Office of the Medical Examiner
Performance Audit

December 2011
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<table>
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<th>Chair</th>
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<td>Dennis Gallagher</td>
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<td>Maurice Goodgaine</td>
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Dr. Amy Martin, Chief Medical Examiner  
Office of the Medical Examiner  
City and County of Denver  

Dear Dr. Martin:

Attached is the Auditor’s Office Audit Services Division’s report of its audit of the Office of the Medical Examiner (Office or OME). The purpose of the audit was to evaluate OME’s efficiency and effectiveness and to determine whether its internal controls are adequate.

The audit’s findings relate to two areas of critical importance for government: costs and accountability. We found initial information suggesting that OME could improve its cost effectiveness. While the function of the Medical Examiner certainly contributes to the public good, the Office must always be vigilant to ensure that its stewardship of taxpayer dollars is strong. As part of this stewardship, the Office should reduce barriers impeding its ability to lower its costs and recover additional costs. Finally, while the Office reports some measures of its performance, it should improve its public transparency by identifying additional performance information to share with Denver’s citizens and their elected representatives.

If you have any questions, please call Kip Memmott, Director of Audit Services, at 720-913-5000.

Sincerely,

Dennis J. Gallagher  
Auditor

DJG/cnh  

cc: Honorable Michael Hancock, Mayor  
Honorable Members of City Council  
Members of Audit Committee  
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Ms. Stephanie O’Malley, Deputy Chief of Staff  
Ms. Cary Kennedy, Chief Financial Officer  
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Ms. Beth Machann, Controller  
Mr. Doug Linkhart, Manager, Department of Environmental Health  
Ms. Janna Bergquist – City Council Executive Staff Director

To promote open, accountable, efficient and effective government by performing impartial reviews and other audit services that provide objective and useful information to improve decision making by management and the people.  
We will monitor and report on recommendations and progress towards their implementation.
AUDITOR’S REPORT

We have completed an audit of the Office of the Medical Examiner (Office or OME). The purpose of the audit was to evaluate OME’s efficiency and effectiveness and to determine whether its internal controls are adequate.

This performance audit is authorized pursuant to the City and County of Denver Charter, Article V, Part 2, Section 1, General Powers and Duties of Auditor, and was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The audit contains information in three primary areas. First, OME’s cost effectiveness could be enhanced by reassessing the Office’s cost per reported death to identify cost reduction opportunities. Reported deaths are all deaths that come into a coroner’s or medical examiner’s office for review and are a good measure of the workload for each office. The Office’s cost per reported death is higher than five of nine Colorado counties for which the audit team gathered information including large counties such as El Paso, Jefferson, and Arapahoe. Second, we found that OME could recover a greater percentage of operational costs. While the Office is not likely to recover a majority of its costs, in 2010, it only recovered approximately $20,000, or 0.6 percent of its total budget.Benchmarking work identified other offices that recover 4.5 percent to 39 percent of their costs. One way to recover additional costs is by performing more autopsies for other jurisdictions. However, OME faces some impediments to performing additional autopsies including the fact that it charges more for autopsy services than other nearby Colorado county coroner or medical examiner offices. Finally, OME could publicly report a greater variety of performance measures to better align with best practice guidance for performance measurement.

We extend our appreciation to the Chief Medical Examiner and her staff who assisted and cooperated with us during the audit.

Audit Services Division

Kip Memmott, MA, CGAP, CICA
Director of Audit Services
To promote open, accountable, efficient and effective government by performing impartial reviews and other audit services that provide objective and useful information to improve decision making by management and the people. We will monitor and report on recommendations and progress towards their implementation.
EXECUTIVE SUMMARY

The Office of the Medical Examiner Is Denver’s Coroner Function

Colorado state law requires that every county provide a coroner function, and the Office of the Medical Examiner (Office or OME) serves in this capacity for Denver County. Coroners are responsible for investigating deaths to determine and certify the cause and manner of death. The cause of death is the disease or injury responsible for initiating the events that directly lead to a death. The manner of death is how the cause of death came into being. The work performed by the office includes but is not limited to death scene investigations by medicolegal investigators as well as external examination of bodies, autopsies, and medical chart reviews conducted by forensic pathologists. Most deaths reported to OME do not require an autopsy. In several cases, OME can determine cause and manner of death by external examination, laboratory tests, and chart reviews.

The Office is responsible for a key government function that assists law enforcement and the court system in the search for justice. There are multiple indicators that OME is fulfilling its key function well. Three key examples show the value that the Office provides for the citizens of Denver. First, in 2010, OME was reaccredited by the National Association of Medical Examiners (NAME), a national body that sets and certifies adherence to high standards for medical examiners. Accreditation from NAME shows that the office meets professional standards and provides assurance to the community that a medical examiner’s or coroner’s office is serving the community well. As of October 6, 2011, there are only 53 offices nationwide that received full accreditation from NAME. In addition to Denver, only two of Colorado’s other 63 counties have full NAME accreditation – Larimer and El Paso Counties.

Second, Denver employs three board-certified forensic pathologists to conduct autopsies or external examinations. While the exact number of board-certified forensic pathologists nationwide is difficult to state precisely, estimates range from 400 to 500. Third, OME has planned for mass casualty events by training volunteers to assist with medicolegal investigations through a project called COHEART (Colorado Human Remains Extraction and Recovery Team), funded through a grant by the federal Department of Homeland Security. Mass casualty events are those that require resources beyond the ability of local agencies, such as an airplane crash.

*Medicolegal is a term that describes death investigation activity and can be used in reference to different actors such as coroners, medical examiners, and investigators.*
The Office’s Costs Are Higher than Some of Colorado’s Largest County Coroner Offices and the Office Recaptures a Low Percentage of Costs

While OME provides important value for the citizens of Denver, it should evaluate potential improvements to its cost effectiveness. We performed an assessment of OME’s budget and workload and found that the Office has a higher cost per reported death than five of nine other large Colorado counties (Table 3, Finding 1).1 We determined that reported deaths is an optimal method for determining the workload of a coroner’s or medical examiner’s office because reported deaths determine the core workload for these offices, and consequently cost per reported death provides important insight into OME’s cost effectiveness. Specifically, using the most recent data available, OME’s cost per reported death was $827. The cost per reported death for nine other Colorado offices ranged from $449 to $1,750.2 All counties with 1,000 or more reported deaths per year had a lower cost per reported death than OME, which had 3,291 reported deaths in 2010. Additionally, the most recent data available for each of the nine counties show that all nine counties respectively had a budget that was over $1 million less than OME’s 2010 budget of approximately $2.7 million.

Two factors help to explain the cost discrepancies between OME and other counties. First, staffing levels are lower for the other Colorado county offices. In 2010, Denver had 23 employees for 3,291 reported deaths. By contrast, El Paso County had the next highest staff level of 18 employees for 2,977 reported deaths in 2009. All other county offices reported staff levels of 12 or fewer, including Jefferson County, which had 3,677 reported deaths in 2010. Second, we found that some counties contract for forensic pathologist services at a fixed cost per autopsy and therefore have lower personnel expenses.

The Chief Medical Examiner, in collaboration with the Department of Environmental Health, should extend the audit analysis to assess the cause of Denver’s relatively higher cost per reported death. The analysis should address ways that the cost per reported death can be reduced and take into account possible revenue generating activities, which could reduce OME’s net costs. The next two sections discuss the Office’s history of revenue generation, as well as impediments the OME faces in increasing revenues as a means of reducing costs.

The Office Recovers a Low Percentage of Costs

In addition to having relatively higher costs, the Office has not historically focused on cost recovery and therefore relies on the City's General Fund for nearly all operating

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1 The most recent data on reported deaths provided by the Arapahoe County Coroner’s Office was from 2008, and the most recent data on reported deaths for El Paso and Boulder Counties was from 2009. We have provided budget information from the last year that reported death data was available, to ensure that the cost per reported death statistic was not inadvertently skewed. All other counties, including Denver, provided 2010 data. Reported death information comes directly from the Coroner’s Office and is not reported in a county’s budget book.

2 Douglas County’s 2010 cost per reported death of $1,750 is an extreme outlier among the benchmarked jurisdictions. The next highest cost was Larimer County’s $918.
expenses. For example, in 2009, OME generated $20,385 in revenue, which represented only 0.7 percent of its $2,743,034 budget. In 2010, OME generated $16,720 in revenue, which was 0.6 percent of its $2,721,700 budget. In both years, the majority of OME’s revenue was generated by providing copies of various reports, such as autopsy reports.\textsuperscript{3} Separate from our study of Colorado county costs, we benchmarked 10 coroner or medical examiner offices nationwide to assess their cost recovery efforts. Five of the ten respondents answered a question about the percentage of cost recovery, reporting cost recovery ranging from 4.5 to 39 percent of their total budget.\textsuperscript{4} Had OME generated revenues at the low end of this range (4.5 percent), it would have brought in approximately $122,000, or about $100,000, more revenue than was actually generated.

The Office Can Price Autopsy Services More Competitively to Generate Additional Revenue

Although OME could use additional revenue to alleviate its relatively higher operating costs, we identified some impediments to generating additional revenue. The primary impediment is OME’s fee structure for autopsies. The Office has entered into a memorandum of understanding (MOU) with a number of other counties to provide autopsy services at either $1,650 or $1,800 per autopsy with additional charges for lab work and other services when requested.\textsuperscript{5} However, from 2009 to early 2011, the Office only performed five autopsies for other counties, and OME could only provide a revenue agreement between OME and one of those counties. Many other Colorado counties charge lower fees for autopsy services; five of six counties polled charge less than $1,200 per autopsy. Consequently, OME is at a competitive disadvantage.

