

**PORTLAND FIRE & RESCUE:**  
Controlled substances monitoring  
falls short of requirements

A REPORT FROM THE CITY AUDITOR  
October 2008



Office of the City Auditor  
Portland, Oregon





CITY OF  
**PORTLAND, OREGON**

OFFICE OF THE CITY AUDITOR  
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October 8, 2008

TO: Tom Potter, Mayor  
Sam Adams, Commissioner  
Nick Fish, Commissioner  
Randy Leonard, Commissioner  
Dan Saltzman, Commissioner  
John Klum, Fire Chief, Portland Fire & Rescue

SUBJECT: *Audit – Portland Fire & Rescue: Controlled substances monitoring falls short of requirements (Report #364)*

Attached is Report #364 containing the results of our audit of Portland Fire & Rescue's monitoring of controlled substances used in emergency rescues and medical calls.

Commissioner Nick Fish and Fire Chief John Klum have submitted a joint response to the audit, and we have included their written response at the back of this published report.

We make several recommendations in the report, and as a result we ask the Fire Chief, through the Commissioner-in-charge, to provide a status report on implementation of those recommendations within one year.

We appreciate the cooperation and assistance we received from Portland Fire & Rescue staff as we conducted this audit.

  
GARY BLACKMER  
City Auditor

Audit Team: Drummond Kahn  
Kristine Adams-Wannberg  
Martha Prinz

Attachment



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## PORTLAND FIRE & RESCUE:

### Controlled substances monitoring falls short of requirements

#### **Summary**

We audited Portland Fire & Rescue's controls over the physical security and dispensing of the controlled substances it carries on most of its emergency vehicles. Portland Fire & Rescue carries drugs, including sedatives and pain relievers, to administer to injured emergency victims. During our review, we found:

- Central monitoring of drug inventories at fire stations is lacking and should be required.
- Policies on recording drug expirations, security seal changes, and damaged drugs need to be added to and strengthened. In addition, the policy on accepted methods for destroying drugs should be revised.
- Documentation in some key risk areas, such as destruction of controlled substances and expiration and replenishment of those medications, is inadequate or absent.
- Recordkeeping in other areas, such as monthly and daily inventories, is mostly sufficient; however, some recordkeeping requirements should be clarified or revised.
- Nothing came to our attention during the course of the review to indicate inappropriate use of controlled substances by Fire Bureau personnel.

It is important to note that this audit was not conducted due to a specific concern about Portland Fire & Rescue. Rather, it was conducted because there have been problems in some other jurisdictions, and we felt it would be prudent to conduct this assessment.

**Background** The mission of Portland Fire & Rescue (the Fire Bureau) is to aggressively and safely protect life, property and the environment by providing excellence in emergency services, training, and prevention. In FY 2006-07, the Fire Bureau handled over 65,000 emergency incidents. About 43,000 of those (67 percent) were medical calls – an increase from 10 years ago, when the Bureau addressed approximately 57,000 emergency incidents, of which almost 28,000 (49 percent) were medical calls.

Fire vehicles carry fire fighting equipment as well as a wide array of medication for use in medical emergencies. Examples of these substances are glucose for diabetes patients, and albuterol for airway/breathing issues. Most of the Bureau’s emergency vehicles carry two controlled substances – midazolam and fentanyl – which are stored in a secured lockbox bolted to the inside of the vehicle’s cab. One of these medications is also available in an unsecured location on the fire vehicle. Midazolam (also known as Versed) is a sedative. Fentanyl is an opiate used for pain relief. Both drugs are restricted through the federal Controlled Substances Act (CSA), which governs the manufacture, distribution, and dispensation of controlled substances.

