



STATE OF NORTH CAROLINA

PERFORMANCE AUDIT

DIVISION OF PRISONS

CENTRAL PHARMACY INVENTORY

DECEMBER 2009

OFFICE OF THE STATE AUDITOR

BETH A. WOOD, CPA

STATE AUDITOR

PERFORMANCE AUDIT

DIVISION OF PRISONS

CENTRAL PHARMACY INVENTORY

DECEMBER 2009



Beth A. Wood, CPA
State Auditor

STATE OF NORTH CAROLINA
Office of the State Auditor

2 S. Salisbury Street
20601 Mail Service Center
Raleigh, NC 27699-0601
Telephone: (919) 807-7500
Fax: (919) 807-7647
Internet
<http://www.ncauditor.net>

December 31, 2009

The Honorable Beverly E. Perdue, Governor
Members of the North Carolina General Assembly
Mr. Alvin Keller, Secretary, Department of Correction
Mr. Bob Lewis, Director, Division of Prisons

Ladies and Gentlemen:

We are pleased to submit this performance audit titled *Division of Prisons – Central Pharmacy Inventory*. The audit objective was to determine if inventory controls at the Division of Prisons Central Pharmacy (Central Pharmacy) are adequate to prevent unauthorized use, theft, or loss and ensure accurate inventory records.

Secretary Keller and Mr. Lewis have reviewed a draft copy of this report. Their written comments are included in the appendix.

The Office of the State Auditor initiated this audit to improve inventory control at the Division of Prisons.

We wish to express our appreciation to the staff of the Division of Prisons for the courtesy, cooperation, and assistance provided us during the audit.

Respectfully submitted,

A handwritten signature in cursive script that reads "Beth A. Wood".

Beth A. Wood, CPA
State Auditor

TABLE OF CONTENTS

	PAGE
SUMMARY	1
INTRODUCTION	
BACKGROUND.....	3
OBJECTIVES, SCOPE, AND METHODOLOGY	3
FINDINGS AND RECOMMENDATIONS.....	5
APPENDIX	
AUDITOR’S RESPONSE	9
DEPARTMENT RESPONSE	11
ORDERING INFORMATION	17

SUMMARY

PURPOSE

This audit report evaluates whether inventory controls at the Division of Prisons Central Pharmacy (Central Pharmacy) are adequate to prevent unauthorized use, theft, or loss and ensure accurate inventory records. It makes recommendations so Central Pharmacy management can take appropriate corrective action.

RESULTS

The Central Pharmacy does not maintain adequate control over inventory access to prevent unauthorized use, theft, or loss of approximately \$25.1 million in drug and pharmaceutical supply purchases. Nor does it maintain adequate records to ensure that recorded inventory balances are accurate. The results of two separate inventory counts, one performed by Central Pharmacy staff and one performed by auditors, provide evidence that Central Pharmacy physical access and record-keeping controls are inadequate. Additionally, pharmacists were observed removing items from the Central Pharmacy stockroom without requesting items from stockroom staff, and Central Pharmacy employees with access to pharmacy inventory also had the ability to adjust inventory records. Inadequate inventory controls expose the Central Pharmacy inventory to the risk of unauthorized use, theft, and loss.

Also, the Central Pharmacy does not adequately document the drug names, quantities, and reasons for drug disposals. Without documentation, management cannot review and analyze disposals to better forecast inventory requirements, improve inventory management practices, and identify cost-saving opportunities. Proper documentation and analysis can help ensure that inventories are not over-ordered and that limited-shelf-life items are properly managed to prevent losses from obsolescence or expiration.

RECOMMENDATIONS

Central Pharmacy management should ensure that all pharmacy inventory is subject to effective accountability procedures and physical safeguards. Management should assess the risk of non-controlled drugs and store those at higher risk of theft or loss in a secured room or vault. Management should compare purchasing and dispensing data to calculate inventory differences every month and investigate significant differences. Management should conduct periodic routine counts of inventory in addition to an annual inventory count, compare physical inventory counts to quantities recorded in the system, and investigate all significant differences. These inventory counts should be blind counts because the same pharmacists who have access to the inventory may be counting the inventory. Management should limit the number of individuals with the ability to adjust inventory records, require explanations for adjustments, ensure that a properly designated official approves all adjustments, and prevent employees with access to the pharmacy inventory from making inventory accounting record entries.

