Strategic Operations Assessment

Final Report

University Medical Center, Inc.

UofL Health Care

May 23, 2012

DIXON HUGHES GOODMAN LLP

University Medical Center, Inc.

UL Health Care

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Executive Summary

Background

University Medical Center, Inc. (UMC) is a healthcare entity that includes the University of Louisville Hospital (ULH) and the James Graham Brown Cancer Center. It serves the greater Louisville, Kentucky community and is particularly well known for its excellent services in trauma, stroke care, high risk obstetrics, diagnostic imaging, and cancer care. ULH, the centerpiece of UMC, is a 329-bed hospital which serves a critical role to the community as a teaching hospital, Level 1 trauma center, and safety-net provider.

Like many healthcare organizations in recent years, UMC has increasingly experienced capital needs in excess of its debt capacity. Due to constraints on sufficient funding to upgrade facilities, invest in new technology, and improve academic resources, UMC began searching for alternative options to fund the resources required to continue delivering outstanding quality of care. In 2009, UMC entered into merger discussions with Jewish Hospital, St. Mary's Healthcare and CHI/St. Joseph's. Merger discussions, which would have created Kentucky's largest healthcare system, were terminated due to the Governor's decision to not allow UMCs participation in the new entity.

UMC leadership and its Board believe the organization's benefits to the community need to be better understood. They also believe it is important for UMC to demonstrate their current state operational efficiency and stewardship with the community's financial resources. In order to document these beliefs, UMC engaged DHG as an outside party to analyze its operational performance.

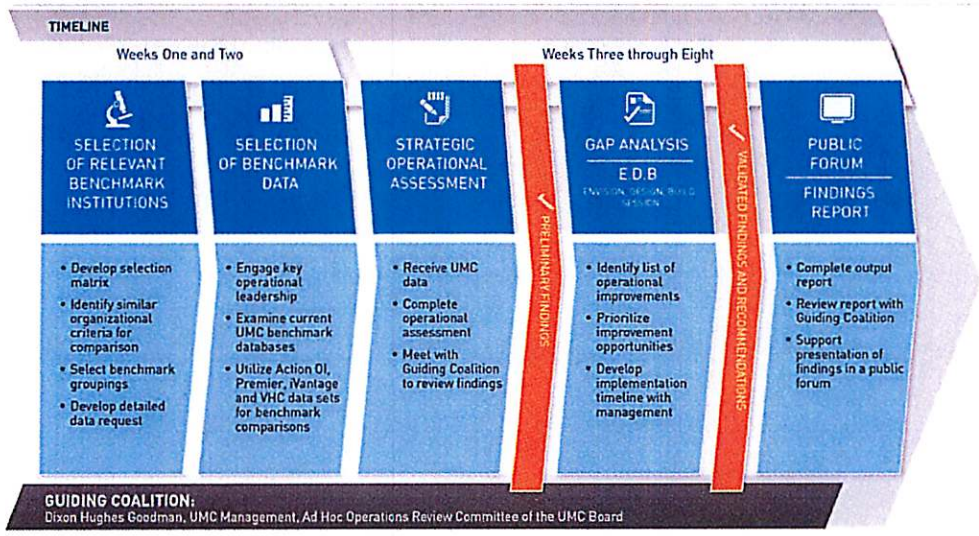
With the ever-changing pressures impacting hospital performance (increasing competition, decreasing margins, focus on quality, healthcare reform, etc.), University Medical Center, Inc. (UMC) decided to conduct a Strategic Operations Assessment to accomplish the following three objectives:

1. Document the current quality, operational, and economic performance of UMC.
2. Identify opportunities for improvement that better positions UMC for long term success.
3. Develop detailed recommendations and a high level action plan to realize the opportunities for improvement.

Executive Summary

Dixon Hughes Goodman (DHG)Approach

DHG utilized five phases of work over a 10 week time period. A summary representation of the DHG Approach is shown below.



Engagement Process

Throughout the ten (10) week engagement, DHG conducted seven (7) separate analyses. The analyses conducted for the *Strategic Operational Assessment* were as follows:

1) ***Reform Impact on* Academic Medical Centers (*AMC*)** Illustrated to the AD Hoc Operations Committee the global impact of legislation on AMC'

2) ***Best Practice Case Studies:*** Created case study examples of AMCs that shared many characteristics in common with UMC (i.e. Safety Net Provider, Level I Trauma, etc.)

3) ***Growth Strategies:*** Explored summary level opportunities that would enable UMC to grow top line revenue and expand its current market footprint.

4) ***Operational Excellence:*** Evaluated service line performance through specific benchmarking tools and departmental interviews.

5) ***Clinical Excellence:*** Benchmarked UMC's quarterly and annual quality performance against national standards and other "like" organizations and how these could impact UMC in the Value Based Purchasing program.

6) ***Organizational Costs:*** Benchmarked UMC's labor efficiency by department against "like" facilities. Performed an assessment of the Supply Chain Services function and processes identifying opportunities for operational improvement to maximize the effectiveness of resources, and to identify opportunities for non-salary cost reduction.

7) ***Revenue Cycle:*** Documented UMC's Revenue Cycle process through interviews and identified areas of improvement utilizing benchmarking tools.

Executive Summary

Key Findings

Following a thorough assessment of the above areas of analyses, DHG assimilated all of the data and arrived at seven (7) Key Findings supported by detailed data assessment and manipulation. The Key Findings derived from the Strategic Operations Assessment are as follows:

1. ***Maintaining the status quo is not viable.***
2. ***Operational improvements are essential regardless of partnership.***
3. ***Growth opportunities appear to exist if aggressive action is taken.***
4. ***Quality improvement initiatives have been successful – ongoing improvements required.***
5. ***Variability exists in key service line operations and clinical outcomes.***
6. ***Organizational structure consists of misaligned incentives.***
7. ***Disparate IT systems negatively impact clinical and operational effectiveness.***

Current State Assessment

Using both qualitative and qualitative analyses, DHG competed a current state operational dashboard of key operational areas. The results of that assessment are as follows:

Scorecard Legend

- Below Average
- Average
- Above Average
- Positive Performance Trend
- Negative Performance Trend

DASHBOARD	2012	Summary	Trend
Growth Strategies	Market Position Physician Alignment Service Line Reform Readiness	↓	−
Operational Excellence	ER Trauma OR Oncology Neuroscience	↔	+
Clinical Excellence	CMS Core Metrics HCAHPS SCIP ER Trauma OR Oncology Neuroscience	↔	+
Organizational Costs	Labor Supply Chain	↓	−
Revenue Cycle	Pre-Encounter Encounter Post-Encounter	↔	−
Financial Assessment	Liquidity Ratios Capital Structure Profitability Ratios Activity Ratios Other Debt Capacity	↓	−