**Figure 1 Midazolam vial and fentanyl syringe**

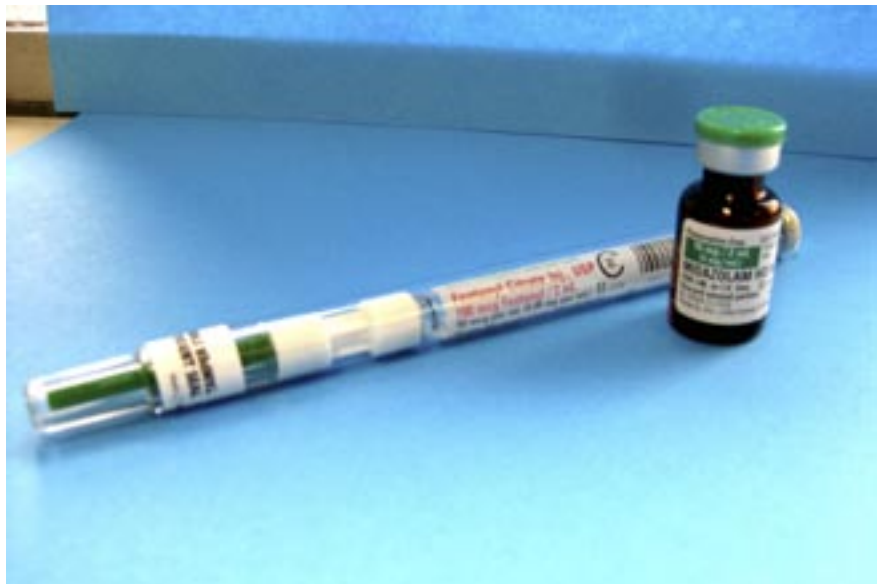


Photo: Audit Services Division

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The CSA classifies drugs with the potential for abuse into five “schedules,” with Schedule I drugs having the most potential for abuse and Schedule V having the least. Fentanyl is a Schedule II drug, and midazolam is a Schedule IV drug. The CSA requires the medical director responsible for dispensing controlled substances to the Fire Bureau to register with the U.S. Drug Enforcement Administration. In addition, the CSA requires the Fire Bureau to keep inventory records of controlled substances for at least two years and to make those records available for possible inspection at any time.

Only firefighters with a paramedic certification can administer the controlled medications. These drugs are needed for certain types of patient care, but their presence generates the need for good safeguards to deter theft. Theft could result in a variety of consequences, such as unavailability of the drugs in an emergency, criminal activity, abuse of the drugs and possible employee impairment. In addition, poor internal safeguards place employees at risk, because they may be falsely accused of wrongdoing.

The Fire Bureau’s main controls and documentation requirements are described in the Bureau’s Controlled Substance Policy. The policy outlines protocols and practices for activities such as disposition of expired drugs, administration of drugs, and destruction (also known as wasting) of controlled substances.

In addition, the Bureau maintains three separate types of logbooks for tracking certain controlled substance activities performed by paramedics and the Bureau’s central Emergency Medical Services (EMS) Office: *Controlled Substances Inventory Logs*, carried on each emergency vehicle, for documenting the receipt, use, destruction, and transfer of controlled medications by paramedics; EMS Office *Controlled Substance Inventory Log, Available Stock*, which the EMS Office uses to keep track of controlled substances available for paramedic use; and EMS Office *Controlled Substance Inventory Log, Expired Stock*, which the EMS Office uses to keep track of expired controlled substances.

Internal controls are policies, procedures, and activities designed to help an organization achieve its management objectives, safeguard resources, report reliable information and comply with applicable laws. Organizations need good internal controls to safeguard

resources from loss, waste and abuse and to help ensure that organizational goals and objectives are met. While internal controls cannot completely eliminate the risks for inappropriate actions, well-conceived procedures and a good control environment can minimize the potential for abuse and increase detection of problems<sup>1</sup>.

**Objectives, Scope, and Methodology**

The objective of this audit was to review the management controls over the physical security and dispensing of controlled substances carried on most Portland Fire & Rescue emergency vehicles. We reviewed Bureau policies and practices for monthly and daily controlled substance inventories, damaged substances, administration and wasting of controlled substances, expiration and replenishment of controlled substances, and physical security of the medications. We also reviewed monitoring functions within the Bureau. We reviewed these areas because a lack of good controls could present a safety risk to the public as well as to Bureau staff.

We reviewed controlled substances inventory log books for the months of August and December 2007 for all vehicles carrying controlled substances to see how Bureau policies were implemented. We also conducted unannounced field visits to 10 fire stations, chosen at random. During those visits, we checked the inventory of controlled substances, examined the security seals on the drug lockboxes, and interviewed paramedics responsible for controlled substances.

We did not review how controlled substances are purchased and did not review the non-controlled medications the Bureau carries. In addition, we did not examine controls over the process for sending damaged or used controlled substances for destruction once those medications reach the central EMS Office.

We conducted over 20 interviews during the course of the audit. We interviewed staff at the Fire Bureau's central EMS Office, Bureau managers, and paramedics assigned to fire stations. We examined the federal Controlled Substances Act. We reviewed professional literature and spoke with firefighter professionals in other areas of the

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<sup>1</sup> Based on the Committee of Sponsoring Organizations of the Treadway Commission's *Internal Control – Integrated Framework*.



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country about incidents of internal theft of controlled substances and how their procedures and policies had changed as a result of those experiences.

It is important to note that this audit was not conducted due to a specific concern about the Bureau. Rather, it was conducted because there have been problems in some other jurisdictions, and we felt it would be prudent to conduct an assessment here.