Central Pharmacy management should require employees to document the drugs being disposed of, quantities, and the reasons for drug disposals. Furthermore, the reasons for disposal should be reviewed and analyzed. Management should establish and monitor

performance measures for drug disposal and investigate unexpected results and unusual trends.

AGENCY'S RESPONSE

The Agency's response is included in the appendix.

INTRODUCTION

BACKGROUND

The healthcare mission at the North Carolina Department of Correction Division of Prisons (Division) is “to provide access to quality, cost effective healthcare that is rendered by competent healthcare professionals.” The Division provides health care in accordance with the 1976 case of *Estelle vs. Gamble* in which the United States Supreme Court established that prisoners are entitled to adequate health care, defined as that which meets community standards.

The Division maintains 79 prison facilities across the State. The Division’s Central Pharmacy has over 90 pharmacists and pharmacy technicians who order and dispense drugs and pharmaceutical supplies.

For fiscal year 2007-2008, the Division of Prisons Central Pharmacy spent about \$25.1 million for drugs and pharmaceutical supplies for the prison population.

OBJECTIVES, SCOPE, AND METHODOLOGY

The audit objective was to determine if inventory controls at the Division of Prisons Central Pharmacy (Central Pharmacy) are adequate to prevent unauthorized use, theft, or loss and ensure accurate inventory records.

The Office of the State Auditor initiated this audit to improve inventory control at the Division of Prisons.

The audit scope included all Central Pharmacy inventory transactions from July 1, 2007, through June 30, 2008. We conducted the fieldwork from July 2008 to September 2009.

To determine if Central Pharmacy inventory controls were adequate, we interviewed pharmacy management and other applicable personnel, observed operations, and reviewed documentation. We also selected a random sample of inventory items and compared actual on-hand quantities with the recorded balances.

Because of the test nature and other inherent limitations of an audit, together with limitations of any system of internal and management controls, this audit would not necessarily disclose all performance weaknesses or lack of compliance.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

We conducted this audit under the authority vested in the State Auditor of North Carolina by *North Carolina General Statute 147-64*.

[This Page Left Blank Intentionally]

FINDINGS AND RECOMMENDATIONS

CENTRAL PHARMACY INVENTORY CONTROLS ARE INADEQUATE

The Division of Prison Central Pharmacy does not maintain adequate control to prevent unauthorized use of about \$25.1 million in drug and pharmaceutical supply purchases or ensure that recorded inventory balances are accurate. The Central Pharmacy lacks adequate physical access and record controls, and the inventory records are inaccurate. Additionally, the Central Pharmacy does not document the reasons for drug disposals.

Inadequate Physical Access Controls

The Central Pharmacy does not adequately safeguard physical access to its “non-controlled”¹ pharmaceutical drug and pharmaceutical supply inventory. The inventory is maintained in a stockroom accessible to pharmacists. On two separate days, auditors observed pharmacists removing items from the stockroom without requesting items from stockroom staff.

With approximately 90 pharmacists and pharmacy technicians employed at the Central Pharmacy, inadequate physical access controls expose the Central Pharmacy inventory to the risk of unauthorized use, theft, and loss. This risk is not limited to the inventory that is on hand at any particular time. All of the non-controlled pharmaceutical drugs and pharmaceutical supplies that the Central Pharmacy receives and distributes are exposed to the risk of unauthorized use, theft, and loss due to poor physical access controls. During fiscal year 2008, the Central Pharmacy purchased about \$25.1 million worth of non-controlled pharmaceutical drugs and pharmaceutical supplies.

The Office of the State Controller (OSC) internal control standards require state agencies to ensure that “all inventory items are subject to effective custodial accountability procedures and physical safeguards.” The standards require state agencies to restrict access to inventory and ensure that all withdrawals are properly recorded.

Inadequate Inventory Record Controls

The Central Pharmacy lacks proper procedures for non-controlled pharmaceutical drug inventory accounting records. During our audit period, eight Central Pharmacy staff members made a total of 2,953 adjustments to the inventory records. The same staff members also had access to pharmacy inventory. Furthermore, the Central Pharmacy does not require special authorization or explanations for inventory adjustments made by Central Pharmacy staff.

