	250	250	250	250
Daily Hours	7	7	7	7
Total Available Hours (All Rooms)	3500	3500	3500	3500
Avg Length of Procedure (Minutes)	108	108	108	108
Annual Utilization	1138	1314	1326	1340
Annual Utilization/Room	569	657	663	670
Total Capacity (Cases)	1944	1944	1944	1944
% of Total Used	58.5%	67.6%	68.2%	68.9%
Notes: Average length of procedure including turnaround time equivalent to Fanny Allen OR turnaround time				
High Assumptions				
Days/Year	250	250	250	250
Daily Hours	7	7	7	7
Total Available Hours (All Rooms)	3500	3500	3500	3500
Avg Length of Procedure (Minutes)	112	112	112	112
Annual Utilization	1138	1314	1326	1340
Annual Utilization/Room	569	657	663	670
Total Capacity (Cases)	1875	1875	1875	1875
% of Total Used	60.7%	70.1%	70.7%	71.5%
Notes: Average length of procedure including turnaround time equivalent to CVMC OR turnaround time				



Operating Year Calendar Year Equivalent (Est)	Year 1 2018	Year 2 2019	Year 3 2020	Year 4 2021
Procedure Rooms	4	4	4	4
Low Assumptions				
Days/Year	250	250	250	250
Daily Hours	7	7	7	7
Total Available Hours (All Rooms)	7000	7000	7000	7000
Avg Length of Procedure (Minutes)	55	55	55	55
Annual Utilization	3992	4612	4656	4704
Annual Utilization/Room	998	1153	1164	1176
Total Capacity (Cases)	7657	7657	7657	7636
% of Total Used	52.1%	60.2%	60.8%	61.6%
Notes: These assumptions presented by ACTD in Response to Question 1 of questions posed 8.28.2015				
Medium Assumptions				
Days/Year	250	250	250	250
Daily Hours	7	7	7	7
Total Available Hours (All Rooms)	7000	7000	7000	7000
Avg Length of Procedure (Minutes)	60	60	60	60
Annual Utilization	3992	4612	4656	4704
Annual Utilization/Room	998	1153	1164	1176
Total Capacity (Cases)	7000	7000	7000	7000
% of Total Used	57.0%	65.9%	66.5%	67.2%
Notes: Average length of procedure including turnaround time equivalent to UVMC endoscopy room turnaround time				
High Assumptions				
Days/Year	250	250	250	250
Daily Hours	7	7	7	7
Total Available Hours (All Rooms)	7000	7000	7000	7000
Avg Length of Procedure (Minutes)	82	82	82	82
Annual Utilization	3992	4612	4656	4704
Annual Utilization/Room	998	1153	1164	1176
Total Capacity (Cases)	5153	5153	5153	5153
% of Total Used	77.5%	89.5%	90.3%	91.3%
Notes: Average length of procedure including turnaround time equivalent to avg of UVMC procedure and endoscopy room turnaround time				

2. Provide annual projections of growth in utilization (low, medium, high) and percent increase beyond the years identified and referenced in Question 1 above, until capacity is realized. Identify geographic sources of the expected growth for each year.

Please see the above response to Q. 1. We expect that capacity will be close to realized in Year 4 of operations, and therefore have not projected utilization beyond Year 4.

3. Correct the math errors and omissions and resubmit Tables 1, 2, 3 and 4 on pages 1-3. Please populate the row titled, “% Change from Previous Year” for OR 2 on Table 3.

See Tables 1-4 attached as Exhibit Q3.



4. For Physicians A-P in the confidential submission, provide the projected number of surgeries and procedures each is projected to perform in years 2017, 2018, 2019 and 2020 and of the total, the projected number/percent to be performed at GMSC.

We indicated at page 5 in our responses dated December 23, 2015 (Q001) that our projected case growth would increase 1% per year after the first year of stable operations. We also stated, in an updated confidential submission filed today in response to question 2 of the GMCB's questions dated April 5, 2016, (Q004) the percentage of cases that each physician plans to transfer to the GMSC beginning in the first full year of stable operations. We anticipate, based on our review of CON applications submitted to the GMCB over the past few years, that the CON process will take approximately 18 months and construction will take another 12 months. Therefore, based on application submission date of July 2, 2015, our expected first year of operation corresponds to 2018, year 2 corresponds to 2019, year 3 corresponds to 2020 and year 4 corresponds to 2021.

Based on our assumption of a 1% annual growth rate, our expectations regarding the commencement of operations in 2018, and the confidential table we are submitting today which projects the cases each physician plans to perform at the GMSC, we have provided all the information required by this question without submitting yet another confidential table.

5. Provide full copies of all studies, reports and/or analyses and assumptions for each scenario analyzed relative to the number of operating rooms, procedure rooms, and pre-and post-op beds.

We relied on our consultant Avanza to assist us in planning the size and capacity of the GMSC facility, and did not separately rely on any studies, reports, or analyses related to calculating the number of operating rooms and procedure rooms. According to Avanza's research and experience, between 1,000 and 1,200 cases per year can be performed in each operating and procedure room. Obviously this number can vary based on factors such as the mix of cases performed at the ASC and the acuity of the patients, but we understand that 1,000-1,200 cases is a good benchmark which is supported by Avanza's research and experience with ASCs nationwide.

The minimum number of pre and postoperative beds is dictated by the regulatory entities, which for the proposed GMSC are CMS and the Accreditation Association for Ambulatory Health Centers, Inc. The determination for the GMSC follows the latest recommendation by the Facility Guidelines Institute (FGI).

The following is a quote related to post-op space requirements from the FGI's most current *Guidelines for Design and Construction for Hospitals and Outpatient Facilities* (2014).

3.7-3.4.3.1 (1)(b) size of phase I recovery area. A minimum of 1.5 recovery patient care stations per operating room shall be provided.

Appendix A3.7-3.4.3.1 (1)(b) determining the number of Phase I patient care stations. When use of the formula results in a fraction for the number of patient care stations to be provided the fraction should be rounded up to the next whole number. When designing the recovery area and



determining the number of recovery positions required, at minimum, consideration should be given to the types of surgery and procedures performed, types of anesthesia used, average recovery periods for patients, and anticipated staffing levels.

6. Provide a cost benefit analysis through 2020 that supports the need for the project which includes an analysis of the impact on Vermont hospitals offering the same services.

In the Application and in our responses to the GMCB's questions, we have analyzed the benefits to patients, physicians, payers, and employers of the project. The letters of support the GMSC has received from local businesses, community groups, consumer organizations, physicians, and concerned citizens have further illuminated what the community perceives to be the benefits of the project. We have also analyzed the need for the project, particularly in terms of the aging and growing population in Chittenden County, elsewhere in the Application. Here, we will attempt to analyze the "cost" of the project, interpreting "cost" to mean, in this instance, the impact of the project on Vermont hospitals providing the same services.

The Confidential table by physician (submitted on January 22, 2016) shows where surgeons who have plans to move some of their procedures/surgeries to the GMSC are currently performing those procedures/surgeries. As that table shows, the only Vermont hospitals that we expect physicians to transfer cases away from are the University of Vermont Medical Center ("UVMHC") and Northwestern Medical Center ("NMC"). Cases moving from these two hospitals to the GMSC comprise part of the total volume of cases to be performed at the GMSC; the other part of the total volume will be comprised of cases moving from physician offices and/or hospitals outside of Vermont.

If our project is approved, we expect that 2018 would be our first year of operation. We anticipate that the remainder of 2016 and 2017 will be spent finalizing approval and constructing the center.

In 2018, we estimate that surgeons at the GMSC will perform roughly 4,000 procedures that would have otherwise been performed at UVMHC.¹ UVMHC, according to the response filed May 6, 2016, estimates it will host 33,188 procedures across its operating and procedure rooms in 2018. If the GMSC is approved and 4,000 cases are moved to the surgery center, that number equates to 12.1% of the total procedure/surgery volume at UVMHC.

¹ We arrived at the number of procedures performed at GMSC that would otherwise be performed at UVMHC (or NMC, as appropriate) by using the projections by surgeon we provided in Table 5 of our Application (p. 27) for Years 1 through 4, multiplying those projections by the percentage of surgeries the surgeon currently performs at UVMHC (or NMC, as appropriate) that appear in our CONFIDENTIAL table filed January 22, 2016 and totaling the same. For example, Physician E projects that s/he will perform 58 surgical procedures at the GMSC in Year 1. S/he currently performs 80% of his/her surgical procedures at UVMHC, so the number that would have been performed at UVMHC but will now be performed at GMSC is 46.4. We performed this calculation for Physicians A through P for each of the four years.



In 2019, we estimate that surgeons at the GMSC will perform roughly 4,600 procedures that would have otherwise been performed at UVMHC. UVMHC, according to the response filed May 6, 2016, estimates it will host 33,189 procedures across its operating and procedure rooms in 2019. If the GMSC is approved and 4,600 cases are moved to the surgery center, that number equates to 13.8% of the total procedure/surgery volume at UVMHC.

In 2020, we estimate that the surgeons at GMSC will perform approximately 4,646 procedures that would have otherwise been performed at UVMHC. UVMHC did not provide estimates for 2020 in the response filed May 6, 2016, so we do not know how this compares to what the hospital is projecting.

While we could not get access to price and cost data for these procedures at the hospital to accurately estimate the overall financial impact of the GMSC, we believe that compared to all cases performed at the hospital, the cases that will be moved to the GMSC (the majority of which are colonoscopies) have relatively low reimbursement profiles compared to the many procedures that are performed on an inpatient basis exclusively in the hospital setting. High volume inpatient procedures such as total joint replacements, coronary artery bypass surgeries, and colectomies, which will all remain in the hospital, are reimbursed at over 10x as much as low-complexity outpatient procedures like the ones that will be moving to the GMSC. Any negative financial impact on the academic hospital from a minority of their relatively low-complexity, low-reimbursement procedures moving into the community setting must be balanced against the net financial and experiential gains to patients of having access to these procedures more quickly and more affordably at the new ambulatory surgery center.

Additionally, any consideration of the impact on UVMHC's total budget should also take into account that its roughly 7,000 employees and those employees' family members will be able to access care at significantly reduced costs at the GMSC, which will reduce the medical expense portion of the UVMHC's own self-funded health plan. This translates into savings for UVMHC as an employer.²

In addition, consideration of the impact on UVMHC's total budget should also take into account the fact that in June of 2014, UVMHC filed an application with the Green Mountain Care Board to purchase land in South Burlington, stating plans to build an ambulatory care center. UVMHC may not need to spend money on outfitting this space for additional procedure rooms or operating rooms if approval of the GMSC project helps to ease pressure on existing OR and procedure room capacity. These potential savings to the hospital must also be considered as part of the overall financial impact of GMSC on UVMHC.

In 2018, we estimate that the surgeons at GMSC will perform 170 procedures that would have otherwise been performed at NMC. NMC, according to its response filed May 6, 2016, estimates it will

² Dave Barkholz; *Study: Employers save billions at ASCs over hospital outpatient settings*; Modern Healthcare. June 20, 2016; <http://www.modernhealthcare.com/article/20160620/NEWS/160629992>



host 6,385 procedures across all of its operating and procedure rooms in 2018. If the GMSC is approved and 170 cases are moved to the surgery center, that number equates to 2.7% of total procedure/surgery volume at NMC.

In 2019, we estimate that the GMSC will perform approximately 200 procedures that would have otherwise been performed at NMC. NMC, according to its response filed May 6, 2016, estimates it will host 6,385 procedures across of its operating and procedure rooms in 2019 if it uses its current hours of operation. A transfer of 200 of these procedures to the GMSC equates to 3.1% of the total procedure/surgery volume at NMC.

In 2020, we estimate that the surgeons using the GMSC will perform approximately 202 procedures that would have otherwise been performed at NMC. NMC did not provide estimates for 2020 in the response filed May 6, 2016 so we do not know how this compares to what the hospital is projecting.

Any consideration of the impact on NMC's total budget should also take into account the fact that in December of 2015, NMC gained approval from the Green Mountain Care Board to build shell-space of 21,000 square feet with an as yet undefined potential use. NMC may not need to spend money on outfitting this space for additional procedure rooms or operating rooms if approval of our project helps to ease the pressure of the need for more operating rooms in the greater Colchester / St. Albans area in the future. These potential savings to the hospital must also be considered as part of the overall financial impact of the GMSC on NMC and its ability to remain financially stable in the future.

7. Explain how the GMSC will provide health care services that are distinct from services currently provided at NMC and UVMMC. If there is little or no distinction, provide data demonstrating the need for duplication of existing services in Chittenden and Franklin counties.

To be clear, the *surgical procedures* offered at the GMSC are not distinct from procedures presently offered at NMC and UVMMC. To the contrary, the same procedures will be performed by the same doctors who presently perform procedures at UVMMC and, to a lesser extent, NMC. The need that the GMSC would fill is offering to Vermonters, for the first time, the option to have certain surgical procedures performed at a location that is not a hospital. As we have described elsewhere, this is a service that is available in every other state. In other words, the proposed ASC is not offering duplicative services – it is offering, for the first time in Vermont, a unique venue for services that can only be performed in a higher-cost hospital setting. For consumers of health care who have to pay out of pocket until they have met their deductibles, this is not a small distinction.

There are many reasons why it is important to permit Vermonters to have access to a surgical facility that is not hospital-based. Those reasons are set forth in full in our answer to Question 6 posed by the GMCB on August 28, 2015 (Q001). However, to briefly summarize, freestanding ASCs are different from hospital outpatient surgery departments in that they (i) are reimbursed at a lower rate than hospital outpatient surgery departments and are a lower-cost option for simple surgical procedures; (ii) can offer a better



patient experience, particularly for patients who find the institutional setting of hospitals to be overwhelming or intimidating; (iii) are generally able to operate more efficiently than hospitals due to factors including specialization of the staff and the ability to tailor the facilities to the specific needs of the surgeries performed therein; (iv) offer price transparency to patients, with prices known to patients in advance of the procedure; and (v) deploy medical resources that are more appropriately scaled to the medical needs of the patient population served by an ASC. We direct you to the above-referenced answer to Question 6 for additional detail on this matter.

We do not view our project as proposing a duplication of services. The GMSC itself will not employ physicians who perform surgery on patients, and accordingly the GMSC should not cause any material net increase in surgeries performed in the State of Vermont (other than impacts due to the reduction of any wait times at UVMHC and NMC and the unquantifiable but still very real in-migration of elective surgeries that Vermonters are currently scheduling at ASCs in Florida, New York and Massachusetts). When a patient needs surgical services, the patient's physician in consultation with the patient will determine which site of care, between a hospital and the GMSC, will best meet the needs of the patient. In many instances that will be the hospital. But in other instances, that will be the GMSC, in which case the same physician who otherwise would have performed the procedure at the hospital, would instead perform the same procedure on the same patient at the ASC. In other words, the ASC will not introduce additional or duplicative services, but rather provide a distinct, alternative location for surgical care. Our model reflects this in that our utilization projections are based on local physicians who have expressed interest in utilizing the center and shifting a portion of their historical volumes of surgical services from UVMHC, and to a lesser extent NMC, to the GMSC. We do not anticipate that the GMSC will result in a material increase in procedure volume out of line with the historical trends of the physicians to date.

That said, there is a need for additional surgical capacity in Chittenden County specifically, as evidenced by the demographic data and anecdotal support listed in our answer to Question 6 posed by the GMCB on August 28, 2015 (Q001), as well as UVMHC's 2013 Community Health Needs Assessment (the "CNA"). Page 9 of the CNA indicates that nearly 50 percent of respondents answered that there is a "high need" for "access to specialist care in a timely manner," indicating that, notwithstanding the information provided by UVMHC regarding wait times, from the Chittenden County patient's perspective, timely access to specialists such as gastroenterologists remains a problem. The proposed ASC would improve access to specialists in two ways. The first and more intuitive way is by expanding access to the types of specialist services offered at the ASC, such as colonoscopies. The ASC's characteristic efficiency typically results in lower operating/procedure room turnover times, which accordingly leads to reduced wait times, or even the elimination of wait times, for those procedures. In addition, the ASC will also increase access to specialists in a less intuitive way. The efficiency of the ASC results in less specialist "down-time," when the physician must wait for rooms to be turned over. This reduction in down-time enables those specialists to spend more time in the clinic, where they provide consultative and clinical services for their patients, thus increasing patient access to such services as well.

Page 8 of the CNA also indicates that roughly 45% of respondents listed affordable health care as an issue that they are "most concerned about" and Page 9 of the CNA indicates more than 70 percent of



respondents indicated that there is a “high need” for “affordable health care.” As discussed elsewhere, one of the important contributions of ASCs to the health care system is that they offer quality services at a lower cost than the currently available option for outpatient surgery.

8. Provide GMSC’s proposed marketing plan for Years 1, 2, 3 and 4. Include the services marketed, target geographical areas, and annual budget for marketing/advertising.

While a formal marketing plan has not been developed, we anticipate promoting the GMSC locally in preparation for our initial opening so consumers are aware this option is now available. Once operational however, the GMSC does not intend to engage in a major direct-to-patient marketing effort. Patients will be referred through their primary care physician in the majority of cases, or referred through their specialty physician, in each case in consultation with the patient. We anticipate dedicating some funds to support a website and to produce educational literature, which will include an explanation of services, insurance information, location/maps, etc. The limited dollars earmarked, less than \$5,000 per year, for marketing will be used to improve patient access, not patient recruitment.

9. Provide current wait times by procedure and surgery for each of the physicians A-P and for “other physicians” listed on page 27 of the application.

The bulk of the procedures performed at the GMSC will be GI and pain management procedures. GI procedures will comprise approximately 61% of cases performed at the center and pain management procedures will comprise approximately 17% of cases (see Table 6, column 5 / Year 4, on page 28 of the original application). The current wait times for the most common GI procedures – elective endoscopy, endoscopy with anesthesia services, and urgent endoscopy are: 6 weeks, 8 weeks, and 2-3 days respectively, as reported by physicians currently performing these procedures in the area. The current wait times for the most common pain management procedures – lumbar transforaminal epidural, cervical medical branch block, and conscious sedation for spinal injections are: 4 weeks, 4 weeks, and 6 weeks respectively, as reported by physicians currently performing these procedures in the area.

The remaining minority of GMSC procedures are spread across orthopedics, general surgery, and gynecology and are too varied and performed in too small volumes, for us to collect accurate predictions of current wait times, especially considering the many factors ranging from the need for pre-operative testing, to work schedules and availability of surgeons, that can influence wait times for particular procedures.

10. Provide GMCS’s expected wait times for most surgeries and procedures for Years 1 through 4 of operation.

We expect wait times for procedures that will still be performed at the hospital will be reduced due to this set of routine procedures moving out of the hospital OR/procedure rooms and freeing up more time for faster scheduling of more complex cases more appropriate for the hospital setting.



While we have not forecasted expected wait times at the GMSC, our goal once the GMSC opens will be to keep wait times to less than 1 month between scheduling and undergoing a colonoscopy procedure and also to less than 1 month between scheduling and undergoing a pain management procedure for lower back pain, which is in line with ASC industry benchmarks reported in Becker's ASC Review's annual ASC benchmarking study for 2015, compiled using data from several industry sources including benchmarking studies for colonoscopy and pain management patients, specifically, from the Accreditation Association for Ambulatory Health Care.

Another important factor that may contribute to increased utilization and may also have an effect on median wait times at the GMSC, is the possibility that some Vermonters are currently putting off scheduling procedures due to inability to pay for them. According to one recent study, lowering out-of-pocket costs for colonoscopies increased colorectal cancer screening rates in the Medicare population.³ Medicare patients typically have a 20% co-pay for facility charges when a colonoscopy is performed. This out of pocket cost will be significantly reduced when the GMSC offers colonoscopies at 56% of the current hospital outpatient department facility rate. The "pent up demand" that may subsequently be released when the center opens makes it even more difficult to predict precisely how wait times will be affected.

11. Assuming a national benchmark of 75-80% use of capacity, explain GMCS's need for the project in light of projected OR and procedure room utilization in Years 1 through 4 ranging from 44.2% to 61.4%.

The tables presented in response to Question 2 show procedure room utilization of between 61.6% (best case scenario) and 91.3% (worst case scenario), and operating room utilization of between 52.1% (best case scenario) and 71.5% (worst case scenario) in Year 4, once the ASC is fully ramped up, depending on how efficiently the GMSC is able to turn over operating rooms.

Given that we will be new to operating a surgery center, we thought it prudent to allow for slightly slower than ASC industry average turnaround times in our first four years of operation while still allowing for enough open capacity to accommodate urgent case referrals within a couple of days. It is imperative that we maintain some open capacity to accommodate patients who need access to procedures right away.

We are unable to find information that establishes a national benchmark at 75 to 80% use of capacity, and would appreciate the citation so we can respond more completely.

12. Provide detailed information about the failed attempts by private practice specialty groups to attract new physicians referenced on page 9, including number of physicians, their specialties, and why in each instance the recruitment efforts failed.