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

**Better internal controls  
are needed to deter  
and detect problems**

Nothing came to our attention during the course of our review to indicate inappropriate use of controlled substances by Fire Bureau personnel. However, we found a lack of central monitoring activities in the Bureau, which would make detecting a problem difficult. We also found that a number of policies, such as the wasting policy, need to be updated and strengthened. In addition, documentation, particularly for destruction of drugs, expiration and replenishment of drugs fell short of Bureau requirements. While some controls are sound, the weaker controls expose the drugs to theft and its adverse consequences. A summary of the results of our review is provided in Figure 2.

**Figure 2 Condition of selected internal controls and potential improvements**

| Process reviewed            | Current condition  | Potential improvements  |
|-----------------------------|--|---|
| Monitoring                  | <ul style="list-style-type: none"> <li>• EMS Office rarely performs central management reviews of logs</li> <li>• Although not required, many inventory logs are reviewed by station officer before submitted to EMS Office</li> </ul>   | <ul style="list-style-type: none"> <li>• Develop central monitoring program for periodic reviews, to include reconciling EMS logs with vehicle logs</li> <li>• Require station officer to sign log before submission to EMS Office</li> </ul>   |
| Administration & Wasting    | <ul style="list-style-type: none"> <li>• Most drug administrations partially documented</li> <li>• One possible administration was unexplained</li> <li>• Pre Hospital Care Reports are good secondary control for administration activities</li> <li>• Wasting policy is outdated</li> <li>• Many probable wasting activities not documented</li> <li>• Records for administration and wasting are often grouped and are unclear</li> <li>• Subtractions and tallies of drug inventories are not displayed in the log</li> </ul>          | <ul style="list-style-type: none"> <li>• Update wasting policy, with examples of approved wasting methods</li> <li>• Document all wasting activities</li> <li>• Record administration and wasting activities separately</li> <li>• Improve log records by showing subtractions and tallies of drug inventories</li> </ul>   |
| Expiration & Replenishment  | <ul style="list-style-type: none"> <li>• Documentation of expired drugs and replenishment in apparatus logs is largely insufficient</li> <li>• Records for expiration and replenishment are often grouped and are unclear</li> <li>• Lack of adds, subtracts, and tallies of drug inventory displayed in apparatus logs</li> <li>• Procedures for handling expired medications are too informal</li> <li>• Expired medications sent for destruction infrequently, causing large amount of old stock to accumulate at EMS Office</li> </ul> | <ul style="list-style-type: none"> <li>• Establish policy requiring paramedics document what drugs expire, how many expired, and their physical location, and whether EMS was contacted</li> <li>• Record expiration and replenishment activities separately</li> <li>• Improve records by showing adds, subtractions, and tallies of drug inventory</li> <li>• Formalize procedures for handling expired substances</li> <li>• Establish policy requiring that EMS Office record the name of the person receiving medications</li> </ul> |
| Monthly & Daily Inventories | <ul style="list-style-type: none"> <li>• Inventory forms almost always filled out</li> <li>• Most seal changes due to damaged seal did not explain reason for damage</li> <li>• Over half of rig swaps not adequately explained</li> <li>• Procedures for filling out logbooks are unclear</li> </ul>  | <ul style="list-style-type: none"> <li>• Improve records of rig swaps</li> <li>• Explain reason for any security seal change</li> <li>• Clarify recordkeeping procedures to staff</li> </ul>  |
| Damaged Substances          | <ul style="list-style-type: none"> <li>• Controls in place but some logs do not match central records</li> </ul>   | <ul style="list-style-type: none"> <li>• Clarify policy that damaged drugs be documented in log as well as in Form 900.22</li> </ul>  |
| Physical Security           | <ul style="list-style-type: none"> <li>• Most security seals sufficiently secure</li> <li>• Most staff well experienced and indicate they are attentive to changes in seal numbers</li> <li>• One station where seal was not adequately secured and staff inattentive regarding seal changes</li> </ul>  | <ul style="list-style-type: none"> <li>• Consider new equipment to improve security</li> <li>• Perform periodic spot checks on security seals as part of new monitoring program</li> </ul>  |

Source: Audit Services Division analysis of Bureau logbooks and station field visits

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**Central monitoring  
is needed**

The Bureau does not conduct regular central management reviews that could identify questionable trends in the logbooks. Each fire company sends a completed Controlled Substance Inventory Log for their emergency vehicle to the EMS Office at the end of every month. However, the EMS Office does little monitoring of the inventory logs once they reach the central office. The logs are checked by administrative staff for paramedic and witness signatures and are then filed. In addition, while a Chief's Inspection is done each year at every station, it is done with advance notice and the stations spend time preparing for the inspection. The inspection is a top-to-bottom review of the station, which includes the inventory log for that particular month, but the log is not the focus of the inspection.

