

*The City of New York
Office of the Comptroller
Bureau of Management Audit*

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Comptroller

**Audit Report on the
Tracking of Children with Elevated Blood Lead Levels
by the Lead Poisoning Prevention Program of
the New York City Department of Health**

MG01-074A

April 11, 2002

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EXECUTIVE SUMMARY

Background

The New York City Department of Health (DOH) promotes and protects the health and quality of life of City residents by enforcing compliance with the City's Health Code and providing a broad range of public health programs and services. The mission of DOH's Lead Poisoning Prevention Program (LPPP) is to reduce the incidence and severity of childhood lead poisoning.

Lead is a poison that affects virtually every system in the body. It is particularly harmful to the developing brain and nervous system of young children. Blood lead levels as low as 10 micrograms per deciliter (mcg/dL), which do not cause distinctive symptoms, are associated with decreased intelligence and impaired neurobehavioral development.

LPPP's staff work with families affected by lead poisoning by providing general information about lead poisoning, counseling parents or guardians on reducing children's blood lead levels, conducting environmental risk assessments, providing medical consultation through LPPP's Medical Director, and providing case management. Lead poisoning exists when a child (under 18 years) has a venous blood lead level of 20 mcg/dL or has blood lead levels of 15 to 19 mcg/dL, for each of two tests performed at least three months apart. When reports received by LPPP confirm these levels, LPPP staff members designated as Public Health Advisors (PHAs) contact the child's medical provider and family. The advisors visit the child's home to educate the parents about the sources of contamination and the importance of continued monitoring of the child and siblings. The PHAs monitor children with elevated blood lead levels until their blood lead levels have been reduced below 15 mcg/dL.

DOH classifies its cases and prepares its reports based on the blood lead levels (bll) of each child. The classifications are as follows:

- blood lead levels between 15 and 19 mcg/dL for each of two tests performed at least three months apart;
- one blood lead level between 20 and 44 mcg/dL;
- one blood lead level between 45 and 69 mcg/dL; or
- one blood lead level greater than or equal to 70 mcg/dL.

DOH has criteria for follow-up procedures that differ, depending on the blood lead levels. Any blood lead level that is equal to or greater than 45 mcg/dL is classified as a three-star case and requires immediate (same day) follow-up by LPPP staff and shorter timeframes for initial contact and visits to the family. Children with blood lead levels in this range must begin medical treatment immediately.

Objective

The objective of this audit was to determine whether the Department of Health has adequately followed up on children who have elevated blood lead levels of 20 mcg/dL and above or have blood lead levels of 15-19 mcg/dL for each of two tests performed at least three months apart.

Scope and Methodology

The primary scope of our audit was a review of LPPP's monitoring of cases involving children with elevated blood lead levels identified in fiscal year 2000. We also randomly selected and reviewed eight cases identified in fiscal year 2001, the period during which we conducted the audit. We reviewed various guidelines and codes, including DOH's Lead Poisoning Prevention Program Protocol (Protocol), New York City Health Codes, and the *Centers for Disease Control and Prevention: Guidance for State and Local Public Health Officials*. We also reviewed fiscal year 2000 quarterly reports and the reports for the first two quarters of fiscal year 2001 prepared by LPPP staff for the Centers for Disease Control (CDC). In addition, we interviewed LPPP staff to obtain additional information about the program.

We randomly selected a sample of 28 out of 923 cases for fiscal year 2000 to determine whether the cases were appropriately monitored by LPPP staff. We analyzed the initial 28 cases and an additional randomly selected 105 cases to determine whether initial contacts were made with the family and medical provider and whether initial field visits were made within the required timeframe. For the 28 cases, we further reviewed each case to determine whether there was

appropriate follow-up after the initial visit and whether the child had the necessary follow-up blood tests as required in the LPPP Protocol.

In addition, we conducted an in-depth review of eight fiscal year 2001 cases to determine whether they were addressed promptly, whether the initial contacts and field visits were made in a timely manner, and whether there was adequate back-up documentation to support the steps taken.

Results In Brief

The New York City Department of Health's Lead Poisoning Prevention Program is generally doing a good job of addressing childhood lead poisoning. LPPP staff monitor children with elevated blood lead levels by making initial and follow-up calls and visits to the families of these children and providing information about lead poisoning to the parents.

However, LPPP staff did not always comply with the procedures of the LPPP Protocol. For example, in 8 percent of the 133 cases we reviewed, initial contacts to the families of children with elevated blood lead levels were not made within the required timeframe of one to three business days; and in 11 percent of the 133 cases, visits to the families were not made within the required timeframe of one to five business days. An in-depth review of 28 of the 133 cases found that in 18 percent of the cases of children who required follow-up blood tests, LPPP staff did not send a reminder letter to parents reminding them to take their children for the follow-up blood tests.

In addition, LPPP is operating under a Protocol that does not reflect all of the current practices that LPPP officials say exist. Also, LPPP staff did not follow some relevant requirements in the existing Protocol. For example, required reports were not prepared, and many case folders lacked required documentation. There were also discrepancies in the data produced by LeadQuest when compared with the data submitted by LPPP to CDC for the same time frame.

This audit makes 12 recommendations, which are listed below. LPPP officials should ensure that its staff:

1. Make initial contacts and visits within the prescribed timeframes specified in the Protocol.
2. Establish alternative procedures and/or work hours to contact or visit working parents who are not at home during the weekdays.
3. Send reminder letters to parents of children who have not received a follow-up blood test within a three-month period.

LPPP officials should:

4. Prepare an updated Protocol that reflects current procedures to be followed by PHAs and other personnel.
5. Ensure that their managers and supervisors adequately supervise the LPPP staff and document their supervisory review in LeadQuest.
6. Prepare and document progress reports, change of data/status forms and supervisory reviews, as required by the LPPP Protocol.
7. Ensure that information reported in the quarterly CDC reports is accurate and compatible with the information in the supporting documentation.
8. Ensure that the back-up documentation used to prepare the quarterly reports to CDC is maintained.
9. Ensure that data used as the basis for the quarterly reports to CDC are reviewed by LPPP supervisors and submitted for entry into LeadQuest on a timely basis.
10. Generate and maintain reports, as required by the LPPP Protocol. This would enable LPPP to have easy access to critical information regarding children with elevated blood lead levels.
11. Report information on contacts and visits made by Public Health Advisors in the Mayor's Management Report.
12. Consider reporting the number of active cases in the Mayor's Management Report.

Agency Response

The matters covered in this report were discussed with officials from DOH during and at the conclusion of this audit. A preliminary draft report was sent to the DOH officials and discussed at an exit conference held on February 25, 2002. On March 11, 2002 we submitted a draft report to DOH officials with a request for comments. We received a written response from DOH on March 27, 2002. The response stated in part:

“Where appropriate, LPPP will incorporate the audit findings into its on-going efforts to improve its quality of service. In areas where the auditor had identified problems, LPPP has already begun to implement changes to address these concerns.”

DOH agreed with most of the 12 audit recommendations. Specifically, DOH agreed with eight recommendations and has implemented five. DOH disagreed with recommendations #3 and #6 and is considering whether or not to implement recommendations #11 and #12.

The full text of DOH's comments is included as an addendum to this report.

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INTRODUCTION

Background

The New York City Department of Health (DOH) promotes and protects the health and quality of life of City residents by enforcing compliance with the City's Health Code and providing a broad range of public health programs and services to monitor, prevent, and control diseases. The mission of DOH's Lead Poisoning Prevention Program (LPPP) is to reduce the incidence and severity of childhood lead poisoning.

Lead is a poison that affects virtually every system in the body. It is particularly harmful to the developing brain and nervous system of young children. Blood lead levels greater than or equal to (\geq) 80 micrograms per deciliter (mcg/dL) can cause coma, convulsions, and even death. Lower levels cause adverse affects on the central nervous system, kidney, and hematopoietic system. Blood lead levels as low as 10 mcg/dL, which do not cause distinctive symptoms, are associated with decreased intelligence and impaired neurobehavioral development.

One of the major sources of lead exposure in children is dust and chips from lead-based paint, largely due to the presence of deteriorating lead-based paint in the City's older dwelling units. Children six years old and under have a greater risk for lead poisoning because of their normal hand-to-mouth behavior.

LPPP's staff works with families affected by lead poisoning by providing general information about lead poisoning, counseling parents or guardians¹ on reducing children's blood lead levels, conducting environmental risk assessments, providing medical consultation through LPPP's Medical Director, and providing case management. Lead poisoning exists when a child

¹ For the remainder of this report, we will use the term parents to include both parents and guardians.

