Under the provisions of state law, this report is a public document. A copy of this report has been submitted to the Governor, to the Attorney General, and to other public officials as required by state law. A copy of this report has been made available for public inspection at the Baton Rouge and New Orleans offices of the Legislative Auditor.

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In compliance with the Americans With Disabilities Act, if you need special assistance relative to this document, or any documents of the Legislative Auditor, please contact Wayne “Skip” Irwin, Director of Administration, at 225-339-3800.
March 7, 2007

Frederick P. Cerise, M.D., M.P.H., Secretary
Department of Health and Hospitals

Dear Dr. Cerise:

This report provides the results of our performance audit on the Department of Health and Hospitals, Office of Public Health Laboratory. The audit was conducted under the provisions of Title 24 of the Louisiana Revised Statutes of 1950, as amended.

The report contains our conclusions and recommendations. Appendix B contains the response to our recommendations. I hope this report will benefit you in your decision-making process regarding the Office of Public Health Laboratory.

Sincerely,

Steve J. Theriot, CPA
Legislative Auditor

SJT(dl)

DHH0P807
Summary

This performance audit report focused on the cost-benefit of rebuilding the Office of Public Health (OPH) Laboratory in New Orleans. However, we could not conduct a cost-benefit analysis of rebuilding the central laboratory in New Orleans because lab management does not have the types of data necessary to perform this work. For example, lab management does not compile or report data on the cost of its testing or the number of tests it conducts.

During our discussions with the Department of Health and Hospitals (DHH)/OPH officials about this issue, they told us that they would like to know how much it costs the lab to conduct its testing. However, they were unsure of the best way to capture these costs and asked us to conduct a survey to determine how other states’ public health labs assign costs to the tests they conduct.

Each of the six labs that responded to our survey had some form of a cost per test system in place or was in the process of developing one. After discussions with DHH/OPH and lab officials about our survey results, we all agreed that developing a cost per test would be the best way to capture the lab’s testing costs. However, DHH/OPH management expressed concerns about implementing a cost per test due to DHH budget processes. According to DHH/OPH management, it is in the process of determining how best to develop and implement a cost per test.

While attempting to perform the cost-benefit analysis, we identified some other issues that require DHH/OPH management’s attention. This performance audit report provides the results of our work and contains our recommendations to improve DHH/OPH’s processes regarding the lab.

Audit Initiation and Objective

The OPH Laboratory in New Orleans, one of the four OPH lab sites, was badly damaged during Hurricane Katrina. OPH recently signed a five-year lease for a temporary lab facility, which was available November 1, 2006. Before Hurricane Katrina, DHH and OPH officials began construction on a new lab facility, which will cost approximately $22.3 million. However, since construction for the new facility is only in the preliminary stages, DHH’s secretary requested that we conduct a cost-benefit analysis of rebuilding the New Orleans lab. Our audit objective was to answer the following question:

What is the cost-benefit of rebuilding the central laboratory in New Orleans?

Appendix A contains information on lab expenditures, staffing, and status of the new and temporary labs. Appendix B contains DHH/OPH management’s response.

Lack of Data to Conduct a Cost-Benefit Analysis

To conduct a cost-benefit analysis of rebuilding the New Orleans lab, we wanted to compare the lab’s testing costs and number of tests conducted to that of private labs and other public labs. However, we could not determine the cost-benefit of rebuilding the New Orleans lab because OPH lab
management does not collect the types of data necessary to conduct this analysis. For example, lab management does not know how much it costs to conduct a specific test and does not track the number of tests it conducts. Management does collect data on the number of specimens it conducts testing on. However, we could not conduct our analysis using the number of specimens, because lab staff may perform multiple tests on one specimen.

According to the lab director, the lab used to collect and report data on the number of tests it conducted. However, the lab director also stated that after fiscal year 2003, DHH-Office of Management and Finance (DHH-OMF) requested that the lab refrain from reporting any data other than the time taken to conduct the analysis. The lab analysts still collect the raw data on the number of tests conducted; however, the data are not compiled. According to the lab director, it would require a substantial amount of time and resources for lab staff to pull the necessary records and compile the data.

Without data such as testing costs and the number of tests conducted, management cannot ensure the lab is being efficient or that its costs are reasonable. Specifically, management cannot determine how much it costs for the lab to conduct testing or if it is cost-effective to rebuild the New Orleans lab. OPH lab management is currently implementing a computer information management system called StarLIMS®. According to the lab director, StarLIMS® will assist the OPH lab in collecting data and producing the workload and financial reports needed to monitor the efficiency and effectiveness of lab operations. For example, the lab will be able to capture data on the number of tests it conducts and determine how much it costs to conduct specific types of tests. According to a lab official, the system will not be fully implemented until April 2007.