Although not required, seven out of 11 paramedics we interviewed have an officer review the log before it is sent to the EMS Office. Two other paramedics said they have an officer review the log if needed, and the remaining two paramedics do not have the log reviewed at all. Review is a good internal control and indicates a good control environment.

The Bureau should develop a better monitoring system over controlled substances. This should include requiring officers to review and approve the inventory logs before they are submitted to the EMS Office. In addition, the EMS Office should develop a monitoring program in which EMS Office staff periodically check the inventory sheets against selected Bureau policies and against EMS Office logs. This oversight would help identify areas where problems may be occurring and where additional training may be needed, and would also send a message to firefighters that a strong control environment is in place.

**Most policy  
requirements for drug  
administration and  
destruction are adequate;  
however, many records  
are absent**

The Fire Bureau's Controlled Substance Policy requires that several types of information be recorded in the Controlled Substances Inventory Log when a substance is administered to a patient and when a medication is wasted. Paramedics are required to record the date and time of the administration and the incident number. The paramedic must also provide their signature and a description of the event, show a subtraction in the inventory log of the medication given and the resulting tally, and have a firefighter who witnessed the event countersign the log. When a controlled substance is wasted,

the paramedic must record the amount of the drug used, the amount destroyed, the method of destruction, and the signature of the paramedic and a witness.

### Administration

We reviewed inventory logs and compared the results to the requirements of the Bureau's Controlled Substance Policy. For the 90 logs reviewed, we found 17 cases where drugs were administered and three cases where it was unclear from the inventory logs whether an administration took place. Two of the three cases were later determined to be administrations. The other case, however, indicates drugs were used, but no other information was provided.

We found that when an administration took place, the appropriate signatures, security seal changes, and Fire Bureau run number were almost always present. The log, however, was often inadequate in other areas. The logs described the reason for the administration in only one out of 17 cases, listed the time when drugs were administered in three of 17 cases, and showed the visual subtractions and tallies in the log for the medication used in two of 17 cases.

**Figure 3 Example of a logbook page**

PORTLAND FIRE & RESCUE  
25 2nd Ave. St., Portland, OR 97204  
Page 1 of 1

CONTROLLED SUBSTANCE INVENTORY LOG

This form is to be completed each day by the on-scene Paramedics, after her/his has visually inspected the seals and determined that they are intact and accurate. This form must also be completed any time drugs are added, removed, administered, or altered for any reason.

APPARATUS (UNIT #) \_\_\_\_\_ MONTH August YEAR 2011

| DATE | Seal # | Time | Medication | Quantity | Signature | Witness | REASON FOR INVENTORY CHANGE (Delete, use, storage, seal, etc.) |
|------|--------|------|------------|----------|-----------|---------|--|
|      |        |      | Unit SE    |          |           |         |  |
| 8-1  | 559511 | 1:44 | 443        | 2        | 5         |         | Monthly Inventory (2 Expires)                                  |
| 2    | 059511 | 0720 | -          | -        | -         |         |  |
| 3    | 559511 | 0750 | -          | -        | -         |         |  |
| 4    | 559511 | 0800 | -          | -        | -         |         |  |
| 5    | 559511 | 0810 | -          | -        | -         |         |  |
| 6    | 559511 | 0820 | -          | -        | -         |         |  |
| 7    | 559511 | 0830 | -          | -        | -         |         |  |
| 8    | 559511 | 0840 | -          | -        | -         |         |  |
| 9    | 559511 | 0850 | 22         | 2        | 5         | Medical | Applied to seal 2011-08-19                                     |
| 10   | 559511 | 0900 | -          | -        | -         |         |  |
| 11   | 559511 | 0910 | -          | -        | -         |         |  |
| 12   | 559511 | 0920 | -          | -        | -         |         |  |
| 13   | 559511 | 0930 | -          | -        | -         |         |  |
| 14   | 559511 | 0940 | -          | -        | -         |         |  |
| 15   | 559511 | 0950 | 2          | 4        |           |         | Administered 2011-08-19  |
| 16   | 559511 | 0959 | -          | -        | -         |         |  |

8-19/11

Photo: Audit Services Division

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## **Wasting**

We identified 22 cases of documented or likely drug wastings. Of the 22 cases, there were 12 cases of documented wasting. Most of the required information was present for these 12 cases, with the exception of recording the time when wasting occurred and the method of wasting used. Only two of the 12 cases documented the method of wasting and only one case identified a time.