OSC internal control standards require that state agency “inventory records reflect actual quantities on hand.” Methods available to help ensure that inventory records are accurate include:

¹ “Non-controlled” pharmaceutical drugs are drugs that are not regulated by the Drug Enforcement Administration (DEA). The Central Pharmacy is required to limit access to and maintain records for “controlled” drugs in accordance with federal and state laws. This finding addresses only non-controlled drugs.

FINDINGS AND RECOMMENDATIONS

- Limiting the number of individuals with the ability to adjust inventory records;
- Requiring explanations for adjustments;
- Ensuring that a properly designated official approves all adjustments; and
- Preventing employees with custody of assets from making accounting record entries.

Inadequate inventory record controls, especially when combined with inadequate physical access controls, expose the Central Pharmacy inventory to the risk of unauthorized use and may prevent timely detection of thefts and losses. Additionally, inaccurate records limit the Central Pharmacy's ability to compare expected usage to actual usage, establish accurate reorder points, and effectively manage its inventory.

Inaccurate Inventory Records

The results of two inventory counts provide evidence that Central Pharmacy inventory controls are inadequate. Central Pharmacy staff performed one inventory count, and auditors performed a second inventory count.

In June 2008, Central Pharmacy performed an annual inventory count and found that the physical count for 93 out of 100 drugs counted² did not agree with the inventory records. Central Pharmacy made 108 adjustments (42 additions, 66 reductions) to correct the inaccurate inventory records.

In November 2008, the auditors performed an inventory count of 93 randomly selected items. The physical count for 72 out of 93 items (77%) did not agree with the recorded balance. Specifically, 55 out of 72 (76%) discrepancies represented shortages in the pharmacy inventory, and 17 out of 72 (24%) discrepancies represented overages in the pharmacy inventory. The Central Pharmacy inventory included approximately 3,592 items at the time of the inventory count. We projected the results of our sample to the population at a 95% confidence level and estimate that the inventory records for 2,781 items (8.39% margin of error) are inaccurate.

Lack of Disposal Documentation

The Central Pharmacy does not require documentation of the drug names, quantities, and reasons why drugs are discarded. Adequate disposal documentation is necessary to properly manage the Central Pharmacy inventory. Without documentation of the drug name, quantities, and the reasons for disposal, management cannot review and analyze disposals to better forecast inventory requirements, improve inventory management practices, and identify cost-saving opportunities. The Central Pharmacy's lack of

² Central Pharmacy personnel only perform a physical count of the 100 most expensive drugs each fiscal year because management has determined that it is not cost effective to inventory all items at the end of each year. By counting the 100 most expensive drugs, the Central Pharmacy inventory count covered 60% of the inventory's total \$748,824 value. Although it varies, the entire inventory consists of approximately 3,600 items.

FINDINGS AND RECOMMENDATIONS

disposal documentation and analysis could result in a waste of state funds on over-ordered inventory and losses from expired medication.

Until April 2008, the Central Pharmacy disposed of unusable and expired non-controlled drugs at a Wake County landfill if the drugs could not be returned to a reverse pharmaceutical distributor (vendor) for credit. Central Pharmacy management stopped sending unusable and expired non-controlled drugs to the landfill and currently sends all unwanted drugs to a vendor. The vendor prepares a manifest detailing the name, quantity, and price of discarded drugs.

However, the Central Pharmacy still lacks adequate documentation to determine drug names, quantities, and the reasons why the drugs were discarded. According to Central Pharmacy management, expired drugs and drug returns from prison nurses are the two main reasons for discarding drugs. But these reasons were not documented and tracked for each drug discarded. Additionally, management has not established expectations (performance measures) for the amount of drug disposals that should occur annually. Consequently, management has not established procedures to compare expectations to actual results and identify unusual disposal amounts or trends.