The Office’s fee structure was established with a heavy emphasis on time required by a forensic pathologist to complete an autopsy, as well as the cost of supplies used plus an additional 25.5 percent charge to account for indirect costs. However, as salaried City employees, OME’s forensic pathologists are not paid additional monies when they perform autopsies for other counties. As a result, OME has an opportunity to reduce the fees it charges for performing autopsies for other jurisdictions. Even by reducing these fees to a competitive level, OME can still recover all actual costs related to performing the autopsy, such as supplies used. Therefore, the Chief Medical Examiner, along with the Department of Environmental Health, should re-evaluate the fees charged by the Office for autopsy services and identify a method for reducing its autopsy fees to a more competitive level, currently in the $1,000 to $1,200 range. This evaluation should specifically include an assessment of reducing the costs currently allocated to pathologists’ time, as well as whether the 25.5 percent charge for overhead costs can be reduced.

As the Office looks to increase its revenue, it should also act to enhance two revenue related controls. First, the Office should discontinue use of MOUs to codify revenue

\textsuperscript{3} Revenue from the “copy work and certifications” budget category represented 57 percent and 83 percent of the Office’s total revenue in 2009 and 2010, respectively.

\textsuperscript{4} The full list of cost recovery percentages was 4.5 percent, 9 percent, 12.1 percent, 25 percent, and 39 percent.

\textsuperscript{5} We identified MOUs with Park, Gilpin, and Chafee counties. Auditors also found an intergovernmental agreement between Jefferson and OME for autopsy services at a rate of $1,800 per autopsy.
agreements. Instead it should use revenue contracts, which would comply with Executive Order 8 and ensure transparency with revenue agreements. Second, OME should ensure that its makes timely deposits of cash and checks, in accordance with City Fiscal Rule 3.4, to improve internal controls over OME revenues.

The Office of the Medical Examiner Can Enhance Performance Reporting and Collect Additional Performance Information

The Office publicly reports five performance measures, as well as various statistics regarding volume of work. However, based on performance measurement best practices, the Office should be reporting additional metrics, particularly output and outcome measures, to provide an adequate variety of data for performance analysis. Additional resources on the topic further recommend incorporating input, efficiency, or quality measures.

The Office Could Provide Additional Types of Performance Measures

Although the Office provides the public and policymakers with important performance information, it could enhance its reporting by including outcome and quality measures. These measures in particular would improve OME’s ability to demonstrate the Office’s impact and the degree to which it is providing good customer service. Outcome measures help demonstrate how well a program is working while quality measures demonstrate how effectively a program provides customer service. Fortunately, the Office already has access to a variety of sources to gather these measures. For example, the Office is required to track some measures for its National Association of Medical Examiners (NAME) accreditation. The NAME accreditation checklist contains questions for NAME inspectors, including questions regarding autopsies, evidence and specimen collection, and chain of custody. Because questions in these sections evaluate OME’s performance in the critical areas of law enforcement and justice, they would be good areas from which to pull additional performance measures to report.

The Chief Medical Examiner should ensure that OME reviews the NAME accreditation checklist, as well as other medical examiner or coroner offices, to identify outcome and quality measures that it could adopt and report. Once OME has identified additional measures, the Chief Medical Examiner should ensure that OME reports its performance within the Denver Budget Book or in its yearly statistical report.

The Office Does Not Centrally Track Stakeholder Complaints

The Office does not centrally track all stakeholder complaints, which could emanate from decedents’ families, as well as from attorneys, victim’s advocates, law enforcement personnel, or other stakeholders. The Auditor’s Office noted in a 2011 audit of the Office of Economic Development’s Small Business Division that the lack of formal complaint

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tracking denies an organization access to important information about its performance. Complaint tracking allows for systematic management analysis of trends to identify possible areas for improvement. In addition, formal tracking encourages follow up with the complainants, illustrating the organization’s responsiveness and commitment to customer service. Developing a performance measure that incorporates complaint follow-up would effectively add a quality performance measure to OME’s current measures.
INTRODUCTION & BACKGROUND

In the City and County of Denver, the Office of the Medical Examiner (Office or OME) performs the state-mandated function of coroner. Coroners are responsible for investigating certain deaths to determine and certify the cause and manner of death. The cause of death is "the disease or injury responsible for initiating the train of events, brief or prolonged, that produced the fatal end result." The manner of death is "the fashion in which the cause of death came into being." Coroners classify the manner of death as one of five designations - natural, suicide, homicide, accident, or undetermined. Cause of death investigations, often referred to as medicolegal death investigations, play a critical role in serving the criminal justice, medical, public safety, and public health communities and contribute to national mortality data.

History of Coroners

The coroner function has a long history, dating back more than ten centuries. It began in England, where coroners or crowners were guardians of the crown’s pleas. The office [of crown] originally was created to provide a local official whose primary duty was to protect the financial interest of the crown in criminal proceedings. On behalf of the crown, the crown was responsible for inquests to confirm the identity of the deceased, determine the cause and manner of death, confiscate property, collect death duties, and investigate treasure troves.

Settlers in North America brought coroner laws to the early colonies. Early state constitutions explicitly mentioned the position of coroner, but often without defining the role. The movement to requiring medical training for coroners began around 1860, and in 1877, Massachusetts began requiring that its coroners be physicians.

Medicolegal Death Investigation Systems in the United States

Individual state statutes determine whether a coroner or a medical examiner (ME) is responsible for delivering death investigation services, which are organized at the county, district, or state level, depending on individual state law. These systems provide a variety of services, including death scene investigations, medical investigations, reviews of medical records, autopsies, determination of the cause and manner of death, and completion of the death certificate.

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7 Office of the Medical Examiner website, FAQ link, accessed on September 14, 2011 (www.denvergov.org/coroner).
8 Ibid.
10 Ibid.
Manner of Death is a Medical Judgment

Manner of death certifications are a matter of informed medical judgment, which are made to varying degrees of certainty, because circumstances of individual cases can vary widely. According to a 2002 National Association of Medical Examiners’ (NAME) publication entitled A Guide for Manner of Death Classification, manner of death was developed in the United States and has only been an element of the standard American death certificate since 1910. The Guide notes that a major goal of the manner of death classification is to provide valuable medical statistics regarding death. The Guide provides medical examiners with a framework within which decisions can be made in individual cases. For example, the authors define homicide as “a volitional [voluntary, or unforced] act caused by another person to cause fear, harm, or death.” While volition seems similar to the concept of intent, the Guide’s authors suggest that intent can be very difficult to determine and suggest that volition is a useful alternative. Essentially, volition allows the medical examiner to state that there was an intent to act without opining on whether there was an intent to kill. In fact, the authors of the Guide take pains to clarify that when a medical examiner evaluates volition or intent in classifying a death as a homicide, this evaluation is not determining whether the person who caused the death had a criminal intent. Similarly, the Guide states that the manner of death in a motor vehicle accident could be classified as an accident even if by law the death could be classified as vehicular homicide. It is clear based on the approach advanced in the Guide that medical judgments on the manner of death are intended to be neutral, and not mistaken for a legal judgment.

The main difference between a coroner system and an ME system is that coroners are generally elected officials who are not required by law to be physicians. Should an autopsy be warranted, the coroner will often consult with a pathologist or forensic pathologist. By contrast, MEs are usually appointed and are physicians, although they may not necessarily be mandated to have special training in pathology or forensic pathology. Further, in an ME system, physicians certify and sign death certificates, whereas in some coroner systems the coroner signs death certificates.

Over 2,300 coroner and ME offices provide death investigation services across the United States. Although the specific title and duties of medicolegal officials vary, states generally have one of three basic types of death investigation systems: ME, coroner, or a combination thereof. The distribution of these systems throughout the United States is summarized in Figure 1.

12 This does not apply to coroners in Kansas, Louisiana, North Dakota, and Ohio, who are required to be physicians.
As Figure 1 shows, in 2004, 16 states had a centralized statewide ME system, 14 had a county coroner system, 7 had a county ME system, and 13 had a mixed county ME and coroner system.

**Colorado’s Death Investigation System is Not Uniform across Counties**

Although Colorado uses a coroner system, the ways in which the offices have been set up vary from county to county, as do the backgrounds of their respective coroners. The State coroner system does not require elected coroners to be physicians and the majority of coroners in Colorado’s 64 counties are not physicians. According to information from the Colorado Coroner’s Association, only 12 of Colorado’s coroner’s offices are headed by a physician – either a medical doctor or an osteopathic doctor – one county coroner is a Doctor of Dental Surgery (DDS) and one is a certified physician’s assistant (PA-C). Seven counties have elected coroners who are forensic pathologists.

Colorado statutes require that each county coroner be elected for a term of four years. However, the statutes contain only three eligibility requirements. Specifically, the candidate must:

1. Be a citizen of the United States and a resident both of Colorado and the county in which the person will serve as coroner.
2. Have earned a high school diploma or its equivalent or a college degree.

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13 Denver’s coroner, who is also the medical examiner, is appointed. Denver, as a home rule city and county, has certain rights to self-government as provided under Article XX of the Colorado Constitution. Among the rights of home rule is that Denver may appoint its coroner.
3. Have a complete set of fingerprints taken by a qualified law enforcement agency.

Legislative Changes in 2011

State lawmakers passed legislation in 2011 that impacts the statewide coroner system in Colorado. The legislation mainly addresses autopsies, requiring that forensic autopsies be performed in accordance with National Association of Medical Examiners (NAME) standards and by, or under the direct supervision of, a board-certified forensic pathologist.14 The OME already adheres to this requirement. However, another legislative change may impact the Office, specifically that counties may now refer cases back to the county where the “incident” resulting in death occurred. Office staff expects that this change will shift costs to larger counties, especially Denver. The legislation, which maintains the current coroner system, was backed by the Colorado Coroners Association. The Office, however, supports moving the state towards an ME system and accordingly opposed the legislation.

OME Responsibilities

The Office has a varied set of medicolegal responsibilities. In order to fully understand these responsibilities, it is important to understand three key concepts: reportable deaths, jurisdiction, and autopsies.

