Department of Veterans Affairs

# Office of Inspector General

# Audit of VA Medical Center Management of Pharmaceutical Inventories

***VA medical centers could further reduce pharmaceutical inventories by effectively using modern techniques and automated inventory management controls.***

**Report No. 99-00186-86**
**Date: June 30, 2000**

**Office of Inspector General**
**Washington DC 20420**

**DEPARTMENT OF VETERANS AFFAIRS**
**Office of Inspector General**
**Washington DC 20420**

# Memorandum to the Acting Under Secretary for Health (10)

# Audit of VA Medical Center Management of Pharmaceutical Inventories

1. The purpose of the audit was to evaluate the management of pharmaceutical inventories at VA medical centers (VAMCs). This was the third of a series of audits that the Office of Inspector General is performing to assess inventory management practices for various categories of supplies.[1] In Fiscal Year (FY) 1999, the Veterans Health Administration's (VHA's) pharmaceutical purchases totaled $1.8 billion and represented about 57.5 percent of total VHA supply costs of $3.2 billion. The two VHA elements that account for most pharmaceutical costs are VAMC pharmacies and the regional Consolidated Mail-Out Pharmacies (CMOPs). In FY 1999, VAMC pharmacy expenditures totaled $951.4 million, or about 51.6 percent of total VHA pharmaceutical expenditures, and CMOP expenditures totaled $791.3 million. Our audit focused on the inventory management practices of VAMC pharmacies. At any given time, the value of VAMC pharmaceutical inventories was about $41.3 million.

2. VHA has overall operational responsibility for VAMC pharmaceutical inventories, with each VAMC managing its own inventory. The Office of Acquisition and Materiel Management (OA&MM) is responsible for formulating policy on VA logistics issues, including inventory management, and for contracting of commercial prime vendor distribution services to VA pharmacy activities. In recent years, VHA and OA&MM have encouraged VAMCs to modernize their management of expendable supplies, to reduce inventories, and to make more use of automated inventory management systems.

3. As a result of the successful transition to a pharmaceutical prime vendor distribution program over the past several years, VAMCs have substantially reduced their pharmacy inventories from the levels previously maintained under VA's centralized supply depot system. Under the prime vendor program, VA contracts with a commercial pharmaceutical distributor that provides reliable just-in-time delivery of pharmaceuticals to replenish VAMC inventories. Although pharmacy inventories have been reduced, we concluded that VAMCs could bring them to even lower levels and achieve greater economic benefits from the prime vendor program. To accomplish further inventory reduction, VAMCs must more effectively apply modern methods and use automated controls in managing their inventories.

4. Our audit found that inventories exceeded current operating needs for many pharmaceutical items. At four VAMCs we analyzed pharmaceutical demand, replenishment cycles, and safety stock requirements and determined that for most items 7 to 10 days of stock was the maximum

[1] The first two of the series were Audit of VA Medical Center Management of Medical Supply Inventories (Report Number 9R8-E04-052; March 9, 1999) and Audit of Management of Prosthetic Supply Inventories at VA Medical Centers and the Denver Distribution Center (Report No. 99-00188-13, November 15, 1999).

amount required to meet current needs. All four VAMCs had inventories that exceeded a 10-day level. To determine the magnitude of excess inventory at the four VAMCs, we reviewed 200 high cost pharmaceutical items with an inventory value of $620,511. Of the 200 items, 111 (55.5 percent) had stock levels exceeding 10 days. This included 27 items (13.5 percent) with stock levels exceeding a 30-day supply. We estimated that about $298,398 (48.1 percent) of this inventory was excess.

5. The excess inventories occurred because VAMCs relied on informal inventory methods and "cushions" of excess stock as a substitute for more structured inventory management. Inventory managers had not consistently or systematically determined their current inventory requirements. None of the four VAMCs had determined normal stock levels or reorder points based on current demand, safety requirements, and replenishment cycles. The VAMCs had not established or effectively applied other standard inventory management controls. For example, the VAMCs did not maintain inventory records to document quantities on hand and value, did not calculate days of stock on hand or turnover rates, did not perform periodic physical inventories, and did not effectively use barcoding.

6. In addition, some VAMCs unnecessarily made large purchases at the end of the fiscal year, which inflated inventories to levels that were substantially higher than needed. In FY 1999, two of the four VAMCs made year-end pharmaceutical purchases totaling $740,972. These purchases increased excess pharmaceutical inventories by about 14.7 percent. In our opinion, this kind of year-end spending conflicts with modern inventory management principles, defeats the purpose of the just-in-time replenishment approach of the prime vendor program, inappropriately ties up funds in unneeded inventory, and increases the risk of waste, damage, or other loss.

7. To more effectively manage inventories, VAMCs should apply a more systematic and analytical approach that makes better use of the quantitative data and control features of automated systems. To address the issues discussed in this report, we recommend that VHA (a) issue guidance requiring VAMCs to establish goals for inventory reductions and defining expectations and minimum inventory control requirements for VAMC use of automation and other modern techniques; (b) establish procedures to monitor VAMC progress in reducing inventories; (c) provide VAMC staff training aimed at improving inventory management; and (d) discourage the practice of using year-end funds to purchase unnecessarily large quantities of pharmaceuticals.

8. For VAMCs, the maximum amount of stock on hand for most pharmaceutical items should be a 10-day level. A more aggressive goal would be a 5-day level, which could be reached for most pharmaceuticals by aggressively managing inventories. In our opinion, a reasonable goal that could be achieved through better inventory management would be a 7-day level. Achieving this goal would reduce VAMC pharmacy inventories by $24.5 million. In addition, eliminating unnecessary year-end purchases would free up an additional $6.1 million, which could be used for other purposes.

9.The Acting Under Secretary for Health concurred with the audit findings and recommendations, generally agreed with the monetary benefits estimate, and provided acceptable implementation plans. We consider all audit issues to be resolved and will follow up on the implementation of planned actions.

For the Assistant Inspector General for Auditing

*(Original signed by:)*

DAVID SUMRALL
Director, Seattle Audit Operations Division

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# Results and Recommendations

# VA Medical Centers Should Reduce Pharmacy Inventories

## Pharmacy Inventories Exceeded Current Needs

To determine if VA medical centers (VAMCs) were maintaining pharmacy inventories in excess of current operating needs, we evaluated inventory management practices at four VAMCs, which are designated as VAMCs A, B, C, and D in this report. Generally accepted modern inventory management principles emphasize that inventory levels should be consistent with current operating needs, which means that inventories should contain enough supplies to meet user needs and that purchases above these needs should be avoided so that funds are not tied up in excess inventory. Inventory managers should determine inventory levels for each item by analyzing demand, safety stock requirements, and replenishment cycles.

Veterans Health Administration (VHA) guidance states that VAMCs should establish stock levels for pharmacy items consistent with usage, but does not mandate or recommend specific inventory target levels or goals. Pharmacies have been encouraged to increase the efficiency and effectiveness of inventory control and procurement by exploring modern materiel management principles and the use of technology. (VA Manual M-2, VII, 2.08) For several years, VA's pharmaceutical prime vendor program has provided VAMCs with reliable next-day delivery of pharmaceutical items. This short prime vendor replenishment cycle has reduced the inventory quantities that VAMCs must keep on hand to meet demand and safety requirements.