(under 18 years) has a venous blood (blood from the veins) lead level of 20 mcg/dL or has blood lead levels of 15 to 19 mcg/dL for each of two tests performed at least 3 months apart. When reports received by LPPP confirm these levels, LPPP staff members designated as Public Health Advisors (PHAs) contact the child's medical provider and family. The advisors visit the child's home to educate the parents about the sources of contamination and the importance of continued monitoring of the child and siblings. The PHAs monitor children with elevated blood lead levels until their blood lead levels have been reduced below 15 mcg/dL. In addition, the child's home is inspected, by other LPPP staff designated as Public Health Sanitarians, to try to isolate and eliminate the source of contamination.

LPPP's staff are required to provide quarterly reports to the U.S. Centers for Disease Control and Prevention citing staff monitoring efforts, including number of contacts and visits made to children's homes. In 1991, the U.S. Department of Health and Human Services (HHS), called for the elimination of childhood lead poisoning. The Centers for Disease Control and Prevention (CDC) is the HHS agency responsible for recommending U.S. policy in this area. CDC provides funding and technical advice to assist states and locales in all activities that are called for. CDC also provides general guidelines about the roles and responsibilities of child health-care providers in preventing childhood lead poisoning.

In New York State, the primary healthcare provider is required to assess all children ages 6 months to under 6 years for exposure to high-dose lead at each well-child visit, or at least annually. New York State and New York City laws require direct lead testing of all 1 and 2 year olds, and documentation of a lead test for children younger than 6 years entering a licensed or registered public or private day-care program or school. Medical providers and laboratories must report blood lead levels of 10 mcg/dL or more to the New York City Department of Health within 24 hours. Laboratories must also report all blood lead levels to New York State Department of Health within five days of the date of the analysis. In addition, LPPP staff download the test result information that the State Department of Health receives about New York City children from the State database to the LPPP Research and Surveillance Unit database.

DOH began using LeadQuest, the new LPPP surveillance and tracking computer program, in January 1999. LPPP uploads children's blood lead test results on LeadQuest in the evening of the day that the test result data are received from New York State Department of Health. LeadQuest determines if the children for whom test results have been submitted by the medical providers and laboratories match children already in the database. If there are matches, the new test results will be added to the existing file; if not, a file is created. LeadQuest stores near matches (minor differences in information) in another file for review. The next workday, data management staff reviews the near matches and decides how the information should be processed.

DOH classifies its cases and prepares its reports based on the blood lead levels (bll) of each child. The classifications are as follows:

- blood lead levels between 15 and 19 mcg/dL for each of two tests performed at least three months apart;

- one blood lead level between 20 and 44 mcg/dL;
- one blood lead level between 45 and 69 mcg/dL; or
- one blood lead level greater than or equal to 70 mcg/dL.

DOH has criteria for follow-up procedures that differ, depending on the blood lead levels. Any blood lead level that is equal to or greater than 45 mcg/dL is classified as a three-star case and requires immediate (same day) follow-up by LPPP staff and shorter timeframes for initial contact and visits to the family. Children with blood lead levels in this range must begin medical treatment immediately, and can include chelation therapy.²

According to the Mayor’s Management Report (MMR), in fiscal year 2000, 922 new lead poisoning cases were reported to DOH, compared with a revised number of 949 in fiscal year 1999. In fiscal year 2001, 741 new lead poisoning cases were reported to DOH, a 20 percent decline from the number reported in fiscal year 2000. The number of new lead poisoning cases in New York City has been declining since 1994, as shown in Table I.

Table I
Number of New Lead Poisoning Cases in New York City
Fiscal Years 1994–2001

Fiscal Year	1994	1995	1996	1997	1998	1999	2000	2001
Number of Cases	1,994	1,721	1,378	1,153	1,062	949	922	741

Note: Cases from 1994 through June 30, 1999 include only children with venous blood lead levels of 20 mcg/dL or more. Cases after July 1, 1999 also include children with two blood lead test results of 15-19 mcg/dL.

The breakdown of lead poisoning cases in fiscal year 2000, as reported by DOH, were 743 cases of lead poisoning with blood lead levels of 20 mcg/dL or more and 180 cases with two blood lead levels of 15-19 mcg/dL.³

Objective

The objective of this audit was to determine whether the Department of Health has adequately followed up on children who have elevated blood lead levels of 20 mcg/dL and above and blood lead levels of 15-19 mcg/dL for each of two tests performed at least three months apart.

² Chelation therapy is an intravenous procedure that uses drugs to bind or “chelate” lead. The drugs deplete the soft and hard (skeletal) tissues of lead, thereby reducing its toxicity.

³ The revised Mayor’s Management Report cited 921 cases for fiscal year 2000; however, we received 923 cases from DOH.

Scope and Methodology

The primary scope of our audit was a review of LPPP's monitoring of cases involving children with elevated blood lead levels identified in fiscal year 2000. We also randomly selected and reviewed eight cases identified in fiscal year 2001, the period during which we conducted the audit. We reviewed various guidelines and codes, including DOH's Lead Poisoning Prevention Program Protocol (Protocol), New York City Health Codes, and the *Centers for Disease Control and Prevention: Guidance for State and Local Public Health Officials*. We also reviewed fiscal year 2000 quarterly reports and the reports for the first two quarters of fiscal year 2001 prepared by LPPP staff for the Centers for Disease Control. In addition, we interviewed LPPP staff to obtain additional information about the program.

We randomly selected a sample of 28 out of 923 cases for fiscal year 2000 to determine whether the cases were appropriately monitored by LPPP staff. We compared the information maintained in the files with the information that appeared in LeadQuest. To determine the accuracy of the information found in LeadQuest, we reviewed the files to determine whether there was documentation to support each entry in LeadQuest.

We analyzed the initial 28 cases and an additional randomly selected 105 cases to determine whether initial contacts were made with the family and medical provider and whether initial field visits were made within the required timeframe. For the 28 cases, we further reviewed each case to determine whether there was appropriate follow-up after the initial visit and whether the child had the necessary follow-up blood tests as required in the LPPP Protocol. We also determined whether there was documentation to support each event that took place and evidence of supervisory review.

Each case was reviewed to determine whether the case was closed only after the child's blood lead level was decreased to an acceptable level and after all other criteria were met. The corresponding file for each case was reviewed to determine whether documentation existed to support the case closure.

We reviewed and analyzed reports that were sent to the Centers for Disease Control to determine whether the information shown in the report was accurately reported.

In addition, we conducted an in-depth review of eight fiscal year 2001 cases to determine whether they were addressed promptly, whether the initial contacts and field visits were made in a timely manner, and whether there was adequate back-up documentation to support the steps taken.

Our audit was conducted in accordance with Generally Accepted Government Auditing Standards (GAGAS), and included tests of the records and other auditing procedures considered necessary. This audit was performed in accordance with the City Comptroller's audit responsibilities as set forth in Chapter 5, § 93, of the New York City Charter.

Agency Response

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**OFFICE OF THE COMPTROLLER
NEW YORK CITY
DATE FILED: APRIL 11, 2002**

FINDINGS AND RECOMMENDATIONS

The New York City Department of Health's (DOH) Lead Poisoning Prevention Program (LPPP) is generally doing a good job of addressing childhood lead poisoning. LPPP staff monitor children with elevated blood lead levels by making initial and follow-up calls and visits to the families of these children and providing information about lead poisoning to the parents. Furthermore, according to LPPP staff, the use of LeadQuest, the LPPP surveillance and tracking computer program, has aided them in coordinating timely medical care and environmental management. LeadQuest has automated various tasks and provided easy access to information about children with elevated blood lead levels.

However, LPPP staff did not always comply with the procedures of the LPPP Protocol. For example, in 8 percent of the 133 cases we reviewed, initial contacts to the families of children with elevated blood lead levels were not made within the required timeframe of one to three business days; and in 11 percent of the 133 cases, visits to the families were not made within the required timeframe of one to five business days. An in-depth review of 28 of the 133 cases found that in 18 percent of the cases of children who required follow-up blood tests, LPPP staff did not send a reminder letter to parents reminding them to take their children for the follow-up blood tests.

In addition, LPPP is operating under a Protocol that does not reflect all of the current practices that LPPP officials say exist. Also, LPPP staff did not follow some relevant requirements in the existing Protocol. For example, required reports were not prepared, and many case folders lacked required documentation. There were also discrepancies in the data produced by LeadQuest when compared with the data submitted by LPPP to CDC for the same time frame.