Reportable Deaths—The Office does not handle all deaths that occur in the City and County of Denver; rather, only certain deaths must be reported to OME, including deaths that are sudden, unexpected, or unexplained; are due to external causes such as injury, or to any unnatural or traumatic means; occur with no attending physician; or occur under suspicious circumstances.

Colorado statutes specify which deaths are required to be reported to the coroner. However, because the statutory language regarding reportable deaths is broad, individual jurisdictions may further specify reporting criteria. Colorado statutes define eight circumstances under which deaths must be reported, while OME lists 13 on its website, as shown in Table 1. The Office has chosen to expand on the list of reportable deaths provided in Colorado Revised Statutes. This is intended to help ensure that OME receives all deaths that should be reported. Denver Revised Municipal Code does not contain any specification regarding which deaths are to be reported to OME.

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14 C.R.S. § 30-10-606.5(1)(a) and (2)(a).
Table 1 – Comparison of Reportable Deaths as Required by OME and by Colorado

<table>
<thead>
<tr>
<th>OME</th>
<th>Colorado Revised Statutes</th>
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<tbody>
<tr>
<td>• All deaths due to unexplained causes or under suspicious circumstances</td>
<td>From external violence, unexplained cause, or under suspicious circumstances</td>
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<tr>
<td>• All deaths that occur in the emergency room, operating room, during or shortly following a medical procedure</td>
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<tr>
<td>• All patients that expire within 24 hours of admission</td>
<td></td>
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<tr>
<td>• Deaths resulting from therapeutic procedures, or possibly may be related to the procedure</td>
<td></td>
</tr>
<tr>
<td>• All deaths in which trauma may be associated with the death (e.g. fall with hip fracture, head injury or other trauma), including cases where the patient entered the medical facility due to trauma. Cases should be reported even though the death may be attributed only indirectly to the trauma</td>
<td></td>
</tr>
<tr>
<td>• All deaths in which the attending or certifying physician has not been in attendance of the decedent within 30 days prior to death</td>
<td>Where no physician is in attendance or where, though in attendance, the physician is unable to certify the cause of death</td>
</tr>
<tr>
<td>• All deaths in which the attending physician is unable or unwilling to certify the cause of death</td>
<td></td>
</tr>
<tr>
<td>Deaths resulting from thermal, chemical or radiation injury</td>
<td>From thermal, chemical, or radiation injury</td>
</tr>
<tr>
<td>All deaths resulting from criminal abortion, including any situation where such abortion may have been self induced</td>
<td>From criminal abortion, including any situation where such abortion may have been self-induced</td>
</tr>
<tr>
<td>Deaths resulting from a disease which may be hazardous, contagious, or which may constitute a threat to public health</td>
<td>From a disease which may be hazardous or contagious or which may constitute a threat to the health of the general public</td>
</tr>
<tr>
<td>All deaths while in the custody of law enforcement officials, or while incarcerated in a public institution</td>
<td>While in the custody of law enforcement officials or while incarcerated in a public institution</td>
</tr>
<tr>
<td>Sudden death of a person in good health</td>
<td>When the death was sudden and happened to a person who was in good health</td>
</tr>
<tr>
<td>All deaths resulting from accident, suicide, homicide, or undetermined cause and/or manner (e.g. fall, poisoning, drug related, industrial accident, automobile accident, automobile-pedestrian accident, suspected abuse, etc.)</td>
<td>From an industrial accident</td>
</tr>
</tbody>
</table>

Sources: OME website [www.denvergov.org/coroner](http://www.denvergov.org/coroner), accessed on September 14, 2011; C.R.S. § 30-10-606.
Jurisdiction—Generally, the Office has authority, or jurisdiction, over deaths that occur in Denver County. However, OME waives jurisdiction in some reported deaths, further reducing the number of in-depth death investigations and certifications it must conduct. For example, an elderly or terminally ill person’s death may be technically reportable, but clearly caused by the presenting disease. In these cases, the attending physician must report the death, but may sign the death certificate without the OME accepting jurisdiction to determine the cause and manner of death.

Additionally, some deaths reported to OME are transferred to other physicians, hospitals, or counties. For example, state statutes provide that when “a person is involved in an incident that requires the person to be transported to a medical facility outside the county where the incident occurred and the person dies in route to or at the medical facility[,] the coroner for the county where the incident occurred shall take possession of the body” [emphasis added]. For example, if a person is injured in Black Hawk and is brought to a Denver hospital for treatment, and dies at that hospital, the death will be reported to Denver’s OME. However, the coroner for the county where the accident occurred, which in this example is Gilpin County, is required to take jurisdiction over the decedent’s body and to conduct the death investigation. Colorado counties can work together to transfer jurisdiction when it makes sense to do so, such as when transporting a body back to the county of jurisdiction is impractical.

Studies indicate that a relatively small percentage of deaths fall under the jurisdiction of coroners or medical examiners. Approximately one percent of the U.S. population—about 2.6 million people—dies each year. In 2004, a National Academy of Sciences study estimated that ME and coroner offices receive nearly 1 million reports of deaths, constituting between 30 and 40 percent of all U.S. deaths, and a coroner or ME accepts about one half of those (500,000, or one of every five total deaths) for further investigation and certification. This means that about 20 percent of all death certificates in the country are completed by coroners or MEs. Generally, about 40 to 50 percent of reported deaths will, after investigation and examination, be attributed to natural causes, 27 to 40 percent to accident, 12 to 15 percent to suicide, 7 to 10 percent to homicide, and 1 percent as undetermined.

Autopsies—An autopsy is “a postmortem examination of a body to determine the cause and manner of death and to document any injury, disease, or abnormality present”, and is part of a forensic investigation. However, an autopsy is not always performed for deaths reported and retained within OME’s jurisdiction. All OME autopsies are performed by a board-certified forensic pathologist or a forensic pathology fellow. From 2007 through 2010, a range of 2,500 and 3,300 deaths were reported to OME annually. Between 675 and 760 autopsies were performed each year, representing from about 20 to 30 percent of reported deaths. An OME forensic pathologist certifies the cause and

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15 C.R.S. § 30-10-606.5(1)(b).
17 Ibid, 244.
The manner of death for the remaining reported deaths within OME’s jurisdiction, based on medical history, an external examination of the body, or both. Unless an autopsy is statutorily required, the Office has the authority to determine whether or not to conduct an autopsy.19

The Office Also Performs Death Scene Investigations

Although an autopsy is part of a forensic investigation, it is only one part. Before a body is removed from the scene, an OME investigator responds and is responsible for documenting the scene through photographs and written descriptions. The investigator also gathers any additional information that may lead to determining the cause and manner of death and is subsequently relayed to the pathologist in an investigative report and supplemental entries. For any case where no crime is suspected, the investigator’s report is the primary report for that death. This includes virtually all accidental deaths, most suicides, and many deaths for which the reasons are undetermined.

Investigators also gather medical records, medical information, and other investigative materials as needed, depending on the case. Colorado law requires that investigators secure the belongings of the decedent until the next-of-kin or other designated agent can take possession.

The Office Plays a Law Enforcement Role as Well as Other Important Roles

In keeping with the historical roots of coroners, OME plays an integral role in the law enforcement process. The Office works with the Police Department, the District Attorney, and the Court, for example by providing expert consultants and witnesses and assuming control over evidence.

The Office has also worked closely with the District Attorney’s Office and Denver Police Department in addressing previously unsolved deaths as part of a federal grant. The Denver Police Department Crime Laboratory received grant monies enabling them to perform DNA analysis on unsolved homicide cases, and the Office has provided much of this DNA material from its archival files. In addition, OME pathologists are called from time to time to take part in the State’s cold case review process spearheaded by the Colorado Bureau of Investigation.

The Office may also serve as an early contact point for the decedent’s family and next-of-kin. Further, OME coordinates death investigations with various government agencies, communicates regularly with the media, and provides investigative and forensic autopsy technician internship programs. The Office works with community partners, such as Colorado Coalition for the Homeless, Arapahoe House, and others, on homicide and homeless deaths. Finally, OME receives requests for additional data throughout the year from public and private entities on a wide range of topics. For example, OME reported that recent requests included more specific information on sudden deaths occurring during athletic activities.

19 C.R.S. § 30-10-606(2).
OME has planned for mass casualty events by training volunteers to assist with medicolegal investigations through a project called COHEART (Colorado Human Remains Extraction and Recovery Team), funded through a grant by the federal Department of Homeland Security. Mass casualty events are those that require resources beyond the ability of local agencies, such as an airplane crash.

NAME Accreditation

The Office is accredited by the NAME, a national professional organization of physician medical examiners, medical death investigators, and death investigation system administrators. The accreditation period commenced on December 10, 2010, and expires on December 10, 2015.

Accreditation demonstrates that OME meets peer-reviewed standards for the performance of an ME’s function, and places OME in an elite group of offices across the country. According to an expert in medicolegal systems, there are approximately 972 ME offices in the U.S. As of October 6, 2011, only 53 of these offices have been fully accredited by NAME. According to NAME, accredited offices serve approximately 23 percent of the nation’s population.

One of the accreditation standards limits the number of autopsies that a physician may perform per year. NAME established these limits to preserve the quality of autopsies, as mistakes may increase as forensic pathologists perform an increasing number of autopsies. To enforce these limits, NAME defines two deficiency levels. Phase I deficiencies serve as a warning to the ME office but does not result in loss of accreditation. Phase II deficiencies are deemed more serious and threaten an ME’s accreditation.

NAME recommends that forensic pathologists perform no more than 250 autopsies per year. Generally, a Phase I deficiency may result if autopsy physicians perform more than 250 autopsies per year. A more serious Phase II deficiency will likely result if autopsy physicians perform more than 325 autopsies per year. While the standards provide a finite number of autopsies per forensic pathologist, they also provide some flexibility for calculating autopsy load, including consideration of medicolegal methods such as external examinations and chart reviews.

