IN THE MATTER OF	*	BEFORE THE
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WASHINGTON ADVENTIST HOSPITAL, INC.	*	MARYLAND HEALTH
	*	
Docket No. 13-15-2349	*	CARE COMMISSION
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HOLY CROSS HOSPITAL OF SILVER SPRING'S COMMENTS ON THE MODIFIED CON APPLICATION PROPOSING THE PARTIAL REPLACEMENT OF WASHINGTON ADVENTIST HOSPITAL

Holy Cross Hospital of Silver Spring, Inc. ("HCH"), by its undersigned counsel and pursuant to COMAR 10.24.01.08F, submits these comments addressing the Modified Certificate of Need Application and related materials filed by Adventist HealthCare, Inc. ("AHC") d/b/a Washington Adventist Hospital ("WAH"), proposing to partially relocate and replace WAH with a new general acute care hospital located in the White Oak area of Silver Spring, Maryland.[1] HCH respectfully requests that the Maryland Health Care Commission deny AHC's application.

INTRODUCTION

HCH is part of Holy Cross Health, a Maryland-based health system. Through a combination of innovation, alignment, partnership, fundraising, and a steadfast stewardship of the resources entrusted to it, Holy Cross Health is a leading provider of community benefit, providing more than $56 million in community benefit in 2014, including an all-time high of $30 million in free or reduced-cost services to those facing financial barriers to care.

[1] AHC also proposes to establish a special psychiatric hospital on the existing Takoma Park campus and to reconfigure the former WAH campus in Takoma Park for other services, although it expressly excludes these components of the project as "formal" elements of the CON application. Modified Application, p. 6.

Holy Cross Health has established three health centers for the uninsured and underinsured and will soon open a fourth. These health centers provide primary care interventions, offer team-based care for chronic disease conditions like diabetes, and offer a sense of community to each patient. Holy Cross Health also partners with the community on countless outreach activities to support improving the health of the individuals it is privileged to serve. HCH has been a steward of the health of its diverse community located in Silver Spring, Maryland, and the surrounding service area for more than 50 years.

HCH submits these comments on the proposed partial relocation of WAH in an effort to ensure that the diverse population WAH currently serves will continue to have access to quality health care services, and to prevent an undue burden on HCH's own ability to meet the health care needs of that population. As explained more fully below, AHC's proposal fails to comply with applicable regulations, State Health Plan standards and review criteria for at least the following reasons:

(a) AHC's proposal will result in two health care facilities—the partial relocation of a general acute care hospital to White Oak and the establishment of a specialty psychiatric hospital in Takoma Park. AHC, however, has only sought CON approval for the partial relocation to White Oak.

(b) AHC's proposed partial relocation will adversely impact the residents of its overall service area, adding undue duress to individuals in its long-standing Emergency Department ("ED") service area, especially those who experience greater socio-economic barriers in accessing care, low income, less mobile individuals and families, many of whom are uninsured.

(c) AHC failed to demonstrate that the White Oak facility is financially feasible and viable because AHC's financial projections are inaccurate, incomplete, and failed to account for a number of necessary operational and financing costs.

(d) AHC's proposal to build a partial replacement hospital in White Oak will unduly burden the other hospitals in WAH's current ED service area. The effect of approving ACH's proposal would be to permit WAH to abandon zip code populations with large numbers of Medicaid and uninsured patients who seek care in WAH's ED. HCH's ED already operates at near capacity. The partial relocation of WAH will increase demand for care at HCH's overburdened ED, especially with patients whose needs will also require additional resource support after receiving care in the ED.

In addition, AHC has offered no real commitment to implement the scant services it says will be provided in Takoma Park to serve the community healthcare needs in its existing service area, and it has not demonstrated its ability to fund these services. The approval of AHC's application would effectively result in the termination of services at the Takoma Park campus.

ARGUMENT

I. THE MODIFIED CON APPLICATION CANNOT BE APPROVED AND SHOULD BE DE-DOCKETED BECAUSE AHC FAILED TO SEEK CERTIFICATE OF NEED APPROVAL FOR THE PROPOSED SPECIAL HOSPITAL TO BE ESTABLISHED AT THE TAKOMA PARK CAMPUS.

AHC's Modified Application is not approvable and should be de-docketed because the proposed project, if implemented, will result in two health care facilities, and CON approval is sought for only one. A CON is required before "a new health care facility is built, developed, or established." MD. CODE ANN., HEALTH-GEN. § 19-120(f) (2014); COMAR § 10.24.01.02A(1).

Unlike the proposal advanced in the 2009 CON application for the relocation of WAH, AHC now intends to leave 40 acute care psychiatric beds in Takoma Park rather than relocate those beds to White Oak with the rest of the acute care beds. Modified Application ("Appl."), p. 6. AHC acknowledges that what it intends to leave behind in Takoma Park will constitute a special hospital for psychiatric care. *Id.* at 34 (describing the options for development, AHC explains that the behavioral health services to remain in Takoma Park will operate as a "specialty hospital service"). Yet, AHC states that the Takoma Park campus "is not a formal element of the application." *Id*. at 9. AHC apparently believes it can establish a new special psychiatric hospital in Takoma Park without obtaining a CON.

In the pending application, AHC does not seek CON approval for the special hospital it intends to establish in Takoma Park. Rather, it seeks Commission approval only for the partially relocated general acute care facility in White Oak. The problem with this approach is that the special hospital for psychiatric care in Takoma Park cannot be established without a CON. Thus, the application is neither feasible nor approvable without CON approval of the psychiatric beds that will be left in Takoma Park. On this ground, HCH has filed a separate request to de-docket the application, which HCH incorporates by reference in these Comments.

II. AHC FAILED TO DEMONSTRATE THAT PARTIALLY RELOCATING WAH FROM TAKOMA PARK BY BUILDING A PARTIAL REPLACEMENT HOSPITAL IN WHITE OAK WILL NOT HAVE AN "ADVERSE IMPACT" ON ACCESS TO SERVICES, INCLUDING ACCESS FOR THE INDIGENT AND/OR UNINSURED, AS IS REQUIRED FOR A FINDING OF CONSISTENCY WITH STANDARD .04B(4)(b).

Standard .04B(4)(b) provides that a project that "reduces the potential availability or accessibility of a facility or service by eliminating, downsizing, or otherwise modifying a facility or service shall document that each proposed change will not inappropriately diminish, for the

population in the primary service area, the availability or accessibility to care, including access to the indigent and/or uninsured." AHC failed to make this required showing.

A. AHC proposes to abandon a large number of underserved individuals in WAH's service area for emergency services.

AHC claims that relocating WAH to the proposed new location in White Oak will "optimize accessibility and travel time for its likely service area population." Appl., p. 21. As explained below, while access for the population in WAH's proposed new service area may be adequate, access for the population in WAH's existing service area will decrease. Additionally, residents in WAH's proposed new service area are well served now with the current hospital landscape. The existing site is far more accessible for residents of WAH's eight zip code ED Primary Service Area ("PSA") than is the proposed partial replacement hospital in White Oak. Those people who experience greater socio-economic barriers in accessing care, principally the indigent and the uninsured, will be most adversely affected by the relocation. *See* **Exhibit 1**.

WAH's current combined ED Total Service Area ("TSA") consists of 31 zip codes, eight in the PSA and 23 in the Secondary Service Area ("SSA"). Appl., p. 55. As shown in **Exhibit 2**, of these 31 zip codes, if the AHC projections of market share shift for WAH's MSGA cases (Appl., p. 105) were applied to ED visit volume, the shift would result in no market share for WAH in five of the 31 existing areas. As shown in Table 1 below, these five zip codes are ranked among the eight zip codes with the lowest average household income in WAH's existing ED TSA.

Table 1: Zip Codes with Lowest Avg. Salary in WAH Current TSA

Zip Code	City	Average annual income	WAH current ED Service Area	WAH Current MSGA Market Share	WAH Projected MSGA share point shift	WAH proposed new share after move
20019	Washington	$27,317	SSA	3.9%	-6.5%	0.0%
20020	Washington	$27,964	SSA	6.1%	-10.1%	0.0%
20710	Bladensburg	$34,470	SSA	8.1%	-1.0%	7.1%
20783	Hyattsville	$34,821	PSA	60.3%	-15.0%	45.3%
20002	Washington	$35,313	SSA	8.5%	-14.1%	0.0%
20737	Riverdale	$35,313	SSA	14.5%	-15.0%	0.0%
20722	Brentwood	$36,494	SSA	22.2%	-15.0%	7.2%
20018	Washington	$37,277	SSA	15.5%	-17.0%	0.0%

Notes:

[1] Average salary based on Maryland Department of Planning (MD data); www.zipatlas.com (D.C. data)

[2] ED Market Share derived using ED visits defined by HSCRC database for 2014 Inpatient and Outpatient cases with EMG rate center charges >0

[3] ED Service Area defined as WAH current PSA/SSA, Appl., p. 55.

See Ex. 2. In addition, of the 31 zip codes in WAH's current ED TSA, 20 have an average income of less than $50,000 per household. *Id*. Of these 20 zip codes, AHC's projections of volume shift for WAH's MSGA cases show significant shift away from providing services to these vulnerable households. *Id*. In fact, in eleven of those 20 zip codes, AHC shows a volume shift away from WAH of at least 10 percentage points. *Id*. For the twenty zip codes with an average income of less than $50,000 per household, WAH projects an average volume shift loss of 9%. For all the 11 zip codes with an average income above $50,000 per household, WAH projects an average market shift gain of 4%.

B. AHC's unenforceable promise to redevelop the Takoma Park campus does not resolve the adverse impact on the community of the proposed partial relocation of WAH to White Oak.

Although AHC states that the redevelopment of the Takoma Park campus is not a "formal element" of its CON application (Appl., p. 9), AHC attempts to ease the impact of abandoning of the majority of its low-income service area population by presenting an unfunded plan to build

primary care and physician office capacity at the Takoma Park campus sometime after the WAH relocation. This purported solution, however, is illusory, as AHC has made no formal commitment to proceed with its plans, and the Commission will have no ability to require AHC to do so.

Even if AHC made a firm commitment to develop the Takoma Park campus, AHC has not said whether the proposed Federally Qualified Healthcare Center ("FQHC") and walk-in primary care center will open immediately after WAH's partial relocation, or many years later. The "Takoma Park Campus Overview," (Appl., Ex. 6) states "[a]fter the completion of the White Oak Hospital, the Takoma Park campus will be re-developed. . . ." The graphic included in AHC's Exhibit 6 depicts a proposed timeline, beginning in an unspecified "Year 1," for the reconfiguration. The timeline includes 12 months for planning, permitting, and financing, 18 months for renovations, and three months for commissioning.

Thus, even if AHC moved forward with developing the clinics as proposed, the services would not be available at Takoma Park until almost three years (33 months) after the hospital now located there has closed, leaving the population in WAH's current PSA without the very services AHC suggests it will provide in attempt to address the blow of its abandonment. This burden will fall disproportionately on low-income families that often have limited access to transportation. *See* Exh. 1. Moreover, not only does AHC's proposed solution lack commitment to make the services available, but AHC also makes no commitment to provide the services at all times. AHC states that the proposed walk-in clinic will "initially" be open 24/7, but cautions that these hours will be reevaluated. Appl., Ex. 6. However, peak ED utilization occurs between 3 p.m. and 10 p.m. Welch, "Using Data to Drive Emergency Department Design:

A Metasynthesis," HEALTH ENVIRONMENTS RESEARCH & DESIGN JOURNAL, Vol. 5, No. 3, 26-45 (2012) (attached as **Exhibit 3**).

Furthermore, in light of AHC's other priorities and its lack of financial projections and commitment for the services supposedly to be located at Takoma Park, it is unlikely AHC will renovate the Takoma Park campus. Indeed, AHC has stated capital expenditures needed for its existing facilities may be deferred if necessary to fund the WAH relocation. Appl., p. 129. This willingness to possibly defer the capital needs of operating AHC facilities casts serious doubt on whether AHC would be in a position to make new investments in communities it has abandoned.

AHC's own financials show that it would operate the Takoma Park campus at a loss. Appl., Ex. 30 at p. 4. AHC will not be in a financial position to fund the development and continued operation of new facilities and services in Takoma Park that will drain its already stressed resources. *See* section III.C., *infra*. AHC states it will seek bond funding as a source of funds for the Takoma Park campus renovation. Appl., Ex. 6 (Capital Budget). As explained more fully in section III.C., AHC is unlikely to obtain traditional bond funding for the White Oak relocation—it is even less likely it could obtain additional bonds to finance the Takoma Park renovation. *See* section III.C.iv., *infra*. Without being able to fund these renovations through cash or bonds, AHC will be unable to complete the renovations admittedly needed to provide access for residents of the TSA, specifically the underserved in need of emergency care.

Thus, while AHC argues that its proposed primary care services at Takoma Park will alleviate the impact the relocation will have on its current underserved population, it has not committed to develop these services, has not promised any timeframe, and cannot point to the resources it would have available to do so.

Moreover, even if AHC ultimately commits to provide, and is able to fund, primary care services at its Takoma Park campus after the relocation White Oak, as AHC acknowledged in its successful quest to establish a freestanding emergency center in Germantown, emergency and primary care are not the same. AHC apparently believes that the residents of Germantown need the services provided by a 24-hour freestanding emergency department, while the residents of Takoma Park and the surrounding areas, who are poorer, have less access to transportation, and require a higher level of socio-economic support, need only be served by primary care clinics. The loss of 24-hour emergency services is a significant loss in an area that faces many public health challenges.

AHC also attempts to mitigate its abandonment of the indigent residents of its current service area by pointing to its involvement in population health programs that supposedly will reduce ED volumes. (Appl., pp. 60-63). AHC has not, however, been able to demonstrate that its current efforts have had any impact. In its response to Question 22 of the Commission Staff's (October 15, 2014) completeness questions, AHC commented that it is too soon to measure if the new programs will be successful in reducing utilization by providing other models of care. Unfortunately, should any of these models of care demonstrate the need for less emergency services, there is no guarantee that the programs will continue after the partial replacement hospital is relocated to White Oak.

Standard .04B(4)(b) provides that a project that "reduces the potential availability or accessibility of a facility or services by eliminating, downsizing or otherwise modifying a facility or service shall document that each proposed change will not inappropriately diminish, for the population in the PSA, the availability or accessibility to care, including access to the indigent and/or uninsured." For the many reasons noted above, AHC has failed to meet this requirement.

AHC should not be permitted to abandon a large and underserved portion of its current service area, leaving already underserved residents with less access, and foisting the burden of care for these residents on the other hospitals that currently serve this population.

III. AHC FAILED TO DEMONSTRATE THAT ITS PROPOSED REPLACEMENT HOSPITAL IS FINANCIALLY FEASIBLE, AS REQUIRED FOR A DETERMINATION OF CONSISTENCY WITH STANDARD .04B(13) AND COMAR REVIEW CRITERION .08G(3)(D).

To demonstrate consistency with Acute Care Services Standard .04B(13) and COMAR Review Criterion .08G(3)(d), AHC must demonstrate that its proposal to partially replace WAH with a new hospital located in White Oak is "financially feasible and [does] not jeopardize the long-term financial viability of the hospital." Standard .04B(13). The established test for assessing financial feasibility is whether the proposed replacement hospital "will generate excess revenue over total expenses . . . if utilization forecasts are achieved . . . within five years or less of initiating operation. . . ."