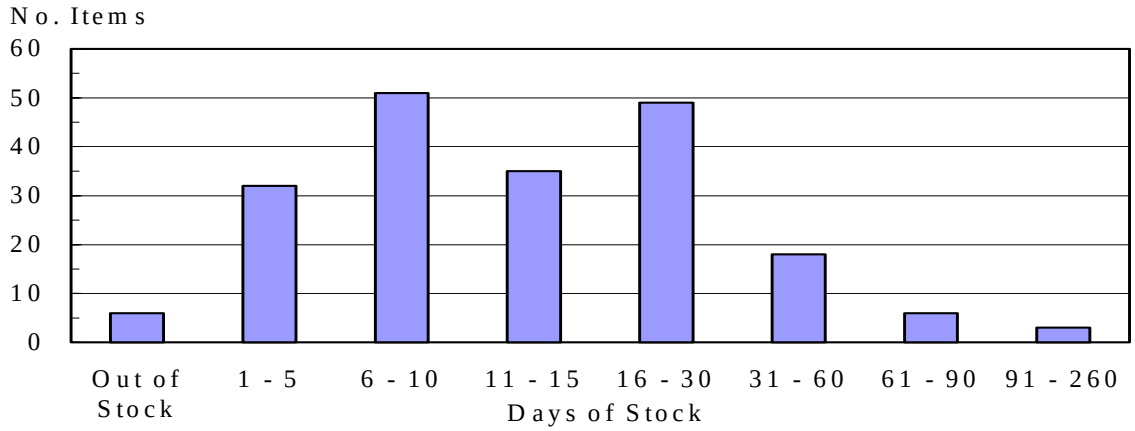
In assessing VAMC inventory management, we considered stock above a 10-day level to be excess inventory unless there was evidence that a higher stock level was needed to meet replenishment and safety requirements. Responsible pharmacy managers at all four VAMCs agreed that for most pharmaceutical items the 10-day supply criterion was reasonable.

VAMCs did not maintain comprehensive pharmacy inventory records that documented the items kept in inventory, quantities on hand, or inventory value. Because this type of inventory information was not available, we used a three-step process to develop estimates of inventory on hand and excess levels. First, at each of the four VAMCs we reviewed automated prime vendor purchase history reports and identified the 50 highest annual expenditure items (the items usually had both high usage and high unit cost), for a total of 200 items. The annual expenditures for the 200 items totaled $14.3 million, or about 36.6 percent of the four VAMCs' total pharmaceutical expenditures. Second, we counted quantities on hand for the 200 high dollar volume items. Third, using prime vendor purchase history and unit cost data for each item, we calculated the days of stock on hand and inventory values for the quantities on hand. The combined inventory value for the 200 items was $620,511. At all four VAMCs the inventories exceeded current needs.

## Value of Excess Inventory

Stock on hand exceeded the 10-day benchmark for 111 (55.5 percent) of the 200 items. The percentages of items with more than a 10-day supply ranged from 26.0 percent at VAMC B to 78.0 percent at VAMC A. The value of the excess inventory was $298,398, or 48.1 percent of the $620,511 total value of the inventory reviewed. Figure 1 below shows the distribution of the 200 items reviewed at the four VAMCs stratified by days of stock on hand:

**Figure 1. Sample Results for High Cost VAMC Pharmaceutical Items Stratified by Days of Stock on Hand**




- For the 200 items the overall average days of stock on hand was 40 days. For the individual VAMCs the average days of stock ranged from 19 days at VAMC C to 75 days at VAMC B. For individual items, the days of stock ranged from 0 days (out of stock) to 259 days.

- For a significant number of items, the days of supply were much higher than necessary considering the short 1-day prime vendor replenishment cycle. Of the 200 sample items, 27 (13.5 percent) had inventories exceeding a 30-day supply. The percentage of items with more than 30 days supply ranged from 2.0 percent at VAMC B to 32.0 percent at VAMC A. Nine items (4.5 percent) had inventory exceeding a 60-day supply.

- In addition to items with excess inventory, six high-use items (3.0 percent) were out of stock. Out of stock conditions can delay the filling of prescriptions, cause inconvenience to patients, and may require additional time, effort, and expense to obtain the item on an emergency basis from the prime vendor or other source.

Based on the results of our review, we estimated that the four VAMCs had pharmaceutical inventories with a combined value of at least $1.7 million and that about $820,000 (48.1 percent) of this amount was excess inventory.

## Causes of Excess VAMC Inventory

To identify the causes of excess inventory, we reviewed the inventory management and purchasing practices pertaining to the 200 items. At all four VAMCs the most frequent cause of excess inventory was that inventory managers used informal methods and did not make the most effective use of modern control techniques and automated tools. In addition, at two VAMCs staff made unnecessary large quantity purchases (that is, purchased more than required for current needs) at the end of the fiscal year.

**Informal Methods Used to Manage Inventories.** None of the four VAMCs had systematically determined inventory requirements based on quantitative analysis of demand, safety stock requirements, and replenishment cycles. The inventory managers had not determined normal stock levels or reorder points. Normal stock levels represent the maximum quantities of items that should be stocked to meet expected demand and to provide adequate safety stock. Reorder points represent the minimum quantities on hand that should trigger replenishment orders to bring inventory back up to the desired normal stock levels. Pharmacy staff at the four VAMCs indicated they used various informal inventory target levels or goals that ranged from 5-7 days to 14-21 days. However, they had not formally determined stock levels or reorder points for individual items based on any systematic, quantitative analysis of demand or determination of safety stock requirements. In addition, none of the VAMCs maintained inventory records showing how long a quantity of a particular item would last.

Because normal stock levels and reorder points had not been determined for each item, inventory managers relied extensively on their experience, making intuitive judgements about the quantities that should be stocked and when and how much to reorder. They determined replenishment frequencies and order quantities based on observations of stock on shelves and customary ordering practices. Inventory managers indicated that they occasionally reviewed the order history for a particular item but did not systematically analyze the purchasing or usage trends for all inventory items. As the following example illustrates, these informal methods resulted in inventory levels for many items becoming too high:

> Paclitaxel 100 mg/16.7 M. VAMC C had 15 units on hand (value = $5,397), which equated to 77 days of supply. Based on usage, two units equated to a 10-day supply. The value of inventory in excess of a 10-day supply was $4,697 (87.0 percent of total inventory value). The technician responsible for ordering had not formally established reorder points or stock levels and only reviewed the purchase history for individual items infrequently. He decided what stock level to maintain and when to place replenishment orders based on his experience. His primary concern was to maintain stock at high enough levels so that he would not run out of stock.

At VAMC A, inventory managers told us that several years ago they had established reorder points and normal stock levels and recorded them on barcoded item shelf labels. However, they did not keep the levels current and over time lapsed into informal methods, as the following example illustrates:

Immu Globulin IV 12 GM. VAMC A had 28 vials of this item on hand (value = $5,562), which equated to 112 days of supply. The value of inventory in excess of 10 days was $5,066 (91.1 percent of total inventory value). Pharmacy staff had not updated reorder points and stock levels for at least 5 years. The technicians responsible for placing replenishment orders indicated that they tried to maintain stock levels at less than 7 days but only infrequently reviewed the procurement history and had not determined how long a given quantity was likely to last. Pharmacy managers were not aware that technicians had abandoned the defined reorder points and stock levels.

Relying exclusively on informal methods increases the risk of both excess inventory and shortages. For example, inventory managers might not recognize changes in demand or usage patterns, especially when the changes occur gradually over time. The following example illustrates how reliance on informal methods can result in unexplained excess inventory:

Olanzapine 7.5 MG. At the time of our review, VAMC D's outpatient pharmacy had 12.1 60-tablet bottles of this medication in stock (value = $2,362), which equated to a 94-day supply. A reasonable 10-day supply would have been 1.3 bottles. The pharmacy technician had not calculated a reorder point or normal stock level for this item but usually kept 6-8 bottles on hand. (A 6-8 bottle level would equate to about 47-62 days of stock). The technician could not explain why the stock on hand substantially exceeded the level usually maintained. The value of the inventory in excess of a 10-day supply was $2,110 (89.3 percent of the item's total inventory value).