³ Mary Kay Hamman and Kandice A. Koponos; *Affordable Care Act Provision Lowered Out-Of-Pocket Cost And Increased Colonoscopy Rates Among Men In Medicare*; Health Affairs; July, 2016; <http://content.healthaffairs.org/content/34/12/2069.abstract>



In order to respond to this question we surveyed private practice specialty physicians to ask about failed recruitment efforts over the past 5 - 10 years. Physicians specializing in pain management reported six instances of failed recruitment efforts citing low pay in Vermont compared to elsewhere, high cost of living in the state, and the rarity of the subspecialty as reasons why potential recruits decided not to come to Vermont. General surgeons reported two failed recruitment efforts and pointed to the unequal reimbursement that surgeons in private practice receive here compared to hospital-employed general surgeons, and the lack of office-based suites or ambulatory surgery centers at which to practice, as major reasons that contributed to failed recruitment. Gastroenterologists in private practice reported an on-going opening they are attempting to recruit a physician here to fill, but expressed that it has been difficult due to limited OR time, lack of access to an ambulatory surgery center, and low reimbursement compared to elsewhere. One regional ophthalmology practice reported five failed recruitment attempts in the last six years and cited low reimbursement in private practice, low volume, lack of ASC access, and high call needs as among the reasons that previous recruitment efforts have failed.

We were able to learn the most from a group of orthopedic surgeons formerly in private practice who recently decided to become hospital-employed, in part because they estimated it would be nearly impossible for them to recruit another physician to their own practice. This group practice formed fourteen years ago and a few years into the venture one of the surgeons decided to leave the community, creating an opening that it took the remaining partners several years to fill. As members of the Vermont Orthopedic Society, this group has heard similar stories of very difficult recruitment efforts from other surgeons in the state. Their opinion is that Vermont is a difficult place to recruit to a private practice because reimbursements are lower than elsewhere and state regulations make it difficult for private practice physicians to develop physician-owned sites of care, like ambulatory surgery centers, despite how common they are in every other state and the value they bring to patients and the health care system as a whole.

13. Provide the vendor quote and a detailed breakdown of all costs necessary to make the electronic health record (EHR) fully operational.

Please see Exhibit Q13, attached.

14. Provide more detailed information regarding the current problems experienced with EPIC and their effect on providers interested in offering services at GMSC, as identified on page 22 of your responses.

We do not have more information about EPIC than we already provided on page 22 of our responses dated December 23, 2015. Regardless, the GMSC intends to share patient-level clinical and outcomes data with any health care organization that has an interest in accessing this data in accordance with applicable legal and regulatory requirements and procedures. We have already engaged with two staff members from VITL to review the inter-operability capabilities of the potential software vendors that we are considering for the GMSC. Inter-operability with other systems from primary care practice EMRs, to



community health center EMRs, to VITL, to ACO level-population health analytics platforms, such as HealthCatalyst, currently being used by OneCare Vermont, will be a top-priority of the GMSC.

15. Provide a side-by-side comparison of the proposed revisions to the policy for free and discounted care (page 24) and the policy submitted in the application. Explain why GMSC is making each revision.

A copy of the GMSC's current Free and Discounted Care Policy is attached as Exhibit Q15. This policy differs from the Free and Discounted Care Policy submitted in the Application only in that the following language has been added to the Terms of Financial Assistance section:

"A patient who is eligible for financial assistance under this policy shall not be personally responsible for paying, after all deductions, discounts (including discounts available under this policy), and insurance reimbursements have been applied, more for medically necessary care than the amount Medicare would allow for the care (for an item or service covered by Medicare), or the average amount allowed by private health insurers (for an item or service that is not covered by Medicare)."

The GMSC made this revision upon review of its policy to determine whether it generally complies with patient financial assistance guidelines set forth in Internal Revenue Code ("IRC") Section 501(r) and the Department of Treasury's implementing regulations. The GMSC conducted this review in response to the Board's Q.18, posed August 28, 2015, which asked whether the GMSC intends to adhere to these rules, which apply to non-profit hospitals that are tax-exempt under IRC Section 501(c)(3). While the GMSC is neither tax-exempt nor required under federal law to comply with Section 501(r), it is committed to providing free and discounted care to needy patients at a level on par with Vermont nonprofit hospitals.

The GMSC added the below language to its Free and Discounted Care Policy in light of the following provisions of Section 501(r) and its implementing regulations:

- Tax-exempt hospitals are required to charge persons who are eligible for financial assistance under the hospital's policy no more for medically necessary care than the amounts generally billed for the same care to persons who have insurance coverage. A person is "charged" only the amount he or she is personally responsible for paying, after all deductions, discounts (including discounts available under the financial assistance policy), and insurance reimbursements have been applied. The rules set out two methods hospitals may use to determine how much to charge. One option is to charge a person eligible for financial assistance the total amount Medicare fee-for-service or Medicaid would allow for the care (including both the amount Medicare or Medicaid would reimburse and the amount the beneficiary would be personally responsible for paying). Alternatively, a hospital may calculate the percentage of its gross charges for medically necessary care that insurers have allowed during a prior twelve-month period (the "AGB percentage"), and charge persons eligible for financial assistance not more than this percentage of gross charges. A hospital electing this latter method may apply one average AGB percentage to all medically necessary care, or it may calculate multiple AGB percentages for separate categories of care or for separate items or services. A hospital must always charge persons eligible for financial assistance less than the gross charges for any medical care covered



under the hospital's financial assistance policy. 26 U.S.C. § 501(r)(5), 26 C.F.R. §§ 1.501(r)- 5(a), 5(b), 5(c).

1.

16. Explain where patients will obtain imaging services.

2.

The GMSC will not offer imaging services such as CT scans, mammography, MRI scans, ultrasounds or x-rays. We expect that the physicians who perform surgeries at the GMSC will continue to refer their patients to UVMHC, NMC or other area hospitals or to the Vermont Open MRI for such imaging services, consistent with their current/historical practices.

17. Provide support for the statement that GMSC will be able to “immediately reduce the financial burden borne directly by...the state’s health care system as a whole.” Application at 5. Address how hospitals will pay for fixed capacity costs if revenue from lower risk and less complex cases are transferred to the GMSC.

We stated in the Application on page 5:

The lack of development of lower-cost alternative settings of care in Vermont may contribute to our relatively high overall health care costs compared to other states despite the state’s recent efforts and commendable progress in addressing the high cost of health care and containing its growth. The ASC proposed in this Application is offered as an alternative so that in the future the state does not have to rely exclusively on expanding the current higher-cost, hospital-based healthcare infrastructure. Once open, the proposed ASC will immediately reduce the financial burden borne directly by Vermonters and the state’s health care system as a whole.

This statement is supported by the much lower rate at which the Medicare program reimburses procedures and surgeries that take place in an ASC versus the rate it pays for the same surgical procedures performed in a hospital.⁴ Rates are set annually; in 2017, the Medicare reimbursement rates are set to go up 1.7% for acute care hospital inpatient and outpatient services, but there is no change in rates for ASCs.⁵ Medicare typically pays 45 to 60% less for a surgical procedure performed in an ASC. Because insurers use Medicare as their base line for negotiating reimbursement rates, insurers and patients generally pay less when surgical procedures are performed at ASCs.

Indeed, MVP Health Care, which covers over 12,000 Vermont insured lives, endorsed the cost savings associated with ASCs in a report it was statutorily required to file with the GMCB on July 1, 2016:

⁴ Department of Health and Human Services Office of Inspector General; *Medicare And Beneficiaries Could Save Billions If CMS Reduces Hospital Outpatient Department Payment Rates For Ambulatory Surgical Center-Approved Procedures To Ambulatory Surgical Center Payment Rates*, April 2014, p.6; <https://oig.hhs.gov/oas/reports/region5/51200020.pdf>

⁵ Medicare Payment Advisory Commission; Report to Congress, March 2016; <http://www.medpac.gov/documents/reports/march-2016-report-to-the-congress-medicare-payment-policy.pdf>



Vermont does not currently have a robust network of physician-owned, free-standing outpatient centers, which is unlike surrounding states. In MVP's other surrounding regions, experience has demonstrated that these physician-owned, free-standing outpatient centers provide: the same or higher-quality, more geographically accessible services, more highly-satisfied members and at significantly lower cost. For example, providers in many other states and regions are the owners and staff of free-standing imaging centers, ambulatory surgical centers, lab draw stations, endoscopy and colonoscopy centers, sleep labs, urgent care centers and infusion centers, among other services. Available 21st century technology and its impact on the related cost-per-procedure have significantly driven down the cost of services provided while improving on the quality of those services. This is much like the technological advancement of the personal computer since the 1990s has commoditized the pricing of from thousands of dollars plummeting down to a few hundred dollars today (and even less for tablets). High-quality, nationally-certified and licensed centers are recognized and approved by CMS for their Medicare members as well as by states for their Medicaid members. Commercial employer groups and their employees and families regularly rate their experiences at our contracted free-standing centers as more highly satisfied while simultaneously financially realizing an average savings of 50% compared to the exact same services provided at a hospital. MVP strongly encourages Vermont and the GMCB to seriously consider approving these highly competitive physician-owned free-standing centers so that Vermonters and Vermont employers can have additional choice and access points to healthcare services while alleviating the spiraling costs of insurance premiums and mitigating public funding of health care in Vermont.⁶

Many of the reasons behind these cost advantages are also highlighted in our Application. For instance, there is less overhead and lower administrative costs in an ASC; turn-around time for operating rooms and procedure rooms is generally shorter than in HOPDs, permitting a greater number of scheduled surgical procedures; and because ASCs serve as a venue for only certain, routine surgical procedures, they offer an operational efficiency that lowers costs. Additional information and footnoted cites regarding the cost advantages of ASCs are found in our Application at pages 10-11, ("ASCs reduce costs"); p. 22-25, Section G., ("Charge Structures and Patient Savings,") and on page 59, which analyzes the statutory criterion 18 V.S.A. § 9437(2)(B)).

In addition to what has already been included in our Application, a new study calculating commercial insurance costs savings at ASCs at the national level was recently released by Healthcare Bluebook, ASCA, and HealthSmart. Attached as Exhibit Q17A. This study found that U.S. healthcare costs are reduced by more than \$38 billion annually due to the availability of ambulatory surgery centers (ASCs) as an appropriate setting for outpatient procedures and that more than \$5 billion in annual savings accrues to the patients in the form of lower deductibles and co-insurance due to the availability for ASCs around the country.

On the question of fixed capacity costs at hospitals, the GMCB is no doubt aware that this issue is a contentious point in academic and health policy circles as we struggle at a national level to figure out how to maintain and improve access to care while reducing costs.

⁶ MVP Health Care, *An implementation plan for providing fair and equitable reimbursement amounts for professional services in Vermont*; July 1, 2016, p.7. (Attached as Ex. Q17)



Robert Kaplan, a nationally recognized accounting academic, and Michael Porter, an economist, professor, and author, both of whom are on the faculty at Harvard Business School, have been working with organizations such as Brigham & Women's Hospital, Children's Hospital in Boston, and the University of Texas MD Anderson Cancer in Houston, to try to understand existing cost systems at hospitals. In their 2011 paper, *The Big Idea: How to Solve the Cost Crisis in Health Care*, attached as Exhibit Q17B, they point to the assumption that most health care costs are fixed as a key inhibitor to the introduction of more effective reimbursement approaches. Below is an excerpt from their article that addresses the question of fixed costs at hospitals specifically, and argues persuasively that most of what we tend to think of as fixed costs as hospitals are actually not fixed:

Many health care system participants, including economists and accountants, believe that most costs in health care are fixed because so much care is delivered using shared staff, space, and equipment. The result of this misguided thinking is that cost reduction efforts tend to focus on only the small fraction of costs seen as variable, such as drugs and supplies, which are sometimes referred to as marginal or incremental costs. This myth also motivates some health care organizations to expand through mergers, acquisitions, and organic growth in order to reap economies of scale by spreading their fixed costs over an increased volume of business.

But if most health care costs were truly fixed, we would not have the health care cost problem we do today. If most costs were fixed, growth in demand for health care would increase only that small fraction of costs that are variable, leading to lower average costs in the system, not the dramatically higher share of GDP now being devoted to health care.

To understand why most health care costs are not fixed, start with personnel costs, which are generally at least 50% of the total costs of health care providers, according to American Hospital Association statistics. Hint: Personnel costs are not fixed. Hospital executives can set the quantity, mix, and compensation of their personnel each year, or even more frequently. Personnel costs are fixed only when executives allow them to be. The claim that personnel costs are fixed is a reflection of management inattention, not of the nature of those costs.

Space costs are also not fixed. Space is perhaps an organization's most fungible resource. If demand for space is reduced, units can be consolidated into smaller space, and excess space can be repurposed, sold, or subleased. Similarly, equipment costs can be avoided if changes in processes, treatment protocols, or patient mix eliminate the demand for the resources. Equipment no longer needed can be retired or sold to other health care institutions that are expanding their capacity.

All told, we estimate that upwards of 95% of what health care managers think of as fixed costs are actually under their control and therefore not really fixed.⁷

⁷ Robert S Kaplan, and Michael E. Porter; *The Big Idea: How to Solve the Cost Crisis In Health Care*; Harvard Business Review, September 2011; <https://hbr.org/2011/09/how-to-solve-the-cost-crisis-in-health-care>



Managers at hospitals in Vermont, specifically UVMHC and NMC, have historically demonstrated a keen ability to adapt to changing market conditions even with the burden of their so-called “fixed capacity.” Despite competition from urgent care clinics beginning in 2013, sweeping changes to regulation and reimbursement as a result of the Affordable Care Act beginning in 2011, and even large structural expansions that exceeded their budgets such as the Renaissance project in the early 2000s, the boards and managers at these hospitals have been able to ensure their institutions remain on strong financial footing and have been able to provide their essential services to the community. We see no reason why they wouldn’t be able to respond in a similarly adept manner to the opening of a mid-size multi-specialty ASC in the Burlington area.

Specifically, the financial experience of UVMHC in the wake of the 2008 opening of the Eye Surgery Center, the state’s only existing ambulatory surgery center, shows that the loss of revenue from the limited scope of procedures performed in the ASC has not undermined the hospital’s ability to serve the public. UVMHC was able to respond and adjust their operating structures and revenue strategies such that total revenue continued to increase from approximately \$785M in 2008 to \$1.0B in 2013, which equates to a 5% compound annual revenue growth rate. UVMHC’s net income reported in the five years after the opening of the Eye Surgery Center ranged from \$21M in 2008⁸ to \$86.5M in 2013.⁹ In the five years after the Eye Surgery Center opened, UVMHC grew its operating income at annualized rate of 32.7% per year. This additional money has been added to the hospital’s very strong balance sheet each year, which we believe will allow UVMHC to weather and adapt to changes in market conditions, such as the introduction of a freestanding surgery center.

NMC, the other closest hospital to the proposed GMSC, has enjoyed revenue enhancements every year since the Eye Surgery Center opened in 2008, from a base of \$56M in net patient revenues in 2008¹⁰ to \$91M in 2014.¹¹ This equates to a compound annual growth rate of 8.4% in net patient revenue over the time period since the Eye Surgery Center opened. In fiscal year 2015, NMC made \$7 million in excess revenues. While plans for what NMC will do with the overage have not yet been made public, perhaps having it on hand will help it prepare for any adjustments in volume that may result from the opening of an ASC.

18. Explain whether GMSC plans to provide additional financial support or other resources in exchange for its reliance on 911 emergency services to transport patients in the event of an emergency.

As a preliminary matter, we expect that the need for emergency transport will be rare given the nature of the services performed at the GMSC and the population of patients that will be eligible to utilize the ASC. In fact in May 2016, Medicare released national ASC quality data for 2013 and 2014 that shows that

⁸ <https://www.uvmhealth.org/news/Fletcher-Allen-Releases-First-Quarter-Financial-Results-For-Fiscal-Year-2009-and-Results-for-FY-2008>

⁹ <https://projects.propublica.org/nonprofits/organizations/30219309>

¹⁰ <https://www.northwesternmedicalcenter.org/pdf/08-ar/> NMC Annual Report 2008

¹¹ http://gmcboard.vermont.gov/sites/gmcb/files/files/resources/G_Act53__Financial_Data_by_Hospital-Act14-15_Bud16.pdf



the percentage of ASC admissions (patients) who are transferred or admitted to a hospital upon discharge from an ASC is 0.475%.

That said, emergencies inevitably can and do occur, and ACTD has accordingly entered into an agreement with the Colchester EMS Department to provide emergency ambulance service to patients requiring emergency transport from 535 Hercules Drive, Colchester, Vermont. The agreement does not require payment of additional financial support in reliance on these services, but does require the GMSC to make its personnel available to assist EMS personnel, as needed, and to ride with a patient to the hospital. It is our understanding that the Colchester EMS is funded through the Town of Colchester's general fund budget, through a combination of local property taxes and other revenues. ACTD intends to be a responsible member of the Colchester business community and to pay its share of applicable taxes that fund the Colchester EMS and other Town services, and will be fully supportive of the Colchester EMS and the critical services it provides to our patients and our larger community. Finally, we wish to highlight that the Town of Colchester has submitted to the GMCB a letter in support of our application.

19. Relative to HRAP Standard 1.3, describe in detail why it is not feasible or appropriate for GMSC to provide services in collaboration with existing facilities and providers in the current Vermont health system.

Our response regarding HRAP Standard 1.3 did not indicate that it is not feasible or appropriate for GMSC to provide services in collaboration with existing facilities and providers in the current Vermont health system. Quite the opposite, it is a goal of the GMSC to become an integrated part of the Vermont health care system and to collaborate in a number of ways:

- We have had discussions with UVMHC as recently as March 2, 2016 to explore possible collaboration opportunities. Such opportunities include enabling UVMHC to book block time at the proposed ASC for hospital-employed physicians, pursuing joint purchasing arrangements to enable the ASC to benefit from bulk and volume discounts, and exploring joint venture opportunities. The parties are still in the process of exploring what forms a collaboration might take. While these discussions are unlikely to crystalize into a definitive agreement before the GMCB has approved our project, our work with UVMHC is ongoing. We would welcome engaging in similar discussions with NMC or any other area hospitals that may be interested in collaborating with us. We believe that hospitals collaborating with ASCs may be able to bend the cost curve.
- As mentioned in our application and in our response to Q001, Question 15, the GMSC also intends to work with the Vermont Program for Quality in Health Care ("VPQHC") to collect data for improvement utilizing American College of Surgeons National Surgical Quality Improvement Program ("ACS NSQIP") and will identify a "surgical champion" to participate in VPQHC's surgical learning collaboratives, together with Mt. Ascutney Hospital, Brattleboro Memorial Hospital, Southwestern Vermont Medical Center, Porter Hospital, and Rutland Regional Medical Center.
- All of the surgeons who plan to operate at the GMSC have each signed the Collaborative Care



Agreement that commits them to support the goals of ACOs and reduce unnecessary care. We intend for the GMSC to work with all ACOs in the State to integrate the ASC as a resource in the State's health care reform efforts.

- The GMSC can be utilized by any area physicians that are credentialed and privileged at the GMSC, including hospital-employed physicians and other physicians who are not affiliated with ACTD LLC. Thus we expect to work broadly with existing Vermont health care providers to enable them to best meet the needs of their patients.
- The GMSC is interested in working with area hospitals and other providers to provide physician training and education opportunities at the GMSC.

As the health care landscape continues to evolve, the GMSC will continue to look for opportunities to collaborate with other facilities and providers in Vermont in efforts aimed at advancing medicine, improving quality of and access to health care, while reducing the cost of health care.

20. Explain if GMSC plans to share in the cost of recruiting physicians to Vermont with other Vermont providers.

GMSC is not aware of any existing mechanism for recruitment cost sharing among providers and does not plan to contribute to other providers' recruitment costs. GMSC anticipates that the availability of the proposed ambulatory surgery center will benefit physician recruitment to the greater Burlington area. As mentioned in GMSC's response to the Board's Q.6, posed August 28, 2015, and in the above response to Q.12, several private practice specialty groups report that the lack of a freestanding ambulatory surgery center has been an obstacle to recruitment in recent years. Physician recruiters who are actively recruiting even hospital-employed Burlington-based specialists often cite the ability to operate at a freestanding surgery center as an attractive feature of almost every other similar-sized metropolitan area in the country where these specialists may go instead.

21. Explain whether and how GMSC will participate in state and national health care reform initiatives that move away from traditional fee-for-service reimbursement.

Accountable Care Organizations ("ACOs") are groups of providers that take accountability for the total cost of a patient's care. While fee-for-service payments will likely always make-up some portion of an ACO's provider payment scheme, much of the care under this model will eventually move to either capitated payments to providers per patient or bundled payments to providers per episode. GMSC plans to be a valuable resource for local ACOs that are striving to manage the total cost of care under a global budget, and also a valuable resource for ACOs that are attempting to achieve shared savings by managing actual fee-for-service spending that is below expected fee-for-service spending. At the end of the day, all ACOs strive to generate savings by limiting avoidable utilization and re-engineering care processes to emphasize more cost effective pathways that produce similar (or better) outcomes. The



GMSC will be a more cost-effective pathway for Vermont's ACOs to utilize for their patients who require routine outpatient surgical procedures.

In the future, the GMSC also plans to participate in bundled payments for surgical procedures. A bundled payment in this scenario might include the traditionally separate fees for the surgeon's time, the anesthesiologist's time and materials, and the surgery center's time and materials, into one global fee charged to payers and/or self-insured employers through their third party administrators. The global fee will be at a discount to what would customarily be charged if all the current separate fee-for-service payments were added together, thus saving insurers and employers money and reducing the overall cost of underlying health care services. In order to cover our costs under the bundled payment arrangement, our surgery center, the operating physicians, and affiliated anesthesiologists will all have to work together seamlessly to deliver high-quality care in the most efficient way possible.