In addition to establishing a substantive test, Standard .04B(13) directs how AHC must perform the financial feasibility analysis. Specifically, AHC must (1) identify "each assumption used to develop the projections"; (2) document that utilization projections upon which financial projections are based "are consistent with observed historic trends"; (3) demonstrate that revenue estimates and other financial benchmarks used in making projections are consistent with the hospital's current experience; and (4) show that "[s]taffing and overall expense projections are consistent with utilization projections and are based on current expenditure levels and reasonably anticipated future staffing levels." COMAR § 10.24.01.04B(13).

AHC has not shown that proposed partial replacement of WAH "shall be financially feasible and shall not jeopardize the long-term financial viability of [WAH]." As an initial

matter, the proposed project is not approvable as a matter of law because WAH failed to address the viability of the specialty psychiatric hospital that will result if AHC relocates all but the behavioral health beds to White Oak and continues to operate the remaining beds at Takoma Park.[2] Furthermore, as set forth below, AHC has not shown that, even standing alone, the proposed partial relocation of WAH will be feasible or viable.

A. AHC's financial forecasts are incomplete and/or inaccurate because AHC did not include the capital lease for the Central Utility Plant.

AHC asserts that the central utility plant (CUP) for the relocated hospital in White Oak will be built and owned by a third party, and that AHC will buy utilities for the relocated WAH under a power purchase agreement. Appl., p. 7; AHC Nov. 10, 2014 Response to Completeness Questions, pp. 2-3, 8-10. AHC does not identify the likely third party owner/developer, much less provide specific details of the proposed financial arrangement.

Statement of Financial Accounting Standards No. 13, now known as Topic 840 in the FASB's new Accounting Standards Codification, requires that this type of arrangement must be accounted for as a capital lease.[3] The AHC Obligated Group financial ratios are incorrect and overstated since they incorrectly exclude the CUP capital lease. AHC should account for the capital lease in the forecasted long-term debt ratios. Also, AHC should show the capital cost

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[2] Although AHC states that Adventist Behavioral Health will "deliver" the psychiatric services at Takoma Park following the relocation of WAH, it admits that AHC will continue to operate the beds. Modified CON Application, pp. 2, 6

[3] The basic criteria for capitalization of a lease by a lessee are as follows (only need to meet one): (a) the lessor transfers ownership of the asset to the lessee at the end of the lease term; (b) a bargain purchase option is given to the lessee; (c) the life of the lease is equal to or greater than 75% of the economic life of the asset; or (d) the present value of the minimum lease payments is equal to or greater than 90% of the fair market value of the leased property.

related to this arrangement as both a Source and Use of funds in the Project Budget (Appl., Table E).

B. AHC failed to account for significant costs associated with implementation and operation of the specialty psychiatric hospital at Takoma Park.

Because AHC intends to leave the psychiatric beds in Takoma Park, significant costs not associated with a more traditional complete relocation of a hospital will be incurred. AHC has not suggested that there will be any gap in the provision of behavioral health services at Takoma Park. Such a plan, however, would require safely decommissioning the existing hospital facility, with the exception of the limited space that will be devoted to behavior health beds (and existing laboratory, radiology, and pharmacy services referenced in AHC's application), and securing floors sufficiently to prevent vandalism and rodent infestation.

AHC has not provided sufficient detail to determine whether its projections accurately account for the substantial work that will be required to accomplish its plans. The behavioral health beds are currently on the second floor of the existing WAH facility. Appl., Ex. 68. According to diagrams included among WAH's application materials, the lab, pharmacy, and radiology facilities are located on the ground and first floors. *Id.* To allow for efficient and safe dual egress and access, as well as appropriate thoroughfares and spaces for the proposed physician office, social programs, and Adventist University leased space. For example, medical gases must be turned off and capped, head walls must be removed or covered, all plumbing must be prepared and a maintenance plan set to maintain, removal of sharps, controlled substances, IT infrastructure, etc. The Takoma Park campus must undergo significant remodeling of space and modification of egresses.

Furthermore, AHC will need to decommission hospital units, which requires removing all biohazard material, furniture, fixtures and equipment. Messaging systems such as a tube system must be reprogrammed, and doors must be locked and under surveillance. In order to serve the rehabilitation hospital, a special psychiatric hospital, and the services being left behind, AHC will need to demonstrate appropriate HVAC handling, maintenance, security, and grounds keeping. The cost of addressing these concerns could substantially affect AHC's financial health. Because AHC failed to address or account for these elements, it cannot show that its proposed project is financially feasible or viable.

C. AHC failed to account for and/or inaccurately represented several additional factors that negatively impact its financing ability, debt ratios, and operating costs.

The overall presentation of AHC's existing financials and budget in the Modified Application presents a picture that is stronger than warranted by AHC's audited financial statements. The application cannot be approved because: (1) AHC failed to establish viability in that its financial statements are deficient, as noted below; and (2) AHC's projections are more positive than warranted by the financials and assumptions provided.

i. The Application inaccurately represents the operating results and related debt covenant ratios of WAH and the Obligated Group.

AHC states the financing for the proposed project will be secured by the AHC "Obligated Group," which includes AHC, Adventist Rehabilitation Hospital of Maryland, Inc., and Hackettstown Regional Medical Center. The Obligated Group excludes certain AHC controlled entities, such as Adventist Medical Group. The primary debt covenants in the bond documents include: (1) debt service coverage ratio, (2) days cash on hand, and (3) liabilities to net assets. Appl., p. 129.

The cash and the related debt covenant ratios for the Obligated Group are unrealistic due to AHC's artificial combination and/or exclusion of the controlled entities. For example, one of the excluded controlled entities is the Adventist Medical Group, according to the December 31, 2013 audited financial statements. The Adventist Medical Group, which provides physician services in WAH's service area, is an integral part of the operations of WAH.

The total cash for the entire AHC and controlled entities as of December 31, 2013, was $58,692,102. *See* Audited Financial Statements, Appl., Ex. 71. However, AHC represents cash as of the same date for the Obligated Group as $97,304,709, resulting in a net overstatement of cash of at least $38,612,607 ($97,304,709 - $58,692,102). This overstatement of cash position primarily is a result of AHC representing negative cash of approximately $40.7 million for the Adventist Medical Group in the combining financial statement worksheets.

This negative cash representation does not comply with proper accounting standards. Generally Accepted Auditing Standards require financial statements to be prepared under the "going concern assumption." The going concern assumption assumes that the company will continue operations long enough to carry out its existing objectives.[4] Negative cash is not an acceptable presentation for financial reporting purposes under any circumstances, even for immaterial amounts or conditions such as bank overdrafts (checks written in excess of cash balance). In these situations proper accounting would dictate reclassification of the negative cash balance to a liability (since the funds are owed to some party).

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[4] The going concern assumption can be found in the AICPA Statement on Auditing Standard No 1 Codification of Auditing Standards and Procedures, Section 341, "The Auditor's Consideration of an Entity's Ability to Continue as a Going Concern."

On a stand-alone basis, the entity (here, Adventist Medical Group) would be unable to receive an unqualified "clean" audit opinion on the basis of failing the going concern requirement. Proper accounting would require showing an intercompany advance (loan) from the parent for the amount of the negative cash individually to each entity so that each entity is solvent.

To a lesser extent, various other AHC controlled entities not included in the Obligated Group also show an incorrect representation of negative cash, as shown below:

Table 2: Summary of Negative Cash Position AHC Controlled Entities (CY 2013)

Negative Cash Summary	Per Year Ended December 31, 2013 audited Financial Statements of Adventist HealthCare, Inc. and Controlled Entities
Adventist Medical Group	$ (40,730,750)
Lourie Center	$ (2,002,075)
Adventist Senior Living Services	$ (42,164)
Adventist Management Services	$ (340,998)
Subtotal	$ (43,115,987)
Other controlled entities excluded from Obligated Group with positive cash	$ 4,503,380
Net Total	$ (38,612,607)

Thus, cash for the Obligated Group should be reduced by at least $38,612,607 from $97,304,709 to $58,692,102.

Proper application of accounting principles would likely result in AHC approaching failure of its debt covenants. For example, AHC shows Days Cash on Hand for the first year of operations (2019) of 99.75. Appl., p. 129. The bond covenant requires greater than 70 days. *Id.* Adjustment for the $38.6 million in negative cash discussed above would reduce Days Cash on Hand down to 79 days—only $18 million more than required to meet the covenant to maintain

70 Days Cash on Hand. Excluding these losses from the CON application misrepresents the true operating results of WAH, the Obligated Group and related debt covenant ratios.

Furthermore, based on historical losses, the negative cash position of some AHC entities is likely to grow. The operating losses of Adventist Medical Group and other entities have grown $27 million just in the last three years. The financial statements of the Adventist Medical Group at December 31, 2013 show a negative equity of $38,425,018 and a working capital deficit of $38,843,807. Appl., Ex. 71. Additionally, the entity has had four consecutive years of operating losses, ranging from $5,544,053 to $10,051,814.

Table 3: Summary of Revenue and Margins of Various AHC Entities (CY 2010 – 2013)

Revenue in Excess of (Less than) Expenses	AHC Obligated Group	Revenue in Excess of (Less than) Expenses %	Adventist Medical Group	Revenue in Excess of (Less than) Expenses %	AHC and Controlled Entities	Revenue in Excess of (Less than) Expenses %
2010	$33,769,070	4.48%	$(5,544,053)	-88.90%	$28,911,385	3.83%
2011	$22,728,587	3.13%	$(6,700,052)	-101.15%	$16,832,905	2.21%
2012	$15,527,593	2.21%	$(10,051,814)	-93.66%	$4,569,918	0.71%
2013	$13,284,187	2.15%	$(9,683,147)	-60.72%	$4,045,628	0.61%

These operating losses for Adventist Medical Group have been approximately $10 million each year for the last two years, and there is no reason to believe this will abate; in fact, the annual loss has been growing. If Adventist Medical Group continues to experience $10 million in losses each year for the years 2014 through 2019, the result would be $60 million less cash, *i.e*, $60 million "negative cash," for the 2019 year end. Under this scenario, proper accounting of negative cash of the Adventist Medical Group, would place the Obligated Group at 44 Days Cash on Hand, well below the 70-day requirement in 2019.

ii. AHC's projections assume a 54 million dollar sale that has not yet been consummated.

AHC's financial projections assume the sale of its Hackettstown, New Jersey hospital for $54 million to Atlantic Health System as of December 31, 2014. AHC states in the Modified Application that AHC will realize a gain on the sale and that the sale proceeds will enhance its ratios over what has been projected, and predicts a sale closing in late 2014 or early 2015.

It appears the sale has not yet been consummated, so AHC cannot rely on cash that does not yet exist. Also, there is no guaranty that the transaction will occur or will produce the expected gain. Finally, if a sale is eventually consummated, the corporate overhead costs of AHC currently allocated and absorbed by the Hackettstown hospital will need to be either eliminated (although the likelihood is remote that all allocated costs could be eliminated) or reallocated to the remaining AHC operating units. AHC has not accounted for this reallocation of costs in its financial projections.

iii. AHC's operating margins are decreasing

AHC's recent operating results are weak and deteriorating. The four-year operating trend (2010 to 2013) of AHC and the controlled entities, according to AHC's audited financial statements, reveals the following:

a. Operating margins have consistently declined from 3.13% in 2010 to .04% in 2013; and

b. Excess margins have consistently declined from 3.83% in 2010 to .61% in 2013.

These margins and the trend documented in the financial statements make AHC's projections for dramatic turnaround in future years unrealistic. AHC's turnaround projections during the 2014 to 2019 period, the period prior to the opening of the new hospital, show WAH and the Obligated Group operating at unprecedented high margins compared to the last several

years. It is unlikely AHC will be able to achieve these operational improvements and lofty margins (and related buildup in cash) when: (i) it has been unable to do this in the past; (ii) the national rating agencies have negative outlooks on the healthcare sector stating that negative pressures outweigh positives and the emerging pressures constitute a growing risk; and (iii) AHC faces stringent reimbursement controls from the HSCRC under the new Medicare waiver.

iv. AHC's assumption that it will be able to obtain traditional financing is not supported by its financial state

AHC's assertion that the proposed project will be able to secure traditional financing is based on questionable and incomplete assumptions. As support, AHC relies on a letter issued by B.C. Ziegler and Company, AHC's longtime financial advisor (since 2001), stating that AHC would qualify for traditional tax-exempt financing rather than FHA (as was represented in the 2011 Adventist HealthCare CON application). Ziegler's letter, however, does not mention or address the following factors:

1. Accounting treatment of the CUP as a capital lease;
2. The additional $5.2 million that AHC claims it will fund from its cash from operations to fund the specialty psychiatric hospital at Takoma Park (AHC Response to Question 2 of Commission Staff's December 22, 2014 Questions);
3. The additional $13.2 million in borrowing AHC states it will finance through bonds to renovate the Takoma Park campus (Appl., Ex. 6 (Capital Budget));
4. The operating losses and negative cash position of the Adventist Medical Group, which results in an inaccurate statement of the Obligated Group's cash position and other ratios;
5. The risk that AHC will not be approved for the full amount of the capital rate relief requested; and
6. The potential risk that AHC will not be able to raise the $20 million in philanthropic funding stated to support the project

The requirement to seek alternative financing, such as FHA financing (as proposed in the 2009 CON application to relocate WAH), could materially adversely affect the interest rate assumption, financing costs, cash needs, and amount of dollars financed.

AHC's ability to obtain traditional financing is also unlikely given its poor bond rating, which is likely to decline even further if this project moves forward. Moody's Investor Service rating agency has classified AHC's bonds as Baa2, just above junk status. See **Exhibit 4** for a Special Comment report published by Moody's Investors Service explaining how Moody's incorporates sizable capital project into a hospital's bond ratings.

AHC's forecasted debt coverage ratio, days cash on hand and debt to cash ratio after the new financing would put AHC well below Moody's median ratios for the Baa2 category. Accordingly, it is unlikely that AHC will be able to obtain traditional financing.

IV. AHC'S PROPOSAL TO BUILD A PARTIAL REPLACEMENT HOSPITAL IN WHITE OAK IS NOT CONSISTENT WITH REVIEW CRITERION .08G(3)(F), DUE TO THE UNTOWARD IMPACT ON EXISTING PROVIDERS AND THE HEALTH CARE DELIVERY SYSTEM.

Review Criterion .08G(3)(f) requires an applicant to assess the impact of a proposed project on existing providers and the health care delivery system. AHC claims that "the impact to other providers caused by [WAH]'s relocation is not substantial." Appl., p. 78. As shown below, this claim is not correct.

HCH expects that the proposed partial relocation of WAH would increase HCH's ED volume and result in insufficient access for patients, particularly those with the greatest need for emergency care (*see* section II, *supra*). HCH recently rebuilt and expanded its ED and has no space to expand on its current site. Currently, HCH operates its ED at near capacity overall and frequently faces challenging peak demands. ED capacity is driven by a number factors,

including bed availability in the acute or intensive care inpatient areas, acuity of patients in the ED, surge times of day, and types of patients being seen in the ED.