Many likely wastings were not recorded in the inventory logs. There were 10 cases, in addition to the 12 documented, where wasting probably occurred but was not recorded. We reviewed Pre Hospital Care Reports for these 10 cases. We found that in all 10 cases, an administration took place and there was leftover medication that should have been wasted by Bureau staff but was not documented<sup>2</sup>. In addition, incidents of administration and wasting activities were often combined in the inventory logs into one entry. This practice makes it more difficult to determine what occurred.

During our review, we also found that the Bureau's policy on wasting needs to be updated. The policy requires paramedics to document the method of destroying controlled substances, but it does not specify how wasting is to be done. Our interviews with 11 paramedics at the fire stations revealed that the most common wasting method is to dispose of the medication down a sink. According to Bureau staff, however, putting medication into a sink is problematic due to new water quality rules issued by the U.S. Environmental Protection Agency. Bureau staff agreed with us that this was an area that needed further attention.

While a basic system of controls for administration and wasting drugs is in place, current practices would make it difficult for investigators to sort out any problem with missing medications. Pre Hospital Care Reports act as an effective secondary control to some extent, particularly for administration activities, but they are no substitute for the information that is required in the inventory logs. The inadequate documentation could mean that a problem (such as theft or consumption by staff) may not be detected in a timely manner, which could create a dangerous situation for patients and Bureau employees.

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<sup>2</sup> Pre Hospital Care Reports document the assistance provided by both Fire Bureau staff and ambulance personnel to patients during a medical incident, such as the type and amount of medication given.

**Documentation quality varies for available and expired substances**

The Bureau's Controlled Substances Policy includes a number of documentation requirements concerning expired drugs and their replenishment. Each paramedic is required to mark any expired drugs "EXPIRED," to retain the expired drugs in the vehicle lockbox, and to notify the EMS Office of the need for replenishment. Information about the new drugs, once received, is recorded in each vehicle's Controlled Substances Inventory Log, including the date and time new medications are received and the amount received. The paramedic is also required to show in the log that the existing medications were added to the inventory and to tally the new amount. The new medications are placed in the lockbox, and a new security seal must be affixed. The paramedic and a witness must sign the log and the new seal number must be recorded.

The EMS Office maintains a locked cabinet with a security seal containing controlled substances available for use by paramedics. When giving out new medications to a paramedic, the Bureau's Controlled Substance Policy requires the EMS Office to record the date and time the drugs were given out, the paramedic's company, and a subtract number and tally on the EMS Office Controlled Substance Inventory Log, Available Stock form. This log is signed and witnessed, and the new seal number is recorded.

The EMS Office maintains a second locked cabinet with a security seal containing expired controlled substances, which is added to as paramedics turn in expired medications. As they are turned in, EMS Office staff enter the date and time the drugs were received, the paramedic's company, and an add number and tally on the EMS Office Controlled Substance Inventory Log, Expired Stock form. This log is also signed and witnessed. Periodically, the EMS Office empties this cabinet, boxes up the expired controlled substances, and ships them to a DEA-approved "reverse distributor."

**Documentation**

We reviewed each of the three logs described above and compared the results with the Controlled Substance Policy. We also attempted to reconcile entries in the two EMS Office logs with entries in the vehicle logs. Overall, we found that the EMS Office almost always recorded all required information in each of their two log books. The vehicle logs, however, could only be reconciled against the EMS logs about half the time due to insufficient documentation.

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Paramedics consistently record the time and date new medications are received, and sign and witness seal changes when those medications are placed in the vehicle lockbox. However, paramedics recorded the amount of new medication received only 41 percent of the time in the Controlled Substances Inventory Log, and did a tally reflecting the new medications only nine percent of the time. In many cases, we had to look at the EMS Office logbooks to know in what amounts paramedics turned in or received controlled substances because key information was missing from the vehicle logs. In addition, 17 percent of the time, the paramedics did not return expired drugs to the EMS Office within the month.

We found cases in both the vehicle logs and the EMS Office logs where activities were combined. For example, in some cases, incidents of drugs expiring and those same drugs being replenished were recorded as one entry in the vehicle log. In addition, the EMS Office sometimes combines information in its logs, by making only one entry when medications are turned in or given out to two vehicles. Combining events into one entry makes tracking the flow of drugs more difficult.

### **Policy**

The Controlled Substance Policy covers some of the basics of tracking expired drugs and their replenishment. Paramedics should follow the policy completely, and the policy should require and prescribe more detailed recordkeeping for paramedics and the EMS Office. The logs should give a clear understanding of all actions taken by paramedics and the EMS Office related to expired controlled medications and their replenishment.