Additionally, some of the surgeons who plan to operate at our center are already offering a form of bundled payments for patients who need to pay for procedures themselves because insurance does not cover them, such as in-vitro fertilization services. These patients have required more predictable and affordable global episode-based payment arrangements for quite some time. Adding the surgery center's facility charge into existing episode-based bundled payment structures such as this one, will be an easy entry-point for the GMSC to begin undertaking this payment model.

It is also important to mention here that our Application is supported by some of the largest and most important self-insured employers in the state. We have already begun discussing the potential for bundled payments for typical high-frequency outpatient procedures with several of them.

22. The plans submitted for the surgical center suite do not meet FGI 2014 guidelines, including the layout for sterile processing. Explain how GMSC will revise the plans to address deficiencies, and whether GMSC will incur additional costs, directly or indirectly, in order to comply with FGI guidelines.

The GMSC has been designed to meet the 2014 Edition of *the FGI Guidelines for Design and Construction of Hospitals and Outpatient Facilities*. In our Application, Exhibit 4, we included a 19 page summary of the applicable 2014 FGI requirements and how the surgical center plans meet them. Our architect, who has developed hundreds of outpatient facilities nationwide, is perplexed that the Board has concluded the plans for the GMSC, specifically the layout for sterile processing, fail to meet the 2014 FGI guidelines.

The sterile processing area consists of two rooms. The first room is the soiled work room or decontamination room. This room is accessible from the semi-restricted corridor. The room has a washer sanitizer, clinical sink, instrument washing sink, and hand washing sink with countertop. The washer sanitizer feeds the instruments into the sterile processing room. The room also has a pass through window. The second room is the sterile processing room, which includes a countertop with hand washing sink, and base and upper storage cabinets. The room also includes a cabinet sterilizer, wrapping table and rack storage system. This room is also accessible from the semi-restricted corridor.



The Application includes the following analysis regarding the FGI Guidelines relative to the sterile processing area:

3.7-5	GENERAL SUPPORT FACILITIES		
3.7-5.1	<u>Y</u> Sterilization facilities - on-site sterile processing room		
3.7-3.6.13	On-Site Sterile Processing Room:		
3.7-3.6.13.1 (1)	<u>Y</u> consists of decontamination area & clean work area		
(2)	Location: <u>Y</u> designed to provide one-way traffic pattern of contaminated materials/instruments to clean materials/instruments to sterilizer equipment		
(a)	<u>Y</u> entrance to contaminated side of sterile processing room from semi-restricted area		
(b)	<u>Y</u> exit from clean side of sterile processing room to semi-restricted area or to operating room (may be shared between two or more OR's)		
(3)			
3.7-3.6.13.2 (1)	<u>Y</u> decontamination area	Ventilation: <u>Y</u> Min. 6 air changes per hour	Table 7.1
(a)	<u>Y</u> countertop	<u>Y</u> Negative pressure	
(b)	<u>Y</u> handwashing station <u>Y</u> separate from instrument-washing sink	<u>Y</u> Exhaust	
(c)	<u>Y</u> sink for washing instruments	<u>Y</u> No room recirculating units	
(d)	<u>Y</u> storage for supplies		
(2)	<u>Y</u> min. 4'-0" distance from edge of decontamination sink to clean work area		
3.7-3.6.13.3 (1)	<u>Y</u> clean work area <u>Y</u> countertop	Ventilation: <u>Y</u> Min. 4 air changes per hour	Table 7.1
(2)	<u>Y</u> sterilizer	<u>Y</u> Positive pressure	
(3)	<u>Y</u> handwashing station	<u>Y</u> No room recirculating units	
(4)	<u>Y</u> built-in storage for supplies		
3.7-5.2	<u>Y</u> Linen services		
3.7-5.2.1	<u>Y</u> clean linen storage		
3.7-5.2.2	<u>Y</u> soiled linen holding		



3.7-5.5	<u>Y</u> Environmental services room		
3.1-5.5.1.1	<u>Y</u> min. one ES room per floor		
3.1-5.5.1.2 (1) (2) (3)	<u>Y</u> service sink or floor-mounted mop sink <u>Y</u> provisions for storage of supplies & housekeeping equipment <u>Y</u> handwashing station or hand sanitation dispenser	Ventilation: <u>Y</u> Min. 10 air changes per hour <u>Y</u> Exhaust <u>Y</u> Negative pressure	Table 7.1

According to our architect, this sterile processing layout and work flow has been approved by numerous other states nationally that utilize the 2014 Edition of the FGI Guidelines.

Please provide clarification as to why the GMCB believes our plans for the GMSC do not meet the FGI Guidelines.

23. Provide a dimension plan indicating sizes and square footage for each function that complies with FGI 2014 requirements.

Please see Exhibit Q23, attached.

Because the plan submitted with the Application was a dimension plan showing sizes for all the rooms and functions required by the 2014 Edition of *the FGI Guidelines for Design and Construction of Hospitals and Outpatient Facilities*, we are not clear exactly what is being called for in response to this question. Please advise if this response does not provide the information the Board looking for.

Please let us know if you have any additional questions or need clarification regarding any of these responses.

Sincerely,



Eileen Elliott, Esq.
Dunkiel Saunders Elliot Raubvogel & Hand, PLLC

cc: Judy Henkin, Esq., General Counsel, Green Mountain Care Board
Lauren Layman, Esq., Vermont Association of Health and Hospital Systems
Anne Cramer, Esq., Vermont Association of Health and Hospital Systems
Jill Berry Bowen, CEO, Northwestern Medical Center
Jonathan Billings, V.P. of Planning & Community Relations, Northwestern Medical Center
Lila Richardson, Esq., Office of the Healthcare Advocate
Kaili Kuiper, Esq., Office of the Healthcare Advocate



Form A – Verification Form

STATE OF VERMONT
GREEN MOUNTAIN CARE BOARD

In re: ACTD LLC MULTI-SPECIALTY)
 AMBULATORY SURGERY CENTER) Docket No. GMCB-010-15con
)
)
)

Verification Under Oath – Responses and Supplemental Exhibit

Amy Cooper, being duly sworn, states on oath as follows:


1. My name is Amy Cooper. I am the manager of ACTD LLC. I have reviewed the Responses and Supplemental Exhibits being submitted with this Verification to support the Certificate of Need Application for the Green Mountain Surgery Center (“Responses”).
2. Based on my personal knowledge, after diligent inquiry, the information contained in the Responses is true, accurate and complete, does not contain any untrue statement of a material fact, and does not omit to state a material fact necessary to make the statement made therein not misleading, except as specifically noted in the Responses.
3. My personal knowledge of the truth, accuracy and completeness of the information contained in the Responses is based upon either my actual knowledge of the subject information or, where identified below, upon information reasonably believed by me to be reliable and provided to me by the individuals identified below who have certified that the information they have provided is true, accurate and complete, does not contain any untrue statement of a material fact, and does not omit to state a material fact necessary to make the statement made therein not misleading.
4. I have evaluated, within the 12 months preceding the date of this affidavit, the policies and procedures by which information has been provided by the certifying individuals identified below, and I have determined that such policies and procedures are effective in ensuring that all information submitted or used by ACTD LLC in connection with the Certificate of Need program is true, accurate and complete. I have disclosed to ACTD LLC all significant deficiencies, of which I have personal knowledge after diligent inquiry, in such policies and procedures, and I have disclosed to ACTD LLC any misrepresentation of facts, whether or not material, that involves management or any other employee participating in providing information submitted or used by ACTD LLC in connection with the Certificate of Need program.

5. The following certifying individuals have provided information or documents to me in connection with the Responses, and each such individual has certified, based on his or her actual knowledge of the subject information or, where specifically identified in such certification, based on information reasonably believed by the certifying individual to be reliable, that the information or documents they have provided are true, accurate and complete, do not contain any untrue statement of a material fact, and do not omit to state a material fact necessary to make the statement made therein not misleading:
- a. Joan Dentler – Avanza Strategies; provided financial modeling, policy, and practice information customarily performed at ASCs and projected to be used at GMSC.
 - b. Physicians practicing in the area who wish to remain anonymous; provided projections and historical practice information.
 - c. Jack Amormino - AMB Development Group, provided the systems narrative required in response to Question 22 and the dimension plan for Question 23.
6. In the event that the information contained in the Responses becomes untrue, inaccurate or incomplete in any material respect, I acknowledge my obligation to notify the Green Mountain Care Board and to supplement the Responses, as soon as I know, or reasonably should know, that the information or document has become untrue, inaccurate or incomplete in any material respect.



A handwritten signature in cursive script, appearing to read "Amy Cooper", is written over a horizontal line.

On July 15, 2016, Amy Cooper appeared before me and swore to the truth, accuracy and completeness of the foregoing.

Notary public 

The text "Notary public" is followed by a handwritten signature in cursive script, which appears to be "Emma Rosa". The signature is written over a horizontal line.

My commission expires February 10, 2019

TABLE 3 - OPERATING ROOM UTILIZATION

	Operating Room Utilization			
	Year 1	Year 2	Year 3	Year 4
Operating Room Utilization				
OR 1	569	657	663	670
% Change from Previous Year		15.4%	1.0%	1.1%
OR 2	569	657	663	670
% Change from Previous Year				
Total OR Utilization	1,138	1,313	1,326	1,340
Total % Change		15.4%	1.0%	1.1%

TABLE 4 - PROCEDURE ROOM UTILIZATION

	Procedure Room Utilization			
	Year 1	Year 2	Year 3	Year 4
Procedure Room Utilization				
PR 1	998	1,153	1,164	1,176
% Change from Previous Year		15.5%	1.0%	1.0%
PR 2	998	1,153	1,164	1,176
% Change from Previous Year		15.5%	1.0%	1.0%
PR 3	998	1,153	1,164	1,176
% Change from Previous Year		15.5%	1.0%	1.0%
PR 4	998	1,153	1,164	1,176
% Change from Previous Year		15.5%	1.0%	1.0%
Total PR Utilization	3,994	4,611	4,657	4,703
Total % Change		15.5%	1.0%	1.0%
Total OR and PR Utilization	5,132	5,924	5,983	6,043
Total Average % Change		15.4%	1.0%	1.0%

TABLE 1 - CAPACITY AND PROJECTED VOLUMES SUMMARY

	Capacity				Projected Volumes			
	Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
Operating Room								
OR 1	1,287	1,287	1,287	1,287	569	657	663	670
OR 2	1,287	1,287	1,287	1,287	569	657	663	670
Total OR	2,574	2,574	2,574	2,574	1,138	1,314	1,326	1,340
Procedure Room								
PR 1	1,914	1,914	1,914	1,914	998	1,153	1,164	1,176
PR 2	1,914	1,914	1,914	1,914	998	1,153	1,164	1,176
PR 3	1,914	1,914	1,914	1,914	998	1,153	1,164	1,176
PR 4	1,914	1,914	1,914	1,914	998	1,153	1,164	1,176
Total PR	7,656	7,656	7,656	7,656	3,992	4,612	4,656	4,704
Grand Total OR+PR	10,230	10,230	10,230	10,230	5,130	5,926	5,982	6,044

59.1%

Table 2 - Capacity Calculation

	Operating Rooms	Procedure Rooms
ROOMS	2	4
YEAR 1		
Days/Year	250	250
Daily Hours	7	7
Total Available Hours (All Rooms)	3,500	7,000
Average Length of Procedure (Minutes)	81.585	54.859
Annual Utilization (From Table 1)	1,138	3,992
Annual Utilization/Room	569	998
Total Capacity (Cases)	2,574.00	7,655.99
% of Total Used	44.21%	52.14%
YEAR 2		
Days/Year	250	250
Daily Hours	7	7
Total Available Hours (All Rooms)	3,500	7,000
Average Length of Procedure (Minutes)	81.585	54.859
Annual Utilization (From Table 1)	1,314	4,612
Annual Utilization/Room	657	1,153
Total Capacity (Cases)	2,574.00	7,655.99
% of Total Used	51.05%	60.24%
YEAR 3		
Days/Year	250	250
Daily Hours	7	7
Total Available Hours (All Rooms)	3,500	7,000
Average Length of Procedure (Minutes)	81.585	54.859
Annual Utilization (From Table 1)	1,326	4,656
Annual Utilization/Room	663	1,164
Total Capacity (Cases)	2,574.00	7,655.99
% of Total Used	51.52%	60.82%
YEAR 4		
Days/Year	250	250
Daily Hours	7	7
Total Available Hours (All Rooms)	3,500	7,000
Average Length of Procedure (Minutes)	81.585	54.859
Annual Utilization (From Table 1)	1,340	4,704
Annual Utilization/Room	670	1,176
Total Capacity (Cases)	2,574.00	7,655.99
% of Total Used	52.06%	61.44%

Note: Average length of procedure includes turnaround time.

Table 3 - Operating Room Utilization

Operating Room Utilization					
Operating Room Utilization	Year 1	Year 2	Year 3	Year 4	Average (Annual) % Change
OR 1	569	657	663	670	5.81%
% Change from Previous Year		15.47%	0.91%	1.06%	5.81%
OR 2	569	657	663	670	5.81%
% Change from Previous Year		15.47%	0.91%	1.06%	5.81%
Total OR Utilization	1,138	1,314	1,326	1,340	5.81%
Total % Change (from Previous Year)		15.47%	0.91%	1.06%	5.81%

Table 4 - Procedure Room Utilization

Procedure Room Utilization					
Procedure Room Utilization	Year 1	Year 2	Year 3	Year 4	Average (Annual) % Change
PR 1	998	1,153	1,164	1,176	5.84%
% Change from Previous Year		15.53%	0.95%	1.03%	5.84%
PR 2	998	1,153	1,164	1,176	5.84%
% Change from Previous Year		15.53%	0.95%	1.03%	5.84%
PR 3	998	1,153	1,164	1,176	5.84%
% Change from Previous Year		15.53%	0.95%	1.03%	5.84%
PR 4	998	1,153	1,164	1,176	5.84%
% Change from Previous Year		15.53%	0.95%	1.03%	5.84%
Total PR Utilization	3,992	4,612	4,656	4,704	5.84%
Total % Change (from Previous Year)		15.53%	0.95%	1.03%	5.84%
Total OR and PR Utilization	5,130	5,926	5,982	6,044	5.83%
Total Average % Change (for OR and PR, from Previous Year)		15.52%	0.94%	1.04%	5.83%



Amkai LLC
200 Business Park Drive, Suite 208
Armonk, New York 10504
1-855-Go-Amkai (855-462-6524)
www.AmkaiSolutions.com

BUDGETARY QUOTE FOR SOFTWARE AND SERVICES

Prepared by Your AmkaiSolutions Sales Executive: Paul Dobbelhoff
Phone: 708-935-3787 Email: paul.dobbelhoff@amkai.com
Date of this Quote: 3/21/2016 This Quote Expires: 6/30/2016

SECTION 1 - SUMMARY

Client (legal name): Avanza Site TBD
AmkaiSolution Package: [X] AmkaiOffice [X] AmkaiCharts
Package Type: [X] Ambulatory Surgery Center (ASC) [] Subscription
Package License Type: [X] Perpetual [] Subscription
Initial Subscription or Maintenance & Support Term, as applicable: Five years from Order Effective Date

SECTION 2 - LICENSE METRICS

Table with 3 columns: Facility Name and Address, Operating Rooms, Procedure Rooms. Row 1: Avanza Site TBD, 2, 4. Row 2: (blank), (blank), (blank). Row 3: (blank), (blank), (blank). Row 4: TOTAL: (blank), (blank), (blank).

Business Entities (legal name): 1. Avanza Site TBD
2.
3.
4.

Anesthesia Entities (legal name): 1.
2.
3.

Other Metrics (if applicable): Production Databases: 1 GI Scopes: 1
Providers: Not applicable Affiliated Healthcare Professionals: Not applicable

PRICING NOTE: In making this Quote, AmkaiSolutions has relied upon information regarding software requested, facility usage metrics, and other pertinent information provided by the Client or potential Client for whom this Quote has been prepared.

CONFIDENTIALITY: This Quote contains the confidential and proprietary information of AmkaiSolutions ("Confidential Information") and is intended to be viewed only by the Client or potential Client for whom this Quote has been prepared ("Recipient").

SECTION 3 - FEES

License and Service Fees

Item	Amount	Notes
Perpetual License Software	<u>\$128,090.00</u>	1
Professional Services Standard Implementation of Perpetual License Software	Included	1 & 2
Avanza Discount	<u>(\$17,178.00)</u>	
Total License and Service Fees:	<u>\$110,912.00</u>	3

Quarterly Recurring Fees

Item	Amount	Notes
Maintenance & Support for Perpetual Licensed Software	<u>\$5,849.00</u>	5
Subscription Software (for Subscription Package)	_____	1 & 4
Subscription Software – AmkaiOffice related	_____	4
Subscription Software – AmkaiCharts related	_____	4
Professional Services Standard Implementation of Subscription License Software	Included	2
Total Quarterly Recurring Fees (during Year 1 of Initial Subscription Term or Maintenance & Support Term):	<u>\$5,849.00</u>	

Payment Terms and Other Notes:

- 1 See the Software and Services Detail on following pages. The charges above are exclusive of sales tax, medical device excise tax and other taxes payable which may be applicable; such taxes will be invoiced as separate items.
- 2 Client is responsible for: (a) reimbursement of Amkai travel expenses for onsite visits, in addition to fees, if any (b) hardware and all other third party software specified by Amkai, but not included in the licensed products; and (c) staging all hardware and third party software before implementation tasks are initiated. Kickoff meeting to plan implementation services will not be scheduled until Amkai receives payment of first fee installment.
- 3 Total License and Service Fees are payable in three installments:
 - Installment 1: 50% due on the Order Effective Date
 - Installment 2: 25% due on the earlier of go-live or 90 days of Order Effective Date
 - Installment 3: 25% due on the earlier of go-live or 180 days of Order Effective Date.
- 4 Subscription Fees are quarterly recurring fees for the Initial Subscription Term which begins on the Agreement Effective Date. Subscription Fees include License Fees and Maintenance & Support Fees. The quarterly Subscription Fee shall be increased by five percent (5%) from the prior year for each year after the first anniversary of the Order Effective Date, and to be effective each January 1st during the Initial Subscription Term. Subscriptions do not include software hosting services; however, AmkaiSolutions can provide referrals and facilitate the quoting process with its hosting partners, upon request.
- 5 Maintenance & Support Fees are quarterly recurring fees for the Initial Maintenance & Support Term of five (5) years. Client shall begin to pay Maintenance & Support Fees upon the earlier of the commencement of installation and implementation or sixty (60) days from the Order Form Effective Date. The quarterly Maintenance & Support Fee shall be increased by five percent (5%) from the prior year for each year after the first anniversary of the Order Effective Date, and to be effective each January 1st during the Initial Maintenance & Support Term.

