



# **Internal Audit Report**

**Office of the Medical Examiner  
July 2003**



## Audit Team Members

**Joe Seratte, Audit Manager**

**Patra Carroll, Associate Auditor**

**Tom Fraser, IT Auditor**

**Laurie Aquino, Staff Auditor**

**Louise Wild, Staff Auditor**



# Maricopa County

Internal Audit Department

301 West Jefferson St  
Suite 1090  
Phx, AZ 85003-2143  
Phone: 602-506-1585  
Fax: 602-506-8957  
www.maricopa.gov

July 7, 2003

Fulton Brock, Chairman, Board of Supervisors  
Don Stapley, Supervisor, District II  
Andrew Kunasek, Supervisor, District III  
Max W. Wilson, Supervisor, District IV  
Mary Rose Wilcox, Supervisor, District V

We have completed our FY 2002-03 review of the Office of the Medical Examiner (OME). The audit was performed in accordance with the annual audit plan that was approved by the Board of Supervisors.

The highlights of this report include the following:

- The OME rate and fee schedule should be updated to reflect accurate costs of providing goods and services to external entities
- OME should consider enhancing revenue through Intergovernmental Agreements with Arizona counties

Attached are the report summary, detailed findings, recommendations, and the Medical Examiner's response. We have reviewed this information with the Medical Examiner's Office and appreciate the excellent cooperation provided by their staff. If you have questions, or wish to discuss items presented in this report, please contact Joe Seratte at 506-6092.

Sincerely,

A handwritten signature in cursive script that reads "Ross L. Tate".

Ross L. Tate  
County Auditor

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# Executive Summary

## Rates and Fees (Page 7)

OME's rate and fee schedule does not accurately reflect the costs of providing goods and services to external entities. Costs associated with fees under review showed a net overcharge in FY 2002 of approximately \$5,000. OME should periodically evaluate the rate and fee schedule, and ensure that procedures accurately capture costs of chargeable goods and services.

## IGA Revenue (Page 9)

OME could enhance revenue through additional Intergovernmental Agreement (IGA) partnerships. A ten per cent gain in Arizona county autopsy business could increase IGA revenue by over \$150,000. OME should consider enhancing current IGA revenue through pursuing additional IGA's with Arizona counties.



# Introduction

## Background

The Office of the Medical Examiner (OME) conducts medical and legal investigations of unattended, violent, unexpected or suspicious deaths and reviews and authorizes all cremations.

The Medical Examiner must review and report on deaths when the death occurs:

- While not under the care of a physician for a potentially fatal illness, or when an attending physician is unavailable to sign the death certificate
- From a violent act
- Suddenly, when the decedent is in apparent good health
- In prison
- In a suspicious, unusual, or unnatural manner
- In a manner related to the decedents occupation or employment
- In a manner believed to present a public health hazard
- During a surgical or anesthetic procedure

The Office of the Medical Examiner operates under authority granted by Arizona Revised Statutes (ARS) sections 11-591 through 11-600.