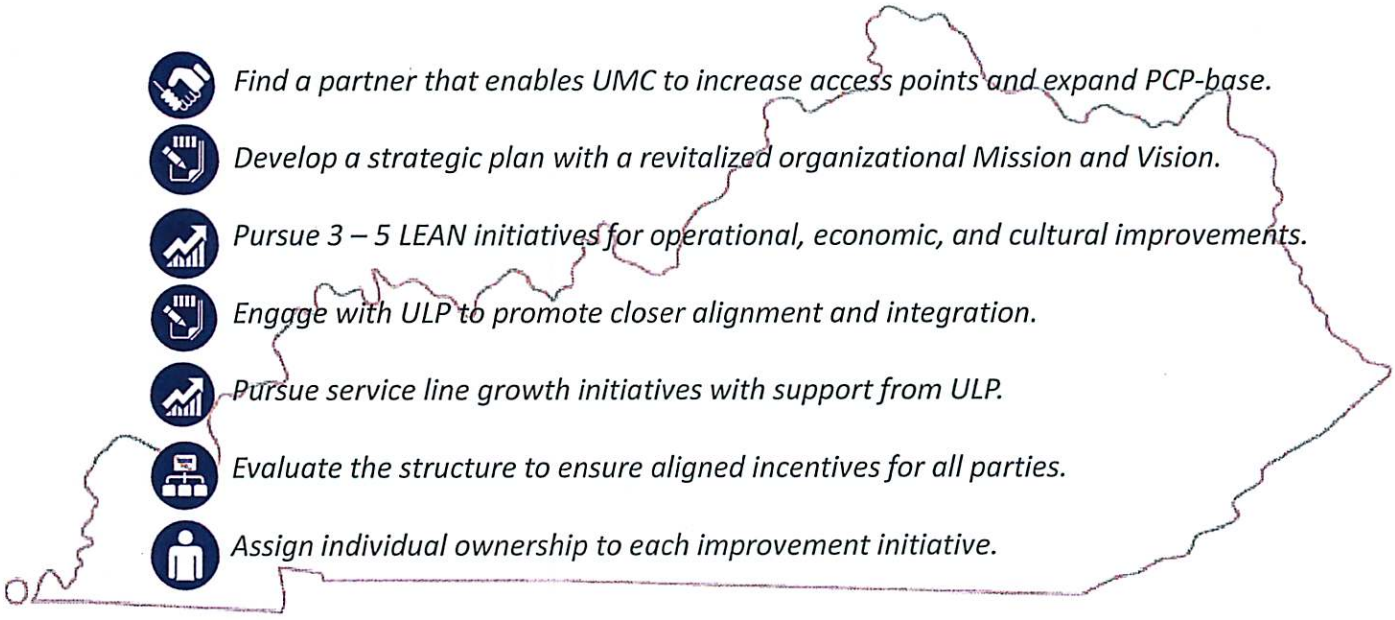
Executive Summary

Recommendations

Based on market research and organizational analyses, the DHG project team recommends that UMC act quickly and decisively with the following *High Level Recommendation:*

Big Picture Recommendation

Even with operational and strategic improvements, the economic viability of University Hospital is questionable at best. DHG believes that University Hospital should explore partnership opportunities in conjunction with the following improvements to make itself a more suitable partner:



- *Find a partner that enables UMC to increase access points and expand PCP-base.*
- *Develop a strategic plan with a revitalized organizational Mission and Vision.*
- *Pursue 3 – 5 LEAN initiatives for operational, economic, and cultural improvements.*
- *Engage with ULP to promote closer alignment and integration.*
- *Pursue service line growth initiatives with support from ULP.*
- *Evaluate the structure to ensure aligned incentives for all parties.*
- *Assign individual ownership to each improvement initiative.*

The remaining report contains the detailed analyses and accompanying detailed recommendations that provide tactical, strategic initiatives for UMC to pursue.

Strategic Operations Analyses

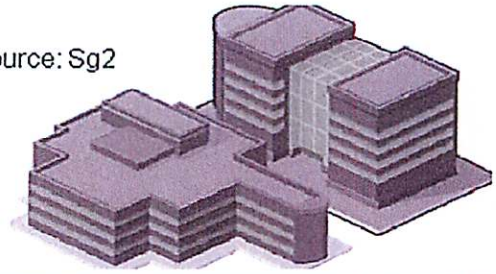
Reform Impact on AMCs

As the healthcare industry continues to evolve and the *Patient Protection and Affordable Care Act (PPACA)* continues to be written, DHG decided to provide a brief industry overview for the Ad Hoc Operations Committee (Committee). This overview occurred during the second Committee meeting and was designed to educate members regarding the legislative impact on AMCs.

Discussing AMCs globally and not focusing on the local challenges of UMC, DHG proceeded to discuss three relevant topics impacting AMCs across the country. Specifically, DHG educated the Committee on:

- Challenging AMC Future State,
- Shifting Focus of Care Delivery,
- Redesigning the Physician Enterprise, and
- Rethinking the Cost Structure of AMCs.

Source: Sg2



AMC Future State (2016)

- CMS docks AMC 5% of revenues for PAAs, readmissions
- AMC is excluded from private payers' preferred tier networks
- Patients shop to manage their out-of-pocket liability
- Community PCPs redirect cases away to maximize their incentives/reduce penalty exposure
- Profitability and market share erode

**PAA – Preventable Avoidable Admissions*

Challenging AMC Future State

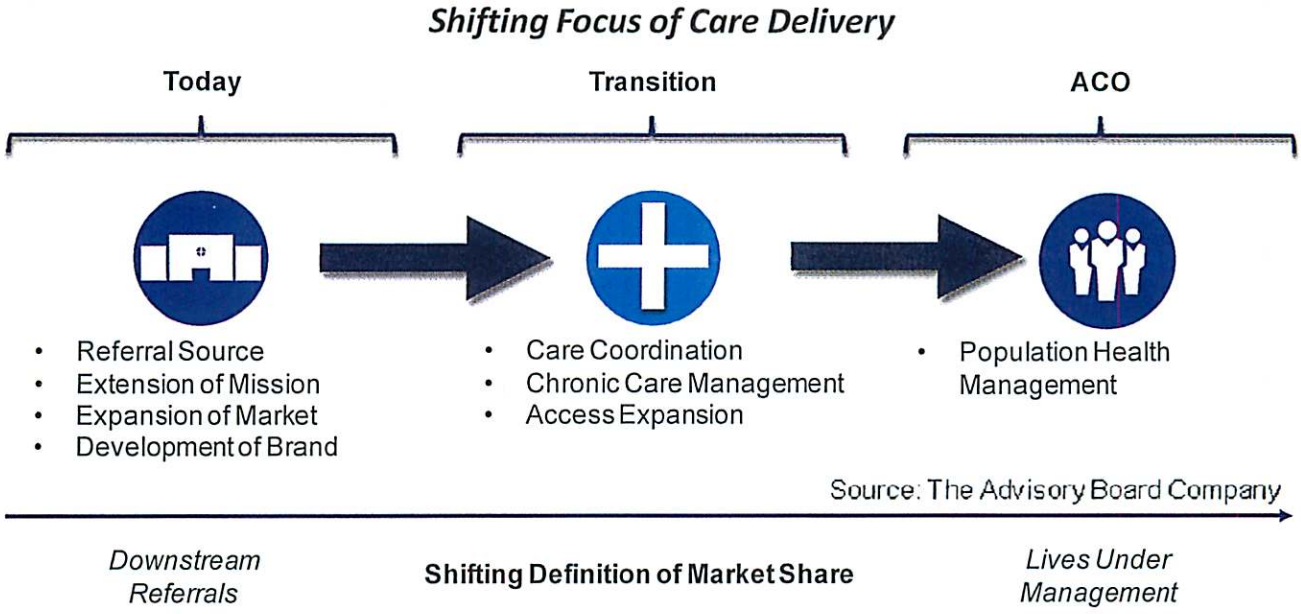
The AMC of today has benefited greatly from its stance in markets as the highly specialized hospital, caring for the high acuity patients. This position has yielded strong financial results due to growing volumes and awareness in key service lines.

