

**School Supportive Health Services Program (SSHSP)  
Independent Audit Services  
Request for Proposals FAU#1001260925**

**Questions and Answers**

**NOTE: The due date for the proposals under this RFP has been extended.  
The new due date for the proposals is April 21, 2010.**

1. When does DOH estimate an award will be made?

Answer: It is anticipated that the contract will begin on July 1, 2010. Therefore, pending unforeseen circumstances, DOH anticipates making an award with sufficient time to have a contract approved by the Office of the State Comptroller by that time.

2. What is the estimated value of the resulting contract?

Answer: The value of the contract will be contingent on available funding and bid price submitted by the winning bidder.

3. Is there a form to be completed regarding Attachment H, Cost Proposal?

Answer: An Excel spreadsheet for Attachment H, Cost Proposal, is on the DOH website, [www.nyhealth.gov/funding/rfp/1001260925/index.htm](http://www.nyhealth.gov/funding/rfp/1001260925/index.htm), located under the RFP file link.

4. Per section E.15 M/WBE, Page 19, the section indicates that the use of M/WBE is encouraged; however, it appears that a plan is required. Please confirm that the use of a M/WBE is not required.

Answer: Bidders will need to fill out and submit the forms in Attachment Q that apply to them. The RFP states that “Bidders who are not currently a New York State certified M/WBE must define the portion of all consumable products and personnel required for this proposal that will be sourced from a M/WBE. The amount must be stated in total dollars and as a percent of the total cost necessary to fulfill the RFP requirement.” The percentage goals for this RFP are 5% for each of MBE and WBE.

5. Can the DOH provide an estimated number of hours per deliverable?

Answer: The number of hours per deliverable should be determined by the bidder, consistent with the requirements of the RFP, based on prior experience in the area of governmental and/or internal control auditing.

6. Our firm currently provides internal and external audit services to approximately 50 school districts throughout NYS. Does the fact that we provide audit service to school

districts disqualify us from being considered for this proposal? I have read the conflict of interest section of the RFP.

Answer: No. Recognizing that potential bidders may perform other audit activities for school districts, the RFP in Section C.4 allows the bidder to describe how they would propose to avoid an actual or potential conflict of interest and/or disclosure of confidential information relating to this contract.

**7.** If the answer to question 6 is yes, then will it be possible for DOH to engage two CPA firms for completion of this project so that neither firm will be conflicted by examination of claims from a District that the firm may have an existing internal/external audit contract?

Answer: No. It is the intent of the DOH to select one contractor.

**8.** If the answer to question 7 is no, then the logical conclusion is that any CPA firm doing any internal/external audit work with any one of the 700 NYS School Districts will be conflicted in submitting their proposal. Unless of course, the firm chooses to resign from its existing audit engagements for School Districts. Resignation may or may not eliminate the perception of a conflict. Therefore, as an alternative, would DOH be willing to exclude claims from existing clients of the CPA firm from the sample population?

Answer: No. We do not interpret the Compliance Agreement to allow us to exclude claims from the sample population.

**9.** Our firm is an OGS approved vendor. Depending upon the answers to questions 6 - 8, I believe that the pool of qualified CPA firms without conflicts may be very small. In addition, the cost of the services to be provided may be negatively impacted if the CPA firm has no experience in working with Medicaid School Supportive Health Service claims. Therefore, would DOH be willing to consider any other alternative structure or approach that may allow our firm to submit a response to this RFP without concern for conflict?

Answer: No. See response to Question #6.

**10.** Section C.1.2 Page 2. The section indicates “The expected sample size is not to exceed 1,000...”. This appears to be a sample size cap. If so, is 1,000 the overall sample size cap for each annual audit, or is it a cap for each individual audit sample? For example, if we need to pull two separate samples to test two different internal controls, does the 1,000 sample size cap apply to each of the two samples, and does the 1,000 sample size cap apply to the two samples combined, i.e. the combined total sample size for the two samples should not exceed 1,000?

Answer: 1,000 is the overall sample size for each annual audit.

**11.** Per section D.2.1.a., “The DOH expects that the majority of the assigned work will be conducted at the primary work location in Albany, NY”. Is the contractor expected to visit the any of the schools?