Recommendation: Central Pharmacy management should ensure that all pharmacy inventory is subject to effective accountability procedures and physical safeguards. Management should assess the risk of non-controlled drugs and store those at higher risk of theft or loss in a secured room or vault. Management should compare purchasing and dispensing data to calculate inventory differences every month and investigate significant differences. Management should conduct periodic routine counts of inventory in addition to an annual inventory count, compare physical inventory counts to quantities recorded in the system, and investigate all significant differences. These inventory counts should be blind counts³ because the same pharmacists who have access to the inventory may be counting the inventory. Management should limit the number of individuals with the ability to adjust inventory records, require explanations for adjustments, ensure that a properly designated official approves all adjustments, and prevent employees with access to the pharmacy inventory from making inventory accounting record entries.

Central Pharmacy management should require employees to document the drugs being disposed of, quantities, and the reasons for drug disposals. Furthermore, the reasons for disposal should be reviewed and analyzed. Management should establish and monitor performance measures for drug disposal and investigate unexpected results and unusual trends.

³ Blind inventory counts are physical inventory counts performed without the knowledge of, or access to, the on-hand quantity balance in the inventory.

[This Page Left Blank Intentionally]

APPENDIX

AUDITOR'S RESPONSE

It is the intent of the Office of the State Auditor that the Governor, the General Assembly, and the citizens of North Carolina will receive only complete and accurate information from the reports issued by this office. Therefore, we are required to provide additional explanation when an agency's response could potentially cloud an issue, mislead the reader, or inappropriately minimize the importance of our findings.

Additionally, Generally Accepted Government Auditing Standards state,

When the audited entity's comments are inconsistent or in conflict with the findings, conclusions, or recommendations in the draft report, or when planned corrective actions do not adequately address the auditor's recommendations, the auditors should evaluate the validity of the audited entity's comments. If the auditors disagree with the comments, they should explain in the report their reasons for disagreement.

To ensure the availability of complete and accurate information and in accordance with Generally Accepted Government Auditing Standards, we offer the following clarification.

Our audit found that Central Pharmacy management has designed and implemented policies and procedures that do not provide adequate accountability for approximately \$25.1 million in non-controlled drug and pharmaceutical supplies.

However, Central Pharmacy's response may give the reader the impression that management has made a studied and rational compromise between the costs and benefits of establishing the recommended accountability procedures.

Specifically, the Central Pharmacy response states that:

- Improving physical access controls by only allowing stockroom staff to dispense non-controlled pharmaceutical drug and supply inventory would be inefficient and require a minimum of five additional staff members due to stockroom space limitations and the pharmacy's physical layout.
- Improving inventory record accuracy by performing a complete inventory, investigating differences, and adjusting records would take an estimated three days and require all dispensing to cease while the inventory is performed.
- Requiring documentation of the drug names, drug quantities, and discard reasons would require three additional pharmacy technicians.

Central Pharmacy management has not substantiated these claims.

APPENDIX

When evaluating Central Pharmacy's response, the reader should keep the following in mind:

- Central Pharmacy discussed the rationale for their initial estimates, but has not performed a study of our recommendations to accurately determine the costs and resource requirements for improving inventory accountability.
- Central Pharmacy's response conflicts with known business practices. For example, other businesses and state agencies are able to take inventory without shutting down operations for three days, appropriately segregate duties, and account for disposed assets.

Consequently, the reader should not conclude that Central Pharmacy thoroughly studied our recommendations and determined that the costs would exceed the benefits.



North Carolina Department of Correction

Beverly Eaves Perdue
Governor

Division of Prisons

831 W. Morgan Street, MSC 4260, Raleigh, NC 27699-4260
Telephone: (919) 838-4000 Fax: (919) 733-8272

Alvin W. Keller, Jr.
Secretary

Bob Lewis
Director of Prisons

November 19, 2009

Beth A. Wood, CPA
State Auditor
2 South Salisbury Street
Raleigh, NC 27699-0601

Dear Ms. Wood:

The following is the agency response to the Division of Prisons Central Pharmacy inventory performance audit:

Inadequate Physical Access Controls

The Central Pharmacy recognizes the need to safeguard physical access to all areas, including the "non-controlled" pharmaceutical drug and pharmaceutical supply inventory. The measures utilized to secure the inventory include employee card swipe entry into the Apex Facility, dispensing areas, warehouse area, and controlled substances vault; twenty-four hour on-site security officer coverage; and security camera monitoring of internal building, grounds, and pharmacy areas by the security officers and Pharmacy Director. This inclusive system allows initial entry into the Central Pharmacy to be the threshold of authorization thereby providing a total pharmacy security concept. The need for complete pharmacy area security is imperative to safeguard medications that are located in different areas of the pharmacy as well as the confidentiality of patient information.