With the passage of PPACA, futurists believe that the historical way of conducting business for AMCs will be forced to change or AMCs will experience a sharp market share and financial decline. The reason futurists believe that significant change is required by AMCs is due to the reimbursement challenges, payor exclusions, patient choice, PCP importance, and a *Shifting Focus of Care Delivery.*

Shifting Focus of Care Delivery

Although a clear, future vision of healthcare does not currently exist, the evident truth of a broken system has become common knowledge to the government, the payors and the patients. Because of this, providers (both hospitals and physicians) will have to make fundamental changes to how care is delivered but do so in way that allows them to succeed in a Fee For Service model while preparing for a Population Management model of the future. The visual on the following page provides a high level overview on AMC requirements necessary for success today, requirements necessary for success during the transition, and requirements for long term sustainability. These foundational elements will enable the transformation of a delivery system focused on volume to a delivery system focused on value*.

Strategic Operations Analyses



Redesigning the Physician Enterprise

The final topic that was covered in the industry overview was the critical redesign of the AMCs Physician Enterprise. Historically, AMCs focused on a strong relationship and focus on building a specialty-centric, faculty practice. With the sub-specialty faculty expertise and brand recognition, AMCs have benefited from a large market footprint and referrals from primary care physicians across that footprint.

Recently, the move from a volume incentive system to a value incentive system has placed more onus on having a strong primary care base. In the Population Management model, healthcare providers will be rewarded for keeping patients well and out of the hospital. With this as a back drop, competing hospitals / health systems have invested significant time and resources into shoring up its primary care base through employment arrangements. With these efforts, many AMCs are beginning to see its referral stream slow. As such, new strategies regarding Physician Enterprise make up and hospital / health system affiliations have become a top priority for AMCs across the country.

The previously mentioned reform pressures being placed on AMCs is causing changes in the day to day operations of these providers. Adding to these pressures, the local market dynamics of Louisville coupled with the reform implications, create a turbulent environment in which UMC must respond. The response from UMC must be strategic, clinical, and operational in nature – placing equal importance on these areas.

Strategic Operations Analyses

Rethinking the Cost Structure of AMCs

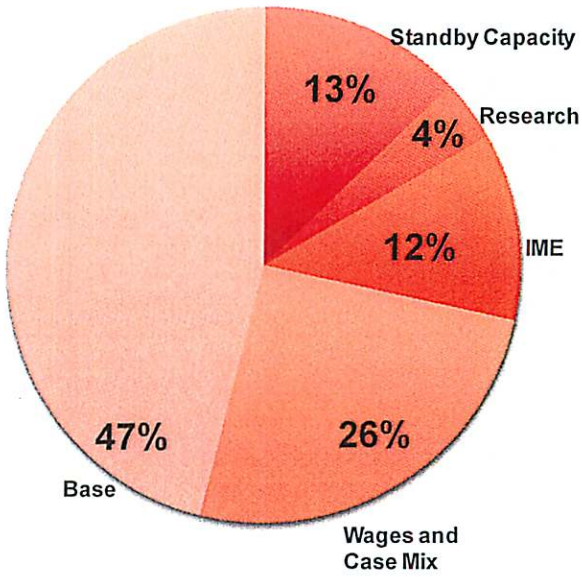
While the first three topics present significant challenges to all AMCs, accomplishing those while attempting to bend the cost curve will be essential for success in the reform era. Prior to published data, it was assumed by many that AMCs justified its high cost by providing better quality care to its patients. As reports continue to be published, this is not always the case.

The below visuals shows an estimated cost per case as experienced by AMCs, Teaching Hospitals and Urban Community Hospitals as well as the AMC percentage breakdown of costs by component. As shown, the cost of delivering care at an AMC far outpaces that of other providers. It is believed that these costs, overlayed by the quality of care being provided, will continue to be scrutinized by the government and local payors in an effort to lower overall industry costs. Actual impact to AMCs is yet to be known.

Estimated Cost Per Case

	Academic Medical Center	Other Teaching Hospitals	Urban Community Hospitals
Base costs	$3,974	$3,984	$3,993
Wages and case-mix costs	$2,214	$1,389	$985
IME[2] and other mission related costs	$2,360	$674	$260
Total	$8,548	$6,047	$5,238

Components of AMC Hospital Costs per Case[1]



1 Does not add to 100% due to rounding.
2 Indirect medical education.

Source: The Advisory Board Company

Strategic Operations Analyses

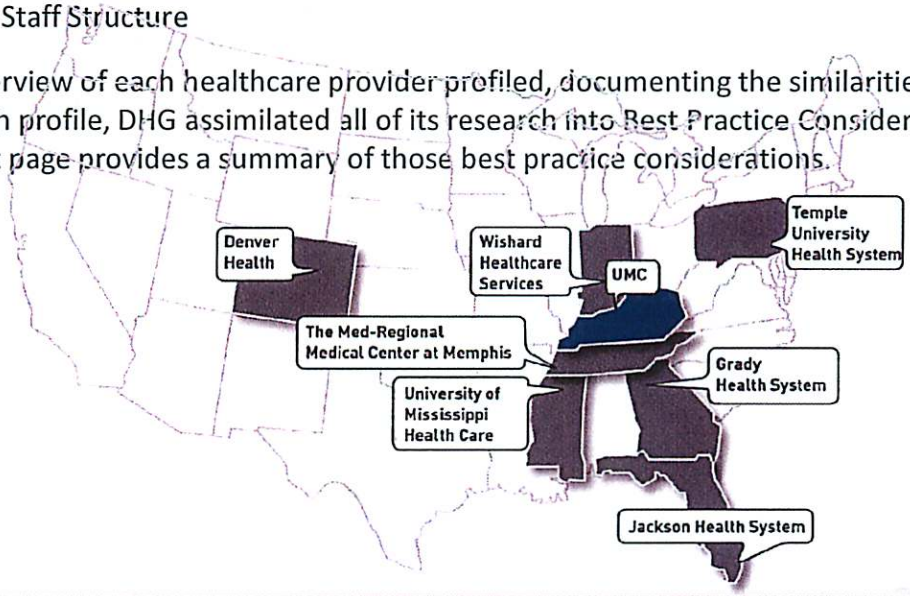
Best Practice Case Studies

While all hospitals are facing challenges related to the reform, UMC faces additional challenges related to its mission as a teaching hospital, safety net provider, and Louisville's only Level I Trauma center.