Answer: The decision whether to visit any of the schools should be up to the contractor as a licensed independent certified public accounting firm.

**12.** Per the Compliance Agreement, Section B Audit Requirements outlined for the OMIG, have the audits started or will they be included as part of the scope of this RFP?

Answer: The audits as identified in the Compliance Agreement have begun. Once completed, the findings will be available on the OMIG website: [www.omig.state.ny.us](http://www.omig.state.ny.us).

**13.** Is there any existing audit procedures at DOH that we need to use as reference on the sample design and selection?

Answer: This is an independent audit. The sample design and selection should be determined by the contractor as a licensed certified public accounting firm, and based on experience in conducting governmental and/or internal control audits. However, for informational purposes ONLY, an attachment has been included at the end of this document (**Q&A Attachment 1: Q13 OMIG Statistical Sampling**) that describes OMIG's statistical sampling.

**14.** Will we be able to obtain previous years' exam or audit results, in order to improve the efficiency of our sample design? Previous years' exam results can help us establish testing expectations of error rates and enable us to estimate more reliably the sample sizes required to achieve the targeted sampling precision.

Answer: Calendar year 2010 will be the first year that school districts and county Preschool providers will be audited by the OMIG. In previous years, prior to NYS signing the Settlement and Compliance Agreements with CMS, the OMIG conducted Corrective Action Reviews which are similar to audits but the samples of claims reviewed were not statistically valid samples and therefore the results were not extrapolated against the universe of paid claims submitted by the providers. The following reports are currently available for review on the OMIG website at [www.omig.state.ny.us](http://www.omig.state.ny.us):

- √ Corrective Action Reviews (documentation reviews);
- √ Final Audit Reports issued by the federal Office of the Inspector General for audits of speech claims (2 reports -NYC & Rest of State); and
- √ Final Audit Reports issued by the federal Office of the Inspector General for audits of transportation claims (2 reports -NYC & Rest of State).

**15.** What is the DOH required sampling precision and confidence level for the sampling based audit?

Answer: DOH does not have a required sampling precision and confidence level for the sampling based audit. For your information, the OMIG audits have a 90% Confidence interval and a 95% Confidence level.

**16.** Can we use multiple-year sample for testing purposes?

Answer: Please refer to Section C.1.2 for guidance on the sample.

**17.** In regard to information discussed in Attachment A (Compliance Agreement), will minutes of Compliance Committee be available either prior to or at the commencement of the internal audit engagement?

Answer: No. The Compliance Committee minutes are not recorded.

**18.** It is not clear whether every school should be included in the stratified sampling of the Programs claims processing performance or if a rotational approach is ok; could you elaborate on this requirement of OMIG? There seems to be an indication that only 25 entities will be reviewed by OMIG per year, is this correct?

Answer: The independent audit approach selected should be determined by the contractor. Specific to audits conducted by OMIG, there will be three years of OMIG audits of SSHSP claims. The audits are to start in 2010, and each audit will have a sample of 100 claims to review. The OMIG agreed to audit:

- √ Every SSHSP provider that was paid more the \$1M for the calendar year starting with calendar year 2009;
- √ 25 SSHSP providers that were paid more then \$250K but less than \$1M; and
- √ 10 SSHSP providers that were paid more than \$1 but less than \$250K.

**19.** How many entities had to file corrective action plans?

Answer: Only one entity, the NYC school district, has had to file a corrective action plan to date.

**20.** Has the SSHSP performed any audits or compliance inquiries that we as auditors can leverage?

Answer: See response to Question #14.

**21.** Will data and findings from the OMIG audits be available to help us focus our scope and testing attributes?

Answer: See response to Question #14.

**22.** How is Training Program data maintained as it relates to all participants in the Program? Is it maintained in a database or spreadsheet? If so, what attributes are captured in the data?

Answer: The Training Program data is currently maintained by the New York State Education Department (SED) in an Access database. The database includes, at a minimum, trainee name, title, role or profession and credentials (if applicable), district or county served, employer, date and location of initial training, and dates and location of annual training. SED is working to develop a database for online use where schools could

add the initial data online. This database will be maintained by SED staff. The database software has yet to be determined.