## Mission and Goals

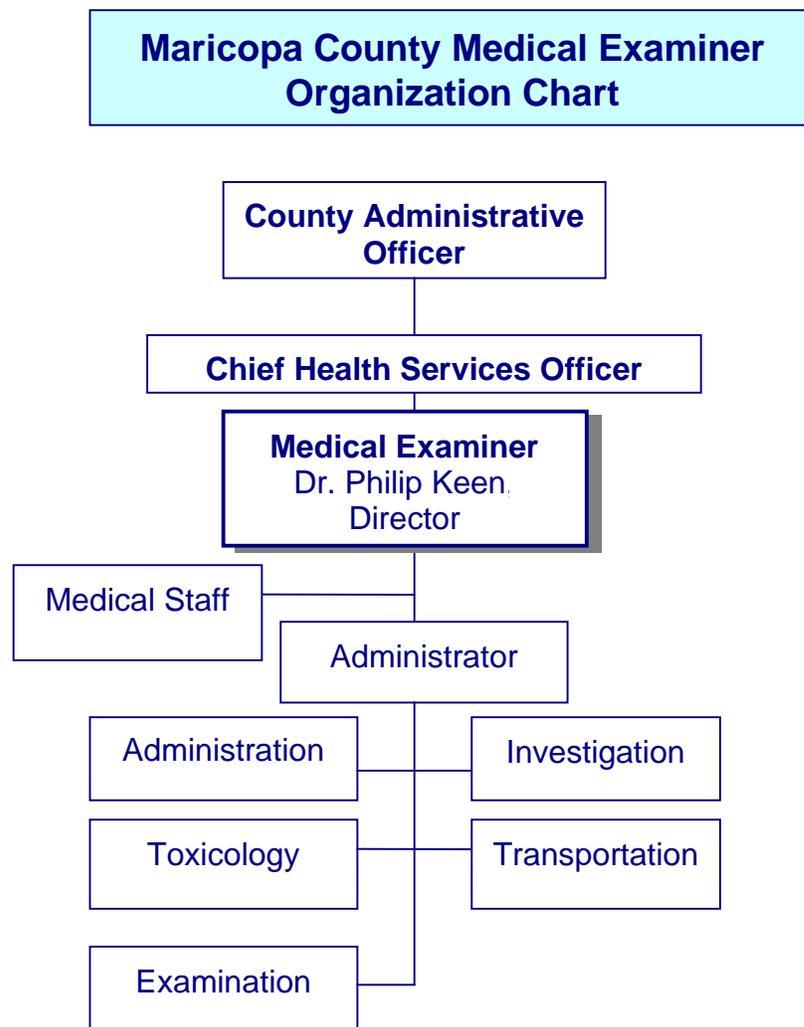
The Mission of OME is to conduct medical and legal investigations into all deaths requiring a public inquiry to determine and record the cause and manner of death. The goals of the Medical Examiner are:

- By FY 2005 complete 90% of cases closed in 45 days and 100% in 90 days
- By FY 2005, provide examination, laboratory, transcription, and office support for the increased number of doctors
- By 2006, reduce turnover to 10 per cent or less and retain experienced staff by bringing salaries to job market levels and increase skills and abilities among staff through training and the development of career ladders
- By FY 2004, acquire new desktop information technology to provide the public greater access to information and reports
- Acquire additional resources to bring department operations up to acceptable standards to efficiently process the current caseload and meet established timeframes for case closure, e.g., seeking federal grant for DNA lab in FY 04 in order to expand laboratory services to include DNA analyses of samples primarily on homicide cases

- By FY 2005, apply for certification from the National Association of Medical Examiners (NAMES), Society of Forensic Toxicologists (SOFT), and complete requirements to gain approval for a Forensic Pathology Fellowship program from the Accreditation Council for Graduate Medical Education (ACGME)
- In FY 2004, seek grant funding for a Training Coordinator to develop education programs for medical, emergency, and law enforcement personnel, and a program for at-risk youth