HCH projects that, if the Commission approves AHC's application for a CON, the HCH ED would receive a significant increase in ED volume as a result of the market shift. As applied to CY 2014 experience,[5] the partial relocation likely would result in a total shift of 13,302 additional ED cases to HCH, or a 15% increase of its three-year ED case average of 88,000 cases, a shift that would bring its yearly volume of ED cases to more than 100,000.

To accommodate more than 100,000 ED visits annually, HCH would need to expand ED capacity. However, HCH already has done so several times. Since the most recent ED expansion, and with the new overall campus expansion, at this point, there is no space to expand beyond the existing footprint on the existing site. The most recent expansion of the footprint required a zoning variance and consumed essentially all buildable space on the HCH campus, which is land locked by a park, a residential neighborhood, and the Washington Beltway (I-495).

A complete table showing HCH's projections of ED market shift and source data is attached as **Exhibit 5**. The table demonstrates HCH's current experience with patients from the PSA and SSA of WAH's existing ED TSA. To derive its projections, HCH used information contained in WAH's calculation of the proposed adjustment to MSGA market share that would result from a move to White Oak. Appl., pp. 103-106. HCH then considered factors that affect ED volume, including provider relationships, current market-share of existing providers, existing market share, travel distance to existing facilities and the proposed WAH White Oak facility, and services available at the various facilities. For example, among the zip codes in WAH's TSA,

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5 Based on nine month CY 2014 data, as supplied to the HSCRC, annualized.

HCH is currently often not the closest provider for EMS transport or patients with limited access to transportation, yet it maintains relatively high market share. Despite the access limitations of patients and their proximity to other facilities, HCH still has considerable market share among these zip codes. HCH's market share ranks in the top three facilities for 67% of the zip codes in the TSA, and for 100% of the zip codes in the PSA.

In making projections related to WAH's current ED PSA, HCH took into account drive time, current referral patterns, and existing market share splits among hospital providers. In some zip codes, HCH concluded that the ED volume likely would shift consistent with WAH's projections for MSGA market shift (Appl., p. 105). In other zip codes, HCH disagreed with WAH's projections, and HCH forecasted a change of market share away from WAH of between 50% and 95% of WAH's existing market share. Based on WAH's data, for six of the eight zip codes in WAH's ED PSA, drive times to HCH are the same or shorter than to White Oak. In the other two zip codes, the drive time to HCH is only one minute and four minutes longer. *See* Exh. 1. HCH is the only hospital other than WAH within WAH's current eight zip code ED PSA.

In WAH's current ED SSA, for any zip code in which HCH is not a current top three ED provider for the market, HCH did not project any market share increase as a result of WAH's partial relocation. For Washington, D.C. zip codes, HCH assumed that existing WAH share would be zero and would be proportionately allocated to other hospitals in the region with existing market share, including to HCH, because EMS-transported and self-transported patients from those zip codes would need to drive past HCH and these other hospitals to reach the relocated WAH.

The projected ED market shift would also have a negative impact on HCH's resources based on the patient mix. As shown in Exhibit 1, HCH's current experience is that approximately 56% of ED patients in the eight zip codes that WAH will leave behind are either uninsured or under-insured. Use of the ED for ambulatory-care sensitive conditions is most frequently associated with uninsured patients and patients covered by Medicaid, who often face barriers to accessing primary care. Not only do these patients frequently use ED services as a source of primary care, but they also require more hospital resources than other patients. For example, HCH typically provides care planning for uninsured and under-insured patients. Upon discharge, these patients generally are referred for arranged appointments with the Holy Cross Health Centers for primary care follow-up because they often do not already have primary care physician relationships. Also, HCH often provides these patients with even more extensive services when needed, such as comprehensive support for home based therapies, taxi vouchers, transportation to follow-up appointments, aids in the home, and support for long term care placement.

AHC's proposal deprives its existing PSA of convenient and necessary emergency services and imposes a significant burden on the operations and resources of HCH. AHC's suggested mitigation—primary care centers at the Takoma Park campus—does not sufficiently remedy this burden, as the center lacks commitment and certain funding, and, even if established, would be unable to provide emergent care.

V. THE PROPOSED PROJECT CANNOT BE APPROVED WITHOUT A REAL COMMITMENT BY AHC TO ESTABLISH A FREE STANDING EMERGENCY MEDICAL CENTER IN TAKOMA PARK AND AN ENFORCEABLE COMMITMENT TO FUND A SPECIFIED SET OF OTHER SERVICES.

In an effort to remedy the adverse impact of WAH's abandonment of the underserved and indigent members of its current service area, AHC explains that it will renovate the Takoma Park campus to include, among other services, a FQHC operated by Community Clinic, Inc., the Women's Center, providing prenatal and other services for the community, including low-income women, and a new walk in primary care clinic. Appl., p. 25. AHC contends that these services in Takoma Park will "meet the needs of the community." Appl., Ex. 6.

As explained in Section II, *supra*, AHC's promise of services at Takoma Park is hollow because AHC has disclaimed any commitment, stating these services are not a "formal element" of its application, and its ability to fund these services, which it will admittedly operate at a loss, is suspect. Even if AHC committed to providing these services, however, that would not remedy the significant adverse impact AHC's abandonment of the members of WAH's indigent and underserved current ED TSA.

If AHC wishes to proceed with the partial relocation of WAH, it must continue to serve the patients in its current PSA community, to some degree, by establishing a freestanding medical facility ("FMF").[6] The establishment of an FMF would ensure both enforcement ability by the Commission and access for the uninsured and underinsured. COMAR § 10.07.08.09 provides that "[r]egardless of a patient's medical condition, insurance status, or ability to pay, the freestanding medical facility shall provide stabilizing treatment to a patient presenting with an

[6] Additionally, since AHC proposes leaving core resources such as Radiology, Pharmacy and Lab on the campus, HCH would encourage AHC to maintain a small inpatient medicine capacity to service the inpatient needs from the ED.

emergency medical condition." FMFs are also subject to the Emergency Medical Treatment and Active Labor Act (EMTALA), which prohibits discrimination based on a patient's ability to pay. Moreover, because FMFs are subject to licensure requirements and will be subject to the Commission's review standards, the MHCC would be able to enforce a commitment by AHC to provide services to the populations that would otherwise be abandoned if WAH successfully relocates.[7] *See* COMAR § 10.07.08.04; MHCC Report on the Operations, Utilization, and Financial Performance of Freestanding Medical Facilities ("Commission FMF Report"), January 15, 2015.

The establishment of a FMF in Takoma Park would also ensure access at all hours. A policy statement issued by the American College of Emergency Physicians requires that FMFs be available to the public 24 hours a day, seven days a week, 365 days a year, and be appropriately staffed by qualified emergency physicians. Commission FMF Report, p. 2. In contrast, although AHC states that its primary care walk-in clinic will "initially" be available 24/7, there is no indication that AHC will continue to provide those hours to the community. Appl., Ex. 6.

The establishment of an FMF in Takoma Park, potentially including observation beds, also will have a far greater ability to absorb the extra patient volume created by WAH's abandonment of its current service area. While a primary care clinic may be able to absorb some of the ambulatory-care sensitive patient needs, it will be unable to address emergent medical

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[7] Although currently there is a moratorium on the establishment of FMFs in Maryland, it expires on July 1, 2015. MD. CODE ANN., HEALTH-GEN. § 19-3A-03(a)(2) (2014). In light of the need to commence a new review to include required CON approval for the special psychiatric hospital to be established in Takoma Park, AHC could file an application to establish a FMF without significantly impacting the timing of review on the present proposal.

needs. Unlike primary care or even urgent care clinics, FMFs have emergency treatment services and are able to accept patients arriving via 911 ambulance service, and are able to provide care for conditions that go beyond care the staff and equipment of a primary care center can accommodate. When necessary, patients can be transported from the FMF to a hospital.

The need to establish an FMF in Takoma Park to address the adverse impact of WAH's proposed relocation has been recognized by the Takoma Park community. Indeed, the City of Takoma Park has expressed interest in having WAH establish an FMF if it proceeds with relocation in order to offset the loss in services for Takoma Park Residents that the relocation would cause. Letter from City of Takoma Park to MHCC, Nov. 17, 2014 (copy attached as **Exhibit 6**).

CONCLUSION

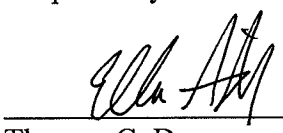
AHC's application cannot be approved because AHC: (1) did not meet its burden of proving that the project is financially viable, as required by Standard .04B(13) and Review Criterion .08G(3)(d); (2) failed to demonstrate that relocating will not diminish access to ED care for uninsured and Medicaid patients in WAH's current service area, as required by Standard .04B(4)(b); and (3) failed to show that no untoward impact on existing providers and the health care system, as required by Review Criterion .08G(3)(f). Also, the project cannot be approved as a matter of law because AHC failed to seek CON approval to establish a new psychiatric hospital in Takoma Park as part of the proposed project.

While AHC desires to move much of the existing WAH from the Takoma Park campus to White Oak, there is little evidence to support that AHC will have a commitment to serve the community healthcare needs in the existing service area that it intends to abandon. The proposal

is not financially feasible or viable and it would have a significant negative impact on existing providers, including HCH. AHC does not propose a credible plan, and if the Commission approves it, the approval will put all healthcare services on the Takoma Park campus at significant risk of closing, either immediately or soon thereafter.

For the reasons set forth above, HCH respectfully asks that AHC's Modified Application proposing to partially replace WAH with a new hospital in White Oak be denied.

Respectfully submitted,



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February 9, 2015

CERTIFICATE OF SERVICE

I hereby certify that on the 9th day of February 2015, a copy of the foregoing Comments on AHC's Modified Application was sent via email and first-class mail to:

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Ella R. Aiken

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

February 9, 2015
Date

Kristin H. Feliciano
Chief Strategy Officer
Holy Cross Hospital

#519942
009849-0029

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

February 9, 2015
Date

D. Patrick Redmon, Ph.D.
Director
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I hereby declare and affirm under the penalties of perjury that the facts stated in the Comments of Holy Cross Hospital and its attachments are true and correct to the best of my knowledge, information, and belief.

February 9, 2015
Date

Melvin R. Hurley Jr.

Melvin R. ("Chip") Hurley, Jr., CPA
Managing Director
Berkeley Research Group

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

February 9, 2015
Date

Jeanette Cross
Managing Director
Berkeley Research Group

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EXHIBIT 1

Zip Code	City	ED Service Area	Drive Time from WAH	Drive time to HCH	Drive time to White Oak	Total Population 2013	White non-hispanic population based on 2010 census	Minority population	% who speak english less than very well	% of housing units without a car	ED % medicaid, selfpay, chairty
20901	Silver Spring	PSA	8	6	10	35,837	15,357	20,480	19.0%	8.5%	49%
20910	Silver Spring	PSA	11	7	13	39,252	19,148	20,104	9.8%	18.4%	47%
20912	Takoma Park	PSA	2	10	15	24,264	8,598	15,666	16.5%	16.7%	65%
20903	Silver Spring	PSA	11	11	10	25,119	2,295	22,824	39.2%	14.2%	70%
20904	Silver Spring	PSA	17	12	8	55,688	14,820	40,868	15.6%	11.9%	54%
20783	Hyattsville	PSA	9	13	15	18,045	4,331	13,714	43.7%	15.9%	70%
20740	College Park	PSA	15	14	14	28,459	14,966	13,493	10.5%	10.3%	45%
20782	Hyattsville	PSA	9	18	18	33,840	4,798	29,042	22.1%	15.6%	55%

Notes:

[1] ED PSA defined by, Appl. at 55.

[2] Population data derived from census

[3] Drive time from WAH Application, Appl. Exhibits 20, 26

[4]% medicaid / self pay numbers drawn from HCH business objects

EXHIBIT 2

Zip Code	City	Average annual income	WAH current ED Service Area	WAH Current MSGA Market Share	WAH Projected MSGA share point shift	WAH proposed new share after move
20019	Washington	$ 27,317	SSA	3.9%	-6.5%	0.0%
20020	Washington	$ 27,964	SSA	6.1%	-10.1%	0.0%
20710	Bladensburg	$ 34,470	SSA	8.1%	-1.0%	7.1%
20783	Hyattsville	$ 34,821	PSA	60.3%	-15.0%	45.3%
20002	Washington	$ 35,313	SSA	8.5%	-14.1%	0.0%
20737	Riverdale	$ 35,313	SSA	14.5%	-15.0%	0.0%
20722	Brentwood	$ 36,494	SSA	22.2%	-15.0%	7.2%
20018	Washington	$ 37,277	SSA	15.5%	-17.0%	0.0%
20712	Mount Rainier	$ 39,077	SSA	45.4%	-20.0%	25.4%
20903	Silver Spring	$ 39,182	PSA	40.5%	3.0%	43.5%
20011	Washington	$ 39,757	SSA	30.7%	-17.0%	13.7%
20784	Hyattsville	$ 40,038	SSA	5.3%	-1.0%	4.3%
20743	Capitol Heights	$ 40,882	SSA	1.3%	-1.0%	0.3%
20017	Washington	$ 43,824	SSA	28.6%	-17.0%	11.6%
20782	Hyattsville	$ 44,643	PSA	53.1%	-15.0%	38.1%
20785	Hyattsville	$ 45,499	SSA	2.6%	-1.0%	1.6%
20781	Hyattsville	$ 45,789	SSA	23.5%	-15.0%	8.5%
20706	Lanham	$ 47,517	SSA	3.7%	-1.0%	2.7%
20770	Greenbelt	$ 48,636	SSA	7.8%	2.0%	9.8%
20740	College Park	$ 49,689	PSA	24.3%	-1.0%	23.3%
20708	Laurel	$ 52,091	SSA	2.0%	1.0%	3.0%
20705	Beltsville	$ 53,252	SSA	12.9%	10.0%	22.9%
20906	Silver Spring	$ 55,160	SSA	2.4%	5.0%	7.4%
20912	Takoma Park	$ 56,419	PSA	66.2%	-15.0%	51.2%
20707	Laurel	$ 58,689	SSA	2.2%	5.0%	7.2%
20012	Washington	$ 59,040	SSA	40.5%	-15.0%	25.5%
20902	Silver Spring	$ 60,389	SSA	4.4%	0.0%	4.4%
20904	Silver Spring	$ 63,280	PSA	11.7%	45.0%	56.7%
20866	Burtonsville	$ 65,601	SSA	5.5%	15.0%	20.5%
20901	Silver Spring	$ 68,154	PSA	22.4%	5.0%	27.4%
20910	Silver Spring	$ 83,153	PSA	18.0%	-15.0%	3.0%

Notes:

[1]Average salary based on Maryland Department of Planning (MD data); www.zipatlas.com (D.C. data)

[2] ED Market Share derived using ED visits defined by HSCRC database for 2014 Inpatient and Outpatient cases with EMG rate center charges > 0

[3] ED Service Area defined as WAH current PSA/SSA, Appl. at 55.

