MEMORANDUM

TO: Emily C. Blomberg  
Associate Vice President, Health System Operations

FROM: Kimberly K. Hagara, CPA, CIA, CISA, CRMA  
Vice President, Audit Services

DATE: November 4, 2015

SUBJECT: Pharmacy Inventory  
Engagement Number 2015-040

Attached is the final audit report regarding the Pharmacy Inventory Management. This audit will be presented at the next Institutional Audit Committee meeting.

Additionally, please find attached Audit Services audit recommendation follow up policy. Each of the recommendations is classified by type and risk level at the end of its identifying number. As you will note in the policy, the classification of the recommendation determines the frequency of our follow up. All follow up results are reported quarterly to the Institutional Audit Committee.

Thank you for your cooperation and assistance during the course of this review. If you have any questions or comments regarding the audit or the follow-up process, please feel free to contact me at (409) 747-3277.

Attachments

c: Donna K. Sollenberger  
Deborah A. McGrew  
Kimberly A. Sergeant  
Mark A. Garcia
The University of Texas Medical Branch
Audit Services

Audit Report
Pharmacy Inventory Management
Engagement Number 2015-040

November 2015

The University of Texas Medical Branch
Audit Services
301 University Boulevard, Suite 4.100
Galveston, Texas 77555-0150
Background
The University of Texas Medical Branch's (UTMB Health's) Department of Pharmacy's (Pharmacy) mission is "To support the institutional goals of improving the health of patients by ensuring safe and optimal drug therapy; educating healthcare providers, patients, and future leaders in pharmacy; and supporting drug related research."

Pharmacy provides the following services in support of its mission: comprehensive pharmaceutical care, including quality, cost effective therapy; central and decentralized automated drug distribution services; comprehensive intravenous (IV) and chemotherapy services; drug information; investigational drug services; clinical services; an American Society of Health-System Pharmacists (ASHP) accredited residency program; and Introductory and Advance Pharmacy Practice Experiential rotations for three Colleges of Pharmacy.

The Central Pharmacy located at the UTMB Health main campus consists of an Order Entry Area; a Medication Distribution Area; a Compounding and Prepackaging Facility; a Sterile Products Area; Automated Distribution System; and a Controlled Substance Vault operation. The central operation supports all inpatient and outpatient care areas with the exception of satellite pharmacies located in Shriner Burns Institute, the Texas Department of Criminal Justice Hospital, the Oncology Clinic, and the Operating Room.

Through July 2015, the Central Pharmacy's adjusted margin was approximately $8.0 million with a cost of goods sold of $17.7 million.

Annually, the Office of Audit Services reserves project hours for requests to review select operational activities within the institution. This engagement was performed at the request of the Associate Vice President, Health System Operations.

Audit Objective
The primary objective of this audit is to review the inventory valuation and cost of goods sold processes, including related operational internal controls, for the University of Texas Medical Branch's (UTMB Health) Central Pharmacy.

Scope of Work and Methodology
The audit scope focused on current operations. Our audit methodology included interviews, observations, policy and procedure review, limited testing, and data analysis.

The audit was conducted in accordance with the International Standards for the Professional Practice of Internal Auditing as promulgated by the Institute of Internal Auditors.

Audit Results
Audit Services interviews with key Pharmacy and Health System personnel, benchmarking and review of transactions indicated certain methodologies and practices affecting inventory valuation are based on historical decisions and not reflective of current industry practices.
Pharmacy and Health System personnel indicated an awareness of the need to forge new processes that will improve oversight of Pharmacy inventory.

**Inventory Valuation and Cost of Goods Sold (COGS)**
UTMB Health purchases its pharmaceutical inventory from Morris & Dickson Co., LLC, a full-line wholesale pharmaceutical distributor, under one of three different pricing programs based on the purchase. These programs include: 340b, wholesale acquisition cost (WAC), or group purchasing organization (GPO) pricing.

Pharmacy uses Morris and Dickson's "M&D Web Portal" to place orders and manage the inventory including tracking usage, orders, and replenishing the inventory daily. The purchasing information from the Morris and Dickson system is used to update the inventory financial information in the Institutional Financial Management System, PeopleSoft.

To assess the accuracy of institutional inventory records, Audit Services conducted a physical inventory count of 10 randomly selected non-controlled drugs. Nine of the 10 drugs (90%) had discrepancies in counts, both shortages and overages, between the perpetual inventory records in Morris & Dickson's (M&D) system and the auditor's physical storeroom counts. However, the auditor's counts of 28 controlled substance drugs in the vault noted 100% of the drugs matched the CareFusion (Pyxis® supply management) system counts.

Follow-up discussions with the Senior Team Leader Pharmacy Purchasing indicated the M&D system is an antiquated system, and shortly after Hurricane Ike, Pharmacy personnel noticed the M&D system counts were inaccurate. Prior to this point, cycle counts were performed and the M&D system relied upon for tracking and purchasing activities. Once the M&D perpetual records counts were determined unreliable, Pharmacy halted the cycle counts, shifting to using par levels for reorder points and maintaining an internal periodic inventory system. Biannually, Pharmacy engages an external firm to perform a physical inventory. Valuation of the inventory, after completion of the physical inventory, is at GPO pricing regardless of the mix of inventory at the time of the count. Depending on the mix of inventory, this can result in an overvaluation of the inventory and undervaluation of the Cost of Goods Sold (COGS). It is anticipated with the planned implementation of Epic's "Willow" pharmacy module, the department will move back to a perpetual inventory system for the outpatient/retail pharmacy operations. A planned future developer upgrade to Willow should also allow for perpetual inventory management for inpatient pharmacy operations.