DHG created a Best Practice Case Study deliverable that highlighted seven (7) similar healthcare providers who face many of the same challenges impacting UMC. Each organization was profiled, paying particular attention to the following areas:

- Organizational Mission
- Service Line Development
- Quality Performance & Initiatives
- Medical Staff Structure
- Outreach
- Cost Reduction / Operational Initiatives
- Reform Readiness

Below is an overview of each healthcare provider profiled, documenting the similarities shared. In addition to each profile, DHG assimilated all of its research into Best Practice Considerations for UMC to react. The next page provides a summary of those best practice considerations.



Characteristic	University Medical Center, Inc.	Denver Health	Wishard	Temple Univ. Health System	The MED-Memphis	UMHC	Grady Health	Jackson Health
# of Hospitals	1	1	1	3	1	5	1	3 (+3)[5]
# of Beds	329	477	339	872	350	722	953	2,139
Net Revenue	$473 M[1]	$290 M[2]	$879 M	$959 M[3]	$308 M	Unavailable	$704 M[2]	$1.75 B[2]
Oper. Margin	2.5%[1]	2.8%[2]	-1.8%[2]	-4.1%[3]	5.7%[4]	2.3%	-1.2%[2]	-5%
Med Staff (Open/ Closed)	Closed	Open	Open	Closed	Open	Closed	Open	Open
Indigent Care %	24% uninsured 29% Medicaid	28% Uninsured, 35% Medicaid	40% Uninsured	42% Medicaid	29% Uninsured	Unavailable	33% Uninsured	43%[6]
Medical School Ranking*	#75 (Univ. of Louisville)	#35 (Colorado-Denver)	#48 (IU)	#47 (Temple University)	#78 (UT-Memphis)	Unranked	#21 (Emory)	#53 (Miami)

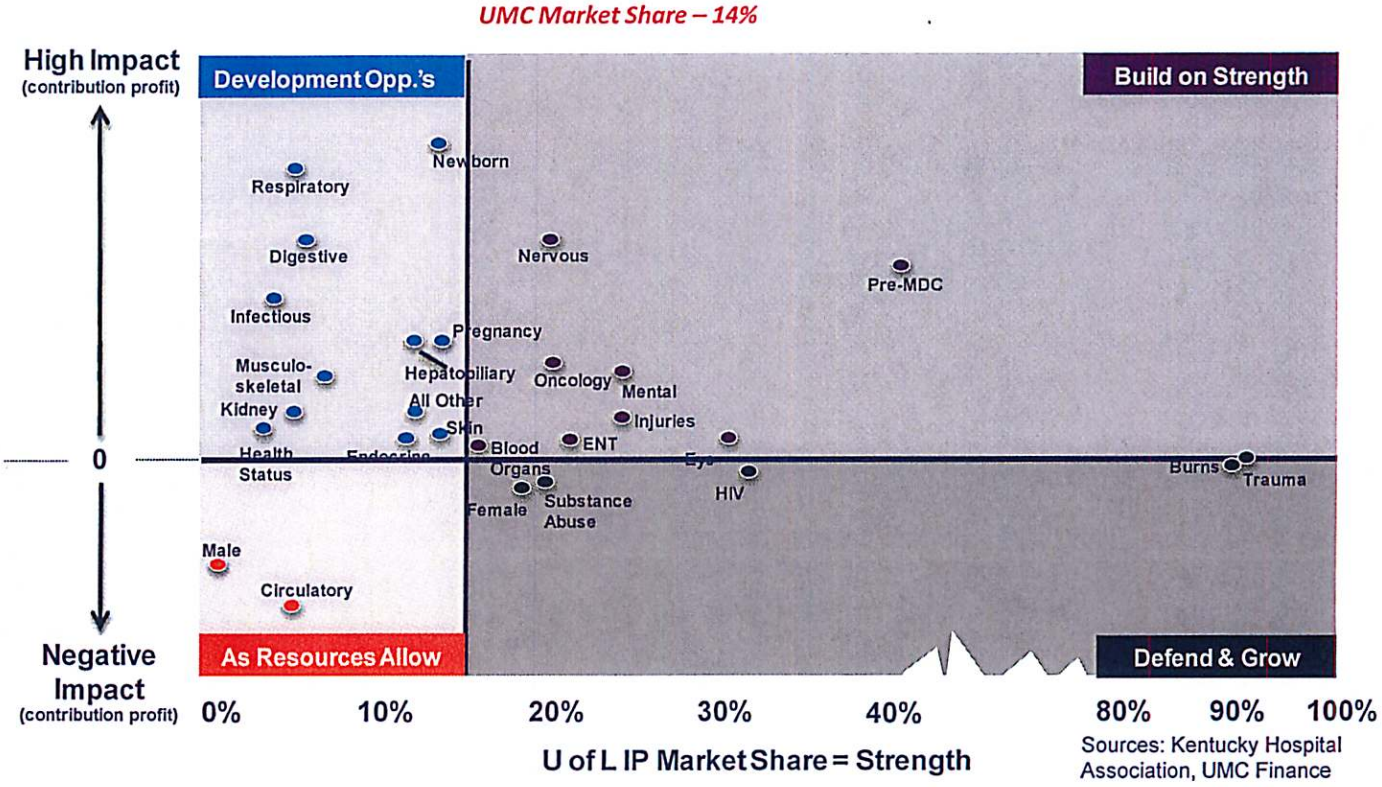
[1]2012 Budget (2011 Actual Net Revenue: $432M, 2011 Actual Operating Margin: -0.4%)
[2]2010 or previous
[3]2011 6 months annualized
[4]Derived figure; based on a statistic of $17 M in profits
[5]3 acute care hospitals and 3 specialty hospitals
[6]Defined as Uninsured and Underinsured
*Based on *US News and World Report* - Research

Strategic Operations Analyses

Case Study Summary

Outreach	• Providing care in the most cost-effective setting is critical, especially with the economic tightening prevalent across the country – indigent care focus! • Most providers have developed strong primary care networks and utilize various outpatient centers to create a referral base. • Creating community access will be critical as reform expands insurance to millions.
Service Line Development	• The AMCs profiled have created service line-specific plans to maximize its market capture in core services. • Physician engagement, combined with administrative accountability appear to be a recipe for successful growth initiatives.
Cost Reduction / Operational Improvements	• Utilizing Lean and Six Sigma methodologies, profiled organizations pursued improvements in Revenue Cycle, Supply Chain, and Labor Efficiency. - Supply Chain: Providers worked with its GPO, standardization, and reduction of outside agencies. - Revenue Cycle: Focus on improving the accuracy of claims and increasing point-of-service collections. - Labor Efficiency: Providers utilizing extenders. Analyzing workflow to maximize employee performance – potential labor reductions. • Information technologies have been used to track information in all arenas as well as direct patients to appropriate care settings.
Quality Performance & Initiatives	• Profiled organizations have put time and resources into the monitoring and tracking of its organization against nationally adopted quality measures (i.e. AMI, CHF, SCIP, HCAPS, etc.) • A follow-up patient program to reduce avoidable hospital readmissions has been very successful to proactively address patient issues after discharge. • Some profiled hospitals have been active in submitting data to national registries in cardiac, stroke and trauma care and are using these registries for benchmarking purposes.
Reform Readiness	• Establishing dedicated committees to track the progress of healthcare reform and state government policymakers. • Improving access to primary urgent care centers. • Implementing EMR fully integrated platforms. • Partnerships and affiliations with large hospitals / health systems.
Medical Staff Structure	•There is no wrong or right answer for a medical staff structure; however, most of the profiled institutions are tightly affiliated with one medical school, but most are not open staff structures. • Most profiled organizations are developing a primary care network themselves or partnering with other hospitals to lock in its primary care base.