When paramedics find expired drugs, they should be required to note in the Controlled Substance Inventory Log which of the two drugs expired, whether they were marked "EXPIRED," whether the EMS Office was notified and whether the drugs were moved from the unsecured locations in the vehicle to the lockbox. The policy should specify who is to notify the EMS Office and how that notification is to be done. If no expired drugs were found during inventory, that should be noted as well. The Bureau should require that expired controlled substances be turned in within a particular time frame, such as a month from when they are discovered. As drugs are removed, this should be recorded in the log.

The EMS Office should note who calls in for new medications and who comes in to receive them. A signature in the EMS log is not sufficient because it is often not readable. The EMS Office should be required to make a separate entry for each vehicle, even if one paramedic is receiving medications for two vehicles.

EMS Office staff indicated they count quantities of both expired and available controlled substances each time an addition or subtraction is made. There were 282 expired fentanyl syringes in the expired drug cabinet on the day we checked the EMS Office inventory. A quantity that large is not easy to keep track of and is not as likely to be counted each time or counted as accurately as it would be if the cabinet contained fewer medications. The EMS Office should turn in expired medications to the reverse distributor more frequently so that the amount of drugs in the EMS office cabinets is not so large. The Controlled Substance Policy should prescribe a maximum amount of expired medications allowed in the EMS Office.

**Inventory forms are completed, but key events are not adequately explained**

Paramedics check the controlled substance inventory each day to verify that the security seal on the vehicle's lockbox is intact and that the seal number matches the number in the Controlled Substance Inventory Log. The supply of midazolam carried unsecured on the vehicle is also visually inspected each day. Once these inspections are done, the paramedic must record the date, time, and the security seal number in the log and sign the form.

The monthly inventory performed on the first day of the month is similar, with one additional requirement. The paramedic opens the lockbox to check that controlled substance quantities on each vehicle are within minimum and maximum amounts, specified in the Bureau's Controlled Substance Policy, and that the logbook matches the actual inventory. The paramedic records the date, time and amount of each controlled substance in the log and affixes a new security seal to the lockbox. A witness must observe this process and countersign the log.



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We found that paramedics almost always filled out inventory forms, but that there are some areas where required documentation is lacking. In addition, the policy should prescribe more detailed procedures and recordkeeping by paramedics. Some paramedics record the number of unsecured midazolam carried in the vehicle each day, while others sign the log, but leave the inventory count blank or put a line through the space provided. Recording a number should be required each day to ensure that a count was done. In addition, the policy should define “visual inspection,” which should include looking at such details as the color and level of medication in the bottle and examining the stopper for damage. This is especially important because these medications are not secured.

The policy should require that all security seal changes be explained, particularly when the reason is a broken or damaged seal. Although not currently required, we found that paramedics did not explain how seals were broken or damaged 92 percent of the time. When controlled substances are moved from one vehicle to another, which is known as a rig swap, the paramedic is required to record the new vehicle number and the new seal number, and the log must be signed by both the paramedic and a witness. Paramedics did not adequately document rig swaps 61 percent of the time, usually leaving out the new vehicle number. We found that the paramedic and witness signatures were often illegible. The policy should require that paramedic and witness names not only be signed in the logbook but also be printed. It is important that paramedics provide sufficient details in the log, particularly when a lockbox is open for any reason, including rig swaps or because a security seal was damaged. These are high risk events that should be well documented.

**Controls over damaged substances are in place, but could be improved**

According to information from other fire agencies, increases in the number of broken vials or damaged containers are a common sign that a problem might exist. When controlled medication is damaged, paramedics are required to take the drug out of service and place it in the vehicle’s lockbox for replacement by the EMS Office. The paramedic also documents the incident by filling out a Controlled Substance Damaged Tamperproof Seal Form (Form 900.22) and submitting it to the EMS Office.

We reviewed all cases of damaged drugs during 2006 and 2007. There were eight cases of damaged substances, and six had adequate documentation. In the two remaining cases, the Controlled Substance Damaged Tamperproof Seal Form was submitted by the station when the initial damage was detected and a form was submitted again when the damage was detected by a different shift. In both cases, the inventory log did not have complete documentation that matched the information on the form. Matching documentation in both the Controlled Substance Inventory Log and on the form is necessary to keep station and central EMS staff informed of inventory issues in case there is any suspicion of theft, tampering, or abuse that needs to be addressed.

**Figure 4** Example of security seal used on lockboxes



Photo: Audit Services Division

**Most supplies were secure, but equipment changes could better protect medications**

All fentanyl supplies and all but two midazolam vials are kept in a lockbox that is bolted to the inside of the vehicle. The remaining two midazolam vials are kept in a separate unsecured location. The lockbox door is secured by both a key and a plastic security seal. All firefighters have access to the key, and the seal is designed to break open easily so that medications can be accessed quickly.