UTMB Health uses a "Cost of Goods Sold" (COGS) methodology for pharmacy activity. In addition to the impact of the inventory valuation noted above, during our review of transactions to the COGS, we noted the following practices based on historical decisions that may not reflect current best practice:
- Several clinical departments are not charged for the pharmaceuticals issued to them for use in their clinics. During FY 2015, 15 departments received approximately $1.5 million in pharmaceuticals which were absorbed within the COGS and the Pharmacy's margin.
- Monthly, an adjustment of 3% is applied to COGS to account for waste. The need for the calculation or its basis has not been reviewed or updated since its inception during the late 1990s.
Additionally, in April 2013, Pharmacy replaced the Pharmakon legacy billing system with the Epic billing system and a calculation error occurred impacting the COGS. This issue was resolved during FY 2014. The implementation of Epic, coupled with the increased focus on improving access to information; the quality of patient care; patient safety; and, clinical health outcomes provides an impetus for the institution to reevaluate past decisions in consideration of the current business environment.

Audit Services benchmarking of pharmacy practices further supports the need for reassessment. Interviews with other University of Texas System institutions, UTMB Health’s Correctional Managed Care Pharmacy and institutional Pharmacy leadership indicated the use of the COGS methodology is not consistent with industry practice.

**Recommendation 2015-040-01-R-M:**
The Associate Vice President, Health System Operations and the Administrative Director of Pharmacy, should convene a cross-functional team with appropriate representation from the Department of Pharmacy, Health System Finance, and Institutional Support to review the institutional strategy for using COGS, applicability of routine adjustments in the current operational environment, non-charging of select operational departments, and use of GPO pricing for valuation rather than a strategy such as average cost that more appropriately reflects the mixed purchased valuation of the inventory. This team should develop and implement an action plan to ensure that UTMB Health’s inventory practices are aligned with the current business environment and industry practice.

**Management’s Response:**
The cross-functional team will include the following: Associate Vice President, Health Systems Operation; Administrative Director of Pharmacy; Vice President, Audit Services (and/or her designees); Vice-President, Finance-Clinical Enterprise (and/or his designees); and, Controller (and/or his designees). The team will be convened no later than December 3, 2015 to meet and begin developing an action plan for implementation. The team and/or sub-groups will meet as needed to ensure an institutional strategy is set for using COGS, applicability of routine adjustments, non-charging of select operation departments, and the use of GPO pricing for valuation of inventory rather than a strategy such as average cost.

**Implementation Date:** May 3, 2016

**Recommendation 2015-040-02-R-M:**
The Administrative Director of Pharmacy Services should consider reinstating regularly scheduled cycle counts to help ensure accuracy and completeness of inventory records.

**Management’s Response:**
The storeroom will be split into five (5) sections (Refrigerator/freezers, M&O supplies, Oral/topical/inhaled meds, Injections and Overflow/Drug shortage medications). A cycle count will be performed daily on one section with a complete cycle count completed each week for the entire storeroom. These tasks will be absorbed by current staff.
Health

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Implementation Date: December 7, 2015

Other Observations
Audit Services review of Pharmacy operational practices indicated the following opportunities for improvement:

- Review and update Pharmacy policies and procedures to accurately reflect current operations since the implementation of Epic.
- Revise the process of receiving, recording, and depositing checks to ensure compliance with the Institutional Handbook of Operating Procedures Policy 04.04.13 Cash Handling and Reporting.
- Consider staffing the storeroom 24/7 to (1) ensure limited access to pharmaceuticals and improve the record keeping for pharmaceuticals removed from the room during the overnight hours and (2) ensure someone is physically present for the morning deliveries.

Recommendation 2015-040-03-R-M:
The Administrative Director of Pharmacy Services should ensure Pharmacy policies, procedures, and practices reflect current operations, including compliance with institutional cash handling policies.

Management’s Response:
1. The review and update of the Pharmacy policies and procedures to accurately reflect current operations will be completed via the internal Pharmacy policy and procedure team meeting. 2. To ensure compliance with the IHOP policy 04.04.13, the policy will be reviewed. Opportunities for improved compliance will be identified and implemented. These steps shall include but not be limited to completion of on-line training for identified personnel, identifying a secure location for storage of cash or related items when not in use, and assuring adherence to the frequency of deposits based on value. 3. Staffing of the storeroom 24/7 will be assessed and options presented to the Associate Vice President, Health System Operations with the intent to limit access to the storeroom and ensure physical presence for morning deliveries. This will likely include presentation at the FTE Committee.


Recommendation 2015-040-04-R-H:
The Administrative Director of Pharmacy Services should assess current storeroom staffing levels to ensure adequate safeguards are in place to protect inventory from loss.

Management’s Response:
Per Recommendation 2015-040-03-R, item 3, the same action plan will be implemented: Staffing of the storeroom 24/7 will be assessed and options presented to the Associate Vice President, Health System Operations with the intent to limit access to the storeroom and ensure physical presence for morning deliveries. This will likely include presentation at the FTE Committee.
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Conclusion
Audit Services interviews with key Pharmacy and Health System personnel; internal and external benchmarking; and, review of transactions indicated current methodologies and practices affecting pharmacy inventory valuation are based on historical decisions which do not reflect industry leading practices. Additionally, opportunities exist to strengthen internal controls within Central Pharmacy operations.

We greatly appreciate the assistance provided by Pharmacy, Health System Finance, and Institutional Support staff, and hope that the information presented in our report is beneficial.

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