Strategic Operations Analyses



Growth Strategies

In order to provide guidance to UMC on the service lines to focus on to grow top line revenue, DHG analyzed every *service line to understand the following characteristics:

- Total Market Size
- UMC Service Line Capture Rate
- Service Line Direct Costs
- Total Market Net Revenue
- Service Line Net Revenue Opportunity
- Service Line Contribution Profit

Following the analysis, DHG plotted each service line by existing market share and economic impact to UMC. Then, using UMCs total market share as guidance, DHG established four (4) quadrants that provides UMC with a roadmap for investing its time and resources. Specifically, each service line falls into one of four quadrants: Build on Strength, Development Opportunities, Defend and Grow, and As Resources Allow.

*Service line definitions provided by UMC.

Strategic Operations Analyses

Growth Strategies (cont.)

Physician Alignment

As environmental pressures continue to challenge the viability of both hospitals and physicians, the development of strong relations between both parties is essential for sustainability. Because of this dynamic and the need for strong partnerships for growth initiatives, DHG assessed the current state relationship between UMC and ULP. To gauge the relationship, DHG utilized physician and administrative interviews along with physician practice patterns to understand each parties perspective and loyalty.

The summary findings derived from high level analysis and interviews illustrated an average relationship between UMC and ULP. The visual below depicts both UMC and ULP's perception of one another's relationship.

UMC Perspective

- UMC is a closed medical staff providing 100% loyalty to ULP.
- 24% of ULP FTEs practice at University Hospital.
- UMC has not aggressively gone after tighter contracts with ULP.
- Payor population makes a greater economic relationship between ULP difficult.
- Debt Capacity inhibiting UMC from making the necessary investments to attract paying patients.
- University Hospital has fairly good operational process / work flow for physician convenience.
- UMC is passionate about its Organizational Mission and believes in its "Value".

ULP Perspective

- Entrepreneurial physicians have searched for best affiliation contracts.
- Payor population makes a stronger relationship between ULP difficult.
- Capacity, operations, facility and equipment make it difficult to bring paying patients to University Hospital.
- ULP believes University Hospital is a suboptimal place to practice.
- Strong market competition's employment of primary care physicians has forced ULP to practice at competing facilities.
- ULP understands and believes in the "Value" that University Hospital provides to the Louisville community.

Strategic Operations Analyses

Operational & Clinical Excellence

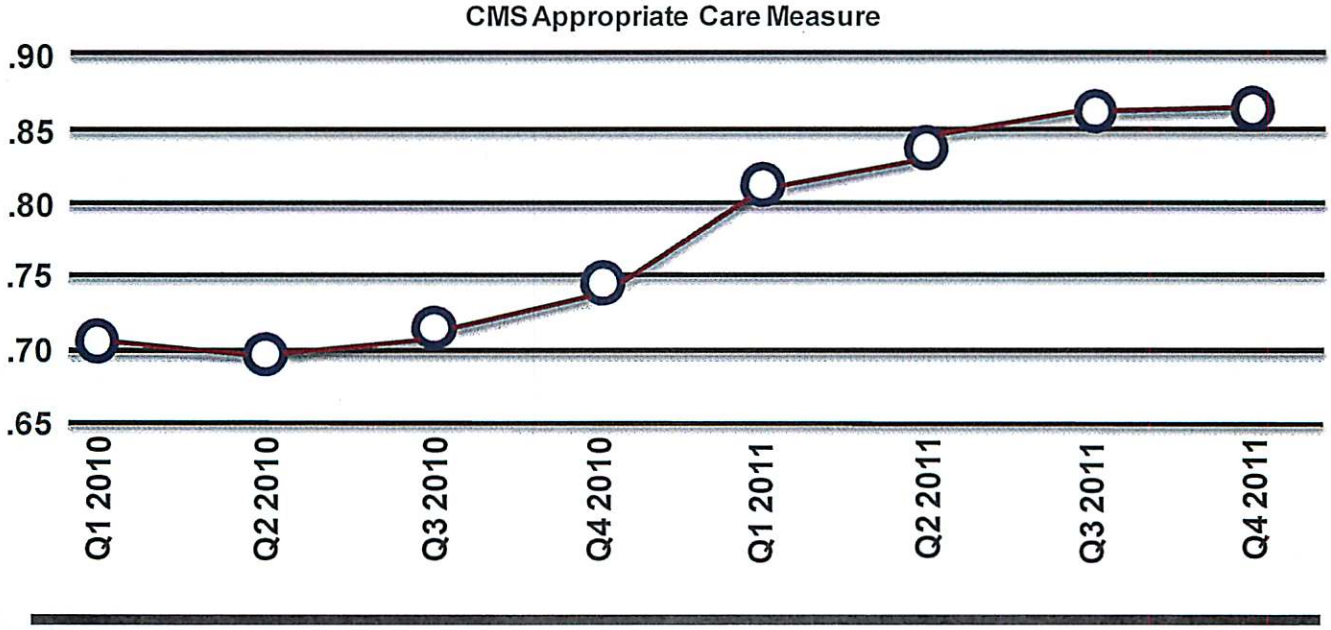
Over the last ten (10) week timeframe, DHG conducted a shallow dive into the performance of four "Key Service Lines" previously identified during the proposal process. The four service lines that were analyzed were as follows:

- Emergency Services
- Oncology
- Trauma Services
- Neurosciences

Utilizing departmental manager interviews and nationally adopted quality metrics, DHG analyzed the operational and clinical performance for each of these service lines. The evaluation of these services revealed an overall worse or substantially worse performance rating when compared against its peer organizations. Although low comparative scores were documented, DHG noticed positive trends relative to operational and quality performance. Specifically, DHG noticed two factors that needed to be updated:

1. The information reported and analyzed by DHG was for a rolling twelve (12) month period.
2. Upon looking at the data quarter by quarter, the UMC quality metric trend demonstrated positive improvement in most areas.

As shown in the graph below, the UMC leadership team has made quality a top initiative since Q1 of 2010. The graph depicts UMC's attainment of the CMS Appropriate Care Measures based on a 100 point scale. Although improvement is shown with the upward trending graph, progression will still be needed in order for them to accomplish these measures 100% of the time.



Strategic Operations Analyses

Financial Impact

As previously mentioned, fundamental changes in how providers are reimbursed for Medicare patients are being implemented throughout the country beginning in October 2013. One such change that is outlined in the PPACA legislation, is Value-based Purchasing (VBP). This new payment methodology withholds 1% of Medicare net revenue. Providers must prove the quality of its service offerings by "earning back" the 1% through the achievement of quality and patient satisfaction targets.

With these changes forthcoming DHG chose to model the economic impact of its current service line performance utilizing the VBP metrics. The score on the top depicts four straight quarters from Q2 of 2010 to Q1 of 2011. Based on these scores, UMC would have lost $282,521 of Medicare reimbursement.