**Large Quantities Unnecessarily Purchased with Year-End Funds.** Two of the four VAMCs made unnecessary large quantity purchases of pharmaceuticals to use up unspent funds at the end of the fiscal year. Large quantity purchases are, in effect, irregular replenishments that override established stock levels and replenishment patterns and increase inventory to excessive levels. The two VAMCs made large pharmaceutical purchases with year-end funds totaling $740,972 ($500,972 at VAMC D and $240,000 at VAMC C). VAMC officials acknowledged that the bulk of the stock purchased was not intended to meet their immediate requirements but was to be used up over several months in the next fiscal year. These purchases increased the combined inventory at the four VAMCs from an estimated $1.7 million to $2.4 million, a 39.4 percent increase, and increased the proportion of inventory in excess of the 10-day level from 48.1 percent to 62.8 percent. For example, VAMC D's year-end purchases increased inventory levels for the 50 items reviewed from an average days of stock on hand of 29 days to 74 days and increased the percentage of inventory in excess of a 10-day supply from 47.0 percent to 78.7 percent. The following example illustrates how a large year-end purchase can result in excess inventory:

Beclonethasone Diprop Nasal Spray. In August 1999, VAMC D purchased 591 nasal sprays at a cost of $12,163 with year-end funds. This purchase equated to 113 days of supply and was excess to current needs. At the time of our review in October 1999, this stock was stored in the VAMC's warehouse and had not been placed into pharmacy inventory. In the meantime, the pharmacy continued to replenish the regular pharmacy inventory for this item from the prime vendor. If in October 1999 the pharmacy had stopped ordering regular replenishments and had started drawing down the stock

purchased at year-end, the quantity on hand would have met normal demand for more than 3 months and would not have been used up until January 2000.

To determine if other VAMCs had made large year-end purchases we reviewed prime vendor purchase reports and contacted pharmacy officials at 16 additional VAMCs. Officials at 3 of 16 VAMCs acknowledged that they used year-end funds to purchase additional pharmaceuticals in amounts ranging from a few thousand dollars to $500,000.

Unnecessary year-end spending conflicts with modern inventory management principles, defeats the purpose of the just-in-time replenishment approach of the prime vendor program, inappropriately ties up funds in unneeded inventory, and increases the risk of loss from expiration, damage, or other loss. Large year-end purchases have the additional adverse effect of artificially increasing expenditures that will be used as the basis for future year budgets. In other words, these purchases can give the false impression that a VAMC requires more funds for pharmaceuticals than it would truly need if the purchases had not been made. These irregular purchases also cause aberrations in the sales history used by the prime vendor distribution centers to predict future VAMC demand and to determine their own inventory requirements.

## Controls Not Effectively Used to Manage Inventories

Many of the problems discussed above could have been avoided or minimized if VAMCs had more effectively used modern control methods and available automated inventory tools. With inventories of more than a thousand items stored in multiple locations and with frequent deliveries to and distributions from any or all storage locations, automation is the most effective way to track receipts, quantities on hand, demand, and distribution, and to provide other useful management information. However, the VAMCs used automated inventory systems to a very limited extent and as a result had not developed comprehensive inventory management controls.

As previously discussed, the four VAMCs had not established formal, quantitatively determined stock levels or reorder points. In addition, the VAMCs did not have adequate inventory records to identify inventory items, to document quantities on hand, or to determine value. Because they did not maintain inventory records, the VAMCs could not calculate days of stock on hand or turnover, either for individual items or for the overall inventory. Also, the VAMCs did not conduct periodic physical inventories for general pharmacy stock and were not making effective use of barcoding to track inventory or to initiate replenishment orders.

VAMCs have two automated pharmacy inventory systems that could facilitate managing pharmacy inventories -- (1) the prime vendor automated inventory management system and (2) the VHA-developed drug accountability/controlled substance software. Each system provides some but not all of the management and control features discussed above.

The prime vendor automated inventory system has a number of features that can be used to establish and manage reasonable inventory levels. These features include demand forecasting, calculation of safety stock requirements, establishment of reorder point and stock level parameters, analysis of purchase history trends, and turnover estimation. If the reorder and stock level parameters have been set in the inventory management system, pharmacy technicians can efficiently and accurately download replenishment orders to the prime vendor's electronic

ordering system simply by entering item shelf quantities into a bar code scanner. The prime vendor system does have some limitations. For example, the "demand" is based on VAMC purchase data and not on actual VAMC dispensing data and the system does not calculate days of stock on hand.

VHA's drug accountability/controlled substance systems were developed to provide perpetual inventory record capabilities for general pharmacy stock and for controlled substances. The systems' perpetual inventory capabilities were intended to provide tracking and accountability of all drug quantities from receipt, through storage, to actual distribution or dispensing. However, these systems do not have the built-in capabilities to determine optimum stock levels and reorder points, calculate days of stock on hand or turnover. In addition, the drug accountability software has not been widely implemented by VAMCs. None of the four VAMCs audited were using the drug accountability software.

VAMC pharmacy inventory managers indicated that they were not using the inventory controls because they were not specifically required to implement them, did not know that the tools were available, or did not think it was necessary or would be particularly helpful. To determine if the informal practices and limited use of automated tools at the four VAMCs was representative of use VHA-wide, we performed a telephone survey of 16 additional VAMCs. We found that inventory practices at the 16 VAMCs were consistent with the 4 VAMCs audited. For example, none of the 16 VAMCs were using the features of the prime vendor's automated inventory management system to set stock levels. None of the VAMCs had established comprehensive inventory records systems. (Three VAMCs were using the drug accountability software on a limited basis for a small number of inventory items.) None of the VAMCs calculated days of stock levels or turnover rates for their inventories. This means that the 16 VAMCs surveyed used modern techniques and automation to about the same limited extent as the 4 VAMCs audited. Since the causes of excess inventory at the 4 VAMCs audited can be attributed to not using modern methods and automation, the survey results indicate that it is probable that the 16 VAMCs surveyed also had excess pharmaceutical inventories and limited controls, and that this condition could be widespread among all VAMCs.

## Better Management Could Further Reduce Inventories

Our recent audits of medical supply and prosthetic inventories recommended that VHA, with the assistance of the Office of Acquisition and Materiel Management (OA&MM), issue guidance aimed at helping VAMCs reduce excess inventories and increase the use of modern methods and automated controls. Similar guidance is needed for pharmacy inventories. The guidance should require VAMCs to set goals for reducing pharmacy inventories. In our opinion, the minimum goal should be a 10-day inventory level and, considering the prime vendor's next-day delivery service, a more aggressive, but achievable, goal would be 7 days.

If VAMCs could achieve the goal of reducing inventories to a 10-day level, then the $19.8 million used to purchase and maintain excess inventories would be available for other uses. If VAMCs improved their inventory practices, they might be able to achieve a more aggressive goal of 5-day stock levels, which would reduce inventories by about $28.5 million. However, VAMCs may have difficulty meeting the more aggressive goal for some items with low or inconsistent demand. In our opinion, a reasonable goal would be the midpoint between the 10

and 5-day goals, which would be about a 7-day level. Achieving this goal would reduce VAMC pharmacy inventories by $24.5 million. Similarly, if large unnecessary year-end purchases of pharmaceuticals were ended, additional inventory costs of up to $6.1 million could be avoided and the funds could be used to meet more urgent VHA needs.

Once goals are established, VHA should establish procedures to monitor VAMC progress in meeting their goals. The guidance should direct VAMCs to establish effective procedures for setting and systematically monitoring normal stock levels and reorder points and for avoiding unnecessary large quantity purchases, including year-end purchases.

The guidance should also specify the minimum control requirements and the basic inventory management performance measures that VAMCs should implement. We suggest that at a minimum VAMCs be required to quantitatively determine safety stock requirements, normal stock levels, and reorder points, and to review them on a regular basis. VAMCs should also develop inventory record systems that provide them with basic information about the number of items, on-hand quantities, and the value of their inventories. The inventory records could be based on periodic physical counts of the entire inventory or on the perpetual inventory records provided by the drug accountability/controlled substance software. VAMCs should use the records to calculate days of stock on hand and turnover rates, which can then be used to provide baseline performance data and to measure progress in reducing inventory levels.

