

Section VII

Supply Expense Management

- **Summary of Recommendations**
- **Objectives and Approach**
- **Supply Chain Opportunities Identified**
- **Clinical**
- **Non-Clinical**
- **Clinical Pharmacy Opportunities Identified**
- **Supply Chain Processes/Technology Assessment**
- **Data Sources**

Summary of Recommendations

Clinical Opportunities

Cardiology / Radiology Cath Lab Pacemakers, ICDs and Leads

- Drive consolidation of the number of vendors to achieve optimal level of savings.
 - There are not three vendors who can supply 30% of the tests ordered by physicians, however, these tests represent a minor supply expense <\$10,000.
- Pursue a capitated pricing structure for achievement of some of the potential savings as an alternative strategy.
- Enlist physician support to negotiate contracts with vendors to improve pricing.

[Portions of the Recommendations are confidential and have been redacted.]

Surgery Orthopedic Implants – Total Joints

- Enlist physician support to renegotiate contract with Zimmer and to contract with other vendors to include new technologies and improved pricing.
- Continue to work aggressively with the vendors to move remaining inventory to consignment.

Purchased Services Energy

- Evaluate options for procurement of electricity and steam from outside of University. Renegotiate pricing from University.
- Continue aggressive in-house energy efficiency program.

Clinical Laboratories

- Standardize 90% of tests to two to three primary reference testing vendors.

Summary of Recommendations

Purchased Services

- **Linen**

- Develop and implement a total linen control program to reduce current pounds processed per adjusted patient day to the benchmark 12 to 13 pounds per adjusted patient day.
- Renegotiate Linen Processing rate with Co-op. Evaluate alternative laundry processing companies – recently Angelica purchased Duke University's institutional laundry.

- **Telecommunications**

- Evaluate opportunity to transition long distance service to more competitive per minute rates. Determine patient care areas with most loss of patient phones. Institute process to charge patient for disappearing phones.

- **Lab Courier Service**

- Analyze all current courier and delivery services within UNCH. Look for areas of improved efficiency and consolidation of services. Install a routine audit process to ensure accurate billing and optimized utilization.

- **Dues, Fees & Subscriptions**

- Executive Office communicates stricter policy on availability of Dues, Fees & Subscription \$\$\$. Reduce Operating Budget for this expense account by 30% across all departments. Certain departments may require exemption.

- **Uniforms**

- Eliminate cleaning services provided to departments.
- Purchase uniforms for Plant Engineering and Materials Management – cancel rental program contract with G&K Services (vendor) – require home laundering of uniforms.

Summary of Recommendations

Ancillary

- **Food & Nutrition**
 - Monitor food cost utilization within patient food preparation and cafeteria operations. Set targets for food utilization and track achievement toward that goal.
- **Environmental Services**
 - Identify 10 to 15 items purchased through Sodexo; review pricing on semi-annual basis.
 - Evaluate utilization of alternative products.
 - Develop formulary of available environmental services items and communicate to organization.
- **Medical Records / Transcription**
 - Evaluate “Edix” Transcription work – obtain lower per line pricing for edits.
 - Amend Medical Records Destruction policy, and evaluate potential for reducing space requirements for in-hospital records storage.
- **Inventory Management**
 - Evaluate Par and Stock Levels in both Central Distribution and Surgery to identify slow-moving items. Determine appropriate min-max levels and develop strategy to reduce inventory on these items.
 - **Durable Medical Equipment:** Work with Physical & Occupational Therapy to develop standard formulary of items that can be communicated to departments for order. Evaluate pricing available through Sodexo. Review contract for stretcher and bed repair (\$143K through Hill-Rom).
 - **Temporary Agency Fees:** Standardize – push more spend to one to two key vendors. Renegotiate pricing based on additional volumes.
- **Supply Management Processes and Technology**
 - UNC HCS (System) should establish a Supply Chain committee of senior executives to sponsor and promote a system-wide supply chain agenda of coordination, cost reduction, standardization and technology enablement. Certain functionality (Product Management, Contracting, Data Management & Analytics) should be established at the System level to support this “system supply chain agenda.”

Summary of Recommendations

- **Product Management**
 - **Purpose** – Implement a consolidated value analysis process to drive common product choices across System with the facilities providing demand and input.
 - **Roles** – Establish an Executive Supply Chain Product Management Committee led by senior executives of System facilities (both UNC Hospitals and Rex Healthcare) to provide oversight, monitor and promote product system-wide standardization and utilization initiatives.
 - **Activity** – Develop rolling three-month agendas and recruit physician support from both facilities on an interim basis to support that rolling agenda. Develop process to ensure that System decisions and directives are carried out at the facility level.
- **System Contract Management**
 - **Purpose** – Development of System contracting organization responsible for interaction with Resource Management and both UNC Hospitals and Rex Healthcare for sourcing and contracting. Utilize GPO for select commodity items to allow corporate contracting to focus on high-dollar supplies.
 - **Pricing Verification** – UNC HCS should implement appropriate contracting technology, which allows for contract information, including pricing, to be input into respective MMIS; this would allow Purchasing personnel to verify pricing at the time of order placement.
 - **Usage Information** – System should implement appropriate requisitioning technology to encourage use by end users and gather pricing/usage/volume information to enhance its negotiating position. UNC HCS should develop a corporate strategy for the optimal use of their GPO.

Summary of Recommendations

- **Item Master & Data**

- Continue to expand the scope of the item master to include all routinely ordered items. Evaluate current blanket orders to determine what items can be input with contractual pricing into Lawson. For blanket orders with no line-item detail, work with department to identify, cleanse and obtain contractual pricing and input into item master. Develop templates and train department in use of Web-Requisitioning.
- Ensure that at least 90% of items on item master have contract pricing attached, whether GPO, System or local.
- All non-catalog requisitions must be entered into Lawson prior to purchase. Eliminate the number of PO transactions with an invoice line as only detail.

- **Inventory Management & Distribution**

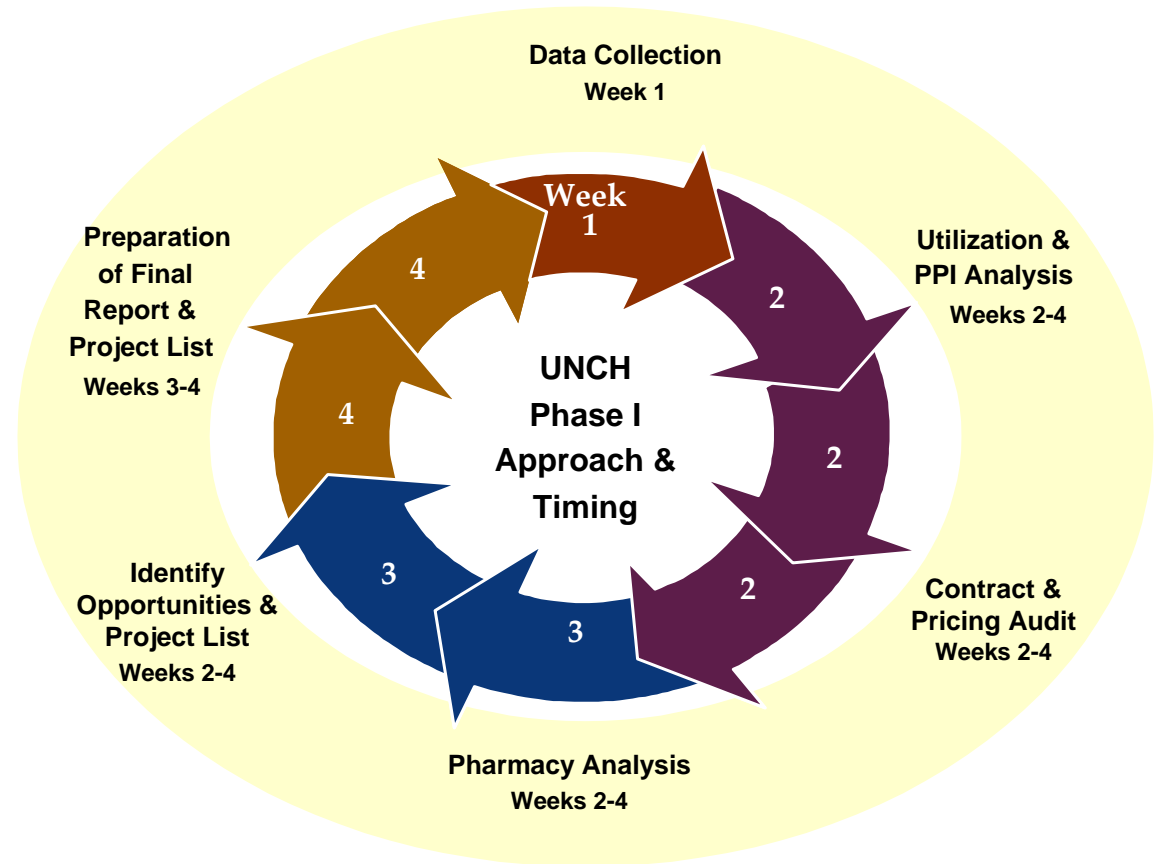
- Expand Materials Management oversight into unofficial inventory locations in the organization.
- Assist Surgery in determining proper Par levels. Ensure warehouse levels are taken into account when determining the OR levels.

Objectives and Approach

Phase I: Analysis of Improvement consists of four core components over a four-week project timeframe with focused project objectives.

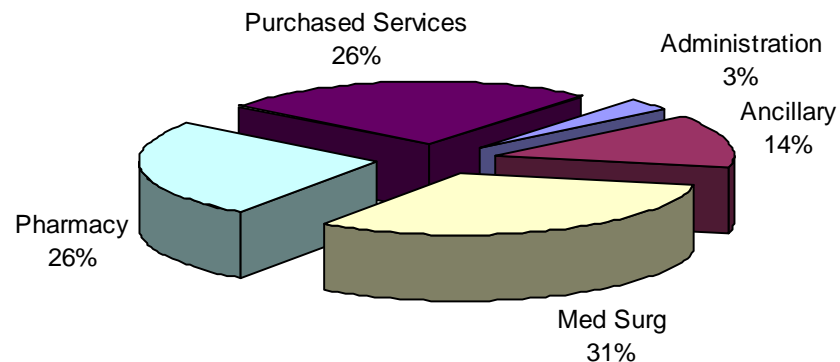
UNCH OBJECTIVES

- Obtain materials and services of all categories from vendors at the optimum balance of cost, quality, and service.
- Strategically leverage purchasing power through planning, volume, standardization, and benchmarking.
- Pay for materials and services at the negotiated price.
- Realize immediate savings that impact the bottom line.



Scope of Supply / Service Spend

CATEGORY	SUBCATEGORY	Dollars
Med Surg		
	Supplies	\$ 28,950,805
	Prosthetics	\$ 10,714,154
	Transplant	\$ 4,716,496
	IV Supplies	\$ 2,957,537
	Suture and Closure	\$ 2,345,458
	Endo Supplies	\$ 494,555
	Instruments	\$ 183,000
	Misc Med Surg Sup.	\$ (419)
	RX Supplies	\$ (6,804)
Med Surg Total		\$ 50,354,782
Purchased Services		
	Contracted Services	\$ 27,695,253
	Maintenance	\$ 8,436,512
	Telecommunications	\$ 3,092,209
	Postage / Freight	\$ 837,324
	Transportation	\$ 710,567
	IS Services	\$ 518,617
	Processing	\$ 488,901
	Misc. Purchased Services	\$ 78,876
Purchased Services Total		\$ 41,858,259
Pharmacy		
	Drugs	\$ 33,981,754
	Blood	\$ 7,750,989
Pharmacy Total		\$ 41,732,743
Ancillary		
	Misc Ancillary Sup.	\$ 10,686,900
	Minor Equipment	\$ 7,380,034
	Supplies	\$ 2,275,596
	Laundry / Linen	\$ 1,534,223
	Maintenance Supplies	\$ 893,611
	Radiology	\$ 187,915
	Janitorial	\$ 79,790
	Dietary	\$ 61,078
	Environmental Sup.	\$ 50
Ancillary Total		\$ 23,099,197
Administration		
	Office Supplies	\$ 3,281,900
	Computer	\$ 835,411
	Postage / Freight	\$ 578,780
	Education	\$ 188,133
	Communications	\$ 135,961
Administration Total		\$ 5,020,185
Grand Total		\$ 162,065,166



Scope of Spend

Spend segregated from
FY03 General Ledger for UNCH*

Includes non-labor expenses excluding:

- Physician Fees
- Depreciation
- Interest
- Insurance
- Inventory Adjustments

**Scope of
Supply /
Service Spend
= \$162,065,166**

*Includes ACC and MDNC Clinics

Improvement Normalization

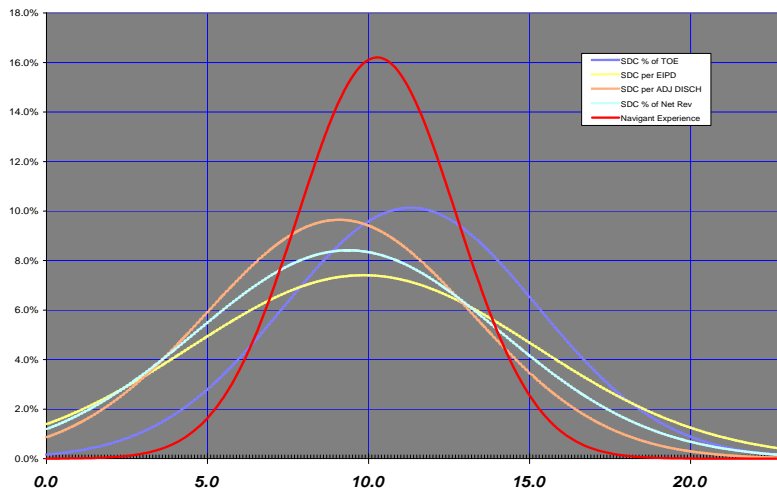
Key Performance Indicators

Metric	Current	Low	High
SDC as % of Operating Expense	23.3%	22.0%	21.0%
SDC Exp per Adj. Patient Day	\$387	\$370	\$350
SDC Exp per Adj. Discharge	\$2,521	\$2,400	\$2,300
SDC Exp % Net Revenue	22.0%	21.0%	20.0%

SDC – Supplies, Drugs & Consumables (excluding purchased services)

Normalized Improvement Projection

90% Confidence Opportunity Range: \$6.2 – \$14.3 Million



*Improvement Projection is based on SDC spend of \$162.1M

High Level Activities

Opportunities can be achieved through:

Organization

- Optimize structure to support system and individual hospital supply chain goals.

Strategic Sourcing

- Expand structure, processes, and controls to gain tighter control around products and services by integrating a more clearly defined sourcing structure.

Value Analysis

- Balancing GPO contracts with direct contracts.
- Driving tiered pricing.

Utilization

- Ensuring appropriate usage levels of products and services; e.g., linen, IV use and changes, demand matching, etc.