(Modules checked are included in Quote)

SECTION 4 (A) – SOFTWARE (ASC)

Item Code	License Metric	Description	
AmkaiOffice			
<input checked="" type="checkbox"/> ASC0001	Licensed Room	AmkaiOffice for ASC ⁽²⁾ – includes the following sub-modules for 1 Business Entity: ASC0001-01 Registration ASC0001-02 A/R Management, Insurance and Patient Billing ASC0001-03 Contract Management, Fee Schedule Management, Annual National Code Updates ASC0001-04 Clinical Documentation Management ASC0001-05 Scheduling, Year at a Glance ASC0001-06 User Desktop, Task Management, Workflow Manager and Messaging ASC0001-07 Document Central ASC0001-08 Materials Management, Preference Cards ASC0001-09 Human Resource Management (Licensing, Credentialing) ASC0001-10 Financial Modeling, Cost Management ASC0001-11 Reports Module, Regulatory Reporting ASC0001-12 Ad Hoc Report Writer ASC0001-13 Revenue Cycle Management	
<input checked="" type="checkbox"/> ASC0001-14	Facility	Diagnostic Code Sets with updates ⁽²⁾ – available as Subscription only	
AmkaiOffice Optional Modules			
			QTY (if applicable)
<input checked="" type="checkbox"/> ASC0002	Facility	Electronic Claims Submission ⁽¹⁾	
<input checked="" type="checkbox"/> ASC0003	Facility	Electronic Remittance Posting ⁽¹⁾	_____
<input type="checkbox"/> ASC0004	Entity	Additional Business Entity	_____
<input type="checkbox"/> ASC0005	Entity	Anesthesia Business Entity	_____
<input type="checkbox"/> ASC0006	Licensed Room	AmkaiLink – Physician Portal	
<input type="checkbox"/> ASC0007-1	Licensed Room	Electronic Purchase Order - Owens & Minor	
<input type="checkbox"/> ASC0007-2	Licensed Room	Electronic Purchase Order - Cardinal	
<input checked="" type="checkbox"/> ASC0008	Facility	e-Verify: Electronic Insurance Verification ⁽¹⁾	_____
<input type="checkbox"/> ASC0009	Facility	Recovery Care Module	_____
AmkaiCharts			
<input checked="" type="checkbox"/> ASC1001	Licensed Room	AmkaiCharts – includes the following sub-modules: ASC1001-01 Nursing and Departmental Record Documentation, Chart Access, Medical Summaries, Automated Medication Interaction, Transcription Manager, Desktop and Instant Messaging, Automated Task Management, Physician Dashboard ASC1001-02 Scan Manager with Image Editor ASC1001-03 Reporting ASC1001-04 AmkaiAnesthesia ASC1001-06 CPOE (Computerized Physician Order Entry)	
<input checked="" type="checkbox"/> ASC1001-05	Licensed Room	Multum Drug Database with Monthly Medication Updates ⁽²⁾ – available as Subscription only	
<input checked="" type="checkbox"/> ASC1002	Licensed Room	Quick Notes	
AmkaiCharts Optional Modules			
<input checked="" type="checkbox"/> ASC1003	GI Scope	AmkaiGINote (Device Integration will require additional hardware and networking capability; per Amkai approved device list). Indicate GI Scope Brand: <u>1</u>	
<input type="checkbox"/> ASC1004	Licensed Room	AmkaiPainNote	
<input type="checkbox"/> ASC1005	Licensed Room	Urology Procedure Note	

SECTION 4 (B) – DATA EXCHANGE AND INTERFACE SOFTWARE

QTY	Item Code	License Metric	Description	3 rd party system Destination or Source
AmkaiOffice Outbound				
_____	DE100	Licensed Room	HL7 Outbound Patient from AmkaiOffice, ADT a04, a08	_____
_____	DE101	Licensed Room	HL7 Outbound Scheduling from AmkaiOffice, SIU s12-s15	_____
_____	DE102	Licensed Room	HL7 Outbound Charges from AmkaiOffice, DFT	_____
_____	DE103	Licensed Room	HL7 Outbound Staff/Physician from AmkaiOffice, MFN	_____
_____	DE104	Licensed Room	Voyance Health Link	_____
AmkaiOffice Inbound				
_____	DE200	Licensed Room	HL7 Inbound person into AmkaiOffice, ADT	_____
_____	DE201	Licensed Room	HL7 Inbound patient into AmkaiOffice. ADT	_____
_____	DE202	Licensed Room	HL7 Inbound Scheduling from AdvantX	_____
_____	DE203	Licensed Room	HL7 Inbound Scheduling request to AmkaiOffice, ADT/SIU	_____
_____	DE204	Licensed Room	HL7 Inbound External Inventory System, IOS	_____
AmkaiOffice / Amkai Charts Bi-Directional				
_____	DE302	Facility	Medication Reconciliation ⁽²⁾ (available as Subscription only)	<u>Surescripts</u>
_____	DE303	Facility	ePrescribing ⁽²⁾ (available as Subscription only)	<u>Surescripts</u>
AmkaiCharts Outbound				
_____	DE400	Licensed Room	HL7 Outbound OP note from AmkaiCharts, MHT format	_____
_____	DE401	Licensed Room	HL7 outbound Continuity of Care Documents from AmkaiCharts, CCD	_____
_____	DE402	Licensed Room	HL7 Outbound Single sub-encounter from AmkaiCharts, MHT format	_____
_____	DE403	Licensed Room	HL7 Outbound Case report from AmkaiCharts, MHT format	_____
_____	DE404	Licensed Room	GiQuic, Outbound report from AmkaiCharts	_____
AmkaiCharts Inbound				
_____	DE500	Licensed Room	HL7 Inbound OP note to AmkaiCharts, PDF, ORU	_____
_____	DE501	Licensed Room	HL7 Inbound Lab report to AmkaiCharts, PDF, ORU	_____
_____	DE502	Licensed Room	HL7 Inbound H&P to AmkaiCharts, PDF, ORU	_____
_____	DE503	Licensed Room	HL7 Inbound PreAdmit questionnaire to AmkaiCharts, PDF, ORU ⁽¹⁾	_____
_____	DE504	Licensed Room	HL7 Inbound Continuity of Care Document to AmkaiCharts, PDF, ORU	_____
<u>12</u>	DE505	Monitor	Patient monitor direct connect/serial RS232	See Amkai approved List
_____	DE506	ECG	Direct Interface with Midmark IQecg [®] for cardiac clearance	Midmark EQecg
<i>Note: ADT SIU DFT MFN ORU are HL7 messages</i>				
AmkaiOffice Bi-Directional				
<input type="checkbox"/>	DE304	Licensed Room	PDF Patient Portal Bundle – includes the following sub-modules	
			DE100	HL7 Outbound Patient from AmkaiOffice, ADT a04, a08
			DE101	HL7 Outbound Scheduling from AmkaiOffice, SIU s12-s15
			DE300	Patient Portal (Simple Admit (SA) or One Medical Passport (OMP) PDF only)
			DE302	Medication Reconciliation ⁽²⁾

<input type="checkbox"/>	DE305 Licensed Room	Patient Portal Discrete Data Bundle – includes the following sub-modules
	DE100	HL7 Outbound Patient from AmkaiOffice, ADT a04, a08
	DE101	HL7 Outbound Scheduling from AmkaiOffice, SIU s12-s15
	DE301	HL7 Inbound Pre-Admission Questionnaire (SA or OMP only)
	DE302	Medication Reconciliation ⁽²⁾

SECTION 5 – SERVICES

Item	Description	Days⁽³⁾
<input checked="" type="checkbox"/>	Professional Services Implementation – includes software installation and onsite and remote training. Not included: data conversion, data import, or HL7 Customization of interfaces. If onsite services desired, travel expenses are additional. <i>In the event the implementation days are zero (0), no Professional Implementation Services are included as a part of this Order or Addendum.</i> <i>Other services, if any, to be quoted separately.</i>	<u>Up to 51</u>

SECTION 6 - NOTES

- (1) Items marked with (1) above indicate that Client is responsible for any third party fees, if any, resulting from connectivity to third party providers.
- (2) Items marked with (2) above indicate that the product or service is subject to Third Party or special license terms.
- (3) “Days” includes up to eight hours in a twenty four hour period.

GREEN MOUNTAIN SURGERY CENTER**Free and Discounted Care Policy****POLICY STATEMENT:**

The Green Mountain Surgery Center (the “Center”) is committed to ensuring that all Vermonters have access to quality health care, regardless of their ability to pay. The Green Mountain Surgery Center accordingly offers to qualifying individuals free and discounted care for services performed by the Center in connection with medically necessary procedures performed at the Center. Eligibility for the financial assistance program will be determined based upon the patient’s demonstrated financial need and without regard to the patient’s race, religion, sex, age, gender identity, sexual orientation or national origin.

PROCEDURES:

In order to be considered for financial assistance, individuals must submit a complete Application for Free or Discounted Care. An application is considered complete if all questions are answered fully, the application is signed and dated by applicant(s), and all required supporting documentation is attached. Documentation required to be submitted along with the completed application will include:

- *Most recently filed federal income tax return for all members of the household* (including all forms and schedules): Individuals to be included in household size must be a spouse or dependent of the applicant, as reflected on the federal income tax return(s) provided.
- *Proof of household income*: Type of documentation of household income will depend upon the sources of household income, but may include, without limitation, pay stubs, written verification of wages from employer, W-2 withholding form, social security or disability benefit statements, unemployment or pension/annuity benefits, supplemental security income statements, and written verification from a governmental agency attesting to household income.
- *Proof of monetary assets*: Type of documentation of monetary assets will depend on the nature of the monetary assets, but may include, without limitation, copies of recent bank or broker statements relating to checking accounts, savings accounts, stocks, bonds, mutual funds, money market accounts, certificates of deposit, trusts, or annuities. The following assets are not considered monetary assets and are not included in the determination of eligibility: primary residence, vehicles, personal property, retirement assets, cash surrender value of life insurance policies, and burial funds.
- *Statement of Zero Income* (if applicable): An applicant whose income is documented as “\$0”, must complete and submit a “Statement of Zero Income.”
- *Evidence Relating to Health Insurance*: The applicant shall provide evidence that all possible third party payers have been exhausted and that the balance is due from the applicant. If the applicant is ineligible for government insurance program(s), the applicant shall provide a copy of the letter or

notice received from such government insurance program(s) documenting such ineligibility.

Upon receipt of an application, patient accounts related to all members of the applicant's household with outstanding balances in good standing (less than 120 days outstanding) will be placed on hold during the application review process. If the application is found to be incomplete, the applicant will be notified by telephone, in addition to a written notice in the mail, to communicate what required elements are missing. The applicant must submit the required information within 10 business days or the account hold will be released. Upon receipt of a complete application, a determination of eligibility for or denial of financial assistance will be communicated to the applicant in writing within 15 business days of receipt of the complete application.

All Applications for Free or Discounted Care and supporting documentation will be reviewed and approved by the Center's Business Manager. Applications for eligible recipients whose awarded assistance will be greater than \$2,500 will also be reviewed and approved by the Center's Administrator.

The Green Mountain Surgery Center will work with the applicant to identify other potential sources of payment for their medical bills. If the Center identifies a potential alternative payment source, such as one of Vermont's Green Mountain Care programs, the applicant will be expected to cooperate with the Center to determine eligibility for that program. Failure to cooperate with applying for alternative sources of payment will be considered a voluntary withdrawal of the application for assistance from the Green Mountain Surgery Center.

ELIGIBILITY:

The following criteria must be met to be eligible for free or discounted care at the Green Mountain Surgery Center:

Residency:

The applicant must be a full-time resident of Vermont or must have resided in Vermont for more than the last 6 consecutive months.

Eligible Services:

Free and discounted care is available for all services offered by the Green Mountain Surgery Center in conjunction with medically necessary procedures. Determination of medical necessity may require the input from the attending physician to take into account all the relevant facts and circumstances. Services offered in connection with elective procedures are not included under this Free and Discounted Care Policy.

Services that have been denied by insurance due to the patient's non-compliance with the requirements of the patient's plan are not considered eligible for financial assistance. In addition, Services reimbursed directly to the patient/guarantor by the insurance carrier or covered by another third party are not eligible for financial assistance.

Financial:

To be eligible for financial assistance under this Free and Discounted Care Policy, the applicant’s household income and monetary assets should be at or below the following guidelines.

- *Monetary Assets:* The applicant’s monetary assets must be below \$5,000 (or, if married, \$7,500). Monetary assets include cash, checking accounts, savings accounts, stocks, bonds, mutual funds, money market accounts, certificates of deposit, trusts, annuities, and non-home real property. The following assets are not considered monetary assets and are excluded from the determination of monetary assets: the applicant’s primary residence, vehicles, personal property, retirement assets, cash surrender value of life insurance policies, and burial funds.
- *Income:* Household income must be at or below 400% of the Federal Poverty Level Guidelines (FPLG), as adjusted for household size. The level of assistance is granted on a sliding scale based on the FPLG as follows:

Federal Poverty Level	Up to 250%	251% - 300%	301% - 350%	351% - 400%
Discount	100%	75%	50%	25%

Household income includes gross earnings, unemployment compensation, workers compensation, social security benefits, supplemental security income, public assistance, veteran’s benefits, survivor benefits, pension or retirement, interest, dividends, rents, royalties, estate income, trusts, educational assistance, alimony, annuities, and child support for a household. Household income does not include capital gains, liquid assets (including withdrawals from a bank or proceeds from the sale of property), tax refunds, gifts, loans, lump-sum inheritances, or non-cash benefits such as food stamps and housing subsidies.

Term of Financial Assistance:

Each eligibility determination for financial assistance, whether approved or denied, is effective for a period of 6 months following the date of the determination letter, referred to as the termination date.

The awarded level of financial assistance for first-time recipients will be applied to eligible services, as described above, that were provided to the recipient during the 6 months preceding the date of receipt of a complete application and will be automatically applied to any eligible medical services received up through the termination date communicated in the determination letter sent to the recipient.

Subsequent to the termination of the initial determination for financial assistance, a recipient may re-apply for assistance if s/he continues to claim financial hardship by submitting a complete application with updated information and supporting documentation. If approved, the awarded level of financial assistance will be applied to eligible services received since the termination of the last award, up to a maximum of 6 months preceding the date of receipt of the complete re-application.

A patient who is eligible for financial assistance under this policy shall not be personally responsible for paying, after all deductions, discounts (including discounts available under this policy), and insurance reimbursements have been applied, more for medically necessary care than the amount Medicare would

allow for the care (for an item or service covered by Medicare), or the average amount allowed by private health insurers (for an item or service that is not covered by Medicare).

Communication of Policy for Free or Discounted Care

Notification of this Policy for Free or Discounted Care will be distributed by posting notices in prominent patient locations within the Center and placing information regarding the policy on patient statements. The Center will also include a copy of the policy on its website and in brochures available in patient access areas. Such notices and summary information will be provided in the primary languages spoken by the population served by the Center and will include a contact number for inquiries regarding the policy.

Confidentiality and Records Retention

All information relating to financial assistance applications will be kept strictly confidential. Applications for Free or Discounted Care will be kept for a minimum of 7 years following the date of application.

Regulatory Requirements

In implementing this policy, the Green Mountain Surgery Center will comply with all other federal, state, and local laws and regulations that may apply to activities conducted pursuant to this policy.

An implementation plan for providing fair and equitable reimbursement amounts for professional services in Vermont.



MVP Healthcare

July 1, 2016

Introduction.

Per Vermont Act 54 of the 2015 Legislation Section, Sec. 23., the Green Mountain Care Board (GMCB) “shall require any health insurer, as defined in 18 V.S.A. § 9402, with more than 5,000 covered lives for major medical insurance to develop and submit to the Board, on or before July 1, 2016, an implementation plan for providing fair and equitable reimbursement amounts for professional services provided by academic medical centers and other professionals.”

As a health insurer in Vermont with over 12,000 covered lives, MVP respectfully submits this implementation plan to GMCB to address our commitment to that Vermont statute.

It is important to note that the cost of healthcare has become an escalating cost burden on Vermonters, Vermont employers and the State of Vermont itself, a burden increasingly disproportional to the cost of living increases. MVP takes its fiduciary role very seriously to mitigate healthcare costs to its Vermont subscribers, their families and to the Vermont employer groups. Our implementation plan therefore complies with the statute’s further provision that “each plan shall ensure that proposed changes to reimbursement create no increase in health insurance premiums or public funding of health care”.

Section 1. Fair and equitable reimbursement amounts for professional services provided by academic medical center physicians.

MVP has been directly contracted with the single academic medical center, The University of Vermont Medical Center's (UVMC) and its employed physicians, in Vermont for decades. MVP also has a number of other directly-contracted academic medical centers in markets across MVP's regional network, all of which also include their employed academic medical center physicians. These facilities all have complimentary hospital services and likewise serve as their region's tertiary care trauma centers and referral centers for highly-specialized hospital and physician services. MVP's informatics group has completed a detailed analysis of the physician payments rates on all those academic medical center practices.

In MVP's experience, academic medical centers and their academic medical groups serve as tertiary care trauma centers as well as referral centers for sicker populations with higher comorbidities that require higher intensity of services. This is especially true of the Medicaid populations but also applies to the Medicare and Commercial populations. In order to address the needs of these sicker patients and indeed to save their lives, the academic medical centers must therefore provide higher-acuity services through the use of more expensive, technologically-advanced equipment and employ highly specialized physicians and technical staff. Coupled with their medical school teaching obligations, academic medical centers and their academic medical groups are generally expected to have marginally higher costs of operations than other independent physician practices, leading to an appropriate reimbursement differential.

While MVP's contracted rates are proprietary and confidential, we were able to analyze and compare academic medical group physician rates on a comparative and level playing field across our whole network. For the purposes of this report, MVP Informatics department analyzed each academic medical group's commercial claims paid at a percentage of CMS' published Medicare physician fee schedule for their region (CMS' Regionally-Adjusted Medicare Fee Schedules). Contracting physicians based on a percentage of that region's CMS Medicare fee schedule is the most common form of fee-for-service physician reimbursement between physicians and health plans. On this fair and equitable comparative CMS Medicare fee schedule basis, MVP can state that the physicians at UVMC are reimbursed significantly above their Vermont CMS Regionally-Adjusted Medicare fee schedule as compared to all other contracted academic tertiary care medical groups across MVP's regional networks. MVP's findings are reflective of UVMC's own view of their overly high physician fees in as much as UVMC has already proposed to MVP a notable reduction in their own physician rates starting in 2017 and while directionally correct and favorable, it falls far short of "fair and equitable" reimbursement for academic medical center physicians based on the physician reimbursement data MVP has compiled from other regions.

In order to support and facilitate the intent of the statute, MVP's recommends two steps to achieve fair and equitable reimbursement over a two year period. First, MVP believes it is critically important to move UVMC on to a standard fee schedule that is based on Vermont's regionally-adjusted CMS Medicare fee schedule. CMS' Medicare fee schedules are nationally recognized as the gold standard of acceptable actuarially-determined reimbursement based on time-proven federal calculations. Second, that the UVMC physician fee schedule will also require corrective steps downward of twenty three percent (23%) in each of the next two years, beginning in calendar year 2017 and ending in calendar year 2018. With GMCB's approval and enforcement of these two steps, MVP's UVMC fee schedule will achieve fair and equitable levels within our network of contracted tertiary care trauma academic medical groups by the end of 2018. However, as the UVMC academic medical center practices are but part of the UVMC system, MVP recommends that GMCB guard against allowing UVMC to cost-

shift the physician reductions by adding back those revenues through corresponding increases to the hospital rates. It is important to note that UVMC's hospital rates already generated a significant, publically-reported, surplus in revenues to UVMC in 2015.

Furthermore, MVP would like to request the GMCB apply serious consideration to applying the fair and equitable intent of this statute to other hospital employed physicians, especially those in Rutland County employed by Rutland Regional Medical Center (RRMC). In Rutland County the higher physician rates demanded by RRMC for routine physician office services rendered by their employed physicians result in excess physician costs to Vermonters and Vermont employers in Rutland and its surrounding communities. Given that health plans must contract with that hospital and its employed physicians to meet Vermont's network adequacy standards, the physician rates in the Rutland community are significantly artificially inflated compared to the other independent physician rates throughout Vermont. MVP is therefore requesting GMCB's approval and enforcement to bring RRMC's employed physician rates onto MVP's Vermont CMS Medicare-based community physician fee schedule in order to achieve fair and equitable reimbursement with their Vermont physician peers.

Section 2. Fair and equitable reimbursement amounts for professional services provided by independent practice physicians.

In its 30+ year history, MVP has been directly contracting with over 25,000 physicians for Commercial, Medicare and New York Medicaid plans. The breadth of this multi-decade experience, combined with MVP's 21st century informatics and analytics capabilities, have contributed to MVP being able to complete a detailed analysis of current independent practice physicians (independent: not owned/employed by a hospital) and their Commercial reimbursement levels as a percentage of CMS Medicare across our many regions.

While MVP's contracted rates are proprietary and confidential, our analysis of Commercial fee schedule paid amounts, as a percentage of CMS' published Regionally-Adjusted Medicare physician fee schedules, has revealed that the independent physician fee schedules in Vermont are reimbursed above the regionally-adjusted Medicare fee schedules for our other independently contracted physicians across MVP's regional networks. Based on this analysis, MVP is certain that our existing Vermont reimbursement for professional services provided by independent practice physicians is fair and equitable.

Note: in addition to a fee-for-service, qualified primary care physicians receive an extra financial reimbursement incentive in the form of Patient-Centered Medical Home (PCMH) payments under the Vermont Blueprint for Health. While MVP did not apply for CPC+ in Vermont, as we believe our physician fee schedules to be higher than our competitors', and should CPC+ be approved with BC-VT and Medicaid, MVP is willing to transition from the Vermont Blue Print for Health to CPC+. BC-VT did apply for CPC+, but with the caveat that the existing Vermont Blueprint for Health be terminated.

Conclusion.

At the end of two years, the strategy presented herein, with the strong support of the GMCB, will produce a strategy that equalizes competitive reimbursement for professional services in Vermont. MVP also asserts that the true beneficiaries of this strategy, as envisioned by the intent of the statute, will be the Vermonters and Vermont businesses that actually pay for these healthcare services.

Additional Comments.

Vermont does not currently have a robust network of physician-owned, free-standing outpatient centers, which is unlike surrounding states. In MVP's other surrounding regions, experience has demonstrated that these physician-owned, free-standing outpatient centers provide: the same or higher-quality, more geographically accessible services, more highly-satisfied members and at significantly lower cost. For example, providers in many other states and regions are the owners and staff free-standing imaging centers, ambulatory surgical centers, lab draw stations, endoscopy and colonoscopy centers, sleep labs, urgent care centers and infusion centers, among other services. Available 21st century technology and its impact on the related cost-per-procedure have significantly driven down the cost of services provided while improving on the quality of those services. This is much like the technological advancement of the personal computer since the 1990s has commoditized the pricing of from thousands of dollars plummeting down to a few hundred dollars today (and even less for tablets). High-quality, nationally-certified and licensed centers are recognized and approved by CMS for their Medicare members as a well as by states for their Medicaid members. Commercial employer groups and their employees and families regularly rate their experiences at our contracted free-standing centers as more highly satisfied while simultaneously financially realizing an average savings of 50% compared to the exact same services provided at a hospital. MVP strongly encourages Vermont and the GMCB to seriously consider approving these highly competitive physician-owned free-standing centers so that Vermonters and Vermont employers can have additional choice and access points to healthcare services while alleviating the spiraling costs of insurance premiums and mitigating public funding of health care in Vermont.

Summary.

In closing, per Vermont Act 54 of the 2015 Legislation Section, Sec. 23, MVP is respectfully submitting this implementation plan to GCMB for the provision of fair and equitable reimbursement amounts for professional services in Vermont provided by academic medical centers and other independent professionals. Within that statute, upon approval of a plan pursuant to this section, MVP is asking GNCB to subsequently require the Vermont academic medical center to accept the reimbursements included in this plan, and RRMC as well, through their budget processes and other appropriate enforcement mechanisms available at its perusal.