In the short term, VAMCs should use the available features of the prime vendor and VHA automated systems. Elements such as days of stock and turnover can be determined based on data extracted from these systems. Over the longer term, VHA should assess pharmacy inventory management control risks and requirements, initiate appropriate system modifications, or consider alternative systems to ensure VAMCs have the tools necessary to efficiently and effectively accomplish their inventory management functions.

VHA should also ensure that VAMC pharmacy staff receive training in the techniques and principles of inventory management and in the effective use of automation. The audit results and our discussions with VAMC pharmacy staff indicate that additional training is needed. VAMC staff involved in inventory management generally understood the importance of reducing inventory to the minimum required to meet operating needs, but they needed to be better oriented in modern, data-based methods and automated tools. Some inventory managers and technicians were not familiar with the available automated systems or with how to use system features to better manage inventories. Additional skill development is an essential requirement for the effective use of the just-in-time stock replenishment approach of the prime vendor program. VAMCs should also take advantage of the training and orientation for the operation of the automated inventory module offered by the prime vendor. The training effort could be supplemented by providing VAMC staff with a handbook describing preferred pharmacy inventory management procedures and control measures.

## Conclusion

The implementation of the prime vendor program over the past few years has resulted in substantial reductions in VAMC pharmacy inventories. VHA has encouraged VAMCs to utilize modern methods and automation to manage their inventories. However, VAMCs have not taken full advantage of the prime vendor program because they have continued to use informal methods and to rely on cushions of excess inventory as a substitute for systematic inventory management. As a result, funds that could be used for other purposes have been tied up in excess inventory. At any given time during FY 1999 the estimated value of VAMC pharmacy supply inventories was $41.3 million and, of this amount, about $19.8 million was excess. Improved inventory management could reduce inventory levels by $24.5 million.

## For More Information

- Pharmaceutical supply costs, the pharmaceutical prime vendor program, and other background information are discussed in Appendix I, pages 11-14.

- The audit objectives, scope, and methodology are discussed in Appendix II, page 15.

- More detailed information on inventory management controls and our estimate of VHA-wide excess inventories is provided in Appendix III, pages 17-20.

## Recommendation 1

We recommend that the Acting Under Secretary for Health:

a. Issue guidance requiring VAMCs to eliminate excess pharmacy inventories and to use automated information to manage inventories. The guidance should specify that VAMCs: (1) establish goals for reducing inventory levels, with a 10-day level as the initial goal; (2) establish effective procedures for setting and monitoring reorder points and normal stock levels; and (3) specify the minimum level of control and the inventory management performance measures that VAMCs should implement; and (4) make effective use of available automated tools.

b. Establish procedures to monitor VAMC progress in reducing inventories and to ensure that inventory reduction goals are met.

c. Provide VAMC pharmacy inventory staff training on inventory management principles and techniques and on the use of automation for inventory management.

d. Discourage the practice of using year-end funds to buy excessive pharmacy supplies.

The associated monetary benefits for Recommendation 1 are shown in Appendix IV, page 21.

## Acting Under Secretary for Health Comments

The Acting Under Secretary for Health concurred with the audit findings and recommendations, and generally agreed with the monetary benefits estimate. (See Appendix V, pages 23-27, for the complete text of the Acting Under Secretary's comments and implementation plan.)

## Implementation Plan

**Recommendation 1a**. VHA is developing an inventory management handbook designed to provide guidance to VAMCs for establishing procedures to eliminate excess and unofficial supply inventories. This handbook, which was in part designed to address similar issues raised in other OIG inventory audits, includes the components of this recommendation. A separate section of the handbook will be devoted to the management of pharmaceutical inventories. VHA Pharmacy officials are working with the pharmaceutical prime vendor, the Chief Network Office, and the Logistics Office to structure the guidance.

VHA will establish a 10-day pharmaceutical inventory level as the initial goal, although this goal may change based on actual use of the prime vendor inventory management system to identify the optimum order amounts for each product. The guidance will specify reorder points and mandate inventory records. All facilities will be directed to utilize the prime vendor's automated inventory management software.

VHA anticipated that the inventory management handbook will be in effect before the end of Calendar Year 2000. In the interim, Pharmacy officials and the Chief Network Office will assure that each VISN and facility will receive a copy of this audit report. Performance expectations will be communicated through national teleconference calls and e-mail. Pharmacy inventory management initiatives will be integrated into other system-wide inventory management plans.

**Recommendation 1b**. Monitoring processes will be designed as part of the ongoing planning and implementation actions described above. Existing prime vendor systems will be utilized in establishing monitoring goals.

**Recommendation 1c**. VHA will further explore prime vendor training resources for staff training on inventory management principles since the prime vendor automated system will provide the framework for planned actions. Pharmacy officials will work closely with the Logistics Office to coordinate staff training efforts.

**Recommendation 1d**. In its action plan VHA indicated that the trend of pharmacy year-end purchasing had decreased significantly with the implementation of the pharmaceutical prime vendor system, and that there are many legitimate and fiscally sound reasons to use year-end funds for expanded purchases. Nevertheless, VHA agreed that these purchases should not be excessive and that approval should be based on clear justification for the purchases. The issue will be covered in the published guidance and reinforced in field communications.

## Office of Inspector General Comments

The implementation plans are acceptable and we consider the audit issues to be resolved. We will follow up on the implementation of planned actions.

In its response, VHA agreed with the monetary benefits associated with the audit recommendations but expressed a preference for the benefits associated with our recommended initial goal of a 10-day inventory level rather than the longer term 7-day goal. The 7-day goal was presented as a more aggressive but achievable goal that could be attained through full implementation of our recommendations.

While agreeing with our conclusion that VA medical center inventories could be reduced, the VHA comments suggested that the audit should have considered available industry reports that would have shown that VA inventory management practices were not negatively out of line with those of other health care organizations. After receiving these comments, we contacted VHA program officials who acknowledged that they did not have any reports on private sector performance for comparison purposes and that this type of information, to the extent that it may be available, would probably be considered proprietary and might not be shared with VA.

If VHA program officials are interested in such comparisons, they should begin trying to obtain industry information and, as we recommended, begin compiling performance measurement data for VA pharmacy activities. However, it should be recognized that a sector comparison would have little relevance to the operational deficiencies discussed in this report and would not have changed our findings and recommendations to improve VAMC inventory management practices. As discussed in the report, our review methodology did apply widely accepted and practiced inventory management principles and methods and took into consideration the tools available to VAMCs. Regardless of how VA might compare overall to other organizations on broad indicators such as turnover, our results showed that VAMC inventory management practices can be improved and that costs can be further reduced.

# Background

## Introduction

**Definition of Pharmaceuticals.** VA's Drugs and Medicines budget category includes drugs, medicines, and other pharmaceuticals used for the prevention, diagnosis, research, or treatment of diseases; laboratory chemicals and reagents; vaccines, anesthetics, and medical or surgical gases (budget object code 2631); and prescriptions filled by fee pharmacies (budget object code 2636). Other supplies and materials, such as medical supplies, prosthetic appliances, blood products, and office supplies, are classified in separate budget categories.

**VA Pharmaceutical Costs.** In FY 1999, VA expenditures for pharmaceuticals totaled $1.845 billion, which was more than one-half (57.5 percent) of total supplies and materials costs of $3.207 billion, and about 10.7 percent of VA's total medical care budget. As shown in Table 1 below, over the past 5 years expenditures for drugs and medicines have increased by 99.3 percent, which was significantly more than the increases for all other supplies (6.4 percent).

