



## **COUNTY AUDIT DEPARTMENT**

**REPORT # 412**

**JANUARY 10, 2023**

*An Audit of:*

**FIRE RESCUE CONTROLLED SUBSTANCES  
INVENTORY MANAGEMENT**



# Cindy Stuart

CLERK OF COURT & COMPTROLLER  
HILLSBOROUGH COUNTY

**The Honorable Ken Hagan, Chair**  
**The Honorable Donna Cameron Cepeda**  
**The Honorable Harry Cohen**  
**The Honorable Pat Kemp**  
**The Honorable Gwen Myers**  
**The Honorable Michael Owen**  
**The Honorable Joshua Wostal**

January 10, 2023

Dear Commissioners:

The Audit Team performed an audit of the Fire Rescue Controlled Substances Inventory Management (**Audit Report #412, dated January 10, 2023**). Responses to the Audit Team's recommendations were received from the Director of Hillsborough County Fire Rescue and have been included in the Report after each audit comment and recommendation.

The purpose of this Report is to furnish management with an independent, objective analysis, and information concerning the activities reviewed. It is not an appraisal or rating of management.

Although the Audit Team exercised due professional care in the performance of this audit, this should not be construed to mean that unreported noncompliance or irregularities do not exist. The deterrence of fraud and/or employee abuse is the responsibility of management. Audit procedures alone, even when carried out with professional care, do not guarantee that fraud or abuse will be detected.

I appreciate this opportunity to be of service to the Board of County Commissioners. I am happy to address any questions that you may have or furnish additional information if desired.

Sincerely,

*Heidi Pinner*

Heidi Pinner, CIA CISA CFE CRMA  
Chief Audit Executive, Clerk of Court & Comptroller

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601 E. Kennedy Blvd, 13<sup>th</sup> Fl. TAMPA, FL 33602

**TABLE OF CONTENTS**

**EXECUTIVE SUMMARY ..... 2**

BACKGROUND INFORMATION ..... 2

OBJECTIVE ..... 2

SCOPE ..... 3

OVERALL EVALUATION ..... 3

OPINION ..... 4

AUDITED BY ..... 4

**AUDIT COMMENT ..... 5**

TESTING RESULTS ..... 6, 7, and 9

**EXECUTIVE SUMMARY**

**BACKGROUND INFORMATION**

Hillsborough County Fire Rescue (Fire Rescue) responds to fire and medical emergencies throughout unincorporated Hillsborough County, as well as conducts fire prevention inspections, fire investigations, and fire safety programs. Fire Rescue maintains 46 fire stations and answers more than 100,000 calls for service each year. Most of those calls are for medical emergencies and sometimes require medications to be administered to a patient. Some of the medications are legally considered to be controlled substances which subjects those drugs to stricter safeguarding and inventory requirements with proper documentation. Most controlled substances are manufactured in liquid form inside a small glass vial and a syringe is used by paramedics to inject the drug into a patient. On some incidents, not all of the substance is used. Therefore, a remaining portion of the liquid in the vial must be properly disposed of.



Inventories of controlled substances must be ordered from medical supply vendors using a specific pre-numbered form issued by the Drug Enforcement Administration (DEA), which requires the signature of a designated physician known as the Medical Director. Shipments of controlled substances are then received by the Fire Rescue logistics warehouse and are stored in safes and inventoried in their inventory tracking software with the exact quantities, dosages, and expiration dates. Fire Rescue units such as rescues, engines, or trucks that are designated as Advanced Life Support (ALS) units keep an inventory of a certain number of units of each type of controlled substance locked in a small safe onboard the vehicle for use during emergency calls. As controlled substance drugs are used on calls, there are several forms that are completed to document the incident and to request replacement drugs from logistics with the exact drug name, quantity, and dosage that was used during the incident.

**OBJECTIVE**

The objective of the audit is to determine the adequacy and effectiveness of the system of internal control over the storage, security, inventory, and usage of controlled substances.