**Recommendation 1:** DHH/OPH and lab management should determine the types of data necessary to conduct a cost-benefit analysis of rebuilding the New Orleans lab. For example, data on the cost of testing and the number of tests the lab conducts in a given time period could help management determine the cost effectiveness and efficiency of lab operations. These data can also be used to effectively manage the OPH lab as a whole.

**Management's Response:** DHH/OPH agrees with this recommendation. The data needed to perform this analysis are currently available; however, test requests and laboratory results exist only as hard copies located in several DHH/OPH laboratories. Lack of a DHH/OPH laboratory-wide computer system has hampered efforts to collate, parse, and analyze this information. DHH/OPH is currently implementing a laboratory information system that will allow much better data handling and analysis.

**Recommendation 2:** DHH/OPH and lab management should collect the data necessary to conduct a cost-benefit analysis of rebuilding the New Orleans lab. The new computer system should assist them in this effort.

**Management's Response:** DHH/OPH partially agrees with this recommendation. Seventy percent of all DHH/OPH lab equipment, facilities, and human resources are currently located in the New Orleans area. DHH/OPH and lab management should use the new computer system to ensure that future rebuilding is conducted in a cost-effective manner; however, rebuilding must occur to allow continuation of essential services to residents of Louisiana and to allow implementation of the new computer system.

**Recommendation 3:** Once the data are collected, DHH/OPH and lab management should ensure that the data are analyzed to make management decisions regarding additions or deletions to the DHH/OPH Laboratories test menu.

**Management's Response:** DHH/OPH agrees with this recommendation. The data collected should be used to make management decisions regarding additions or deletions to the DHH/OPH Laboratories test menu.
As discussed earlier, one of the obstacles we encountered in trying to conduct a cost-benefit analysis was a lack of data on the cost of testing. Since the 1970s, the OPH lab has charged OPH programs that use its services based on work time units (WTUs), instead of charging a cost per test. One minute of time equals one WTU, meaning a program is charged 60 WTUs for a test that takes one hour to conduct. At the end of each month, total lab costs are divided among the various programs that used the lab based on the percentage of WTUs the lab charged to the program that month. For example, if the Safe Drinking Water program used 30% of the laboratory’s WTUs in a given month, it is charged 30% of the laboratory’s total costs for that same month.

Because of the way lab costs are allocated, the amount the lab charges a program for testing fluctuates from month to month. For example, a program may be charged $1,000 for a specific number of tests one month and $5,000 for the same number of tests the next month. Even if a program cut back on a particular test during a month, it may incur a higher charge for that test if other programs cut back on their testing as well because the total lab costs for that month are distributed across a smaller number of WTUs. According to the program managers, because of the fluctuating nature of testing charges, they have little control over their budgets with respect to the amount they are charged for lab tests.

According to the lab director, the amount the lab charges programs for testing also fluctuates because DHH-OMF requires OPH to charge all lab costs (e.g., equipment, travel, and administrative costs) to the programs during the month the lab incurs them. For example, if the lab buys a $100,000 piece of equipment one month, the entire cost of that equipment is charged out to the programs that same month based on the number of WTUs each program uses. As a result, lab charges to the programs can increase dramatically in months where the lab purchases expensive pieces of equipment, making it difficult for program managers to budget for their programs.

According to the lab director, the WTU system does not take into account technological advances made since the system was implemented. Years ago, labor was the major cost driver of laboratory tests, which was reflected in the WTU system. Today, equipment and materials, rather than the time spent conducting a specific test, drive the majority of test costs. This change is not reflected in the current WTU system. As a result, use of the WTU system allocates higher costs to labor intensive tests (tests that take a long time to conduct) than to non-labor intensive tests (tests that take only minutes to conduct) that use expensive equipment/materials. According to the lab director, while he wants to fairly allocate the cost of the lab’s services to the programs that use the lab, he cannot do so with the current WTU system.

At DHH/OPH management’s request, we conducted a survey of eight public health labs in other states to find out how they assign costs for the testing they conduct. We received responses from six state labs. Each of the labs we surveyed has some form of a cost per test system in place or is in the process of implementing one. Although the labs developed their cost per test differently, they generally included labor, supplies, and equipment costs in the cost of testing. We provided DHH/OPH management with our survey results, so that management can use the residents as a guide when developing its own cost per test system.