**Table 1. Pharmaceuticals and All Other Supply Costs – FYs 1994-1999 ($ Millions)**

| | Pharmaceuticals | | All Other Supplies | |
|---|---|---|---|---|
| Fiscal Year | Costs | Percent Change | Costs | Percent Change |
| 1994 | $925.8 | -- | $1,279.9 | -- |
| 1995 | 1,049.8 | 13.4% | 1,364.8 | 6.6% |
| 1996 | 1,157,7 | 10.3% | 1,265.0 | -7.3% |
| 1997 | 1,337,5 | 15.5% | 1,314.1 | 3.9% |
| 1998 | 1,548.4 | 15.8% | 1,320.4 | 0.5% |
| 1999 | 1,844.7 | 19.1% | 1,362.1 | 3.2% |
| **5-Year Increase** | **$918.9** | **99.3%** | **$82.2** | **6.4%** |

Source: VA Congressional Budget Submissions

The FY 2001 VA Congressional Budget Submission predicts that this trend will continue. VA estimated that annual pharmaceutical costs will increase by $899.8 million (48.8 percent) during the 2 fiscal years ending September 30, 2001. All other supply costs will increase by $200.0 million (14.7 percent) for the same period. According to responsible VHA and VAMC officials, the two major causes of higher pharmaceutical expenditures are (1) the increasingly large population of aging veteran-patients receiving more drugs and medicines as part of their treatment and (2) the increasing use of high cost drugs to treat various medical conditions.

VA medical center pharmacy activities account for the largest part of total VA pharmaceutical expenditures. In FY 1999, VAMC pharmacies expended $951.4 million, or about 51.6 percent of the $1.8 billion total pharmaceutical expenditures. VHA's Consolidated Mail-Out Pharmacies (CMOPs) accounted for about $791.3 million (42.9 percent). The remaining $102.0 million in pharmaceutical expenditures (5.5 percent) were accounted for by other VAMC activities such as pathology and anesthesiology ($107.9 million), fee basis prescriptions filled by non-VA pharmacists ($2.1 million), and offsetting national-level pharmaceutical refunds (-$8.0 million).

## VA Pharmacy Inventory Management Responsibilities

VHA's Pharmacy Strategic Healthcare Group is responsible for developing VHA's strategy for managing and administering pharmacy services programs, including the development of automated systems for VAMCs to use in tracking and controlling pharmaceuticals. At the VAMC level, the Pharmacy Service is typically responsible for the inventory management functions of ordering, receiving, and storing of pharmaceuticals, for issuing pharmaceuticals to the various inpatient and clinical activities, and for dispensing prescribed drugs and medicines directly to outpatients. CMOPs dispense most mail-out refill medications for VAMC outpatients and perform their own procurement and inventory management activities.

OA&MM, an element of VA's Office of Financial Management, has overall responsibility for formulating VA policies on logistics issues, including inventory management. OA&MM also operates the National Acquisition Center, which awards and administers the pharmaceutical prime vendor distributor contract as well as Federal Supply Schedule and other national contracts with pharmaceutical suppliers.

## VA Pharmaceutical Prime Vendor Program

**VA Transition to Prime Vendor**. A prime vendor is a commercial, just-in-time ordering and delivery service. VA's 1994 transition to a prime vendor program revolutionized VAMC pharmaceutical procurement, distribution, and inventory management. For more than 50 years, VAMCs had relied on VA's centralized supply depot system as their source for most pharmaceutical items. This system required both the depots and the VAMCs to carry large inventories. The depots typically distributed supplies to VAMCs in bulk quantities at monthly intervals, and VAMCs typically maintained pharmaceutical inventories with at least 60-90 days of supply. VA began testing the prime vendor approach in 1991. When the depots ceased operations, VAMCs began using prime vendors as their principal source of supply for pharmaceuticals. VA program officials have estimated that through the prime vendor program, VA realized a one-time savings of $250-$300 million in inventory reduction and recurring savings of $18-$20 million a year. In FY 1999, VAMCs and CMOPs purchased about $1.4 billion, or about 80.5 percent of their total pharmaceutical expenditures, from prime vendors.

**Benefits and Features of the Prime Vendor Program.** The principal benefit of the prime vendor program is consistent and reliable just-in time replenishment of pharmaceutical items. If the prime vendor program has been effectively implemented, VAMCs should have lower inventory levels, decreased inventory and carrying costs, higher fill rates, fewer out-of-stock occurrences, less waste from shelf-life expirations, and reduced staffing required to manage inventories. Under the current contract, the prime vendor must provide next-business day delivery for routine pharmaceutical replenishment orders and must achieve a 97 percent fill rate. The prime vendor provides VAMCs with an electronic order entry system for use in placing orders. The system includes an on-screen catalog of available items and current prices. Using the electronic ordering system, VA pharmacies transmit their replenishment orders to the prime vendor. Within a few hours the VAMC receives an order confirmation from the prime vendor. The vendor's regional distribution center fills the order and delivers the items to the VA facility the next day. The prime vendor ordering system also provides an inventory management sub-

system, detailed item purchase histories, and a wide range of performance reports. The prime vendor provides VAMC staff with training in the use of these automated tools.

## Automated Pharmacy Inventory Management Systems

VAMC pharmacies have two automated inventory management systems available for use in managing inventories -- the prime vendor's automated inventory management software and the VHA-developed Drug Accountability/Controlled Substance Software. Each system provides some but not all features typically associated with automated inventory management.

**Prime Vendor Automated Inventory Management System.** The prime vendor's electronic ordering system contains an automated inventory management sub-system that VAMCs can use to establish optimum inventory stock levels. The system's analytical features include demand forecasting, estimation of safety requirements, establishment of normal stock levels and reorder points, and calculation of turnover. Additional advanced features include trend analysis, variability analysis, economic order quantity determination, and "ABC" value-stratified analysis. When stock level and reorder point parameters have been set in the system, inventory managers can upload replenishment orders to the electronic ordering system simply by entering the item's quantity on hand into a barcode scanner. One limitation is that the system's standard inventory reports do not show on-hand inventory information or days of stock on hand data.

**Drug Accountability/Controlled Substance Software.** Beginning in the mid-1990s, VHA's Pharmacy Benefits Management Group developed several software packages intended to improve VAMC accountability and control for both controlled substances and non-controlled general stock pharmacy items. These systems were intended to address material weaknesses in VAMC pharmacy control of scheduled drugs that had been identified in two 1991-1992 General Accounting Office (GAO) reviews.[2] VHA developed two software packages, the Controlled Substance package and the Drug Accountability package, to provide automated perpetual inventory capabilities that would allow tracking of all drug quantities from receipt to issuing or dispensing by the pharmacy. In addition, the Drug Accountability software was to interface with the prime vendor's electronic ordering system.

The controlled substance package was released in 1995 and is being used by most VAMCs to produce perpetual inventory records for controlled substances as required by VHA policy. The Drug Accountability package was intended to provide similar perpetual inventory record capabilities for non-controlled substance that make up the bulk of pharmacy inventories. Most VAMCs have installed the package but are not using it to control pharmacy items. VAMCs have reported that the package requires too much staff intervention to keep perpetual inventory records current and that the pharmacy item database was not compatible with the prime vendor item database. In addition, the software was not designed to manage inventory levels. Officials involved in the software development indicated that it was intended to be a control and accountability system and not an inventory management system.

[2] GAO, Inadequate Controls Over Addictive Drugs, (HRD-91-101, June 1991) and Effort to Improve Pharmacies Control Over Addictive Drugs, (HRD 92-38, May 1992).

## Previous Office of Inspector General Audits of Inventory Practices

In 1998, the Office of Inspector General (OIG) began a series of audits to assess VAMC management of different categories of supplies. In March 1999, the first of the series, Audit of VA Medical Center Management of Medical Supply Inventories (Report Number 9R8-E04-052; March 9, 1999), was completed. This audit found that VAMCs maintained large medical supply inventories that far exceeded requirements for current operating needs. At five VAMCs, $4.3 million of $7.0 million in combined medical supply inventories exceeded current operating needs. To improve inventory management, the audit recommended that VHA and OA&MM work together to issue guidance requiring VAMCs to reduce inventories by making more effective use of automated inventory systems. The OIG estimated that stronger inventory management could reduce medical supply inventories by $75.6 million.