Standardization

- Reducing variations of the same product type to drive compliance, improving tier pricing.
- Driving purchasing towards one or two primary vendors for each product/service area.

Streamline Distribution/Logistics

- Further integration of the materials management/purchasing infrastructure.

Scope of Review

- **We looked at several key areas and supply spend during our review.**

Areas and processes reviewed:

- **Clinical areas:**
 - Cardiology
 - Surgical Services
 - Nursing Products
 - Radiology
- **Pharmacy areas:**
 - Anesthesia
 - Cardiology
 - Antimicrobials
 - Antiemetics
 - ICU Sedation
- **Non-Clinical areas:**
 - Dietary
 - Plant Operations
 - Medical Equipment Maintenance
 - Supply Chain (Inventory Management & other)
 - Environmental Services & Linen Management
 - Telecommunications
 - Medical Records
 - Discretionary Spend
 - Office Supplies
 - Dues, Subscriptions
- **Processes & Strategy:**
 - Supply Chain Strategy – System Review
 - UNC Hospitals Transactional Processes
 - Requisitioning & Purchasing
 - Inventory Management

Summary of Savings Opportunities

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Summary of Savings Opportunities – Clinical

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Supply Chain – Clinical Opportunities

Cardiology/Radiology > Cath Lab / Pacemakers, ICDs and Leads

Assessment

- The majority of these cases are done in the Cath (EP) Labs.
- Some bulk buys were done to take advantage of more favorable pricing.
- All pacemakers, ICDs and leads, drug eluting stents and 70% of balloon and bare metal stents are consigned.
- Some devices and leads were purchased as systems, but mixing and matching of leads and devices from different vendors also occurs.

[Portions of the Assessment are confidential and have been redacted.]

Recommendation

- Drive consolidation of the number of vendors to achieve optimal level of savings.
 - There are not three vendors who can supply 30% of the tests ordered by physicians, however, these tests represent a minor supply expense <\$10,000.
- Pursue a capitated pricing structure for achievement of some of the potential savings as an alternative strategy.
- Move inventory to consignment, assign responsibility and development process for management of consigned inventory.

Opportunity

- Estimate recurring savings opportunity at \$765K to \$850K.

Responsibility

- Director, Diagnostic Cardiac Services
- Director, Materials Management

Timeframe

- Second Quarter 2005

Supply Chain – Clinical Opportunities > Cardiology/Radiology Stents, Catheters, Balloons, Guidewires, Closure Devices

Assessment

- Little, if any, of the inventory is consigned, per clinical management.
- The Cath Lab has optimized the use of manual compression and minimized use of vascular closure devices. Vascular closure device use is primarily in Interventional Radiology.
- Currently working with MedAssets on RFP efforts.

[Portions of the Assessment are confidential and have been redacted.]

Recommendation

- Drive consolidation of vendors for peripheral stents, caths, balloons and wires and pursue improved pricing to achieve savings.
- Move inventory to consignment, assign responsibility and develop process for management of consignment.

[Portions of the Recommendation are confidential and have been redacted.]

Supply Chain – Clinical Opportunities > Cardiology/Radiology Stents, Catheters, Balloons, Guidewires, Closure Devices

Opportunity

- Estimate recurring savings opportunity at \$350K to \$480K.

Responsibility

- Director, Diagnostic Cardiac Services
- Director, Materials Management
- Administrative Director of Radiology

Timeframe

- Second Quarter 2005

Supply Chain – Clinical Opportunities

Nursing > Gloves

Assessment

- Biogel glove use is limited.

[Portions of the Assessment are confidential and have been redacted.]

Recommendation

- Negotiate improved pricing.
- Evaluate consolidation of distribution channel, particularly between Lab and Med/Surg.
- Consolidate vendors for surgeons gloves, nitrile and exam gloves. Vendors must supply gloves that do not produce latex allergies.

Opportunity

- Pricing opportunity of \$54K.
- Additional Standardization and Substitution opportunity of \$170K (total with pricing of \$224K).

Responsibility

- Director, Clinical Labs
- SR VP & CNO, designee, i.e., Clinical Director, Medicine Services
- Director, Materials Management
- Product Evaluation Committee

Timeframe

- Second Quarter 2005

Supply Chain – Clinical Opportunities

Nursing > Sequential Compression Devices

Assessment

- Forty-three percent of sleeve use is in thigh high (versus knee).
 - UNCH is currently in contract negotiations with its vendor.
- [Portions of the Assessment are confidential and have been redacted.]*

Recommendation

- Negotiate improved pricing with current vendor.
- Move to reduce (by 50%) use of thigh high sleeves and convert to knee (work with physicians as necessary for success – good amount of supporting literature).
- Pursue an initiative to decrease tubing loss.

Opportunity

- Estimate recurring savings opportunity of \$98K to \$135K (utilization and pricing opportunity).

Responsibility

- SR VP & CNO, designee, i.e., Clinical Director, Medicine Services
- Director, Materials Management
- Product Evaluation Committee

Timeframe

- Second Quarter 2005

Supply Chain – Clinical Opportunities

Nursing > Kits and Trays

Assessment

- Top 11 vendors account for \$1.4M of the spend.
[Portions of the Assessment are confidential and have been redacted.]

Recommendation

- Standardization and consolidation of Kits and Trays to fewer vendors to achieve significant savings.

Opportunity

- Estimate recurring savings opportunity at \$64K to \$100K.

Responsibility

- SR VP & CNO, designee, i.e., Clinical Director, Medicine Services
- Director, Materials Management
- Product Evaluation Committee

Timeframe

- Second Quarter 2005

Supply Chain – Clinical Opportunities

Nursing > Therapy Beds

Assessment

- A total of 2,808 days of rental for six different types of beds occurred.
- For two of the bed types, rental days were well in excess of 365.
- There is a skin integrity assessment and intervention protocol in place.
- A Wound Care Team professional is involved in all decisions regarding use of a specialty bed.

[Portions of the Assessment are confidential and have been redacted.]

Recommendation

[The Recommendation is confidential and has been redacted.]

Opportunity

- Estimated annual savings of \$82K, with a savings of \$2K in the first year net of an estimated capital outlay of \$80K.

Responsibility

- Operations Manager Linen Room and Laundry (Patient Equipment)
- Director, Materials Management

Timeframe

- Second Quarter 2005

Supply Chain – Clinical Opportunities

Nursing > Lotion

Assessment

- UNCH spent \$18K with O&M in FY04.
- Eucerin and Baby Magic brand name lotions are the primary lotions in use.

Recommendation

- Substitute a generic brand of lotion to achieve savings.

Opportunity

- Estimate recurring savings at \$5.6K.

Responsibility

- SR VP & CNO, designee, i.e., Clinical Director, Medicine Services
- Director, Materials Management
- Product Evaluation Committee

Timeframe

- Second Quarter 2005

Supply Chain – Clinical Opportunities

Nursing > Slippers

Assessment

- Slippers are a terry “sock” with non-skid treads
- UNCH bought 46,992 pairs or 1.5 pairs for every I/P, which is greater than one pair per adjusted I/P admission.

[Portions of the Assessment are confidential and have been redacted.]

Recommendation

- Substitute a less costly slipper alternative.
- Structure initiative to encourage patients to bring their own footwear to decrease utilization.

Opportunity

- Estimate savings are \$12.5K to \$25K for pricing and utilization improvements.

Responsibility

- SR VP & CNO, designee, i.e., Clinical Director, Medicine Services
- Director, Materials Management
- Product Evaluation Committee

Timeframe

- Second Quarter 2005

Supply Chain – Clinical Opportunities

Surgery > Spine Implants

Assessment

[The Assessment is confidential and has been redacted.]

Recommendation

- Enlist physician support to negotiate contracts with vendors to improve pricing.
- Work with vendors to move remaining inventory to consignment.

Opportunity

- Estimate recurring savings at \$255K to \$289K.
- [Portions of the Opportunity are confidential and have been redacted.]*

Responsibility

- VP, Surgical Services, Business Office Manager, Surgical Support Services
- Director, Materials Management

Timeframe

- Third Quarter 2005

Supply Chain – Clinical Opportunities

Surgery > Orthopedic Implants – Total Joints

Assessment

- Approximately 90% of the total joint inventory is on consignment. Consignment of high value inventory is a strategy being actively pursued in the OR. Consigned inventory is being managed by the Inventory Technicians. It is counted during the twice annual physical inventory processes and vendors are encouraged to reconcile these inventories with UNCH regularly.

[Portions of the Assessment are confidential and have been redacted.]

Recommendation

- Enlist physician support to renegotiate contract with *[name redacted]* and to contract with other vendors to include new technologies and improved pricing.
- Continue to work aggressively with the vendors to move remaining inventory to consignment.

Opportunity

- Estimate recurring savings at \$73K to \$91K.

Responsibility

- VP, Surgical Services
- Business Office Manager, Surgical Support Services
- Director, Materials Management

Timeframe

- Third Quarter 2005

Supply Chain – Clinical Opportunities

Surgery > Burrs, Bits and Blades

Assessment

- Of this amount, \$11K of the total spend was for Specialty BBB Vendors. Remainder was for Universal BBB Vendors.
- Many burrs, bits and blades can be supplied by a third-party vendor – they have expanded their offerings to meet specific specialty BBB supplies.
- Significant savings may be realized by consolidation of vendors.
- Burrs, bits and blades are being reprocessed, but returned quantities have been low to date.

[Portions of the Assessment are confidential and have been redacted.]

Recommendation

- Standardize to a third-party vendor.
- Continue to improve quantities reprocessed.

Opportunity

- Estimate recurring savings opportunity at \$51K to \$102K (savings estimate does not include additional savings which could be achieved from reprocessing).

Responsibility

- VP, Surgical Services
- Business Office Manager, Surgical Support Services
- Director, Materials Management

Timeframe

- Second Quarter 2005

Supply Chain – Clinical Opportunities

Surgery > Vascular Grafts

Assessment

- According to Surgical Services management, most of inventory is consigned.
[Portions of the Assessment are confidential and have been redacted.]

Recommendation

- Consolidate vendors and negotiate improved pricing to achieve savings.
- Move inventory to consignment where possible.

Opportunity

- Estimate recurring savings at \$35K to \$59K.

Responsibility

- VP, Surgical Services
- Business Office Manager, Surgical Support Services
- Director, Materials Management

Timeframe

- Second Quarter 2005

Supply Chain – Clinical Opportunities

Surgery > Custom Packs

Assessment

- Surgical Services has invested significant time and effort and have done a good job in consolidation and standardization of the packs across their areas with the conversion to *[name redacted]*.
- [Portions of the Assessment are confidential and have been redacted.]*

Recommendation

- Evaluate opportunity for additional savings on custom packs through a competitive bidding.
- Continue to evaluate all packs for potential substitutions to achieve savings.
- Continue to evaluate all packs on a scheduled basis to eliminate waste and obsolete items.

Opportunity

- Estimate recurring savings at \$104K to \$131K.

Responsibility

- VP, Surgical Services, Business Office Manager, Surgical Support Services, Educator
- Director, Materials Management

Timeframe

- Third Quarter 2005

Supply Chain – Clinical Opportunities

Surgery > Maxillofacial Fracture Management

Assessment

[The Assessment is confidential and has been redacted.]

Recommendation

- Enlist physician support and explore other potential vendors to develop strategy for negotiation with current vendor for improved pricing.

Opportunity

- Estimate recurring savings opportunity at \$49K to \$99K.

Responsibility

- VP, Surgical Services
- Business Office Manager, Surgical Support Services
- Director, Materials Management

Timeframe

- Second Quarter 2005

Supply Chain – Clinical Opportunities

Surgery > Bone & Tissue

Assessment

- All the MTF inventory is consigned. Tissue inventory is not.
- Consignment of high value inventory is a strategy being actively pursued in the OR.
- Consigned inventory is being actively managed by the Inventory Technicians. It is counted during the twice annual physical inventory processes and vendors are encouraged to reconcile these inventories with UNCH regularly.

[Portions of the Assessment are confidential and have been redacted.]

Recommendation

- Pursue a prime vendor purchase policy (already close) and negotiate improved pricing from current vendors. Include tissue heart valves in this effort.

Opportunity

- Pricing opportunity at \$65K.

Responsibility

- VP, Surgical Services
- Business Office Manager, Surgical Support Services
- Director, Materials Management

Timeframe

- Second Quarter 2005

Supply Chain – Clinical Opportunities

Surgery > Heart Valves

Assessment

- One hundred percent of the inventory is consigned.
- Consignment of high-value inventory is a strategy being actively pursued in the OR.
- Consigned inventory is being actively managed by the Inventory Technicians. It is counted during the twice annual physical inventory processes and vendors are encouraged to reconcile these inventories with UNCH regularly.

[Portions of the Assessment are confidential and have been redacted.]

Recommendation

- Negotiate improved pricing from current vendors and pursue tissue heart valves pricing in conjunction with an overall initiative for Bone & Tissue.

Opportunity

- Pricing opportunity of \$60K to \$70K.

Responsibility

- VP, Surgical Services
- Business Office Manager, Surgical Support Services
- Director, Materials Management

Timeframe

- Second Quarter 2005

Summary of Savings Opportunities – Non-Clinical

This page is confidential and has been redacted.

Supply Chain – Non-Clinical Opportunities

Purchased Services > Energy

Assessment

- UNCHs' overall energy consumption levels appear to be normal for an I/P teaching hospital with moderate research activity.

	Energy Consumption per Square Foot		
	UNC Hospitals	CBECS/NCI*	Difference
Electricity (kWh)	64,771,398		
kWh/ft2	32.4	41.8	-22%
Steam (mBtu)	265,574,360		
mBtu/ft2	132.8	97.5	+36%
Total (mBtu)	486,574,370		
mBtu/ft2	243.3	240.0	+1%

* U. S. Department of Energy 1999 Commercial Building Energy Consumption Survey data for I/P Health Care facilities adjusted by NCI for size and usage characteristic of teaching hospitals with moderate research activity.

- Lower electricity consumption levels are offset by use of steam for cooling and dehumidification.

Supply Chain – Non-Clinical Opportunities

Purchased Services > Energy

Assessment

- UNCHs' total energy cost per square foot is approximately 23% greater than average after normalization for energy consumption levels.

Energy Cost per Square Foot				
	UNC Hospitals*	CBECS/NCI**	Nominal Difference	Normalized Difference
Electricity (\$)	\$2,973,440			
\$/ft ²	\$1.49	\$2.11	-30%	-9%
Steam (\$)	\$4,098,242			
\$/ft ²	\$2.05	\$0.72	+185%	+109%
Total (\$)	\$7,071,682			
\$/ft ²	\$3.54	\$2.83	+25%	+23%

* Includes debt service.

** U. S. Department of Energy 1999 Commercial Building Energy Consumption Survey data for I/P Health Care facilities adjusted by NCI for size and usage characteristic of teaching hospitals with moderate research activity.

- A portion of the higher steam cost can be attributed to substitution of steam for electricity for cooling and dehumidification.