Initial Contacts and Field Visits with Families are not always Performed Promptly

Initial contacts and initial field visits with the families of children with elevated blood lead levels are not always performed within the required timeframes. The LPPP Protocol allows one to three days for initial family contacts and one to five days for initial field visits. These timeframes are overlapping so, for example, if a contact is made on day three a visit must still be done by day five. In 10 of the 133 cases we reviewed, it took an average of 8 days to make initial contacts with the family of children with elevated blood lead levels, and in 15 cases, it took an average of 12 days to make the initial visits. There were 5 cases in which both the initial contact and initial visit were late. If initial contacts and initial visits are not performed promptly, parents cannot be made aware of the health risk and of potential sources of lead contamination and cannot begin to take corrective actions.

Initial Contacts

Initial contacts are telephone calls made to schedule an initial visit with the family and to provide education and counseling, stressing the importance of nutrition, hygiene, housekeeping, medical follow-up, and testing siblings for lead.

According to LPPP officials and Protocol, when a child's blood lead levels range from 15 to 44 mcg/dL, initial contacts should be made, by a Department of Health Public Health Advisor, within three business days of the case assignment. Generally a case is assigned either the same day or the day after the blood test results are received from the New York State Department of Health and downloaded on LeadQuest. For blood lead levels exceeding 45 mcg/dL (three-star cases), initial contact should be made the same day the results are received from the New York State Department of Health.

We reviewed a total of 133 cases, and found 10 cases in which the initial contact with the family was not made within the required timeframe. For these 10 cases, it took an average of 8 business days to make the initial contact with the family. For example, a case with a blood lead level of 30 mcg/dL, was assigned on October 8, 1999. The initial contact was not made until November 4, 1999, 19 business days later, instead of within three business days as required.

In the case above, the initial contact was made when the PHA actually went to the child's home to make the initial visit. (If the initial contact is not made by phone, the initial field visit is counted as the first contact with the family.) Although initial contacts were not made within the required timeframes for 10 out of the 133 cases we reviewed, initial contacts were ultimately made for all cases.

Initial Visits

During the initial visit, the PHA interviews and counsels the parents on lead poisoning and its prevention, provides LPPP literature about lead poisoning, and explains ways to minimize or eliminate exposure to potential sources of lead.

Initial visits should be made by the PHA within five business days of the case assignment for blood lead levels ranging from 15 to 44 mcg/dL, within three business days for levels between 45 to 69 mcg/dL, and within one day for blood lead levels of 70 mcg/dL and above.

We reviewed a total of 133 cases, and found 15 cases in which the initial field visits with the family were not made within the required timeframe. For the 15 cases, it took an average of 12 business days to make the initial visit after the case was assigned to a PHA. Two case examples follow:

- A case with a blood lead level of 22 mcg/dL was assigned on November 3, 1999, requiring an initial visit within five business days. However, the initial visit was not

made to the child's home until December 23, 1999, 36 business days after the case was assigned.

- Another case was assigned on November 24, 1999. The blood lead level was 22 mcg/dL. The initial field visit was made on December 6, 1999, 7 business days after the assignment.

Although initial visits were not made within the required timeframes for 15 out of the 133 cases we reviewed, initial visits were ultimately made for all cases.

We asked LPPP officials why these initial contacts and initial field visits were not made within the time required by its Protocol. In their response, they stated that they attempt to make the initial contact and the initial visit within the required timeframe but are not always successful. With regard to initial contacts, they stated, "The LPPP has always recognized that the initial contact cannot result in successfully reaching the family 100% of the time since families may not be home at the time of the call. The goal of the specified time frame is to set a standard in which the attempt is made to contact the family." The records indicated that attempts at initial contacts were made within three business days of case assignment for the 10 cases discussed above.

With regard to initial field visits, DOH responded, "the PHA will attempt to complete the Initial Field Visit" in accordance with the Protocol. The records indicated that attempts at initial visits were made within five business days of case assignment for 10 of the 15 cases discussed above. However, there were 5 cases where an attempt was not made within five business days.

However, the LPPP Protocol states that an immediate attempt should be made to contact families and the actual contact should be accomplished within three business days. In regard to initial field visits, LPPP Protocol states that the PHA will complete the initial visit within the required timeframe and does not address the issue of attempted visits.

We realize that it may not always be possible to make initial contacts and visits within the established timeframes, due to the fact that in many families both parents work. Parents may not be at home during the hours that LPPP staff are making phone calls and performing visits. Therefore, DOH should consider making other efforts to reach these parents. For example, LPPP officials could establish a staggered workday, whereby some employees come into work later and can make initial contacts and visits in the evening when it is more likely they would reach working parents. Another possibility is implementing a rotating shift so that one or two PHAs would work on Saturdays to make initial contacts and initial visits for cases in which previous attempts were not successful.

Blood lead levels as low as 10 mcg/dL can have adverse effects on the central nervous system. A large number of studies have provided evidence of the association between low blood lead levels of lead poisoning and impaired cognitive development and other deficits. Initial contacts and visits are important because the PHA explains ways to minimize and eliminate exposure to sources of lead; and counsels and educates the parents about hygiene, housekeeping, diet, and nutrition. Initial visits are also important because the PHA can perform a visual

inspection of the home environment and identify potential sources of lead contamination. If initial contacts and initial visits are not performed promptly, the parent is not aware of the health risk and potential sources of contamination and cannot begin taking corrective action. As DOH's own literature succinctly states, "The more lead that a child's body has, and the longer lead stays in the body, the more damage it can cause."

Reminder Letters are not Always Sent for Follow-up Blood Tests

According to LPPP officials, once a child's blood lead level is determined to be elevated, then the parents should have their child's blood tested at least every three months. LPPP staff are responsible for sending a letter to parents reminding them to have the tests done. We reviewed 28 cases and found 5 cases, with an average of 8 months between blood tests, that required such a letter.⁴ For these five cases, there was evidence LPPP staff had telephoned the parents concerning the follow-up blood test, but there was no indication that the required letter was sent. Of course this letter does not ensure that parents will take appropriate action by having their child's blood tested; it just serves as an official reminder to parents. However, by sending this letter, as required by its protocol, DOH can document that it is properly monitoring children with elevated blood lead levels.

The Protocol states that PHAs should check the computer files to determine if follow-up blood lead levels have been reported at the three-month follow-up point. It further states that the PHA should send the parent a Medical Follow-up Reminder letter if the last blood lead level recorded on the computer is more than two to three months old. At a meeting with LPPP officials, they informed us that they no longer send follow-up reminder letters, but make telephone calls instead. However, this is not the practice prescribed in the LPPP Protocol.

For each of the aforementioned five cases, LeadQuest indicates that telephone calls were made to the family, and the Intervention Reports, located in the files, usually stated that the PHA reminded the family to continue medical follow-up. However, a follow-up letter would reinforce the importance of having the test performed. Therefore, DOH should better enforce its own Protocol by sending Medical Follow-up Reminder letters to parents of children with outstanding blood tests. In addition, a reminder letter may be the only means of contact with some families because they may not have access to a telephone.

As stated previously, the more lead that a child's body has, and the longer lead stays in the body, the more damage it can cause. If a child does not have a follow-up blood test, there is no way to determine whether the child is still at risk. There is also the possibility that the child's blood lead level might increase to a more dangerous level.

⁴ For the remaining 23 cases, there was evidence that follow-up blood tests were performed approximately every four months.

Recommendations

In order to properly monitor lead-poisoned children, LPPP officials should ensure that its staff:

1. Make initial contacts and visits within the prescribed timeframes specified in the Protocol.

DOH Response: DOH stated, “LPPP agrees that initial contacts and visits should be made within prescribed timeframes . . . the new protocol, which is in the early stages of implementation, clarifies the timeframes in which staff will attempt initial contacts and initial visits. Procedures and timeframes to follow when the results of the initial attempt at making contact or a field visits are not successful have been integrated into this new protocol. . . . LPPP recognizes that there might be extenuating circumstances which make it difficult to always reach follow-up targets. The program will continue to monitor performance in order to identify problem areas and make improvements.” [emphasis in original]

2. Establish alternative procedures and/or work hours to contact or visit working parents who are not at home during the weekdays.

DOH Response: DOH stated, “LPPP already includes early morning and evening and weekend visits when access cannot be gained during regular business hours. As noted earlier, these procedures were in place during the time of the audit and utilized as a strategy to eventually reach all families identified in the audit; even with these varied hours it is not always possible to be successful due to the unavailability of some parents.”