EXHIBIT 3

RESEARCH
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Using Data To Drive Emergency Department Design: A Metasynthesis

Shari J. Welch, MD

Abstract

Objective: There has been an uptick in the field of emergency department (ED) operations research and data gathering, both published and unpublished. This new information has implications for ED design. The specialty suffers from an inability to have these innovations reach frontline practitioners, let alone design professionals and architects. This paper is an attempt to synthesize for design professionals the growing data regarding ED operations.
Methods: The following sources were used to capture and summarize the research and data collections available regarding ED operations: the Emergency Department Benchmarking Alliance database; a literature search using both PubMed and Google Scholar search engines; and data presented at conferences and proceedings.
Results: Critical information that affects ED design strategies is summarized, organized, and presented. Data suggest an optimal size for ED functional units. The now-recognized arrival and census curves for the ED suggest a department that expands and contracts in response to changing census. Operational improvements have been clearly identified and are grouped into three categories: input, throughput, and outflow. Applications of this information are suggested.
Conclusion: The sentinel premise of this meta-synthesis is that data derived from improvement work in the area of ED operations has applications for ED design. EDs can optimize their functioning by marrying good processes and operations to good design. This review paper is an attempt to bring this new information to the attention of the multidisciplinary team of architects, designers, and clinicians.
Key Words: *Emergency department, emergency department operations, triage, throughput, design, efficiency, quality, safety*

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Preferred Citation: Welch, S. J. (2012). Using data to drive emergency department design: A metasynthesis. *Health Environments Research & Design Journal, 5*(3), 26–45.

Aim of This Paper

The universe of emergency department (ED) operations has seen an uptick in innovations in the past two decades (Beach, Haley, Adams, & Zwemer, 2003; Bertoty, Kuszajewski, & Marsh, 2007; Chan, Killeen, Kelly, & Guss, 2005; Choi, Wong, & Lau, 2006; Gorelick, Yen, & Yun, 2005; Richards, Navarro, & Derlet, 2000; Spaite et al., 2002; Thompson, Yarnold, Williams, & Adams, 1996; Welch, 2010a; Wiler et al., 2010). These innovations have important implications for the way EDs are designed and how operations

and processes are married to design. This paper is an attempt to synthesize for design professionals the growing data, published and unpublished, regarding ED operations and to suggest applications for ED design.

Background

From 1995 to 2005 the number of ED visits increased nearly 20% to 115.3 million, even though the number of hospitals decreased by nearly 10% (Nawar, Niska, & Xu, 2007). The American Hospital Association (2005) reports that 69% of urban EDs are over capacity, resulting in crowded conditions and ambulance diversions. In 2005 the Joint Commission implemented a new leadership standard regarding the management of patient flow, which mandated that hospitals "…develop and implement plans to identify and mitigate impediments to efficient patient flow throughout the hospital" (Joint Commission, 2005).

The valuable effect on patient outcomes of streamlining ED operations has been emphasized by the Agency for Healthcare Research and Quality (AHRQ), the Institute for Healthcare Improvement, and the Institute of Medicine. Research demonstrating the impact of ED efficiency on subsequent outcomes for a number of clinical entities has been accumulating (Bernstein et al., 2009; Fee, Weber, Maak, & Bacchetti, 2007; Joint Commission, 2002; Magid et al., 2009; Pines & Hollander, 2008; Richardson, 2006; Sprivulis, Da Silva, Jacobs, Frazer, & Jelinek, 2006).

Changing demographics affect the way EDs operate. As patients age, the complexity of their acute health care needs increases (Sprivulis, 2004). As the Baby Boomers reach their senior years, they will hit the ED like a tidal wave. The sheer amount of information, diagnostic and therapeutic tasks, and personnel involved in caring for these complex patients will make it necessary to change space, processes, and operations in the ED.

The most common complaint about visits to the ED is the perception that everything takes too much time (Press Ganey Associates, 2009). From the patient's perspective, an ED visit is a series of seemingly random queues without clear communication about what the patient is waiting for, what the next step in the process will be, and how long that step will take. The waiting has no value to the patient. Emergency care providers often offer the excuse that patient demands are "unpredictable" and that the sickest patients must be treated first. Although both of these statements are founded in truth, the demands on the ED are much more predictable than practitioners are often willing to admit.

Most hospitals are capable of providing timely care for the sickest patients without delaying service for low-acuity patients. The key is using data-driven process improvements to expedite care.

Most hospitals are capable of providing timely care for the sickest patients without delaying

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service for low-acuity patients. The key is using data-driven process improvements to expedite care.

ED operations research is often slow to reach the front lines. To date there is no journal for ED operations and there is frequently a significant delay between operational innovation and widespread frontline acceptance (Welch, 2010a). Every day, emergency physicians, nurses, and staff innovate to improve ED processes. The 4,500 EDs in the United States are living laboratories, and each one is trying to solve logistical and operational challenges (typically constrained by physical space limitations). When ingenious local solutions are achieved, timely and widespread dissemination of these ideas fails to occur; mechanisms for the diffusion of innovation are lacking. The specialty suffers from an inability to have these innovations reach front-line practitioners let alone design professionals and architects. The result is a knowledge-action gap in ED operational innovation.

The sentinel premise of this metasynthesis is that data from improvement work in the area of ED operations have applications for ED design.

EDs can optimize their functioning by marrying good processes to good design.

EDs can optimize their functioning by marrying good processes and operations to good design.

Measures of ED Performance

A number of metrics appear in the emergency medicine literature and are used by healthcare leaders as markers for quality and performance (Welch, 2010a; Welch et al., 2011). The time interval metrics are better understood when referring to this chart, which depicts the time stamps/time intervals of a typical ED stay (Figure 1). In addition, a number of measures reported as percentages or rates have been used to capture elements of performance in the ED.

Time Metrics (Time Intervals)

- **Arrival-to-provider time** (a.k.a. "door-to-doc time"): Arrival time to provider contact time.
- **ED length of stay (LOS):** Arrival time to departure time.

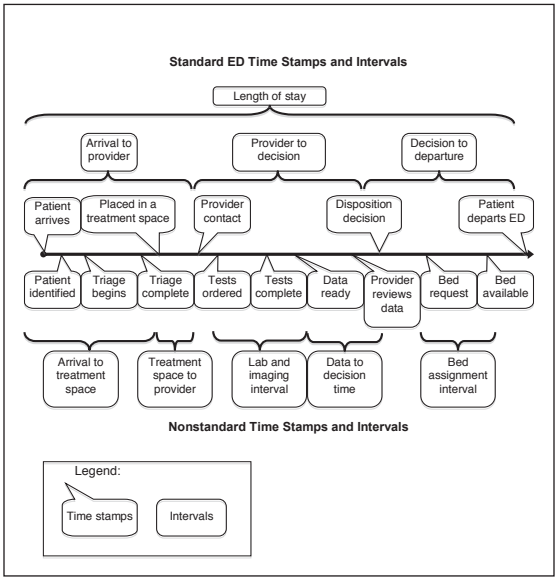

Figure 1. Timeline of Emergency Department time stamps and intervals.

Table 1. ED Performance as a Function of Size

	Under20k (*n* = 64)	20K to 40K (*n* = 146)	40K to 60K (*n* = 92)	60K to 80K (*n* = 35)	Over 80K EDs (*n* = 22)	*p*-value
Performance Metrics						
Left before treatment complete (%)	1.37	2.10	2.82	3.34	3.59	< 0.0001**
Door-to-physician time (in minutes)	24	27.5	30.5	36.5	36.5	0.0012*
Median ED LOS for admitted patients (in minutes)	207	246	306.5	312.0	347.5	< 0.0001*
Median ED overall LOS (in minutes)	125	148.5	174.0	183.0	203.0	< 0.0001*

*Wilcoxon rank sum test
**ANOVA

Proportion Metrics

- **Left without being seen (LWBS):** All patients who leave the ED before being seen by a provider.
- **Left before treatment complete (LBTC):** All patients who leave the ED before formal disposition is made.
- **Complaint ratio:** All spontaneous written, phone call, or spoken expressions of concern brought to the attention of ED management or hospital staff. By convention, complaint ratios are tracked as complaints per 1,000 ED visits.

Patient Satisfaction

- **Patient and staff satisfaction surveys:** Although typically done using local survey instruments, Press Ganey or other professional patient survey companies may administer these. They are usually reported as percentiles.

Size (Annual Volume) Matters

Unpublished but credible data from the Emergency Department Benchmarking Alliance (EDBA) suggests that the size (which, in ED operations, typically refers to annual volume) correlates with performance on metrics. EDBA is a consortium of 486 performance-driven American EDs. It has been collecting performance and operational data on EDs for 7 years through its annual mandatory data survey. Data from the EDBA reveal that performance on metrics is volume dependent—the smaller, lower-volume EDs are operationally more efficient and perform better on metrics, suggesting that there may be an optimal size for functional units in the ED (see Table 1) (Augustine, 2011a). These performance data are in keeping with a 2010 Canadian study that also found that lower-volume departments functioned more efficiently (Hutten-Czapski, 2010).

In addition, EDBA data suggest that a new ED be built with the assumption that approximately 1,500 patients a year could be treated in each patient treatment room, in keeping with recom-

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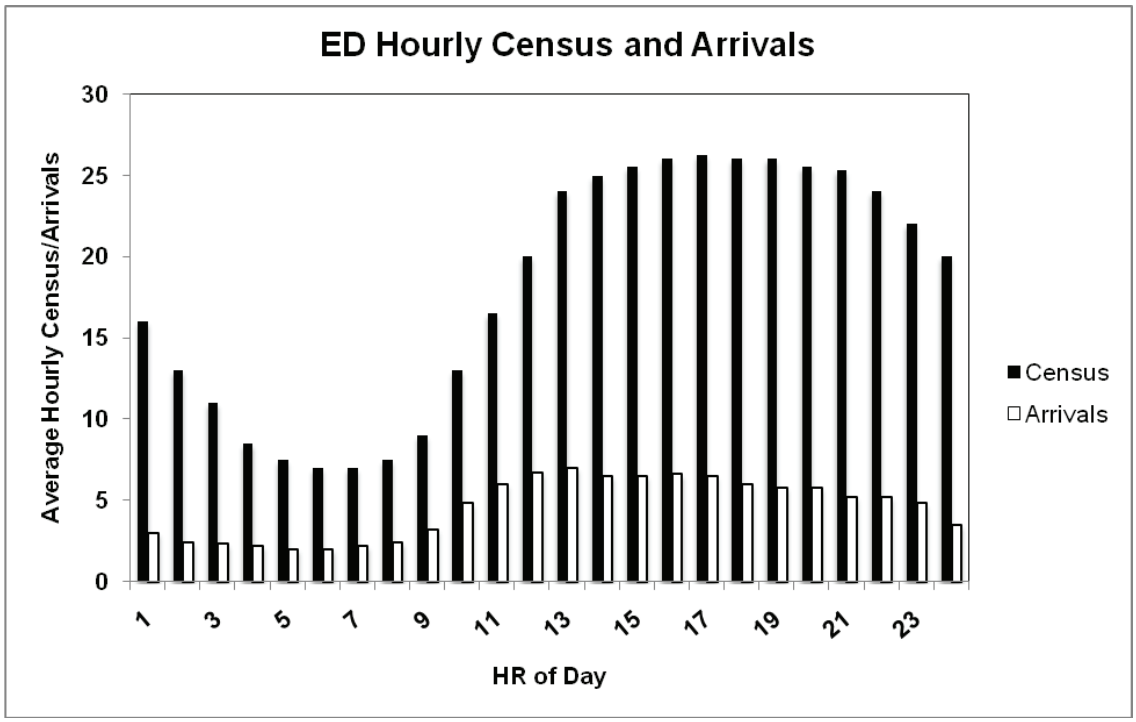

Figure 2. Census and arrival curve of the Emergency Department.

mendations put forth by Huddy (2006).

The Breathing Emergency Department

It is well recognized that the workload in an ED is not level throughout the day. The ED goes through a 24-hour cycle that is predictable regardless of volume (Welch, Jones, & Allen, 2007). The census in an ED, regardless of size, is typically three to four times as great at 4 p.m. as the census at 4 a.m. (Figure 2). This means that the ED space and operations must be able to flex up and down to meet this extreme variation in census and arrivals throughout the day.

Applications to Design

The EDBA data showing that lower-volume EDs are more efficient could suggest an optimal size for functional units in an ED, even if the overall department must have many more beds. Knowing from EDBA data that EDs seeing 20,000 or fewer annual visits are the most efficient (according to standard performance metrics) and that departments can anticipate 1,500 visits per bed per year, the performance-driven ED might have no more than 13 beds in a functional unit. To be sure, these relationships are not fully understood, but they do suggest that economies of scale are not seen in EDs; in that world, bigger is not necessarily better. The data are not definitive in terms of functional unit size, but they suggest a place to start.

It may be that the higher-volume ED is simply trying to manage so many patients and tasks and

so much information that systems and processes break down. Therefore, designing smaller functional units within a larger department may be a design strategy whose time has come. A functional unit requires a place for physicians and nurses to work, a place for the health unit clerk, space for the management of lab specimens, a portal for the tube system, a medication room, a space for imaging study results (a viewing area for hard copies to be reviewed—or more commonly in 2011, a digital radiography station), and both clean and dirty utility rooms.

Should functional units be equivalent and act as multiple smaller EDs or should they be chief complaint or acuity differentiated? The uncontestable amount of research around the efficacy of the fast track would suggest that patient segmentation based on acuity and creating functional units or zones for patients with similar acuities may be superior to creating zones that are small ED equivalents (Cooke, Wilson, & Pearson, 2002; Hampers, Cha, Gutglass, Binns, & Krug, 1999; Handel et al., 2011; O'Brien, Williams, Blondell, & Jelinek, 2006; Oredsson et al, 2011). Although the definitive data on this have not been gathered, higher-volume EDs are gravitating toward increasing patient segmentation and differentiation of the functional zones (discussed in more detail later).

In response to increasing volume, EDs are being built with increasing numbers of beds. However, often little attention is paid to how workflow will be adapted to the larger footprint. But combine the idea that the ED footprint should change in a 24-hour cycle with the concept of smaller operating zones and a new notion is born:

***The cyclical daily opening and closing of functional units according to patient arrivals creates the* Breathing ED.**

The cyclical opening and closing of functional units according to patient arrivals creates the *Breathing ED*. The University of Iowa, a 52,000-volume ED and Level I trauma and teaching hospital in Iowa City, Iowa (which was redesigned in conjunction with Lean applications to its ED processes), the Coxhealth ED in Springfield, Missouri, and the University of Kentucky Chandler ED in Lexington, Kentucky, also a Level I trauma center and teaching hospital that has 55,000 visits annually (and is part of the Pebble Project), are recent examples of EDs designed to be Breathing EDs (Dickson, Singh, Cheung, Wyatt, & Nugent, 2009).