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20 Randy Hanzlick, MD, The Conversion of Coroner Systems to Medical Examiner Systems in the United States - A Lull in the Action, *The American Journal of Forensic Medicine and Pathology*, Vol. 28, Number 4, December 2007, 280. In this article, Dr. Hanzlick estimated that the number of counties served by medical examiner systems on a county, district, or statewide basis amounted to about 31 percent of the 3,137 counties in the country. This amounts to approximately 972 medical examiner systems.
OME Organization and Funding

The Office is one of five divisions within the City’s Department of Environmental Health. Table 2 summarizes OME’s budget and staffing information.

Table 2 – OME Budget Information

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget</td>
<td>$2,743,400</td>
<td>$2,721,700</td>
<td>$2,814,500</td>
</tr>
<tr>
<td>FTE</td>
<td>23.0</td>
<td>23.0</td>
<td>23.0</td>
</tr>
</tbody>
</table>

Source: City and County of Denver Budget Book, 2011.
Auditors determined that the revenue information presented for OME in the City and County of Denver’s 2011 Budget Book was not completely accurate, and therefore we do not present Budget Book revenue information for OME here. See Finding 1 for a further discussion of OME revenue for 2009 and 2010.
SCOPE

The audit assessed OME's current operational practices, OME revenues and expenditures for 2009 and 2010, and revenue agreements between OME and other Colorado coroners' offices that were in effect from 2009 through 2011.

OBJECTIVE

The objective of this performance audit was to examine and assess OME for program effectiveness in an effort to identify areas for improvement.

Specifically, we reviewed and assessed the following:

- Whether OME can reduce or recover more of its costs
- How effectively OME is measuring and reporting its performance

METHODOLOGY

Key audit methods included:

- Conducting background research and reviewing and analyzing information, including NAME standards and literature related to coroner and medical examiner systems
- Conducting interviews with Office personnel to obtain background information and clarify policies and practices
- Reviewing pertinent laws, rules, and regulations, notably the Denver Revised Municipal Code (D.R.M.C.), Colorado Revised Statutes (C.R.S.), and OME's policies and procedures
- Conducting an interview with an official from the Colorado Coroner's Association
- Conducting interviews with other county coroners in Colorado to learn more about their systems and structures
- Reviewing literature regarding performance measurement
- Conducting a web-based survey to obtain benchmarking information from ten jurisdictions, which were selected using input from OME staff regarding high-quality programs. The sample included both medical examiner offices and coroner's offices, counties similar in size to Denver, and similarly sized jurisdictions
that have a combined city and county structure like Denver. All ten jurisdictions responded to the survey.\(^{21}\)

- Obtaining cost comparison information for nine Colorado counties, representing the largest population centers in the state. Among these nine counties were the three counties in the state that have obtained NAME accreditation. This audit work included research to obtain the population, county size, and numbers of various medical facilities (e.g., hospitals, hospices, and nursing homes) in each county; research from each county’s website and annual report to obtain budget, staffing, and workload data; and a follow-up phone survey to verify accuracy of the information obtained.\(^{22}\)

While not specifically referenced in the report, an OME investigator took members of the audit team on a walk-through of the medical examiner facility. This entailed viewing OME work areas, the decedent viewing room, case file storage, decedent storage areas, and OME autopsy suites. The walk-through helped us better understand the scope of medicolegal services offered by the Office.

\(^{21}\) Benchmarking jurisdictions include the following cities or counties, with the principal city of the county noted where needed for clarification: City and County of San Francisco, CA; Hennepin County (Minneapolis), MN; King County (Seattle), WA; Montgomery County (Dayton), OH; City of Jacksonville, FL; Milwaukee County, WI; Maricopa County (Phoenix), AZ; Jackson County (Kansas City), MO; Los Angeles County, CA; and Las Vegas-Clark County, NV.

\(^{22}\) Colorado counties used for cost comparison: Adams, Arapahoe, Boulder, Broomfield, Douglas, El Paso, Jefferson, Larimer, and Mesa. The Pueblo County Coroner’s Office did not respond to our request for information.
FINDING 1

The Office’s Costs Are Higher Than Some of Colorado’s Largest County Coroner Offices and the Office Recaptures a Low Percentage of Costs

The Medical Examiner’s Office (Office or OME) provides the state-mandated coroner function for Denver County, and there are multiple indicators that OME is fulfilling its function well. For example, the Office recently retained its national accreditation through the National Association of Medical Examiners (NAME). However, OME can also improve operations in three specific areas. First, the cost per death in Denver is higher than some other large Colorado counties. Second, the Office has not developed a sustainable model for offsetting a significant portion of its budget costs through various sources of revenue regardless of identified impediments. Third, we noted some weaknesses in OME’s internal controls for handling revenues.

The Office of the Medical Examiner Is Denver’s Coroner Function

Colorado state law requires that every county provide a coroner function, and the Office of the Medical Examiner (Office or OME) serves in this capacity for Denver County. Coroners are responsible for investigating deaths to determine and certify the cause and manner of death. The cause of death is the disease or injury responsible for initiating the events that directly lead to a death. The manner of death is how the cause of death came into being. The work performed by the office includes but is not limited to death scene investigations by medicolegal investigators as well as external examination of bodies, autopsies, and medical chart reviews conducted by forensic pathologists. Most deaths reported to OME do not require an autopsy. In several cases, OME can determine cause and manner of death by external examination, laboratory tests, and chart reviews.

The Office is responsible for a key government function that assists law enforcement and the court system in the search for justice. There are multiple indicators that OME is fulfilling its key function well. Three key examples show the value that the Office provides for the citizens of Denver. First, in 2010, OME was reaccredited by NAME, a national body that sets and certifies adherence to high standards for medical examiners. Accreditation from NAME shows that the office meets professional standards and provides assurance to the community that a medical examiner’s or coroner’s office is serving the community well. As of October 6, 2011, there were only 53 offices nationwide that had received full accreditation from NAME. In addition to Denver, only two of Colorado’s other 63 counties have full NAME accreditation – Larimer and El Paso Counties.

Second, Denver employs three board-certified forensic pathologists to conduct autopsies or external examinations. While the exact number of board-certified forensic pathologists nationwide is difficult to state precisely, estimates range from 400 to 500. Third, OME has planned for mass casualty events by training volunteers to assist with medicolegal investigations through a project called COHEART (Colorado Human Remains Extraction and Recovery Team), funded through a grant by the federal
Department of Homeland Security. Mass casualty events are those that require resources beyond the ability of local agencies, such as an airplane crash.

The Office Has a Higher Cost Per Death Than Some Other Large Colorado Counties

While OME is serving Denver citizens well in a number of areas, an assessment of the cost-effectiveness of OME indicated that the Office has a higher cost per reported death than five of nine other large Colorado counties. We determined that counting the number of reported deaths is the best way to measure of the workload of a coroner or medical examiner office, since they generate the workload of an office. Consequently, cost per reported death provides important insight into OME’s cost effectiveness.\(^\text{23}\) Coroner or ME offices perform a variety of activities associated with each reported death, such as death scene investigations by medicolegal investigators as well as external examination of bodies, autopsies, and medical chart reviews conducted by forensic pathologists.\(^\text{24}\) Most deaths reported to OME do not require an autopsy. In many cases, OME can determine cause and manner of death by external examination, laboratory tests, and chart reviews. However, even cases that do not require an autopsy require some level of activity. For example, when the Office receives a report of a death that is ultimately outside the Office’s jurisdiction, OME staff still must perform some administrative action to review the jurisdiction and transfer the case to the correct office.\(^\text{25}\)

The Office’s Cost Per Reported Death Is Higher Than Five Large Colorado Counties

We benchmarked nine counties in the state of Colorado to ascertain their costs per reported death, thus providing a basis for comparison of OME’s costs (see Table 3).\(^\text{26}\) Our benchmarking study found that OME’s costs are higher on a per-death basis than five other large Colorado county coroner’s offices. Specifically, the four other counties with

\(^{23}\) In discussion with an OME official, officials with the Department of Environmental Health, and a representative from the City Attorney’s Office, it was suggested that there could be various factors impacting the Office’s costs, such as the number of hospitals, hospices, and nursing homes within Denver or the homeless population in Denver. However, we found no direct substantiation that these numbers vary directly with an office’s workload. See Appendix A for more information about the number of hospitals, hospices, and nursing homes within benchmarked counties. In addition, we could find no reliable estimate of the homeless population in Denver County or in other counties. Therefore we have no way of assessing the accuracy of anecdotal claims that Denver has a much higher homeless population than the counties in the Denver metro area, and no way of extending that information to an analysis of workload impact.

\(^{24}\) The 2009 publication of the National Research Council of the National Academies entitled *Strengthening Forensic Science in the United States: A Path Forward* contains additional discussion of forensic pathology and death investigations.

\(^{25}\) See Appendix A for more information about the number of autopsies and external examinations in relation to the total number of reported deaths. The Office’s website ([www.denvergov.org/coroner](http://www.denvergov.org/coroner)) also provides information regarding the volume of cases reported versus cases where OME retained jurisdiction.

\(^{26}\) The most recent reported death information for Arapahoe County is from 2008, and the most recent reported death information for El Paso and Boulder Counties is from 2009. We have provided budget information from the last year that reported death data was available, to ensure that the cost per reported death statistic was not inadvertently skewed. All other counties, including Denver, provided information from 2010. Reported death information comes directly from the Coroner’s Office and is not reported in a county’s budget book.
2,500 or more reported deaths had a lower cost per reported death than OME, which had 3,291 reported deaths in 2010. Additionally, the most recent data available for each of the nine counties show that the four counties other than Denver with 2,500 or more reported deaths operated with a budget that was over $1 million less than OME’s 2010 budget of approximately $2.7 million.