**23.** Has the SSHSP made all the changes proposed in the Corrective Action Plan sent to HCFA (CMS)? Who is performing the payment monitoring and reweighting work specified in the CAP? Will this information be available for our review?

Answer: CMS approval of the State Plan Amendment (SPA) for SSHSP is needed before the Correction Plan is completed and sent to CMS. DOH's Office of Health Insurance Programs submitted the SPA on September 1, 2009. OHIP will be performing the payment monitoring and reweighting work specified in the CAP. Once the SPA is approved and the CAP is submitted it will be available for review.

**24.** It is not clear from the RFP whether any process documentation currently exists. Such documentation would be used by us in order to identify the key internal controls that have to be tested as per the RFP requirements. Thus, please clarify that process and control documentation for each of the significant business processes exists.

Answer: Attachment D of the RFP provides a copy of sample documentation. Per the Compliance Agreement, CMS reserved the right to review and approve or disapprove OMIG's auditing protocols and plans. OMIG has submitted to CMS its auditing protocol and plan for speech therapy. Once this protocol and plan are approved, OMIG intends to use them as the template for the audit documents for other SSHSP services. Once approved, the protocols will be available on the OMIG website, [www.omig.state](http://www.omig.state).

Attachment F of the RFP provides a description of the Compliance Training Program. The State Education Department (SED) is in the process of developing a training curriculum on the federal and federally compliant state requirements for claiming Medicaid reimbursement for SSHSP services. The training curriculum will be developed in consultation with DOH and will require its approval. Once the State Plan Amendment (SPA) for SSHSP is approved and the training curriculum developed, it will be available on the SED website, [www.oms.nysed.gov/medicaid](http://www.oms.nysed.gov/medicaid).

As additional documentation may be developed based upon approval of the SPA, we advise you to monitor these websites as well as the DOH website for updates.

**25.** We have not been able to obtain a copy of the Medicaid-in Education Claiming/Billing Handbook (see clause C.1.1) from the link (<http://www.oms.nysed.gov/medicaid>) provided in Attachment E. Can you please arrange for us to receive a copy of the Handbook?

Answer: The link for the handbook is: <http://www.oms.nysed.gov/medicaid/resources/>. If you continue to have problems accessing this document, you may contact the Permissible Subject Matter contact set forth in the RFP to request a hard copy.

**26.** Per section C.1.2, the audit periods start on January 1 of every year. Does the audit period for each year end on December 31?

Answer: Yes.

27. Per section C.1.2, can we assume that the population for testing will include all claims paid during the defined audit period regardless of the date of service?

Answer: Yes.

28. Per section C.1.2, in order to estimate the sample size, error rate, etc., can you please provide the expected population size for each of the audit periods?

Answer: While we have historical data, the Department does not have estimates of the population size for the audit periods.

29. Per section C.1.2, the due date for the audit report is defined as March 31. However as the RFP bids are submitted after March 31, what is the expected report submission date for 2009? Can the submission deadlines for 2010 and 2011 be also altered so as to take advantage of resource availability / pricing by not clashing it with CPA firms' busy season (January – March)?

Answer: The submission date for the 2009 review will be March 31, 2011; for 2010, March 31, 2012, and for 2011, March 2013. It is not DOH's intent to alter the submission dates.

30. The pricing cap by each deliverable is not very practical. For example, in C.2.3, it is difficult to estimate a fixed effort required to report a material finding as it will depend upon the materiality, complexity, etc. Thus, can we report it as a range rather than a number?

Answer: The cost proposal, included as Attachment H in the RFP, will not be modified and must be completed by the bidder as written, based on the bidder's experience in conducting governmental and/or internal control audits.

31. In order to audit the automated internal controls, we would also need to audit the IT General Controls, as well as the IT Application Controls. For this purpose, may we request a list of the key applications that are being used, along with the IT infrastructure (hardware, networking equipment, operation system, other software, etc.) being used?