Supply Chain – Non-Clinical Opportunities

Purchased Services > Energy

Assessment

- Unit energy costs are proportionately greater by the same 23% after normalization for relative energy consumption levels.

	Unit Energy Costs		
	UNC Hospitals	Normalized CBECS/NCI*	Difference
Electricity (\$/kWh)	\$0.046	\$0.051	-9%
Steam (\$/mmBtu)	\$15.43	\$7.38	+109%
Total (\$/mmBtu)	\$14.53	\$11.80	+23%

* Includes debt service.

** U. S. Department of Energy 1999 Commercial Building Energy Consumption Survey data for I/P Health Care facilities adjusted by NCI for size and usage characteristic of teaching hospitals with moderate research activity.

Supply Chain – Non-Clinical Opportunities

Purchased Services > Energy

Recommendation

- **Pricing from UNCH**
 - Evaluate options for procurement of electricity and steam from outside of University.
 - Renegotiate pricing from University, particularly with debt service charges.
- **Demand Side Measures**
 - Continue aggressive in-house energy efficiency program.
 - Maintain existing high-efficiency lighting, motors, and chillers and other HVAC improvements, including variable speed drives, variable air volume ventilation and fume hood controls.
 - Continue steam trap and steam/condensate pipe/insulation maintenance programs.
 - Use existing energy management system to sustain energy savings.
 - Pursue additional energy improvements through the N.C. Energy Office's State Facilities Utility Savings Initiative and the Guaranteed Energy Savings Performance Contract Program.

Supply Chain – Non-Clinical Opportunities

Purchased Services > Energy

Recommendation

- **Supply Side Measures**

- Install independent meters on incoming steam and outgoing condensate lines and renegotiate steam contract to pay for net energy only.
- Consider installation of independent cogeneration plant based on summer domestic hot water, HVAC re-heat and absorption chiller loads.
- Convert remaining absorption chillers to high-efficiency centrifugal, if independent cogeneration is not a viable option.
- Consider installing independent package boilers to meet steam loads.

Responsibility

- SR VP, Professional & Support Services
- Director, Plant Operations

Timeframe

- First and Second Quarters 2005

Supply Chain – Non-Clinical Opportunities

Purchased Services > Biomedical Equipment

This page is confidential and has been redacted.

Supply Chain – Non-Clinical Opportunities

Purchased Services > Biomedical Equipment

Recommendation

- There are several options available for UNCH to address this area. It is likely that a combination of any or all of these will provide best opportunity for UNCH:
 - Review and amend *[name redacted]* contract to include incentives for their ability to address this loss of high-end contracts and service to OEM.
 - Evaluate all *[name redacted]* and *[name redacted]* single contracts and renegotiate aggregate contracts with them.
 - Evaluate the use of service broker to determine opportunity for capturing OEM contracts under broker's reduced rates.
- Obtain support from *[name redacted]* to reevaluate all service levels on controlled devices – determine optimal cost-benefit service levels – and amend *[name redacted]* contract to these levels. *[Name redacted]*, like all Biomedical Equipment Management companies, has risk profiles on all devices and can support clients through this evaluation.

Opportunity

- Total opportunity between \$254K and \$427K.

Responsibility

- SR VP, Surgical Services and Director, Materials Management

Timeframe

- First through Third Quarters 2005

Supply Chain – Non-Clinical Opportunities

Purchased Services > Clinical Laboratories

Assessment

[The Assessment is confidential and has been redacted.]

Recommendation

- Standardize 90% of tests to two to three primary reference testing vendors.
- Renegotiate pricing based on volumes.

Opportunity

- Annual opportunity of \$278K to \$381K, based on pricing benchmarks. However, vendor standardization would be required to receive pricing.

Responsibility

- Director, Clinical Labs and Director, Materials Management

Timeframe

- First Quarter 2005

Supply Chain – Non-Clinical Opportunities

Purchased Services > Linen

Assessment

- Linen is provided by Laundry Co-op that UNCH is member of (although not equity-sharing).
- UNCH received 4,188,118 pounds in FY04.
- No consistent Bed Change Policy known to nursing.
- Linen Committee has initiated.
- Other than Scrubs, poundage is exclusively flat linen (no surgical linen).
- See following chart for various opportunities:

Measure	Current	Low Target	High Target
Utilization <i>Linen Pounds/APD</i> <i>Flat Goods Benchmarks used.</i>	14.69 lbs/APD (39% level) 4,050,084 lbs (less scrubs)	13.25 lbs/APD (25% level) \$143,428 Opportunity	11.97 lbs/APD (12.5% level) \$271,206 Opportunity
Replacement <i>Cost/Lb</i>	\$0.128 replacement cost/lb (45% level) \$537,084 (less scrubs)	\$0.111 replacement cost/lb (25% level) \$72,203 Opportunity	\$0.101 replacement cost/lb (12.5% level) \$114,084 Opportunity
Pricing <i>Processing Cost/Lb</i>	\$0.362/lb \$1,516,099 (spend)	\$0.32/lb \$153,563 Opportunity	\$0.31/lb \$190,001 Opportunity
TOTAL OPPORTUNITY		\$369,094	\$575,292

Supply Chain – Non-Clinical Opportunities

Purchased Services > Linen

Recommendation

- Continue with newly-formed Linen Committee – review utilization and replacement goals. Further develop and communicate Bed-Change policy, department charge-back process and educational material, which will enable end-users to more effectively use linen. Develop and implement a total linen control program to reduce current pounds processed per adjusted patient day to the benchmark 12 to 13 pounds per adjusted patient day.
- Renegotiate linen processing rate with Co-op. Evaluate alternative laundry processing companies – recently, Angelica purchased Duke University’s institutional laundry.

Responsibility

- Linen Committee
- Director, Materials Management

Timeframe

- First through Fourth Quarters 2005, Ongoing

Supply Chain – Non-Clinical Opportunities

Purchased Services > Shredding Services

Assessment

- A company called Shred-It is used to destroy confidential documents.
- Shred-It provides the hospital with Security Consoles, where UNCH's confidential documents are deposited to be destroyed. Shred-It physically collects confidential documents regularly, destroys them and provides UNCH with a Certificate of Destruction. Shred-It does not charge a service fee each time one of the consoles is emptied.
- Shred-It bills UNCH a per minute rate of \$1.75 with a minimum invoice of \$15, which is an extremely competitive rate. However, utilization is excessive. Current spend of \$208K is \$250 per Adjusted Occupied Bed (AOB). Currently, UNCH has a HIPAA policy requiring the destruction of **ALL** documents.
- Target Utilization/Bed of \$120 to \$150 per AOB (comparable academics and 1,000+ bed IDNs = \$80 to \$120 per AOB).

Recommendation

- When proper document destruction is not mandated by law (i.e., non-confidential documents), consider an alternative method to shredding. Adjustments to current policy should be revisited.
- Certain departments can be identified to reduce or eliminate shredding requirements in their areas (Plant Operations, Materials Management, etc.)

Opportunity

- Target opportunity of \$83K to \$108K.

Responsibility

- Director, Materials Management and Director, HIPAA Compliance

Timeframe

- First and Second Quarters 2005

Supply Chain – Non-Clinical Opportunities

Purchased Services > Telecommunications

Assessment

- UNCH receives local service through the University, via 5,517 Centrex lines at a monthly cost of \$23.50 per line (\$1.56M annually). Currently working with BellSouth on feasibility study of breaking away from University with own system – either by expansion of current backup Meridian system, or another option. Study is in early stages, thus any understanding of % of impacted lines or opportunity could not be identified. Additionally, this would require some substantial effort for number changes, loss of five-digit dialing between University and hospitals, and any infrastructure changes (duct work, wiring changes, etc.)
- Long distance service is provided to limited employee phones at rate of \$0.05 per minute for intra/interstate calls. BellSouth is the provider, but this is billed through the University also.
- UNCH has moved to relatively cost-friendly (\$7.90/ea) patient phones on floors. There is high utilization of these phones – in FY04 there were purchases of 880 of these phones (\$1.28 per patient bed). Anecdotally, there is evidence of considerable loss through theft.
- UNCH provides both paging services (in-house and wide-area) and cell phones. Departmental authorization is required for obtaining either of these services. UNCH utilizes minutes-pooling on cell phone use. There is a move toward both wired and unwired voice-over-IP (Internet Protocol) for internal communications, particularly in clinical areas.

Supply Chain – Non-Clinical Opportunities

Purchased Services > Telecommunications

Recommendation

- Continue to evaluate Centrex swap-out to gain more competitive per-line rates directly from Telecommunications vendor.
- Evaluate opportunity to transition long distance service to more competitive per minute rates. Determine patient care areas with most loss of patient phones. Institute process to charge patient for disappearing phones.

Opportunity

- Based on current volume, this opportunity is from \$50,670 to \$64,744 annually.

Responsibility

- Director, Communications

Timeframe

- First and Second Quarters 2005

Supply Chain – Non-Clinical Opportunities

Purchased Services > Lab Courier Service

Assessment

- UNCH Lab uses American Expediting as the primary vendor and A Plus Delivery Service as a secondary to transport blood products and other specimens to/from various locations in the area.
 - Platelet testing is performed in Florida. American Expediting and Southwest agreed to charge \$125 per trip to transport the samples to Florida. There are 5 to 12 samples for each trip.
 - Blood products from the Red Cross are transported twice a day by the Red Cross to the UNCH Blood Bank. Other needs from the Red Cross are transported by American Expeditors at \$28 a trip. Surplus blood from Rex Hospital is delivered by American Expediting. The rate schedule for Rex Hospital could not be obtained.
 - Anatomic Pathology sends out samples to a local lab for testing at \$25 a trip.
 - Supplies for sampling are sent to Outreach Clinics via American Expediting. Samples from the Outreach Clinics are delivered to the UNCH lab for testing. Many pick-up locations are visited by the courier twice a day to pick up or drop off items. Some are only visited once a day for pick up and delivery. Each time a location is visited, American Expediting charges a flat fee based on the location of the pickup. The charge per pick-up does not change with the volume of samples. The American Expediting rate schedule specifies pick-up times and cost for each location. A fuel surcharge is applied to each trip depending on the price of gas. Non-routine or Stat pickups can be requested, but are charged at a higher rate.
- Total spend per year is approximated \$325K for these two vendors combined. A Plus Delivery Service is a very minor portion of the spend. There are no contracts with these companies.
- Delivery tickets and invoices are sent to a Lab Buyer. The Lab Buyer does not perform routine audits to verify the service was what was invoiced.

Supply Chain – Non-Clinical Opportunities

Purchased Services > Lab Courier Service

Recommendation

- Analyze all current courier and delivery services within UNCH. Look for areas of improved efficiency and consolidation of services. Install a routine audit process to ensure accurate billing and optimized utilization.
- Conduct RFP process to verify competitive pricing and service. Build into the RFP detailed service requirements, including number of pickup locations, time of service, etc.

Opportunity

- Total opportunity estimated at \$16.3K to \$32.5K.

Responsibility

- Director, Clinical Labs
- Manager, Purchasing

Timeframe

- First Quarter 2005

Supply Chain – Non-Clinical Opportunities

Administration > Dues, Fees & Subscriptions

Assessment

- Total spend of \$1.669M – up \$400K from FY03. Applicable spend (less bond financing requirements spend) of \$1.450M.
- Applicable Spend/APD of \$4.76. Benchmark spend/APD of \$1.30/APD. UNCH should be able to achieve target between \$3.50 and \$3.00/APD.

Recommendation

- Executive Office communicates stricter policy on availability of Dues, Fees & Subscription \$\$.
- Reduce operating budget for this expense account by 30% across all departments. Certain departments may require exemption.
- Require approval of this discretionary spend by Fiscal Services.

Opportunity

- Total opportunity with these targets of \$384K to \$536K.

Responsibility

- Chief Financial Officer, UNCH

Timeframe

- First Quarter 2005

Supply Chain – Non-Clinical Opportunities

Administration > Telephone & Television Revenue

Assessment

- UNCH does not currently charge and has no mechanism in place to recover costs associated with providing TV and telephone service to hospital patients.

Recommendation

- Charge patients for TV and long distance telephone usage through an outsourcing program that provides unlimited local and domestic long distance service.
 - Each patient will be charged for TV and telephone service, if they choose, at \$6.95 per day.
 - Set up charge will be billed to the patient at \$1.00 per admission.
- Work with vendor to establish and set-up program.

Opportunity

- Annual net revenue opportunity of \$434K to \$516K.

Responsibility

- Chief Financial Officer, UNCH
- Director, Telecommunications
- Director, Plant Operations

Timeframe

- First Quarter 2005

Supply Chain – Non-Clinical Opportunities

Administration > Office Supplies

Assessment

- UNCH obtains most of their office supplies through Corporate Express. Annual spend on office supplies (with forms, labeling and technology removed) is \$1.224M. Corporate Express makes up \$1.18 0M of that number.
- Total office supply spend per Adjusted Patient Day (APD) is \$4.02, which is significantly higher than comparative academic institutions benchmark of \$1.79.

Recommendation

- Develop strict formulary (minimum of items – review items for 80% of spend) of generally available items through Corporate Express. UNCH has started this process with Corporate Express.
- Develop policy to restrict purchases to this formulary with limited availability outside of formulary, with sufficient approval process.

Opportunity

- Setting targets of \$3.25/APD to \$2.75/APD. The opportunity is approximately \$234K to \$387K.

Responsibility

- Director, Materials Management

Timeframe

- First Quarter 2005

Supply Chain – Non-Clinical Opportunities

Administration > Postage

Assessment

- The Mailroom processes over \$800K in postage annually. A large portion of this is through Pitney Bowes Mailing System (PB) contract. Total spend with this contract is \$775K annually.
- Usage statistics for PB machine were available, but not maintained – so unable to use. Previous management would not have been able to validate adherence to PB contract without usage statistics. A limited review of spend and activity showed consistent per-piece rates of \$0.40 to \$0.50 for many departments. Within the past month, the responsibility for Mailroom shifted to Materials Management.
- Utilization at UNCH is very high (\$2.75/APD compared to best practice of \$1.55/APD). But most importantly, UNCH is not receiving available non-profit bulk rates. Rates obtained from Mailroom identify current Automated Bulk Rate of \$0.292 per letter piece.
- Since we cannot obtain valid piece statistics from PB system, extrapolation from statistics provided from Patient Financial Services (PFS) is used. PFS provided detail showing 600,000 patient statements sent to Mailroom for processing. Extrapolation assumes that the number of PFS statements are approximately 67% of total letter mailings; thus total estimated letter volume of 900,000. This would account for \$263K of the \$775K total spend. However, utilization of non-profit bulk rates would provide savings of \$147K solely for these pieces.

Supply Chain – Non-Clinical Opportunities

Administration > Postage

Recommendation

- Develop controls and management process for the reporting and validation of PB volume. Additionally, develop policies illustrating what can go through mail process and how/what rate.
- Apply for and put in place requirements for use of non-profit bulk rates. Minimally, this will provide over \$150K in savings. Determine appropriate PB contractual level, and renegotiate contract.