The Under Secretary for Health concurred with the audit findings, recommendations, and estimated monetary benefits. He indicated that VHA needed to fully exploit the opportunity to achieve significant savings by ensuring that facilities take advantage of the inventory management tools already available to them. As part of the Under Secretary's action plan to implement the audit recommendations, VHA's Logistics Office was to issue a policy requiring VAMCs to set maximum stock levels at no greater than a 30-day supply. As of March 2000, the target date for issuing the new policy was April 2000. The Assistant Secretary for Financial Management also concurred with the recommendations and agreed that implementation should result in improved inventory management at VAMCs.

In November 1999, the OIG issued the second report in the series, Audit of Management of Prosthetic Supply Inventories at VA Medical Centers and the Denver Distribution Center (Report No. 99-00188-13, November 15, 1999). The audit found that VAMC inventories substantially exceeded current operational needs. At five VAMCs with combined prosthetics inventories valued at $2.7 million, about $1.3 million (46.9 percent) was excess. At the Denver Distribution Center (DDC), $528,000 (49.3 percent) of an inventory valued at $1.1 million was excess. The OIG estimated that better management could reduce VAMC and DDC prosthetic inventories by $31.4 million.

To improve inventory management, the OIG recommended that VHA and OA&MM require VAMCs and the DDC to establish goals for reducing inventories and to use automation for managing their inventories. The Acting Under Secretary for Health and the Assistant Secretary for Financial Management concurred with the recommendations and provided acceptable implementation plans.

# Objectives, Scope, and Methodology

## Objectives

The purpose of the audit was to evaluate VAMC management of pharmaceutical inventories. The two audit objectives were to: (1) determine if VAMC pharmaceutical inventories exceeded current needs; and (2) evaluate how effectively VAMC pharmacies were using modern inventory management practices, including automation-assisted processes and controls.

## Scope and Methodology

To accomplish the audit objectives, we reviewed policy, procedures, and other guidance, VA studies, and OIG and GAO audit reports pertaining to pharmacy inventory management issues. We reviewed technical guidance for the prime vendor's electronic ordering system, inventory modules, and available management reports. We discussed inventory management practices and recent and planned initiatives with responsible VA Central Office and VAMC officials. We compiled and analyzed comparative pharmaceutical cost and workload data for all VAMCs.

To obtain an overview of VAMC inventory management practices, we conducted a telephone survey of pharmacy officials at 20 VAMCs. Based on our telephone survey and discussions with VA Central Office officials, we performed onsite audits at four of the VAMCs included in the survey. In this report the four VAMCs are designated as VAMCs A, B, C, and D. Auditing these VAMCs allowed us to evaluate inventory management practices and controls in the context of a varied range of relevant operational characteristics including pharmacy workload, expenditures, organization, and CMOP utilization. The VAMCs were located in different Veterans Integrated Service Networks (VISNs) around the nation and were serviced by different prime vendor regional distribution centers. In addition, we visited one prime vendor distribution center where we were briefed on the services provided to VAMCs, including the features of the prime vendor's electronic ordering and automated inventory management systems.

At each VAMC we held discussions with responsible pharmacy officials, inspected pharmaceutical storage areas, and observed ordering, inventory control, and distribution practices. We also reviewed selected pharmaceutical items in detail to verify stock levels, demand, and cost. In our opinion, the work performed at these VAMCs, along with the results of our telephone survey and our other analyses of VHA data, provide a reasonable basis for assessing the status of inventory management VHA-wide.

The audit covered FY 1999. The scope of the audit was limited specifically to VAMC pharmacy inventories and did not cover CMOP inventories or non-pharmaceutical supplies. We performed the audit in accordance with generally accepted government auditing standards. To meet the audit objectives we used computer-processed expenditure data from VA's automated Financial Management System and pharmaceutical purchase histories from the prime vendor's electronic ordering system. We conducted tests to assess the reliability of the data, which we found to be sufficiently reliable to meet the audit objectives.

# Details of Audit

## VAMCs Could More Effectively Use Inventory Management Controls

As previously discussed, VAMCs were making only limited use of available automated tools and modern techniques and as a result were not achieving the full economic benefits of the prime vendor distribution program. Effective use of inventory controls and automated features would keep stock levels consistent with current needs and would reduce or eliminate excess inventories. As shown in Table 2 below, the four VAMCs made little use of automated inventory controls and management features.

**Table 2. VAMC Use of Automated Controls to Manage Pharmacy Inventory Levels**

| Control Element | VAMC A | VAMC B | VAMC C | VAMC D |
|---|---|---|---|---|
| Normal Stock Levels/Reorder Points Used | Outdated | No | No | Outdated |
| Days of Stock on Hand Determined | No | No | No | No |
| Turnover Rates Tracked | No | No | No | No |
| Barcode Scanning Used | Limited | Limited | No | Limited |
| Inventory Records Maintained: | | | | |
| General Pharmacy Stock | No | No | No | No |
| Controlled Substances | Yes | Yes | Yes | Yes |
| Physical Inventories Performed: | | | | |
| General Pharmacy Stock | No | No | No | No |
| Controlled Substances | Yes | Yes | Yes | Yes |
| EOQ/Other Quantitative Methods Used | No | No | No | No |

**Normal Stock Levels and Reorder Points Not Established.** The normal stock level is the maximum quantity of an item that should be stocked to meet recurring demand, safety stock requirements, and the replenishment cycle. The reorder point is the inventory level at which a replenishment order should be placed to bring the inventory back up to the normal stock level. These levels should be quantitatively determined for each item based on analysis of usage or demand, safety stock requirements, and the length of time to complete the replenishment cycle. At the time of our review, none of the four VAMCs were using quantitatively determined stock levels or reorder points. Two of the VAMCs had established reorder points and stock levels several years ago but had not kept them current. Instead of using quantitative factors, inventory managers at the four VAMCs typically determined replenishment orders informally based on their experience, customary ordering practices, or preferences.

**Days of Stock on Hand Not Determined.** Days of stock on hand is a commonly used, easily determined inventory management indicator that shows how long the quantity on hand of an item will last. An item's days of stock is determined by dividing the quantity on hand by the item's average daily usage rate. None of the four VAMCs had developed days of stock information for the items in their pharmacy inventories, even though pharmacy managers and technicians usually described their target inventory levels or goals in terms of days of stock on hand.

**Turnover Rates Not Monitored.** Turnover is one of the most commonly used measures of inventory management, representing the number of times an inventory is consumed and replaced annually. Turnover is calculated by dividing the value of annual usage or purchases by the average inventory value. High turnover is normally indicative of good inventory management and is an expected outcome from a just-in-time distribution system, such as the prime vendor program. None of the four VAMCs calculated inventory turnover rates, either for individual items or for the inventory as a whole. As discussed below, the VAMCs did not maintain inventory records or perform physical inventories, which would be required to provide the inventory value data needed to calculate turnover rates.

**Barcode Scanning Use Limited.** Barcode systems are an integral part of automated inventory management. The use of barcoding in inventory management improves the accuracy of identifying the item and determining quantities on hand and increases efficiency by reducing the staff time required to prepare replenishment orders. The prime vendor provides VAMCs with bar code readers and shelf labels that can be used to determine inventory levels and initiate replenishment orders. The four VAMCs made limited use of barcoding. One VAMC did not use barcoding at all and three VAMCs made only partial use of barcoding features. The three VAMCs used barcoding to identify items when compiling replenishment orders. But because reorder points and normal stock levels were not determined or entered in the system, the VAMCs did not use the feature allowing automatic calculation of reorder quantities.