Auditor Comment: We reviewed the LeadQuest screens for the 20 cases in which the initial field visits and initial contacts with families were not made within the required timeframes. Weekend visits had been made in only one case. For the remaining 19 cases, there were no PHA attempts to contact or visit families on weekends. Such attempts could have resulted in additional successful contacts or visits. Moreover, during the period of our audit, DOH had no written procedures that addressed what PHAs should do when they had difficulty contacting or visiting parents. DOH should include written procedures in its revised Protocol that will address the requirements for contacting and visiting parents on weekends and during early morning and evening hours.

3. Send reminder letters to parents of children who have not received a follow-up blood test within a three-month period.

DOH Response: DOH stated, “As noted, the old protocol called for reminder letters for follow up blood testing. These procedures have since been amended. If our efforts to contact the family by phone or a face-to-face visit are unsuccessful, than a reminder letter is sent. In all cases, the intervention method should be documented in the case file.”

LPPP has no Updated Protocol for its Staff

Some requirements in the LPPP Protocol are not being followed. According to LPPP officials, some of the functions stated in the Protocol are no longer required and therefore are outdated. Since there is no new or updated Protocol, the current Protocol is the guide that is used by LPPP staff. Consequently, some staff are still following the outdated procedures.

Some of the requirements that are listed in the Protocol are as follows:

- A medical case closure cannot occur until a blood lead level of below to 20 mcg/dL is obtained and the child's home has been cleared of any lead hazards.
- Prepare case closure letters to the parent/guardian and the medical provider.
- Enter all information in the Excel Three Star Tracking Record to highlight three-star cases.
- Submit a monthly report to management on status of high capillary blood lead levels.
- Begin a tickler card for case management follow-up.

We were informed by LPPP officials that the procedures listed above are no longer being followed and that many of the changes made to past practices were directly attributable to LeadQuest, the automated tracking system.

However, not all changes were brought about by the use of LeadQuest. For example, it was management's decision to lower the blood lead level of 20 mcg/dL to 15 mcg/dL, a more stringent threshold, before closing a case.⁵

Moreover, a check of the files revealed inconsistent practices among the LPPP staff. For example, according to LPPP officials, LeadQuest did away with the need to use tickler cards, which were used as reminders of future actions to be performed. However, there were tickler cards in 6 of the 28 case folders that we reviewed. It appears that some LPPP staff are not aware of which procedures are current and which are not.

LPPP officials have already acknowledged that certain procedures in the LPPP Protocol are neither current nor relevant. Therefore, an updated Protocol is needed to assist LPPP staff in identifying their responsibilities and the goals that are set for them, especially when past procedures and reporting requirements have changed.

⁵ Management made this decision based on recommendations made by CDC.

Recommendation

LPPP officials should:

4. Prepare an updated Protocol that reflects current procedures to be followed by PHAs and other personnel.

DOH Response: DOH stated, “LPPP has already responded to this need by preparing the ‘Integrated Case Management Protocol.’ This protocol incorporates a borough team structure for care coordination activities. . . . Since this is a comprehensive protocol, the program anticipates that edits and adjustments will be made over the course of the implementation process and as part of our on-going quality improvement efforts.”

Lack of Documentation in Folders

Some procedures in the Protocol that are still required are not being followed, such as the requirement to maintain certain documentation in the case folders. We reviewed the folders for 36 cases, 28 for fiscal year 2000 and 8 for fiscal year 2001. Some case folders did not contain specific documentation required by the relevant portions of the LPPP Protocol. These documents include:

- progress notes;
- documentation indicating change of status relating to case closure; and
- documentation showing supervisory review.

The LPPP Protocol states that the medical folders for each child should include progress notes and any correspondence and memos related to a case. We were unable to locate in the folders progress notes for 23 of the 28 fiscal year 2000 cases, and 5 of the 8 fiscal year 2001 cases that we reviewed

The LPPP Protocol requires that a change of data/status form be filled out before a case is closed. This form updates case information and changes in case status (e.g., change of address, change in blood lead level, etc.) and is filed in the case folder. The folders of 17 of 20 cases that were closed did not contain this form.

The Protocol also states that Senior PHAs are to review the work submitted by PHAs for accuracy; they should then date and initial all reviewed work. We reviewed the documentation contained in each of the 36 folders and found no evidence of supervisory review. LPPP officials informed us that supervisors and managers review the work of their staff online and make notations in LeadQuest. However, when we reviewed the LeadQuest screens for the 20 cases in which initial contact or initial field visits were not made within the required timeframe, we found only one case that was coded to indicate that a supervisory case review was performed.

The files maintained by LPPP staff are designed to provide a history of children with elevated blood levels and to provide information about the latest status of these children. If relevant documents such as progress reports and data/status forms are not in the files, then the information in the files may be unreliable and the supervisors misinformed. Supervisors should review these files periodically and document their review to make sure that the information pertaining to these high-risk children is current.

Recommendations

LPPP officials should:

5. Ensure that their managers and supervisors adequately supervise the LPPP staff and document their supervisory reviews in the files and in LeadQuest.

DOH Response: DOH stated, “LPPP is also in the process of developing a more structured approach to support quality improvement that will be implemented at all levels of the program.” DOH stated that the elements of the quality improvement process are likely to include: “Lead Quest case review and documentation by supervisors and by senior public health advisors and sanitarians on a daily basis. . . . Many of the . . . measures are already being implemented.”

6. Prepare and document progress reports, change of data/status forms and supervisory reviews, as required by the LPPP Protocol.

DOH Response: DOH stated, “Public Health Advisors used an ‘Intervention Report’ that provided a format to capture all interventions and actions taken, and a follow-up plan. Progress notes were only used for additional writing space when needed where there was not enough space on a form. . . . In addition, the Lead Quest system is designed to automatically close cases when the blood lead level falls below 15mcg/dL after all violations have been corrected, making the Change of Data/Status form unnecessary in these situations.”

DOH also stated that the part of the recommendation regarding supervisory review was addressed in its response to recommendation #5, which stated that new procedures would include “Supervisory review and sign off of all follow-up plans.”

Auditor Comment: DOH stated that progress notes were used only for additional writing space. However, the LPPP Protocol states that each medical folder should include progress notes.

DOH also stated that LeadQuest automatically closes cases after violations have been corrected and the child’s blood lead level falls below 15 mcg/DL. However, we found instances when this did not occur. There were cases shown as active in LeadQuest that according to LPPP staff had actually been closed. Consequently, LPPP staff had to prepare a Change of Data/Status form so that the data entry personnel could close out the cases in LeadQuest. Since LeadQuest had some operational deficiencies, LPPP should

consider using and filing the Change of Data/Status forms in the folders of all cases when the cases are closed, as required by the LPPP Protocol.

Inconsistent Data Generated by LeadQuest

LPPP is required to report to CDC the percentage of cases in which initial contacts and initial visits were performed within the required timeframes. According to LPPP officials, these quarterly reports are based on exception reports⁶ generated from data in LeadQuest. However, we found that the data provided from LeadQuest were not consistent with the reports sent to CDC. Therefore, the reports to CDC may be unreliable and mislead users.

We requested from LPPP staff the number of cases in fiscal year 2000 in which family contacts or home visits were not made within the required timeframe established by LPPP officials. We received an exception report for fiscal year 2000.⁷ However, the report did not identify which cases belonged to which quarter in fiscal year 2000. Since we wanted to compare the information in the exception reports with the quarterly reports sent to CDC, we requested a breakdown of the cases by quarter and subsequently received a second exception report.

There were differences between the first and second exception reports. The same case numbers did not appear as exceptions on both reports. In addition, the second report did not list the same number of exceptions as were reported in the quarterly reports to CDC. We met with LPPP officials to determine the cause of the discrepancies between the two printouts. The officials explained that they did not maintain the original back-up documentation for CDC reports and therefore had to “rerun the information” for both printouts.

LPPP officials provided us a third exception report with a cover letter explaining some of the discrepancies between the second exception report and the report submitted to CDC. LPPP officials wrote: “Hard copies of the Exception Reports related to the CDC Quarterly report submissions were not kept, making it impossible to determine definitive reasons for the discrepancies. . . . Since LeadQuest is a live system, activities entered subsequent to the CDC reports . . . would result in divergent numbers from the initial CDC report.” They also wrote, “In the course of carefully reviewing all the exceptions for FY 2000, we found errors that were not previously noted.”

With regard to activities being entered in LeadQuest subsequent to the issuance of CDC reports, according to the LPPP Protocol, field staff, on the first day of their weekly visit to the office, should submit to their supervisor all documentation for entry into LeadQuest. After the supervisor reviews the documentation, it is to be submitted for data entry. Each quarterly report was sent to CDC approximately three months after the quarter ended. Therefore, all field activity should have been entered into LeadQuest by the time the quarterly reports were submitted to CDC.