Opportunity

- Annual opportunity ranges from \$152K to \$228K.

Responsibility

- Director, Materials Management
- Manager, Logistics and Central Distribution

Timeframe

- First Quarter 2005

Supply Chain – Non-Clinical Opportunities

Administration > Uniforms

Assessment

- Departments in UNCH utilize several different approaches to provision of uniforms to employees. Most departments purchase uniforms for employees and require employees to launder themselves (Environmental Services, Nursing, Food & Nutrition, Laboratory). Patient Transportation Department purchases and provides cleaning services. Plant Engineering and Materials Management utilize some mix of uniform purchases and rental services (inclusive of cleaning).
- Total spend of \$200,628. Spend per FTE of \$38.35. Several comparable institutions show spend per FTE between \$17 and \$23 per FTE. UNCH should be able to achieve target utilization of between \$25 and \$22.50 per FTE.

Recommendation

- Eliminate any cleaning services provided to departments (equity issue – most departments do not receive this service).
- Develop corporate UNCH policy to identify departments that will be provided uniforms.
[Portions of the recommendation are confidential and have been redacted.]

Opportunity

- Annual opportunity of \$44K to \$70K.

Responsibility

- Chief Executive Officer
- Director, Materials Management

Timeframe

- First Quarter 2005

Supply Chain – Non-Clinical Opportunities

Ancillary > Food & Nutrition

Assessment

- UNCH is currently running a hospital-managed Dietary Department that includes one cafeteria, patient meals and floor stock nourishments. The department also administers the vending contract and provides catering services to in-house hospital functions.
- Total number of patient meals is 708,369. This measure is at 3.53 I/P meals per patient day, which is 15% to 22% higher than benchmark (2.75 to 3). Meal equivalents per adjusted admission are 27.5, which is within benchmark of 20 to 30.
- Nursing floors are stocked with supplementary patient nourishments and limited watch is kept on inventory. No charge-back mechanism currently exists. Floor stock per patient day (\$0.89 per day) is a little higher than benchmark of \$0.68. Total opportunity of \$28.5K to \$48.6K.
- Total food costs (less nutritionals and food stock) of \$2.261M per patient day, adjusted patient day and meal equivalents are a little higher than respective benchmarks. Taking the average of these benchmark opportunities shows opportunity of \$38K to \$123K. Using Solucient's benchmarks of \$130 to \$191, food costs per 100 meals served (25% and 75%, respectively), shows opportunity of \$196K.
- Inventory Management is lacking in Food & Nutrition area – no inventory management efforts (Par levels, cycle counts, etc.) are in place. Food & Nutrition uses primarily blanket POs, usually post-order placement. There is little ability to track item-specific spend.
- Nutritionals (total spend \$370K) are purchased from three major vendors (Mead Johnson, Ross and Nestle) in no standardized fashion. There has been no standardization efforts to identify primary supplier or work to obtain better pricing. Opportunity of \$33K to \$41K.

Supply Chain – Non-Clinical Opportunities

Ancillary > Food & Nutrition

Recommendation

- Structure a charge-back procedure to transfer floor stock cost responsibility to the units.
- Identify items for inclusion in Lawson system – enter into catalog as non-stock items with contractual pricing as appropriate. Develop templates and educate Dietary staff in use of Lawson Web Requisitioning.
- Implement Pars for product within Food Storeroom – utilize Lawson handheld technology to assist in reorder processes. Implement Inventory Management infrastructure and review existing floor stock levels and usage. Achieve floor stock cost reduction by reducing the variety and unit cost of items offered to floors/departments and communication of floor stock policy to hospital employees. Utilize Lawson technology to manage Pars.
- Monitor food cost utilization within patient food preparation and cafeteria operations. Set targets for food utilization and track achievement toward that goal.

Opportunity

- Total annual opportunity for Food & Nutrition of \$219K to \$312K.

Responsibility

- Director, Food & Nutrition

Timeframe

- First and Second Quarters 2005

Supply Chain – Non-Clinical Opportunities

Ancillary > Miscellaneous Environmental Services

Assessment

- UNCH uses Sodexo Marriott to provide environmental services management services, along with management of patient transportation.
- While 53% of Environmental Services Department's supply spend went through Unisource, another 32% was procured directly through Sodexo. Detailed item cost is available on the paper invoice, but the POs were entered at the total invoice level, thus not allowing for line-level analysis. Purchases through Unisource were for trash can liners and paper products.
- An evaluation of standardization and pricing of sharps containers and soaps identified a moderate opportunity of \$8K to \$11K. There were numerous standardization opportunities, particularly for user departments.
- We were not able to obtain detailed line item pricing from Sodexo, but a review of five invoices showed minor opportunity (<2%) in pricing on products procured through their contract.
- Total waste management spend was \$409K. This is a spend of \$2.55 per 100 ft² or \$1.34/APD. Benchmark is \$2.00 per 100 ft² and \$1.03/APD.

Supply Chain – Non-Clinical Opportunities

Ancillary > Miscellaneous Environmental Services

Recommendation

- Identify 10 to 15 items purchased through Sodexo, and review pricing on semi-annual basis.
- Evaluate utilization of alternative products (consider use of Unisource private label and alternative product).
- Develop formulary of available environmental services items and communicate to organization.
- Evaluate pricing and utilization of waste management services.

Opportunity

- Using following targets (\$2.25 to \$2.40 per 100 ft² and \$1.15 to \$1.25/APD), opportunity for waste management is \$23K to \$53K.

Responsibility

- Manager, Purchasing
- Business Manager, Environmental Services

Timeframe

- First Quarter 2005

Supply Chain – Non-Clinical Opportunities

Ancillary > Maintenance Repair & Other (MRO) Supplies

Assessment

- Total spend in MRO supplies (plant operations supplies) of \$713K in FY04. Of this, \$158K spend with Graybar and Grainger. Top ten vendors account for 62% of total spend with 90% of spend through 41 vendors.
- UNCH was not receiving Novation discounts on Grainger/Graybar supplies and hand equipment.

Recommendation

- Evaluate total spend – shift larger portion of spend through MRO distributors – negotiate Novation-comparative discounts (17% on supply, 40% on hand equipment) as local contract with Grainger/Graybar. They can support analysis to determine what products can be shifted.

Opportunity

- Total opportunity of \$8K to \$13K.

Responsibility

- Director, Plant Operations
- Director, Materials Management

Timeframe

- First and Second Quarters 2005

Supply Chain – Non-Clinical Opportunities

Ancillary > Freight Charges

Assessment

- Current spend on freight inbound and outbound is \$462K per year.
- Eighty percent of this cost is freight spent on delivery of products from vendors to UNCH.
- Multiple overnight/express vendors are used for outbound freight at combined cost of about \$91K.

Recommendation

- Negotiate contract with one preferred overnight/express vendor and track compliance.
- Develop policy for use of overnight /express service. Track and trend all overnight/express shipments to determine compliance.
- Contract with transportation vendor to use for inbound freight from vendors. This could be the same or different transportation vendor used for overnight/express shipments.
- Review supplier contract freight charges to eliminate where possible and re-negotiate based on benchmark pricing.

Opportunity

- Annual opportunity of \$23K to \$46K.

Responsibility

- Director, Materials Management
- Manager, Distribution

Timeframe

- First Quarter 2005

Supply Chain – Non-Clinical Opportunities

Ancillary > Medical Records / Transcription

Assessment

- Medical Information Management (MIM) oversees medical records storage, destruction and courier services, along with transcription activity of patient records.
- Primary file storage is composed of two hospital satellites along with one off-site storage facility (hospital-owned). All paper records two years and older are sent to the off-site facility.
- There is no destruction of records at this time. Reason provided was the academic desire to retain all documents for research purposes. MIM is working to change retention policy.
- Medical Transcription for the I/P and O/P Clinics is performed with a combination of eScription technology and both in-house and outsourced transcriptionists. Total per line cost is just under \$0.12. The eScription solution uses EditScript application to capture dictation into first draft – transcriptionists are then used to edit document. Currently, over 67% of providers (less Radiology) have been “qualified” and are using.
- Radiology currently uses own transcriptionists, but is moving toward the use of their RMS’ Voice Recognition program. They anticipate utilizing one-third of lines by end of FY05 and the remainder in FY06.
- Medical Records has own delivery van and driver for courier services between facilities.

Supply Chain – Non-Clinical Opportunities

Ancillary > Medical Records / Transcription

Recommendation

- Continue to further qualify and incorporate providers into eScript solution.
- Evaluate “Edix” Transcription work – obtain lower per line pricing for edits.
- Amend Medical Records Destruction policy, and evaluate potential for reducing space requirements for in-hospital records storage.
- Review opportunity to use courier service used by Lab for transportation of medical records.

Responsibility

- Director, Medical Information Management

Timeframe

- First Quarter 2005

Supply Chain – Non-Clinical Opportunities

Ancillary > Inventory Management

Assessment

- Total value of tracked inventory at UNCH is \$13.7M. Central Distribution is only inventory to be perpetually tracked with Inventory Control system. Other inventories are counted and reported 1-2X yearly.
- Surgical Services is highest inventory (\$6. 5M), and while not perpetually tracked in information system, there are numerous best practices – Pars identified on all items, daily cycle counts.

Inventory Values	Ending Value		
Area	FY03	FY04	Change
Central Distribution	\$1,126,345	\$1,059,477	-5.94%
Surgical Services	\$6,513,754	\$6,504,005	-0.15%
Pharmacy	\$3,703,346	\$3,809,850	2.88%
Radiology	\$710,495	\$660,129	-7.09%
Cardiac Cath	\$1,084,740	\$1,292,567	19.16%
Others	\$464,307	\$431,465	-7.07%
Total Valued Hospital Inventory	\$13,602,987	\$13,757,493	1.14%

- Inventory Turn Measures and One-Time Reduction Opportunities:

Current Days in Inventory Calculations		Using Target Days Benchmarks			
6/30/04 Inv. Value	Current Days in Inventory	Target Days in Inventory	Turns	Value @ Target Days	Reduction
OR Inventories					
\$6,289,443	116.56	110	3.32	\$5,935,471	\$353,972
		100	3.65	\$5,395,883	\$893,560
CS Inventories					
\$1,126,345	22.08	22	16.59	\$1,122,517	\$3,828
		21	17.38	\$1,071,494	\$54,851
				Total Inventory One-Time Opp	
				Low	\$357,799
				High	\$948,411

Supply Chain – Non-Clinical Opportunities

Ancillary > Inventory Management

Recommendation

- Evaluate Par and Stock levels in both Central Distribution and Surgery to identify slow-moving items. Determine appropriate min-max levels and develop strategy to burn-down inventory on these items.
- Implement handheld Par technology within Surgery to facilitate a quicker turnaround on cycle counts/replenishment activity.

Responsibility

- Manager, Distribution & Logistics
- SR VP, Surgical Services

Timeframe

- First Quarter 2005

Supply Chain – Non-Clinical Opportunities

Ancillary > Miscellaneous

Assessment

- Durable Medical Equipment (wheelchairs, medical furniture, etc.) are purchased via several different vendors at different prices.

Recommendation

- Work with Physical & Occupational Therapy to develop standard formulary of items that can be communicated to departments for order.
- Evaluate pricing available through Sodexo (they purchase wheelchairs and stretchers for Patient Transportation Department at discount).
- Review contract for stretcher and bed repair (\$143K through Hill-Rom).
 - Total Spend: \$545.5K
 - Opportunity: \$27.3K to \$38.1K (Pricing & Standardization)

Assessment

- Office furniture, including ergonomic furniture – multiple vendors used by different requesting departments.

Recommendation

- Single-source each of these categories.
- For office furniture, develop limited product list available and communicate to organization.
 - Total spend: \$321K
 - Opportunity: \$11.1K to \$16.6K (Pricing & Standardization)

Supply Chain – Non-Clinical Opportunities

Ancillary > Miscellaneous

Assessment

- Temporary Agency Fees – total spend of \$16.2M in FY04 for primarily clinical/nursing personnel. Top 10 vendors are approximately 90% of spend.

Recommendation

- Standardize – push more spend to one to two key vendors. Renegotiate pricing based on additional volumes.
 - Total opportunity of \$287K to \$575K.

Assessment

- Travel – UNC utilization (\$1.21/APD) better than benchmark.
- Recruitment – UNC Utilization (\$0.23/APD) better than benchmark.

Recommendation

- None

Responsibility

- Director, Materials Management
- Manager, Purchasing

Timeframe

- First and Second Quarters 2005

Summary of Savings Opportunities – Pharmacy

This page is confidential and has been redacted.

Supply Chain – Pharmacy Opportunities

Scope of Pharmacy Spend

UNC Department of Pharmacy FY 2004 Pharmaceutical Spend					
Description	Gross Spend	IV Sets & Soln	Transfers	Refunds & Rebates	Net Spend
I/P Spend	\$36,236,605	-\$2,730,471	-\$11,663,082	-\$732,806	\$21,110,246
Oncology Spend	\$8,913,582		-\$2,388,585	\$0	\$6,524,997
O/P/Retail Spend	\$9,933,879		-\$535	-\$108,202	\$9,825,142
	\$55,084,066	-\$2,730,471	-\$14,052,202	-\$841,008	\$37,460,385

Spend from GL FY 2004 Year End

Supply Chain – Pharmacy Opportunities

I/P Pharmacy Improvement

UNC Pharmacy Comparator Analysis					
Comparator Data set date range February 2002 to September 2004 N= 14 sites (all are academic)			ADC range 138 to 900		
Hospital Data	UNC Chapel Hill FY04 (Obtained Sept 2004)	Averages	75th %'tile	50th %'tile	25th %'tile
Occupied Beds	585	385	566	312	224
Inpatient Days	200,714	130,288	198,406	112,090	81,336
Average LOS	6.5	5.71	6.48	5.46	4.80
Admissions	30,983	22,828	30,983	18,649	11,763
APD	304,593	175,021	263,021	145,139	102,671
CMI (Acuity)	1.4180				
Drug Purchases					
Total Purchases	\$44,445,895	\$20,725,989	\$21,153,900	\$17,509,761	\$12,641,337
Inpatient Purchases	\$21,110,246	\$15,400,529	\$19,098,437	\$15,903,173	\$12,318,122
Purchases / Inpatient Day	\$105	\$137	\$144	\$121	\$88
Purchases / Occupied Bed	\$36,086	\$51,479	\$52,548	\$49,402	\$35,529
Purchases / Admission	\$681	\$831	\$867	\$750	\$419
Purchases / APD	\$114	\$137	\$173	\$104	\$90

Supply Chain – Pharmacy Opportunities

I/P Pharmacy Improvement

UNC I/P Pharmaceutical Spend Key Performance Indicators

	FY 2004	Future State	Target*
Net IP Pharmaceutical Spend	\$21,110,246	\$18,915,022	\$2,195,224
ADC	585	585	
IPD	200,714	200,714	
Adjusted PD	304,593	304,593	
Drug Expense per Inpatient Day	\$105.18	\$94.24	
Drug Expense per APD	\$69.31	\$62.10	
Future State Spend as a % Reduction		10.4%	

* \$1.51M of target due to utilization (68.9%); \$682K of target due to pricing/contracts (31.1%).