**SCOPE**

The audit was conducted in conformance with the *International Standards for the Professional Practice of Internal Auditing*. These Standards require that County Audit plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for the audit comments and conclusions based on the audit objectives. County Audit believes that the evidence obtained provides this reasonable basis.

Audit procedures included reviews of documentation, visits to the Fire Rescue headquarters logistics warehouse, and visits to five (5) fire stations during June, July, and August, 2022.

**OVERALL EVALUATION**

The Audit Team conducted interviews, reviewed samples of supporting documents, and observed inventory controls at the fire stations and the logistics warehouse to evaluate the controls surrounding the controlled substances.

**PROCESS STRENGTHS AND SUCCESSES**

- **Controlled substances are physically well secured in locked safes.**
- **Most safes on fire vehicles electronically record activity log data.**
- **Orders of controlled substances to vendors require medical director approval.**
- **The logistics warehouse has satisfactory controls to ensure accurate inventory records.**
- **Drug inventory replacements on fire vehicles require supporting documentation with reviews and signatures.**

**CONTROL IMPROVEMENT OPPORTUNITIES/RISKS**

- **Improvements are needed to ensure daily inventory counts are performed and documented for all ALS units at shift change.**
- **Some fire vehicle safes are manual which do not electronically record data.**

Full testing results are included on page 5 of this Report.

**OPINION**



The overall control environment relative to the management of controlled substances is at a formal (defined) maturity level. This means that management has established mechanisms to ensure controlled substances are properly secured, safeguarded, inventoried, and replaced

after usage. Opportunities exist to ensure daily shift change inventories are performed and documented for each ALS unit.

The exit conference was held with Hillsborough County Fire Rescue and County leadership on January 6, 2023.

Other minor concerns not included in this Report were communicated to management and/or corrected during fieldwork.

#### **AUDITED BY**

Heidi Pinner, CIA, CISA, CFE, CRMA, Chief Audit Executive

Ben Everett, CPA, CIA, CFE, CISA, Audit Manager

Sarah Meredith, Internal Auditor

**AUDIT COMMENT 1: CONTROLLED SUBSTANCES DOCUMENTATION**

**FIRE RESCUE INCIDENTS IN JULY, 2022**

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**374 CONTROLLED SUBSTANCE USAGES**

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**26 SAMPLES TESTED**

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**TWO (2) EXCEPTIONS**

**Fire Rescue maintains adequate supporting documentation showing the usage and replacement of controlled substances.**

The objective was to determine whether or not proper documentation was completed for the usage and replacement of controlled substances used during incident responses.

Background

When a controlled substance is used during a medical call, the information is documented in a software application known as the electronic patient care report (ePCR). The ePCR report includes specific details such as patient information, incident notes, and quantities and dosages of drugs administered with date and time stamps. Not all drugs used are classified as controlled substances. However, incidents that do require the use of a controlled substance require two other forms to be completed:

- Controlled Substance Drug Use Form documenting which drug was used and a witness signature documenting the amount of any unused portion of the vial that was disposed of.
- Controlled Substance Replacement Form documenting that the ALS unit has received a new unit of the drug to replace the one that was used.

After a controlled substance is used and replaced, the supporting documentation is maintained on file at Fire Rescue headquarters.

Test Procedure

The Audit Team obtained a data set listing all Fire Rescue incidents where a controlled substance was used during the month of July, 2022 with a total of 374 usages for the month. The Audit Team selected a random sample of 26 incidents and reviewed the supporting documentation at headquarters to determine whether or not all the proper forms were completed with the required signatures and if the information was consistent and matched the ePCR report.

**TESTING RESULTS**

- All 26 incidents tested had an ePCR report, Controlled Substance Drug Use Form, and Controlled Substance Replacement Form.
- Two (2) of the ePCR reports on file at headquarters did not include the details of the controlled substance type and quantity used during the incident. However, the Audit Team researched those two incidents in the ePCR application with Fire Rescue management and observed that the controlled substance type and quantity were entered in the system and matched the Controlled Substance Drug Use and Controlled Substance Replacement Forms.
- All other incidents reviewed in the sample had complete matching information with the appropriate signatures.