As the daily surge of patient arrivals begins, the ED opens up new functional care units. The department is designed to accommodate the flow model used by the department and in accordance with the community's needs. For instance, the fast-track lower-acuity unit is seldom open for 24 hours a day, even in high-volume EDs. The University of Iowa operates its pediatric ED and fast track out of the same functional unit and space from late morning until midnight and then closes the area down. Contrarily, departments

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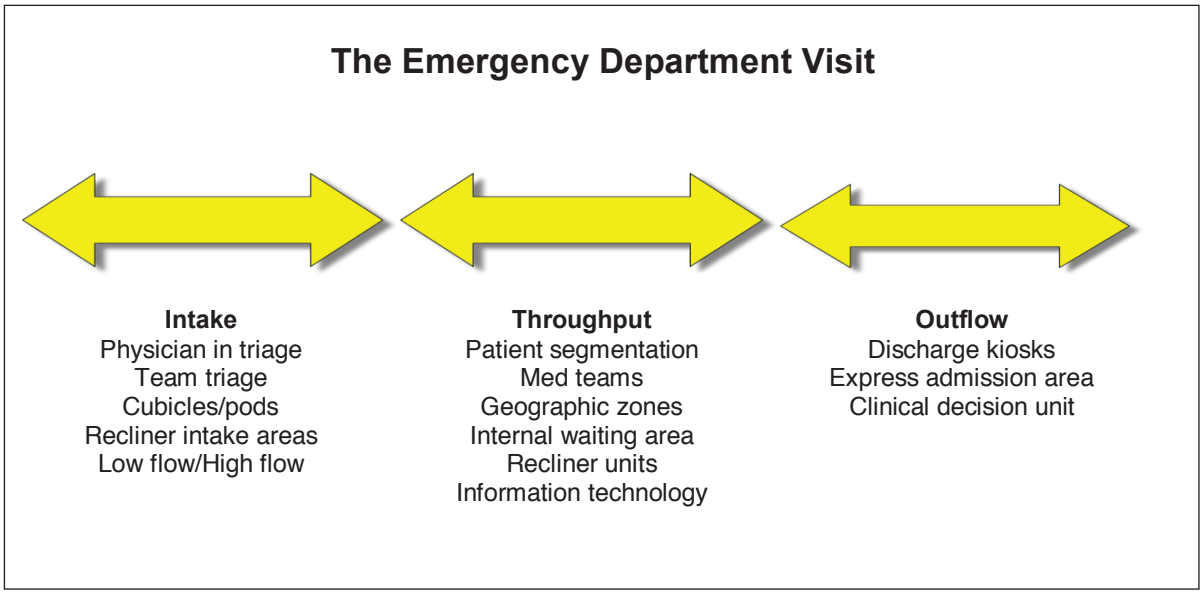

Figure 3. Emergency Department operational innovations.

serving high numbers of seniors often maintain one functional unit for longer periods of observation. Most clinical decision and observation units are open 24 hours and part of the "core" that is always open and staffed.

Operational Research

This review uses the intake-throughput-outflow model to organize and present the innovations being tested around the country (Figure 3). Most of the operational research done in emergency medicine has focused on patient intake (also known as the *front end*) because improvements in the intake process can have a dramatic and immediate impact on patient satisfaction, door-to-physician times, and LWBS (Welch & Davidson, 2010). There is added impetus to focus on the *front end* because the Centers for Medicare & Medicaid Services (CMS) has announced that two of the five operational metrics it is expecting to incorporate into its value-based purchase model of payment are arrival-to-provider time and LWBS, markers for intake performance (National Quality Forum, 2008).

Improvements at Intake

A first step in decreasing waiting times is to create an ED intake process that assesses patients efficiently and sends them to the appropriate area within the department.

Physician in Triage

One of the most common areas of operational innovation, both published and unpublished, involves moving away from the traditional nurse triage model that has dominated intake into the ED for more than 30 years. Recent research has shown that traditional nurse triage, as currently practiced, fails to treat the sickest patients according to recommended time frame guidelines and

creates a bottleneck in the beginning of the ED visit (Weber, McAlpine, & Grimes, 2011; Welch & Davidson, 2011).

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Newer intake models now put a physician, either alone or as part of a team, at the front of the ED visit—at intake. The literature shows that a physician assessment is more reliable than assessments by providers with less training (Dent, Weiland, Vallender, & Oettel, 2007; Kosowsky, Shindel, Liu, Hamilton, & Pancioli, 2001; Levine et al., 2006; Rocker et al., 2004; Rodriguez, Wang, & Pearl, 1997; Sinuff et al., 2006). Using an experienced physician in triage allows many patients to be sent home with little or no testing (Sen et al., 2011; Terris, Leman, O'Connor, & Wood, 2004). It reduces the arrival-to-provider time, the overall LOS, and the LWBS rate and increases both patient and staff satisfaction with the process (Choi, Wong, & Lau, 2006; Holroyd et al., 2007; Partovi, Nelson, Bryan, & Walsh, 2001; Rogers, Ross, & Spooner, 2004; Travers & Lee, 2006). There are many variations of the physician-in-triage model. Typically a lone physician in triage will do an abbreviated assessment and send the patient to the appropriate area in the department for further diagnostic or therapeutic interventions, or for discharge processing.

Team Triage

More detailed intake assessments are performed using a team triage model (Chan et al., 2005; Mayer, 2005; McD Taylor, Bennett, & Cameron, 2004; Richardson, Braitberg, & Yeoh, 2004; Subash, Dunn, McNicholl, & Marlow, 2004). In this model, the team might consist of a combination of the following: physician, nurse, midlevel provider, laboratory technician, ED technician, and scribe. In this model, more diagnostic and therapeutic work is performed during the intake encounter.

Pods and Zones

Some centers have begun reporting the implementation of changes to the physical space to accommodate new intake models through case reports. Though not yet published in peer-reviewed journals, the data from these reports are compelling. At Arrowhead Regional Medical Center in Colton, California, the ED volume more than doubled from 50,000 visits to 110,000 visits in 5 years. The LWBS rate had risen to an astounding 20%, and arrival-to-provider time was a dangerous 4 hours. In desperation the staff trialed a physician-in-triage model made possible by bringing in furniture modules that created small cubicles in which physicians can see patients.

Their experience revealed that 50% of patients could be discharged right from the cubicle. This opened up beds and resulted in an unexpected

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reduction in nurse staffing. Their LWBS rate dropped to 1% and their arrival-to-provider time was reduced to 31 minutes (Welch & Davidson, 2010). At Methodist Sacramento Hospital, in Sacramento, California, the ED was grossly under-bedded seeing 42,000 annual visits in a 19-bed ED. The staff took a different approach to the space and layout to allow a physician and nurse to be present at intake.

The staff created a six-bed *triage pod*, occupied by contiguous stretchers with curtains. This operational model articulated a goal that patients spend less than 15 minutes in the triage pod before being moved elsewhere in the department. The physician traverses the pod and after a quick assessment transfers the patient to one of three areas: the waiting room, the main ED, or a monitored higher-acuity ED bed.

Although the department shrank from 19 to 13 beds, with new processes in place they believe they have smarter bed utilization. Methodist has seen their LWBS rates drop from 5% to 1% (Augustine, 2011a). In Gaston Memorial Hospital in Gastonia, North Carolina, $800 was spent to create a *care initiation area* (also called the CIA) with a physician and team in triage. By changing the space and the process, this 80,000-visit ED saw its LWBS rates fall from 12% to 1.3%, and its Press Ganey patient satisfaction scores rose to the 99th percentile (Besson, 2009).

Recliner Intake

In another case study in Carolinas Medical Center in Charlotte, North Carolina, the ED team redesigned its intake area, putting recliners and supplies within reach of the physician and team. Like Arrowhead, they found that the physician could discharge 45.5% of patients from triage. This is an effective way to off-load the main department when it is over capacity. This Level I trauma center, which sees an annual ED volume of 115,000 visits, has seen improvement in arrival-to-provider time, decreased LWBS rates, and an overall decrease in LOS in these trials (Welch & Savitz, 2011).

Low-Flow/High-Flow

Another new intake model as yet unpublished but presented at an AHRQ-sponsored summit involves the use of two distinct processes for intake, depending on the census in the department and the rate of arrivals. Thomas Jefferson University in Philadephia, Pennsylvania, a busy urban teaching hospital with an annual volume of 85,000, dubbed this model the *low-flow/high-flow* process model. When the ED is at a low census with open beds, the process is the same as that employed in most traditionally run EDs. Patients are triaged in the traditional manner, and each patient occupies a room after triage. As the ED reaches capacity, the department shifts into the high-flow process. In this model, a processing area is opened and a team using protocol-guided treatment plans begins the intake process and patient workups there. The first pilot of the new low-flow/high-flow model showed a decreased LOS from 653 minutes to 158 minutes. Exit surveys of patients involved in the pilot showed extremely high patient satisfaction scores: 4.5 on a scale of 5 for extreme satisfaction (Welch & Savitz, 2011).

Applications to Design

First, the design of the intake area will depend on the process the clinicians intend to use. For very rapid physician assessments, a pod design or a bay with multiple treatment spaces that feeds other ED areas may be appropriate. Data about annual volume, admission rates, acuity, and the age of the patient populations served would inform decisions about intake models. Recliners could replace either chairs or stretchers for the first leg of the ED journey.

The big operational change of putting a physician at the front of the ED visit needs translation into traditional ED designs.

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For a more comprehensive intake, physicians are most effective if they have a team of personnel to assist them. In many of the new models, the intake area could also be a site for initiating orders, drawing blood, and starting intravenous lines. This means the intake space may need to be bigger with room for supplies and clinical work areas. The intake model and the design of the intake space must be integrated into the patient flow scheme for the entire department.

Whichever model is chosen, it is important to understand other critical factors that will influence the design of intake spaces. Foremost is the pressure to identify cardiac patients rapidly by quickly performing an electrocardiogram (EKG) on any patient who might be presenting with acute coronary syndrome. The recognition of atypical presentations of acute coronary syndrome patients has led to the new practice of performing an EKG on any patient with symptoms "between the nose and the navel."

Many older triage rooms are not big enough for a patient to recline for an EKG and to accommodate an EKG machine at the bedside, nor do they have curtains to allow the privacy required for an EKG. Whether the multidisciplinary team selects a model employing multiple curtained intake bays married to a rapid initial intake process, or separate intake rooms married to a comprehensive team intake process, private space will be necesssary for EKG evaluations. This might mean an EKG alcove with curtains next to the triage pod or some other design innovation to meet this particular need.

There will be new pressures to have patients seen by a physician sooner because arrival-to-provider times will be reportable to CMS. With this as an incentive, an adequate number of intake spaces will be an imperative. Remembering the arrival curve already mentioned, patients arrive in surges during the afternoon and evening shifts. Knowing the census of an ED can help designers plan their designs for an appropriate number of intake spaces.

The low-flow/high-flow model from Thomas Jefferson University presents another idea for consideration in ED design. Medium- and low-volume

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EDs struggle with extreme swings in census that can sometimes show 100% variation or more from one day to the next. A design that can accommodate these extreme variations in census and arrivals with coordinated operational changes allows the ultimate in flexibility. This means that an ED might look like a traditional department at low-flow times with the immediate bedding of patients, in-room triage, and bedside registration, sometimes called *pull to full*, described in a North Carolina ED (Colucciello, 2009). Later in the day, when the predictable surge of patients arrives and census exceeds capacity, an intake area with a physician-led triage team opens up. This kind of adaptability and flexibility in design and operations is cutting edge and not seen in most current ED designs.

Improvements in Throughput

Although there is not as much in the literature about operational improvements in the ED throughput domain, there are trends worth noting and considering for integration into design.

Patient Segmentation

As EDs have experienced gains in annual census, the practice of patient segmentation has grown. The earliest example of patient segmentation (also called *streaming*) was the development of the *fast track,* an area in an ED dedicated to the care of patients with lower-acuity conditions, typically minor accidents and injuries. The evidence supporting efficacy, efficiency, and improved performance when a fast track is introduced is now exhaustive and irrefutable (Darrab et al., 2006; Ieraci, Digiusto, Sonntag, Dann, & Fox, 2008; Kwa & Blake, 2008; Nash, Nguyen, & Tillman, 2009; Rodi, Grau, & Orsini, 2006; Sanchez, Smally, Grant, & Jacobs, 2006; Simon et al., 1996).

At Mary Washington Hospital in Fredericksburg, Virginia, Dr. Jody Crane has taken patient segmentation even further. Published in a trade paper and not a peer-reviewed journal, Dr. Crane has used Lean processes to improve patient flow in his 100,000-visit ED. By creating even more tracks dedicated to the treatment of patients of varying acuity and clinical needs, he has reduced LWBS, decreased LOS, and improved patient satisfaction (Welch, 2008). At Banner Health System in Phoenix and Mesa, Arizona, a similar "quick look" at patients and then patient segmentation have been employed in a new intake model. All of the tools and a detailed description of this innovation can be found on the Internet (Banner Health, 2011). Banner calls this process "D2D SPF" (Door to Doc Split Patient Flow).

Less sick patients are not undressed or bedded; instead they are treated as though they were in a clinic setting. The sickest patients are seen in an expedient manner and treatment is begun. Banner implemented this new process across eight different EDs with varying volumes and saw reductions in the LWBS rates of 30% to 60% across the board. This concept of patient segmentation allows for less acute patients to be moved out of beds after initial examination. Such accelerated bed turnover, much like table turns in a restaurant, allows more patients to be seen in the same space, effectively expanding the capacity of the ED.

Med Teams

Knowledge about teams and their superiority in complex work environments is well established in other service industries (Barker, 1993; Hackman, 1987; Kozlowski & Bell, 2003; Scholtes, Joiner, & Streibel, 2003; Serfaty, Entin, & Johnston, 1998; Wageman, 1997). Beginning in the late 1990s, research on *med teams* and formal teamwork training appeared in the medical literature, often applied to the ED (Barrett, Gifford, Morey, Risser, & Salisbury, 2001; Morey et al., 2002; Risser et al., 1999; Sexton, Thomas, & Helmreich, 2000). In the past decade this research has taken off with applications to most hospital-based service lines including labor and delivery, the ED, the operating room, and the trauma suite (Awad et al., 2005; Capella et al., 2010; Guise et al., 2010; Kilner & Sheppard, 2010; McConaughey, 2008; Patel & Vinson, 2005). An example of a med team in an ED would include a physician, two nurses, four techs, and a unit clerk all assigned to the same patient care area, working together to care for the same set of patients.

Geographic Zones

In a busy ED, a med team's approach is married to a geographic zone to create a functional operating unit that improves communication and clinical care (Asplin et al., 2008; Eitel, Rudkin, Malvehy, Killeen, & Pines, 2010; Jensen & Crane, 2008; Olshaker, 2009). According to the Studer Group, ED nurses walk 5.2 miles per shift (Leighty, 2006). This could be reduced by placing staff in a large ED in one geographic area of the department for the duration of a shift. One of the largest EDs in the country demonstrating high-level performance on operating metrics is William Beaumont Medical Center in Royal Oak, Michigan. This department, which sees more than 120,000 visits annually in a whopping 110-bed ED, is divided into seven functional units to improve quality, safety, efficiency, and flow (Welch, 2009).

Internal Waiting Room

Another new and important concept relative to ED operations has been termed "keeping patients vertical." Nationwide statistics reveal that EDs admit approximately 14% of all visits (McCaig & Nawar, 2006); this means that 86% of ED patients go home. In addition, the majority of patients are ambulatory upon arrival. Thus, EDs are experimenting with keeping patients ambulatory and having them wait for results in an internal waiting room, as opposed to occupying an ED room for the entire LOS.

At Massachusetts General Hospital, located in Boston, Massachusetts, the ED sees in excess of 88,000 visits annually. It has implemented a complex new ED flow process that begins with patient segmentation by acuity. Also presented as a case study at an AHRQ conference in 2010, the data demonstrated improvement. An important change in the physical plant to support this process involved the creation of an internal waiting room called the *post-screening area* with comfortable chairs. The internal waiting room enables less acute patients to remain vertical instead of occupying bed space while awaiting test results. The sum of these changes to the physical plant and operations resulted in an 8% decrease

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in LOS and a drop in LWBS rate from 4.1% to 2.4% (Welch & Davidson, 2010).