In order to fulfill the Central Pharmacy's mission which focuses on providing "quality, comprehensive, and cost-effective pharmaceutical care", the Central Pharmacy is presently faced with dispensing over 4,800 medications daily. In order to meet this goal, the process of the dispensing staff requesting medication removal from the stockroom staff would be inefficient. The stockroom space limitations and physical layout of the pharmacy requires storage of medications in areas other than the stockroom; therefore, to have personnel stationed at each of these areas to distribute medications is not practical. With Central Pharmacy providing Saturday and holiday coverage to local facilities and 24 hour coverage through an on-call system whereby pharmacists are on-site after hours to provide urgent patient pharmaceutical needs, this medication removal process with stockroom staff is not functional. To initiate this system would require the addition of a minimum of five staff members to perform this responsibility, and the cost/benefit of these increased personnel resources needs to be analyzed. The determination of

An Equal Opportunity/Affirmative Action Employer

these five staff members is based on each employee retrieving and restocking two medication stock bottles each minute.

All inventory withdrawals are recorded through the electronic software databases. At the point of new order entry, refill entry, transfers, receipt, recovery, or other inventory adjustments there is a real time accounting of the amount on hand. This is a perpetual, dynamic inventory recording system.

The Central Pharmacy will develop processes and systems that can be utilized to identify and monitor non-controlled drug inventory items that are assessed as being at a higher risk of theft or loss.

Inadequate Inventory Record Controls

The Central Pharmacy recognizes the need for proper procedures for non-controlled pharmaceutical drug inventory accounting records. The Central Pharmacy employs a team approach to provide coverage of mission critical functionalities whereby staff members utilize their knowledges and skills on a routine basis to ensure continuity of services. In a pharmacy operation of this size and scope, the need existed to assign four groups of key responsibilities to eight individuals.

Central Pharmacy concurs that eight individuals were identified as having the clearance to adjust inventory records. The breakdown of the eight staff members and functions is summarized as follows:

1. Outpatient Inventory Functions: a team of one pharmacist supervisor, one technician supervisor, and one pharmacy technician
2. Controlled Substances Inventory Functions: a team of one pharmacist manager, one pharmacist supervisor, and one pharmacist
3. Annual Inventory Coordinator: one pharmacy manager for inventory adjustments during the annual inventory count
4. Automation Equipment Replenishment: one pharmacist was approved by management to allow efficient transfer of medications from inventory to the OSPAC (dispensing machine) inventory

The Central Pharmacy concurs that explanations for adjustments need to be included. During this audit time frame, the pharmacy software system did not require an adjustment reason or provide sufficient text space. With the new pharmacy software system, the inventory module requires a selection of adjustment type with expanded space for comments.

For clarification of adjustment reasons, the different types of inventory adjustments are explained in the following categories:

1. Manual addition of inventory invoiced from the wholesaler. These additions to the pharmacy software system would be entered for any item ordered from the wholesaler on a manual purchase order and any discrepancy on an automated

purchase order from the wholesaler. This receipt of inventory into the software system provides the accountability of the inventory to prevent unauthorized use, theft, or loss.

2. Return to Stock (RTS) for the recovery of reusable inmate or stock issued medications that have not been in an inmate's possession. The recovery of medications at Central Pharmacy netted over one million dollars worth of savings during the audited fiscal year.
3. Documented (ancillary drug supply) transfers of medication to replenish the stock medications needed immediately at the critical medical inpatient facilities.
4. Removal of expired medications from active inventory that are returned to Guaranteed Returns for monetary credit.
5. Transfer of controlled substances between Department of Correction pharmacy departments to meet immediate critical patient medication needs and to manage product shelf life. This relocation of inventory decreases pharmacy expenditures.
6. Movement of inventory balances of the same medication with different packagings or different manufacturers. With the full implementation of the new software system in February 2010, this category will no longer exist since all NDC numbers of the same medication regardless of the package size or manufacturer are combined into one inventory count.
7. Data entry error creates an incorrect inventory level that has to be corrected. This adjustment is not due to an overage or shortage of the inventory but rather the incorrect keying of an adjustment in categories 1-6.
8. Inventory adjustment to correct an inaccurate inventory balance.