Reference: Vermont Act 54 of the 2015 Legislation Section, Sec. 23.

PAYMENT REFORM AND DIFFERENTIAL PAYMENTS TO PROVIDERS

(a) In implementing an all-payer model and provider rate-setting, the Green Mountain Care Board shall consider:

(1) the benefits of prioritizing and expediting payment reform in primary care that shifts away from fee-for-service models;

(2) the impact of hospital acquisitions of independent physician practices on the health care system costs, including any disparities between reimbursements to hospital-owned practices and reimbursements to independent physician practices;

(3) the effects of differential reimbursement for professional services provided by health care providers employed by academic medical centers and by other health care providers and methods for reducing or eliminating such differences, as appropriate;

(4) the effects of differential reimbursement for different types of providers when providing the same services billed under the same codes; and

(5) the advantages and disadvantages of allowing health care providers to continue to set their own rates for customers without health insurance or other health care coverage.

(b) The Board shall require any health insurer, as defined in 18 V.S.A. § 9402, with more than 5,000 covered lives for major medical insurance to develop and submit to the Board, on or before July 1, 2016, an implementation plan for providing fair and equitable reimbursement amounts for professional services provided by academic medical centers and other professionals. Each plan shall ensure that proposed changes to reimbursement create no increase in health insurance premiums or public funding of health care. The Board may direct a health insurer to submit modifications to its plan and shall approve, modify, or reject the plan. Upon approval of a plan pursuant to this section, the Board shall require any Vermont academic medical center to accept the reimbursements included in the plan, through the hospital budget process and other appropriate enforcement mechanisms.

(c) The Board shall include a description of its progress on the issues identified in this section in the annual report required by 18 V.S.A. § 9375(d).

Commercial Insurance Cost Savings in Ambulatory Surgery Centers



Healthcare Bluebook™



Ambulatory Surgery Center Association



Executive Summary

A review of commercial medical-claims data found that U.S. healthcare costs are reduced by more than \$38 billion per year due to the availability of ambulatory surgery centers (ASCs) as an appropriate setting for outpatient procedures. More than \$5 billion of the cost reduction accrues to the patient through lower deductible and coinsurance payments. This cost reduction is driven by the fact that, in general, ASC prices are significantly lower than hospital outpatient department (HOPD) prices for the same procedure in all markets, regardless of payer.

The study also looks at the potential savings that could be achieved if additional procedures were redirected to ASCs. As much as \$55 billion could be saved annually depending on the percentage of procedures that migrate to ASCs and the mix of ASCs selected instead of HOPDs.

Finally, the study explores additional cost savings that would result if certain inpatient procedures, such as total joint replacements, continue to migrate to ASCs.

This study supplements an earlier review of Medicare costs by researchers at the University of California-Berkeley that showed that ASCs reduce Medicare costs by \$2.3 billion annually. *Ambulatory Surgery Center Association, Medicare Cost Savings Tied to ASCs, (2013),* <http://www.advancingsurgicalcare.com/medicarecostsavings>.

Introduction and Purpose

The Medicare price differential for common outpatient services delivered in the hospital outpatient department (HOPD) vs. ambulatory surgery center (ASC) environment is well known and documented. On average, Medicare reimburses ASCs at 53 percent of the rate it reimburses HOPDs for the same procedure. The payment gap between services delivered at ASCs rather than HOPDs reduced the Centers for Medicare and Medicaid Services' (CMS) costs by more than \$7 billion between 2007 and 2011¹.

While CMS payment rates are publicly available, commercial carrier payment rates are not. Therefore, less is known about the price differences and associated savings that exist between the ASC and HOPD environments for those employers and patients covered by commercial insurance (employer-sponsored insurance or private insurance purchased on the public exchanges and elsewhere).

The following analysis provides an estimate of the significant savings that ASCs currently provide to commercially insured patients, along with potential savings available to the commercially insured population, when shifting care to an ASC setting. This analysis was conducted in a partnership between Healthcare Bluebook, the Ambulatory Surgery Center Association (ASCA) and HealthSmart, a leading provider

of third-party administrative services for self-funded employers.

Specifically, the paper discusses each of the following:

1. the estimated cost savings generated by ASCs in the commercially insured U.S. population;
2. the estimated additional cost reductions to be achieved if more cases were to be performed in ASCs;
3. the additional value created as traditional inpatient procedures migrate to ASC settings (e.g., total knee replacements); and
4. examples of HOPD and ASC price disparities within and across regions.

The ASC model was developed in 1970, and Medicare approved payments to ASCs for more than 200 procedures in 1982. Steady growth in the number of ASCs and the number of surgical procedures performed in the outpatient setting, including HOPDs, has continued since. This shift toward outpatient procedures has accelerated due to advancements in medical practice and technology that have reduced the need for overnight hospital stays.

¹ Department of Health and Human Services, Office of Inspector General. (2014, April). *Medicare and Beneficiaries Could Save Billions If CMS Reduces Hospital Outpatient Department Payment Rates For Ambulatory Surgical Center Approved Procedures to Ambulatory Surgical Center Payment Rates.*

Retrieved April 11, 2016, from <http://oig.hhs.gov/oas/reports/region5/51200020.pdf>

Today, many common surgeries are performed as outpatient procedures, and most patients, except those with complicated health conditions, can be served in the outpatient setting. Common ASC procedures include colonoscopies, cataract surgeries, tonsillectomies and arthroscopic orthopedic surgeries. CMS currently approves and reimburses 3,837 procedure codes in the ASC setting, and commercial populations are constantly expanding these boundaries. In fact, some ASCs are performing total joint replacements and other traditionally inpatient procedures with excellent outcomes.

While all HOPDs are hospital owned, most ASCs are at least partially owned by physicians, often in conjunction with hospitals and/or management companies. Sixty-five percent of the more than 5,400 Medicare-licensed ASCs in the U.S. are wholly owned by physicians and operate as small businesses.

A study published in *Health Affairs* analyzed data from the National Survey of Ambulatory Surgery and discovered that procedures performed in ASCs are more efficient, taking 25 percent less time than those performed in hospitals². This efficiency, and corresponding cost-effectiveness, is due largely to the ASCs' focus on a limited number of procedures, their owner/operator culture and specialized nursing and support staff. Because ASCs specialize in providing outpatient surgery, they are able to deliver patient-care services efficiently and conveniently. For example, operating rooms are turned over quickly and are not interrupted by emergency cases. This enables physicians

to commence their procedures in a timely manner and use their time more productively. Consequently, ASCs tend to be more convenient and cost effective than HOPDs while still providing excellent care.

² Munnich, E. L., & Parente, S. T. (2014). Procedures Take Less Time At Ambulatory Surgery Centers, Keeping Costs Down And Ability To Meet Demand Up. *Health Affairs*, 33(5), 764-769.

Patients Often Pay Dramatically Different Amounts for the Same Care in the Same Community

Healthcare prices vary dramatically even within the same insurance network and city. For example, in Charleston, West Virginia, the price of a cataract surgery, including payments to the anesthesiologist and physician, can vary from \$2,684 to \$8,662 depending on the facility where the surgery is performed (Figure 1). In this case prices vary by more than 300 percent, primarily due to the amount charged by the facility – not the physicians. These facility prices vary by almost 600 percent and total more than 70 percent of all dollars spent for cataract surgery in Charleston, WV.

Payments to anesthesiologists vary, partially due to the time component of anesthesia billing, but these payments are the smallest

portion of the total cost and are dwarfed by payments to facilities.

Payments to physicians are a more significant portion of total cost, but physicians performing the most expensive cataract surgeries are paid approximately the same as physicians performing the least expensive surgeries. Thus, it is the choice of facility that drives the total price variation.

The consistency of payments to physicians indicates that most physicians are unable to differentiate themselves when negotiating payment rates from insurance companies and, hence, are paid similar rates. Facilities, on the other hand, vary significantly in their service

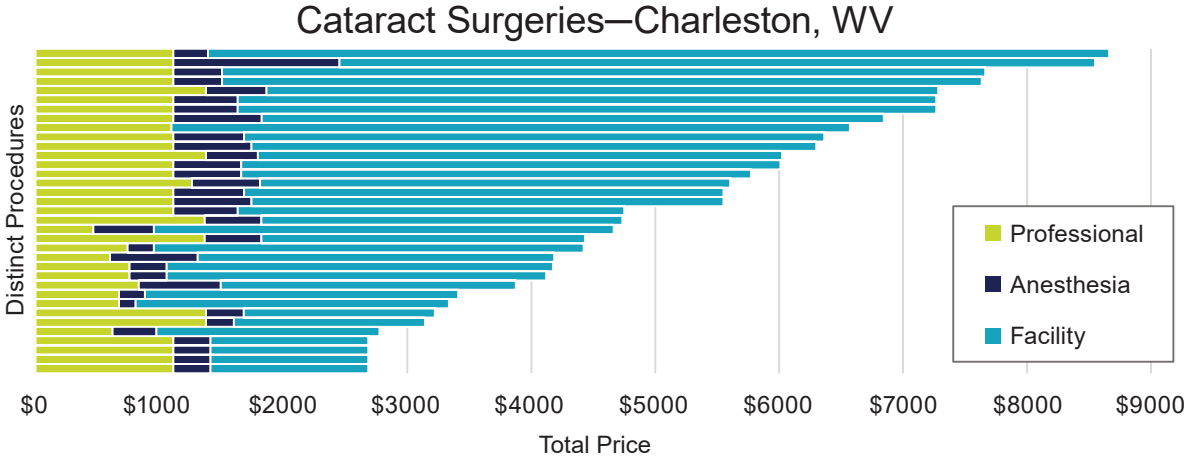


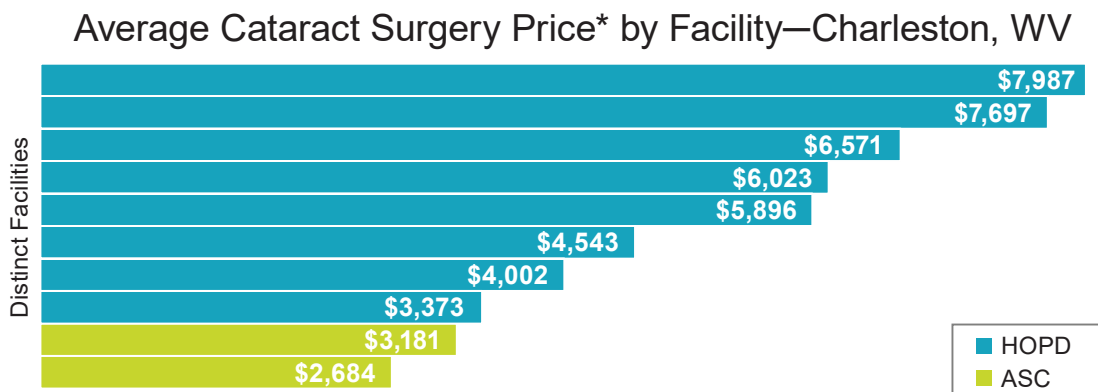
Figure 1

offerings and market power and, therefore, have significantly different negotiated rates with insurance companies.

For example, Hospital A provides emergency, inpatient and outpatient care. Hospital B offers everything Hospital A offers and also operates the only children's hospital in the metropolitan area. Due to this exclusive service line, Hospital B has better negotiating leverage with an insurance company. Importantly, this leverage applies not only to services uniquely performed in the children's hospital, but also to outpatient surgeries, such as cataract surgery, that are performed in other facilities in the area. Since the entire hospital is either in or out of network, all services are negotiated together, allowing Hospital B to demand higher reimbursement for procedures even though equally good, lower-priced alternative sites of service exist in that market area.

Since any ASC will offer fewer services than both Hospital A and B, those ASCs will have less negotiating leverage with commercial carriers and, therefore, often will receive lower reimbursement rates than either Hospital A or B if they want to be included in the insurer's network. While the efficiency inherent in the ASC model explains why ASCs can continue to exist when receiving significantly lower payments, it is the market power of hospitals that widens these price disparities^{3 4}.

As a result of these factors, the total price of a procedure performed at an ASC is generally significantly lower than the total price of the same procedure performed in an HOPD. For example, the average price of cataract surgery at an ASC in Charleston, West Virginia, is \$2,932, including the physician and anesthesiologist payments, while the average price at an HOPD is \$5,762 (Figure 2). In this example,



* Includes allowed amounts for all claim components: anesthesia, professional and facility.

Figure 2

³ Neprash, H.T., BA, Chernew, M.E., PhD, Hicks, A.L., MS, Gibson, T., PhD, & McWilliams, M., MD, PhD, (2015, October). Association of Financial Integration Between Physicians and Hospitals With Commercial Health Care Prices. *Journal of the American Medical Association*.

⁴ The Robert Wood Johnson Foundation, Martin Gaynor, PhD & Robert Town, PhD. (2012, June). *The impact of hospital consolidation – Update*.

Retrieved April 20, 2016, from <http://www.rwjf.org/en/library/research/2012/06/the-impact-of-hospital-consolidation.htm>

the average price for a cataract surgery at the least expensive facility was \$2,684, including the payments to anesthesiologists and physicians. At the most expensive facility, the average price was \$7,987. ASCs are at the low end of the spectrum and HOPDs are at the high end.

This commercial price differential between the ASC and HOPD environments is persistent across metropolitan areas (Figure 3), insurance carriers and procedure categories, with the degree of price variability related to local market factors.

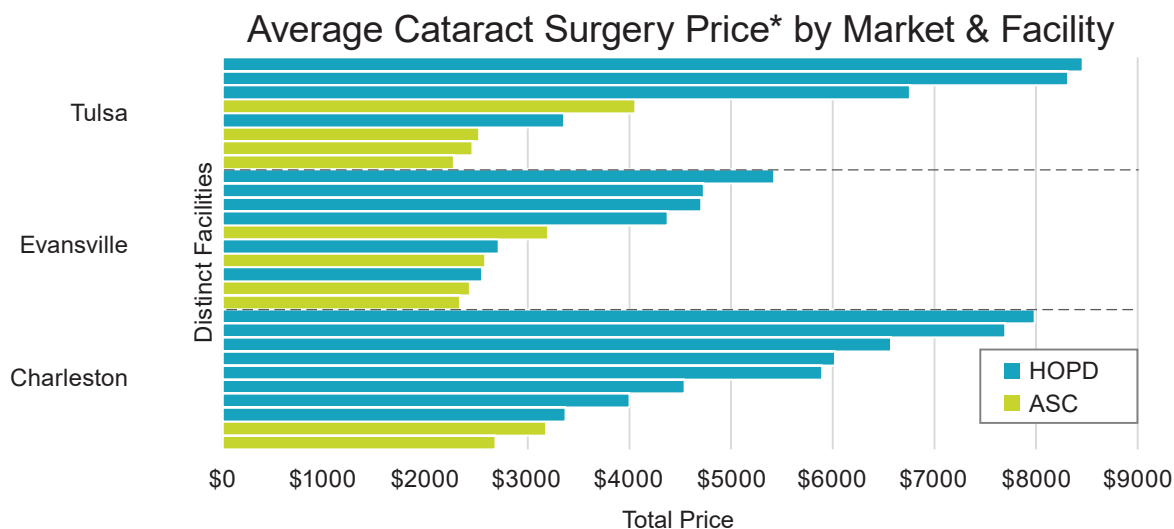
Summary of Methodology

All analysis was conducted using a sample of de-identified commercial claims data for calendar year 2014 from HealthSmart. This data represents more than 400,000 lives across all regions of the U.S. The CMS list of ASC-eligible procedure codes, with a few additions reflecting those prevalent in a

commercial population (pediatric-related codes, OB/GYN-related codes, etc.), was used to identify the spending on procedures that can be performed in an ASC.

Total price of service was included in the analysis (facility fees, professional fees and anesthesia fees, where relevant). Based on the commercial population considered, these services accounted for about 19 percent of total medical spend, or \$890 per person for the year. All prices are calculated using the “allowed” amount, which reflects the actual amount a provider received after any discounts were applied.

Thirteen high-volume outpatient procedures were used as proxies to analyze the price differential between the ASC and HOPD environments and estimate the percentage of spending that could be saved by performing the procedures in ASCs instead of HOPDs. An adjustment was made to account for the fact that some high-risk patients are not candidates



* Includes allowed amounts for all claim components: anesthesia, professional and facility.

Figure 3

for ASC-based care (patients with high comorbidities are traditionally directed to an HOPD in order to be closer to critical-access care). This adjusted percentage was applied to the \$890 ASC-eligible spend per person and then scaled by the commercially insured U.S. population to estimate the national savings potential.

All estimates are based on the calendar year 2014 data. No adjustments were made to account for population aging or increasing utilization of ASC-eligible services. (See Appendix A: Methodology and Appendix B: Adjustments for ASC Ineligibility for a more detailed explanation of the methodology.)

Current ASC Use Reduces Private Healthcare Costs by \$38 Billion Annually

The lower cost of care in ASCs relative to HOPDs saves employers and consumers tens of billions of dollars a year. For the commercially insured population in the U.S., an

estimated \$37.8 billion is saved annually by using ASCs. Stated differently, if all of the procedures currently performed in ASCs for the commercially insured population in the U.S. were performed in HOPDs, the cost of those procedures would increase by \$37.8 billion in just one year.

Potential Cost Reductions Attributed to ASCs

Despite the savings detailed above, for commercially insured populations, only 48 percent of procedures commonly performed in ASCs are actually performed in ASCs. If the remaining 52 percent were performed at ASC price points, an additional \$41 billion in healthcare costs could be saved annually.

As a practical matter, ASCs would not be the appropriate setting for a small percentage of patients (e.g., those with serious health issues) currently treated in HOPDs. For example, patients on dialysis (0.1 percent of Americans) are not ASC eligible for certain procedures. When ASC-ineligible cases are accounted for, the total potential annual savings from performing the surgeries in ASCs instead of HOPDs is \$38.2B. (This assumes 3 percent of relevant cases are ASC ineligible. See Appendix B: Adjustments for ASC Ineligibility.)

The average ASC price, however, is a blend of both lower-priced and higher-priced ASCs. The optimal migration of cases would shift cases from HOPDs to the local low-price ASCs. If patients were directed to low-price ASCs only, the potential annual savings increases from \$38.2 billion to \$55.6 billion.

Migrating a meaningful number of patients to lower-cost ASC settings would, undoubtedly, also have the added benefit of causing HOPDs

Annual Savings from Procedures Performed in ASCs

% of Common ASC Procedures Currently Performed at ASCs	48%
Current Annual Savings	\$37.8 B
Potential Additional Annual Savings	\$38.2 B
Potential Additional Annual Savings from Optimal Migration to ASCs	\$55.6 B

to consider price reductions in order to maintain their market share. While this study did not attempt to model the competitive reactions of HOPDs if confronted with a significant loss of patient volume, fundamental economic principles as well as a recent study that looked at the impact of reference-based pricing on patient choices concluded that hospitals did, in fact, lower their pricing for certain procedures in response to a loss of market share to competing ASCs⁵.

Potential Savings Can Grow if ASCs Can Perform More Complex Procedures

With advances in surgical techniques, pain management and post-surgical care, more procedures traditionally performed in the inpatient setting are being shifted to ASCs. This creates an expanding frontier for reducing healthcare costs. As an example, total hip and total knee replacements, which currently account for about 1.5 percent of total medical spend, are now being performed safely in ASCs in a limited number of markets. The potential savings are significant. Assuming that the price differential and the rate of ASC ineligibility due to comorbidities for total joint replacement will be commensurate with other outpatient procedures, \$3.2 billion could be

saved by moving total hip and knee replacements to ASCs. (See Appendix A: Methodology.)

Projected National Cost Reductions

To realize the potential cost reductions highlighted above, several things need to happen. On the supply side, ASC capacity will have to double in order to support the migration from HOPDs.

On the demand side, patients must be educated and incentivized to choose ASCs for their outpatient procedures. As premiums rise and adoption of high-deductible health plans increases, patients have greater incentives to reduce their costs by choosing ASC-based care, but education is lacking. Though healthcare transparency has made significant advancements in recent years, most patients are still unaware of the lower costs that ASCs offer.

Even modest changes in market share produce massive savings for the entire health system. For example, if an additional 5 percent of current HOPD cases were moved to ASCs annually over the next ten years, \$113.8 billion would be saved compared to current utilization rates (Table 1). This assumes that the annual potential ASC savings is currently \$41.4 billion:

Ten-Year Savings Projection

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Potential Savings	\$41.4 B	\$41.4 B	\$41.4 B	\$41.4 B	\$41.4 B	\$41.4 B	\$41.4 B	\$41.4 B	\$41.4 B	\$41.4 B	\$413.7 B
Percent of Savings Captured	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	28%
Savings	\$2.1 B	\$4.1 B	\$6.2 B	\$8.3 B	\$10.3 B	\$12.4 B	\$14.5 B	\$16.5 B	\$18.6 B	\$20.7 B	\$113.8 B

Table 1

⁵ Robinson, J., et. al. (2015, March). Reference-Based Benefit Design Changes Consumers' Choices And Employers' Payments For Ambulatory Surgery. *Health Affairs*.

\$38.2 billion from current ASC-eligible procedures above plus \$3.2 billion from total knee and hip replacement.