Table 3—Denver’s number of reported deaths and cost per reported death compared to other Colorado counties using the most recent data available

<table>
<thead>
<tr>
<th>County</th>
<th>Most Recent Year of Data</th>
<th>Reported Deaths</th>
<th>Coroner Budget</th>
<th>Cost per Reported Death (Reported Death/Budget)</th>
<th>Staff Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jefferson</td>
<td>2010</td>
<td>3,677</td>
<td>$1,651,602</td>
<td>$449</td>
<td>12</td>
</tr>
<tr>
<td>El Paso*</td>
<td>2009</td>
<td>2,997</td>
<td>$1,564,488</td>
<td>$522</td>
<td>18</td>
</tr>
<tr>
<td>Arapahoe</td>
<td>2008</td>
<td>2,540</td>
<td>$1,461,213</td>
<td>$575</td>
<td>12</td>
</tr>
<tr>
<td>Adams</td>
<td>2010</td>
<td>2,817</td>
<td>$1,654,453</td>
<td>$587</td>
<td>10.75</td>
</tr>
<tr>
<td>Boulder</td>
<td>2009</td>
<td>1,208</td>
<td>$807,542</td>
<td>$668</td>
<td>8</td>
</tr>
<tr>
<td>Denver*</td>
<td>2010</td>
<td>3,291</td>
<td>$2,721,700</td>
<td>$827</td>
<td>23</td>
</tr>
<tr>
<td>Broomfield</td>
<td>2010</td>
<td>210</td>
<td>$186,020</td>
<td>$885</td>
<td>0**</td>
</tr>
<tr>
<td>Mesa</td>
<td>2010</td>
<td>478</td>
<td>$432,040</td>
<td>$903</td>
<td>4</td>
</tr>
<tr>
<td>Larimer*</td>
<td>2010</td>
<td>976</td>
<td>$896,059</td>
<td>$918</td>
<td>9</td>
</tr>
<tr>
<td>Douglas</td>
<td>2010</td>
<td>742</td>
<td>$1,298,865</td>
<td>$1,750</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: Auditor research and analysis. We obtained information from multiple sources, including reviewing coroner office annual reports and county budget documents, and performing interviews with key county coroner office personnel to compile or confirm the numbers.

* Offices accredited by the National Association of Medical Examiners (NAME).
** Broomfield’s coroner function is outsourced to Adams County, which provides staff to cover deaths reported in both Adams County and Broomfield County.

In addition to having a cost per reported death that is higher than some other large Colorado counties, OME’s costs are higher than metrics suggested by industry experts. First, Dr. Vincent DiMaio is the former medical examiner of Bexar County Texas, which includes San Antonio, the nation’s seventh largest city, and is recognized as an industry expert. According to Dr. DiMaio, the price of a good medical examiner’s office is about $2.50 per person per year. Based on this estimate, given Denver’s 2010 population of
600,158, the budget for OME could be as low as $1.5 million per year, or about 45 percent less than the 2010 budgeted amount. Second, a 2007 NAME survey revealed that county systems’ per capita costs for a coroner or medical examiner office ranged from $1.31 to $9.19, with a mean of $2.89. Multiplying the mean of $2.89 by Denver’s population of 600,158 suggests the OME’s budget could be approximately $1.7 million. Although this analysis uses 2007 dollars, it indicates that OME’s costs are higher than the national mean cost, as Denver’s 2010 cost per capita was $4.53.

Staffing Levels and Usage Help Explain Denver’s Higher Costs

Two factors appear to explain the discrepancies in cost-effectiveness between OME and the other counties studied. First, the other county coroner offices employ fewer staff. Denver’s OME had 23 filled positions in 2010, costing approximately $1.9 million. By contrast, El Paso County had the next highest number of staff at 18, and all other offices reported a staff size of 12 or fewer. As shown in Appendix A, the greatest staffing discrepancy between counties was in the number of support staff, specifically autopsy technicians and administrative employees. Again, Denver’s OME had the most with 11 support staff. El Paso County was next with ten, but every other county for which data was gathered reported four or fewer total support staff. Second, we found that some jurisdictions, including Adams County, contract with external forensic pathologists for a fixed cost per autopsy. Denver’s OME does not engage third parties to perform autopsies or any other death investigation services.

The Chief Medical Examiner, in collaboration with the Department of Environmental Health, should extend the audit analysis to assess the cause of Denver’s relatively higher cost per reported death. The analysis should address ways that the cost per reported death can be reduced and take into account possible revenue generating activities, which could reduce OME’s net costs.

The Office Generates Little Additional Revenue

The Office has not historically focused on cost recovery; therefore, the City’s General Fund provides for most of OME’s operating expenses. For example, in 2009, OME generated $20,385 in revenues, mostly from providing copies of autopsy reports or other case information. However, OME’s budget for 2009 was $2,743,034, meaning that OME’s revenue represented only a 0.7 percent cost recovery. In 2010, OME generated $16,720

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27 See Thompson, A.C., M. Secret, L. Bergman, and S. Bartlett. CSI America: Bungled Death Investigations Put the Living at Risk. The Cutting Edge, February 6, 2011. The $2.50 per person metric was also stated in a PBS Frontline special entitled Post-Mortem: Death Investigation in America. Dr. DiMaio appeared on the Frontline special, and also served on the ad hoc NAME committee that prepared the Preliminary Report on America’s Medicolegal Offices for the National Institute of Justice’s Forensic Summit in May 2004.

28 National Research Council of the National Academies, Strengthening Forensic Science in the United States: A Path Forward, 250.
in revenues. The budget amount for 2010 was $2,721,700, resulting in an approximately 0.6 percent cost recovery.

Some Benchmarked Cities Recover a Greater Percentage of Costs

We conducted a benchmarking study of cities and counties both within and outside the state of Colorado to gauge whether other jurisdictions have revenue generating practices in place to offset budget costs. Outside of Colorado, we identified five respondents that engage in cost recovery practices, revenue from which generated between 4.5 and 39 percent of their respective budgets.29 These jurisdictions generate revenue by providing annual seminars, charging for statistical reports, and performing autopsies for other jurisdictions. Had OME generated revenues at the low end of this range (4.5 percent), it would have brought in approximately $122,000, or about $100,000 more revenue than it actually generated in 2010.

A number of Colorado counties have also implemented revenue generation practices, the larger of which conduct autopsies and lab work for smaller surrounding counties. In turn, they charge for services rendered, which lessens the burden on their respective general funds.

The Office Can Reduce Costs for Autopsy Services to Generate Additional Revenues

The most effective method for OME to better recover costs would be to perform additional autopsies for other jurisdictions. Although OME could generate additional revenue to help offset its relatively higher operational costs, doing so may be a challenge based on the following impediments:

- **The Office’s autopsy price is above the market price**—The primary impediment to revenue generation is OME’s autopsy fee. The Office has entered into a memorandum of understanding (MOU) with several different counties to provide autopsy services at either $1,650 or $1,800 per autopsy, with additional charges for lab work and other services when requested. Despite having entered into several MOUs since 2009, we identified only five autopsies performed by OME for external jurisdictions in 2010 and 2011. After researching other Colorado counties that provide external autopsy services, we discovered that many of them charge lower fees. In fact, five out of six counties researched charge $1,200 or less (see Table 4). Consequently, OME is at a competitive disadvantage. The Office’s autopsy fee was established by estimating the time it would take for a forensic pathologist to complete an autopsy, the cost of supplies used, and an additional 25.5 percent charge for indirect costs. However, the Office’s forensic pathologists are not paid additional monies beyond their salaries for performing these autopsies for other counties. As a result, OME is in a position to reduce the fee charged for performing external autopsies for other jurisdictions by the amount originally estimated to cover the time dedicated to the forensic pathologist. This

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29 The five benchmarked jurisdictions were Los Angeles County, CA; Jackson County (Kansas City), MO; Milwaukee County, WI; King County (Seattle), WA; and Hennepin County (Minneapolis), MN.
would reduce OME’s fees to a more competitive rate while continuing to recover actual costs of the autopsy. The Chief Medical Examiner, along with the Department of Environmental Health, should re-evaluate the fees charged by the Office for autopsy services and identify a method for reducing its autopsy fees to a more competitive level, currently in the $1,000 to $1,200 range. This evaluation should specifically include an assessment of reducing the costs currently allocated to pathologists’ time, as well as whether the 25.5 percent charge for overhead costs can be reduced.

- **The Office faces additional work in developing business relationships**—The Office only began to offer autopsy services to other jurisdictions in 2009, after receiving guidance from the City Attorney’s Office that it had the authority to do so. Until then, a number of coroners’ offices throughout the state (which employ forensic pathologists) had been providing autopsy services to other jurisdictions. Over time, they have developed strong business relationships that provide a consistent source of revenue from autopsies. In addition, we learned through audit interviews that some jurisdictions are wary of working with OME, noting that the Office could improve its business relationships. Competing with pre-established relationships, will make it more difficult to generate substantial revenue initially. However, these challenges should not be viewed as permanent impediments to future revenue generation.

### Additional Revenue Could Be Generated by Performing Autopsies for Other Jurisdictions

While OME faces impediments to generating additional revenue, the benchmarking information we obtained indicates that performing autopsies for other counties would be the most effective way for OME to generate additional revenue. Further, OME has the capacity to conduct additional autopsies for other jurisdictions while maintaining the National Association of Medical Examiners (NAME) standards, which place a limit on the number of autopsies that a forensic pathologist may perform per year.

### Table 4—Autopsy Fees Charged by Colorado Counties

<table>
<thead>
<tr>
<th>County</th>
<th>Autopsy Fee*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arapahoe</td>
<td>$2,175</td>
</tr>
<tr>
<td>Denver</td>
<td>$1,650</td>
</tr>
<tr>
<td>Douglas</td>
<td>$1,050</td>
</tr>
<tr>
<td>El Paso**</td>
<td>$1,200</td>
</tr>
<tr>
<td>Jefferson</td>
<td>$1,020</td>
</tr>
<tr>
<td>Larimer</td>
<td>$1,055</td>
</tr>
<tr>
<td>Mesa</td>
<td>$976</td>
</tr>
<tr>
<td>Median</td>
<td>$1,053</td>
</tr>
<tr>
<td>Average</td>
<td>$1,246</td>
</tr>
</tbody>
</table>

Source: Colorado Coroners Association

*Autopsy fee charged does not include toxicology costs, which are charged separately.

