



METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

OFFICE OF INTERNAL AUDIT

Professional Audit and Advisory Service

FINAL REPORT



Audit of the Nashville Fire Department Drug Inventory Management July 1, 2010 through June 30, 2012

Date Issued: October 26, 2012

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The Metropolitan Nashville Office of Internal Audit is an independent audit agency reporting directly to the Metropolitan Nashville Audit Committee

EXECUTIVE SUMMARY

October 26, 2012

Results in Brief	Background and Recommendations								
<p>The Metropolitan Nashville Office of Internal Audit performed an audit of the of the Nashville Fire Department’s drug inventory management. Key areas reviewed included:</p> <ul style="list-style-type: none"> • Drug inventory maintenance • Drug inventory record keeping • Drug storage security • Drug disposal <p>Audit objectives and conclusions were as follows:</p> <ul style="list-style-type: none"> • <i>Were controls in place and effective to manage drug inventory?</i> <p>Generally yes. Various controls were in place and effective to manage drug inventory. However, recommendations to further strengthen internal controls regarding drug inventory management are included in the report.</p>	<p style="text-align: center;">Drug and Medical Supplies Expenditures July 1, 2010 through June 30, 2012</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="width: 80%;"></th> <th style="width: 20%; text-align: center;">Expenses</th> </tr> </thead> <tbody> <tr> <td>Drugs and Medical Supplies</td> <td style="text-align: right;">\$1,641,111</td> </tr> <tr> <td>Drugs (49.8%)</td> <td style="text-align: right;">818,215</td> </tr> <tr> <td>Medical Supplies (50.1%)</td> <td style="text-align: right;">822,896</td> </tr> </tbody> </table> <p>The total expenditure for drugs and medical supplies represents 0.6 percent of the amount (\$297 million) Metro Nashville spent for fire prevention and control during the audit scope (24 months).</p> <p>Key recommendations were for the management of the Nashville Fire Department to:</p> <ul style="list-style-type: none"> • Establish a periodic reconciliation of controlled drugs that includes all beginning on-hand inventories, usage sheets, receiving reports and ending inventory to determine if computed inventory matches on-hand inventory • Enlarge the daily inventory process to include all controlled drugs in all locations • Establish written policies and procedures for drug inventory ordering, storage, replenishment, inventory and reconciliation 		Expenses	Drugs and Medical Supplies	\$1,641,111	Drugs (49.8%)	818,215	Medical Supplies (50.1%)	822,896
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INTRODUCTION

Audit Initiation

The performance audit of the Nashville Fire Department's drug inventory management was conducted as part of the approved 2012 Audit Work Plan. The audit was initiated based on the number of years elapsed since the last audit was conducted of the drug inventory management process and the inherent risk of misuse of drugs.

Background

The mission of the Nashville Fire Department is to provide emergency medical care, fire protection and fire/hazard mitigation products to the citizens and visitors of our community so they can live in a community where quality patient care is provided and the potential for loss of life or property damage due to fire and/or other hazards is minimized.

Firefighters are cross-trained as emergency medical technicians (EMT's) and paramedics, and respond to any type of emergency situation. Emergency Medical Services (EMS) Paramedics have recently graduated from the Fire Academy and have been added to firefighting companies.

Key personnel for the Drug Inventory Audit include:

EMS Quality Improvement Supervisor (controlled drugs)

The primary responsibility is quality improvement which assures that personnel are complying with protocols. The EMS Quality Improvement Supervisor supervises the EMS Quality Improvement team within the Metro Fire department. The Supervisor works closely with the Quality Improvement Officer on ordering, receiving and inventory of the controlled drugs.

EMS Quality Improvement Officer (controlled drugs)

The duties include filling out request forms to purchase controlled drugs, ordering and picking up the requested drugs from the requested supplier. The EMS Quality Improvement Officer collects drug usage sheets that are used in the field whenever a controlled drug was administered. All usage sheets are filed at headquarters. A daily log of inventory and drugs used at each fire station are also collected monthly and maintained on file.