Although all inventory approved team members are trained and authorized to adjust the inventory in accordance with their job responsibilities and pharmacy business rules, the Central Pharmacy will expand its control to include review of inventory adjustment reports. Reporting capabilities for this functionality will be researched with the new pharmacy software vendor and any associated programming costs will need to be evaluated.

It has been established that employees are authorized at the point of physical entry of the Central Pharmacy to access all medication areas in order to fulfill their professional responsibilities, with the exception that only licensed registered pharmacists can enter the Controlled Substances vault. The physical layout of the Central Pharmacy does not support the seclusion of any staff member from the medication areas. Future staffing patterns with the introduction of the robotic dispensing systems will allow the assignment of a second inventory pharmacy technician thereby delineating the inventory ordering, receiving, and adjustment responsibilities.

Central Pharmacy effectively manages its inventory in the new pharmacy software management system through a heuristic inventory functionality. This methodology of ordering utilizes lead time, desired shelf quantity, average daily consumption, quantity on hand, and quantity on order to determine recommended order quantities. This software capability eliminates over-ordering of inventory and the need to set arbitrary reorder points.

Inaccurate Inventory Records

The Central Pharmacy acknowledges the inaccurate inventory counts. The daily procurement and receipt of medications along with the dispensing of approximately 4,100 prescriptions daily during this audit period created an ever changing quantity on hand of each inventory item. Listed below are examples, even though not inclusive, of the reasons that inventory counts are incorrect:

1. Human error in accurately counting medication orders.
2. Human error with entry of incorrect unit of measure.
3. Discrepancies both over and short on tablet counts of the stock bottles of medication received from the manufacturer.
4. Damaged tablets/capsules contained in a stock bottle received from the manufacturer.
5. Loss of medication due to dropping or spilling.
6. Prescription order deleted but label not pulled prior to dispensing and shipping to the facility. The full implementation of the new software system in February 2010 will eliminate this problem since a prescription order cannot be placed on a packing slip if the order has been deleted.
7. Deletion of an order in error with a lack of retrieval of information on a prescription after the medication has been dispensed and shipped to the facility. The full implementation of the new software system in February 2010 will eliminate this problem since a prescription order record in the new software system is never completely deleted, only lined through on the profile.
8. The software system being utilized during this audit period erroneously allowed for two orders for the same medication to be dispensed at the same time while only decrementing the inventory for one of the dispensings. The full implementation of the new software system in February 2010 will eliminate this problem since the entry process decrements the inventory for each order.
9. Discrepancy due to sending the correct medication but with the wrong NDC numbered product on a prescription order. As referenced before with the full implementation of the new software system in February 2010 this will no longer occur since all NDC numbers of the same medication, regardless of the package size or manufacturer, are combined into one inventory count.

Currently the Central Pharmacy inventories the items representing 80% of the total inventory purchases for the audit period as determined by a wholesaler generated report. To perform a complete inventory, investigate differences, and adjust electronic records on approximately 3,600 items would require the participation of the full dispensing pharmacy staff and would take an estimated time of three days. During the inventory counting process, all dispensing must cease and the impact of delayed medication distribution on patient care and local purchases to accommodate this time period would need to be weighed by upper management against the benefits of a full inventory count. Note that following the full implementation of the new software system in February 2010, a complete inventory count is planned with the merger of the two inventories. At that point, the length of time for this process can be determined and communicated to upper management for future advisement.

Central Pharmacy will develop inventory control processes and systems including periodic inventory counts of randomly selected medications and comparisons of purchasing and dispensing data. In addition, Central Pharmacy will continue to utilize a blind count system for all inventories. All of these measures will mitigate the inventory variances to the extent possible.

Central Pharmacy has been approved to move forward with the procurement of robotic dispensing systems. The value of these machines is multifold, including labor savings, correct medication selection, and medication count accuracy. The two most prominent manufacturers of robotic dispensing systems state medication counting accuracies of 99.7% and 99.8%. These systems can increase the inventory accuracy of high volume, dynamic pharmacy operations such as the Central Pharmacy.