** Toxicology costs are included in the autopsy fee charged.
The ideal caseload for a forensic pathologist is 250 cases per year with 325 being the maximum. Based on information provided by OME, as well as our evaluation of NAME’s accreditation checklist, we calculated OME’s ideal capacity to be 775 cases per year. Moreover, the Office could perform approximately 1,000 cases annually before seriously jeopardizing its NAME accreditation. This calculation is based on OME physicians available to perform autopsies: two full-time forensic pathologists, the Chief Medical Examiner, and one pathology fellow. The Chief Medical Examiner’s time is allocated at 60 percent to operational duties and 40 percent to administrative duties; the pathology fellow, based on NAME standards, qualifies as one half-time pathologist. Collectively, these four physicians equate to just over three full-time pathologists available at OME to take on cases.

The Office’s caseload has declined each year from 2007 to 2010, from 843 cases in 2007 to 746 cases in 2010. In addition, OME medical examiners performed a total of 144 chart reviews in 2010, which OME calculates as an additional 36 cases for NAME accreditation purposes. Based on this trend of relative decline, OME should have capacity to take on additional cases without potentially forfeiting its NAME accreditation. Given the importance of autopsies as a source of additional revenue, the Chief Medical Examiner should work with the Department of Environmental Health and other City officials as necessary to market the Office to other jurisdictions as a resource for autopsy services. The Chief Medical Examiner should also monitor any additional autopsies performed to ensure that autopsies for outside jurisdictions are not prioritized above work for Denver citizens, and that the Office does not exceed the acceptable maximum for workload of 325 cases per doctor in one year under NAME accreditation standards.

Revenue-Related Internal Controls Can Be Improved

As the Office looks to increase its revenue, it should also act to enhance two revenue related controls. First, the Office has typically used MOUs to codify revenue agreements. However, this practice does not conform to Executive Order No. 8, which requires that revenue agreements be initiated and recorded through the formal contracting process. Under Executive Order No. 8, all revenue contracts are required to be signed by the Mayor, and countersigned by the Auditor, the City Attorney, the Chief Financial Officer, and the Clerk and Recorder. In addition, revenue contracts must be registered by the Clerk and Recorder, which ensures that the contracts are open to inspection. Following

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30 We use the term “cases” in this analysis to refer to autopsies, external examinations, and chart reviews.

31 Annual numbers were provided by the Chief Medical Examiner. The numbers are unaudited. NAME standards also take other work responsibilities into account, such as external examinations. Between three and five externals are calculated as one autopsy. The numbers represented include external examinations. The Office began counting chart reviews among its cases for NAME purposes in July 2010, at a rate of four chart reviews equaling one autopsy. The NAME Accreditation and Inspection Checklist, Second Edition (September 2009) does not specifically mention chart reviews as part of case load. However, a point can be made that including chart reviews is appropriate since a chart review, although likely less arduous than an autopsy or external examination, is an important element in a death investigation.
this contracting process ensures transparency, and ensures required language is included, such as a right to audit clause. Further, when revenue agreements are not recorded, it shrouds the revenue process and impedes a third party from gaining or providing assurance that the Office has accounted for all revenue agreements. Consequently, there is no way to determine whether all revenues attributable to MOUs are received and recorded. To provide greater transparency, the Chief Medical Examiner should ensure that OME begins codifying all revenue agreements in contracts, in accordance with Executive Order No. 8.

Second, while reviewing journal transactions of OME revenues, we noted that some revenues were not deposited in accordance with Fiscal Rule 3.4. This rule requires deposits of $500 and greater to be deposited daily and amounts less than $500 to be deposited weekly. Specifically, we noted a check was received September 16 yet was not deposited until October 1, nearly two weeks after receipt. While OME has not generated a significant amount of revenue from 2009 through 2011, failure to follow Fiscal Rule 3.4 creates weaknesses in the cash handling process and creates some risk for fraud. The Chief Medical Examiner should ensure that OME observes the process required by Fiscal Rule 3.4 and begin depositing revenue as required.
RECOMMENDATIONS

1.1. **Analysis of Medical Examiner Costs and Revenues** - The Chief Medical Examiner, in collaboration with the Department of Environmental Health, should extend the audit analysis to assess the cause of Denver’s relatively higher cost per reported death. The analysis should address ways that the cost per reported death can be reduced and take into account possible revenue generating activities, which could reduce the Office of the Medical Examiner’s net costs.

1.2. **Medical Examiner Fees** - The Chief Medical Examiner, along with the Department of Environmental Health, should re-evaluate the fees it charges for autopsy services and identify a method of reducing its autopsy fees to a more competitive level, currently in the $1,000-$1,200 range. This evaluation should specifically include an assessment of reducing the costs allocated to pathologists’ time, as well as whether the 25.5 percent charge for overhead costs can be reduced.

1.3. **Medical Examiner Outreach** - The Chief Medical Examiner should work with the Department of Environmental Health and other City officials as necessary to market the Office as a source of autopsies for other jurisdictions.

1.4. **NAME Caseload** - The Chief Medical Examiner should also monitor any additional autopsies performed to ensure that autopsies for outside jurisdictions are not prioritized above work for Denver citizens, and that the Office does not exceed the acceptable maximum for workload of 325 cases per doctor in one year under NAME accreditation standards.

1.5. **Revenue Agreements** - The Chief Medical Examiner should ensure that the Office of the Medical Examiner begins codifying all revenue agreements in contracts, in accordance with Executive Order No. 8.

1.6. **Revenue Deposits** - The Chief Medical Examiner should ensure that the Office of the Medical Examiner observes the process required by Fiscal Rule 3.4 and begins depositing revenue as required.
FINDING 2

The Office of the Medical Examiner Can Enhance Performance Reporting and Collect Additional Performance Information

The Office of the Medical Examiner (Office or OME) can improve the reporting and collection of some key performance information. The Office publicly reports on five performance measures, as well as reporting various statistics regarding its volume of work. However, these do not reflect an adequate variety of performance measures, as suggested by best practices. The Office could find additional measures for reporting within standards promulgated under National Association of Medical Examiners (NAME) accreditation standards, or through other peer offices nationwide. Once additional performance measures are identified, they should be publicly reported to taxpayers and policymakers in the City’s Budget Book or the Office’s Annual Report. The Office can also improve its customer service by formally tracking customer feedback and analyzing the feedback for possible trends and areas for improvement.

The Office Reports a Variety of Performance Measures but Could Enhance Reporting to Show Additional Impact

The Office publicly reports five performance measures within the City’s Budget Book, as well as providing performance statistics on its website. While this information is helpful for citizens and City policymakers, the Office could better serve these stakeholders by publicly reporting on measures that better address the Office’s impact and quality of service.

In the 2011 City Budget Book, OME reported the following five performance measures:

- Percent of cases with next of kin notified within 24 hours
- Percent of bodies ready for release to mortuary within 48 hours
- Percent of cases released for organ/tissue donation when requested
- Percent of autopsy reports completed within one month
- Percent of non-autopsy cause and manner of death certifications provided within ten days

In addition to the preceding five measures, the Office reports on its website a set of performance statistics, including how many deaths were reported to OME, how many deaths for which the Office retained jurisdiction, and the number of autopsies performed. The Office has compiled statistics for 2010; however, as of September 20, 2011, the Office had not updated its website to provide a public report of 2010 annual statistics. This makes it more difficult for citizens and policymakers to understand and evaluate OME’s current performance.
To provide context for the Office’s performance measure reporting, we looked at the performance measures publicly reported in coroner’s offices in seven other local governments across the country.\textsuperscript{32} We found that five of the seven offices report between one and six performance measures, and two offices (Jacksonville and Maricopa County) report in excess of twenty performance measures. This analysis suggests that OME having five performance measures is in line with other offices. However, when we added a layer of best practice review to our analysis, we found that OME could expand its measurements to more effectively capture the impact and efficiency of its work.

Table 5 — Performance Measure Types

<table>
<thead>
<tr>
<th>Type</th>
<th>Measurement Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>Provides quantifiable information about the unit of a product or service produced.</td>
</tr>
<tr>
<td>Outcome</td>
<td>Provides quantifiable information about the impact or result of a service, activity, or strategy.</td>
</tr>
<tr>
<td>Input</td>
<td>Provides quantified information about the resource used or requests received by an organization to produce its goods or services.</td>
</tr>
<tr>
<td>Efficiency</td>
<td>Provides quantifiable information about the productivity or cost effectiveness of the program in terms of ratios (e.g., cost per unit of output).</td>
</tr>
<tr>
<td>Quality</td>
<td>Provides information about the effectiveness in meeting the expectations of customers and stakeholder, including reliability, accuracy, courtesy, responsiveness, competence, and completeness.</td>
</tr>
</tbody>
</table>

Sources: The descriptions for output and outcome come from National Performance Measurement Advisory Commission and Legislative Budget Board, \textit{et. al.} The descriptions for input and efficiency come from Arizona Office of Strategic Planning and Budgeting and Legislative Budget Board, \textit{et. al.} The description for quality comes from Arizona Office of Strategic Planning and Budgeting. See full source citations in Works Cited.

There Are Various Types of Performance Measures

A performance measurement best practice document published in 2010 shows that performance measures should include a variety of types, primarily including output and outcome measures.\textsuperscript{33} Additional expert sources concur and expand upon that recommendation by adding input, efficiency, and quality measures to their respective

\textsuperscript{32} The seven offices include the following cities or counties, with the principal city of the county noted where needed for clarification: the City and County of San Francisco, CA; King County (Seattle), WA; Hennepin County (Minneapolis), MN; the City of Jacksonville, FL; Los Angeles County, CA; Jackson County (Kansas City), MO; and Maricopa County (Phoenix), AZ.

suggestions for best-practice types. Table 5 provides working definitions for these five types of measures.