Organizational Structure

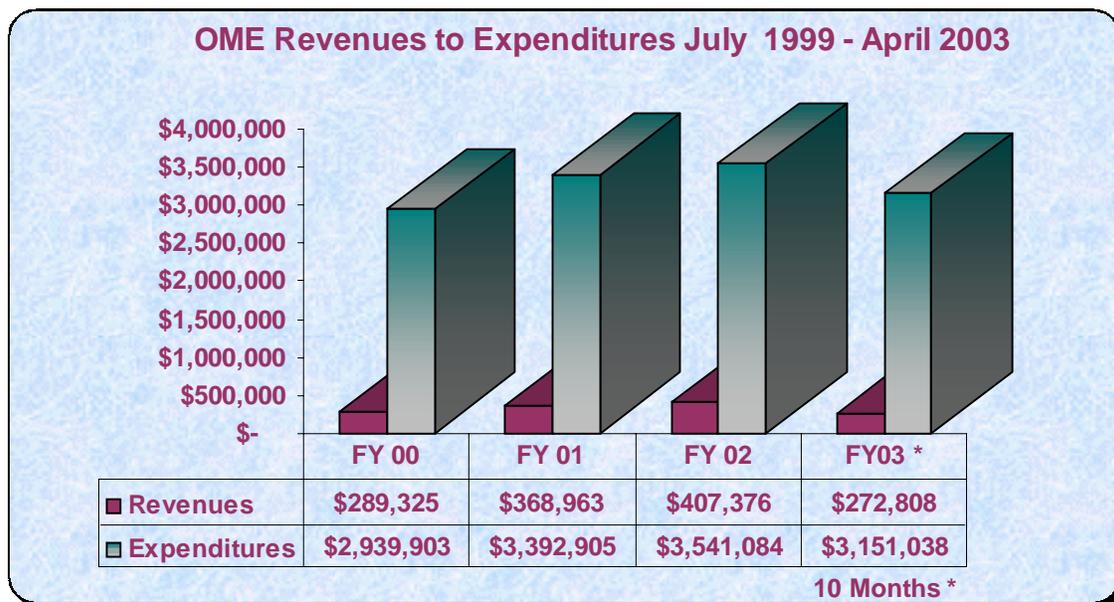
OME is authorized 62 budgeted positions, including the Chief Medical Examiner, Administrator, and a supervisor for each department. The chart below depicts OME’s organizational structure:



## Operating Budget

OME's FY 2003 budget included \$420,000 in revenues and \$3.9 million in expenditures. OME is not intended to be self-funded and is primarily supported through the General Fund. OME's sources of independent revenue are generated from charges for outside services (cremation authorizations and services to outside jurisdictions) and IGA's with other counties.

The chart below shows the OME revenue and expenditure trend from FY 2000 through April 2003. The FY 2002 revenue increased slightly due to a temporary additional IGA with Coconino County. OME's FY 2003 revenue will likely come in below budgeted amounts due to delays in final construction resulting in operational interruptions connected to moving into the Forensic Science Center and a subsequent backlog in billing activity.



**OME Budget is supported by the County General Fund**

## Business System

OME's main production application is called CME (The Coroner and Medical Examiner System) and was developed by VertiQ Software LLC. CME is a complete case and workflow management system for Coroners and Medical Examiners. The system records, tracks, and reports data of deceased persons; creates autopsy, investigative and toxicology reports; and handles body intake and release. Due to limitations associated with the current version of CME, OME is replacing it with the newly released Web-based version. OME expects the new system to be installed and fully operational by fall 2003.

## Scope and Methodology

The objectives of this audit were to verify that:

- OME rates and fees appropriately reflect costs of goods and services and that revenue generated is billed and collected on a timely basis
- Revenue from IGA fees is accurately and timely calculated, billed, and collected

This audit was performed in accordance with generally accepted government auditing standards.



**OME toxicologist prepares equipment for drug quantification testing.**

# Office Reported Accomplishments

**The Office of the Medical Examiner has provided the Internal Audit Department with the following information for inclusion in this report.**

The Maricopa County Office of the Medical Examiner (MCOME) has made significant strides over the last few years in improving operations and enhancing services. Highlights of these accomplishments are as follows:

## **New Forensic Science Center**

The MCOME moved to a new state-of-art facility, the Forensic Science Center in October 2002. The move was accomplished without an interruption in the provision of mandated services. The new facility was designed to provide sufficient space to allow for 20 years of growth. Space for future serology, DNA analyses and trace evidence laboratories, as well as plenty of natural lighting throughout the entire building due to a basement courtyard, are a few of the innovative features of the new facility.

## **Full Medical Examiner Staffing**

The MCOME has had a very high turnover rate within its medical staff for the last five years. Recently, the MCOME has been fortunate in hiring a full staff of nine forensically trained medical examiners. This has greatly alleviated the previous high case numbers for each doctor and, with the Chief Medical Examiner also handling a full caseload, the average annual number of autopsies per doctor is finally within the national maximum standard for the first time. As a consequence, a significant reduction in the average time it takes to close a case has taken place.