For ASC eligible procedures in this study, patients were responsible for 15 percent of the cost on average. That would mean \$17.1 billion in reduced costs for patients over the next ten years (Figure 4). If 3 percent or 8 percent of HOPD cases were moved to ASCs annually, ten-year savings would be \$68.3 billion and \$182 billion respectively (Table 2).

Projected National Cost Reduction	
Plan Sponsor Savings	\$96.7 B
Patient Savings	\$17.1 B
Total Savings	\$113.8 B

Figure 4

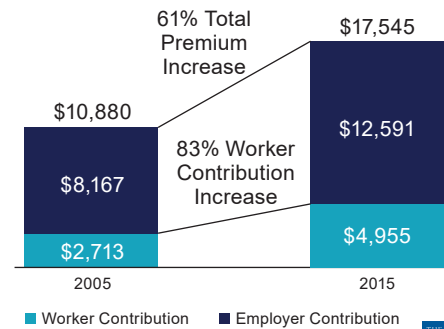
These estimates do not account for inflation or upward trends in medical spending. They also do not take into account the potential that HOPD pricing will decrease in order to compete with ASCs, which would create further outpatient savings. As referenced above, in the CalPERS reference pricing program, high-priced providers will reduce prices to be competitive and attract price-sensitive consumers.

Ten-Year Savings Projections

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Savings at 3% Additional Capture	\$1.2 B	\$2.5 B	\$3.7 B	\$5.0 B	\$6.2 B	\$7.4 B	\$8.7 B	\$9.9 B	\$11.2 B	\$12.4 B	\$68.3 B
Savings at 5% Additional Capture	\$2.1 B	\$4.1 B	\$6.2 B	\$8.3 B	\$10.3 B	\$12.4 B	\$14.5 B	\$16.5 B	\$18.6 B	\$20.7 B	\$113.8 B
Savings at 8% Additional Capture	\$3.3 B	\$6.6 B	\$9.9 B	\$13.2 B	\$16.5 B	\$19.9 B	\$23.2 B	\$26.5 B	\$29.8 B	\$33.1 B	\$182.0 B

Table 2

Average Annual Health Insurance Premiums and Worker Contributions for Family Coverage, 2005-2015



SOURCE: Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2005-2015



Reducing Costs for Employers and Employees

From 2005 to 2015, average health insurance premiums for employer-sponsored family coverage increased 61 percent, from \$10,880 to \$17,545 per year. To combat these rising costs, employers have increasingly adopted Consumer Driven Health Plans (CDHP) and account-based plan types, shifting costs to employees. This has driven the average employee's share of healthcare spending up 81 percent in the same time period, from \$2,713 to \$4,955⁶ annually. This highlights the need for programs like price transparency that can help patients identify better value providers within their networks so that employers and their employees both can lower costs.

⁶ Henry J. Kaiser Family Foundation. (2015, September). *Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2005–2015*. Retrieved April 10, 2016, from <http://kff.org/health-costs/report/2015-employer-health-benefits-survey/>

For example, in Charlotte, NC, the average ASC price for a knee arthroscopy was \$6,118, while the average HOPD price was \$12,493, more than twice as expensive. That means \$6,375 is saved on average in Charlotte, NC, when a patient chooses an ASC for a knee arthroscopy. How those savings are divided between the payer and the patient depends on the plan design.

For a knee arthroscopy in Charlotte, NC, if a patient has a Silver Plan as defined by the Affordable Care Act, with a \$2,700 deductible, 80 percent coinsurance and \$5,000 maximum out of pocket, the patient would save \$1,275—more than the median family's weekly income. The remaining \$5,100 would be saved by the payer. For self-funded employer-sponsored insurance, that is \$5,100 directly to the bottom line for the employer.

Applying the same plan design to the earlier example of cataract surgery in Charleston, WV, a patient would save \$566 by choosing an ASC instead of an HOPD. This is a significant savings in a geographic area where annual income per capita is less than \$35,000⁷. The payer would realize an additional savings of \$2,264.

Estimating Savings for Self-Insured Populations

For employers that self insure, it is reasonably straightforward to estimate the potential cost reductions from ASCs for their covered employees. With \$890 in ASC-eligible spending per commercially insured person and 20.6 percent savings opportunity from moving all

ASC-eligible cases from HOPDs to ASCs, \$183 in potential ASC savings exists per commercially insured person. A self-funded employer with 1,000 employees is normally covering more than 2,000 lives, when employees and dependents are counted, which means a potential ASC-based savings of more than \$366,000 for the employer and employees.

Conclusion

Billions of dollars spent each year on commercially insured outpatient surgeries and procedures can be reduced, without compromising quality, if more cases migrate to ambulatory surgery centers. While a small percentage of patients have health conditions that require outpatient care to be received in proximity to a full-service hospital should complications arise, most patients can receive the same level of care at lower cost by seeking treatment in an ASC. Advances in medical technology and pain control are allowing increasingly complex procedures, such as total joint replacements, to be performed in an outpatient setting.

Policymakers, insurers, employers and beneficiaries all have a shared interest in reducing healthcare costs, and the \$38 billion in annual savings identified in this study highlight the role that ASCs already play in controlling these costs. Strategies should be implemented to generate additional savings by ensuring that the most efficient site of service for outpatient care is selected whenever possible. In particular, innovative plan design and increased consumer awareness of the benefits of receiving care in an ASC can save thousands of dollars per procedure.

⁷ United States Census Bureau. (2014). *2010–2014 American Community Survey 5-Year Estimates*. Retrieved April 30, 2016, from <http://www.census.gov/>

About the authors/organizations

Ambulatory Surgery Center Association (ASCA)

ASCA is the national membership association that represents ASCs of all specialties and provides advocacy and resources to assist ASCs in delivering high quality, cost-effective ambulatory surgery to all the patients they serve.

Healthcare Bluebook

Healthcarebluebook.com, headquartered in Nashville, TN, is a leading provider of health-care price and quality transparency solutions to employers, third-party administrators (TPA), health plans and provider organizations. Healthcare Bluebook products help employers and employees save money by enabling consumers to understand local health-care prices, compare providers on price and quality and shop for care anywhere in the U.S.

HealthSmart

For more than 40 years, HealthSmart has offered a wide array of customizable and scalable health-plan solutions for self-funded employers. HealthSmart's comprehensive service suite addresses individual health from all angles. This includes claims and benefits administration, provider networks, pharmacy, benefit-management services, business intelligence, onsite employer clinics, care management, a variety of health and wellness initiatives and Web-based reporting.

Appendix A: Methodology

Data Source

All analysis was conducted using a national sample of de-identified commercial claims for calendar year 2014.

Estimating Potential ASC Savings for the Commercially Insured U.S. Population

The estimated potential ASC savings for the commercially insured U.S. population is calculated as:

Equation 1

Addressable Spend per Commercially Insured Person \$890	X	Percent Savings from ASCs 20.6%	X	Commercially Insured Population 208.6M
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Estimating the Addressable Spend per Commercially Insured Patient

The addressable spend is the expenditure on any procedure that could be performed in an ASC for an ASC-eligible patient, whether that patient is ASC eligible or not. (Adjustments for ASC ineligible are made later in the process. See Appendix B: Adjustments for ASC Ineligibility.) All prices are calculated using the allowed amount, which is the actual amount a provider receives after any discounts are applied.

CMS currently covers 3,837 procedure codes in the ASC setting. Procedure codes from select Healthcare Bluebook ShopSmart™ procedures were added to the CMS list to produce a complete ASC-eligible procedure code list. These procedure codes were used to identify procedures in one

year of medical-claims data. For each procedure performed in an ASC or HOPD, the total anesthesia, professional and facility payments were included as part of the procedure price. All office-based, inpatient-based and emergent care was excluded. When the total payments from this process were divided by the total members in the represented population, the annual addressable spend per person was \$890.

Estimating Percent Savings from ASCs

To estimate the percent savings from ASCs, thirteen high-volume procedures were used as proxies to represent all ASC procedures. These procedures were selected for their high volume and standardization. The average ASC price was calculated for each procedure in each metropolitan market across the U.S.

The potential ASC savings is the sum of the differences between the price of each HOPD case and the average ASC case price for that metropolitan market and procedure combination. Market and procedure combinations with limited data volume were excluded.

Equation 2

$$potential\ ASC\ savings = \sum_{m,p,h} cost_{m,p,h} - average_ASC_price_{m,p}$$

m = market
p = procedure
h = HOPD case

To produce the ASC savings as a percentage, the potential ASC savings was divided by the total spend for all analyzed markets and procedures and multiplied by one hundred.

Equation 3

$$percent\ savings\ from\ ASCs = \sum_{m,p,h} \frac{potential\ ASC\ savings}{total\ spend} \times 100$$

Estimating Potential Savings from Total Hip & Total Knee Replacements

To estimate potential savings from moving total hip and knee replacements to the ASC setting, Equation 1 from above was used, but with \$73.59 as the addressable spend per commercially insured person. This represents 1.5 percent of total medical spend per commercially insured person. The 20.6 percent savings opportunity was not changed because there are not currently enough markets offering ASC-based joint replacement to use as a representation of the entire U.S. However, the savings opportunity may be as much as double this estimate based on markets that currently have ASC-based total joint replacements.

Appendix B: Adjustments for ASC Ineligibility

Some patients will not qualify for treatment in an ASC setting due to comorbidities or other complicating factors. To account for this, potential ASC savings were estimated using three assumptions for what percent of the commercially insured population is ASC ineligible: 1 percent, 3 percent and 7

percent. These percentages were selected based on prevalence rates for three common conditions that may make patients ineligible for care at an ASC for some procedures (Table 3).

Seven percent ASC ineligibility is the upper limit of this sensitivity analysis since it is the sum of the prevalence rates of all three conditions, which are not independent and which don't necessarily disqualify patients from ASC-based care. For example, a patient with a body mass index (BMI) of 41 could still be cared for in an ASC for most if not all procedures performed in an ASC. However, a patient with a BMI of 45 would qualify for fewer procedures in an ASC setting.

Three percent was selected as the expected rate of ASC ineligibility in a commercially insured population. This, however, could still be an overestimation, so we have also included the one-percent ASC-ineligibility threshold.

For each of these ASC-ineligibility rates, a corresponding number of cases per market/procedure combination were assumed to be performed at the average HOPD price and excluded from the migration calculation. See Table 4 for the sensitivity impact on estimated savings.

Common Conditions that Effect ASC Eligibility

Condition	Prevalence (% of U.S. Population)	Notes
Latex Allergy	< 1%	Some ASCs are not equipped with a latex-free operating room.
CKD (with Dialysis)	0.1%	Not a disqualifying condition for all procedures performed in ASCs.
BMI > 40	6.3%	Patients with BMI > 45 are almost always ASC ineligible. Not all patients with BMI between 40 and 45 are ASC ineligible.

Table 3

Effect of ASC-Ineligibility on Potential Savings

	Savings as % of Total Addressable Spend	Potential Annual Savings
0% ASC Ineligible	22.1%	\$41.0 B
1% ASC Ineligible	21.6%	\$40.1 B
3% ASC Ineligible	20.6%	\$38.2 B
7% ASC Ineligible	18.6%	\$34.5 B

Table 4

Appendix C: Savings Examples

Procedure prices in most U.S. markets can vary by as much as 500 percent. In most cases, when present, ASCs provide the best value.

Procedure	Market	Lowest Price Provider Type	Lowest Price	Average ASC Price	Average HOPD Price	Average Price Difference
Cataract Surgery	Charleston, WV	ASC	\$2,684	\$2,932	\$5,762	\$2,830
Cataract Surgery	Evansville, IN	ASC	\$2,450	\$3,316	\$6,992	\$3,676
Cataract Surgery	Tulsa, OK	ASC	\$2,248	\$2,249	\$3,833	\$1,335
Knee Arthroscopy	Fayetteville, NC	ASC	\$5,924	\$7,658	\$11,575	\$3,917
Knee Arthroscopy	Charlotte, NC	ASC	\$5,664	\$6,118	\$12,493	\$6,375
Knee Arthroscopy	Tulsa, OK	ASC	\$2,627	\$2,844	\$4,807	\$1,963
Knee Arthroscopy	Phoenix, AZ	ASC	\$2,355	\$2,972	\$4,306	\$1,334

COSTS

The Big Idea: How to Solve the Cost Crisis in Health Care

by Robert S. Kaplan and Michael E. Porter

FROM THE SEPTEMBER 2011 ISSUE

Watch the video interview with Robert S. Kaplan and Michael E. Porter, “Solving the Health Care Cost Crisis.”

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14:29

US. health care costs currently exceed 17% of GDP and continue to rise. Other countries spend less of their GDP on health care but have the same increasing trend. Explanations are not hard to find. The aging of populations and the development of new treatments are behind some of the increase. Perverse incentives also contribute: Third-party payors (insurance companies and governments) reimburse for procedures performed rather than outcomes achieved, and patients bear little responsibility for the cost of the health care services they demand.

But few acknowledge a more fundamental source of escalating costs: the system by which those costs are measured. To put it bluntly, there is an almost complete lack of understanding of how much it costs to deliver patient care, much less how those costs compare with the outcomes achieved. Instead of focusing on the costs of treating individual patients with specific medical conditions over their full cycle of care, providers aggregate and analyze costs at the specialty or

service department level.

Making matters worse, participants in the health care system do not even agree on what they mean by costs. When politicians and policy makers talk about cost reduction and “bending the cost curve,” they are typically referring to how much the government or insurers pay to providers—not to the costs incurred by providers to deliver health care services. Cutting payor reimbursement does reduce the bill paid by insurers and lowers providers’ revenues, but it does nothing to reduce the actual costs of delivering care. Providers share in this confusion. They often allocate their costs to procedures, departments, and services based not on the actual resources used to deliver care but on how much they are reimbursed. But reimbursement itself is based on arbitrary and inaccurate assumptions about the intensity of care.

Poor costing systems have disastrous consequences. It is a well-known management axiom that what is not measured cannot be managed or improved. Since providers misunderstand their costs, they are unable to link cost to process improvements or outcomes, preventing them from making systemic and sustainable cost reductions. Instead, providers (and payors) turn to simplistic actions such as across-the-board cuts in expensive services, staff compensation, and head count. But imposing arbitrary spending limits on discrete components of care, or on specific line-item expense categories, achieves only marginal savings that often lead to higher total systems costs and poorer outcomes. For example, as payors introduce high copayments to limit the use of expensive drugs, costs may balloon elsewhere in the system should patients’ overall health deteriorate and they subsequently require more services.

Poor cost measurement has also led to huge cross-subsidies across services. Providers are generously reimbursed for some services and incur losses on others. These cross-subsidies introduce major distortions in the supply and efficiency of care. The inability to properly measure cost and compare cost with outcomes is at the root of the incentive problem in health care and has severely retarded the shift to more effective reimbursement approaches.

Finally, poor measurement of cost and outcomes also means that effective and efficient providers go unrewarded, while inefficient ones have little incentive to improve. Indeed, institutions may be penalized when the improvements they make in treatments and processes reduce the need for highly reimbursed services. Without proper measurement, the healthy dynamic of competition—in

which the highest-value providers expand and prosper—breaks down. Instead we have zero-sum competition in which health care providers destroy value by focusing on highly reimbursed services, shifting costs to other entities, or pursuing piecemeal and ineffective line-item cost reductions. Current health care reform initiatives will exacerbate the situation by increasing access to an inefficient system without addressing the fundamental value problem: how to deliver improved outcomes at a lower total cost.

The remedy to the cost crisis does not require medical science breakthroughs or new governmental regulation. It simply requires a new way to accurately measure costs and compare them with outcomes.

Fortunately, we can change this state of affairs. And the remedy does not require medical science breakthroughs or top-down governmental regulation. It simply requires a new way to accurately measure costs and compare them with outcomes. Our approach makes patients and their conditions—not departmental units, procedures, or services—the fundamental unit of analysis for measuring costs and outcomes. The experiences of several major institutions currently implementing the new approach—the Head and Neck Center at MD Anderson Cancer Center in Houston, the Cleft Lip and Palate Program at Children’s Hospital in Boston, and units performing knee replacements at Schön Klinik in Germany and Brigham & Women’s Hospital in Boston—confirm our belief that bringing accurate cost and value measurement practices into health care delivery can have a transformative impact.

Understanding the Value of Health Care

The proper goal for any health care delivery system is to improve the value delivered to patients. Value in health care is measured in terms of the patient outcomes achieved per dollar expended. It is not the number of different services provided or the volume of services delivered that matters but the value. More care and more expensive care is not necessarily better care.

To properly manage value, both outcomes and cost must be measured at the patient level. Measured outcomes and cost must encompass the entire cycle of care for the patient’s particular medical

condition, which often involves a team with multiple specialties performing multiple interventions from diagnosis to treatment to ongoing management. A medical condition is an interrelated set of patient circumstances that are best addressed in a coordinated way and should be broadly defined to include common complications and comorbidities. The cost of treating a patient with diabetes, for example, must include not only the costs associated with endocrinological care but also the costs of managing and treating associated conditions such as vascular disease, retinal disease, and renal disease. For primary and preventive care, the unit of value measurement is a particular patient population—that is, a group with similar primary care needs, such as healthy children or the frail and elderly with multiple chronic conditions.

Let's explore the first component of the health care value equation: health outcomes. Outcomes for any medical condition or patient population should be measured along multiple dimensions, including survival, ability to function, duration of care, discomfort and complications, and the sustainability of recovery. Better measurement of outcomes will, by itself, lead to significant improvements in the value of health care delivered, as providers' incentives shift away from performing highly reimbursed services and toward improving the health status of patients. Approaches for measuring health care outcomes have been described previously, notably in Michael Porter's 2010 *New England Journal of Medicine* article, "What Is Value in Health Care?"

While measuring medical outcomes has received growing attention, measuring the costs required to deliver those outcomes, the second component of the value equation, has received far less attention. In the value framework, the relevant cost is the total cost of all resources—clinical and administrative personnel, drugs and other supplies, devices, space, and equipment—used during a patient's full cycle of care for a specific medical condition, including the treatment of associated complications and common comorbidities. We increase the value of health care delivered to patients by improving outcomes at similar costs or by reducing the total costs involved in patients' care while maintaining the quality of outcomes.

A powerful driver of value in health care is that better outcomes often go hand in hand with lower total care cycle costs. Spending more on early detection and better diagnosis of disease, for example, spares patients suffering and often leads to less complex and less expensive care later. Reducing diagnostic and treatment delays limits deterioration of health and also lowers costs by reducing the resources required for care. Indeed, the potential to improve outcomes while driving

down costs is greater in health care than in any other field we have encountered. The key to unlocking this potential is combining an accurate cost measurement system with the systematic measurement of outcomes. With these powerful tools in place, health care providers can utilize medical staff, equipment, facilities, and administrative resources far more efficiently, streamline the path of patients through the system, and select treatment approaches that improve outcomes while eliminating services that do not.

The Challenges of Health Care Costing

Accurate cost measurement in health care is challenging, first because of the complexity of health care delivery itself. A patient's treatment involves many different types of resources—personnel, equipment, space, and supplies—each with different capabilities and costs. These resources are used in processes that start with a patient's first contact with the organization and continue through a set of clinical consultations, treatments, and administrative processes until the patient's care is completed. The path that the patient takes through the system depends on his or her medical condition.

The already complex path of care is further complicated by the highly fragmented way in which health care is delivered today. Numerous distinct and largely independent organizational units are involved in treating a patient's condition. Care is also idiosyncratic; patients with the same condition often take different paths through the system. The lack of standardization stems to some extent from the artisanal nature of medical practice—physicians in the same organizational unit performing the same medical process (for instance, total knee replacement) often use different procedures, drugs, devices, tests, and equipment. In operational terms, you might describe health care today as a highly customized job shop.

Existing costing systems, which measure the costs of individual departments, services, or support activities, often encourage the shifting of costs from one type of service or provider to another, or to the payor or consumer. The micromanagement of costs at the individual organizational unit level does little to reduce total cost or improve value—and may in fact destroy value by reducing the effectiveness of care and driving up administrative costs. (For more on the problems with current costing systems, see the three Myth sidebars.)

Any accurate costing system must, at a fundamental level, account for the total costs of all the

Myth #1: Charges are a good surrogate for provider costs.

The widespread confusion between what a provider charges, what it is actually reimbursed, and its costs is a major barrier to reducing the cost of health care. Providers have aggravated this problem by structuring important aspects of their costing systems around the way they are reimbursed. In the U.S., this is partly a historical artifact of the Medicare cost-plus reimbursement system, which requires hospital departments to prepare an annual Medicare Cost Report (MCR), detailing costs and charges by department. Rather than developing and maintaining accurate costing systems that are based on actual resource usage, separate from the regulatory standard required for reimbursement, hospitals defaulted to reimbursement-driven systems.

Unfortunately, that approach was flawed from the start because it was based on the use of highly aggregate data for estimating costs and the deeply flawed assumption that every billable event in a department has the same profit margin.

Reimbursement-based costing also buries the costs of valuable but nonbillable events, such as patient consultations, in large overhead pools that are allocated arbitrarily and inaccurately to billable events.

Although costing systems for physician services differ from those used by hospitals, they suffer from the same problems. As is the case for hospitals, U.S. physicians are reimbursed not on the basis

Myth #2: Hospital overhead costs are too complex to allocate accurately.