Office Performance Measures Include Some Key Types of Measures but Are Missing Others

The Office is reporting efficiency, input, and output measures, but could enhance its reporting by adding information about program impact (outcome) and program quality. The Office’s five performance measures from the Budget Book can all be classified as the measurement type efficiency. Specifically, the measures all provide percentages, such as the percent of bodies ready for release to mortuary within 48 hours. This is a ratio of an output measure (bodies ready for release to mortuary within 48 hours) relative to an input measure (total bodies received). The Office’s annual statistical report provides a variety of input and output measures not found in the Budget Book performance measures. Some input measures reported on OME’s website include number of deaths reported to the Office and number of deaths for which the Office retained jurisdiction. Some output measures reported on OME’s website include the number of autopsies performed and the number of scene visits made by OME investigators.

While the Office provides the public and policymakers with important performance information, it could enhance its reporting by including outcome and quality measures to its existing efficiency measures. These measures would improve OME’s ability to demonstrate the Office’s impact and its level of customer service. Outcome measures in particular can prove challenging, because they seem similar to output measures. However, outcome measures help to show how well a program is working, while output measures show how much work a program is doing. Consequently, outcome measures are closely linked to a program’s objectives, goals, and mission.

Various Performance Measure Sources Already Exist

Fortunately, the Office has access to various sources to gather these additional measures. For example, the Office is currently required to track some measures for its NAME accreditation. The NAME accreditation checklist contains questions for NAME inspectors, including questions regarding autopsies, evidence and specimen collection, and chain of custody. Because questions in these sections evaluate OME’s performance in the critical areas of law enforcement and justice, they would be good areas from which to pull additional performance measures to report. In addition, other medical examiner offices report a significant number of performance measures that could be evaluated for adoption by OME. In particular, the medical examiner’s office in Maricopa County, AZ reports numerous outcome measures with the County’s Adopted Budget

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Outcome measures help to show how well a program is working, while output measures show how much work a program is doing.

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34 The Office also includes one of its Budget Book performance measures in the statistical report presented on the website: the percent of cases released for organ or tissue donation when requested.
The Chief Medical Examiner should ensure that OME reviews the NAME accreditation checklist, as well as other medical examiner or coroner offices, to identify outcome and quality measures that it could adopt and report. Once OME has identified additional measures, the Chief Medical Examiner should ensure that OME publicly reports its performance measures without cost to the public through either the Denver Budget Book or in its abbreviated annual statistical report (short stat report). Finally, the Chief Medical Examiner should ensure that the short stat report is published on the OME website as soon as the final statistics for the year are compiled.

The Office Does Not Centrally Track Stakeholder Complaints

The Office does not centrally track all stakeholder complaints, which could emanate from decedents’ families, as well as from attorneys, victims’ advocates, law enforcement personnel, or other stakeholders. According to one OME staff member, complaints made by family members are not tracked because family members encounter OME at a time of great stress, and therefore are of questionable reliability. However, any complaints can be a good measure of OME’s service quality, including the degree of sensitivity shown to the families in their bereavement. Further, while families are among the most important of the Office’s stakeholders, OME staff members also interact with attorneys, funeral home directors, and victims’ advocates. These trained professionals are accustomed to death and its aftermath and would not be affected by the emotional distress facing families, therefore providing a more objective evaluation of the Office.

The Auditor’s Office noted in a 2011 audit of the Office of Economic Development’s Small Business Division that a lack of formal complaint tracking denies an organization access to important information about its performance. Complaint tracking allows for systematic management analysis of trends to identify possible areas where improvement is needed. In addition, formal tracking encourages follow-up with the complainants, which illustrates the organization’s responsiveness and commitment to customer service. In fact, developing a performance measure regarding complaint follow-up would allow OME to have another performance measure classified as the quality type. Consequently, the Chief Medical Examiner should ensure that OME begins to formally track complaints it receives from stakeholders, including but not limited to families, attorneys, funeral home directors, law enforcement personnel, and City policymakers. At a minimum, the complaint tracking data should include the date and source of the complaint and the nature of the complaint. This will allow for basic trending and analysis. After beginning to track complaints, the Chief Medical Examiner should ensure that a periodic analysis of complaint information is performed to determine if any changes need to be made in OME operations to better serve stakeholders.

The lack of formal complaint tracking denies an organization access to important information about its performance.

35 Maricopa County, FY2010-2011 Adopted Budget, 607-612. Maricopa County labels outcome measures as results.
RECOMMENDATIONS

2.1. **Performance Measures** - The Chief Medical Examiner should ensure that the Office of the Medical Examiner reviews the NAME accreditation checklist, as well as other medical examiner or coroner offices, to identify outcome and quality measures that it could adopt and report.

2.2. **Performance Measure Reporting** - The Chief Medical Examiner should ensure that the Office of the Medical Examiner publicly reports its performance measures without cost to the public through either the Denver Budget Book or in its abbreviated annual statistical report (*short stat report*).

2.3. **Performance Measure Timeliness** - The Chief Medical Examiner should ensure that the abbreviated annual statistical report (*short stat report*) is published on the Office of the Medical Examiner website as soon as the final statistics for the year are compiled.

2.4. **Complaint Tracking** - The Chief Medical Examiner should ensure that the Office of the Medical Examiner begins to centrally track complaints it receives from stakeholders, including but not limited to families, attorneys, funeral home directors, law enforcement personnel, and City policymakers. The complaint tracking data should include date, source, and nature of the complaint.

2.5. **Complaint Review** - The Chief Medical Examiner should ensure that a periodic analysis of complaint information is performed to determine if any changes need to be made in the Office of the Medical Examiner’s operations to better serve stakeholders.
WORKS CITED

Arizona Office of Strategic Planning and Budgeting. *Managing for Results*. Phoenix: Office of Strategic Planning and Budgeting, 2011.


Legislative Budget Board; Governor’s Office of Budget, Planning, and Policy; and State Auditor’s Office. *Guide to Performance Measure Management*. Austin: Legislative Budget Board; Governor’s Office of Budget, Planning, and Policy; and State Auditor’s Office, 2006.


APPENDICES

Appendix A – Factors Potentially Affecting Workload

Appendix A contains data on factors that may impact an office’s death investigation workload, and is intended to supplement the data provided in Table 3. All Colorado counties in the audit sample are included.

<table>
<thead>
<tr>
<th>County</th>
<th>Year</th>
<th>Autopsies</th>
<th>Physicians</th>
<th>Investigators</th>
<th>Autopsy Technicians</th>
<th>Administrative</th>
<th>Total Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adams</td>
<td>2010</td>
<td>N/A</td>
<td>0**</td>
<td>7</td>
<td>1</td>
<td>2.75</td>
<td>10.75</td>
</tr>
<tr>
<td>Arapahoe</td>
<td>2008</td>
<td>316</td>
<td>2</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Boulder</td>
<td>2009</td>
<td>163</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Broomfield</td>
<td>2010</td>
<td>20</td>
<td>0</td>
<td>(All death investigations and autopsies are done by Adams County)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denver</td>
<td>2010</td>
<td>675</td>
<td>4***</td>
<td>8</td>
<td>4</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>Douglas</td>
<td>2010</td>
<td>128</td>
<td>0.5</td>
<td>6</td>
<td>0</td>
<td>4</td>
<td>10.5</td>
</tr>
<tr>
<td>El Paso</td>
<td>2009</td>
<td>892</td>
<td>3</td>
<td>5</td>
<td>N/A</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>Jefferson</td>
<td>2010</td>
<td>201</td>
<td>0*</td>
<td>10</td>
<td>0</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Larimer</td>
<td>2010</td>
<td>162</td>
<td>3</td>
<td>****</td>
<td>0</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Mesa</td>
<td>2010</td>
<td>142</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

Sources: Coroner office annual reports; County budget information; and interviews with County Coroners or their representatives.

* Jefferson County contracts with one forensic pathologist.
** Adams County contracts with three forensic pathologists.
*** Includes a full-time forensic pathology fellow, who is paid significantly less than the forensic pathologists.
**** Larimer has three full-time, two part-time, and two on-call investigators.
Appendix B – Additional Factors Potentially Affecting Workload

Like Appendix A, Appendix B contains data on factors that may impact an office’s death investigation workload, and is intended to supplement the data provided in Table 3. All Colorado counties in the audit sample are included. Denver has the highest total number of licensed facilities (hospitals, hospices, and nursing homes), while Table 3 in Finding 1 shows that in 2010 Jefferson County had the most reported deaths, approximately 400 more than Denver County.

<table>
<thead>
<tr>
<th>County</th>
<th>Year</th>
<th>Population (2010)</th>
<th>Size (Sq. Mi)</th>
<th>Hospitals</th>
<th>Hospices</th>
<th>Nursing Homes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adams</td>
<td>2011</td>
<td>441,603</td>
<td>1,192</td>
<td>8</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Arapahoe</td>
<td>2011</td>
<td>572,003</td>
<td>803</td>
<td>4</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>Boulder</td>
<td>2011</td>
<td>294,567</td>
<td>742</td>
<td>6</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Broomfield</td>
<td>2011</td>
<td>55,889</td>
<td>N/Av</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Denver</td>
<td>2011</td>
<td>600,158</td>
<td>153</td>
<td>13</td>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td>Douglas</td>
<td>2011</td>
<td>285,465</td>
<td>840</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>El Paso</td>
<td>2011</td>
<td>622,263</td>
<td>2126</td>
<td>8</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>Jefferson</td>
<td>2011</td>
<td>534,543</td>
<td>772</td>
<td>4</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Larimer</td>
<td>2011</td>
<td>299,630</td>
<td>2601</td>
<td>5</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>Mesa</td>
<td>2011</td>
<td>146,723</td>
<td>3328</td>
<td>4</td>
<td>3</td>
<td>7</td>
</tr>
</tbody>
</table>

Sources: U.S. Census; Colorado Department of Public Health and Environment directory of licensed facilities, obtained by county on August 15 or August 16, 2011.
November 7, 2011

Mr. Kip R. Memmott, MA, CGAP, CICA
Director of Audit Services, Office of the Auditor
City and County of Denver, 201 West Colfax Avenue, Dept. 705
Denver, Colorado 80202

Dear Mr. Memmott:

The Office of the Auditor has conducted a performance audit of the City and County of Denver’s Office of the Medical Examiner (OME).