Reclining Chair Units

The idea of using reclining chairs for intake has already been discussed. One study showed that most patients—particularly elderly patients—found reclining chairs much more comfortable than ED stretchers and had higher patient satisfaction when they were allowed to sit in them while waiting for test results and receiving care (Wilber, Burger, Gerson, & Blanda, 2005). The Chandler Medical Center at the University of Kentucky (part of the Pebble Project) is another example of the effective use of chairs as treatment spaces. This new ED was built using evidence-based design (Taylor & Cheng, 2011). One of the design features involved the design of the fast track area. As an evidence-based design project, the multidisciplinary team trialed both stretchers and reclining chairs for treating low-acuity patients. Their as-yet-unpublished data revealed increased patient satisfaction and decreased throughput times using the chair model. Reclining chairs were employed in the final design.

Information Technology

The advantages of an electronic whiteboard or tracking system in the ED have been recognized (France et al., 2005). Increasingly, EDs are using physician order entry and charting along with electronic tracking systems. In addition, the benefits of information technology (IT) that is integrated into workflow have been reported in the literature, but it is still an area in its infancy (Baumlin et al., 2010; Shapiro et al., 2010). EDs must take into account the space that such technology support requires. The most advanced departments (in terms of IT integrated into workflow) are operating with a computer for each member of the healthcare team, including social workers and case managers. This means that computer stations to accommodate all staff members will need to be factored into the ED design.

In addition, banks of common-use computers that any staff member can use are required. For instance, respiratory therapists, EKG technicians, and x-ray technicians are in the department transiently while involved in patient care, but they need to communicate on the electronic tracking system when the encounter with the patient has both started and finished. This information is vital to the healthcare team in tracking patient flow in real time, and it requires computer space. To get an idea of how many computers might be needed as hospitals become fully invested in a comprehensive electronic health record, the Pebble Project at the University of Kentucky Chandler ED used predictive modeling and forecasting to design a 50-bed ED with 240 computers for staff.

The development and success of patient segmentation, med teams, and geographic zones once again highlight the benefits to workflow of creating functional units in the ED.

Applications to Design

The development and success of patient segmentation, med teams, and geographic zones once again highlight the benefits to workflow of creating functional units in the ED. The acuity of the patients to be cared for will determine what the zone looks like. For instance, higher-acuity patients would likely be managed best on stretchers in larger rooms that can accommodate a resuscitation team, ventilator, EKG machine, and portable x-ray machine all at once. These rooms should be directly visible from the staff work station. Lower-acuity patients can be managed in reclining chairs in a zone of cubicles, and visibility is less critical.

The functional unit will need space for team members to carry out both clinical and clerical work, and adequate room for IT support is a must. Workflow should never be constrained because a healthcare worker cannot access a computer in the ED. The common practice of placing lovely granite countertops too narrow to hold computers and keyboards in the ED should be checked. All counter surfaces should be functional spaces.

Improvements at Outflow

The least studied area of operational improvement for the ED is the back end. This may be because the outflow of admitted patients has been such a difficult area for EDs. Addressing problems of overcrowding and boarding (holding admitted patients in the ED for long periods of time) requires hospital-wide flow solutions, and these are not under the control of the ED alone. Nonetheless, strategies that improve the outflow of patients who no longer need the services of the ED have been identified, and they are articulated in the following section.

Discharge Kiosks

Driven by the dire economic situation in the community that his ED served, Dr. Todd Taylor set up a discharge kiosk in the ED at Good Samaritan Medical Center in Phoenix, Arizona. When his 55,000-volume department was overrun with immigrant workers with no health insurance, he designed these kiosks to get low-wage workers signed up for any public assistance programs for which they were eligible. He had patients pass through these discharge kiosks to help usher them through the morass of paperwork involved and to help them find clinic care for future healthcare problems.

His program, which began as a revenue capture opportunity, was dubbed the "Turnstile ED," meaning patients passed through the virtual turnstile in the discharge kiosk. Discharge paperwork and prescriptions were then given. This program proved successful and kept his department financially viable, but it also turned out to be an operational success (Taylor, 2003; Welch, Viccellio, Davidson, McCabe, & Janiak, 2007).

Express Admission Unit

With bed space at a premium in the ED, strategies that allow patients to be moved away from acute care areas have proved an effective way to combat crowding. This has given rise to a new concept: *the express admission unit*, where pa-

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tients can wait until their rooms are ready. It is also a place where admission paperwork and processing can take place. When ED patients are ready for transfer to an inpatient bed (excluding critical care patients), they typically are in a phase of care that requires less clinical intensity. Diagnostics have been completed and early therapy has begun. Such patients no longer need the services of the ED and often need minimal observation by medical staff. The University of San Diego in San Diego, California, which sees 36,000 visits annually and is a teaching hospital with an emergency medicine residency, has published the first study showing the positive operational impact of an express admission unit (Buckley, Castillo, Killeen, Guss, & Chan, 2010).

The Clinical Decision Unit

There are data on the efficacy of an ED observation unit (Baugh, Venkatesh, & Bohan, 2011; Daly, Campbell, & Cameron, 2003). As pressures to avoid hospitalization (and readmissions) grow, a variation on the observation unit has evolved and is referred to as the *clinical decision unit*. Accumulating studies suggest that keeping patients for 6 to 8 hours for certain clinical conditions is a viable clinical management plan. Many patients requiring prolonged diagnostic testing, observation for overdoses, and other conditions, but who likely will not need 12–24 hours of care, might occupy such a unit (Calello et al., 2009; Nahab et al., 2011; Ross & Nahab, 2009; Ross et al., 2003; Schrock, Reznikova, & Weller, 2010). The lower-volume ED might segment any patients in need of 6 hours or more and send them to the observation unit. High-volume departments might have the numbers to support both a clinical decision unit and an observation unit as service lines with unique, dedicated space.

Applications for Back-End Design

There is a knowledge deficit surrounding the back end of the ED visit. Research regarding patient flow out of the ED is in its early days. Whether patients are admitted or discharged or placed into observation, operational best practices have yet to be determined. Is an express admission unit more efficacious than boarding a patient in the ED? Is a discharge team more efficacious than primary care nurse discharge? Relative to research on the front end, there is clearly work to be done.

A number of factors will influence and change discharge from the ED as healthcare reform in the United States moves forward. As mentioned previously, with the aging of the population comes an increase in the complexity of the patients receiving care. This means that more discharge planning will be needed as patients exit the ED. Healthcare reform will mean increased pressure to prevent readmissions for certain chronic conditions like chronic heart failure, acute heart attack, and pneumonia (Haglund, 2011). Hence a rebirth of interest in the observation unit concept and its many variations is being seen. Physicians and hospitals will be deterred from admitting certain patients under threat of financial penalty, and this will mean the involvement of a new member of the ED team, the case manager (Dunnion & Kelly, 2005; Kanaan, 2009). Zones

where case managers can work with the healthcare team involving the patient and the patient's family are evolving.

Concern for crowding should encourage design professionals to work with clinicians to design spaces that allow patients who no longer need the clinical intensity of the ED to be moved quickly out.

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Limitations

Many of the operational innovations described in this review are new and have not been validated by randomized controlled studies or formal peer review. These process innovations and suggested design changes may have unintended consequences in terms of workflows, and this should be noted. In addition, these changes may have practical constraints. Still, in the spirit of innovation, this review organizes and collates these new operational ideas for the sake of expanding knowledge in the field. Finally, this paper looks at ED design in the United States and focuses on anticipated reforms. That said, many of these design strategies are appearing in Europe and Australia, and some of the studies cited in this paper were from outside the United States.

Conclusions

ED operational research has begun to capture the attention of practitioners trying to improve the delivery of care in the ED. Most departments are struggling to deliver safe and efficient care in emergency rooms that were designed in a different era. Most clinicians looking at the prospect of a new build or redesign of their departments will be largely unaware of this body of research and new information. Unpublished data can help inform ED design; unpublished innovations demonstrate ways to improve ED operations.

As evidence-based design concepts take hold in the architecture, design, research, and clinical arenas, we can look forward to EDs designed for the work being done in them. This metasynthesis is an attempt to summarize the latest research and data available involving ED operations and to apply it conceptually to ED design. It is written in the hope that design professionals and clinicians can work together to design effective spaces for safe, efficient, quality-driven healthcare.

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EXHIBIT 4

March 2005

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Hospitals Move to Replace and Expand Facilities: The Return of Bricks and Mortar

How Moody's Incorporates Sizable Capital Projects Into a Hospital's Bond Rating

Summary Opinion

Moody's is observing an increase in sizable capital projects by not-for-profit hospitals and health systems that we believe signals the return of large-scale "bricks and mortar" projects. We have not witnessed this degree of capital spending since before the implementation of the Balanced Budget Act of 1997 (BBA), which materially reduced Medicare reimbursement to providers and sidelined large capital projects as cash flow weakened. At the same time, managed care penetration increased, reducing reimbursement to providers and contributing to a pull-back in capital spending. As pressures mounted on revenue and the average operating margin thinned, Moody's witnessed a decline in capital spending through 2000 as cash resources were constrained and access to capital became more costly.[1] Since 2002, capital spending has increased as providers have regained their financial footing and are re-focusing on the longer term facility needs of their organization.

Specifically, the large-scale "bricks and mortar" projects that providers are embarking upon include:

- Sizable new patient towers to add capacity or create more private rooms;
- Replacement facilities, at current or new locations, as management has assessed the economic costs and benefits of renovating versus replacing an aged facility; and
- Construction of a new, full service hospital to supplement current operations and capture population growth in a new vibrant location.

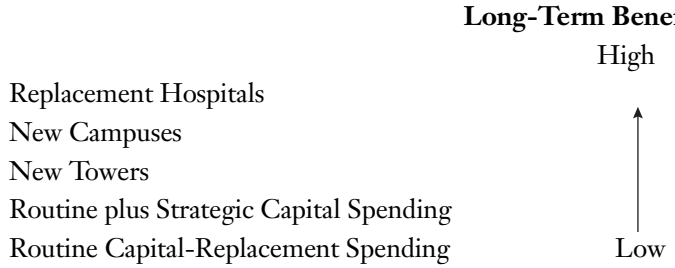
A clear plan of execution at all stages of the project, contingency plans for unexpected delays or obstacles and physician buy-in are integral facets to the project that have credit implications which we will explore with management. **We encourage providers to begin a dialogue with us in the early stages of their capital planning so that we can provide feedback that may be helpful during the various planning phases. We welcome meetings with management and a provider's board of trustees — outside of formal rating meetings — to discuss future strategic endeavors so that we may provide some feedback regarding any impact to a rating or rating outlook, as well as share industry trends and experiences with these types of capital projects. We believe that early disclosure of these plans can provide us with a better understanding of the rationale and implications of the project so that when a debt issuance arises we have a clear understanding of the strategy.**

We distinguish two periods of risk over the course of large capital projects: a) construction risk (the initial two to three year period prior to the opening) which may include a disruption of existing operations; and b) the opening period, which poses "growing pains" challenges. This Special Comment addresses how we incorporate a provider's sizable capital plans into the bond rating and discusses the unique credit considerations that each of these projects warrant.

1. *See "The Capital Spending Ratio: An In-depth Review of Capital Spending Levels of Not-for-Profit Healthcare Providers" December 2004.*

Capital Spending and the Continuum of Risk

In recent years, capital spending programs have ranged from basic capital-replacement and technology needs to spending for more strategic projects such as funding for a new service addition, investment in advanced information technology, enhanced outpatient capacity and new medical office building construction. We believe that new patient towers, new hospital campuses and replacement facilities will be the next wave of capital projects that will populate much of the health care debt issuance. These projects require intense planning by management and carry with them the greatest potential for long-term strategic benefits as well as the highest short-term operating and financial risks.



Understanding the Rationale for the Project

Understanding the rationale for the project is a part of Moody's credit assessment. We believe that the primary drivers of large-scale capital spending are quality issues, safety issues, increasing competition, need for more capacity and a more efficient delivery of health care services. In many instances the current plant represents a 'patchwork' of buildings and additions that may no longer be economical or efficient to operate. Over the last two years many of the providers in our portfolio have reported improved, as well as record breaking, operating performance allowing management to focus more closely on the long-term physical needs of the plant. Specific reasons for these projects include the following:

- The need to capture a growing population by relocating to an area with a better payer mix
- The challenges of an aging or 'out of code' facility that is more economical to replace versus renovate
- The need to remain competitive with other hospitals or entrepreneurial physicians as consumers develop higher expectations for hospital amenities including private patient rooms, state-of-the-art clinical technology and a customer-friendly, high-tech facility
- The ability to recruit top physicians and clinical staff with attractive, modern facilities
- Geographic constraints, zoning restrictions, limited access into the facility and spatial constraints that make vertical or horizontal expansion impossible
- Relaxation or elimination of Certificate of Need (CON) regulations which removes the need for regulatory approval for these projects and enables the hospitals to move forward with their plans

Strong project oversight, physician buy-in, and contingency plans for unexpected delays or obstacles in construction or upon opening are three key areas Moody's analysts evaluate. When examining past large-scale projects that have either succeeded or failed, these three areas are consistent themes that have proven critical to the ultimate outcome of the project. Below is a select list of questions that we will explore with management to understand the capital project and how these issues are being addressed:

1. How was the decision made for the project? What variables were examined in determining the size and scope of the project? What alternatives were considered?
2. What has been the physician involvement in developing the project? Will there be income sharing arrangements with physicians and why?
3. What are the possible worst-case scenarios with the project regarding cost, timing, execution and "growing pains" upon opening? Are they incorporated into the forecast? Have the projections been stressed for such scenarios?
4. What has been management's history and experience with other sizable expansions? Were they completed on time and on budget?
5. What are the funding sources for the project: bonds, cash flow, fundraising or other? What has been the fund raising history? If there is a shortfall in any of these sources, what other funding sources are available?

6. Who will be overseeing the project? Is it the current CEO or has another new senior executive been hired or appointed? Will the project be overseen by a committee? How will management maintain its focus on current operations?
7. What facilities were used as models for the current plan, if any?
8. What are the financial expectations?

Projections and the "What If?" Scenarios

In regards to financial projections, we are often asked how much documentation and information we need from providers regarding these projects, as the analysis that a provider does can be voluminous. As a guideline, if a feasibility study is performed we would like to incorporate the study into our analysis. Likewise, if management has prepared its own projections, we would request these along with the assumptions behind the forecasts. We realize that many projections lean toward conservatism and show worst-case scenarios and understand why providers may be inclined to show these scenarios. The most helpful projections indicate to us that management has examined all possible scenarios, and we can evaluate how these scenarios impact earnings and liquidity. These scenarios may include the following:

- What if volumes do not materialize as expected?
- What if volumes exceed projections and outstrip the added capacity (as we have seen with children's hospitals and academic medical centers)?
- What if managed care plans do not agree to higher reimbursement rates?
- What if the costs of building materials escalate, such as the cost of steel and glass? To that end, are you receiving a Guaranteed Maximum Price? Why or why not?