**Inventory Records Not Maintained.** Inventory records are one of the most basic inventory controls, furnishing a continual count and value for every item in stock, which must be known to calculate days of stock on hand and turnover rates. None of the VAMCs maintained either automated or periodic inventory records for their general pharmacy stocks. All four VAMCs did maintain required perpetual inventory records for controlled substances and narcotics. However, these records were not used to manage inventory levels. Instead, pharmacy staff used the same informal methods to manage controlled substances inventory levels that they used for the general pharmacy inventories.

**Physical Inventories Not Performed.** A physical inventory is a periodic count of all items to establish an inventory record of the quantities on hand and the associated inventory value or to verify the information contained in inventory records. Physical counts provide information needed to calculate usage, identify variances in inventory and financial records, and provide an element of accountability and internal control. VHA guidelines do not require VAMCs to perform periodic physical inventories of pharmacy stock except for controlled substances, which should be inventoried at least every 72 hours. None of the four VAMCs conducted periodic, comprehensive physical inventories of their general pharmacy stocks. The VAMCs did perform the required inventories of controlled substances.

**Economic Order Quantity (EOQ) or Other Quantitative Methods Not Used.** The prime vendor's automated inventory management system has a feature that allows VAMCs to calculate EOQ for inventory items and includes other analytical tools such as ABC value-stratified analysis designed to facilitate inventory management. EOQ formulas allow inventory carrying and ordering costs to be factored in with demand and safety requirements in establishing inventory requirements. None of the four VAMCs used EOQ or other quantitative methods in

setting or managing inventory levels and none had developed carrying and ordering cost information.

## Estimates of Excess VAMC Pharmaceutical Inventory

VHA did not maintain data on the value of pharmaceutical inventories VHA-wide. In addition, none of the 4 VAMCs visited or the other 16 VAMCs contacted in our telephone survey maintained comprehensive inventory information for the items stocked by the pharmacy activity. To estimate the values of total inventory and excess inventory for all VAMCs, we extrapolated the results from our audits at four VAMCs to all VAMCs. Using this approach, we estimated that at any given time during FY 1999 the total value of pharmaceutical inventories at all VAMCs was about $41.3 million and the value of inventory in excess of a 10-day supply was $19.8 million. We used a three-step process to reach these estimates:

1. Because complete and accurate inventory records did not exist, we used the following method to estimate inventory values. We reviewed the 50 highest-expenditure items at each of the four VAMCs, for a total of 200 high cost items. We identified the high cost items by reviewing prime vendor automated velocity reports and purchase history files covering the most recent 12-month period before our visit to each VAMC. The 12-month expenditures for these items totaled $14.3 million, or about 36.6 percent of the VAMCs' total annual pharmaceutical expenditures of $39.1 million. We determined the actual inventory value for the 200 items by: (1) performing a physical count of the quantity on hand; (2) multiplying the quantity on hand by the item's unit cost; and (3) summing the value of each item's inventory. This approach yielded a value of $620,511 for the inventories of the 200 items.

2. Of the $620,511 amount, $298,398 (48.1 percent) was excess inventory based on the 10-day criterion. To determine the excess inventories at the 10-day level, we (1) converted every item's usage (purchases) to a daily rate; (2) calculated a 10-day supply by multiplying each item's daily rate times 10 days; (3) determined the value of the 10-day inventory by multiplying the 10-day quantity by the unit cost; and (4) calculated the value of the excess inventory by subtracting the value of a 10-day supply from the value of the actual inventory. In calculating the item's daily rate, we used the purchase history for the most recent 12-month period except when a shorter period was more appropriate. Likewise, when determining individual item excess inventories, we made exceptions to the 10-day criterion if the item had a large minimum order quantity or was used irregularly or infrequently.

3. To estimate the value of inventories VHA-wide, we applied the overall proportion of stock on hand versus purchase costs for the items reviewed to the total pharmacy purchases at all VAMCs. The proportion for the items from the four VAMCs was 4.3 percent. The FY 1999 pharmacy costs for all VAMCs were $951.4 million. Applying the 4.3 percent proportion yielded an estimated value of $41.3 million for all VAMC inventories. In our opinion, this is a reasonable and conservative estimate of the value of the inventory at any given time under current inventory management practices.

As noted in step 2 above, the proportion of excess inventory at the four VAMCs was 48.1 percent. Applying this proportion to the estimated $41.3 million value of the overall inventory yielded an estimated value of $19.8 million for overall excess inventory. Using the same process, we calculated the values of inventory that could be eliminated based on achieving three possible goals ranging from the minimum goal of a 10-day inventory level to an aggressive 5-day goal:

**Table 2. Estimated VHA-Wide VAMC Inventory Cost Reductions Using Three Possible Goals**

| Goal (Days of Supply) | Potential Inventory Reductions ($ in Millions) |
|---|---|
| 10 Days | $19.8 (48.1%) |
| 7 Days (midpoint) | $24.5 (59.4%) |
| 5 Days | $28.5 (69.1%) |

Although the 5-day goals could likely be met for many items with high volume and consistent demand, it may not be achievable for items with infrequent or unpredictable demand or that are available only in larger shipping quantities. In our opinion, the 7-day goal, which falls at about the midpoint between the 10 and 5-day goal, is a reasonable goal that could be achieved by more effectively managing pharmacy inventories. Reaching this goal would reduce inventory levels to about a 7-day supply and would decrease excess inventories VHA-wide by about $24.5 million. These funds could be used to meet other VHA needs instead of being tied up in excess inventory.

We used a similar extrapolation process to estimate the value of the additional excess inventory that resulted from large VAMC pharmaceutical purchases made at the end of the fiscal year to use up unspent funds. Two of the four VAMCs audited made large quantity purchases totaling $740,972 at the end of FY 1999. These purchases further increased the amounts of VAMC inventories that exceeded the 10-day current needs threshold. Overall, the year-end purchases increased the combined inventories at the four VAMCs from an estimated $1.7 million to $2.4 million, a 39.4 percent increase. The proportion of excess inventory increased from 48.1 percent to 62.8 percent of the estimated value of the combined pharmacy inventories. The difference between the 48.1 percent and the 62.8 percent was 14.7 percent, which represents the additional proportion of excess inventory resulting from year-end purchases.

Our telephone survey of 16 additional VAMCs found that 3 VAMCs (18.8 percent) also made year-end purchases that ranged from several thousand dollars to $500,000. Because the telephone survey confirmed that other VAMCs had made year-end purchases, we applied the 14.7 percent increase in excess inventory to the $41.3 million estimated total inventory for all VAMCs. This yielded an estimate of $6.1 million in excess year-end purchases not needed to meet current needs and that could have been used to meet more urgent VHA year-end needs.

# Monetary Benefits in Accordance with IG Act Amendments

**Report Title:** Audit of VA Medical Center Management of Pharmaceutical Inventories

**Project Number:** 1999-00186-R8-0004

| Recommendation Number | Category/Explanation of Benefits | Better Use of Funds | Questioned Costs |
|---|---|---|---|
| 1a-c. | Better use of funds by reducing VAMC excess inventories, monitoring VAMC progress in reducing inventories, encouraging the use of modern methods and automation, and providing training on inventory management. | $24.5 million | |
| 1d. | Better use of funds by discouraging VAMCs from making large year-end purchases for prime vendor-supplied items. | $6.1 million | |

# Acting Under Secretary for Health Comments

**Department of Veterans Affairs**

# Memorandum

Date: June 1, 2000

From: Acting Under Secretary for Health (10A/105E)

Subj: OIG Draft Report: ***Audit of VA Medical Center Management of Pharmaceutical Inventories*** (Project #1999-00186-R8-0004/EDMS #84818)

To: Assistant Inspector General for Auditing (52)

1. Appropriate VHA program officials have reviewed the referenced report and we concur in OIG's findings and recommendations. A detailed action plan is attached. Recognizing that the lack of quantitative inventory recording data clearly hinders ability to determine the most efficient stock levels, we believe that OIG's audit methodology is probably the best available under the circumstances. Given such inherent obstacles, we also agree with the report's estimates of potential monetary benefit associated with the recommendations. However, we believe that OIG might have more appropriately utilized the savings estimate based on a 10-day inventory level (rather than a 7-day level), since that is our agreed-upon initial goal until more definitive inventory analyses are conducted. Our action plan also clarifies our position relating to year-end purchasing practices.