Most health care leaders will eventually accept the idea that the direct costs of patient care, such as nurses, physicians, and consumable supplies (drugs, bandages, and syringes), ought to be assigned more accurately to individual patients. But many leaders believe that allocating the costs of indirect and support units cannot be done except with crude, arbitrary methods, often dressed up to look sophisticated. Typically, they use a “peanut butter” method, which spreads overhead and support costs across each department’s billable activities (see Myth #1) using metrics such as the size of direct costs, head count, length of stay, assigned physical space, number of patients, number of procedures, RVUs supplied, or costs-to-charge ratios (Myth #1 again).

The effect of such arbitrary support-department allocations on the measured cost of services can be profound. In the past, Schön Klinik, like other hospitals in Germany, had reduced the capacity of its total knee replacement rehabilitation units in part because the existing cost system portrayed them as less profitable than acute-care units. During Schön Klinik’s cost pilot, the project team discovered that the existing cost system allocated support-department costs largely on the basis of length of patient stay, not on the patient’s use of support resources. Since Schön total knee replacement patients spent 75% of their stay in the rehab facility, rehab had been

of an individual patient's resource use but on average estimates of relative demands—relative value units, or RVUs—on physician labor, practice expenses, and malpractice expenses in performing billable activities. These resource estimates are derived from specialty panels and national surveys of physicians, who stand to gain from overestimating the time and complexity of their work. Despite the required sign-off by government payors, the RVU estimates are not systematically measured or confirmed in practice settings. Reimbursing physicians on the basis of highly aggregate and likely inaccurate estimates of their costs introduces major incentive problems into the health care system. But the problems are compounded when the reimbursement rates are also used to allocate physician costs to patients, a purpose for which they were never intended.

We need to abandon the idea that charges billed or reimbursements paid in any way reflect costs. In reality, the cost of using a resource—a physician, nurse, case manager, piece of equipment, or square meter of space—is the same whether the resource is performing a poorly or a highly reimbursed service. Cost depends on how much of a resource's available capacity (time) is used in the care for a particular patient, not on the charge or reimbursement for the service, or whether it is reimbursed at all.

allocated about 75% of support department costs.

The TDABC analysis showed, however, that the demand for many support-unit services, such as medical billing, is far higher during the days a patient spends in the acute-care facility than during rehab days. With support costs properly assigned, the rehab facility showed improved profitability. Schön Klinik began to contemplate the expansion of its rehabilitation capacity—a complete reversal of its previous decision—and shifted its focus more intensively on reducing support costs incurred during the acute-care stay.

Once indirect costs have been accurately assigned, managers and physicians can look for ways to reduce demand for support-department services and improve the efficiency with which they are delivered. That, in turn, will enable organizations to lower their spending on these resources.

Myth #3: Most health care costs are fixed.

Many health care system participants, including economists and accountants, believe that most costs in health care are fixed because so much care is delivered using shared staff, space, and equipment. The result of this misguided thinking is that cost reduction efforts tend to focus on only the small fraction of costs seen as variable, such as drugs and supplies, which are sometimes referred to as

marginal or incremental costs. This myth also motivates some health care organizations to expand through mergers, acquisitions, and organic growth in order to reap economies of scale by spreading their fixed costs over an increased volume of business.

But if most health care costs were truly fixed, we would not have the health care cost problem we do today. If most costs were fixed, growth in demand for health care would increase only that small fraction of costs that are variable, leading to lower average costs in the system, not the dramatically higher share of GDP now being devoted to health care.

To understand why most health care costs are not fixed, start with personnel costs, which are generally at least 50% of the total costs of health care providers, according to American Hospital Association statistics. Hint: Personnel costs are not fixed. Hospital executives can set the quantity, mix, and compensation of their personnel each year, or even more frequently. Personnel costs are fixed only when executives allow them to be. The claim that personnel costs are fixed is a reflection of management inattention, not of the nature of those costs.

Space costs are also not fixed. Space is perhaps an organization's most fungible resource. If demand for space is reduced, units can be consolidated into smaller space, and excess space can be repurposed, sold, or subleased. Similarly, equipment costs can be avoided if changes in processes, treatment protocols, or patient mix eliminate the demand for the resources. Equipment no

resources used by a patient as she or he traverses the system. That means tracking the sequence and duration of clinical and administrative processes used by individual patients—something that most hospital information systems today are unable to do. This deficiency can be addressed; technology advances will soon greatly improve providers' ability to track the type and amount of resources used by individual patients. In the meantime, it is possible to determine the predominant paths followed by patients with a particular medical condition, as our pilot sites have done.

With good estimates of the typical path an individual patient takes for a medical condition, providers can use the time-driven activity-based costing (TDABC) system to assign costs accurately and relatively easily to each process step along the path. This improved version of activity-based costing requires that providers estimate only two parameters at each process step: the cost of each of the resources used in the process and the quantity of time the patient spends with each resource. (See Robert S. Kaplan and Steven R. Anderson's "Time-Driven Activity-Based Costing," HBR 2004.)

In its initial implementation, such a costing system may appear complex. But the complexity arises not from the methodology but from today's idiosyncratic delivery system, with its poorly documented processes for treating patients with

longer needed can be retired or sold to other health care institutions that are expanding their capacity.

All told, we estimate that upwards of 95% of what health care managers think of as fixed costs are actually under their control and therefore not really fixed.

particular conditions and its inability to map asset and expense categories to patient processes. As health care providers begin to reorganize into units focused on conditions, standardize their protocols and treatment processes, and improve their information systems, using the TDABC system will become much simpler.

To see how TDABC works in the health care context, we first explore a simplified example.

Costing the Patient: A Simple Example

Consider Patient Jones, who makes an outpatient visit to a clinic. To estimate the total cost of Jones's care, we first identify the processes he undergoes and the resources used in each process. Let's assume that Jones uses an administrative process for check-in, registration, and obtaining documentation for third-party reimbursement; and a clinical process for treatment. Just three clinical resources are required: an administrator (Allen), a nurse (White), and a physician (Green).

We begin by estimating the first of the two parameters: the quantity of time (capacity) the patient uses of each resource at each process. From information supplied by the three staffers, we learn that Jones spent 18 minutes (0.3 hours) with Administrator Allen, 24 minutes (0.4 hours) with Nurse White for a preliminary examination, and nine minutes (0.15 hours) with Physician Green for the direct examination and consultation.

Next, we calculate the capacity cost rate for each resource—that is, how much it costs, per hour or per minute, for a resource to be available for patient-related work—using the following equation:

$$\text{Capacity Cost Rate for Resource}_i = \frac{\text{Expenses Attributable to Resource}_i}{\text{Available Capacity of Resource}_i}$$

The numerator aggregates all the costs associated with supplying a health care resource, such as Allen, White, or Green. It starts with the full compensation of each person, including salary, payroll taxes, and fringe benefits such as health insurance and pensions. To that we add the costs of all other associated resources that enable Allen, White, and Green to be available for patient care.

These typically include a pro rata share of costs related to employee supervision, space (the offices each staffer uses), and the equipment, information technology, and telecommunications each uses in the normal course of work. In this way, the cost of many of the organization's shared or support resources can be assigned to the resources that directly interact with the patient.

Supervision cost, for example, can be calculated on the basis of how many people a manager supervises. Space costs are a function of occupancy area and rental rates; IT costs are based on an individual's use of computers and communications products and services. Assume that we find Nurse White's total cost to be as follows:

Annual compensation (including fringe benefits)	\$65,000
Supervision cost (10% of nursing supervisor's full cost)	\$9,000
Occupancy (9 sq. meters of space @ \$1,200/sq. meter/year)	\$10,800
Technology and support	\$2,560
Annual total cost of Nurse White	\$87,360
Monthly total cost of Nurse White	\$7,280

We next calculate Nurse White's availability for patient care—the denominator of our capacity cost rate equation. This calculation starts with 365 days per year and subtracts all the time that the employee is not available for work. The calculation for Nurse White is as follows:

Start with	365 days per year
less weekend days	104
less vacation days	20
less holidays	12
less sick days	5
	224 available days per year
	18.7 days per month

Start with	7.5 hours per available day
less scheduled breaks (hours)	0.5
less meetings, training, education	1.0
Available clinical hours	6 hours per day

Nurse White is therefore available for patient work 112 hours per month (6 hours a day for 18.7 days). Dividing the monthly cost of the resource (\$7,280) by monthly capacity (112 hours) gives us Nurse White's capacity cost rate: \$65 per hour.

Let's assume that similar calculations yield capacity cost rates for Administrator Allen and Physician Green of \$45 per hour and \$300 per hour, respectively.

We calculate the total cost of Jones's visit to the facility by simply multiplying the capacity cost rate of each resource by the time (in hours) Jones spent using the resource, and then adding up the components:

$$\begin{array}{r} (0.3 \text{ hours} \times \$45) \\ (0.4 \text{ hours} \times \$65) \\ + (0.15 \text{ hours} \times \$300) \\ \hline \text{Total cost of visit: } \$84.50 \end{array}$$

As this example demonstrates, accurately calculating the cost of delivering health care is quite straightforward under the TDABC system. Although the example is admittedly simplified, it captures almost all the fundamental concepts any health care provider needs to apply to estimate the cost of treating patients over their full cycles of care.

By capturing all the costs over the complete cycle of care for an individual patient's medical condition, we allow providers and payors to address virtually any costing question. Providers can aggregate and analyze patients' cost of care by age, gender, and comorbidity, or by treatment facility, physician, employer, and payor. They can calculate total and average costs for any category or subcategory of patients while still capturing the detailed data on individual patients needed to understand the sources of cost variation within each category.

The Cost Measurement Process

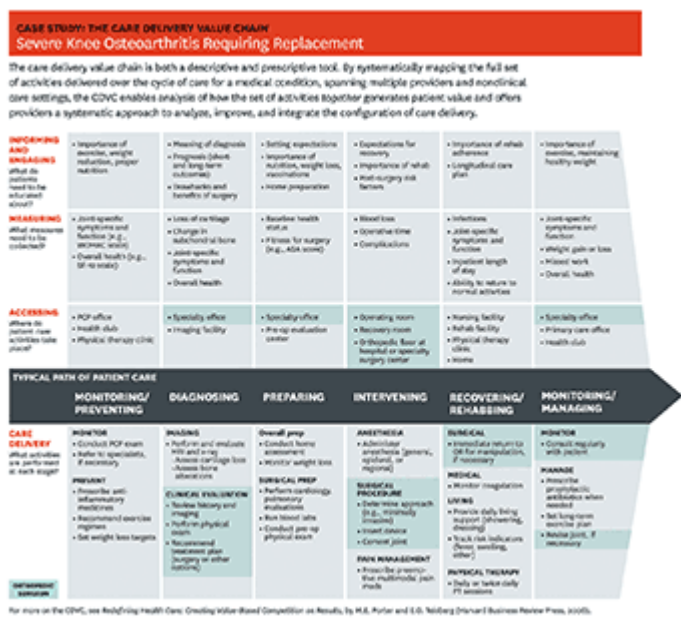
Moving beyond the simplified example, let's now look at the seven steps our pilot sites are using to estimate the total costs of treating their patient populations.

1. Select the medical condition.

We begin by specifying the medical condition (or patient population) to be costed, including the associated complications and comorbidities that affect processes and resources used during the patient's care. For each condition, we define the beginning and end of the patient care cycle. For chronic conditions, we choose a care cycle for a period of time, such as a year.

2. Define the care delivery value chain.

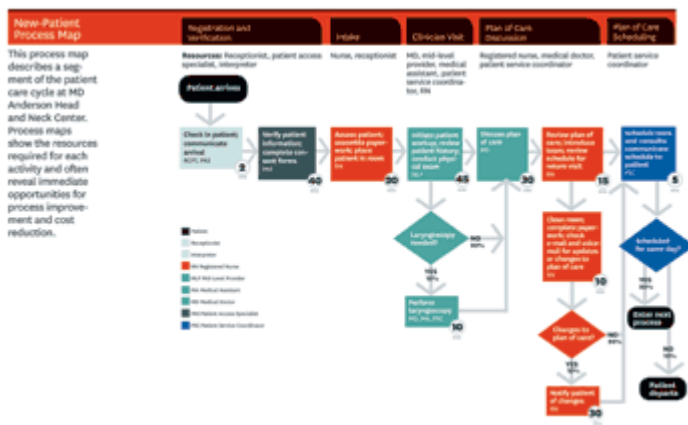
Next, we specify the care delivery value chain (CDVC), which charts the principal activities involved in a patient's care for a medical condition along with their locations. The CDVC focuses providers on the full care cycle rather than on individual processes, the typical unit of analysis for most process improvements and lean initiatives in health care. (The exhibit "The Care Delivery Value Chain" shows the CDVC developed with the Brigham & Women's pilot site for patients with severe knee osteoarthritis.) This overall view of the patient care cycle helps to identify the relevant dimensions along which to measure outcomes and is also the starting point for mapping the processes that make up each activity.



[Click here for a larger image of the graphic.](#)

3. Develop process maps of each activity in patient care delivery.

Next we prepare detailed process maps for each activity in the care delivery value chain. Process maps encompass the paths patients may follow as they move through their care cycle. They include all the capacity-supplying resources (personnel, facilities, and equipment) involved at each process along the path, both those directly used by the patient and those required to make the primary resources available. (The exhibit "New-Patient Process Map" shows a process map for one segment of the patient care cycle at the MD Anderson Head and Neck Center.) In addition to identifying the capacity-supplying resources used in each process, we identify the consumable supplies (such as medications, syringes, catheters, and bandages) used directly in the process. These do not have to be shown on the process maps.



[Click here for a larger image of the graphic.](#)

Our pilot sites used several approaches for creating process maps. Some project teams interviewed clinicians individually to learn about patient flow, while others organized “power meetings” in which people from multiple disciplines and levels of management discussed the process together. Even at this early stage in the project, the sessions occasionally identified immediate opportunities for process and cost improvement.

4. Obtain time estimates for each process.

We also estimate how much time each provider or other resource spends with a patient at each step in the process. When a process requires multiple resources, we estimate the time required by each one.

For short-duration, inexpensive processes that vary little across patients, we recommend using standard times (rather than investing resources to record actual ones). Actual duration should be calculated for time-consuming, less predictable processes, especially those that involve multiple physicians and nurses performing complex care activities such as major surgery or examination of patients with complicated medical circumstances.

TDABC is also well suited to capture the effect of process variation on cost. For example, a patient who needs a laryngoscopy as part of her clinical visit requires an additional process step. The time estimate and associated incremental resources required can be easily added to the overall time equation for that patient. (See again the process map exhibit.)

To estimate standard times and time equations, our pilot sites have found it useful to bring together all the people involved in a set of processes for focused discussion. In the future, we expect providers will use electronic handheld, bar-code, and RFID devices to capture actual times,

especially if TDABC becomes the generally accepted standard for measuring the cost of patient care.

5. Estimate the cost of supplying patient care resources.

In this step, we estimate the direct costs of each resource involved in caring for patients. The direct costs include compensation for employees, depreciation or leasing of equipment, supplies, or other operating expenses. These data, gathered from the general ledger, the budgeting system, and other IT systems, become the numerator for calculating each resource's capacity cost rate.

We must also account for the time that many physicians, particularly in academic medical centers, spend teaching and doing research in addition to their clinical responsibilities. We recommend estimating the percentage of time that a physician spends on clinical activities and then multiplying the physician's compensation by this percentage to obtain the amount of pay accounted for by the physician's clinical work. The remaining compensation should be assigned to teaching and research activities.

Next, we identify the support resources necessary to supply the primary resources providing patient care. For personnel resources, as illustrated in the Patient Jones example, these include supervising employees, space and furnishings (office and patient treatment areas), and corporate functions that support patient-facing employees. When calculating the cost of supplies, we include the cost of the resources used to acquire them and make them available for patient use during the treatment process (for instance, purchasing, receiving, storage, sterilization, and delivery).

Finally, we need to allocate the costs of departments and activities that support the patient-facing work. We map those processes as we did in step 3 and then calculate and assign costs to patient-facing resources on the basis of their demands for the services of these departments, using the process that will be described in step 6.

This approach to allocating support costs represents a major shift from current practice. To illustrate, let's compare the allocation of the resources required in a centralized department to sterilize two kinds of surgical tool kits, those used for total knee replacement and those used for cardiac bypass. Existing cost systems tend to allocate higher sterilization costs to cardiac bypass cases than to knee replacement cases because the charges (or direct costs) are higher for a cardiac bypass than for a knee replacement. Under TDABC, however, we have learned that more time and

expense are required to sterilize the typically more complex knee surgery tools, so relatively higher sterilization costs should be assigned to knee replacements.

When costing support departments, a good guideline is the “rule of 1.” Support functions that have only one employee can be treated as a fixed cost; they can be either not allocated at all or allocated using a simplistic method, as is currently done. But departments that have more than one person or more than one unit of any resource represent variable costs. The workload of these departments has expanded because of increased demand for the services and outputs they provide. Their costs should and can be assigned on the basis of the patient processes that create demand for their services.

Project teams tasked with estimating the cost to supply resources—the numerator of the capacity cost rate—should have expertise in finance, human resources, and information systems. They can do this work in parallel with the process mapping and time estimation (steps 3 and 4) performed by clinicians and team members with expertise in quality management and process improvement.

6. Estimate the capacity of each resource, and calculate the capacity cost rate.

Determining the practical capacity for employees—the denominator in the capacity cost rate equation—requires three time estimates, which are gathered from HR records and other sources:

- a. The total number of days that each employee actually works each year.
- b. The total number of hours per day that the employee is available for work.
- c. The average number of hours per workday used for nonpatient-related work, such as breaks, training, education, and administrative meetings.

$$\text{Monthly Practical Capacity of Resource} = \frac{a}{12} \times (b-c)$$

For physicians who divide their time among clinical, research, and education activities, we subtract time spent on research and education activities to obtain the number of hours per month that they are available for clinical work.

For equipment resources, we measure capacity by estimating the number of days per month and the number of hours per day that each piece of equipment can be used. This represents the upper limit on the capacity of the equipment. The actual capacity utilization of much health care equipment is sometimes lower because equipment capacity is supplied in large lumps. For instance, suppose a piece of equipment can do 10,000 blood tests a month. A hospital decides to buy the equipment knowing that it needs to process only 6,000 tests per month. In this case, we make an adjustment: The costing system should use the time required to perform 6,000 tests as the capacity of the resource. Otherwise, the tests actually performed on the equipment will, at best, cover only 60% of its cost. If the provider subsequently ends up using the equipment for a higher number of tests, it can adjust the capacity rate accordingly.

This treatment of capacity follows the rule of 1 and should be applied when the organization has only one unit of the equipment. Now suppose a provider has 12 facilities that each use equipment capable of performing 10,000 blood tests per month—but each facility performs only 6,000 tests per month. In that case, the capacity of each resource unit should be set at the full 10,000 tests per month, not its expected number. We want the system to signal the cost of unused capacity when a provider chooses to supply capacity at multiple locations or facilities rather than consolidating its use of expensive equipment.

In addition to the lumpiness with which capacity gets acquired, factors such as peak load demands, surge capacity, and capacity acquired for future growth should be accounted for. This applies to both equipment and personnel. (Those factors can be incorporated, but the treatment is beyond the scope of this article.)

In practice, we have found that underutilization of expensive equipment capacity is often not a conscious decision but a failure of the costing system to provide visibility into resource utilization. That problem is corrected by the TDABC approach. We describe opportunities to improve resource capacity utilization later in the article.

To calculate the resource capacity cost rate, we simply divide the resource's total cost (step 5) by its practical capacity (step 6) to obtain a rate, measured in dollars or euros per unit of time, typically an hour or a minute.

7. Calculate the total cost of patient care.

Steps 3 through 6 establish the structure and data components of the TDABC system. In the final step, the project team estimates the total cost of treating a patient by simply multiplying the capacity cost rates (including associated support costs) for each resource used in each patient process by the amounts of time the patient spent with the resource (step 4). Sum up all the costs across all the processes used during the patient's complete cycle of care to produce the total cost of care for the patient.

Opportunities to Improve Value

Our new approach actively engages physicians, clinical teams, administrative staff, and finance professionals in creating the process maps and estimating the resource costs involved in treating patients over their care cycle. This bridges the historical divide between managers and clinical teams that has often led to tensions and stalemates over cost-cutting steps. TDABC builds a common information platform that will unleash innovation based on a shared understanding of the actual processes of care. Even at our pilot site Schön Klinik, which already had an excellent departmental cost-control system, introducing TDABC revealed powerful new ways to improve its processes and restructure care delivery. Capitalizing on these value-creating opportunities—previously hidden by inadequate and siloed costing systems—is the key to solving the health care cost problem. Let's examine some of the most promising opportunities that proper costing reveals.

Eliminate unnecessary process variations and processes that don't add value.

In our pilots, we have documented significant variation in the processes, tools, equipment, and materials used by physicians performing the same service within the same unit in the same facility. For example, in total knee replacement, surgeons use different implants, surgical kits, surgeons' hoods, and supplies, thereby introducing substantial cost variation in treating patients with the same condition at the same site. The surgical unit now measures the costs and outcomes that each surgeon produces. As a result, clinical practice leaders are able to have more constructive and better informed discussions about how best to standardize care and treatment processes to reduce the costs of variability and limit the use of expensive approaches and materials that do not demonstrably lead to improved outcomes.