The Projects: Benefits and Risks

New Tower Addition

Benefits:	Risks:
• Considered more like large renovation project	• Temporary disruption of services
• More private rooms usually created	• Displaced employee or patient parking
• Minimal increase in information technology needs	• Cost overruns
• Better competitive position	• Competitor response

Many providers have successfully added capacity to their current campuses with new patient towers. While additional staffing needs and a temporary disruption in admissions have impaired financial performance in certain instances, the new capacity usually becomes well utilized and financial performance returns to or exceeds historical levels. While we believe a new tower addition represents less risk than a new hospital or replacement campus, physician and staff buy-in remains integral to the project's success. We have seen cases where new floors or a new tower were underutilized by physicians as they were dissatisfied with the layout of the patient areas.

New Hospital Campus (incremental capacity)

Benefits:	Risks:
• Capture population growth in new location	• Competitor response
• Attract new physicians to new facility	• Physician buy-in to cover 2 campuses
• Fresh start with new technology	• Additional staffing required
• Segregation of primary, secondary and tertiary services	• Cannibalization of existing services
• Management's ability to oversee current operations while overseeing construction and start up of new facility	• Growing pains at opening
• Increased leverage with payers	• Payers not extending contract to new site
	• Cost overruns (unknowns of rock, soil, water)
	• Management's ability to coordinate multiple sites

Many Moody's-rated providers have recently constructed new campuses or are in the process of new hospital construction that represents incremental capacity. Our primary concerns with these projects are: (1) the ability to hire

enough nurses to staff the new facility in a challenging recruitment environment, and; (2) physician recruitment to the new site or the buy-in of the existing medical staff to see patients at more than one facility. Additionally, the extension of managed care contracts to the new site is not always guaranteed upon opening and we expect management would begin an early dialogue with the key payers to ensure coverage. We also need to understand any joint venture strategies with physicians that may occur with the new campus.

Replacement Hospital

Benefits:	Risks:
• New modern facility	• Cost overruns
• Attract new physicians and new pati base	• Physician/nurse turnover if new location is a longer commute
• Improved efficiencies	• Growing pains upon opening
• No risk of losing or splitting business	• Competitor response
• Better "payer mix" location	• Higher fixed costs without rate compensation
• More private rooms	• Ability to sell/donate/close old facility
• Increased capacity if new facility has greater capacity than old facility	• Interruption of existing operations
• Less costly than renovating	

Unique Risks Regarding Replacement Facilities

Hospitals decide for a myriad of reasons to relocate all inpatient and outpatient hospital services to a new location. Replacement is typically driven by current facility challenges that management has determined would be more costly to address over the longer-term than building an entirely new venue. With the anecdotal cost of a new hospital exceeding one million dollars per bed, the financial planning and execution of a replacement facility are paramount to providing adequate debt service coverage and maintaining an acceptable level of reserves during development and upon opening. As such, Moody's requests either management projections or a feasibility study when assessing the credit risks of replacement facilities. Below are some of the key questions and topics we will explore with management.

1. What is management's experience with planning and constructing replacement facilities?
2. What services will the new facility offer? Will there be new services offered? What will be different about the new facility?
3. What is the level of physician and nursing buy-in for the new site? Does the new site represent a longer commute for the staff? Will additional staff be needed?
4. What is the anticipated competitive response to your strategy? What is the expected outmigration to competing hospitals if you experience start-up growing pains?
5. Are medical office buildings located on or near the new campus? How will these be funded and what are the pre-lease commitment levels?
6. What contingencies are included in the projections? For example, what if volumes do not reach projected levels? Likewise, what if volumes exceed projections and the available capacity of the new facility?
7. Do the projections include a run-up in operating expenses during the transition from current facility to the new site? What is the impact on days cash on hand when expenses are at their highest?
8. How do your costs and charges compare to the competitors today and after the project? Have you begun discussions with the commercial payers to negotiate higher rates when the facility opens?
9. What is the plan for the existing site? (sale? donation? demolition?) Will outpatient or administrative services remain at the old site and what is the associated cost?

As we would expect, feasibility studies or projections usually anticipate a decline in financial performance in the fiscal year that the new hospital will open as operating costs come on line. Likewise, depreciation and interest expenses increase as well, suppressing operating income. As a result, we tend to focus on operating cash flow and the operating cash flow margin (which measure operating results prior to depreciation and interest expense) as well as debt-to-cash-flow ratio to gauge the strength of core cashflow as the primary source of funds to repay bondholders.

After the first year of operations, projections frequently show improved performance. As a result, we are often asked why a rating could be downgraded, in spite of the increase in debt, when the projections present an improving financial picture and incremental cash flow. We believe that the greatest period of risk with large scale projects is the construction period, before a new facility opens, as the existing operations must support a higher fixed debt burden without the benefit of incremental cash flow or greater efficiencies. Accordingly, we view management's attention to

existing operations as integral in our rating assessment. Moreover, given the rapid changes in the health care industry, many of the assumptions that go into the projections can deviate from plan, resulting in a hospital's inability to meet stated projections at the opening of the facility. However, if cash flow generation from the project enhances cash flow to improve debt and balance sheet measures, we believe the rating will be appropriately raised in the future.

The Plan to Fund Construction and the Impact on the Rating

Equally important as understanding the project's rationale are understanding the plans to finance construction and the various sources of capital being contemplated (cash, debt, fund-raising, third-party lending, for example). As previously stated, we encourage providers to commence a dialogue with us regarding these plans, in the early stages, as we can provide preliminary feedback regarding any potential change to the bond rating or rating outlook. We can also provide some feedback on various funding scenarios that contemplate cash versus debt or include a combination of cash and debt to fund the project and the impact on the rating or outlook. Key determinants to any rating or outlook change are funding sources and likely timing of a borrowing. Moody's may determine, on a case-by-case basis, to change a rating outlook when we are made aware of a more definitive financing plan. Rating outlooks provide an 18 to 24 month directional on potential future rating activity. The rating outlook may change to negative from stable or to stable from positive if it appears that the magnitude of the debt or use of internal cash resources to finance the project may place pressure on the rating.

In other cases, the impact of these projects on a provider's financial performance when financed with a large debt issuance, as well as the inherent risk profile of the project, may result in a rating downgrade — in some cases a multi-notch downgrade if the debt is significant or if we view the short-term risks of the project as significant. For others, debt coverage levels before the financing may be favorable enough or high enough that an increase in leverage associated with these plans, combined with favorable financial and non-quantifiable factors, may be manageable at the current rating level and result in a rating affirmation. A provider's track record in meeting budget and overseeing other expansion projects carries weight in the rating committee.

Moody's will ask the following questions regarding the timing of the project to determine when to take rating action.

1. Has the board approved the project? When is approval expected?
2. When will any equity contributions toward the project be made? Prior to the debt financing? Staggered throughout the construction period or at the end of the construction?
3. Will a feasibility study be performed? When is it expected to be completed? Has an environmental assessment been performed?
4. Is a CON required or is other regulatory approval (such as zoning permits or Department of Health licensures) required for the project? Has it been submitted? Do you expect it to be challenged and when would a final decision be made?
5. Is fund-raising a key source of capital for the project? If so, what are the targets and how does that compare to historical fund-raising campaigns?

Conclusion

Patient towers, new hospitals and replacement facilities represent some of the largest capital-intensive projects embarked upon by hospitals and we are analyzing more of these types of projects for hospitals across the country. All of these projects carry long-term benefits that we incorporate in our rating decisions along with the short-term risks during the construction and opening phases. Moody's encourages providers to meet with us and discuss future capital projects in the early stages of the planning. We want to provide feedback and any guidance that will be helpful as management further crystallizes the construction plans.

Four Case Studies

NEW HOSPITAL CONSTRUCTION:

Rating Upgrade in the Midst of New Hospital Construction and Increasing Debt: The Benefits of Cash Flow Distribution at Memorial Health System (formerly South Broward Hospital District, FL)

Our rating outcomes for providers who are constructing new campuses have varied given the different circumstances of each provider's credit profile. Many times some comfort is derived from a multi-site provider who engages in large construction due to an established diversification of cash flow. For example, Moody's upgraded Memorial Health System's (FL) debt rating to Aa3 from A1 when it issued debt to construct its fourth campus in the fast growing area of Miramar. Very strong financial performance, strong population growth, the absence of any direct competition (further protected by CON regulation), experience in opening new hospitals and a favorable distribution of earnings from Memorial's three existing sites were key factors to the rating upgrade in the face of increased risk associated with the new project.

You can be Upgraded after being Downgraded: The Challenge and Success of a New Hospital at HealthEast, MN

Moody's recently upgraded the rating on HealthEast (MN) to Ba1 from Ba2 based on a trend of favorable financial performance and improving balance sheet measures, largely due to the improved performance at The Woodwinds Hospital (The Woodwinds) a new HealthEast hospital which opened in 2001. The Woodwinds initially struggled financially due to a significant shortfall in volumes that related to key credit issues: a) physician reluctance to add an additional hospital to their schedules due to the inconvenience of the commute and b) the decision by the largest HMO in the area to exclude The Woodwinds from its provider panel. As a result, The Woodwinds did not reach its cash flow projections and was a contributing factor to the system's weak financial performance and downgrade to Ba2 in 2001. Since then, volumes have materialized as a result of a system-level focus on recruitment of primary care and specialist physicians, implementation of a formal hospitalist program and from the successful negotiation of a managed care contract with Medica, all of which have contributed to dramatically improved financial performance. The Woodwinds is now capitalizing, as originally anticipated, on its well positioned location about 10 miles from the nearest competitor in a young, growing suburban area.

REPLACEMENT HOSPITALS:

Replacement and Start-Up Risk in One Setting: The Challenge of Phoenix Children's Hospital, AZ

Our evaluation of replacement hospital projects has revealed very mixed results, pre and post opening, from unmitigated difficulties to moderate successes. One of the more recent examples of difficulties incurred was the project undertaken by Phoenix Children's Hospital (AZ) whose debt was initially rated A2 and is currently rated Ba2 with a positive outlook. Phoenix Children's Hospital (PCH) relocated its clinical services from within an adult facility to its own freestanding location following the purchase of an adult hospital from a for-profit health care company. Design changes, delays in the opening and the increased costs of higher staffing levels before the new facility opened lead to a downturn in financial performance and near depletion of cash reserves. PCH's rating was downgraded multiple times pre- and post — opening to its current Ba2 rating. Unique to PCH's financial challenges was the need to understand facility-operating challenges, such as landscaping costs and parking needs, as well as the implementation of its own patient accounting system, all of which were previously managed by PCH's adult hospital host. Financial performance has since improved and liquidity has increased following the initial "growing pains" upon opening.

Merging Two Hospitals into One New Site: The Success of South Jersey Health System, NJ

South Jersey Health System (rated Baa1) opened its replacement facility in 2004, Regional Medical Center (RMC), which consolidated two of its three smaller facilities into one enhanced physical plant allowing a critical mass of volume to be centralized in one location. RMC is also expected to aid physician recruitment and retention due to the centralized practice location of system physicians as well as the improved technology at the new facility. The project was completed on time and on budget and current financial performance remains on target with projections. Moody's was able to derive comfort from South Jersey's replacement hospital strategy because of two factors: a) management had been through a prior hospital consolidation and b) South Jersey Health System enjoys a dominant market position in the service area.

Related Research

Special Comments:

Not-for-Profit Healthcare: Capital Access: Moody's Answers the Five Most Frequently Asked Questions on Capital Planning, September 2004 (88976)

The Capital Spending Ratio: An In-depth Review of Capital Spending Levels by Not-For-Profit Healthcare Providers, December 2004 (90283)

Rating Methodology:

Moody's Rating Methodology For Senior-Subordinated Debt Structures For Not-For-Profit Hospitals, March 2005 (91866)

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

To order reprints of this report (100 copies minimum), please call 1.212.553.1658.
Report Number: 91895

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Cassina Brooks

EXHIBIT 5

Projected Market Share & Volume Impact of WAH Relocation

			WAH Existing Market Share & Volume					WAH Projections after Relocation: WAH New Market Share & Volume				HCH Projections after WAH relocation: WAH New Market Share & Volume				HCH New Volume
Zip Code	City	WAH current ED Service Area	WAH 2014 Market Share	WAH 2014 ED (9 mos)	WAH 2014 Market Share, annulized	Total ED visits 2014 (9 mos)	Total ED visits 2014 annualized	WAH MSGA share point shift	WAH proposed new share after move	WAH volumes with new market share annualized	Annual volume shift away / (towards) WAH	HCH shift of share points based after relocation	WAH proposed new share after move	WAH volumes with new market share annualized	Annual volume shift away / (towards) WAH	Annual volume shift toward / (away) HCH
20783	Hyattsville	PSA	60.3%	6,367	8,489	10,555	14,073	-15%	45.3%	6,378	2,111	-57.3%	3.0%	424	8,065	5081
20912	Takoma Park	PSA	66.2%	4,031	5,375	6,091	8,121	-15%	51.2%	4,156	1,218	-62.9%	3.3%	269	5,106	3778
20782	Hyattsville	PSA	53.1%	2,876	3,835	5,412	7,216	-15%	38.1%	2,752	1,082	-50.5%	2.7%	192	3,643	1384
20903	Silver Spring	PSA	40.5%	2,378	3,171	5,872	7,829	3%	43.5%	3,406	(235)	-38.5%	2.0%	159	3,012	2470
20901	Silver Spring	PSA	22.4%	1,647	2,196	7,353	9,804	5%	27.4%	2,686	(490)	-11.2%	11.2%	1,098	1,098	911
20904	Silver Spring	PSA	11.7%	1,524	2,032	13,074	17,432	45%	56.7%	9,876	(7,844)	16.7%	28.3%	4,936	(2,904)	(1974)
20740	College Park	PSA	24.3%	952	1,269	3,910	5,213	-1%	23.3%	1,217	52	-1.0%	23.3%	1,217	52	14
20910	Silver Spring	PSA	18.0%	1,313	1,751	7,282	9,709	-15%	3.0%	294	1,456	-17.1%	0.9%	88	1,663	1331
20705	Beltsville	SSA	12.9%	721	961	5,572	7,429	10%	22.9%	1,704	(743)	0.0%	12.9%	961	0	(0)
20011	Washington	SSA	30.7%	828	1,104	2,693	3,591	-17%	13.7%	494	610	-29.2%	1.5%	55	1,049	399
20737	Riverdale	SSA	14.5%	737	983	5,090	6,787	-15%	0.0%	-	983	-15.0%	0.0%	0	983	0
20902	Silver Spring	SSA	4.4%	469	625	10,689	14,252	0%	4.4%	625	0	0.0%	4.4%	625	0	0
20770	Greenbelt	SSA	7.8%	468	624	5,983	7,977	2%	9.8%	784	(160)	0.0%	7.8%	624	0	(0)
20784	Hyattsville	SSA	5.3%	403	537	7,624	10,165	-1%	4.3%	436	102	-1.0%	4.3%	436	102	7
20706	Lanham	SSA	3.7%	347	463	9,432	12,576	-1%	2.7%	337	126	-1.0%	2.7%	337	126	8
20781	Hyattsville	SSA	23.5%	550	733	2,338	3,117	-15%	8.5%	266	468	-21.2%	2.4%	73	660	0
20906	Silver Spring	SSA	2.4%	415	553	17,054	22,739	5%	7.4%	1,690	(1,137)	5.0%	7.4%	1,690	(1,137)	(455)
20712	Mount Rainier	SSA	45.4%	561	748	1,236	1,648	-20%	25.4%	418	330	-40.8%	4.5%	75	673	148
20785	Hyattsville	SSA	2.6%	290	387	11,043	14,724	-1%	1.6%	239	147	-1.0%	1.6%	239	147	0
20012	Washington	SSA	40.5%	427	569	1,055	1,407	-15%	25.5%	358	211	-36.4%	4.0%	57	512	323
20707	Laurel	SSA	2.2%	189	252	8,516	11,355	5%	7.2%	820	(568)	5.0%	7.2%	820	(568)	(34)
20708	Laurel	SSA	2.0%	133	177	6,791	9,055	1%	3.0%	268	(91)	1.0%	3.0%	268	(91)	(5)
20722	Brentwood	SSA	22.2%	240	320	1,081	1,441	-15%	7.2%	104	216	-15.0%	7.2%	104	216	0
20743	Capitol Heights	SSA	1.3%	134	179	10,640	14,187	-1%	0.3%	37	142	-1.0%	0.3%	37	142	0
20019	Washington	SSA	3.9%	201	268	5,112	6,816	-6.5%	-2.6%	-	268	-6.5%	0.0%	0	268	0
20017	Washington	SSA	28.6%	189	252	660	880	-17%	11.6%	102	150	-29.0%	0.0%	0	252	60
20020	Washington	SSA	6.1%	228	304	3,752	5,003	-10.1%	0.0%	-	304	-10.1%	0.0%	0	304	0
20002	Washington	SSA	8.5%	144	192	1,701	2,268	-14.1%	0.0%	-	192	-14.1%	0.0%	0	192	0
20710	Bladensburg	SSA	8.1%	218	291	2,675	3,567	-1%	7.1%	255	36	-7.3%	0.8%	29	262	0
20018	Washington	SSA	15.5%	126	168	814	1,085	-17%	0.0%	-	168	-17.0%	0.0%	0	168	47
20866	Burtonsville	SSA	5.5%	146	195	2,640	3,520	15%	20.5%	723	(528)	15.0%	20.5%	723	(528)	(190)
					39,003	183,740	244,987			40,426.44	(1,424)			15,535	23,468	13302