Additional opportunity would be realized via combining Rex Healthcare & UNCH pharmaceutical purchases.

High Level Activities

Opportunities can be achieved through:

Pharmacy & Therapeutics Committee

- Optimize structure to support system and individual hospital medication use goals (streamlining, medication safety, collaborative therapeutic decisions)

Utilization

- Implement automatic, criteria-based, pharmacist-directed therapeutic utilization management programs

Standardization

- Enforce formulary standardization in I/P and O/P/Clinic/Retail settings thru enhanced Pharmacy & Therapeutics Committee support

Supply Chain – Pharmacy Opportunities

Summary of I/P Pharmacy Savings Opportunities

This page is confidential and has been redacted.

Supply Chain – Pharmacy Opportunities

Summary of I/P Pharmacy Savings Opportunities

UNC Pharmacy Inventory Reduction				
	UNC IP	UNC Oncology	UNC Retail	UNC Total
Pharmacy Spend FY 2004	\$26,464,507	\$8,156,246	\$9,825,142	\$44,445,895
Inventory (06/2003)	\$2,540,908	\$652,627	\$616,315	\$3,809,850
Current Turn	10.4	12.5	15.9	11.7
Target Turn	13.0	13.0	17.0	13.7
Projected Savings	\$505,177	\$25,223	\$38,365	\$568,766
Calculated Inventory	\$2,035,731	\$627,404	\$577,950	\$3,241,084

Pharmacy Spend from General Ledger
June 2003 I/P Inventory includes all Pyxis and satellites

Supply Chain – Pharmacy Opportunities

I/P Pharmacy Assessment

- **Medication Use**
 - UNCH has medication control policies and procedures in place.
 - Both the Pharmacy & Therapeutics and Medical Executive Committees are supportive of clinical pharmacy practice and involvement in day-to-day medication use.
 - Pharmacists review all orders prior to administration (emergency situations excluded – retrospective review done).
 - Have “Non-formulary/Not Available” list as well as automatic therapeutic interchange program.
 - Able to maintain formulary control via patient care specific satellite and clinical pharmacist specialists.
 - NICU/PICU and Pediatric Satellite
 - OR Satellite
 - Chemotherapy Satellite
 - 17.8 FTE Clinical Specialists

Supply Chain – Pharmacy Opportunities

I/P Pharmacy Assessment

- **I/P Pharmacy Operations**

- Main I/P pharmacist and technicians enter orders (60% facility on physician order entry [POE] and 40% on traditional paper order system).
 - Average 2,907 orders entered/day in I/P Pharmacy.
 - Patient-specific satellites perform order entry during hour of operations.
 - 60% non-pediatric/NICU orders entered by techs.
 - All orders entered by techs require Pharmacist validation before dispensing.
 - POE system auto generates a paper copy in the Main I/P Pharmacy – more labor intensive than paper order process.
- Pneumatic tube delivery hospital-wide for appropriate medications.
- Pyxis cabinets utilized for all meds in all areas (no cart fill system).
 - Total of 90 Pyxis cabinets.
 - Scheduled re-stocking two times per day each with “stock-outs” done as needed.
 - Average 1,042 items in Pyxis per day (loads, unloads, refills, outdates).
- Prepare all IV additives for entire facility (I/P).
 - Average 1,467 IV preps per day.

Supply Chain – Pharmacy Opportunities

I/P Pharmacy Assessment

- **NICU/Peds Satellite Pharmacy Operations**
 - Hours of operation 7:30 AM to midnight, 7 days/week.
 - Pharmacists part of interdisciplinary patient care teams.
 - First doses dispensed from satellite.
 - All patient-specific orders entered in satellite.
 - Average 594 orders entered/day in NICU/Peds Satellite.
 - 55% ped/NICU orders entered by techs.
 - All orders entered by techs require Pharmacist validation before dispensing.
 - Prepare first dose IV additives, when required.
- **OR Satellite Pharmacy Operations**
 - Hours of operation 6 AM to 10 PM, Monday thru Friday and 7 AM to 3 PM Saturday.
 - Prepare anesthesia trays and narcotic kits.
 - Re-stock Pyxis in OR area (sterile area).
 - Prepare and dispense all pre-op medication doses.
 - Charge for all medications administered by anesthesia (via Anesthesia Record).
 - Average 550 entries per day for all OR cases.
 - Prepare specific IV additives, as needed on case-by-case basis.

Supply Chain – Pharmacy Opportunities

I/P Pharmacy Assessment

- **Oncology Satellite Pharmacy Operations**
 - Hours of operation 8 AM to 3 PM, Monday thru Friday.
 - Prepare all chemotherapy preps for I/P as well as some O/P oncology preps.
 - Average 49 antineoplastic preps per day (75% I/P/25% O/P).
 - Prepare ancillary preps (e.g., antiemetic regimen, etc.)
 - Maintain patient profile for “maximum lifetime dose” specific antineoplastic agents.
- **Investigational Drug Service (IDS) Satellite Pharmacy Operations**
 - Hours of operation 7 AM to 4:30 PM, Monday thru Friday (plus on-call).
 - 362 active investigational protocols as of FY04.
 - Prepare all investigational agents for entire facility (as required by JCAHO).
 - Average 200 preps per day.
 - Maintain sponsor-required documents.
 - Participate in audits.

Supply Chain – Pharmacy Opportunities

I/P Pharmacy Assessment

- **Financial and Inventory Management**
 - **Pharmaceutical purchasing, GPO and manufacturer specific contract management**
 - Purchase all I/P and O/P Retail pharmaceuticals.
 - GPO account and 340B account.
 - Converted to MedAssets as GPO June 2004.
 - Some increase in acquisition cost seen.
 - Working with MedAssets to improve wherever possible.
 - **Inventory Management**
 - **Financial Management**
 - Responsible for billing and collecting for retail pharmacy, UNCH-owned clinics and for transfer to UNC P&A clinics.
 - Net revenue contribution FY04 was \$4.87M.
 - **Pharmacy Benefits Counselors**
 - Responsible for securing medication via manufacturer-sponsored Pharmacy Assistance Programs (PAP).
 - Contributed to \$2M in free drug acquisition in FY04.

Supply Chain – Pharmacy Opportunities

I/P Pharmacy Summary of Recommendations

Summary of I/P Pharmacy Opportunity Areas

- **Pharmaceutical Care Outcomes Initiatives (PCOI)**
 - Enhance current medication use initiatives via implementing automatic, criteria-based, pharmacist-directed programs.
 - Pharmacist POE privileges.
 - Contracting/pricing component of PCOI is on-going due to recent GPO conversion.
- **Inventory**
 - Increase overall turns to 13.7.
- **Purchasing**
 - Combine Rex Healthcare pharmaceutical spend with UNCH.
 - Maximize economies of scale via greater purchasing power combined.
 - Will achieve higher tier with *[name redacted]* which will result in greater “cost minus.”
 - System-wide Formulary will result in additional opportunity due to improved market share.

Responsibility

- Director, Pharmacy

Timeframe

- Fourth Quarter 2004 through First Quarter 2005

Supply Chain – Supply Management Processes and Technology

Overall & Requisitioning

Assessment

Overall Functionality

- UNCH Materials Management organization encompasses following departments:
 - Purchasing, Central Distribution, Printing Services and Mail Services
- MMIS support and a Clinical Resource Specialist (overseeing Product Management process) also report under Materials Management.

Requisitioning

- UNCH utilizes the Lawson system and the Lawson Web module to process requisitions from end-users – for Inventory, non-stock catalog and non-catalog items and services.
- There are 112 end-users with requisition access to stock items, and 106 end-users with requisition access to non-stock and non-catalog items. Approximately 70% of the total requisitioning departments utilize Lawson for requisitioning. Templates are used to facilitate redundant requisitions, primarily with inventory items. However, there is great variance in construction of these templates, which has resulted in need for end-users to search the item master. There are little non-stock templates in use.
- The approval process for requisitions is assumed to be complete when requisition is received in Purchasing – no automated workflow in place.
- Additionally, UNCH utilizes Corporate Express website for users to place office supply requisitions. However, this is not integrated with Lawson application via round tripping or punch-out technology.
- Non-stock and non-catalog (specials and services) requisitions go to Purchasing for the creation of PO. Each of these requisitions is reviewed and processed by purchasing agent.

Supply Chain – Supply Management Processes and Technology Purchasing

Assessment Purchasing

- Staffing for Purchasing Department is as follows:
 - Purchasing Manager (1)
 - Purchasing Agents (8) – referred to as “buyers”
 - Clerical Support (2) and Administrative Assistant (1)
 - Clinical Resource Specialist (1) – will be discussed under the Product Management section
- Breakdown of POs processed in FY04 as follows:

Purchase Order Data										
Item Type	Total POs			Non-Blanket POs			Blanket POs			
	POs	Lines	Ext Value	POs	Lines	Ext Value	POs	Lines	Releases	Ext Value
Inventory	6,521	42,293	\$18,619,814	6,521	42,293	\$18,619,814	-	-	-	\$0
Non-Stock	9,411	29,267	\$26,510,673	9,294	28,741	\$19,830,685	117	526	5,555	\$6,679,988
Service	4,912	13,660	\$126,774,441	4,497	11,792	\$34,252,694	415	1,868	35,040	\$92,521,747
Specials	18,191	48,088	\$71,197,585	17,995	47,175	\$62,871,541	196	913	5,989	\$8,326,044
	39,035	133,308	\$243,102,513	38,307	130,001	\$135,574,734	728	3,307	46,584	\$107,527,779

- Purchasing workflow is organized by department. Buyers provide contract management functions for their particular departments, typically more a support role than a driving role to the department.
- Buyers are responsible for the entire life-cycle of a PO. They process requisitions into POs, vendor communication and follow-up on pricing/invoice discrepancy issues.
- Currently, Electronic Data Interchange (EDI) is used with Abbott, Allegiance and O&M (PO, PO Acknowledgement and Advance Ship Notice). EDI POs comprise 5% of orders, AutoFax 69%, and 26% are called into the vendor (typically releases of blanket orders).

Supply Chain – Supply Management Processes and Technology

Purchasing

Assessment

Purchasing

- Blanket Orders are viewed to be excessive, and are typically not well coordinated with the purchasing process, thus resulting in excessive labor by buyers. The top five divisions using blanket orders (in order of # of Lines) are Pharmacy, Food & Nutrition, Clinical Labs, Nursing and Audiology/Speech. Most “Service” blanket orders (PO Lines that do not require receiving), particularly in Pharmacy and Food & Nutrition, are for supplies, rather than true “services.” This is not as big an issue in Pharmacy, which has its own receiving process, but is a larger issue in other areas that have less stringent receiving and inventory management processes.
- Regular meetings are held internally and together with Accounts Payable (AP) to discuss ongoing issues and improve processes. Notable among them are:
 - An “AP / PA” (Accounts Payable and Purchasing) meeting is being held monthly by directors and managers in AP and Purchasing to discuss high level issues and strategy.
 - Corner Team Meetings are being conducted weekly with all buyers and the MMIS Analyst to discuss purchasing issues, Lawson problems, paper requisition reduction, etc.
 - Joint meetings of Purchasing and AP staff are conducted to solve problems and improve processes. Meetings are conducted without managers and held about every month.
 - AP workflow is conducted at vendor-level, while Purchasing workflow is conducted at department-level.

Supply Chain – Supply Management Processes and Technology

Sourcing & Contracting

Assessment

Sourcing and Contracting

- UNCH utilizes MedAssets as a primary GPO and Novation as secondary. The move from Novation to MedAssets was formalized in June 2004, and the conversion of contracts is underway. The combination of UNCH and Rex Healthcare is required to contract for and purchases no less than \$100M with MedAssets contracts commencing January 1, 2005 (the end of the implementation period).
- In order to meet this \$100M throughput, UNCH and Rex will need to achieve at least \$100M throughput by January 1, 2005. Currently, throughput is estimated to be at \$60M.
- As long as UNCH and Rex meet contract targets, they will receive following ancillary services at no cost. If they do not meet targets, each of these services will be billed to UNCH at prorated rates (e.g., if throughput of 80% is met, then 20% of annual cost of ancillary services received during that period):
 - Strategic Information Services
 - Local Compliance Catalog
 - Physician Preference Item (PPI) Program
 - Revenue Improvement Program
 - Master Item File Services

Supply Chain – Supply Management Processes and Technology Sourcing & Contracting

Assessment

Sourcing and Contracting

- Through the PPI program, MedAssets will attempt to negotiate contracts between MedAssets and Vendors of Physician Preference Items (PPI) – an administrative fee on sales will be paid to MedAssets. UNCH and Rex will share in either 100% or 50% of these PPI Administrative fees based upon meeting committed purchase figures.
- The approach to this MedAssets conversion is as follows:
 - Same product – same manufacturer – same or better cost on the MedAssets contract
 - Same product – same manufacturer – worse cost on the MedAssets contract
 - Equivalent product – different manufacturer
 - Physician Preference Items
- Food purchases are still under Novation contract with US Foods due to organization's desire to not utilize Sysco as food distributor.
- There is still a large amount of contracting being performed at the department level. New processes regarding tracking and the development of a repository of contracts within Purchasing were communicated to the end-user departments within the past several months. Purchasing is seeking to expand their role in the contract management process.

Supply Chain – Supply Management Processes and Technology

Sourcing & Contracting

Assessment

Sourcing and Contracting

- Per Purchasing Department management, approximately 30% of total purchases at UNCH are on contract. This is an estimate of total purchase orders (capital, equipment, services, as well as supplies) as there is no current formal method to compliance tracking. The SI application is believed to be able to provide that functionality in the future, and will require UNCH to load all non-GPO contracts into this MedAssets application.
- The Lawson application is currently used as a repository of contractual pricing for catalog items, which in turn default onto POs. UNCH will utilize MedAssets CDQuick technology to maintain item-specific contractual data, particularly for those items on MedAssets contracts. The use of Strategic Information (SI) application from MedAssets will also enable compliance reporting for both MedAssets contracts and local contracts (where provided to MedAssets). There is no single application that provides complete contract management functionality, and many of the contracts are still in paper form.

Supply Chain – Supply Management Processes and Technology

Item Catalog & Data Management

Assessment

Item Catalog and Data Management

- UNCH utilizes the Lawson Inventory Control (IC) system as an item catalog. 2,714 items are considered inventory items and 6,486 items are considered non-stock within the catalog (calculated from unique items in PO data – FY04). 176,000 PO lines were processed in FY04. Catalog items (inventory replenishment and non-stock orders) accounted for 41% of these lines. With inventory replenishment removed from the equation, 78% of the lines are non-catalog. 35% of these were blanket orders, most often with no item data – the line description included only the invoice number.
- The top divisions in terms of PO volume (excluding inventory replenishment) showed the following catalog/non-catalog ordering trend:

Note that many non-catalog purchases are for items such as equipment & custom items, which do not lend themselves to catalog – but this chart illustrates divisions with areas of low penetration in current item master catalog, such as Clinical Labs, Engineering, Occupational Therapy and Food & Nutrition.