Nashville Fire Department District Chiefs

The nine District Chiefs play a vital role. Whenever controlled drugs are used, the EMS personnel call their respective District Chief who picks up the required replacement drug and delivers them to the particular station in need. This is done both day and night so that EMS personnel always have a full supply of medications required for the next emergency. Required usage sheets must be completed by the paramedics and carefully inspected before replacement drugs are issued. The usage sheets are then delivered to the Assistant Chief's Office.

Warehouse/Inventory Clerk

The position of Warehouse/Inventory Clerk currently requires licensure as an Emergency Medical Technician. The responsibilities include but are not limited to shipping and receiving, stocking and inventory control as well as creating a secondary inventory at another location in the event that a catastrophic event should render the primary warehouse inoperable. The position also involves the filling and delivering of daily supply orders (not including controlled drugs), maintenance of equipment, and the movement of vehicles for fleet purposes when needed and available, documentation of inventory and mechanical readiness of reserve ambulances as required by the State of Tennessee Division of Emergency Medical Services.

Medical Supplies Technician

The position of Medical Supplies Technician currently requires licensure as an Emergency Medical Technician. Responsibilities include but are not limited to the daily receiving, filling and delivery of medical supplies and equipment request, maintenance of inventory records as required by the State of Tennessee Division of Emergency Medical Services regulations, and the inventory and stocking of the supply room. In addition the position requires the tracking of all supplies and equipment when filling the requests. Tracking these items is essential in controlling cost. Some medications can cost over \$250 per single use dosage. On average the department receives, fills and delivers approximately 25 orders daily.

The Logistics Division

Logistics is responsible for procurement of all equipment, apparatus, tools and medical supplies to carry out the bureau’s role in public safety and reports directly to the Deputy Chief. This office is responsible for all fiscal affairs and coordinates planning for the future with all divisions and bureaus.

Organizational Structure

The Metropolitan Nashville Fire Department consists of five bureaus. Two bureaus were affected by the audit scope and are shown below.

Exhibit A – Fire Department Bureaus

Bureaus	Within Audit Scope
Paramedic/EMS Bureau	Yes
Services Bureau and Fire Marshal’s Office	Yes
Fire Suppression Bureau	No
Community Services Bureau	No
Administration Bureau	No

During the audit, the auditor’s worked primarily with the Services Bureau and also interviewed and observed operations of the Paramedic/EMS Bureau.

**Financial
Information**

Details of drug and medical supply expenses from each particular vendor for the scope of the audit are shown below.

**Exhibit B - Drug and Medical Supply Vendors for Fiscal Year 2010
through Fiscal Year 2012**

Supplier	Amount
HENRY SCHEIN MATRX FIRE EMS OR	\$ 428,914
BIOMEDIX INC (ACH)	204,790
NASHVILLE GENERAL HOSPITAL (BK	204,142
OWENS & MINOR DISTRIBUTION INC	160,406
BOUND TREE MEDICAL LLC	136,952
QUADMED INC	117,474
MATRX MEDICAL INC	111,442
SOUTHEASTERN EMER. EQUIP.	58,641
HENRY SCHEIN INC	48,207
KENTRON HEALTHCARE INC	45,677
AIRGAS MID AMERICA INC (ACH)	33,511
STERICYCLE	31,705
LABORATORY SUPPLY CO (ACH)	18,612
MEDLINE INDUSTRIES INC (IL/IL)	7,694
OWENS & MINOR	7,484
ZOLL MEDICAL CORP (ACH)	5,895
Other Supplies	19,560
Total	\$1,641,106

Source: EnterpriseOne financial system

OBJECTIVES AND CONCLUSIONS

1. *Were controls in place and effective to manage drug inventory?*

Generally yes. Various controls were in place and effective to manage drug inventory.

For the purpose of obtaining reasonable evidence to draw conclusions for this objective, we designed our tests for the following areas:

- *Were medication inventory records reconciled with purchases and dispensations?*

No. Drug inventory records were not periodically reconciled with purchases and dispensations/usage forms and there was no documented policy and procedures pertaining to drug inventory management. (See Observations A, B and C)

- *Were expired medications handled in accordance with applicable regulations?*

Yes. Expired medications were disposed in a professional manner. The department maintains records for all disposed medication. Each disposal was witnessed by a nurse, doctor or other health care professional and signatures obtained on the usage form.