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We visited 10 stations and we checked 14 vehicles and the two EMS Office lockboxes to make sure the seal number matched the number recorded in the inventory log and that the seals were secure and could not be undone. We found that all seal numbers matched the inventory log, but in two of the 16 cases the seal was not secure. In one case, an auditor was easily able to open the seal without damaging it. In the other case, the seal was not attached well enough for it to hold securely.

With one exception, the control environment appears adequate. Ten of the 11 paramedics we interviewed said they paid close attention to the seal numbers and would detect a difference if the number changed even slightly. One paramedic indicated that he only looks at the seal number occasionally and probably would not notice if it were the wrong number.

We heard from some Bureau staff that the location of the lockbox sometimes leads to seals breaking accidentally. When the lockbox is located near the floor and firefighters are getting their gear out of the cab, the gear sometimes snags the security seal, causing it to break. Although space is limited, the Bureau should consider different locations for the lockbox, particularly as new emergency vehicles are purchased and outfitted.

With different equipment, emergency access could be preserved and better security achieved. According to the Bureau, the current security provisions – the key and the plastic seal for the lockbox and unsecured midazolam in the vehicle – attempt to balance the need for quick access during a medical incident with deterrence when the controlled substances are not needed. A couple of fire departments in other jurisdictions we spoke with had a variety of means to secure their controlled substances. These model controlled substance programs are an improvement over what Portland currently has. Examples include clear plastic boxes secured with tamper-proof pharmacy tape, locked security bags, tough plastic security vials with numbered seals, and electronic keys that track each opening of the lockbox and transmit the information to a central location. Some of these methods may be cost prohibitive, but some are low-cost, higher security options that the Bureau should consider.

## **Recommendations**

We found that some of the Bureau's policies and management's objectives were being met. We also found that most Bureau staff indicate they are attentive to physical security of their medications. However, we found spotty logbook documentation for some significant activities, such as drug wasting, expiration and replenishment. In addition, some policies need strengthening and some procedures for recording information need clarifying. Based on our work, we recommend that the Commissioner-in-charge, through Portland Fire & Rescue:

### **1. Establish a monitoring program**

The Bureau should undertake central monitoring activities to be done by the EMS Office. This monitoring should include periodic reviews of the vehicle logs to look for trends indicating potential problems. The reviews need not be exhaustive of the Controlled Substances Policy, but should be done on a regular basis and focus on key risk areas. Spot checks of security seals or the adequacy of documentation on wasting are examples of areas to consider. In addition, the Bureau should require that station officers sign the inventory logs before they are submitted to the EMS Office. If the paramedic responsible for the log is an officer, then a different officer should sign the log.

### **2. Strengthen and update Bureau policies**

The Bureau should update and improve its policies in a number of areas. Proper wasting methods should be specified in the Controlled Substances Policy. The policy should require that all seal changes be explained. When controlled substances expire, the policy should require documentation on what drugs expire, how many expired, their physical location, and whether the EMS Office was contacted. Also, if a drug is damaged, the policy should require that the problem be recorded in the log book as well as in the forms sent to the EMS Office. In addition, the policy should specify who in the EMS Office may receive and sign out medication.

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### **3. Clarify or revise recordkeeping requirements**

The Bureau should specify proper recordkeeping procedures and revise some of its procedures. Some improvements would include requiring logbook entries to consistently show additions, subtractions, and tallies of all drug inventory as well as recording activities, such as expiration and replenishment or administration and wasting, separately. This would improve the tracking of the flow of drugs. In addition, the EMS Office should record the person who received new medications in its logs, since the signature of the recipients is often illegible.

### **4. Improve documentation**

The Bureau, through the EMS Office, should monitor areas where documentation is poor and advise staff if their records are inadequate and where improvements could be made. There were a number of areas where recordkeeping was inadequate or not present, such as wasting activities, expired drugs and replenishment activities, and rig swaps. Activities that are adequately documented are invaluable when problems arise and need to be addressed.

### **5. Enhance physical security**

The Bureau should consider new, low cost equipment that would improve the physical security of controlled substances. Examples include pharmacy tape that could be applied to the unsecured midazolam or see-through drug boxes. In addition, the Bureau should select a location other than the floor of the vehicle cab for the lockboxes when outfitting new apparatus. This would likely decrease the number of times a security seal is broken by being snagged by fire fighting gear.