Mirroring the trends previously shown in the CMS Appropriate Care graph, DHG chose to model the most recent two quarters of reported data. This time period was Q3 of 2011 and Q4 of 2011. As shown in the visual below, UMC would have earned back more than the 1% withheld because of its achievement of the defined metrics.

Although strides have been made, UMC still has much improvement still ahead. Scoring a 43 out of a total 100 points shows that continuous improvement should be pursued so that complacency ceases to reign.

Value-Based Payment Calculator

Source: UHC – VBP Calculator Q2 2010 – Q1 2011

Financial Impact

Withheld:	$353,646
Expected Payment:	$71,124
Lost Revenue:	**$282,521**

Value-Based Payment Calculator

Source: UHC – VBP Calculator Q3 2011 – Q4 2011

Financial Impact

Withheld:	$353,646
Expected Payment:	$387,232
Incremental Revenue:	**$33,586**

Strategic Operations Analyses

	Key Service Lines			
Performance Indicators	ED	Trauma	Neuro	Oncology
Positive Service Line Operations & Clinical Outcomes				
Readmissions	N/A	+	+	+
Clinical Outcomes	+	+	+	+
Volumes	+	o	+	+
Variable Service Line Operations & Clinical Outcomes				
Physician Relations	o	+	+	-
Throughput	-	+	-	-
Outreach	-	-	+	-
APN Utilization	-	+	o	-
Negative Service Line Operations & Clinical Outcomes				
Vision & Strategy	-	-	-	-
Capacity	-	-	-	-
IT	-	-	-	-

Service Line Variation

With a focus on clinical and operational improvements, service lines are beginning to implement improvement initiatives at different speeds. Because of the variability of change adoption, the service line performance gap in clinical and operational metrics is growing. The performance of the four service lines analyzed varied by topic.

Positive Performance Indicators

The service lines highlighted above shared positive results in the Key performance indicators (KPIs) of Readmissions, Clinical Outcomes, and Volumes. This is good news for UMC as economic incentives and penalties will be placed on two of the three categories mentioned. Additionally, UMC can use its existing brand recognition, and clinical outcomes / readmissions to continue to grown volume and expand its market footprint.

Variable Performance Indicators

These KPIs show the previously mentioned finding of variability in change adoption / implementation between service lines. In order to maximize its performance, UMC will need to continue to focus on these areas and demonstrate continued improvements to physicians and staff.

Negative Performance Indicators

The sustainability of UMC's recent successful improvement initiatives will not continue without a revitalized vision and strategy for the future. Plans for IT and capacity will also fall out of the strategic planning process.

Strategic Operations Analyses

Organizational Costs

In addition to the clinical service line analyses, DHG also benchmarked UMC against other organizations as it pertains to *Organizational Costs*. Specifically, DHG provided an in depth analysis of UMC's Supply Chain and Labor. Both of these studies were designed to identify opportunities for cost reduction and process improvements.

Supply Chain Assessment

DHG performed an assessment of the Supply Chain Services function and processes at University Hospital, identifying opportunities for operational improvement to maximize the effectiveness of resources, and to identify opportunities for non-salary cost reduction. This assessment provides a overview of all aspects of supply chain operations from requisition to payment.

Key performance indicators, as shown in the matrix below, provide a high level overview on costs as benchmarked against organizations in Action OI and UHC databases. Based on the key indicators, UMC has measured at "average" or "above average" compared to its peers. Through interviews, DHG discovered that it has made great strides in Supply Chain by taking full advantage of its GPO, Premier, for contracting – sourcing, non-salary cost reduction, and supplier standardization. In FY 2011, UMC identified 33 supply chain cost reduction initiatives that produced a total savings of $1.3M Currently, 86 additional initiatives have been launched that are believed to reduce supply costs an additional $2.6M.

Because of its improvements, UMC has been recognized as Superior among other GPO organizations.

Key Performance Indicators	Comparative			
Key Measure & Data Validation	Computed	25% - ile	50% - ile	75% - ile
% Group Purchasing Supplies and Services Spend	69.3%	>75%	65%	<55%
% Cash Return & Rebates to Supply Chain Op. Expense	180.6%	>100%	0%	<100%
Supply Expense as a % of Op. Revenue	20.1%	16.6%	19.3%	21.2%
Supply Expense as a % of Op. Expense	20.6%	17.3%	20.1%	22.5%
Facility-wide Drug Expense / CMI Discharge (IS = 2.87)	$340	$208	$349	$418
Supply Expense / CMI Adjusted Discharge (IS = 2.03)	$2,042	$1,884	$2,095	$2,250

Notes: Supply intensity scores are based on DRGs and mix are defined by Action OI, IS = 2.03 for all supply and IS = 2.87 for drugs.
Annualized statistics from summary statements and statistics 2011, UMC.
Comparative data extracted from ActionOI summaries, UHC sampling of submissions as peer group.

Strategic Operations Analyses

Supply Chain Assessment Conclusion

Operating best practice in Supply Chain Management is the efficiency, accuracy, and cost effectiveness of Procurement Center Operations. UMC operates in this fashion, allowing supply chain and accounts payable functions to work in concert for maximum effectiveness under the guidance of the same leadership.

While it is understood that Supply Chain Management is recognized as superior among GPO peers at Premier, and several "best practices" are deployed such as the recovery of high cost supply items in the delivery of indigent care, plus the management of a very tight pharmaceutical formulary, there still remains opportunity for process improvement and supplies and services cost reduction.

Efforts are currently underway to improve supply chain processes in surgical services, oncology, medical, and pharmacy, but required from leadership are the active support for physician involvement, investment and priority for data management solutions for desperate information technology, attention for achieving solutions to eliminate logistical waste for surgical services procedural supply. Key observations included the following:

- Supply Chain sourcing-contracting, value analysis, and the buying behavior of clinicians are inconsistent.
- Adopted processes are not always followed by staff, nor is discipline insisted
- The foundation of sourcing – contracting is well established in delivery of results, but the rigorous engagement and ownership by clinical staff are absent.
- Management "silos" of responsibility are the norm, creating inefficiency and waste.
- Currently analytics are fragmented and are not easily understood.
- Disparate information systems are a challenge for effective management of data.
- Improvement of department and interdepartmental accountability are required.

Supply Chain Saving Opportunity

Initial estimated savings total approximately $3.3 million to $4.0 million of annualized implemented savings. Targeting (4) strategies through Value Analysis these savings can be achieved over the next twelve months.