- *Were medication storages secured in accordance with applicable regulations?*

Yes. All medication storages observed by the auditors within four fire stations, four vehicles and Nashville Fire Department headquarters were safeguarded and secured.

OBSERVATIONS AND RECOMMENDATIONS

A - Perform Periodic Reconciliations of Controlled Drugs

Periodic reconciliations of purchases, usages, and inventory of controlled drugs held throughout the entire Nashville Fire Department system have not been performed. Although a daily inventory of each particular location was performed and documented at the end of each and every shift, no actions were performed to reconcile beginning and ending inventory with purchases and usages over time. Although a two-year reconciliation was performed by the auditors, some evidence regarding dates of change of inventory amounts were estimated by the recollections of the EMS Quality Improvement Supervisor and EMS Quality Improvement Officer. Amounts and types of each drug held in field kits had changed over time and there was no documentation, only first-hand recollection, of such changes. Initial calculations showed shortages but were resolved when misplaced usage forms and vendor receipts were found. Small non-material variances could not be resolved due to such issues. Note: No medications were believed to be missing.

Criteria:

- Prudent business practice
- *COSO Internal Control - Integrated Framework* establishes a common definition of internal controls, standards and criteria by which organizations can assess their internal controls systems. Reconciling books and records with materials on-hand and with those consumed is a valuable control activity

Risks:

- Misappropriation of controlled drugs might not be detected or provable if uncovered
- Inability to determine when loss occurred
- Proof of regulatory compliance and demonstration of due diligence could be hampered

Recommendations:

Management of the Nashville Fire Department should establish a periodic (monthly, quarterly, or other) reconciliation of controlled drugs that includes all beginning on-hand inventories, usage sheets, receiving reports and ending inventory to determine if computed inventory matches on-hand inventory. Investigate any differences immediately.

B - Enlarge Daily Inventory to Include All Controlled Drugs at All Locations

Daily inventory for controlled drugs only includes drugs located in secure storage plus usage sheets not yet turned in. The daily inventory does not include all drugs held by the Nashville Fire Department. No

single documentation is taken so that a computation can be made of all controlled drugs held by the department on any given day. As previously stated in Observation A, it was difficult to determine precisely how much of each controlled drug was on-hand at any point in time, particularly since multiple storage sites had been used at the headquarters location. Simple changes to the inventory methodology would solve this issue and take minimum time to perform.

Criteria:

- Prudent business practices
- *COSO Internal Control - Integrated Framework* established a common definition of internal controls, standards and criteria by which organizations can assess their internal control systems. Performing complete periodic inventories are essential to good internal controls.

Risk:

- Partial inventories won't reveal missing drugs in a timely manner
- Lack of accountability when missing items are revealed
- No ability to document a particular inventory at any time in the future

Recommendation:

Management of the Nashville Fire Department should enlarge the daily inventory process of controlled drugs to include all locations.

C - Establish Drug Inventory Policy and Procedures

The Nashville Fire Department did not have a written policy or procedures pertaining to drug inventory. One person handled almost all of the actual ordering and tracking of requirements with one supervisor lending occasional assistance. Without several recollections of how things were processed, the reconciliation could not have been completed. Cross training is limited. Sound, documented procedures to rely on would prevent hindrance of this essential function in the event of loss of one key person.

Criteria:

- Prudent Business Practices
- *COSO Internal Control - Integrated Framework* established a common definition of internal controls, standards and criteria by which organizations can assess their internal control systems. Performing complete periodic inventories are essential to good internal controls.

Risk:

- Unexpected turnover will leave new party with hindered abilities to operate

- Proof of regulatory compliance and demonstration of due diligence could be hampered
- Mistakes due to variation in process

Recommendation:

Management of the Metro Nashville Fire Department should establish written policies and procedures for drug inventory ordering, storage, replenishment, inventory and reconciliations.

GENERAL AUDIT INFORMATION

Statement of Compliance with GAGAS

This audit was planned to be conducted from June 2012 to September 2012, 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 observations and conclusions based on our audit objectives.