In addition to reducing process variations, our pilot sites have eliminated steps or entire processes that did not improve outcomes. Schön Klinik, for example, lowered costs by reducing the breadth of

tests included in its common laboratory panel after learning that many of the tests did not provide new information that would lead to improvement in outcomes.

Comparing practices across different countries for the same condition also reveals major opportunities for improvement. The reimbursement for a total joint replacement care cycle in Germany and Sweden is approximately \$8,500, including all physician and technical services and excluding only outpatient rehabilitation. The comparable figure in U.S. medical centers is \$30,000 or more. Since providers in all three countries report, in aggregate, similar margins on joint replacement care, U.S. providers' costs are likely two to three times as high as those of their European counterparts. By comparing process maps and resource costs for the same medical condition across multiple sites, we can determine how much of the cost difference is attributable to variations in processes, protocols, and productivity and how much is attributable to differences in resource or supply costs such as wages and implant prices. Our initial research suggests that although inputs are more expensive in the United States, the higher cost in U.S. facilities is mainly due to lower resource productivity.

Improve resource capacity utilization.

The TDABC approach identifies how much of each resource's capacity is actually used to perform processes and treat patients versus how much is unused and idle. Managers can clearly see the quantity and cost of unused resource capacity at the level of individual physicians, nurses, technicians, pieces of equipment, administrators, or organizational units. Resource utilization data also reveal where increasing the supply of certain resources to ease bottlenecked processes would enable more timely care and serve more patients with only modestly higher expenditures.

When managers have greater visibility into areas where substantial and expensive unused capacity exists, they can identify the root causes. For example, some underutilization of expensive space, equipment, and personnel is caused by poor coordination and delays when a patient is handed off from one specialty or service to the next. Another cause of low resource utilization is having specialized equipment available just in case the need arises. Some facilities that serve patients with unpredictable and rare medical needs make a deliberate decision to carry extra capacity. In such cases, an understanding of the actual cost of excess capacity should trigger a discussion on how best to consolidate the treatment of such patients. Much excess resource capacity, however, is due not to rare conditions or poor handoffs but to the prevailing tendency of many hospitals and clinics to

provide care for almost every type of medical problem. Such fragmentation of service lines introduces costly redundancy throughout the health care system. It can also lead to inferior outcomes when providers handle a low volume of cases of each type. Accurate costing gives managers a valuable tool for consolidating patient care for low-volume procedures in fewer institutions, which would both reduce the high costs of unused capacity and improve outcomes.

Deliver the right processes at the right locations.

Many services today are delivered in over-resourced facilities or facilities designed for the most complex patient rather than the typical patient. By accurately measuring the cost of delivering the same services at different facilities, rather than using figures based on averaged direct costs and inaccurate overhead allocations, providers are able to see opportunities to perform particular services at properly resourced and lower-cost locations. Such realignment of care delivery, already under way at Children's Hospital Boston, improves the value and convenience of more routine services for both patients and caregivers while allowing tertiary facilities to concentrate their specialized resources on truly complex care.

Match clinical skills to the process.

Resource utilization can also be improved by examining whether all the processes currently performed by physicians and other skilled staff members require their level of expertise and training. The process maps developed for TDABC often reveal opportunities for appropriately skilled but lower-cost health care professionals to perform some of the processes currently performed by physicians without adversely affecting outcomes. Such substitutions would free up physicians and nurses to focus on their highest-value-added roles. (For an example from one of our pilot sites, see the sidebar "A Cancer Center Puts the New Approach to Work.")

PILOT: A Cancer Center Puts the New Approach to Work, by Heidi W. Albright, MHA, and Thomas W. Feeley, MD

The University of Texas MD Anderson Cancer Center is a National Cancer Institute–designated Comprehensive Cancer Center, located in Houston, Texas. Seeing more than 30,000 new patients

Speed up cycle time.

Health care providers have multiple opportunities to reduce cycle times for treating patients, which in turn will reduce demand for resource capacity. For example, reducing the time that patients have to wait will reduce demand for patient supervision and space. Speeding up cycle time also improves outcomes, both by minimizing the

every year, MD Anderson accounts for approximately 20% of cancer care within the Houston region and 1% of cancer care nationally. MD Anderson is a medical condition-focused center that provides integrated, interdisciplinary care across the care cycle.

In collaboration with Michael Porter, we embarked on a major effort to expand clinical outcome measurement, beginning with a study of 2,468 patients in the Head and Neck Center, in 2008. We created the Institute for Cancer Care Excellence in December 2008 to support this effort. In 2010, with Robert Kaplan, we launched a pilot project, also within the Head and Neck Center, to assess the feasibility of applying modern cost accounting to health care delivery.

Traditionally, at MD Anderson, we used a charge-based cost accounting system. However, we realized that its cost allocations were problematic at several levels. For a start, the drivers of cost in health care had changed but the allocation methodology had not, with the result that our costing no longer reflected reality. What's more, MD Anderson routinely allocated more costs to services that were highly reimbursed. With impending health care reform set to shift the industry away from fee-for-service reimbursement to bundled or global payments, we needed a costing system that could provide more accurate patient-level costs by medical condition.

To determine whether time-driven activity-based costing (TDABC) would provide this level of accuracy, we worked with a team of clinicians and internal financial staff members in a pilot study.

duration of patient uncertainty and discomfort and by reducing the risk of complications and minimizing disease progression. As providers improve their process flows and reduce redundancy, their patients will no longer have to be so "patient" as they receive a complete cycle of care.

Optimize over the full cycle of care.

Health care providers today are typically organized around specialties and services, which complicates coordination, interrupts the seamless, integrated flow of patients from one process to the next, and leads to the duplication of many processes. In the typical care delivery process, for example, patients see multiple providers in multiple locations and undergo a separate scheduling interaction, check-in, medical consultation, and diagnostic workup for each one. This wastes resources and creates delays. The TDABC model makes visible the high costs of these redundant administrative and clinical processes, motivating professionals from different departments to work together to integrate care across departments and specialties. Eliminating unnecessary administrative and clinical processes represents one of the biggest opportunities for lowering costs.

With a complete picture of the time and resources involved, providers can optimize across the entire care cycle, not just the parts. Physicians and staff may shift more of their time and resources to the

The team began by developing a care delivery value chain that mapped out the full treatment of a patient. Within each segment of care—the outpatient clinic, diagnostic imaging, the operating room, inpatient care, radiation therapy, and chemotherapy administration—we created process maps that also included all the resources involved. Each segment of the process map took approximately 40 hours to complete, with a team consisting of a project manager, a project coordinator, a process mapping expert, financial staff, clinical and business managers, and staff members from each function being mapped. (See the exhibit “New-Patient Process Map” for an example.)

The new process resulted in a 16% reduction in process time, a 12% decrease in costs for technical staff, and a 67% reduction in costs for professional staff.

The project team then estimated how much time it takes to perform each task and the capacity cost of each health care provider. We validated all the process steps, time estimates, and branching points with the help of frontline health personnel who were actually performing the tasks—not just departmental managers and senior leaders.

We then estimated the per-patient cost for each process step. Initially, we examined only personnel costs because they accounted for approximately 75% of total costs at the Head and Neck Center. Because of personnel and time constraints, we used an approximate procedure on the first pass to allocate the

front end of the care cycle—to activities such as patient education and clinical team consultations—to reduce the likelihood of patients experiencing far more costly complications and readmissions later in the cycle.

Additionally, this resource- and process-based approach gives providers visibility into valuable nonbilled events in the cycle of care. These activities—such as nurse counseling time, physician phone calls to patients, and multidisciplinary care team meetings—can often make major contributions to efficiency and favorable outcomes. Because existing systems hide these costs in overhead (see Myth #1), such important elements of care are prone to be minimized or left unmanaged.

Capturing the Payoffs

“Calculating the return on investment of performance improvement has been missing from most of the quality improvement discussions in health care,” Dr. Thomas Feeley at MD Anderson told us. “When measurement does occur, the assumptions are usually gross, inaccurate, and sometimes overstated,” he added. “TDABC gave us a powerful tool to actually model the effect an improvement will have on costs.” Accurate costing allows the impact of process improvements to be readily calculated, validated, and compared.

The big payoff occurs when providers use

overhead costs of support departments.

Our pilot study also sought to evaluate whether the new costing approach would allow us to measure the cost consequences of changes in care processes. We examined the process for a patient visit to our Anesthesia Assessment Center (AAC), which occurs prior to surgery. The medical director of the AAC had developed two initiatives to improve performance: (1) implementing new clinical guidelines for preoperative diagnostic testing and (2) reorganizing personnel tasks—that is, having medical assistants perform some tasks previously performed by nurses and using nurses to perform some tasks previously performed by physicians.

The project team developed process maps for the AAC before and after the performance improvements, and then applied costs from the TDABC model to each map. The modified process resulted in a 16% (11-minute) reduction in process time, a 12% decrease in costs for technical staff, and a 67% reduction in costs for professional staff (physicians and other providers). Total costs fell 36%, from approximately \$250 per patient (including direct and indirect costs) to \$160. Our existing costing system could not provide visibility into the cost savings from these process improvements.

To see whether the cost reductions affected outcomes, we examined day-of-surgery cancellations due to inadequate preoperative workup and found that this critical outcome of the anesthesia assessment process did not change. Thus, the more efficient and less costly process improved value.

accurate costing to translate the various value-creating opportunities into actual spending reductions. A cruel fact of life is that total costs will not actually fall unless providers issue fewer and smaller paychecks, consume less (and less expensive) space, buy fewer supplies, and retire or dispose of excess equipment. Facing revenue pressure due to lower reimbursements—particularly from government programs such as Medicare and Medicaid—providers today use a hatchet approach to cost reduction by mandating arbitrary cuts across departments. That approach jeopardizes both the quality and the supply of care. With accurate costing, providers can target their cost reductions in areas where real improvements in resource utilization and process efficiencies enable providers to spend less without having to ration care or compromise its quality.

Health care organizations today, like all other firms, conduct arduous and time-consuming budgeting and capacity planning processes, often accompanied by heated arguments, power negotiations, and frustration. Such difficulties are symptomatic of inadequate costing systems and can be avoided.

When providers understand the total costs of treating patients over their

TDABC, which we have found straightforward to implement, requires a significant time investment to develop process maps for all care areas. But this investment has yielded additional benefits by supporting process improvement opportunities and facilitating the standardization of care. Perhaps most important, the new costing approach helps us set priorities for process improvements and measure their cost impact.

We are now completing the analysis of our pilot project data and will be extending the methodology to all our other integrated cancer care units. As we merge ongoing measurement of clinical outcomes in each of our care centers with patient-level costs for a full care cycle, we will be better positioned to drive value improvement and develop bundled prices for clinical care. Through this work, we hope to provide convincing evidence of the health care value that MD Anderson's integrative cancer treatment strategy actually delivers.

Heidi W. Albright is the director of the Institute for Cancer Care Excellence at MD Anderson Cancer Center.

Thomas W. Feeley is the Helen Shafer Fly Distinguished Professor of Anesthesiology and the vice president of medical operations at MD Anderson Cancer Center.

complete cycle of care, they can contemplate innovative reimbursement approaches without fear of sacrificing their financial sustainability.

A TDABC budgeting process starts by predicting the volume and types of patients the provider expects. Using these forecasts combined with the process maps for treating each patient condition, providers can predict the quantity of resource hours required. This can then be divided by the practical capacity of each resource type to obtain accurate estimates of the quantity of each resource needed to meet the forecasted demand. Estimated monthly expense budgets for future periods can be easily obtained by multiplying the quantity of each resource category required by the monthly cost of each resource.

In this way, managers can make virtually all their costs "variable." They can readily see how efficiency improvements and process innovations lead to reduced spending on resources that are no longer needed. Managers also have the

information they need to redeploy resources freed up as a result of process improvements. Leaders gain a tool they never had before: a way to link decisions about patient needs and treatment

processes directly to resource spending.

Reinventing Reimbursement

If we are to stop the escalation of total health care costs, the level of reimbursement must be reduced. But how this is done will have profound implications for the quality and supply of health care. Across-the-board cuts in reimbursement will jeopardize the quality of care and likely lead to severe rationing. Reductions that enable the quality of care to be maintained or improved need to be informed by accurate knowledge of the total costs required to achieve the desired outcomes when treating individual patients with a given medical condition.

The current system of reimbursement is disconnected from actual costs and outcomes and discourages providers and payors from introducing more cost-effective processes for treating patients. With today's inadequate costing systems, reimbursement rates have often been based on historical charges. That approach has introduced massive cross subsidies that reimburse some services generously and pay far below costs for others, leading to excess supply for well-reimbursed services and inadequate delivery and innovation for poorly reimbursed ones.

Accurate costing allows the impact of process improvements to be readily calculated, validated, and compared.

Adjusting only the level of reimbursement, however, will not be enough. Any true health care reform will require abandoning the current complex fee-for-service payment schedule altogether. Instead, payors should introduce value-based reimbursement, such as bundled payments, that covers the full care cycle and includes care for complications and common comorbidities. Value-based reimbursement rewards providers who deliver the best overall care at the lowest cost and who minimize complications rather than create them. The lack of accurate cost data covering the full cycle of care for a patient has been the major barrier to adopting alternative reimbursement approaches, such as bundled reimbursement, that are more aligned with value.

We believe that our proposed improvements in cost measurement, coupled with better outcome measurement, will give third-party payors the confidence to introduce reimbursement methods that

better reward value, reduce perverse incentives, and encourage provider innovation. As providers start to understand the total costs of treating patients over their complete cycle of care, they will also be able to contemplate innovative reimbursement approaches without fear of sacrificing their financial sustainability. Those that deliver desired health outcomes faster and more efficiently, without unnecessary services, and with proven, simpler treatment models will not be penalized by lower revenues.***

Accurately measuring costs and outcomes is the single most powerful lever we have today for transforming the economics of health care. As health care leaders obtain more accurate and appropriate costing numbers, they can make bold and politically difficult decisions to lower costs while sustaining or improving outcomes. Dr. Jens Deerberg-Wittram, a senior executive at Schön Klinik, told us, “A good costing system tells you which areas are worth addressing and gives you confidence to have the difficult discussions with medical professionals.” As providers and payors better understand costs, they will see numerous opportunities to achieve a true “bending of the cost curve” from within the system, not in response to top-down mandates. Accurate costing also unlocks a whole cascade of opportunities, such as process improvement, better organization of care, and new reimbursement approaches that will accelerate the pace of innovation and value creation. We are struck by the sheer size of the opportunity to reduce the cost of health care delivery with no sacrifice in outcomes. Accurate measurement of costs and outcomes is the previously hidden secret for solving the health care cost crisis.

The authors would like to acknowledge the extensive and invaluable assistance of Mary Witkowski, Dr. Caleb Stowell, and Craig Szela in the preparation of this article.

For Further Reading

Measuring Value and Outcomes

“What Is Value in Health Care?” by M.E. Porter, *New England Journal of Medicine*, 2010

Redefining Health Care: Creating

A version of this article appeared in the September 2011 issue of *Harvard Business Review*.

Value-Based Competition on Results by
M.E. Porter and E.O. Teisberg, Harvard
Business Review Press, 2006

“A Strategy for Health Care Reform:
Towards a Value-Based System” by M.E.
Porter, *New England Journal of Medicine*,
2009

Time-Driven Activity-Based Costing

*Time-Driven Activity-Based Costing: A
Simpler and More Powerful Path to Higher
Profits* by R.S. Kaplan and S.R. Anderson,
Harvard Business Review Press, 2007

*Cost and Effect: Using Integrated Cost
Systems To Drive Profitability and
Performance* by R.S. Kaplan and R.
Cooper, Harvard Business Review Press,
1998



Robert S. Kaplan is a senior fellow and the Marvin Bower Professor of Leadership Development, Emeritus, at Harvard Business School. He is a coauthor, with Michael E. Porter, of “How to Solve the Cost Crisis in Health Care” (HBR, September 2011).



Michael E. Porter is a University Professor at Harvard, based at Harvard Business School in Boston. He is a coauthor, with Robert S. Kaplan, of “How to Solve the Cost Crisis in Health Care” (HBR, September 2011).

This article is about COSTS

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1 COMMENTS

NELSON SALDIAS SEGUEL a year ago

Hello!. I started applying TDABC model in a network of 7 clinics in Chile last January (2015). I've been building a web application in Visual .NET, reading directly from SQL databases. First I did some tests in Excel-PowerPivot for validating the model, gathering data from second source. The outputs were so accurate that anyone disagree whit them. Now I'm getting data from first source (SQL Databases). Thanks Mr. Kaplan!!

REPLY

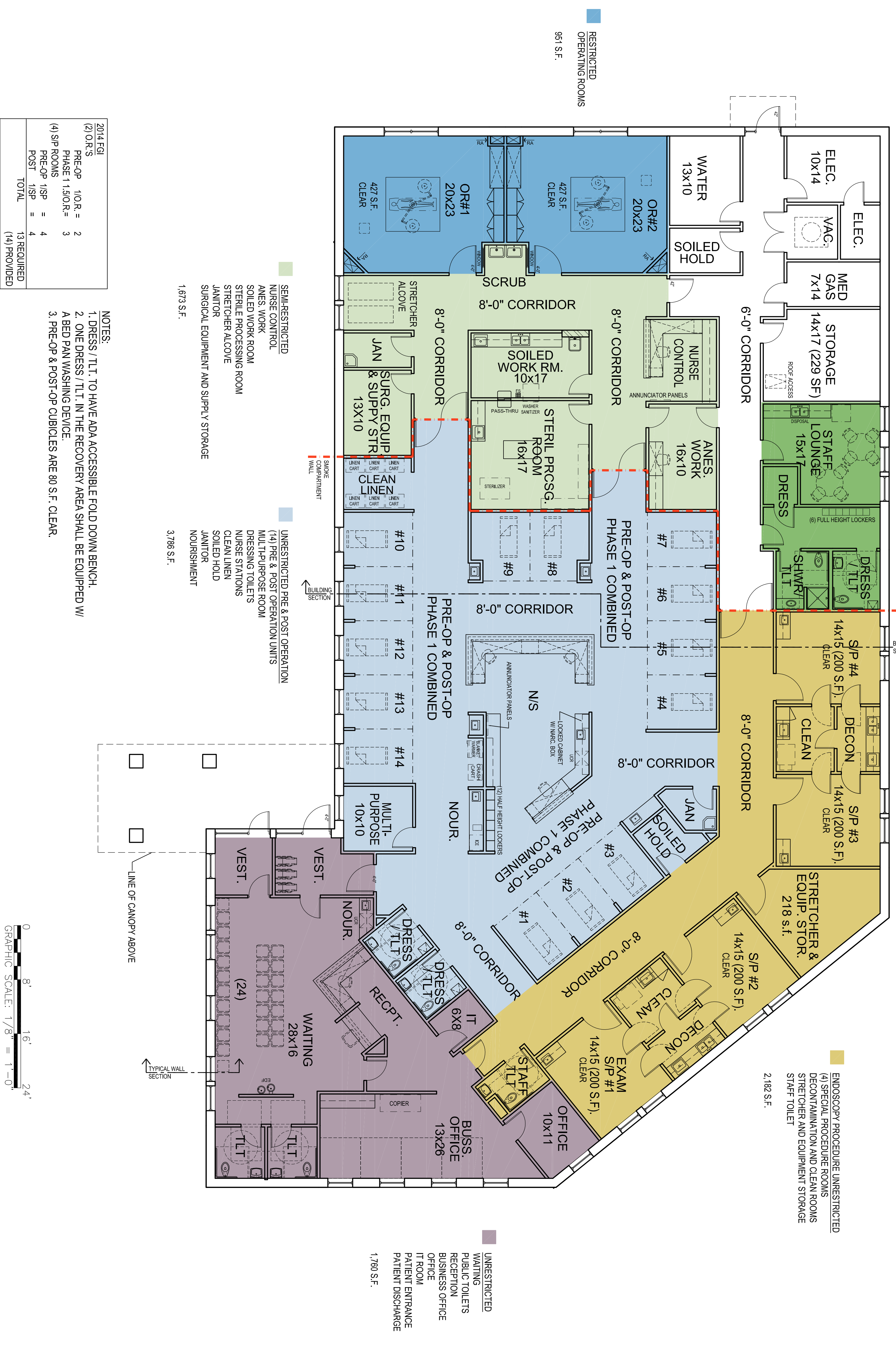
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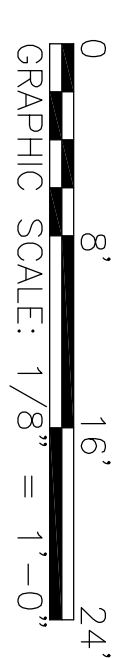
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EXISTING BUILDING



2014 FIG	
(2) O.R.'S	2
PRE-OP 1/O.R. =	2
PHASE 1 1/S/O.R. =	3
(4) S/P ROOMS	4
PRE-OP 1/S/P =	4
POST 1/S/P =	4
TOTAL	13 REQUIRED
	(14) PROVIDED

- NOTES:
1. DRESS / TLT. TO HAVE ADA ACCESSIBLE FOLD DOWN BENCH.
 2. ONE DRESS / TLT. IN THE RECOVERY AREA SHALL BE EQUIPPED WITH A BED PAN WASHING DEVICE.
 3. PRE-OP & POST-OP CUBICLES ARE 80 S.F. CLEAR.



1 PROPOSED FLOOR PLAN
1/8" = 1'-0"