1. Price and commodity negotiations	$ 300,000
2. Standardization of suppliers	$ 1,660,000
3. Waste of supplies	$ 880,000
4. Utilization of supplies	$ 1,160,000

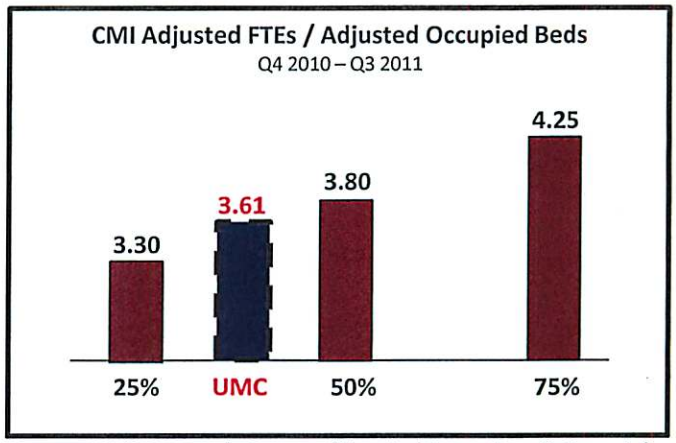
Strategic Operations Analyses

Labor Analysis

DHG performed an in depth study to understand the Labor costs and efficiencies for UMC. In order to benchmark UMC against other organizations, DHG utilized benchmarking tools from the Council of Teaching Hospitals and Health Systems (COTH) and the UHC databases.

Organizational Level Labor Utilization

As part of the macro level organizational benchmarking analysis, a Case Mix Index (CMI) Adjusted FTE per Adjusted Occupied Bed benchmark comparison was analyzed from the COTH database. The graph to the right indicates that at the facility level, overall FTE utilization falls between the 25th and 50th percentile. This concludes that at the organizational level UMC on average has a CMI Adjusted FTE per Adjusted Occupied Bed of 3.61. A more thorough analysis of labor efficiency at the departmental level is required to better understand how the various departments perform within UMC.



Source: COTH Quarterly Survey of Hospital Operations & Financial Performance

Departmental Labor Efficiency

DHG followed the approach below to collect, assimilate and benchmark appropriate departmental level data.

Labor Performance Data: Obtain UMC's labor performance data for each department for one year, focusing on worked hours by job description and workload volume.

Compare Criteria: Identify standard compare function for each department (departments not in compare database mapped to "other") and standard workload volume by department.

Strategic Operations Analyses

Departmental Labor Efficiency (cont.)

Normalize Data: Normalize worked hours to match standard compare function. Taking into account management hours and mapping of specified responsibilities to the appropriate departments.

Analyze Departmental Reports: Run performance compare report for each department documenting worked hours per unit of service against compare group.

In order to create a more refined compare database, DHG worked with UMC to create a hospital characteristic profile that produced "like" organizations, by department, for comparison of labor efficiency. The characteristics included in the filter were as followed:

1. Member of UHC.
2. Member of Council of Teaching Hospitals
3. Magnet Hospital
4. Similar Departmental Volume (+/- 25%)

Departmental Labor Efficiency Conclusions

The departmental comparisons against peer groups showed UMC operating below the 75th percentile. This presents significant opportunity for UMC to cut unnecessary costs by utilizing the appropriate staffing numbers and staffing mix for labor efficiency. As noted in the visual above, the following savings would be realized if improvements to the 75th, 50th, and 25th were realized:

1. 75th Percentile	$ 3,400,000
2. 50th Percentile	$ 13,300,000
3. 25th Percentile	$ 27,800,000

It is important to note that these comparisons and cost savings are based on benchmarked organizations. In order to truly understand the cost savings potential, a departmental analysis would need to be conducted to better understand the staff inefficiencies. However, these analyses present findings that will enable UMC to prioritize departments in order to greatest impact to the organization. The five departments that were top on the list for opportunity are as follows:

1. Emergency Services
2. Environmental Services
3. Laboratory Services
4. Health Information Management Services
5. Patient Accounting Services

Strategic Operations Analyses

Revenue Cycle

The last area of operation that UMC wanted analyzed was revenue cycle. UMC engaged DHG to perform a high-level revenue cycle assessment that included interviewing key staff involved in the revenue cycle and analyzing key performance indicators (KPI) for trends and comparison to available benchmarks.

The revenue cycle is defined as the process, both clinical and financial, that begins with the patient's first encounter and ends when the patient's account is paid or the account is written off as a bad debt. It encompasses all of the services provided to that patient and includes all of the activities and functions required in order to capture, bill, and collect revenue for those services. The revenue cycle is a complex process involving many people, systems, and activities working together to bill and collect for services provided.

In order to manage this complex process for comparison purposes, DHG grouped the various revenue cycle activities and functions into three (3) focus areas or stages:

Pre-Encounter	Encounter	Post-Encounter
Scheduling	Clinical Care	Claims Preparation
Medical Necessity Determination	HIM	Claims Submission
Pre-Registration	Coding	Third Party Follow-Up
Registration/Insurance Validation	Charge Capture	Self-Pay Follow-Up
Insurance Verification	Charge Entry	Rejection Processing
Pre-Certification	Charge Description Master	Payment Posting
Financial Counseling	Billing Master	Payment Validation
Point of Service Collections		Denial and Appeal Management
		Contracts
		Uncollectible Management

The successful management of each activity and function within these focus areas will result in the appropriate payment for all services performed and within the most efficient time-frame possible. As a result of our assessment, it appears that UMC has opportunities for improvements that could provide for more cash collected as well as cost savings through more efficient processes. Specific findings broken down by phase can be found below and on the subsequent page:

Pre-Encounter

-There are thirteen different registration areas within the Hospital. Ensuring that each functions in a consistent and standardized manner is a challenge.
- There are multiple scheduling systems used by the various departments responsible for scheduling.
- All scheduled procedures and test are pre-registered.
- Medical necessity determinations are performed by most departments but not all.
- A policy was recently implemented to delay scheduling elective procedures and test if the patient has no ability to pay.

Strategic Operations Analyses

Pre-Encounter (cont.)

-Efforts to improve point-of-service collections have resulted in a 150% increase in collections.
- UMC has a compensation system that provides rewards for meeting collection goals.
- UMC felt staffing was adequate in most areas but thought additional registration staff might be needed in the ED to handle the volume.
- UMC routinely audits a sample of registrations to identify registration errors.
- There were conflicting opinions about patient payments being discussed at the time of scheduling.
- Comments were made that staff could be reduced in some areas if processes were centralized.

Encounter

- There may be opportunities to improve documentation through HIM, resulting in higher CMI.
- UMC uses automated supply cabinets on the units and in various ancillary departments to help track usage and capture charges appropriately.
- UMC currently performs quarterly coding audits.
- A physician advisor available to assist the HIM department with any physician related issues.
- UMC experiences challenges with admissions from the ED due to slow bed turn-around time.
- DHG heard comments suggesting it takes too long to get claims sent and that there are too many errors. Comments were also made suggesting point-of-service collections should be improved.
- UMC currently admits approximately 24% of ED visits. It was felt that this should be closer to 30%.
- The Hospital has a software tool (MedAssets) for charge description master compliance that is not currently being used.
- Management systems specific to certain departments are not interfaced with UMC's main system.

Post Encounter

- Experiences a high rate of denials and there is no tracking of the type of denials.
- Contracts with a 3rd Party to appeal admission denials and feels they have a good success rate.
- Uses a "claim scrubber" system to edit claims for errors before sending claims to the payor.
-Conducts weekly meetings of its Billing and Coding Task Force to discuss and resolve accounts to allow a bill to be submitted.