We believe that the evidence obtained provides a reasonable basis for our observations and conclusions based on our audit objectives.

Scope and Methodology

The audit period focused primarily on the period July 1, 2010, through June 30, 2012. The methodology employed throughout this audit was one of objectively reviewing various forms of documentation, conducting interviews, observations, performing substantive tests and tests of internal controls on the entity's drug inventory records, written policies and procedures, contracts and other relevant data.

Criteria

In conducting this audit, the existing processes were evaluated for compliance with:

- Department of Justice, *Drug Enforcement Administration Controlled Substance Schedules*
- *Code of Federal Regulations* section 1304, 1308, 1306.26
- *Tennessee Code Annotated* title 53 chapters 10, 11, Rules and fees for controlled drugs, Records and inventories required, Control substance data requirements, Criteria for registration issuance.
- *Nashville Fire Department Protocols 2010*
- *COSO Internal Control-Integrated Framework*

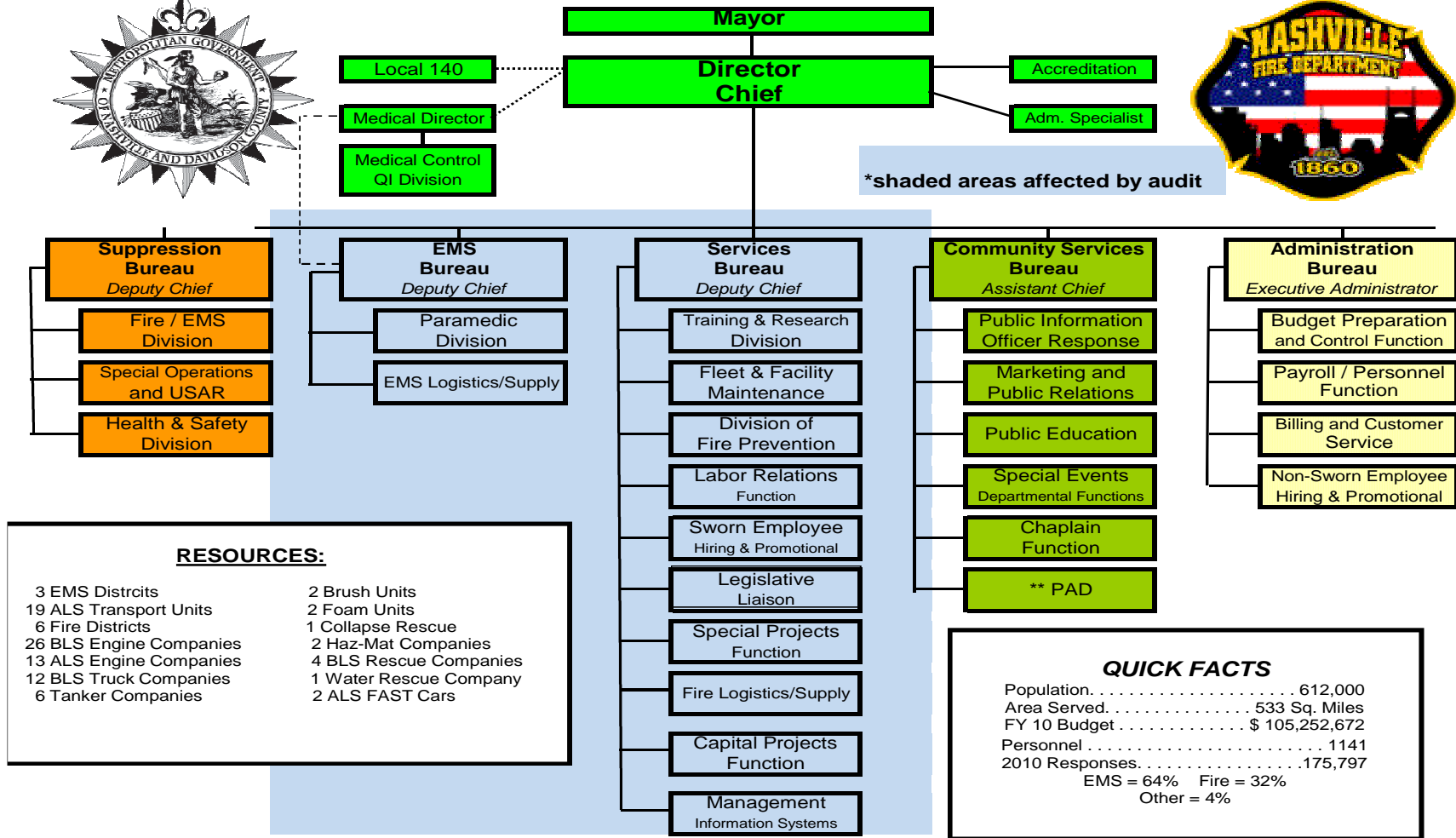
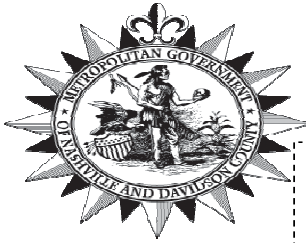
Staff