⁶ These reports identify incidents that do not meet the targets set for the CDC quarterly reports.

⁷ The exception report did not include the first quarter of fiscal year 2000. LPPP officials said that this information was not available.

LPPP officials provided us three different reports as back-up documentation for the information in the reports to CDC. Each time information was generated from LeadQuest, there were inconsistencies that made us question the reliability of the data presented in the reports to CDC.

The reports that are sent to CDC become part of statistical data and reports maintained by CDC regarding the incidences of lead poisoning in various states and may be used for comparison with previous periods. Moreover, since the program is partially funded by CDC inaccurate information may cause LPPP to lose funds. Because users of the CDC reports rely on the information in them, it is important that the reports prepared by LPPP staff are accurate and properly supported.

Reports are not Routinely Generated and Maintained

LPPP does not routinely generate and maintain aggregate current and historical data to assess how well or how poorly LPPP is tracking the population of children that are known to be affected by lead. The Protocol states that a supervising PHA should review daily, weekly, monthly, and quarterly printouts of assigned cases and follow up on cases needing attention. Furthermore, the Case Management Unit Coordinator and supervising PHAs are responsible for reviewing monthly PHA Activity Reports as well as investigating and reassessing the levels of activity called for by the cases. None of these reports are being generated. Without these and other reports, LPPP cannot determine whether cases require additional or less attention. Moreover, the Protocol states that senior PHAs are responsible for reviewing all PHA reports to ensure that all appropriate Protocols have been properly implemented.

For instance, LPPP officials could not support the data that had been submitted to CDC because backup reports were not maintained. We asked LPPP officials for exception reports for cases that had not been followed up in a timely manner and cases in which children with elevated blood lead levels had not had the required repeat blood tests. In response to both requests, LPPP officials told us that they do not maintain this information. They said that supervisors and managers review the work of their staff online and make notations in LeadQuest. As stated previously, there was evidence of supervisory review for only one of the 20 cases in which initial contact or initial field visits were not made within the required timeframe.

LPPP should generate reports as required by its Protocol. We believe that generating and maintaining reports would create a more efficient operation. First, supervisors and managers could quickly see which cases need attention and address those cases in a timely manner. Second, they could assess how well the operation and staff are working and determine where improvements are needed. Third, documentation would exist for any data submitted to external entities, such as the CDC.

The mission of the Lead Poisoning Prevention Program is to reduce the incidence and severity of childhood lead poisoning in New York City. Easy access to critical information is one tool for meeting this goal. Accessing information from LeadQuest entails reviewing data in categories or sections and screen by screen, whereas reports enable users to grasp the whole

picture. Reports also create historical data that can be compared and assessed from one period to another and that can support information sent to other entities.

Furthermore, information indicating how well LPPP is doing in addressing lead poisoning in the City should be shared with other City officials and the public. LPPP officials should consider providing the same information now sent to CDC to the Mayor's Office to be included in the MMR. Volume I of the MMR for 2001 discussed new lead poisoning cases and provided general information about the LPPP operation. Volume 2 gave statistics on new lead poisoning cases and home inspections for fiscal year 2000, but did not indicate the planned or actual number of contacts or visits made by PHAs to the homes of children with elevated blood lead levels. These are measures that would indicate LPPP's performance in these areas. LPPP officials should also consider reporting the number of active cases in the MMR. The number of active, rather than new, cases each year would give a more accurate picture of LPPP's workload and activity level, since many cases can remain open and carry over from one year to the next.

Recommendations

LPPP officials should:

7. Ensure that the information reported in the quarterly reports to CDC is accurate and compatible with the information in the supporting documentation.

DOH Response: DOH stated, "The LPPP has worked hard to develop indicators for program review. Such indicators were programmed into our mainframe computer, which was in use until December 1998. Due to the urgency for LPPP to get Lead Quest implemented, computer programs to be used to generate reports to CDC and others were not fully developed. The period under audit was exactly the time period when the new computer programs were under development and being debugged. As such, during the period that was audited, there were errors in the quarterly reports the program submitted to the CDC. These errors have since been rectified in the Lead Quest system.

"The Program has improved its capacity for producing reliable program reports by having a single staff person dedicated to overseeing this effort, and by retaining hard copy documentation and comments for historic cases and activity exceptions. LPPP has also developed new mechanisms to maintain copies of documents supporting the CDC quarterly reports, and will emphasize to CDC the preliminary status of the data in the CDC quarterly report."

8. Ensure that the back-up documentation used to prepare the quarterly reports to CDC is maintained.

DOH Response: DOH stated, "The program has already implemented new procedures to retain hard-copy documentation of historic reports with detailed comments so that historic case numbers and activity exceptions can be reconstructed upon demand."

9. Ensure that data used as the basis for the quarterly reports to CDC are reviewed by LPPP supervisors and submitted for entry into LeadQuest on a timely basis.

DOH Response: DOH stated that this recommendation was addressed in its response to recommendation #5. That response stated that DOH would include in its quality improvement process the “review of quarterly CDC reports, which provide a program-wide look at performance.” DOH also stated, “Field staff will be expected to submit all documentation of completed fieldwork to a supervisor on their next scheduled office day. Supervisors are expected to review and submit for data entry all fieldwork documentation by the close of the following business day.”

10. Generate and maintain reports, as required by the LPPP Protocol. This would enable LPPP to have easy access to critical information regarding children with elevated blood lead levels.

DOH Response: DOH stated, “Exception reports are now generated monthly, allowing supervisors and staff to review and rectify any outstanding issues. LPPP has developed new mechanisms to maintain copies of documents supporting the exception reports. Furthermore, Lead Quest provides a color-coded flagging system indicating the urgency for required follow-up steps.”

11. Report information on contacts and visits made by the Public Health Advisors in the Mayor’s Management Report.

DOH Response: DOH stated, “Based on the newly revised LPPP protocol, public health advisors only visit families in situations requiring more intensive follow-up. Thus, an indicator on the contacts and visits made by public health advisors would not provide consistent information. Public health sanitarians visit the families in all cases and this is reflected in the indicator ‘Total Inspections Conducted.’ The LPPP can provide information for the MMR related to contacts made since. However, it is not clear whether this would provide a better measure of productivity than the indicators already provided.

“The indicators that are included in the MMR are ultimately the decision of the Mayor’s Office. We will explore the inclusion of some of the aforementioned indicators with that office.”

12. Consider reporting the number of active cases in the Mayor’s Management Report.

DOH Response: DOH stated, “With regard to the total number of active cases, while this number can provide a more complete picture of the work load of LPPP staff, the incident number reported to the MMR provides a better picture of the trends in lead poisoning. . . .The indicators that are included in the MMR are ultimately the decision of the Mayor’s Office. We will explore the inclusion of some of the aforementioned indicators with that office.”

Auditor Comment: The number of active cases (which we recommend be included in the MMR) does reflect the work load of the LPPP staff, but more importantly, it also shows how many children are affected by lead poisoning at a particular time. Including this additional information in the MMR would provide a complete picture of the state of childhood lead poisoning in New York City.

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March 27, 2002

Roger D. Liwer
Assistant Comptroller for Audits
Office of the Comptroller
1 Centre Street, Room 1100 North
New York, New York 10007-2341

**Re: DRAFT:
Audit Report on the Tracking of Children with Elevated Blood
Lead Levels by the Lead Poisoning Prevention Program of the
New York City Department of Health**

Dear Mr. Liwer:

We have reviewed the draft audit report issued March 11, 2002 on the above noted subject. We appreciate your consideration of our comments on the findings.

The audit report begins with a conclusion that the NYCDOH Lead Poisoning Prevention Program (LPPP) is generally doing a good job of addressing childhood lead poisoning.

The Department's Lead Poisoning Prevention Program is a nationally recognized program, providing comprehensive lead poisoning prevention services, including case management, environmental enforcement, education and outreach to communities and providers, and surveillance and research aimed at assessing and improving lead poisoning prevention. Over the last five years, the incidence of lead poisoning has declined nearly 20% in each year. The Department believes that this evaluation of the DOH performance should have been highlighted in the report since it places the audit findings in an appropriate perspective.

LPPP has been and continues to be a very productive program. Each year LPPP processes over 500,000 blood lead tests, facilitated by the program's automated data and case management system known as Lead Quest. In FY 2000, the program sent letters to approximately 6,400 families whose children were newly reported with blood lead levels of 10 mcg/dL- 19 mcg/dL.

The letters educated families about lead poisoning and emphasized the need for follow up blood lead testing. Letters were also sent to their medical providers. In FY 2000, there were 923 children newly identified with blood lead levels of 20 mcg/dL or greater, or two test results of 15 - 19 mcg/dL at least 3 months apart, which required case management and environmental intervention by LPPP.