Revenue Cycle Conclusions

After performing a high level overview of Revenue Cycle, DHG believes there are a number of areas in which UMC could improve upon, ultimately yielding an increase in cash and an elimination of unnecessary expenses. Specifically, DHG believes the following can be realized by UMC if swift action is taken:

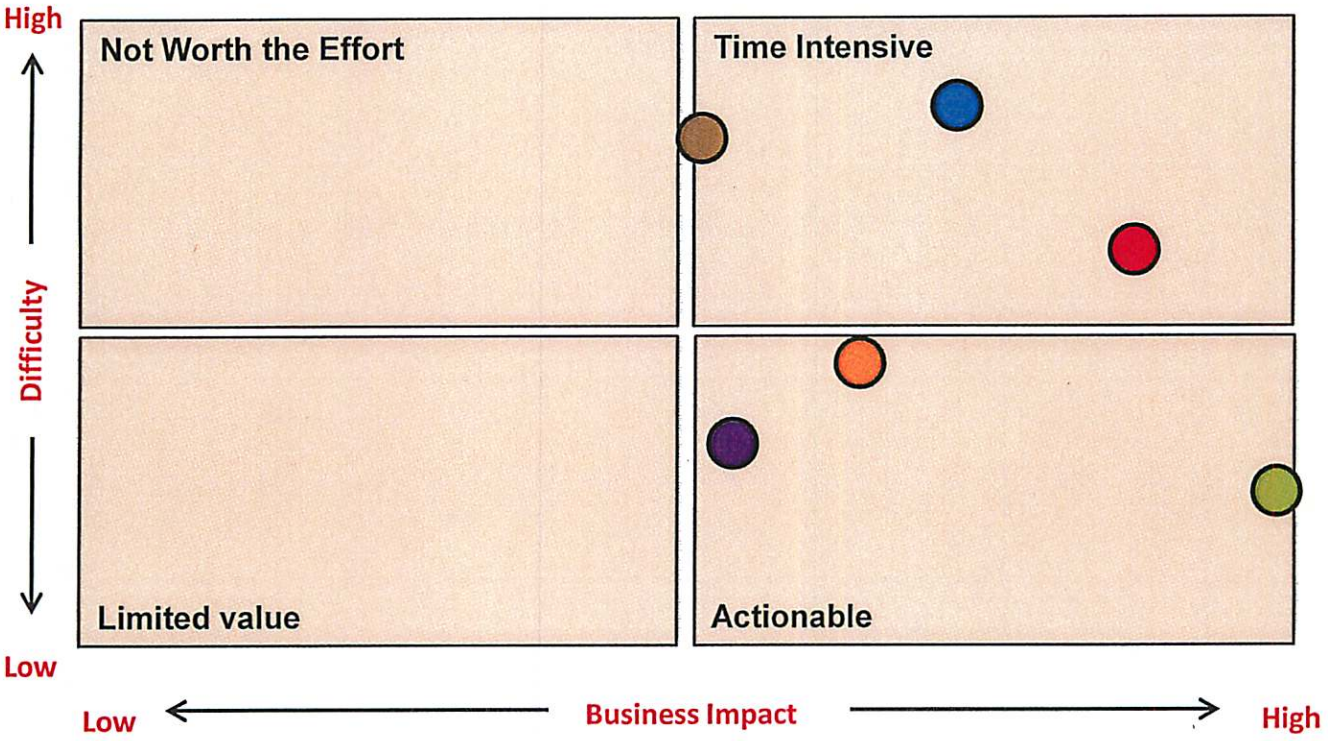
1. Case Mix Index Increase
2. Point-of-Service Collection Increase
3. Analyze Discharge but not Final Billed
4. Cost to Collect Improvements

UMC Tactical Recommendations

Focus Area	Initiatives	Target Completion Date
Outreach	1. Assess locations for Ambulatory Growth • Physician Offices • Ambulatory Care Centers • Free Standing ED	Oct. 2012
	2. Identify Primary Care Partner(s)	Dec. 2012
	3. ULP investigate "Community" ULP - (100% Clinical)	Dec. 2012
Service Line Development	1. Develop UMC Strategic Plan • Board Driven • In concert with ULP, University, and RFP Partner	Aug. 2012
	2. Assess all key services and develop specific service line strategic plans • Assign ULP physicians as co-owner • Oncology and Neursciences immediate opportunity	March, 2013
	3. Interview ULP physician leaders to understand hospital-physcian alignment opportunities • Identify models by service line that align clinical, operational, and economic incentives	June, 2012
	4. Create a Master Facility Plan in order to maximize the utilization of current assets. • Engage ULP to promote integration and support • Increase work flow efficiencies for staff • Enable volume service line volume growth	Nov. 2012
Cost Reduction/ Operational Improvements	1. Create a LEAN culture at UMC utilizing Lean training methodologies • Training for Executive team and all Directors • Identify top 3-5 opportunities for improvement during training	Sept. 2012
	2. Supply Chain • Non-Salary Cost Reduction Program • Medication Administration Process Improvement • Establish a Rigorous Protocol and Treatment Plans for Oncology • Support and Fund the Location of Supply Processing and Distribution (SPD) in Proximity to ORs	June, 2013
	3. Revenue Cycle: • Review clinical documentation program to determine appropriate case mix index (CMI) • Review point-of-service (POS) collection process and implement proper protocols • Further analyze DNFB and Cost to Collect variances against best practice organizations	July, 2012
	4. Labor Efficiency: • Conduct labor performance management education for all management staff • Establish labor performance target for each department • Develop staffing plan for each department and monitor productivity	Sept. 2012
Quality Performance & Initiatives	1. Maintain Centers of Excellence with the appropriate resources	On-going
	2. Continue the pursuit for Magnet status.	On-going
	3. Increase the utilization of Advance Practice Providers.	Jan. 2013
	4. Create service line balance scorecards focused on continuous quality imprvements. • Engage ULP to identify appropriate measures by service. • Establish UMC's baseline performance • Establish quarterly target goals for each metric	June, 2013
Reform Readiness	1. Fast track the implementation of the EMR solution.	Dec-13
	2. Continue to further integrate ULP and UMC business functions to ensure aligned incentives.	On-going
	3. Continue the pursuit for a strong partnership or affiliation with large hospitals / health systems.	Aug. 2012
Medical Staff Structure	1. In conjunction with ULP and University, create a TIGER team to assess	June, 2012
	2. Review all affiliation agreements the department has with other organizations	Oct. 2012

UMC Tactical Recommendations

Recommendation Prioritization



Strategic Initiative Legend

- Outreach
- Service Line Development
- Cost Reduction / Operational Improvements
- Quality Performance & Initiatives
- Reform Readiness
- Medical Staff Structure

Limitations

UMC management has reviewed and has agreed to all assumptions, data analysis results, and report key findings and recommendations in this assessment.

DHG consulting services are limited to advice and recommendations, and we do not guarantee any outcomes or warranty our advice and recommendations.

DHG is not performing any tests or procedures to detect fraud, but will notify client if any indications of fraud come to our attention in the course of performing our duties.

UMC is responsible for management decisions and for performing all management functions of UMC.

UMC is responsible for evaluating the adequacy and results of the services performed and accepting responsibility for the results of such services.

UMC is responsible for establishing and maintaining internal controls, including monitoring ongoing activities.