2. As you report, implementation of the pharmaceutical prime vendor program has led to a notable reduction of pharmaceutical inventories, with facilities currently experiencing approximately 23 inventory turns per year. While we agree with OIG that facility inventories could probably be reduced even further through the effective use of existing automated inventory management tools, we also think it is essential that OIG's findings and conclusions be placed in the context of contemporary inventory management practices within the private sector. Based on several informal anecdotal reports that have come to our attention, for example, including figures from the American Association of Retired Persons (AARP), it would appear that VA's pharmaceutical inventory turnover rate compares very favorably when viewed in the broader arena. It is unfortunate that this report did not consider a comparative private sector framework, since an uninformed reader could be left with the impression that VA's management practices might be negatively out of line with other health care organizations.

3. Nevertheless, we fully agree with OIG's key observation that our facilities must re-focus efforts by implementing a more systematic, automated approach to inventory management. As our action plan details, specific steps are being taken in that direction, not only in terms of pharmaceutical supplies, but also for all other supply inventories, including prosthetics, medical/surgical, and engineering. A comprehensive

VA Form 2105
Mar 1989

Page 2 OIG Draft Report: ***Audit of VA Medical Center Management of Pharmaceutical Inventories***

VHA Handbook, providing broad-based guidance in all aspects of inventory management, is now under review and concurrence. The guidance, which mandates use of automated inventory management packages and monitoring procedures, is designed to assist facilities in structuring ways to eliminate excess and unofficial supply inventories. In addition, the guidance addresses the need to provide inventory staff training. As we have previously reported to OIG, VHA has established an Office of Logistics at the Headquarters level, as well as VISN Chief Logistics Officers and field facility logistics staff, to assist facilities in fully implementing inventory management principles and techniques as outlined in the guidance. A separate section of the handbook will be devoted to pharmaceutical inventory management**.** Pharmacy program officials will recommend to the Acting Under Secretary for Health that an initial 10-day inventory goal be designated, as OIG recommends. In addition, the guidance will specify reorder levels and a mandate for annual inventories.

4. AmeriSource, VHA's pharmaceutical prime vendor, has developed a sophisticated inventory management system that works in conjunction with their order entry software. The system, which all facilities will be directed to use, provides the tools to monitor buying patterns, maintain appropriate inventory levels and increase productivity of inventory control staff members. AmeriSource's system also has the capability to identify the optimum order amount for each pharmaceutical product. Utilizing selected system capabilities, VHA pharmacy officials will work with the prime vendor to accurately pinpoint the number of stock days that will be required for most items to meet current operating needs at each facility. These data will provide inventory managers with consistent and systematic guides in determining timely inventory requirements.

5. Pharmacy program officials will continue to work closely with the Logistics Office and the Chief Network Office in coordinating implementation of new inventory management guidelines. All facilities will also be provided with copies of this audit, including VHA's response, and information will be exchanged on an ongoing basis via national conference calls and e-mail exchange.

6. OIG's assistance in helping us to prioritize inventory management improvement opportunities throughout the system is very much appreciated, and we look forward to ongoing sharing of action progress. If additional information is required, please contact Paul C. Gibert, Jr., Director, Management Review and Administration (105E), Office of Policy and Planning (105), at 273-8355.

*(Original signed by:)*
Thomas L. Garthwaite, M.D.
Attachment

Action Plan in Response to OIG/GAO/MI Audits/Program Evaluations/Reviews

Name of Report: OIG Draft Report: ***Audit of VA Medical Center Management of Pharmaceutical Inventories***
Report Number: Project #1999-00-186-R8-004 0 (EDMS #84818)

Date of Report: none

| Recommendations/ Actions | Status | Completion Date |
|---|---|---|

**RECOMMENDATION 1**

**We recommend that the Acting Under Secretary for Health;**

**a. Issue guidance requiring VAMCs to eliminate excess pharmacy inventories and to use automated information to manage inventories. The guidance should specify that VAMCs: 1) establish goals for reducing inventory levels, with a 10-day level as the initial goal; 2) establish effective procedures for setting and monitoring reorder points and normal stock levels; 3) specify the minimum level of control and the inventory management performance measures that VAMCs should implement; and 4) make effective use of available automated tools.**

Concur

A VHA-wide Inventory Management Handbook, designed to provide guidance to VA Medical Centers in establishing procedures to eliminate excess and unofficial supply inventories, is currently undergoing preliminary concurrence review and revision. The comprehensive guidance, which was designed in part to address a pattern of similar issues raised in OIG's multiple inventory management audits, includes components relating to all of the specifications of this recommendation. A separate section of the handbook will be devoted to the management of pharmaceutical inventories. Pharmacy officials are currently working in coordination with AmeriSource, VHA's pharmaceutical prime vendor, the Chief Network Office, and the VHA Office of Logistics, to structure the guidance.

A 10-day pharmaceutical inventory level will be established as our initial goal, although that figure may well change depending on outcome determinations of AmeriSource inventory management system runs to identify optimum order amounts for each pharmaceutical product. All facilities will also be directed to utilize the prime vendor's automated inventory management software.

Page 2 VHA Action Plan / OIG Draft Report: ***Management of Pharmaceutical Inventories***

No definitive timetable has yet been established for issuance of the national inventory management handbook, but it is anticipated to be in effect before the end of the calendar year. In the interim, Pharmacy and the Chief Network Office will assure that each VISN and medical facility receive a copy of this OIG report, including VHA's response. Performance expectations will be communicated through national teleconference calls and e-mail exchanges. Through the oversight management efforts of the Office of Logistics, pharmaceutical inventory initiatives will be integrated into other systemwide inventory management plans, as detailed in the proposed guidance.

In Process November 2000 and Ongoing

**b. Establish procedures to monitor VAMC progress in reducing inventories and to ensure that inventory reduction goals are met.**

Concur

Monitoring processes will be designed as part of the ongoing planning/implementation actions that are described above. The pharmaceutical prime vendor will play a key role in helping to establish effective monitoring techniques, and existing systems developed by AmeriSource will be utilized in establishing monitoring goals.

In Process November 2000 and Ongoing

**c. Provide VAMC pharmacy inventory staff training on inventory management principles and techniques and on the use of automation for inventory management.**

Concur

The prime vendor has training resources that will be further explored in staff training on inventory management principles since the AmeriSource inventory management automated system will provide the framework for planned actions. Pharmacy officials will also work closely with the Office of Logistics in coordinating staff training efforts.

In Process November 2000 and Ongoing

**Page 3** VHA Action Plan / OIG Draft Report: ***Management of Pharmaceutical Inventories***

**d. Discourage the practice of using year-end funds to buy excessive pharmacy supplies.**

Concur

It is clear that the trend of accelerated pharmacy supply purchasing with year end funds has decreased significantly with implementation of the pharmaceutical prime vendor system. The OIG's estimate of $6 million annual year-end purchasing has limited significance when judged in context with the $951 million annual expenditure for pharmaceuticals by VA facilities. As OIG will agree, there are many legitimate and fiscally sound reasons to utilize year end funds for expanded purchase (i.e., responding to anticipated price increases on high volume items or items expected to be in short supply), and the report does not identify any examples of recognized mismanagement. Nevertheless, we agree that these purchases should not be excessive and that approval should be based on clear justification for the purchases. This issue will be included in our published guidance and reinforced in our field communication.

Planned November 2000 and Ongoing

# Final Report Distribution

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This report will be available in the near future on the VA Office of Audit Web site at http://www.va.gov/oig/52/reports/mainlist.htm *List of Available Reports.* This report will remain on the OIG Web site for 2 fiscal years after it is issued.