Answer: The two major IT applications are the Welfare Management System, or WMS, (both upstate and NYC) to establish client eligibility and eMedNY that pays the individual claims. The WMS is administered by the Office of Temporary and Disability Assistance (OTDA), with the application run in the Office For Technology (OFT) data center. EMedNY is administered by DOH via a fiscal agent contract in accordance with Social Services Law. For informational purposes ONLY, and subject to change, two **Excel spreadsheets have been posted on the DOH website pertaining to the hardware and software profiles for eMedNY (Q&A Attachment 2: Q31 eMedNY Inventory and Q&A Attachment 3: Q31 Server Software).**

**32.** What is the total number of employees in the organization? May we have an organization chart?

Answer: We are assuming you are inquiring about the organizational chart for the DOH Office of Health Insurance Programs, the entity issuing the RFP. The current target of OHIP positions is 814, with 774 positions currently filled. An organizational chart is not currently available.

**33.** Is there a preference or requirement as to the type of audit you and/or CMS requires (C.2.4)? This would have a major effect on cost of the audit especially if OMB 133, GAGAS and GAAS are combined. Not having a clear definition of the report type would make bids highly variable and not comparable.

Answer: DOH does not identify a preference. C.2.4. provides a list of types of audits. It is expected that the type selected will be the one determined by the contractor as a licensed independent certified public account firm as most appropriate to perform the services as specified in the RFP.

**34.** Internal control testing, we anticipate, would have to be reevaluated every year particularly as it relates to items discussed in the CAP, is this correct?

Answer: Whether internal control testing needs to be reevaluated yearly should be determined by the contractor as a licensed independent certified public accounting firm and based on prior experience conducting governmental and/or internal control audits.

**35.** Depending on the number and types of certifications the SSHSP makes to CMS via the CMS-64 Form, additional scope creep may occur due to changes that may be implemented from year to year. Do you have a current CMS-64 that we can review?

Answer: Below is a copy of a certification relative to the CMS-64. It is a broad certification statement for the entire Medicaid program. States are required to submit the CMS-64 on-line to CMS via the Medicaid Budget and Expenditure System. If you would like a copy of the latest report, you may contact the Permissible Subject Matter contact set forth in the RFP and request a hard copy.

Quarterly Medicaid Assistance Expenditures  
For the Medical Assistance Program

State: New York

Quarter Ended: 12/31/2009

CMS 64 Summary Sheet	Certification			
	Medical Assistance Payments		State and Local Administration	
	Total	Federal Share	Total	Federal Share
	(A)	(B)	(C)	(D)
Net Expenditures Reported In This Period (Sum of Items 6, 7 and 8 Less 9 and 10)	12,811,871,138	7,804,093,314	0	0
I certify that:				
<p>1. I am the executive officer of the state agency or his/her designate authorized by the state to submit this form.</p> <p>2. This report only includes expenditures under the Medicaid program under title XIX of the Social Security Act (the Act), and as applicable, under the Children's Health Insurance Program (CHIP) under Title XXI of the Act, that are allowable in accordance with applicable implementing federal, state, and local statutes, regulations, policies, and the state plan approved by the Secretary and in effect during the Quarter Ended indicated above under Title XIX of the Act for the Medicaid program, and as applicable, under Title XXI of the Act for the CHIP.</p> <p>3. The expenditures included in this report are based on the state's accounting of actual recorded expenditures, and are not based on estimates.</p> <p>4. The required amount of state and/or local funds were available and used to match the state's allowable expenditures included in this report, and such state and/or local funds were in accordance with all applicable federal requirements for the non-federal share match of expenditures.</p> <p>5. Federal matching funds are not being claimed on this report to match any expenditure under any Medicaid and/or CHIP state plan amendment that was submitted after January 2, 2001, and that has not been approved by the Secretary effective for the Quarter Ended indicated above.</p> <p>6. The information shown above and on the Form CMS-64 Summary Sheet and the Supporting Schedules is correct to the best of my knowledge and belief.</p>				
Date: 2/5/2010 12:00:00 AM	Signature: Nicholas Meister		Title: Chief Accountant	
User Performing Certification: k1n3				
Footnotes:				
<p>The completed Budget, Expenditure and supporting forms are to be submitted via the on-line MBES/CBES system to the Centers for Medicare &amp; Medicaid Services, Center for Medicaid and State Operations, Finance, Systems and Quality Group, Division of Financial Management, located at Mailstop S3-13-15, 7500 Security Blvd., Baltimore, Maryland 21244-1850.</p>				

**36.** Ad Hoc Reporting (C.2.5) - We assume that this item should be on an hourly basis since we have no idea how many hours this could ultimately entail yet it is stated as the opposite on the Cost Proposal sheet, please discuss.