During several discussions with DHH/OPH management regarding this issue, management agreed that developing a cost per test would allow it to more accurately capture and equitably allocate testing costs. However, management expressed concerns about implementing a cost per test because of DHH/OPH budget processes. According to DHH/OPH management, it is in the process of determining how to develop a cost per test system and how to best implement it within
Recommendation 4: DHH/OPH and lab management should develop a cost per test for each specific test the lab conducts. Management should include all costs associated with conducting tests such as labor, supplies, and equipment. Including these costs in the cost per test would allow management to more fairly allocate testing costs to the programs.

Management’s Response: DHH/OPH agrees with this recommendation. Currently a cost allocation system is in place which is based only on labor used. This system shifts a disproportionate share of costs to labor intensive manual tests. The DHH/OPH Laboratory needs to develop a true cost per test based on all cost drivers such as labor, equipment, supplies, and overhead. This will allow accurate allocation of costs to all DHH/OPH agencies that use laboratory services.

Recommendation 5: Once DHH/OPH and lab management develop a cost per test for each type of test the lab conducts, they should work with Office of Planning and Budget (OPB) staff to determine how to best implement a cost per test system.

Management’s Response: DHH/OPH agrees with this recommendation. DHH/OPH management and lab management should work with OPB to implement a cost per test system without disrupting existing services or programs.

Lack of Performance Data to Evaluate the OPH Lab

The OPH performance indicator data provide minimal information regarding the efficiency and cost effectiveness of lab operations. DHH/OPH reports to OPB five indicators that pertain to lab services.

- Percentage of bioterrorism lab tests completed within 72 hours (Bioterrorism activity)
- Number of lab tests/specimens (Bioterrorism activity) tested
- Number of clients HIV tested and counseled
- Number of laboratory samples (Molluscan Shellfish program)
- Number of tanker loads of milk (Milk and Dairy activities) tested for contaminants

None of these indicators represent the main functions of the lab or present a complete evaluation of performance measures for the lab such as workload and activity. As a result, DHH/OPH and lab management cannot ensure that the lab is as efficient and effective as possible.

The lab itself reports data for one of the performance indicators mentioned above, the percentage of bioterrorism specimens for which testing was completed within 72 hours. According to the OPH lab director, the lab is unable to report additional performance-related information because of limited staff resources. With the addition of the new computer information management system (StarLIMS®), the OPH lab director anticipates that reporting performance information will increase in the future.

Recommendation 6: DHH/OPH and lab management should develop performance indicators that relate to the major functions of the lab and present a complete and accurate evaluation of performance measures for the lab such as workload and activity.

Management’s Response: DHH/OPH agrees with this recommendation. The current single performance measure is insufficient to provide an accurate evaluation of laboratory performance. Several measures should be selected that cover the majority of essential laboratory functions.
**Recommendation 7:** DHH/OPH should work with OPB to determine whether performance indicators relating to the lab’s main functions should be entered into the Louisiana Accountability System (LaPAS).

**Management’s Response:** DHH/OPH agrees with this recommendation. DHH/OPH will work with OPB to determine whether it is appropriate to include the DHH/OPH laboratories’ performance indicators in LaPAS.

**Recommendation 8:** In addition to reporting performance information externally to OPB, DHH/OPH and lab management should also develop more detailed indicators for internal use. Management can use this detailed information to monitor the efficiency of lab operations and to make management and budgetary decisions regarding lab processes and procedures.

**Management’s Response:** DHH/OPH agrees with this recommendation. The OPH Laboratory should develop internal performance indicators to monitor day-to-day performance for use in making management decisions.

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**Audit Scope and Methodology**

We conducted this performance audit under the provisions of Title 24 of the Louisiana Revised Statutes of 1950, as amended. We followed the generally accepted government auditing standards as promulgated by the Comptroller General of the United States.

This audit focused on the cost-benefit of rebuilding the central OPH laboratory in New Orleans. Our audit objective was to answer the following question:

*What is the cost-benefit of rebuilding the central laboratory in New Orleans?*

To obtain background information on the OPH lab and to conduct our audit work, we reviewed budget documentation, relevant laws, and provisions and interviewed DHH and OPH officials including:

- OPH Lab Director
- OPH Assistant Lab Director
- OPH Deputy Undersecretary
- DHH Fiscal Administrators
OVERVIEW. There are four OPH laboratories throughout the state located in New Orleans (Central lab), Amite, Lake Charles, and Shreveport. The OPH labs conduct environmental chemistry, virology, immunology, microbiology, and biochemistry testing for various public health programs within OPH. For example, the labs conduct testing for programs such as Molluscan Shellfish, Beach Monitoring, Safe Drinking Water, and Genetics. The only lab to receive extensive damage from Hurricane Katrina was the New Orleans lab. Because of the damage resulting from the hurricane, OPH transferred some of the pre-storm functions of the New Orleans lab to its other three labs and outsourced other functions to Louisiana State University-Shreveport, Iowa, and Texas.