Count of PO Lines - by Item Type	Item Type				
Top Divisions	Catalog (Non-Stock)		Non-Catalog (Specials)		Total
Surg Svcs	23,047	88.8%	2,917	11.2%	25,964
Laboratory	1,954	16.8%	9,667	83.2%	11,621
Radiology	5,954	75.8%	1,905	24.2%	7,859
Plant Engineering	1	0.0%	4,828	100.0%	4,829
Cardiac/EKG	17	0.5%	3,418	99.5%	3,435
Pharmacy	1,242	41.8%	1,728	58.2%	2,970
Nursing	7	0.3%	2,126	99.7%	2,133
Occup/Phy Therapy		0.0%	1,682	100.0%	1,682
GI/Urophys/Gastro	604	37.5%	1,005	62.5%	1,609
Respiratory Care	201	14.4%	1,194	85.6%	1,395
Cafeteria/Nutrition	102	8.0%	1,169	92.0%	1,271

Supply Chain – Supply Management Processes and Technology

Item Catalog & Data Management

Assessment

Item Catalog and Data Management

- Ongoing efforts are underway in Materials Management to add non-stock items to the item master. Surgical Services and Radiology were two of the early departments providing data – current departments being requested are Clinical Laboratories and Food & Nutrition.
- A review of data quality (using data in PO file) shows the following:
 - Inventory Items: Description quality is very good, with consistent structure of noun, adjective, adjective; vendor item numbers were missing 28% of the time; manufacturer information (manufacturer name, code and product number) is missing less than 1% of the time.
 - Non-Stock Items: Description quality is also very good, with same consistent structure; vendor item numbers were missing less than 7% of the time. Manufacturer information is missing approximately 20% of the time.
- There are seven people who have maintenance access (add and change), and one person with delete access to the Item Master file. The MMIS Analyst would like to restrict that access even further. The MMIS Analyst is the final approver for all changes to the item master.
- Inventory item adds are approved through the Product Management Committee. There is now a process in place to add items in a more standardized method, including categorization and nomenclature designations. An initiative to cleanse current items has been in place about a year.

Supply Chain – Supply Management Processes and Technology

Product Management

Assessment

Product Management

- There are several formal Product Management Teams in place at UNCH. The primary Product Management Committee is chaired by Director, Materials Management. A sub-team of this committee is the Quality Practice Council, chaired by the Clinical Resource Specialist. A Surgical Products Management Committee is co-chaired by the VP, Surgical Services and the Director, Materials Management. Both committees report to the Purchasing Contract and Oversight Committee.
- The Product Management Committee is responsible primarily for general medical-surgical supplies, and has a direct working relationship with Purchasing. There is no standing physician membership, but clinicians are involved in process as necessary. Key areas that have been identified for expansion of the Product Management process are Clinical Laboratories and Physical Plant Departments.
- The Surgical Products Management Committee is responsible for all items procured in Surgery. Service Line Nurse Managers are responsible for bringing any new product/technology request to Products Committee for review. There were previously two physicians on committee – they are currently recruiting for replacement.

Supply Chain – Supply Management Processes and Technology

Product Management

Assessment

Product Management

- Involvement with Rex Healthcare has been described as a collaborative effort, where the Clinical Resource Managers will often attend other organization's Product Management meetings and occasionally work together on group initiative. The MedAssets GPO contracts are being converted within both institutions with MedAssets providing liaison support between both institutions – for both GPO contracts and PPI.
- A review of UNCH product has identified good levels of standardization within key departments, but lesser standardization with minor departments. Examples of this include Gloves – Nursing, Surgery, etc., utilize the CD-provided product from O&M, while Clinical Laboratory has significant spend through Fisher. Warming blankets are another example of this.

Supply Chain – Supply Management Processes and Technology

Receiving & Central Distribution

Assessment

Receiving & Central Distribution

- Receiving is performed day-shift Monday through Friday. Prime vendors are scheduled during this timeframe. There is a breakdown of receiving responsibilities:
 - One FTE receives and delivers all FedEx and UPS orders.
 - One FTE receives and delivers orders to outside clinics (this person also processes stock requisitions to these areas as well).
 - Two FTEs receive and deliver all hospital non-inventory orders.
 - One FTE receives and replenishes Central Distribution.
- Deliveries for the Clinical Lab, Radiology, Pharmacy and Maintenance Departments are accepted by receiving and delivered to these areas. However, these areas receive own POs. Surgery receives own deliveries on receiving dock.
- The receiving area/central distribution area is approximately 16,000 square feet.
- UNCH is a bulk-in, Low Unit of Measure (LUM) delivery to department organization – approximately 60% of stock receipts are at the case unit of measure. The inventory in Central Distribution (CD) had a final FY04 valuation of \$1.059M and turns 16.54 times a year. There are approximately 2,300 SKUs. Gas cylinders are also managed by CD.
- CD does regular physical inventory counts. Ten percent of the SKU's in the warehouse are cycle counted monthly. Internal Audit randomly reviewed CD inventory this past year and concluded that because of the accuracy of the random count and the quality of the cycle count program, a full physical count was not necessary.

Supply Chain – Supply Management Processes and Technology

Receiving & Central Distribution

Assessment

Receiving & Central Distribution

- Par replenishment is the primary method for inventory replenishment on patient care and ancillary units. There are 160 Par locations with 119 replenished on first shift and 44 on 2nd shift.
- Approximately 57,000 requisitions per month for Par locations and 11,600 requisitions for non-par locations are processed. Currently, wireless PDA technology, integrated with the Lawson application, is in use for counting supply locations. When the Par count is complete, the requisition automatically prints in CD. This same wireless technology is being tested for receiving as well.
- Pyxis is used primarily for pharmaceuticals, and additionally in the ED for supplies. Intravenous solutions and sets are also distributed through the Pyxis system and are replenished by the CD staff. There is no integration between the Pyxis machines and the Lawson application, so a manual requisition is printed on a Pyxis printer in the CD area and staff enter a manual requisition into Lawson.
- Materials Management is currently evaluating the business case for the rental of warehouse space to move the CD location off-site. This option will greatly expand available space to MM function, and free up considerable hospital space.

Supply Chain – Supply Management Processes and Technology

Inventory Management (non-Central Distribution)

Assessment

Inventory Management – Non-Central Distribution

- Areas such as Surgery, Radiology, Cath Lab and Pharmacy maintain inventory of supplies in their areas. Some of these areas are official inventories with financial valuation performed at year-end, and some are “unofficial.” The chart illustrates FY03 and FY04 ending valuations.

Inventory Values	Ending Value		
Area	FY03	FY04	Change
Central Distribution	\$1,126,345	\$1,059,477	-5.94%
Surgical Services	\$6,513,754	\$6,504,005	-0.15%
Pharmacy	\$3,703,346	\$3,809,850	2.88%
Radiology	\$710,495	\$660,129	-7.09%
Cardiac Cath	\$1,084,740	\$1,292,567	19.16%
Others	\$464,307	\$431,465	-7.07%
Total Valued Hospital Inventory	\$13,602,987	\$13,757,493	1.14%

- Inventory management varies widely within organization. It ranges from tight to little control.

Supply Chain – Supply Management Processes and Technology

Inventory Management (non-Central Distribution)

Assessment

Inventory Management – Non-Central Distribution

- **Surgery Inventory**

- Several Inventory Locations (Central Processing Department, K-Mart, Macys and Target) make up Surgical inventory, along with miscellaneous supplies in rooms.
- Four inventory techs manage inventory through Pars on all non-CD provided supplies. Manual Par sheets are filled out, and then created into requisitions by personnel in Surgery's business office. There is also an OR Buyer who resides in Surgery Business Office responsible for processing POs. All non-CD supply is counted and documented for replenishment daily by the techs.
- Surgery System (GE's iPath) provides preference cards as surgeries are scheduled. Case Carts are initiated (80%) in CPD starting on second shift, transferred to the "K-Mart" for completion, and then staged for the next day's cases. However, none of the Surgery locations are perpetually tracked in Lawson, so they require the Par counting and requisition creation for replenishment of supplies.

Supply Chain – Supply Management Processes and Technology

Inventory Management (non-Central Distribution)

Assessment

Inventory Management – Non-Central Distribution

- **Cardiac Cath Lab Inventory**

- Inventory maintained by Stores Clerk (under Cath Lab cost center). No clear-cut Par schedules, inventory replenishment or physical count schedules. Physical review of inventory revealed limited organization of product groups.
- The Cath Lab is in the process of setting up their products in the WITT application (Cardiac Cath Lab Information System).
- The Cath Lab was previously reported to have significant product under consignment – and recently returned to an ownership process. This may explain some of the 19% increase in value from FY03 to FY04. This is also due to the opening of a new cath lab, an increase in biopsy procedures and a co.'s refusing to consign a product.

- **Radiology Inventory**

- Radiology has one primary storeroom and three closets.
- Rooms are stocked out of these locations. Two Radiology resources manage the inventory and any requisitioning, along with asset management. They use templates to determine replenishment needs.
- Short-term goal to implement a perpetual inventory system in Radiology.
- Consignment of approximately \$400K.

Supply Chain – Supply Management Processes and Technology

Inventory Management (non-Central Distribution)

Assessment

Inventory Management – Non-Central Distribution

- **Food & Nutrition Inventory**

- Food & Nutrition (F&N) has a bulk room where floor stock is maintained, along with inventory locations for fresh and frozen food products. Three to four FTEs maintain inventory in F&N area, but no official inventories or Pars are kept. Pilferage is believed to be present at some level.
- Of a greater concern is lack of controls over floor stock once delivered to floors. Nurse Managers identify the floor stock levels and communicate to F&N. There is no charging of the expense for floor stock – F&N is currently looking into.

Supply Chain – Supply Management Processes and Technology

Information Systems and Analytics

Assessment

Information Systems & Analytics

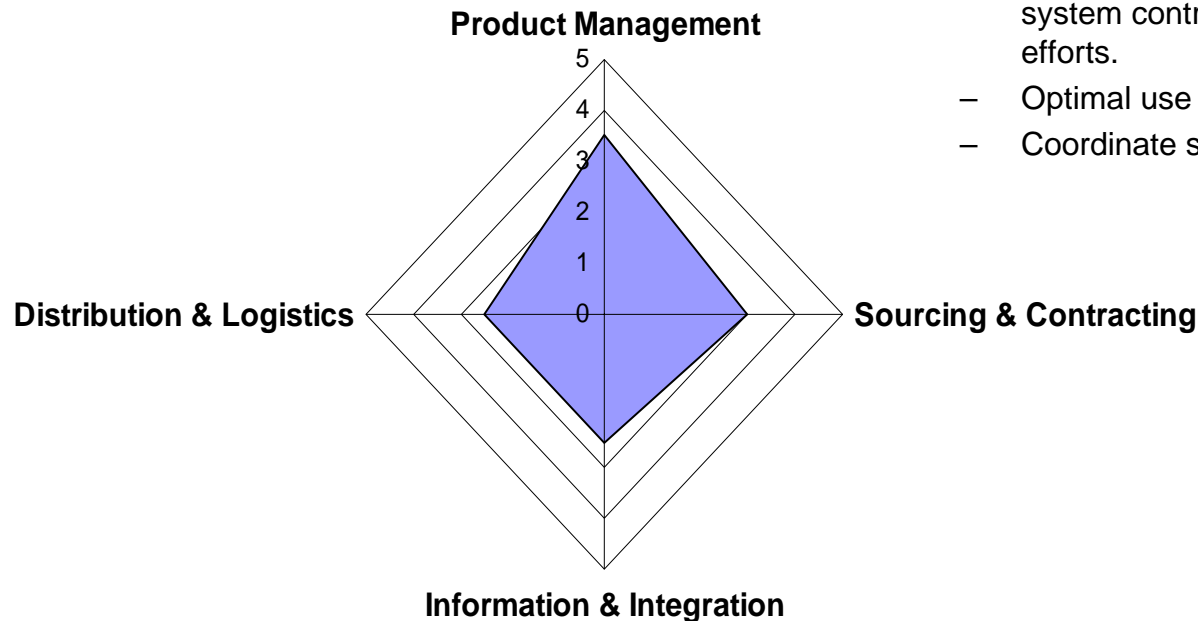
- UNCH utilize Lawson v 8.03 General Financials (General Ledger, Accounts Payable, etc.) and Supply Chain (Purchasing, Inventory Control, Requisitioning) ERP applications. UNCH has used Lawson since 1997 with conversions to appropriate upgrades done when available.
- Lawson's web-based Requisition Self Service module is used by approximately 70% of requesters.
- Integration with Surgery's iPath (GE) application is one-way (item data to iPath). Surgical resources use Lawson Requisitioning to request product.
- Pyxis supply stations are used in ED, and pharmacy stations are used house-wide. IV solutions from Central Distribution are stocked in the pharmacy stations. There is no integration to the Lawson system.
- No integration to the Patient Accounting system for patient chargeable supplies – however, periodic item pricing files are sent to PA for update of the Charge Description Master (CDM).
- UNCH uses wireless handhelds for Par counting and replenishment activities, and is currently expanding use to receiving.
- Both standard Lawson reports as well as Business Objects Web Intelligence analytics tools are used. There are limited resources who are able to use the Business Objects reporting tools.
- Future plans to utilize MedAssets' Strategic Information (SI) system will allow both UNCH and Rex Healthcare to consolidate purchase order data for review.
- Purchase Order transmission is approximately 5% EDI, 69% Autofax, and the remaining 26% phoned in to vendor. Those phone-in orders are primarily Blanket Orders.
- Pricing updates are provided by O&M and Cardinal – O&M provides an 832 EDI transaction – Purchasing uses the 832 report to perform comparison of pricing and corrections. Cardinal provides spreadsheet – Purchasing also compares against current pricing and corrects as appropriate.