Sharhonda Cole, CFE, In Charge Auditor

Acknowledgement

Carlos Holt, CPA, CFF, CFE, CIA, Project Quality Assurance

APPENDIX A. Nashville Fire Department Organization Chart



*shaded areas affected by audit

RESOURCES:

- | | |
|-------------------------|------------------------|
| 3 EMS Districts | 2 Brush Units |
| 19 ALS Transport Units | 2 Foam Units |
| 6 Fire Districts | 1 Collapse Rescue |
| 26 BLS Engine Companies | 2 Haz-Mat Companies |
| 13 ALS Engine Companies | 4 BLS Rescue Companies |
| 12 BLS Truck Companies | 1 Water Rescue Company |
| 6 Tanker Companies | 2 ALS FAST Cars |

QUICK FACTS

Population 612,000
 Area Served 533 Sq. Miles
 FY 10 Budget \$ 105,252,672
 Personnel 1141
 2010 Responses 175,797
 EMS = 64% Fire = 32%
 Other = 4%

* The Tennessee USAR Team (Task Force 2) is organized under the Nashville Office of Emergency Management (OEM) and is comprised of members from OEM, Fire, Police and Public Works Departments.

** Public Access Defibrillation (PAD)

Revised: 11/11/10 by dim

APPENDIX B. MANAGEMENT RESPONSES

- Management's Responses Starts on Next Page -

KARL F. DEAN
MAYOR

Director Chief, Fire

METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY



NASHVILLE FIRE DEPARTMENT
P.O. Box 196332
NASHVILLE, TN 37219-6332

October 24, 2012

Mr. Mark Swann, Metro Auditor
Office of Internal Audit
222 3rd Avenue North, Suite 401
Nashville, TN 37201

Dear Mr. Swann:

The appropriate personnel of the Nashville Fire Department have reviewed your department's audit of our drug inventories and have accepted all of your recommendations. We have provided a response to your findings and have established a timeline for corrective action.

We look forward to working with you further regarding this matter.

Sincerely,

A handwritten signature in blue ink that reads "John W. Lynch".

John W. Lynch
Interim Director
Nashville Fire Department

JWL/sls

**Nashville Fire Department
Management Response to Audit Recommendations - October 2012**

Audit Recommendation	Response to Recommendation / Action Plan	Assigned Responsibility	Estimated Completion
A. Management of the Nashville Fire Department should establish a periodic (monthly, quarterly, or other) reconciliation of controlled drugs that includes all beginning on-hand inventories, usage sheets, receiving reports and ending inventory to determine if computed inventory matches on-hand inventory. Investigate any differences immediately.	Accept. We will reconcile on a quarterly basis.	Office of Quality Improvement	1/1/2013
B. Management of the Nashville Fire Department should enlarge the daily inventory process of controlled drugs to include all locations.	Partially Accept. We will audit on a quarterly schedule and/or when inventory revisions are made.	Office of Quality Improvement	As required.
C. Management of the Metro Nashville Fire Department should establish written policies and procedures for drug inventory ordering, storage, replenishment, inventory and reconciliations	Accept.	Office of Quality Improvement	12/1/2012