## **Timeliness and Productivity**

- In FY 02 MCOME investigated and examined 4,153 deaths.
- 96% of the cases were examined within one working day of admittance.
- During FY 02 autopsies were performed on 2,483 cases, or 60% of the caseload, which is within the national norm.
- 62% of the cases were completed within 45 days and 94% were completed within 90 days.

## **Managing for Results**

In 2002 MCOME Strategic Planning performance measurements were audited by the Maricopa County Internal Audit Department and 100% of those audited received a full certification rating. MCOME was the only audited department to receive this distinction.

# Issue 1 Rates and Fees

## Summary

OME's rate and fee schedule does not accurately reflect the costs of providing goods and services to external entities. Costs associated with fees under review showed a net overcharge in FY 2002 of approximately \$5,000. OME should periodically evaluate the rate and fee schedule, and ensure that procedures accurately capture costs of chargeable goods and services.

## Statutory Requirements

Arizona Revised Statute ARS 11-251.08 states "...the Board of Supervisors may adopt fee schedules for any specific products and services the county provides to the public. Any fee or charge established pursuant to this section must be attributable to and defray or cover the expense of the product or service for which the fee or charge is assessed. A fee or charge shall not exceed the actual costs of the product or service."

## Rate and Fee Testing

OME does not verify that costs incurred for chargeable services are recouped within the current rate and fee structure (last updated in August 2000). Instead, OME has set fees by benchmarking with other entities. OME management and Audit worked together to identify rate components that fully capture costs behind nine sampled fees. Rate components included per unit labor hours, material, and overhead. The chart on the next page compares the existing rate schedule with calculated costs and identifies the FY 2002 impact to OME revenues.

## Effect on County

Four OME fees exceeding identifiable costs resulted in FY 2002 overcharges of approximately \$8,700, while the five OME fees that did not fully capture costs reduced OME revenue by approximately \$3,500.

## Recommendation

OME should:

- A. Periodically evaluate the rate and fee schedule to verify that fees continue to fully capture costs incurred.
- B. Develop a cost analysis procedure that accurately captures the per unit cost of goods and services provided to external agencies.
- C. Complete development of a billing system that produces invoices, tracks billable transactions, and ensures that all goods and services are properly billed.

### Computed Cost Testing Results

<i><b>Service/Product</b></i>	<i><b>Fee</b></i>	<i><b>Computed Cost</b></i>	<i><b>Difference</b></i>	<i><b>FY 2002 Revenue Impact on Billable Services</b></i>
<i><b>Autopsy</b></i>	\$800.00	\$822.11	(\$ 22.11)	\$ (110.55)
<i><b>Alcohol Quantification</b></i>	\$ 45.00	\$ 50.85	(\$ 5.85)	\$(1,737.45)
<i><b>Basic Drug Screen (GC/NPD)</b></i>	\$ 85.00	\$ 50.96	\$ 34.04	\$ 3,812.48
<i><b>ELISA Drug Screen</b></i>	\$ 65.00	\$ 48.68	\$ 16.32	\$ 1,958.40
<i><b>Expert Testimony (hourly rate)</b></i>	\$150.00	\$206.08	(\$ 56.08)	\$ (112.16)
<i><b>Heavy Body Bag</b></i>	\$ 13.00	\$ 30.90	(\$ 17.90)	\$ (179.00)
<i><b>Light Body Bag</b></i>	\$ 11.00	\$ 9.90	\$ 1.10	\$ 24.20
<i><b>Quantification (Opiates, Cocaine, Methamphetamine, PCP, Misc.)</b></i>	\$110.00	\$ 50.92	\$ 59.08	\$ 2,894.92
<i><b>Single Matrix Confirmation</b></i>	\$ 40.00	\$ 54.38	(\$ 14.38)	\$(1,466.76)
<b>TOTAL</b>				<b>\$ 5,084.08</b>

FY 2002 revenue impact reflects only OME activity billable to outside agencies and not County services supported by the General Fund. Forty-seven FY 2002 autopsies performed under the Coconino County IGA are also excluded because the IGA specified that transportation was not a component of this service, making Coconino autopsy costs less than other billable autopsy services.