**RECOMMENDATION**

The Audit Team did not identify any material concerns that require management's corrective actions.

**AUDIT COMMENT 2: WAREHOUSE INVENTORY**

**PHYSICAL  
INVENTORY  
COUNT**

**Twelve controlled  
substances kept in  
inventory**

**Inventory records  
matched physical  
counts**

**NO  
EXCEPTIONS**

**The Fire Rescue logistics warehouse has appropriate controls in place to inventory and safeguard controlled substances.**

The objective was to determine whether or not there is an accurate inventory of controlled substances stored at Fire Rescue headquarters.

Background

As Fire Rescue units use controlled substances and submit the usage forms to logistics, warehouse staff fill those replacement requests from their inventory to ensure that each fire apparatus remains stocked with an adequate inventory of drugs to treat patients. Logistics uses a manual spreadsheet to track daily usages as well as incoming shipments ordered from vendors. They also use a software application that shows the current quantities of each drug in inventory, including the dosages and expiration dates.

Test Procedure

On August 4, 2022, the Audit Team visited fire rescue logistics and performed a physical count of all controlled substances in inventory in the presence of warehouse staff. The Audit Team reviewed the manual spreadsheet and inventory software and compared them to the results of the count.

**TESTING RESULTS**

The Audit Team observed that the controlled substances were secured in two locked safes and a locked refrigerator. Twelve (12) different types of controlled substance drugs are maintained in inventory. All quantities counted by the Audit Team matched the manual spreadsheet and inventory software system, including the specific types of drugs, dosages, and expiration dates.

**RECOMMENDATION**

The Audit Team did not identify any material concerns that require management's corrective actions.

**AUDIT COMMENT 3: VEHICLE INVENTORIES**

**FIRE RESCUE  
VEHICLE  
INVENTORY**

**Five (5) fire  
stations observed**

**Satisfactory  
physical controls in  
place**

**DAILY INVENTORY  
INCONSISTENCIES  
FOUND**

**Vehicle inventory controls appear to be well designed, however improvements are needed to ensure the controls are properly carried out.**

The objective was to determine whether or not individual Fire Rescue units have controls in place to track and safeguard controlled substances on their vehicles.

Background

Fire Rescue personnel work 24-hour shifts with shift change occurring each morning. Each ALS unit keeps a log book that lists the unit’s daily inventory count of each controlled substance stored on the vehicle. Fire Rescue procedures require each morning that both the off-going and on-coming paramedics on each ALS unit at every fire station in the County perform a physical inventory count of the vehicle’s controlled substances and record the count in the log book. Each row in the log book is a date showing the inventory count results for each drug and the signatures of both paramedics. The bottom of each page requires that the earliest expiration date of each drug be filled in to ensure no drugs on the vehicle are expired.

The log book also contains another section with a running list of incidents where a controlled substance was used as well as when the replacement drug is received from logistics. Each time a controlled substance is used, paramedics fill in a row with the incident number, patient name, type, and amount of the drug used, as well as any unused amount that was disposed of with a witness signature. This documentation is separate from the Controlled Substance Drug Use and Controlled Substance Replacement Forms that are submitted to logistics to request replacement drugs.

Test Procedure

On June 17, 2022, the Audit Team visited five (5) fire stations (7, 9, 11, 18, and 44) and observed the physical safeguarding controls for the controlled substances on board each apparatus that was present at each fire station (some units were away on calls). In addition to the 26 incidents selected above, another random sample of 12 total incidents was selected from the log books on board Quint 7, Rescue 9, Quint 9, Rescue 11, and

Engine 44. For the 12 samples selected, the Audit Team reviewed the supporting documentation at headquarters to determine whether or not the proper replacement forms were completed with matching information. The Audit Team also reviewed the last 2 months (approximately) in each log book to determine whether or not the daily shift change inventories were documented.