Supply Chain Effectiveness Grid – Performance Stages

PERFORMANCE STAGES					
	Stage 1 (Lower Performer)	Stage 2	Stage 3	Stage 4	Stage 5 (Leading Practice)
Contracting Characteristics	Ad hoc by user	GPO with activity driven at the site level	GPO combined with some local contracts Significant efforts underway to optimize compliance and tier levels in GPO contracts	Optimized GPO relationship with majority of high dollar items covered by System-specific contracts Evaluating the value of the GPO relationship	System controls contracting activity – no hidden costs Rebates flow to the System Beginning to test alternative contracting strategies
Standardization Utilization Characteristics	No efforts around standardization of utilization	Value analysis in place for med-surg and sporadic other products on site-by-site basis; limited results	System Value Analysis process in place for majority of products Broad variance in effectiveness and participation across the System	Well-structured and broad Value Analysis process in place with focused leadership and clear objectives Effectiveness and measurement vary	Value analysis teams leveraging strong data around standardization and utilization are very effective in impacting costs Strong/effective guidelines on new products tied to outcomes
Distribution Logistic Characteristics	Bulk distribution through several different distributors for the same products across the System	Evaluate LUM distribution and conduct pilot programs	Majority of appropriate facilities are on JIT/LUM services Materials personnel begin to take roles in key departments to drive ordering and inventory management	JIT/LUM distribution in totes through distributors for all significant sites Only STAT inventories maintained All significant inventories (OR, Cath Lab, etc.) across the System are counted at least once per year	System controls logistics channels and costs with increasing volume through one channel (owned or outsourced) Limited receiving at facilities
Infrastructure Characteristics	Paper-based approach with limited information available for measurement	Use Materials Management Information System (MMIS) on a site-by-site basis Significant data integrity issues	Common MMIS for the System leveraging system data but significant data integrity issues limit utility of information Use of electronic ordering for top vendors	Significant portion of departmental catalogs for 70% of order volume in use primarily for ordering tied into MMIS High degree of POS technology integration Ability to aggregate data, but limited tools to apply other efforts	eProcurement and eFulfillment technology in place with significant data flowing electronically with a broad range of manufacturers Performance measurement in place around all aspects of the supply chain

* **RED and BOLDED** statements represent current state of UNC HCS

Supply Chain – Supply Management Processes and Technology Recommendations



- **Key Strategy Points**

- Use of technology to support process and analytic efficiencies.
- Dedicated resources and processes devoted to contracting and sourcing.
- Analytic resources and technology to support system contracting and product management efforts.
- Optimal use of GPO.
- Coordinate system-wide purchasing volumes.

Supply Chain – Supply Management Processes and Technology Recommendations

Recommendation

Supply Chain Authority

- University of North Carolina Health Care System (UNC HCS – includes both UNC Hospitals and Rex Healthcare) should establish a Supply Chain Committee of senior executives to sponsor and promote a system-wide supply chain agenda of coordination, cost reduction, standardization and technology enablement.
- Certain functionality (Product Management, Contracting, and Data Management & Analytics) should be established at the System level to support this “system supply chain agenda.”

Coordination and Alignment

- UNC HCS can benefit from establishment of “rules of engagement”, which are clear principles, policies, procedures and lines of authority that support the overall System supply chain goals. In order to clarify roles and responsibilities in the supply chain and minimize the occurrence of misunderstandings, “rules of engagement” must be agreed upon by the key stakeholders. The points listed on the following page are intended to serve as general guidelines on “who does what” in the supply chain.

Supply Chain – Supply Management Processes and Technology Recommendations

Recommendations

Coordination and Alignment

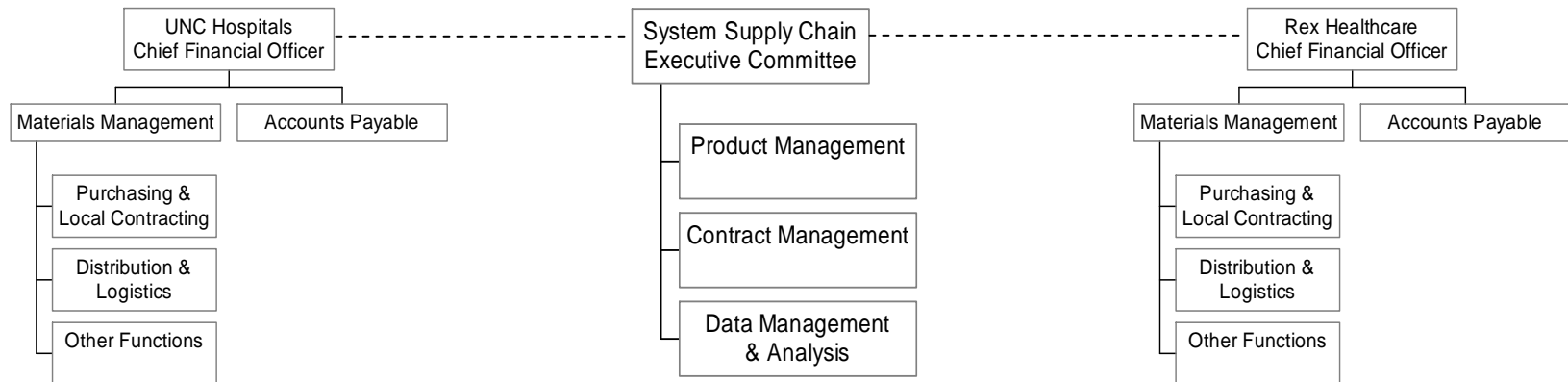
- The System Supply Chain function will:
 - Implement a sole strategy for requisitioning and purchasing (e.g., eProcurement) *with the Facility responsible for solely developing and utilizing this method.*
 - Implement a consolidated product management process to drive common product choices across UNC HCS *with the Facility providing demand and input.*
 - Develop metrics around the financial targets set by the System Supply Chain Committee *with the Facility accountable to manage its own budget.*
 - Be solely responsible for negotiating and contracting system-level contracts *reflecting the collaborative preferences of the Facilities.*
- The processes, accountabilities and roles in System Supply Chain Management need to be restructured to foster coordination, align goals and improve lines of communication.
- Certain functions should be centralized at the System level:

System Functions	Facility Functions
Product Management	Purchasing
Contract Management	Receiving
Analysis Support	Requisition Management
Data Management	Invoice Matching/AP
	Inventory Management

Supply Chain – Supply Management Processes and Technology Recommendations

Coordination and Alignment

- UNC HCS should drive consistent processes and procedures across the system in order to fully support information sharing and analysis.
- System functions would support both UNC Hospitals and Rex Healthcare. Resources could be optimally co-located. This would look organizationally like the following:



Supply Chain – Supply Management Processes and Technology Recommendations

Product Management

- **Purpose**
 - Implement a consolidated value analysis process to drive common product choices across System with the facilities providing demand and input.
- **Roles**
 - Establish an Executive Supply Chain Product Management Committee led by senior executives of System facilities (both UNC Hospitals and Rex Healthcare) to provide oversight, monitor and promote product system-wide standardization and utilization initiatives.
 - Develop clear roles and job descriptions with scope of responsibilities delineated within a strategic framework.
- **Activity**
 - Develop rolling three-month agendas and recruit physician support from both facilities on interim basis to support that rolling agenda.
 - Develop process to ensure that System decisions and directives are carried out at the facility level. Executive Supply Chain Committee will be tasked to managing any and all political and preference ramifications from decisions.
 - Work closely with System Contracting function and obtain support from Data Management/ Analytics group to promote system-wide supply chain initiatives.

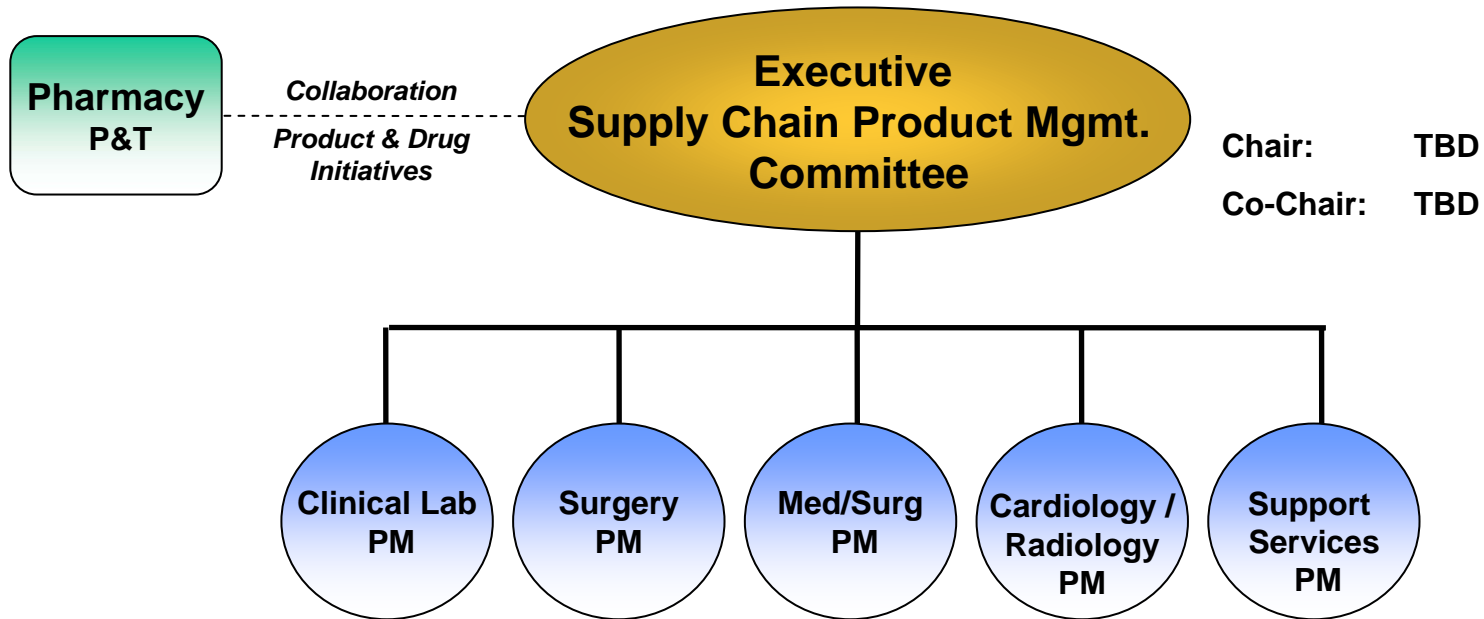
Supply Chain – Supply Management Processes and Technology Recommendations

Product Management

- **Skills**
 - Provide education as necessary on value analysis and product evaluation techniques.
- **Information to support product management program**
 - Implement requisitioning recommendations to improve data capture and consistency.
 - Develop an analysis function at the corporate level which analyzes overall supply chain performance (contracts, standards, utilization, etc.) and reports out to all stakeholders on a routine basis.
 - Develop standardized analytic approaches that facilitate product evaluation and value analysis.

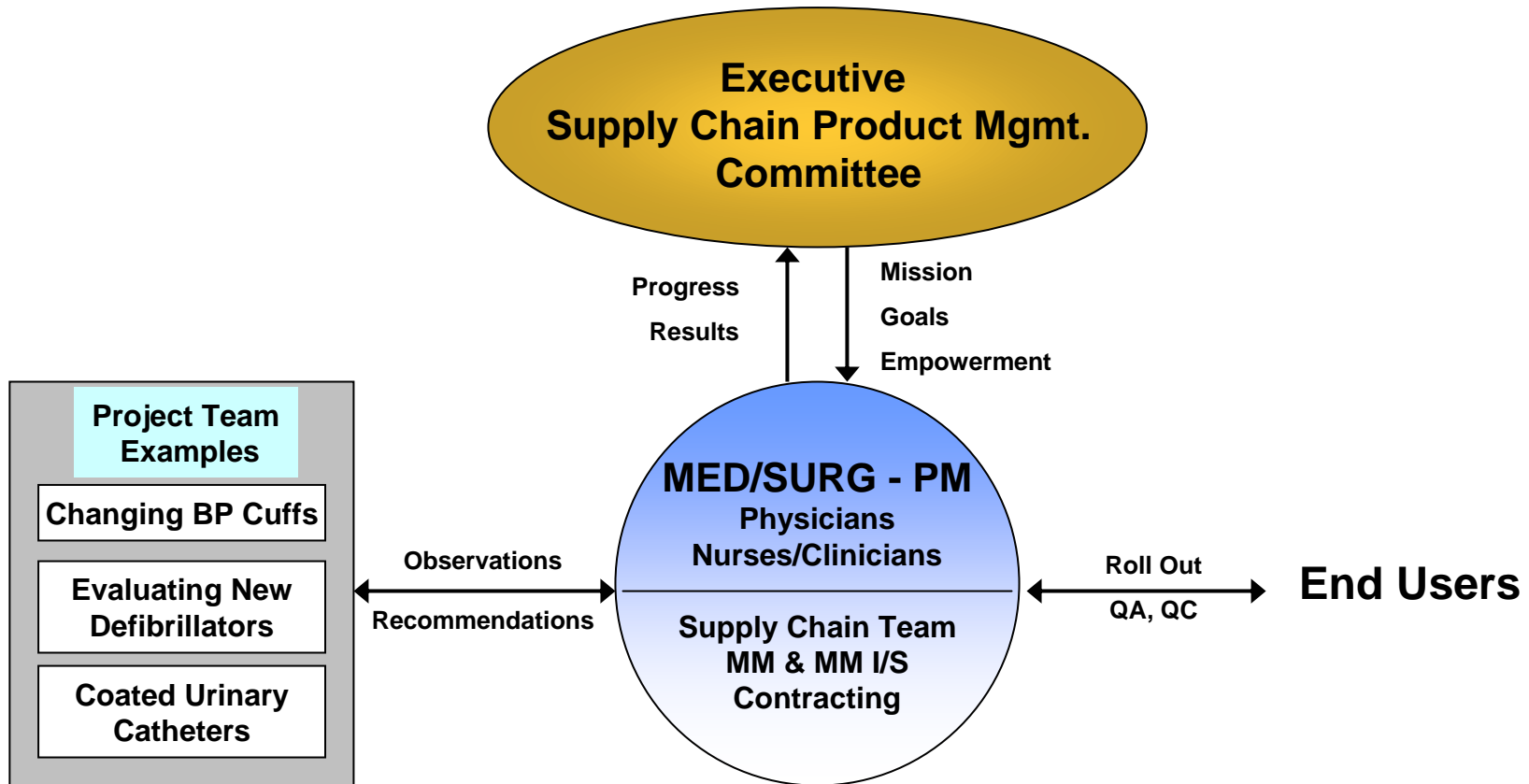
Supply Chain – Supply Management Processes and Technology Recommendations

Proposed Product Management Structure



Supply Chain – Supply Management Processes and Technology Recommendations

Example of Product Management Workflow



Supply Chain – Supply Management Processes and Technology Recommendations

System Contract Management

- **Purpose**

- Development of System contracting organization responsible for interaction with Resource Management and both UNC Hospitals and Rex Healthcare for sourcing and contracting.
- Utilization of GPO for select commodity items to allow corporate contracting to focus on high-dollar supplies.

- **Department Organization**

- Assign contracting personnel by commodity groupings, allowing contracting agents to:
 - Develop expertise in particular products which could be leveraged for credibility in working with hospital personnel.
 - Continue to cultivate relationships with select vendors in order to facilitate favorable contract negotiations.

- **Staffing Level**

- Number of contracting staff should reflect the workload; the more items are placed on GPO contracts, the lower the workload remaining for the contracting staff; once contracting office is established and able to focus on higher value initiatives, ongoing decision on how many staff should be based on the marginal utility of each employee compared to their salary and benefits cost.
- Contract Management staff assigned to appropriate Product Management teams.