Notes:

[1] ED visits defined by HSCRC database for Inpatient and Outpatient cases with EMG rate center charges > 0

[2] Includes Pediatrics <18 years

[3] ED Service Area defined as WAH current PSA/SSA, Appl. at 55.

[4] WAH Projections based on WAH proposed MSGA shift, Appl. at 105.

[5] HCH volume after WAH shift projects volume added by relocation only

PSA Shift	12994
SSA Shift	307
TSA Shift	13302

2014 Market Shares in Existing WAH ED Service Area, 2014 Annualized

Zip Code	City	WAH current ED Service Area	Top Hospital	ED Market Share	Second Hospital	ED Market Share	Third Hospital	ED Market Share
20783	Hyattsville	PSA	WAH	60.32%	Holy Cross	25.01%	PGHC	4.43%
20912	Takoma Park	PSA	WAH	66.18%	Holy Cross	25.22%	Suburban	1.66%
20782	Hyattsville	PSA	WAH	53.14%	Holy Cross	17.94%	PGHC	10.75%
20903	Silver Spring	PSA	Holy Cross	49.17%	WAH	40.50%	Suburban	1.98%
20901	Silver Spring	PSA	Holy Cross	64.69%	WAH	22.40%	Suburban	4.08%
20904	Silver Spring	PSA	Holy Cross	60.08%	WAH	11.66%	Montgomery Gen	10.43%
20740	College Park	PSA	Doctors	27.80%	WAH	24.35%	Holy Cross	20.38%
20910	Silver Spring	PSA	Holy Cross	65.60%	WAH	18.03%	Suburban	7.40%
20705	Beltsville	SSA	Laurel	35.07%	Holy Cross	30.60%	WAH	12.94%
20011	Washington	SSA	WAH	30.75%	Holy Cross	25.92%	PGHC	8.73%
20737	Riverdale	SSA	Doctors	40.71%	PGHC	25.13%	WAH	14.48%
20902	Silver Spring	SSA	Holy Cross	73.37%	Suburban	7.68%	Montgomery Gen	7.15%
20770	Greenbelt	SSA	Doctors	58.30%	Holy Cross	10.23%	WAH	7.82%
20784	Hyattsville	SSA	Doctors	45.13%	PGHC	32.73%	Holy Cross	6.96%
20706	Lanham	SSA	Doctors	63.35%	PGHC	13.30%	Holy Cross	6.24%
20781	Hyattsville	SSA	PGHC	29.90%	Doctors	26.22%	WAH	23.52%
20906	Silver Spring	SSA	Montgomery Gen	43.68%	Holy Cross	38.67%	SGAH	6.32%
20712	Mount Rainier	SSA	WAH	45.39%	PGHC	19.82%	Holy Cross	11.97%
20785	Hyattsville	SSA	PGHC	52.26%	Doctors	28.66%	SMHC	3.41%
20012	Washington	SSA	WAH	40.47%	Holy Cross	38.39%	Suburban	5.59%
20707	Laurel	SSA	Laurel	63.70%	HCGH	14.42%	Holy Cross	6.29%
20708	Laurel	SSA	Laurel	64.32%	HCGH	9.59%	Holy Cross	5.89%
20722	Brentwood	SSA	PGHC	37.19%	WAH	22.20%	Doctors	19.98%
20743	Capitol Heights	SSA	PGHC	46.10%	Doctors	22.28%	SMHC	15.68%
20019	Washington	SSA	PGHC	42.06%	FWMC	13.22%	Doctors	12.25%
20017	Washington	SSA	WAH	28.64%	Holy Cross	16.97%	PGHC	15.30%
20020	Washington	SSA	FWMC	32.14%	SMHC	21.88%	PGHC	16.36%
20002	Washington	SSA	PGHC	23.16%	FWMC	12.87%	SMHC	11.82%
20710	Bladensburg	SSA	PGHC	48.64%	Doctors	29.79%	WAH	8.15%
20018	Washington	SSA	PGHC	21.38%	WAH	15.48%	Holy Cross	13.51%
20866	Burtonsville	SSA	Holy Cross	34.05%	Laurel	23.37%	Montgomery Gen	14.66%

Notes:

[1] Market Share derived using ED visits defined by HSCRC database for Inpatient and Outpatient cases with EMG rate center charges > 0

[2] Includes Pediatrics <18 years

EXHIBIT 6

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November 17, 2014

VIA FIRST-CLASS MAIL & E-MAIL
Mr. Kevin McDonald, Chief
Certificate of Need
Maryland Health Care Commission
4160 Patterson Avenue
Baltimore, Maryland 21215
Kevin.McDonald@maryland.gov

Re: Adventist Healthcare, Inc. d/b/a Washington Adventist Hospital
Docket No. 13-15-2349
Request for Additional Completeness Questions by the City of Takoma Park

Dear Mr. McDonald:

On behalf of the City of Takoma Park, we are hereby submitting the following request for additional completeness questions regarding the above-referenced matter. They are divided by different areas of concern for our community.

Financial Projections White Oak and Takoma Park

1. The Global Budget Revenue Agreement between Adventist (AHC) and HSCRC allows total base revenue of $255M for WAH for the period between Jul 1, 2013 and Jun 30, 2014 with a potential increase of 2.3 percent annually. This is the maximum amount that WAH can bill to all parties. HSCRC can adjust it up or down in any year. Adjustments over the minimum require HSCRC to make a balancing downward adjustment on other hospitals. The CON Modifications do not fully describe WAH assumptions with regard to these limitations. In fact, most assumptions involve upward adjustments.

2. AHC projections assume the State of Maryland (HSCRC) will grant AHC a permanent 7 percent revenue increase in 2019 and each year following. This would provide for capital improvements at White Oak and represents an increase in total Maryland hospital spending.

   PROPOSED QUESTION: Please demonstrate how the WAH Proformas incorporate the GBA and provide all supporting assumptions. How will the budget for Takoma Park affect the GBA limits if Takoma Park includes services not transferred to White Oak? Similarly, will the GBA upper limit change if services like cancer are excluded from WAH at White Oak? (COMAR 10.24.10.4(b)(4)).

PROPOSED QUESTION: Please provide additional documentation confirming that the HSCRC will approve AHC's request for the seven percent revenue increase. (Exhibit 30 and CON page 26, 131, and 143) (COMAR 10.24.10.4(b)(5)).

3. AHC projections assume that operating margins at the Takoma Park Campus will grow from minus 0.7 percent in 2014 to plus 4.4 percent in 2019. In fact projected earnings at Takoma Park in 2018 exceed combined projected earnings at White Oak and Takoma Park in 2019.

   PROPOSED QUESTION: Please explain in detail the assumptions used to make the revenue projections for Takoma Park and explain why, under the projected circumstances, AHC would need to relocate WAH given its positive financial position in 2018 (Exhibit 30). (COMAR 10.24.10.4(b)(5)).

   PROPOSED QUESTION: Please provide the month end financial statements ending Sep 30 2014 for WAH and AHC. (COMAR 10.24.10.4(b)(4)).

4. The Capital Budget Sources of Funds in the CON includes $20M from fundraising for White Oak construction. This is the largest capital campaign the AHC foundation has run to date.

   PROPOSED QUESTION: What assurances do we have that AHC will be successful in meeting its goal? What are the timelines for this fundraising effort? What are the implications for operations at Takoma Park, if fund raising is not successful? (CON page 14) (COMAR 10.24.10.4(b)(5)(a).

Financial Viability AHC

5. Without the Hackettstown facility to absorb allocated overhead, in 2013, AHC would have operated with a margin of approximately $0.9 million on total revenues of $659 million. The employed physicians, Adventist Medical Group operated at a loss of $9.7M in 2013.

   PROPOSED QUESTION: Please explain how AHC will adapt services at Takoma Park, including the physician practices, if actual performance of the White Oak and Takoma Park campuses falls short of financial projections in Exhibit 30. (COMAR 10.24.10.4(b)(5)(a)).

   PROPOSED QUESTION: Will Adventist Medical Group continue operating at a loss? How will underperformance at White Oak affect physicians and primary/ urgent care services retained at Takoma Park? (Exhibit 71, AHC Audited Financial Statements) (COMAR 10.24.10.4(b)(5)(a)and (c)).

Assurances Regarding Campus at Takoma Park

6. In these CON Modifications, the Capital Budget shows plans for an $18.5 million bond for proposed renovations at Takoma Park. However, the letter from AHC's investment bank, Ziegler excludes this amount; and the CON Modifications include no other evidence of plans for this bond or documentation to show that this bond could be sold.

PROPOSED QUESTION: What guarantees does the City have that AHC will complete promised Takoma Park renovations? (CON Page 14) Please provide evidence of sufficient funds to complete the proposed improvements at Takoma Park. (COMAR 10.24.10.4(b)(5)(c)).

7. Exhibit 30 Option 4. Page 4 shows Takoma Park losing money every year after the move.

   PROPOSED QUESTION: What assurances can AHC provide that it will continue operations at Takoma Park given the forecast of continued losses following the move to White Oak? (COMAR 10.24.10.4(b)(4)).

8. The CON provides little or no evidence of sustained investment in the WAH Takoma Park campus from 2013 to 2023. In chosen Option 4, Exhibit 30, Depreciation declines consistently through 2013. The document provides no evidence that AHC intends to continue improving the Takoma Park plant or site. In fact, plans to vacate substantial parts of the building in 2019 suggest future decay, which would negatively affect Takoma Park property values.

9. CON Modifications provide no information about AHC plans to sustain the Montgomery County Hospital zoning special exception at Takoma Park or to apply for a new special exception. The special exception may be tied to WAH functioning as an acute care hospital and/or may not continue to apply if the university occupies a large percentage of space in the facility. Failure to address this suggests incomplete planning for the Takoma Park campus.

   PROPOSED QUESTION: Please provide evidence of sufficient funds to complete planned renovations at Takoma Park. (COMAR 10.24.10.4(b)(4) and (5)(c)).

   PROPOSED QUESTION: Please provide evidence that AHC will be able to accomplish plans for the Takoma Park campus under the current special exception or that a new special exception is likely to be approved for the proposed mix of uses. (COMAR 10.24.10.4(b)(4)).

   PROPOSED QUESTION: Please provide more information on plans to address site improvements and plans to sustain the existing plant. (COMAR 10.24.10.4(b)(4)).

   PROPOSED QUESTION: Plans for separating the university spaces from hospital spaces are not clear, particularly with regard to hospital safety and privacy concerns. Please explain how AHC will address these. (COMAR 10.24.10.4(b)(5)(c)).

Sustaining Takoma Park as an Acute Care Hospital

10. AHC referenced zoning restrictions on building height as a major reason why constructing a new hospital on the Takoma Park Campus ("Option 2") is not the best option. AHC did not approach the City of Takoma Park with a discussion about zoning variances required to make the "Option 2" a better option than currently proposed. (CON Page 120)

11. WAH provides community services to residents of Takoma Park, particularly in the apartments, as part of its hospital readmission prevention program. If WAH shifts its market out of Takoma Park, and these residents do not travel to White Oak for care, WAH will likely drop these services.

PROPOSED QUESTIONS: With Forecasts in Exhibit 30 showing growing positive earnings at Takoma Park, why not keep WAH in Takoma Park and reduce the capital risk of both a new site and new market? Alternatively, what assurances can AHC provide that it will continue its readmission prevention and transitional care services to elderly residents of Takoma Park who live in the multifamily complexes? (COMAR 10.24.10.4(b)(5)).

Access to Health Services for Takoma Park Residents

12. Takoma Park appreciates AHC plans to retain primary, preventive and urgent care service rehabilitation and behavioral health in Takoma Park. The White Oak CON Modifications do not mention other services currently offered at Takoma Park, like cancer treatment, cardiac care or ambulatory surgery. Responses to COMAR regulations for specific services acknowledge the fact that the service area will shift north and that, at White Oak, WAH will serve fewer residents from Takoma Park.

13. Specifically, the White Oak project does not include cancer services. These are largely outpatient services and AHC has sunk cost in this service at Takoma Park. In addition, the modifications do not discuss a Freestanding Emergency Center option. Including a cancer center and a freestanding emergency center may offer better financial viability than the current package proposed for Takoma Park.

    PROPOSED QUESTION: Please explain why AHC would not retain some specialty care on the Takoma Park campus, as well. At minimum, under COMAR 10.24.17.3(g), some form of cardiac rehabilitation connected with the Takoma Park Rehabilitation center would seem appropriate.

    PROPOSED QUESTION: What are the possibilities for retaining outpatient cancer services at Takoma Park? (COMAR 10.24.10.4(b)(4)).

    PROPOSED QUESTION: With evidence showing that pilot Maryland Freestanding Emergency Centers do provide important and cost effective service and are more viable with hospital-based reimbursement, what are the options for retaining a Freestanding Emergency Center at Takoma Park? This would offset the shift away from Takoma Park residents served by the proposed hospital. (COMAR 10.24.10.4(b)(6)).

    PROPOSED QUESTION: Assuming the moratorium on Free Standing Emergency Centers ends, will WAH agree to study the feasibility of a center at the Takoma Park campus? (COMAR 10.24.10.4(b)(4),(5)and (6)).

Respectfully submitted,

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