# RESPONSE TO THE AUDIT







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# PORTLAND FIRE & RESCUE

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September 24, 2008

The Honorable Gary Blackmer  
Auditor, City of Portland  
1221 SW 4<sup>th</sup> Avenue, Room 140  
Portland, OR 97204

Dear Auditor Blackmer:

Subject: Commissioner & Portland Fire & Rescue Response to Auditor's Report #364:  
"Portland Fire & Rescue: Controlled Substances Monitoring Falls Short of  
Requirement"

Portland Fire & Rescue (PF&R) thanks the Audit Services Division for conducting an audit of controlled substances. PF&R's emergency vehicles carry a wide variety of medications in response to medical emergencies. Two medications (midazolam and fentanyl) are classified as controlled substances and as such their manufacture, distribution, and dispensation are restricted by the federal Controlled Substances Act. Controlled substances are administered to sick or injured citizens, only by firefighters with Paramedic certification, and approved by the Physician Supervisor.

PF&R is pleased to know that the controlled substance audit was not conducted due to any specific concern about the bureau's personnel or policy around controlled substances. Rather, the overarching purpose of the audit was to prevent PF&R from experiencing problems which have occurred in other jurisdictions. We thank you and the Audit Services Division for being proactive on our behalf.

PF&R would like to emphasize that Audit Services found nothing that would indicate inappropriate use of controlled substances nor any violation of applicable law by PF&R personnel. We appreciate acknowledgement from Audit Services that some of the bureau's policies and management objectives were met and that PF&R staff were attentive to the physical security of medications.

PF&R is supportive of the recommendations noted in the Auditor's report in the areas of: establishing a monitoring program, strengthening and updating bureau policies, clarifying or revising recordkeeping requirements, improving documentation, and enhancing physical security. Already PF&R has implemented many of the report's suggestions, including the following:

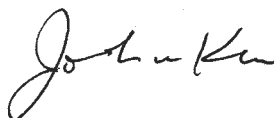
- Monitoring Improvements: Central monitoring of drug inventories at fire stations will be done both at the station level and by the Emergency Medical Services (EMS) Office. In addition to the annual Chiefs Inspection, monitoring will be enhanced at the station level with required monthly review of inventory logs conducted by the Station Captain. Periodic inspections may occur randomly by the Battalion Chief or EMS Office, who will conduct periodic reconciliations between EMS and vehicle logs.
- Policies Updated: Operational Guide 2.4 has been revised and updated to specify proper wasting methods and improve recordkeeping and documentation on inventory controls, lock box access, drug expirations, security seal changes, damaged drugs and accountability. Furthermore, EMS staff medics are now the only authorized personnel in the EMS Office who may receive and sign out medications.
- Recordkeeping Improvements: Forms and logs have been revised to capture information and data where recommended, including examples of additions, subtractions and tallies of all drug inventory.
- Documentation Improvements: The EMS Office will monitor documentation and advise staff if records are inadequate. Training procedures have been altered where appropriate.
- Improve Physical Security: PF&R will consider new, low cost alternatives to improve the physical security of controlled substances. PF&R contends that clear drug boxes present their own security risks; the relocation of boxes can also increase security risks, as well as create vehicle space management issues. We will attempt to meet the spirit of the recommendation by considering different locations for the lockbox, especially as new emergency vehicles are purchased and outfitted. PF&R's Apparatus Maintenance Shop is also looking at the feasibility of installing electronic locks on apparatus compartments that store medical kits containing controlled substances.

We appreciate the opportunity to improve documentation for significant activities like drug wasting, expiration, and replenishment, as well as improve policies and procedures. PF&R believes implementing Audit Services' recommendations is important not only to safeguard against theft, but to provide enhanced accountability for controlled substance inventories. Thank you for the opportunity to review and comment on the report as well as provide a written response.

Sincerely,



Nick Fish  
Commissioner



John Klum  
Chief



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*Portland Fire & Rescue:  
Controlled substances monitoring falls short of requirements*

Report #364, October 2008

Audit Team Members: Kristine Adams-Wannberg  
Martha Prinz

This report is intended to promote the best possible management of public resources. This and other audit reports produced by the Audit Services Division are available for viewing on the web at: [www.portlandonline.com/auditor/auditservices](http://www.portlandonline.com/auditor/auditservices). Printed copies can be obtained by contacting the Audit Services Division.

Gary Blackmer, City Auditor  
Drummond Kahn, Director of Audit Services

**Other recent audit reports:**

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*Street Paving: Office of Transportation improved quality assurance, but is resurfacing fewer streets (#359, August 2008)*

*Downtown SmartMeters: Most goals met, but cost-benefits and reliability need further review (#352B, July 2008)*

*Housing Tax Abatements: Oversight inadequate to ensure program goals (#362, July 2008)*