The audit report assesses LPPP's case coordination and follow up efforts. As noted in the auditor's report, LPPP has developed response time frames to follow up on children with elevated blood lead levels. These time frames are specified in protocols that guide case follow up and environmental intervention. While our protocols specify time frames for completion of each activity, LPPP also has protocols which apply to cases where our attempts to contact or visit clients are unsuccessful. For this reason, we do not expect that 100% of actions will be completed within these time frames. The LPPP has developed goals that specify the percent that are expected to meet the timeframes.

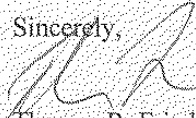
For example, for children with very elevated blood lead levels where chelation is required, a home visit may not be possible within the specified time frame because the family is at the hospital with the child. Another example frequently encountered occurs when the family cannot be immediately located (no phone; incorrect or no address on the provider or laboratory report) which also can delay the follow up process.

Attached are detailed comments related to the findings and recommendations. The response is presented in two sections: (1) General Comments and (2) the Lead Poisoning Prevention Program's Response to the Auditor's Recommendations.

Where appropriate, LPPP will incorporate the audit findings into its on-going efforts to improve its quality of service. In areas where the auditor had identified problems, LPPP has already begun to implement changes to address these concerns.

We appreciate the courtesy and consideration of your audit staff in the performance of this audit. If you have any questions or need further information, please contact Charles Troob, Assistant Commissioner, Business Systems Improvement at (212) 442-8413/8436.

Sincerely,



Thomas R. Frieden, M.D., M.P.H.
Commissioner

TRF/mc

cc: Benjamin A. Mojica, M.D., M.P.H., Deputy Commissioner
Dan Still, Deputy Commissioner
Bob Bernstein, Mayor's Office of Operations



*The City of New York
Department of Health
Lead Poisoning Prevention Program*

*Response to
Audit Report on the
Tracking of Children with Elevated Blood Lead Levels
by the Lead Poisoning Prevention Program of
the New York City Department of Health*

MG01-074A

March 25, 2002

Comments by the New York City Department Health
on the NYC Comptroller's Draft "Audit Report on the Tracking of Children with
Elevated Blood Lead Levels by the Lead Poisoning Prevention Program of the New
York City Department," (MG01-074A)

Below are comments by the New York City Department of Health (NYCDOH) related to the findings and recommendations of the document, "Audit Report on the Tracking of Children with Elevated Blood Lead Levels by the Lead Poisoning Prevention Program of the New York City Department of Health," prepared by the Bureau of Management Audit of the New York City Comptroller's Office. The response is presented in two sections: (1) General Comments and (2) the Lead Poisoning Prevention Program's Response to the Auditor's Recommendations.

The Department believes that these comments provide a more substantive context to evaluate the audit findings and recommendations in relation to the performance of the NYCDOH - Lead Poisoning Prevention Program ("LPPP" or the "program"). Where appropriate, LPPP will incorporate the audit findings into its on-going efforts to improve its quality of service. In areas where the auditor had identified problems, LPPP has already begun to implement changes to address these concerns.

Overall Success & Performance of the Lead Poisoning Prevention Program

The audit report begins with a conclusion that the LPPP is generally doing a good job of addressing childhood lead poisoning.

The Department's Lead Poisoning Prevention Program is a nationally recognized program, providing comprehensive lead poisoning prevention services including case management, environmental enforcement, education and outreach to communities and providers, and surveillance and research aimed at assessing and improving lead poisoning prevention. The Department believes that this performance should have been better amplified in the report since it enables the reader to more effectively place the audit findings in the context of LPPP's overall performance.

LPPP has been and continues to be a very productive program. Each year LPPP processes over 500,000 blood lead tests, facilitated by the program's automated data and case management system known as Lead Quest. In FY 2000, the program sent letters to approximately 6,400 families whose children were newly reported with blood lead levels of 10 mcg/dL- 19 mcg/dL. The letters educated families about lead poisoning and emphasized the need for follow up blood lead testing. Letters were also sent to their medical providers. In FY 2000, there were 923 children newly identified with blood lead levels of 20 mcg/dL or greater or two test results of 15 - 19 mcg/dL at least 3 months apart, which required case management and environmental intervention by LPPP.

Overall the program has been tremendously successful at confronting this environmentally-related illness and implementing measures to reduce poisonings in New

York City children. Following a national trend in the reduction of blood lead levels, the program has seen a steady drop in the number of children with elevated blood lead levels. In the last five years the decline has averaged nearly 20% each year. This reduction is the result of a combination of factors including: 1) education and outreach to communities, building owners, contractors, and the medical community regarding risk factors and preventive measures; 2) lead control and abatement to reduce lead in housing stock; and 3) prompt medical intervention. In addition, policy changes resulting in reductions in other sources of lead such as gasoline have had a tremendous impact on reducing the burden of lead in the environment.

Case Follow Up Performance

The audit report assesses LPPP's case coordination and follow up efforts, comparing performance with written procedures. During the time of the audit, LPPP had a master protocol that described general procedures and timeframes for case follow up activities. In addition, the program had other supporting protocols that defined procedures to be used for extenuating, non-routine, or high priority circumstances. (Many of these protocols have since been integrated into a revised case management protocol.)

While these supporting protocols were provided to the auditor, it appears that the auditor relied on the master protocol as the primary tool to analyze LPPP performance. Based on the audit findings, it appears that the auditor expected LPPP to meet its target 100% of the time. However, LPPP recognizes that there are circumstances that routinely impede us from always reaching families and because of this has designed supplemental procedures with timetables to overcome those barriers.

One supplemental protocol, known as the "Access/Location Protocol," is designed to overcome some of the inherent difficulties associated with case follow up when initial contacts and visits are not successfully completed within the time frames described in the master protocol. The protocol specifies procedures to follow for locating families who cannot be found ("Family Not Found") and procedures to reach families who have a known address, but cannot be contacted ("Family Found – No Access"). The Access/Location Protocol utilizes a range of strategies to reach families including the use of early morning, late afternoon, evening and weekend visits. These visits must be made on different days of the week and on different times of the day within 30 days from the first access attempt.

The Access/Location Protocol is important since it is reflective of the program's commitment to prompt follow up and intervention for lead poisoned children. All but one of the "outlying" cases described in the audit report were successfully reached within the 30-day period using these strategies; the exception is described in detail below.

LPPP performance in meeting these targets is reported to the Centers for Disease Control and Prevention (CDC) on a quarterly basis. In many cases, LPPP has set its goals high (sometimes at 100%) because the program recognizes the importance of rapid follow up and intervention and strives for the highest of standards. These response time frames and

performance targets provide a mechanism for LPPP to track performance, identify problems and develop solutions to improve performance.

For example, for children with very elevated blood lead levels where chelation is required, a home visit may not be possible within the specified timeframe because the family is at the hospital with the child. Another example frequently encountered occurs when the family cannot be immediately located (no phone; incorrect or no address reported by provider or laboratory) which also can delay the follow up process.

Below are LPPP's performance indicators during FY 2000 and FY 2001 for case follow up activities. They provide a picture of LPPP's success at meeting its targets within specified time frames. These activities are highlighted because they were reviewed in the audit report.

- In fiscal year 2000, for 93% of the families with lead poisoned children, LPPP made its initial contact within the targeted timeframe. In fiscal year 2001, this rate improved to 95%.
- In fiscal year 2000, for 94% of the families with lead poisoned children, LPPP attempted to make the initial field visit within the targeted timeframe. In fiscal year 2001, this rate improved to 98%.
- In recognition of the need to differentiate between attempts and successes at initial visits, beginning in fiscal year 2001, LPPP's quarterly report to CDC included different targets for "attempts" and "successful" initial field visits. For 92% of the families with lead poisoned children, LPPP was successful in gaining access at an initial field visit within the targeted timeframe.

The audit looked at 133 cases in FY 2000, with a more detailed review of 28 cases, and a detailed review of 8 cases in FY 2001. The auditors identified some cases where LPPP staff were unable to complete case follow up activities such as initial contact with family and initial field visit within the LPPP timeframes. LPPP believes these findings are important. However, it also believes that it is equally important to note that, for each of these "outlying" cases, an initial contact and initial field visit was ultimately made. This is consistent with LPPP overall performance in addressing lead poisoning prevention in New York City.

Specific Case Issues – Discrepancy in Findings

In an effort to understand the shortcomings identified in the Audit Report and make improvements, LPPP evaluated the case files selected by the auditor for in-depth chart review.