## TESTING RESULTS

Controlled substances on the apparatuses were kept locked in small electronic safes known as MedVaults, which require a code to be entered on a keypad by a paramedic to open the safe. Each Fire Rescue crew member has their own access code and the MedVault system records an electronic audit log of every time a MedVault is accessed. One vehicle known as HIT 9 (the Hazardous Incident Team at Station 9) had the drugs secured in a non-electronic locker which utilizes a copy-proof key which is kept by the paramedic and passed on to the next paramedic at shift change.

For 11 of the 12 incidents selected (92%), the Audit Team found complete, appropriate supporting documentation at headquarters. One sample had an ePCR report where the total amount of the drug administered per the timestamps was different than the amount typed in the call notes summary. The Audit Team was unable to confirm what the correct amount was that was actually administered to the patient.

During the five fire station visits, the Audit Team reviewed the log books on board the apparatuses and generally found that a drug inventory was documented for most dates. The requirement for two paramedics to perform the inventory together and sign off on the log book has the potential to be a well-designed dual control. However, because this is a mostly manual process, it is more susceptible to human-error. A significant number of discrepancies were found during the review:

- Four (4) log books reviewed had a combined total of 14 missing or skipped dates where the inventory count of the drugs was not listed.
- One (1) inventory count entry did not have the date or time filled in.
- One (1) inventory count entry had the date and time transposed.
- One (1) inventory count entry had a date written in by the off-going shift that was different than the date on the same line written in by the on-coming shift.
- Six (6) log books had a combined total of 12 pages where the earliest expiration date of each drug on the bottom of the page was blank.
- One (1) inventory count entry had the date and times, but the on-coming shift's signature and badge number were blank.

**RECOMMENDATION**

- Fire Rescue management should work with Fire Rescue personnel to ensure complete, accurate inventories are performed and documented at every shift change and that accurate drug quantities are entered in the ePCR incident reports.
- Management should also consider implementing more automated processes such as a computerized log system, if feasible, to prevent non-compliance or manual entry errors.

**CLIENT RESPONSE:**

Concur

**CORRECTIVE ACTION PLAN:**

*Hillsborough County Fire Rescue will take a multifaceted approach to strengthen and implement new controlled substance controls. We are adding the Intelligent Dispensing Solutions SD3000-R vending system <https://www.idsvending.com/hardware/sd3000-r/> to our Battalion Chief Stations. This machine will be restocked by logistics personnel who receive controlled substances from medical suppliers. Our Paramedics will directly access the device with a unique identifier to replenish medication used to treat patients. When Paramedics have expired or damaged drugs, they will be placed in an envelope along with required paperwork and placed into a tamperproof drop safe to which only Logistics personnel have the key.*

*By enacting this control, we remove the Battalion Chiefs from drug receipt and delivery, thus eliminating one drug exchange. We are using the State of Florida EMS Grant to purchase the CACTUS Pharma Lock drug waste disposal system <https://www.stryker.com/us/en/surgical-technologies/products/cactus-controlled-substance-waste-management-system/cactus/products.html>. This device will be mounted into each Hillsborough County Fire Rescue Transport vehicle and allows for controlled substance waste to be disposed of. The system denatures the drug, rendering it unretrievable. For increased awareness of the Dual Employee drug transfer at shift change, we will create a mandatory training module and perform random examinations of the controlled substance logs throughout the Duty shifts. We anticipate the vending system through Hillsborough County Procurement and delivered in July 2023. Division Chief of Planning - Matthew Cerone continues to evaluate electronic drug inventory monitoring software. While we are actively searching for an electronic drug log, we have not yet located a product that meets our needs. Once a software package is identified, it must go through the proper Hillsborough County departments for purchase approval.*

**TARGET COMPLETION DATE:**

September, 2023