# Issue 2 IGA Revenue

## Summary

OME could enhance revenue through additional Intergovernmental Agreement (IGA) partnerships. A ten per cent gain in Arizona county autopsy business could increase IGA revenue by over \$150,000. OME should consider enhancing current IGA revenue through pursuing additional IGA's with Arizona counties.

## Criteria

Arizona Revised Statute §11-952 states that two or more public agencies may contract for services or enter into agreements with one another for joint or cooperative action. Contracts or agreements shall specify the duration of the contract, its purpose, and permissible methods employed in completing or terminating the agreement.

## IGA and Billing Review

During FY 2002, OME conducted examinations and laboratory services for two outside agencies under IGA's. OME has maintained an IGA relationship for toxicology services with Yavapai County since FY 1998. Additionally, OME executed an IGA with Coconino County for FY 2002 while the Coconino County Medical Examiner was on extended leave. Both IGA's met statutory requirements for a valid agreement, including:

- Duration
- Purpose
- Permissible termination method
- Signatures of appropriate parties
- Secretary of the State filing

Our comparison of case tracking to billing system data demonstrated that OME has historically billed timely and accurately for outside services. We found no material exceptions where services performed had not been billed.

## Potential Revenue Enhancements

OME moved to the new Forensic Science Center in October 2002. Designed to anticipate the continued growth of Maricopa County, OME has room for growth and possibly the development of additional revenue sources. Most Arizona counties do not have a dedicated Medical Examiner to perform autopsies and other technical services. These counties contract with outside agencies, including Pima County, to perform these services.

Due to its central geographic location, state-of-the-art facility, and competitive pricing, OME may be a more attractive IGA partner for Arizona counties than Pima County (previously the only other large County facility). Partnering with other Arizona counties to perform OME services could result in additional IGA revenue in the future. We surveyed 14 Arizona counties

to determine how each currently meets their medical examination needs. The table below depicts the results along with autopsy activity for each surveyed Arizona County in calendar year 2001.

### Calendar Year 2001 Arizona Autopsy Activity

<i>County</i>	<i>Autopsies in CY 2001</i>	<i>Performs Autopsies Locally</i>	<i>Contracts With Pima</i>	<i>Contracts With Maricopa</i>	<i>Contracts With Coconino</i>
<i>Apache</i>	64		X		
<i>Cochise</i>	88	X			
<i>Coconino</i>	81	X		X	
<i>Graham</i>	16		X		
<i>Gila</i>	53		X		
<i>Greenlee</i>	3		X		
<i>La Paz</i>	14		X		
<i>Mohave</i>	144	X			
<i>Navajo</i>	88				X
<i>Pima</i>	940	X			
<i>Pinal</i>	206		X		
<i>Santa Cruz</i>	20		X		
<i>Yavapai</i>	147	X			
<i>Yuma</i>	83		X		
<b>Total</b>	<b>1947</b>	<b>4</b>	<b>8</b>	<b>2</b>	<b>1</b>

Source: County autopsy numbers received from the Arizona Department of Health Services Bureau of Public Health Statistics.

#### **Effect on County**

Based on the OME's current autopsy fee schedule, IGA revenue could increase by \$156,000 if OME was successful at gaining just ten per cent of the Arizona county autopsy business.

#### **Recommendation**

OME should consider marketing medical examiner services to other Arizona counties.