Initial Contacts

Auditor Findings: The auditor reviewed 133 cases and found 10 cases in which the initial contact was not made within the required time frame, concluding that in these cases it took an average of 8 business days to make the initial contact. (Note that five of the 10 cases indicated in this initial contact section are a subset of the 15 cases identified in the Initial Visit Section below). The report highlighted one case where the initial contact was made 19 days after the case was assigned.

LPPP Review: The LPPP reviewed the 10 cases. For all 10 cases initial contact was attempted within the required timeframes but were unsuccessful. The master protocol indicates that when an attempt is unsuccessful a home visit is to be made within 5 business days. In 4 of the 10 cases, successful visits were made within five days from case assignment. In all of the cases, strategies as outlined in the Access/Location Protocol resulted in successful visits within 30 days (as indicated by the Access/Location Protocol).

Regarding the highlighted case, Staff made an attempt to contact the family the same day of as case assignment. Several unsuccessful attempts at a home visit were made (3 and 5 business days after assignment) and a letter was sent to the family (9 business days after assignment) resulting in a successful visit (18 days after case assignment).

Initial Field Visits

Auditor Findings: The auditor reviewed 133 cases and found 15 cases in which the initial field visit was not made within the required time frame, concluding that in these cases it took an average of 12 business days to make the initial field visit rather than the 5 days from assignment, as specified in the performance targets. The report highlighted two cases: one where the initial field visit was made 36 days after the case was assigned; the second where the initial field visit was made 7 days after case assignment.

LPPP Review: The LPPP reviewed the 15 cases. For 11 of the 15 cases, initial attempted visits were made within the appropriate time frame, but were unsuccessful. The initial attempted visits for three cases of the remaining four cases were three days late; the fourth initial attempt was six days late, with extenuating circumstances related to blood test confirmation from the physician for case definition.

In all of the cases except for one, strategies as outlined in the Access Location Protocol resulted in successful visits within the 30 days (as indicated by the Access Location Protocol); the exception is described below.

The auditor highlighted two cases. In the first highlighted case (36 days from assignment), the initial phone call and initial attempted visit were made within the requisite time frames. Staff made several attempts to visit the family, leaving a note each time. In a subsequent phone conversation with the mother (four days after assignment), she indicated that she was reluctant to provide DOH access to the apartment for the initial interview because the apartment tenant/owner with whom she was staying would not permit access. She stated that she would be moving in the next month and agreed to provide LPPP with her new contact information after she moved. Lead poisoning prevention risk reduction counseling was provided during the call. The need for follow up blood lead testing was emphasized, along with a proper diet and nutritional plan. Ultimately, a staff person was successful in making the home visit to the new residence.

Regarding the second highlighted case, the initial phone call and initial attempted visit were made within the requisite time frames. In addition, staff assigned to inspect the home made face-to-face contact with the family on two separate occasions (2 and then 5 business days after assignment), but the family stated that it was an inconvenient time for an inspection. The inspection and initial PHA field visit eventually occurred seven days after the initial assignment.

Reminder Letters

While the old protocol called for reminder letters within three months for children who had not received a follow up blood lead test, procedures have since been amended. If our effort to contact the family by phone or face-to-face visit is not successful, a reminder letter is sent.

In general, LPPP follow-up efforts are guided by the class of the blood lead level. The frequency of our follow-up is based on the seriousness of the blood lead level elevation, the age of child, and the prescribed medical treatment.

At each follow up field visit, LPPP field staff stresses the importance of follow up blood testing and, when necessary, during the visit will facilitate a follow up appointment for blood lead testing. When a follow up field visit with a family is unsuccessful, LPPP will utilize several techniques to notify parents (and providers) about the need for follow up blood lead testing, including telephone calls, home visits and reminder letters. In all cases, the intervention methods are required to be documented in the case file.

Because follow up blood testing is important to the program, the program will continue to monitor the impact of the change and make adjustments as needed.

Implementation of New Protocol

The auditors were critical of LPPP because, at times, the written protocol did not reflect current procedure. LPPP was already responding to this need by preparing an "Integrated Case Management Protocol". This protocol incorporates a borough team structure for care coordination activities. The protocol also integrates changes in case documentation and case management that occurred due to the introduction of the Lead Quest System.

The borough team structure was piloted in one borough and is being implemented citywide. Our aim is to improve coordination and communication between field and office-based staff. Consistent documentation also is critical to this process. Since this is a comprehensive protocol, the program anticipates that edits and adjustments will be made over the course of the implementation process and as part of our on-going quality improvement efforts.

The LPPP began revising its procedures during the time period of the audit. The revisions were necessary because of the introduction of a new management information system (described below) and in response to preliminary data from the pilot borough team project. The LPPP began a series of labor/management discussions designed to clarify the roles of civil service titles used in this pilot project, which delayed full implementation of the borough team project along with accompanied revisions of the written protocol to reflect new procedures for case coordination. LPPP believes that the auditor's analysis failed to adequately consider the impact of these changes on program performance.

Lead Quest Implementation & Documentation in Folders

As noted above, the auditor's review of LPPP occurred during a period when the program was undergoing major changes in its management information system. Lead Quest, the database system designed to support LPPP's surveillance and case management activities, was implemented in January 1999. The audit examined LPPP performance during FY 2000 period (July 1, 1999 to June 30, 2000) and a shorter period in FY 2001. While Lead Quest has been a tremendous asset to LPPP, enhancing its surveillance and case management capabilities, the implementation phase of the system required numerous changes in procedures related to case documentation and report generation. Many of these changes had not yet been incorporated into existing protocols, yet the audit used these protocols to compare performance with procedure. As a consequence, LPPP, at times, appeared to come up short.

For example, the auditor reviewed 36 case files and found a lack of written documentation (Change of Data/Status Form) in the file indicating that there was a change of case status before case closure, as required in the existing protocol. However, the new Lead Quest system is designed to automatically close cases when the blood lead level falls below 15 mcg/dL, and after all violations have been corrected, making the change of case status/data form unnecessary. The protocol reviewed by the auditors had not yet been amended to reflect this change.

The auditors also found a lack of documentation related to supervisory review. In 1999-2000, the use of Lead Quest was a new methodology for case management and, while oversight took place, staff were still becoming familiar with the way in which Lead Quest could be used for this task. Enhanced training and reinforcement of the need for documentation is a major component of our new protocol.

Furthermore, "exception reports," are now generated monthly rather than just quarterly. These reports allow supervisors and staff to review specific cases that fall outside of LPPP targets so that assignments can be made to rectify problems. In addition to these exception reports, Lead Quest also provides a color-coded flagging system indicating the urgency for required follow up steps. LPPP is also using a more structured approach to support quality improvement, which will be implemented at all levels of the organization.

Report Development/CDC Reports

The auditors found discrepancies between numbers reported in hard copies of the program's quarterly reports to the CDC and the current Lead Quest database. The auditors suggested that the program's reports to CDC might be unreliable and mislead users. LPPP objects to the inference that our data are unreliable and misleading, and believes the auditor failed to take into consideration the impact of the introduction of the program's new management information system.

During the period being reviewed, Lead Quest reporting functions were being modified, de-bugged, and corrected. Since that time, LPPP has had two additional contracts with the Lead Quest vendor to correct and further enhance the system. The program has improved its capacity for producing reliable program reports by correcting inaccuracies in report generation, having a single staff person dedicated to overseeing the quarterly reports, and retaining hard copy documentation and comments for historic case and activity exceptions.

The auditors cited slight data inconsistencies generated by Lead Quest at different points in time. These inconsistencies reflect the complexity and dynamic nature of the data in Lead Quest. Lead Quest is a "live" database. As new information is received, Lead Quest is updated and any new report or documentation will reflect this current information. New information can consist of such things as: the child does not in fact reside in our jurisdiction, or the blood test was a capillary sample rather than a venous sample. While new information related to case management can be obtained via a phone call, months can pass before the program receives formal documentation that permits staff to change a case's status in the database. New information can result in slightly different numbers being reported from the live system than in published CDC reports.

Additionally, certain reports generated with the former mainframe system and described in existing protocols were no longer produced because Lead Quest created other methods to manage cases. For example, the protocol called for review of printouts to identify

overdue activities; as noted, Lead Quest automatically flags cases, making these reports unnecessary.

The auditors recommended that the program report information in the Mayor's Management Report (MMR) on the contacts and visits made by the staff and also consider reporting the number of active cases in the Mayor's Management Report (MMR). The indicators currently in the MMR have focused on the number of newly identified lead poisoning cases and on productivity measures, particularly related to environmental activities. These measures include reports on the percent of new cases with successful initial inspections on the primary address completed within a target time period, number of successful initial inspections on the primary or supplemental address, number of primary or supplemental addresses with abatement completed.