Answer: Bidders should complete the cost proposal, Attachment H of the RFP, as written; it will not be modified.

**37.** How many copies of reports are anticipated annually? Is it safe to assume that we can provide PDF electronic versions or will SSHSP require printed copies?

Answer: DOH anticipates requesting 5 printed copies of each of the deliverables referenced in the RFP along with one PDF electronic version.

**38.** Is there any provision for delays in deliverables caused by circumstances outside of our control (i.e.: SSHSP not able to provide materials or follow up information timely)? Also, we would assume that DOH review of our deliverables and questions/comments thereon would not be of the nature as to modify the findings of our audit or other services performed, is this correct?

Answer: With the exception of provisions relating to the resubmission of deliverables as described in C.3, the RFP does not contain provisions for delays in deliverables.

With the exception of provisions within the RFP as they relate to DOH's ability to make comments on preliminary findings and deficiencies, your assumption is correct regarding DOH's ability to modify the nature of the findings as DOH is seeking an independent audit from a licensed certified public accounting firm.

**39.** There does not appear to be a stated period when the work is expected to be performed. If the SSHSP anticipates that the work were to be performed in a period that is typically not the accountants busy season (January 1<sup>st</sup> thru April 15<sup>th</sup> of each year), then pricing would be somewhat less than expected, can you elaborate on the anticipated time frame for the work and annual report date requirements?

Answer: See response to Question 29 on page 5.

**40.** Per section D.1.4, by "overall approach description", we assume you mean a high level approach to the engagement and not necessarily describing specific tests or approaches that we will take as that would skew the validity of the audit, are we correct?

Answer: The description and details provided by the bidder need to adequately answer D.1.4 of the RFP.

**41.** Per section D.1.4, as for a sample report, this particular audit would be an attestation on control environment and an agreed upon procedures report for the rest of the items scoped. In this case, each report would be unique to the SSHSP and not produced yet so one would not be available; would you consider waiving this section? We cannot provide you with report

copies from other similar engagements as they are confidential in nature and their distribution is limited by our clients.

Answer: As noted in Section D.1.4, the proposal requirement is to submit a sample reporting format. This sample format may include redacted information, if a completed report, or be a blank report format.

**42.** It appears that the contractor will only get paid at the conclusion and acceptance of each deliverable, is that correct?

Answer: Yes.

**43.** Typically professional services are billed on an ongoing basis, are you willing to consider this methodology?

Answer: No.

**44.** A meeting or conference call with State stakeholders and interested parties related to this RFP would serve to fine tune expectations and provide the State with a better bids. Would you be willing to entertain such an informational exchange?

Answer: No, the bidder should comply with the requirements of the RFP.

## **Q&A Attachment 1: Q13 OMIG Statistical Sampling**

1. Statistical sampling is used in auditing to save time and auditing costs, and to increase the accuracy of the audit. Clearly, it is less time consuming and less costly to audit a subset or a sample from a large list of records than it is to audit the entire list. In many instances statistical sampling allows an audit of an account to be conducted that would otherwise be too voluminous or complex to audit in its entirety.

Greater accuracy may be achieved by allowing the auditors, the audited party, representative for both parties, and if necessary, a judicial forum to examine each record in a sample more thoroughly than would be possible if a larger list of records was investigated. The sampling error that is introduced by the fact that only a sample has been audited can be measured and controlled, while the magnitude and direction of errors made on records less thoroughly examined, are generally unknown and frequently exceed the size of the sampling error which can be determined.

To realize greater accuracy, savings in time and resources and valid projections, care must be taken to properly construct the sampling frame (list of records), design the sampling plan, take a probability sample, and choose an appropriate estimation procedure.