Supply Chain – Supply Management Processes and Technology Recommendations

System Contract Management

- **Contracting Authority**
 - Establish clear policies on lines of authority to enter into contracts for supplies and services across the system.
 - Contracting authority should reside first at System Contracting on most supplies and services contracts with few exceptions for local contracting.
- **Pricing Verification**
 - UNC HCS should implement appropriate contracting technology, which allows for contract information, including pricing, to be input into respective MMIS; this would allow Purchasing personnel to verify pricing at the time of order placement.
- **Usage Information**
 - System should implement appropriate requisitioning technology to encourage use by end users and gather pricing, usage and volume information to enhance its negotiating position.

Supply Chain – Supply Management Processes and Technology Recommendations

System Contract Management

- **Initial Goals**

- Reduce total delivered cost by consolidating vendor base – using two processes – dollar-based and certification.
 - **Dollar Based:** Identify active vendors; calculate dollars spend with each vendor per annum. Establish a minimum dollar standard. Identify all vendors that fall below the minimum standard. Evaluate necessity of doing business with vendors falling below dollar standard; If not necessary, then eliminate the vendor. Encourage major vendors to become distributors for minor vendors.
 - **Certification:** Distribute vendor response forms to vendors surviving initial “dollar value-based” reduction process; meet with vendors to review information. Determine vendor rating with pre-established performance criteria. Eliminate vendors that do not meet certification criteria as possible. Monitor vendor performance on an ongoing basis. Establish step-by-step plan to improve vendor performance, and communicate performance feedback with vendors on a periodic basis. Recognize vendors that achieve higher levels of certification (improve performance).
- Work to achieve at least 90% of items (stock and non-stock) in the master files to have current contract associated and contract pricing.

Supply Chain – Supply Management Processes and Technology Recommendations

System Contract Management

- **Initial Goals**

- Expand involvement of contracting resources to all areas of organization. This should be part of regular process of new technology additions, new product areas, new service and purchased service contracts, etc.
- Develop or purchase technology infrastructure to capture all relevant contract documentation (Line Items & Pricing, but also T&Cs, associated RFPs and responses, etc.) Ensure that technology can be interfaced with both Lawson and Pathways Materials Management.

- **UNC HCS should develop a corporate strategy for the optimal use of their GPO.**

- UNCH and Rex Healthcare should evaluate product lines that are optimally supported by the GPO model, and identify product lines that should be separate from this model.
- They provide contracting support for the high-volume, lower-value commodity products, but organizations with sufficient purchasing clout can often obtain better price points on the higher-value physician preference and technical supplies.
- UNCH and Rex should understand the conflict inherent within the GPO's revenue model and the effect on the cost-benefit of what product lines should be included.
- Develop corporate strategy to utilize GPO for commodity products and optimize the self-sourcing contracting ability of the combined system.

Supply Chain – Supply Management Processes and Technology Recommendations

System Measurement, Analysis and Data Management

- **Purpose**
 - Establish an infrastructure that facilitates the identification, design and overall strategic purpose of supply chain data standardization, measurement, analysis and reporting at UNC HCS.
- **Measurement**
 - Create a system to assure the timely communication of performance measures across the System.
 - Identify a select set of the key performance indicators as a “report card” to measure cost and productivity performance and tracking toward organizational supply chain goals.
 - Determine distribution and schedule.
 - Assign responsibility for routine reporting.
 - Measure all Product Management initiatives, both in analysis phase and post-implementation to validate that opportunity has been realized.
- **Data Accuracy**
 - Institute a content management program with an up-front effort to cleanse data currently in the item file and to insure accuracy of items as they are input.
 - Expand item files to account for 80% of routine spend, as well as 100% of contracted supply.
 - Institute process to involve materials management personnel to assist in appropriately mapping supplies expenses to G/L; do not allow departments to change supplies account categorization to meet budget considerations.

Supply Chain – Supply Management Processes and Technology Recommendations

UNCH Recommendation

- **Item Master & Data**

- Continue to expand the scope of the item master to include all routinely ordered items. Evaluate current blanket orders to determine what items can be input with contractual pricing into Lawson. For those blanket orders with no line-item detail, work with department to identify, cleanse, obtain contractual pricing, and input into item master. Develop templates and train department in use of Web-Requisitioning.
- Develop standard (system-wide) item description and classification scheme, cleanse/classify current items, and enforce the normalized standard for all future item adds and changes.
- Reduce the number of resources available to perform adds or changes on items. Coordinate the maintenance efforts with the Product Management and Contracting processes.
- Work with key vendors to obtain item information and updated pricing on continual basis – develop process to automate that review and entry within system.
- Ensure that at least 90% of items on item master have contract pricing attached, whether GPO, System or local.

- **Requisitioning**

- Work to achieve at least 90% of requisitioning departments use Lawson system for self-input. Expand the ability for end-user development of templates.
- All non-catalog requisitions must be entered into Lawson **prior** to purchase. Eliminate the number of PO transactions with an invoice line as only detail.

Supply Chain – Supply Management Processes and Technology Recommendations

UNCH Recommendation

- **Purchasing**

- Develop Supply Chain strategy requirements for each type of order process. Educate strategy and benefits to customers and enforce processes. Purchasing Department will set goals for the percentage of these types of orders and work with responsible parties to develop action plans to meet goals.
- Reduce the amount of purchases using blanket orders to gain better data on spend. Blanket orders should be infrequently used and should require approval of Purchasing Manager.
- Expand EDI coverage with additional vendors – initially based on those in GHX communication set, then based on cost-benefit to developing additional connections. Insist on ability of vendors to provide Price Files via EDI process.
- Develop “round-trip” technology connections with key vendors (Corporate Express, Grainger, Graybar, etc.), to ensure the capture of item-level detail in the PO system.

Supply Chain – Supply Management Processes and Technology Recommendations

UNCH Recommendation

- **Receiving**

- Complete implementation of Wireless PDA receiving.
- Take over receiving duties for OR, Radiology and Cath Lab. Develop schedule for staging and/or delivery to these areas.
- Ensure all deliveries not needing to be received in Lawson are delivered directly to the requesting location or to the Mail Room.

- **Inventory Management & Distribution**

- Expand Materials Management oversight into unofficial inventory locations in organization. This can be at level of full management of inventory to assistance with development of Pars, technology, and education of appropriate inventory management and replenishment levels. Key areas recommended for Materials assistance would be:
 - Cardiac Cath Lab
 - Food & Nutrition
 - Plant Operations
- Assist Surgery in determining proper Par levels. Ensure warehouse levels are taken into account when determining the OR levels.
- Evaluate current multi-site strategy for OR inventory – determine opportunity to consolidate as space allows.
- Re-evaluate floor stock Par levels based on usage reports. Evaluate whether opportunity to decrease daily counts of supply closets to every other day.

Supply Chain – Supply Management Processes and Technology Recommendations

UNCH Recommendation

- **Inventory Management & Distribution**

- With the floor stock par locations, there is opportunity for specialization in counting locations and picking requisitions. As counts are completed on the floors, order selectors in CD begin filling orders in Central Supply. Order selectors will be measured on order accuracy and productivity. Current system has the resources counting the Pars picking/filling then delivering orders after completing Par counts.
- Invest in alternate storage systems that maximize storage in departmental supply locations.
- Develop System consignment process and policy – ensure that all unofficial areas adhere to process – System Contract Management and Facilities' Purchasing to hold any and all consignment contracts. Consignment contracts should include the following (at a minimum):
 - Line item detail of products on consignment
 - Duration of contract
 - Signature of an administrator authorized to sign a contract

Responsibility

- Director, Materials Management, Manager, Purchasing, Manager, Distribution & Logistics
- Departmental Resources as appropriate

Timeframe

- First through Third Quarter 2005

Supply Chain – Supply Management Processes and Technology

External Warehouse/Distribution Opportunity

Assessment

- UNCH Materials Management is evaluating option of moving warehouse receiving and distribution functions off-site in order to provide space for other service needs (Linen Clean & Soiled storage, and Biomedical Services, along with the move of Hospital Police, peripheral construction of a new PET Scanner and Pediatric Department Conference Room).
- Additionally, other off-site storage moves are affected by this move, including space at Stencil Complex that is being taken away (UNCH will be forced to find space) and current surplus storage at Starpoint facility.
- The following page illustrates the estimated five-year Net Present Value (NPV) of both the off-site move and the utilization of O&M's Low Unit of Measure (LUM) program.

Recommendation

- While both options have negative NPVs, other required hospital moves mandate some change in space available to Central Distribution. The off-site storage option is the lower of the negative NPVs, given current distributor-provided quotes for LUM service.
- However, if UNCH should obtain better contractual agreement for LUM from O&M (less than \$119K monthly for service), this option would be more advantageous. Leading practice LUM price shows this to be possible.

Responsibility

- Director Materials Management, SR VP, Professional & Support Services

Timeframe

- Second and Third Quarters 2005

Supply Chain – Supply Management Processes and Technology

External Warehouse/Distribution Opportunity

Current Configuration		Off-Site Distribution		Low Unit of Measure (LUM) thru O&M			
Rent of off-site space (with initial cash outlay for construction & equipment) of 20,775 ft ² . On-Site space reduced to 8,000 ft ² with free'd 8,000 ft ² available for Linen Services / Biomed. Additional space in off-site location available for current material in Stencil Property & IT's Surplus Warehouse.		Reduction in On-Site space by same amount (8,000 ft ²) through use of Distributor-provided LUM service. Will enable a 75% reduction in current CD inventory, but will require increase in distribution fees of approximately \$796K. Reduction in FTEs by 16.7%.					
FACILITY	Currently using 16,000 ft ² within UNC Hospital Bldg	Shelving, Equipment, IT, Phone System, etc. (estimate per C Mauro)	Initial \$ 225,500	Ongoing (yr.) \$ -	System Implementation Costs to support LUM timing and Interfaces	Initial \$ 100,000	Ongoing (yr.) \$ -
	Sharing space with Linen Services (Clean Distribution & Soiled), Pharmacy Storeroom, & Biomedical Engineering.	Avoidance of Initial In-House Construction Costs (\$90/ft ² from Mel Hurston) for 8,000 ft ² (Reduction in CD use - will be used for Linen, Biomed)	\$ (720,000)	\$ -	Avoidance of Initial In-House Construction Costs (\$90/ft ² from Mel Hurston) for 8,000 ft ² (Reduction in CD use - will be used for Linen, Biomed)	\$ (720,000)	
		Elimination of Ongoing Rent from Stencil Property and IT Offsite storage		\$ (62,000)	Would not be able to eliminate Ongoing Rent for Stencil. Additional cost of rent for replacement (forced) of Stencil		\$ 37,940
		Ongoing Expense of Rent, IT and Facility Infrastructure Costs.	\$ -	\$ 185,600	Assumes decrease in inventory (replenishment burn-down/negotiated O&M buy-back in Year 1) by 75%. On-Site CD inventory would be reduced to 25% of current level.	\$ (794,250)	\$ -
	TOTAL FACILITY:		\$ (494,500)	\$ 123,600		\$ (1,414,250)	\$ 37,940
DISTRIBUTION	Distribution through O&M - bulk purchases. Approximately \$10.2 Million Annually.	No change in distribution fees.			LUM and any additional Distribution fees from Owens & Minor (Midpoint of the monthly \$122K-\$140K range quoted) - less current distribution fee portion - \$16M @4.85% - or - \$776,000.		
	Central Distribution provides LUM delivery to departments.	Assumptions from MM: Can provide with current vehicle, but has an estimate for additional transportation cost of fuel for additional 3 trips per business day from warehouse to hospital.	Distribution Fees \$ -	\$ -		Distribution Fees \$ -	\$ 796,000
	Total Distribution:		Transportation \$ -	\$ 6,000		Transportation \$ -	\$ -
LABOR	There are currently 54 positions in Central Distribution.	Net increase of workforce estimate for implementation and management of Off-Site solution.	FTE \$ -	1	Net reduction of workforce estimate for use of Distributor-provided LUM solution. This is a 16.7% reduction of current warehouse FTEs.	FTE \$ -	(9)
			Labor \$\$ \$ -	\$ 35,000		Labor \$\$ \$ -	\$ (315,000)
	Totals			\$ 35,000			\$ (315,000)
			\$ (494,500)	\$ 164,600		\$ (1,414,250)	\$ 518,940
		Year1 Cash Impact	\$	329,900	Year1 Cash Impact	\$	895,310
		Year2	\$	(164,600)	Year2	\$	(518,940)
		Year3	\$	(164,600)	Year3	\$	(518,940)
		Year4	\$	(164,600)	Year4	\$	(518,940)
		Year5	\$	(164,600)	Year5	\$	(518,940)
		5-Year NPV Calculation	Off-Site LUM Solution	\$ (226,846)		Distributor-Provided LUM Solution:	\$ (851,766)

Supply Chain – Supply Management Processes and Technology

External Warehouse/Distribution Opportunity

Assessment

- The analysis at the right illustrates the range of monthly O&M fees that would provide an NPV equal to NPV for off-site option and an NPV equal to \$0.
- Currently, the high-level quote provided by O&M is for a total of \$122K to \$140K monthly (inclusive of current distribution fees).
- The analysis shows the range for the above options to be between \$114K and \$119K monthly.

Analysis for LUM Breakeven Points		Total Monthly	Total Annual	Add'l Monthly Fees	LUM Fees as % of Spend
O&M Low estimate		\$122,000	\$1,464,000	\$57,333	4.30%
O&M High estimate		\$140,000	\$1,680,000	\$75,333	5.65%
O&M Midpoint Estimate		\$131,000	\$1,572,000	\$66,333	4.98%
Current Distribution Fees (@ 4.85% of \$16M)		\$64,667	\$776,000		
Base Model - using current Midpoint Estimate		\$66,333	\$796,000		
		Total Monthly	Total Annual	Add'l Monthly Fees	LUM Fees as % of Spend
Total O&M Fees - to equal Off-Site's option NPV		\$118,637	\$1,423,646	\$53,971	4.05%
	Yr 1 Cash Impact	\$1,043,664			
	Yr 2 Cash Impact	(\$370,586)			
	Yr 3 Cash Impact	(\$370,586)			
	Yr 4 Cash Impact	(\$370,586)			
	Yr 5 Cash Impact	(\$370,586)			
	5-yr NPV	(\$226,846)			
Total O&M Fees - to equal \$0 NPV		\$114,149	\$1,369,794	\$49,483	3.71%
	Yr 1 Cash Impact	\$1,097,516			
	Yr 2 Cash Impact	(\$316,734)			
	Yr 3 Cash Impact	(\$316,734)			
	Yr 4 Cash Impact	(\$316,734)			
	Yr 5 Cash Impact	(\$316,734)			
	5-yr NPV	\$0			

Data Sources

- Patient Statistics for FY04
- General Financial Statements (FY04)
- General Ledger File (FY04)
- PO Lines (FY04)
- AP Distribution (FY04)
- Inventory Transactions (June to August 2004)
- Department Directors provided detailed information (e.g., Dietary Stats, Surgical Cases, etc.)
- Vendor Contracts