This memorandum provides a written response for each recommendation noted in the Auditor’s Report final draft that was sent to us on October 31, 2011. This response complies with Section 20-276 (b) of the Denver Revised Municipal Code (DRMC).

AUDIT FINDING(S):

RECOMMENDATION 1.1: Analysis of Medical Examiner Costs and Revenues - The Chief Medical Examiner, in collaboration with the Department of Environmental Health, should extend the audit analysis to assess the cause of Denver’s relatively higher cost per reported death. The analysis should address ways that the cost per reported death can be reduced and take into account possible revenue generating activities, which could reduce the Office of the Medical Examiner’s net costs.

RESPONSE:

<table>
<thead>
<tr>
<th>RECOMMENDATION 1.1</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of primary individual responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>90 days</td>
<td>Amy Martin, M.D. 303-436-7711</td>
</tr>
</tbody>
</table>

The OME agrees that it should continue its ongoing assessment, identification and implementation of ways to reduce costs and increase revenues, consistent with City policies, business practices, and legal requirements, as well as its existing physical plant. The OME disagrees with the implication that Denver’s costs are out of line with current costs of comparable medicolegal death investigation systems across Colorado and the United States.
RECOMMENDATION 1.2: Medical Examiner Fees - The Chief Medical Examiner, along with the Department of Environmental Health, should re-evaluate the fees it charges for autopsy services and identify a method of reducing its autopsy fees to a more competitive level, currently in the $1,000-$1,200 range. This evaluation should specifically include an assessment of reducing the costs allocated to pathologists’ time, as well as whether the 25.5 percent charge for overhead costs can be reduced.

> RESPONSE:

<table>
<thead>
<tr>
<th>RECOMMENDATION 1.2</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of primary individual responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>Within 90 days.</td>
<td>Michelle Weiss-Samaras, 303-436-7711</td>
</tr>
</tbody>
</table>

The OME agrees that it should re-evaluate the fees it charges for autopsy services and identify a method of reducing its autopsy fees to a more competitive level. The OME is looking at two levels of charges with simple autopsy at a lesser price than a complicated one. Such a range would be consistent with the value of the work performed, but still be competitive.

RECOMMENDATION 1.3: Medical Examiner Outreach - The Chief Medical Examiner should work with the Department of Environmental Health and other City officials as necessary to market the Office as a source of autopsies for other jurisdictions.

> RESPONSE:

<table>
<thead>
<tr>
<th>RECOMMENDATION 1.3</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of primary individual responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>This is already underway.</td>
<td>Michelle Weiss-Samaras, 303-436-7711</td>
</tr>
</tbody>
</table>

The OME agrees that it should continue its efforts to reach out to outside entities as to its interest, availability, and terms of providing these services.

RECOMMENDATION 1.4: NAME Caseload - The Chief Medical Examiner should also monitor any additional autopsies performed to ensure that autopsies for outside jurisdictions are not prioritized above work for Denver citizens, and that the Office does not exceed the acceptable maximum for workload of 325 cases per doctor in one year under NAME accreditation standards.

> RESPONSE:

2
RECOMMENDATION 1.4

<table>
<thead>
<tr>
<th>Agree or Disagree with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of primary individual responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree with a clarification.</td>
<td>This is already being done.</td>
<td>Amy Martin, M.D. 303-436-7711-</td>
</tr>
</tbody>
</table>

Physician caseload is already tracked every month. The Chief Medical Examiner is very aware of the NAME requirements for physician workload (she has taken the NAME inspector training) and the variable work requirements each month in the Denver system. Work for outside entities will be accepted when Denver can reasonably and timely meet both its needs and those of the outside entity. For clarification, although physicians can perform over 250 autopsies a year in a NAME accredited facility like Denver's, it would trigger a phase I violation for each physician over 250 autopsies. An office is only allowed up to 15 phase I violations to retain accreditation. In Denver's last NAME inspection October 25, 2010, it was noted that caseload was encroaching on 250 cases per year for two physicians. When submitting the 2011 interim report to the NAME Inspection and Accreditation Committee this October one physician was at 250 and one at 252 for 2010. This will likely trigger an additional phase I violation for OME.

RECOMMENDATION 1.5: Revenue Agreements - The Chief Medical Examiner should ensure that the Office of the Medical Examiner begins codifying all revenue agreements in contracts, in accordance with Executive Order No. 8.

> RESPONSE:

RECOMMENDATION 1.5

<table>
<thead>
<tr>
<th>Agree or Disagree with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of primary individual responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>This is already underway.</td>
<td>Michelle Weiss-Samaras, 303-436-7711-</td>
</tr>
</tbody>
</table>

This has already occurred.

RECOMMENDATION 1.6: Revenue Deposits - The Chief Medical Examiner should ensure that the Office of the Medical Examiner observes the process required by Fiscal Rule 3.4 and begins depositing revenue as required.

> RESPONSE:

RECOMMENDATION 1.6

<table>
<thead>
<tr>
<th>Agree or Disagree with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected</th>
<th>Name and phone number of primary individual responsible for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>This is already being done.</td>
<td>Michelle Weiss-Samaras, 303-436-7711</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>

This has already occurred.

**RECOMMENDATION 2.1: Performance Measures** - The Chief Medical Examiner should ensure that the Office of the Medical Examiner reviews the NAME accreditation checklist, as well as other medical examiner or coroner offices, to identify outcome and quality measures that it could adopt and report.

➢ **RESPONSE:**

<table>
<thead>
<tr>
<th>Agree or Disagree with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of primary individual responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>90 days.</td>
<td>Amy Martin, M.D. 303-436-7711</td>
</tr>
</tbody>
</table>

This is already being done.

**RECOMMENDATION 2.2: Performance Measure Reporting** - The Chief Medical Examiner should ensure that the Office of the Medical Examiner publicly reports its performance measures without cost to the public through either the Denver Budget Book or in its abbreviated annual statistical report (short stat report).

➢ **RESPONSE:**

<table>
<thead>
<tr>
<th>Agree or Disagree with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of primary individual responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>This is already being done.</td>
<td>Amy Martin, M.D. 303-436-7711</td>
</tr>
</tbody>
</table>

OME publicly reports its performance measures without cost to the public through the Denver Budget Book or in the abbreviated annual statistical report (short stat report) on its website.

**RECOMMENDATION 2.3: Performance Measure Timeliness** - The Chief Medical Examiner should ensure that the abbreviated annual statistical report (short stat report) is published on the Office of the Medical Examiner website as soon as the final statistics for the year are compiled.
RESPONSE:

RECOMMENDATION 2.3

<table>
<thead>
<tr>
<th>Agree or Disagree with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of primary individual responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>Completed.</td>
<td>Michelle Weiss-Samaras, 303-436-7711</td>
</tr>
</tbody>
</table>

The 2010 short stat report has been posted and new figures for 2011 will be posted when compiled next year.

RECOMMENDATION 2.4: Complaint Tracking - The Chief Medical Examiner should ensure that the Office of the Medical Examiner begins to centrally track complaints it receives from stakeholders, including but not limited to families, attorneys, funeral home directors, law enforcement personnel, and City policymakers. The complaint tracking data should include date, source, and nature of the complaint.

RESPONSE:

RECOMMENDATION 2.4

<table>
<thead>
<tr>
<th>Agree or Disagree with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of primary individual responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>Underway</td>
<td>Amy Martin, M.D. 303-436-7711</td>
</tr>
</tbody>
</table>

OME has not previously tracked complaints in a central location. When a complaint was received related to a specific case, activities related to it were typically documented in the investigative file. When necessary, documentation was also placed in the involved employee’s supervisor file or administrative file as appropriate. OME will develop a spreadsheet format for compiling complaints so that data can be tracked in one central location. However, OME also feels it important to track not just complaints but also compliments and kudos from internal and external customers. These will also be tracked in the same document.

RECOMMENDATION 2.5: Complaint Review - The Chief Medical Examiner should ensure that a periodic analysis of complaint information is performed to determine if any changes need to be made in the Office of the Medical Examiner’s operations to better serve stakeholders.

RESPONSE:

RECOMMENDATION 2.5

<table>
<thead>
<tr>
<th>Agree or Disagree with Recommendation</th>
<th>Target date to complete implementation activities</th>
<th>Name and phone number of primary individual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>Underway</td>
<td>Amy Martin, M.D. 303-436-7711</td>
</tr>
<tr>
<td>-------</td>
<td>----------</td>
<td>-------------------------------</td>
</tr>
</tbody>
</table>

The Chief Medical Examiner is the central repository for the data but each supervisor also has access to the Excel spreadsheet to enter complaint and kudo/compliment information. The OME will perform a formal analysis of the data annually at the time the interim NAME report, but the Chief Medical Examiner will also review the data quarterly to determine if critical changes need to be made sooner.

Please contact Amy Martin, M.D. at 303-436-7711 with any questions.

Sincerely,

Amy Martin M.D.
Chief Medical Examiner/Coroner and Division Director
Denver Office of the Medical Examiner

cc: Dong Linkhart, Manager DEH
Robert McDonald, DEH
Debra Knapp, City Attorney's Office