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# Office Response

**AUDIT RESPONSE  
OFFICE OF THE MEDICAL EXAMINER  
June 9, 2003**

**RECEIVED  
JUN 18 2003  
INTERNAL AUDIT**

**Recommendation #1:**

**OME should:**

- A. Periodically evaluate the rate and fee schedule to verify that fees continue to fully capture costs incurred.**
- B. Develop a cost analysis procedure that accurately captures the per unit cost of goods and services provided to external agencies.**
- C. Complete development of a billing system that produces invoices, tracks billable transactions, and ensures that all goods and services are properly billed.**

Response: Concur – implementation not currently possible. OME has reevaluated its rate and fee schedule every two years, but did not do so in 2002 because the present billing system can no longer accommodate changes being made to the fees and charges. Therefore, part A and B of this recommendation cannot be implemented until C is completed, which cannot be accomplished until the web-based CME is fully installed and operational since the new billing system will be installed on CME.

Target Completion Date: 3/1/04

Benefits/Costs: There will be technology costs associated with completing the development of the new billing system, but these will be offset by the time saved and ease of operating an up-to-date, dependable and accurate billing system. A regular revision of fees based on costs will assure that the revenue received covers the costs of providing the services.

**Recommendation #2:**

**OME should consider marketing medical examiner services to other Arizona counties.**

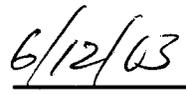
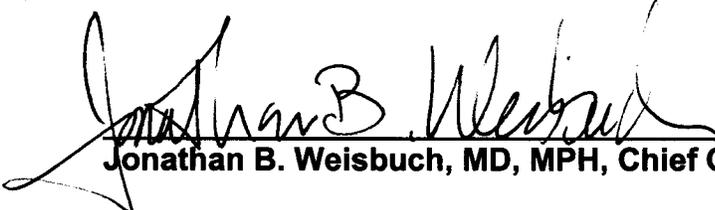
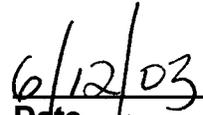
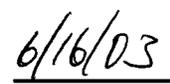
Response: Concur – in process with modifications. OME has not only considered entering into IGAs with other counties but, in fact, is in the process of finalizing an IGA with Pinal County and has begun preliminary discussions with Gila and Yuma Counties. Taking on this additional workload would not have been possible in the old facility due to the severe space constraints. However, the following factors must also be considered:

- A. The OME does not have sufficient staff at the present time to complete Maricopa County cases within established timeframes and, earlier this fiscal year, the OME was in jeopardy of losing its IGA with Yavapai County due to the lengthy delays in completing toxicology reports. Therefore, the additional caseload that may be generated from IGAs must provide sufficient revenue to fund the additional positions necessary to complete the work.
- B. The distances involved may be prohibitive for both the other county and Maricopa County insofar as the costs of transporting the decedent and traveling to subsequent legal proceedings would significantly raise costs and charges.
- C. The counties which are currently able to receive services in-county will not be interested in entering into an IGA, except for back-up services, as was the case with Coconino County. This reduces the amount of potentially available business from a total of 1,947 autopsies to 547 autopsies.

In consideration of the above factors the counties that may be interested and worthwhile partners in an IGA for services are Gila, La Paz, and northern Pinal (170 autopsies total). This would benefit Maricopa County only if the other county is willing to transport the decedent to the Forensic Science Center. Both Mojave and Yuma Counties have someone to perform their routine medical examiner duties. Neither county has forensically trained pathologists and, therefore, they might be willing to refer their homicide cases to Maricopa County for examination on a case by case basis and, in fact, already do so on occasions.

Target Completion Date: An IGA with Pinal County will be in place by 9/30/03. Negotiations with other counties will continue.

Benefits/Costs: Assuming that sufficient revenue is generated from IGAs with other counties, the OME will be able to add needed staff to handle the workload from the other counties, as well as an increasing number of Maricopa County cases, at no additional cost to the Maricopa County general fund.

<b>Approved By:</b>	 <hr/> <b>Philip E. Keen, MD, Chief Medical Examiner</b>	 <hr/> <b>Date</b>
	 <hr/> <b>Jonathan B. Weisbuch, MD, MPH, Chief Officer</b>	 <hr/> <b>Date</b>
	 <hr/> <b>David R. Smith, County Administrative Officer</b>	 <hr/> <b>Date</b>