Based on the newly revised LPPP protocol, public health advisors only visit families in situations requiring more intensive follow up. Thus, an indicator on the contacts and visits made by public health advisors would not provide consistent information. Public health sanitarians visit the families in all cases and this is reflected in the indicator "Total Inspections Conducted." The LPPP can provide information for the MMR related to contacts made; however, it is not clear whether this would provide a better measure of productivity than the indicators already provided.

With regard to the total number of active cases, while this number can provide a more complete picture of the work load of LPPP staff, the incident number reported to the MMR provides a better picture of trends in lead poisoning.

The indicators that are included in the MMR are ultimately the decision of the Mayor's Office. We will explore the inclusion of the aforementioned indicators with that office.

Conclusion

In closing, the New York City Department of Health Lead Poisoning Prevention Program is committed to continually improving its program performance in order to prevent lead poisoning in New York City children. The Department believes that these general comments provide a more substantive context to evaluate the auditor's findings. In areas where the auditor had identified problems, the program has already begun to implement changes to address these concerns.

The Lead Poisoning Prevention Program's Response To Auditor's Recommendations

Below are the Auditor's Recommendations, along with the Lead Poisoning Prevention Program's (LPPP) Response. The auditor's recommendations are in bold.

In order to properly monitor lead-poisoned children, LPPP officials should ensure that its staff:

1. Make initial contacts and visits within the prescribed timeframes specified in the Protocol.

LPPP agrees that initial contacts and visits should be made within the prescribed timeframes. As noted earlier, the new protocol, which is in the early stages of implementation, clarifies the timeframes in which staff will attempt initial contacts and initial visits. Procedures and timeframes to follow when the results of the initial attempt at making contact or a field visits are not successful have been integrated into this new protocol, rather than appearing as stand alone procedures as they were in the past. These procedures are important because, while our protocols specify time frames for completion of each activity, LPPP recognizes that there might be extenuating circumstances which make it difficult to always reach follow up targets. The program will continue to monitor performance in order to identify problem areas and make improvements.

2. Establish alternative procedures and/or work hours to contact or visit working parents who are not at home during the weekdays.

LPPP already includes early morning and evening and weekend visits when access cannot be gained during regular business hours. As noted earlier, these procedures were in place during the time of the audit and utilized as a strategy to eventually reach all families identified in the audit; even with these varied hours it is not always possible to be successful due to the unavailability of some parents.

3. Send reminder letters to parents of children who have not received a follow-up blood test within a three-month period.

LPPP follow-up efforts are guided by the class of blood lead level. The frequency of follow up is based on the seriousness of the elevation, the age of child, and the nature of medical treatment. As noted, the old protocol called for reminder letters for follow up blood testing. These procedures have since been amended. If our efforts to contact the family by phone or by a face-to-face visit are unsuccessful, then a reminder letter is sent. In all cases, the intervention method should be documented in the case file.

Because follow up blood testing is important to the program, LPPP will continue to monitor the impact of the decision and make adjustments, as needed.

LPPP officials should:

4. Prepare an updated Protocol that reflects current procedures to be followed by PHAs and other personnel.

LPPP has already responded to this need by preparing the “Integrated Case Management Protocol”. This protocol incorporates a borough team structure for care coordination activities. This approach was piloted in one borough and is being implemented citywide. Our aim is to improve coordination and communication between field and office-based staff. Since this is a comprehensive protocol, the program anticipates that edits and adjustments will be made over the course of the implementation process and as part of our on-going quality improvement efforts.

5. Ensure that their managers and supervisors adequately supervise the LPPP staff and document their supervisory reviews in the files and in Lead Quest.

LPPP is also in the process of developing a more structured approach to support quality improvement that will be implemented at all levels of the program. Details of the QI process are still in the early phases of development. However, the elements of the process, specifically related to field operations, are likely to include:

- o Review of hard copy printouts listing new, active and reopened cases, as tools for tracking the status of cases and successes of interventions, as outlined in the new protocol. These printouts will be used by supervisors, by senior public health advisors and sanitarians, and by field staff.
- o Lead Quest case review and documentation by supervisors and by senior public health advisors and sanitarians on a daily basis.
- o Review of monthly exception reports. These reports will be evaluated with a particular aim at identifying case-specific problems as well as more systemic problems requiring attention on the borough wide or program wide basis.
- o Review of quarterly CDC reports, which provide a program-wide look at performance.
- o Supervisory review and sign off of all follow-up plans.
- o Field staff will be expected to submit all documentation of completed fieldwork to a supervisor by the close of business on their next scheduled office day. Supervisors are expected to review and submit for data entry all fieldwork documentation by the close of the following business day.
- o Random chart and database review of cases, looking at targeted areas of concern, including the quality and completeness of documentation in the files; adequacy of follow-up plan; and supervisory review consistent with the problems identified.

Many of the above measures are already being implemented and integrated into the operations of the new borough team model. However, the overall QI plan which affects program-wide performance is still in the early stages of development.

6. Prepare and document progress reports, change of data/status forms and supervisory reviews, as required by the LPPP Protocol.

Public Health Advisors used an "Intervention Report" that provided a format to capture all interventions and actions taken, and a follow-up plan. Progress notes were only used for additional writing space when needed where there was not enough space on a form.

In addition, the Lead Quest system is designed to automatically close cases when the blood lead level falls below 15 mcg/dL after all violations have been corrected, making the Change of Case Data/Status form unnecessary in these situations.

Finally, the response to recommendation #5 above describes the program's development plan to document the supervisory review process.

7. Ensure that the information reported in the quarterly reports to CDC is accurate and compatible with the information in the supporting documentation.

The LPPP has worked hard to develop indicators for program review. Such indicators were programmed into our mainframe computer, which was in use until December 1998. Due to the urgency for LPPP to get Lead Quest implemented, computer programs to be used to generate reports to CDC and others were not fully developed. The period under audit was exactly the time period when the new computer programs were under development and being debugged. As such, during the period that was audited, there were errors in the quarterly reports the program submitted to the CDC. These errors have since been rectified in the Lead Quest system.

The program has improved its capacity for producing reliable program reports by having a single staff person dedicated to overseeing this effort, and by retaining hard copy documentation and comments for historic cases and activity exceptions. LPPP has also developed new mechanisms to maintain copies of documents supporting the CDC quarterly reports, and will emphasize to CDC the preliminary status of the data in the CDC quarterly report.

8. Ensure that the back-up documentation used to prepare the quarterly reports to CDC is maintained.

The program has already implemented new procedures to retain hard-copy documentation of historic reports with detailed comments so that historic case numbers and activity exceptions can be reconstructed upon demand.

9. Ensure that data used as the basis for the quarterly reports to CDC are reviewed by LPPP supervisors and submitted for entry into Lead Quest on a timely basis.

See response to Recommendation #5.

10. Generate and maintain reports, as required by the LPPP Protocol. This would enable LPPP to have easy access to critical information regarding children with elevated blood lead levels.

Exception reports are now generated monthly, allowing supervisors and staff to review and rectify any outstanding issues. LPPP has developed new mechanisms to maintain copies of documents supporting the exception reports. Furthermore, Lead Quest provides a color-coded flagging system indicating the urgency for required follow-up steps.

11. Report information on contacts and visits made by LPPP staff in the Mayor's Management Report; and
12. Consider reporting the number of active cases in the Mayor's Management Report.

The indicators currently in the MMR have focused on the number of newly identified lead poisoning cases and on productivity measures, particularly related to environmental activities. These measures include reports on the percent of new cases with successful initial inspections on the primary address completed within a target time period, number of successful initial inspections on the primary or supplemental address, number of primary or supplemental addresses with abatement completed.

Based on the newly revised LPPP protocol, public health advisors only visit families in situations requiring more intensive follow up. Thus, an indicator on the contacts and visits made by public health advisors would not provide consistent information. Public health sanitarians visit the families in all cases and this is reflected in the indicator "Total Inspections Conducted." The LPPP can provide information for the MMR related to contacts made since. However, it is not clear whether this would provide a better measure of productivity than the indicators already provided.

With regard to the total number of active cases, while this number can provide a more complete picture of the work load of LPPP staff, the incident number reported to the MMR provides a better picture of trends in lead poisoning.

The MMR provides an oversight of all NYC programs; the format for reporting is different than the format for the CDC report, which focuses solely on LPPP activities. The indicators that are included in the MMR are ultimately the decision of the Mayor's Office. We will explore the inclusion of some of the aforementioned indicators with that office.