Organization and Funding. In FY 2005, OPH’s expenditures totaled $322 million. The lab, located within the Environmental Health Services division of OPH, expended $12.4 million, or 3.86% of OPH’s total expenditures in FY 2005. The lab is divided into five main reporting categories: Lab Services, Central Lab in New Orleans, Amite, Shreveport, and Lake Charles. The Central Lab in New Orleans incurred 71% of the lab’s expenditures in FY 2005, as shown in Exhibit 1.

Staffing. Before Hurricane Katrina (as of July 31, 2005), OPH had a total of 114 staff members employed at the four lab locations. The majority of employees (73.7%) worked at the New Orleans lab.

Source: Prepared by legislative auditor’s staff using data obtained from DHH fiscal staff.
Post-Katrina (as of August 10, 2006), the New Orleans lab has lost 54 of its employees (64.3%). Of the 54 employees, 38 have resigned, retired, been released¹, or permanently transferred to another area within DHH/OPH. The remaining 16 have been temporarily reassigned to another area in DHH/OPH but will return to the New Orleans lab as it becomes operational. The 30 employees currently assigned to the New Orleans lab divide their time between administrative duties at the temporary administrative office in Metairie and assisting other labs. Exhibit 2 illustrates the breakdown of staffing at the four OPH labs pre-and post-Hurricane Katrina.

<table>
<thead>
<tr>
<th>OPH Lab</th>
<th>Pre-Katrina (As of 7/31/2005)</th>
<th>Post-Katrina (As of 8/10/2006)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Orleans</td>
<td>84</td>
<td>*30</td>
</tr>
<tr>
<td>Amite</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Lake Charles</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Shreveport</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>114</td>
<td>59</td>
</tr>
</tbody>
</table>

* Fifteen employees are working at the Metairie location; 11 employees are working at the Amite lab; 2 employees are working at the Shreveport lab; 1 employee is working at the EPA lab in Houston; and 1 employee is working at the Baton Rouge EOC. These employees are working at other locations temporarily until the New Orleans lab facility is functional.

**Source:** Prepared by legislative auditor’s staff using information provided by OPH.

**Temporary Laboratory Facility.** According to the OPH lab director, OPH recently signed a five-year lease for the temporary lab facility. The lease space was available on November 1, 2006. The cost of the lease is approximately $475,700 per year. DHH/OPH has the option to terminate the lease when the new facility becomes available.

New Orleans lab personnel will begin retrieving DHH/OPH equipment and records and moving them into the temporary lab facility once the Office of State Buildings (OSB) has a construction elevator installed at the old facility. Lab personnel will then begin validating the approximately $6.4 million in equipment that remains in the New Orleans lab since Hurricane Katrina. The total replacement/repair costs of lost/damage equipment cannot be determined until this validation is complete. The OPH lab director anticipates that lab testing at the temporary facility will begin during the third and fourth quarters of fiscal year 2007.

**New Laboratory Facility.** According to the OPH lab director, OPH received approval for a new laboratory facility in New Orleans, and construction began for the facility before Hurricane Katrina. Construction is anticipated to resume later this year. The pre-Katrina construction schedule predicts a completion time frame of approximately 18 months. However, this time frame does not include the time required to move equipment from the temporary facility and re-establish laboratory services. The cost of the new laboratory facility is approximately $22.3 million, which was included in Act 27 of the 2006 Regular Session (Capital Outlay Bill).

¹ According to the OPH lab director, DHH/OPH offered temporary positions to every staff member that was displaced because of Hurricane Katrina. Individuals who refused to work at another location and who did not resign or retire were given non-disciplinary removals.
Steve J. Theriot, CPA
Legislative Auditor
Post Office Box 94397
Baton Rouge, LA 70825-9497

Dear Mr. Theriot:

This letter is written in response to the performance audit report on the Department of Health and Hospitals, Office of Public Health Laboratory.