Lack of Disposal Documentation

The Central Pharmacy concurs that drug disposal documentation is not currently required and such documentation may assist in establishing disposal expectations and identifying unusual disposal amounts or trends. Best estimate is that three additional pharmacy technicians would be necessary to document the drug names, drug quantities, and discard reasons, as unusable or expired, for the current return volumes. If a more specific discard documentation reason is required, this responsibility would belong to facility nursing staffs as the patient point of contact. The additional statewide nursing staff costs would have to be determined to perform this function. Having knowledge of the reasons for medication returns coupled with continued proactive initiatives to decrease the returns, the increased personnel resource expenditures to capture this data would need to be weighed against the benefits.

The Central Pharmacy staff has determined various reasons for medication returns. This determination is based on professional knowledges, understanding of the Department of Correction's Health Care and Custody Systems, physical evaluations of returned items, and inquiries with appropriate internal and external staff members. Reasons include:

1. Patient medication intolerance, allergies, and side effects
2. Patient medication noncompliance leading to overstocks
3. Patient medication refusal
4. Provider medication dosage changes based on patient disease state
5. Provider discontinuance of the medication
6. Transfer or discharge of inmate without medication
7. Medication confiscation
8. Expired facility stock medications

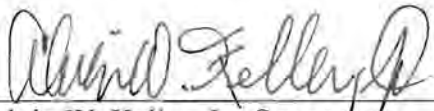
Although all of these return reasons are outside of the control of pharmacy services, the Central Pharmacy proactively evaluates the return types and quantities to implement cost-saving systems, programs, and training. Examples of these initiatives include:

1. Patient medication compliance monitoring
2. Implementation of an overstock notification system

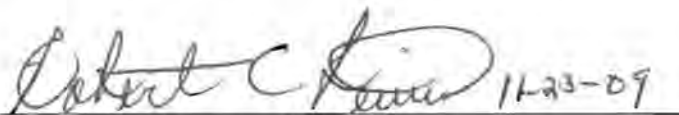
3. Separation of returns for cost-savings recovery
4. Recovery of returned legally reusable medications to pharmacy inventory
5. Return of qualified medications to a reverse pharmaceutical distributor (vendor) for credit
6. Training of health care providers
7. On-site pharmacy facility audits
8. Review appropriateness of stock order quantities
9. Limiting dispense quantities on high cost medications
10. Limiting dispense quantities on "PRN" or as needed medications
11. Strict refill system for high cost items
12. Addressing excessive facility specific returns at the point of processing
13. Increased tracking of inmate discharges with the new software system

Discarded drug data is not a sound method to forecast inventory requirements in that returns are patient, provider, nursing, and custody specific, not a system wide indicator. Regardless of the amount of returned medications, a sufficient inventory must be on hand at the point of dispensing. The new pharmacy software management system's heuristic inventory function, as previously described, is an effective inventory management tool with the capability to eliminate over-ordering of inventory and the need to set arbitrary reorder points.

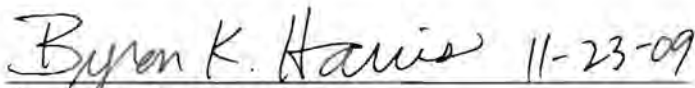
Expired medications returned to a reverse pharmaceutical distributor (vendor) for credit are primarily received from facilities. With the Central Pharmacy's high volume dispensing and heuristic inventory ordering system, normally the only medications that expire within the pharmacy stock are patient specific items which cannot be avoided. Monitoring of facility stock order quantities together with training has assisted in decreasing returned expired facility stock.



Alvin W. Keller, Jr., Secretary
North Carolina Department of Correction



Bob Lewis, Director of Prisons
North Carolina Department of Correction



Byron Harris, Controller
North Carolina Department of Correction

ORDERING INFORMATION

Audit reports issued by the Office of the State Auditor can be obtained from the web site at www.ncauditor.net. Also, parties may register on the web site to receive automatic email notification whenever reports of interest are issued. Otherwise, copies of audit reports may be obtained by contacting the:

Office of the State Auditor
State of North Carolina
2 South Salisbury Street
20601 Mail Service Center
Raleigh, North Carolina 27699-0601

Telephone: 919/807-7500

Facsimile: 919/807-7647