Recommendation 1: DHHOPH and lab management should determine the types of data necessary to conduct a cost-benefit analysis of rebuilding the New Orleans lab. For example, data on the cost of testing and the number of tests the lab conducts in a given time period could help management determine the cost-effectiveness and efficiency of lab operations. This data can also be used to effectively manage the OPH lab as a whole.

Response 1: We agree with this recommendation. The data needed to perform this analysis is currently available; however, test requests and laboratory results exist only as hard copies located in the several DHHOPH laboratories. Lack of a DHHOPH laboratory-wide computer system has hampered efforts to collate, phone and analyze this information. DHHOPH is currently implementing a laboratory information system which will allow much better data handling and analysis. This system is being paid for by federal funds received from the CDC as part of the emergency preparedness grant and is part of a wider national public health information network (PHIN) initiative. Continued funding will be needed to maintain this system.

Recommendation 2: DHHOPH and lab management should collect the data necessary to conduct a cost-benefit analysis of rebuilding the New Orleans lab. The new computer system should assist them in this effort.

Response 2: We partially agree with this recommendation. Seventy percent of all DHHOPH Laboratory equipment, facilities and human resources are currently located in the New Orleans area. HHOPH and lab management should use the new computer system to ensure that future rebuilding is conducted in a cost-effective manner; however, rebuilding must occur to allow continuation of essential services to citizens of Louisiana and to allow implementation of the new computer system. The cost of delay in reestablishing a New Orleans DHHOPH Laboratory would be the lack of emergency response capacity for biological and chemical spills and threats, infectious disease testing and molecular analysis capacity as well as basic services to public health units. Additional funding from FEMA that can be used to rebuild the New Orleans Area DHHOPH Laboratory will only be available for a short period of time.
Recommendation 3: Once the data is collected, DHHP/OPH and lab management should ensure that it is analyzed to make management decisions regarding rebuilding the New Orleans lab. For example, management could compare the lab's testing costs to that of other public and private labs.

Response 3: We agree with this recommendation. The data collected should be used to make management decisions regarding additions or deletions to the DHHP/OPH Laboratories test menu.

Recommendation 4: DHHP/OPH and lab management should develop a cost per test for each specific test the lab conducts. Management should include all costs associated with conducting tests, such as labor, supplies, and equipment. Including these costs in the cost per test would allow management to more fairly allocate testing costs to the programs.

Response 4: We agree with this recommendation. Currently a cost allocation system in place which is based on only labor used. This system shifts a disproportionate share of cost to labor intensive manual tests. The DHHP/OPH Laboratory needs to develop a true cost per test based on all cost drivers such as labor, equipment, supplies, and overhead. This will allow accurate allocation of cost to all DHHP/OPH agencies that use laboratory services.

Recommendation 5: Once DHHP/OPH and lab management develop a cost per test for each type of test the lab conducts, they should work with Office of Planning and Budget (OPB) staff to determine how to best implement a cost per test system.

Response 5: We agree with this recommendation. DHHP/OPH management and lab management should work with OPB to implement a cost per test system without disrupting existing services or programs.

Recommendation 6: DHHP/OPH and lab management should develop performance indicators that relate to the major functions of the lab and present a complete and accurate evaluation of performance measures for the lab, such as workload and activity.

Response 6: We agree with this recommendation. The current single performance measure is insufficient to provide an accurate evaluation of laboratory performance. Several measures should be selected that cover the majority of essential laboratory functions.

Recommendation 7: DHHP/OPH should work with OPB to determine whether performance indicators relating to the lab's main functions should be entered into the Louisiana Accountability System (LaPAS).

Response 7: We agree with this recommendation. DHHP/OPH will work with OPB to determine whether it is appropriate to include the DHHP/OPH laboratories' performance indicators on LaPAS.

Recommendation 8: In addition to reporting performance information externally to OPB, DHHP/OPH and lab management should also develop more detailed indicators for internal use.
Management can use this detailed information to monitor the efficiency of lab operations and to make management and budgetary decisions regarding lab processes and procedures.

Response 8: We agree that the DHH.OPH Laboratory should develop internal performance indicators to monitor day-to-day performance for use in making management and budget decisions.

We greatly appreciated the cooperation and diligence of your staff in conducting this audit. If you have questions or require additional information, please let me know.

Sincerely,

Frederick P. Cerise, M.D., M.P.H.
Secretary

FPC:plg
Attachment
<table>
<thead>
<tr>
<th>RECOMMENDATIONS</th>
<th>AGREE</th>
<th>PARTIALLY AGREE</th>
<th>DISAGREE</th>
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