2. To perform a statistical financial audit, auditors review a subset of the transactions or cases that are at issue, a sample. It is important that the sample is a probability sample, i.e. a sample from a population where the probability of inclusion in the sample is known. The findings based on the sample are then extrapolated to the entire set of financial statements in question. This kind of partial audit may be deemed desirable in a variety of circumstances. Not only does it save time and money, but it may also reduce the chance of careless error that is increased by a greater number of individual statements.

3. To carry out an estimation procedure, it is crucial that the sampling procedure on which the estimate is based produces a valid probability sample. That is, the procedure must be designed so that prior to the sampling itself, exact probabilities of sample inclusion can be established for each unit in the population.

The most common kinds of probability samples are simple random samples and stratified random samples. A simple random sample is one where each unit in the population has an equal chance of being independently included in the sample. A stratified random sample is one where the sampling frame is first divided into mutually exclusive strata and then randomly sampled within strata. Many estimation techniques

rely on some form of random sample, so it is important that the method used to generate these samples will stand up to rigorous validity tests.

Random samples are commonly produced using random number tables or with automated (computer-generated) random number generators. Random number generators are really mathematical algorithms that can be programmed into a computer. However, not all of these automated generators produce adequate random sequences. To test for sufficient randomness, various statistical tests can be carried out on either the algorithms or the resulting sequences. One technique that has been tested in this way and has been found to work well is the linear congruential method.

4. The linear congruential method is a method for generating random numbers. Starting with an arbitrary chosen seed, (frequently some function of the date and time), numbers are consecutively generated that are determined by making a linear transformation of the previously selected number, dividing the result by a predetermined constant, and equating the next random number to the remainder of this last quotient. This process continues until the desired sample size is achieved. This method has been tested in the statistical and computer science literature and found to be very reliable. (See D. Knuth, *The Art of Computer Programming; Semi-Numerical Algorithms*, Addison--Wesley.)

5. The random number generation program used in the audit of this Provider uses the linear congruential method and the sequence produced in this case passed tests designed to test for randomness.

6. In contrast to the simple random sample, the systematic sampling method frequently used by accountants lends itself to attack. In a systematic sample, every  $k^{\text{th}}$  unit in a population is selected for sample inclusion. This method is convenient and usually produces a sample that is representative of the larger population. However, it will produce a random sample only if the units in the population are arranged in random order to begin with. This is likely to be the case, but may be difficult if not impossible to prove. There may be some unaccounted for cyclical order to the data and the systematic sample could be rendered useless as a result. For example, suppose that in a systematic sample, every 15<sup>th</sup> working day was chosen to produce a representative sample of daily bank deposit totals. If the first day chosen was a Friday, the sample would yield spuriously high estimates of total deposits.

7. Point estimates have some important properties. They may be maximum likelihood estimates, in which case they have the greatest likelihood of being the correct estimates. They may be unbiased, which

means that they do not tend to either overestimate or underestimate the population characteristics. Yet even if a point estimate has both of these properties, it is only one point on a continuum; consequently, the chance that the true value of the population characteristic is less than the estimate is about 50 percent, there is no inherent indication of the accuracy of the estimate (i.e. the amount of sampling error involved). Using the point estimate could thus result in the overassessment or underassessment of damages.

8. Most often, the point estimate used by the OMIG is the mean per unit estimate. It is a generally accepted statistical projection technique and has some important properties. It is frequently the maximum likelihood estimate, that is, it has the greatest likelihood of being the correct estimate. More importantly, it is unbiased, which means that it does not tend to either overestimate or underestimate the population characteristic. Occasionally, the point estimate is based on the ratio of dollars paid in error to total dollars audited. This is called a ratio estimate that may be biased, unless bootstrapped. The bootstrapping technique is a computationally intensive statistical technique designed to remove bias.

9. It is usually desirable to construct an interval estimate. Interval estimates are used to indicate the reliability or accuracy or precision of an estimate. It is a range of values within which a population parameter (e.g. total dollars in error) is almost sure to be found. Statisticians can mathematically construct an interval for any desired level of confidence; 90% and 95% confidence intervals are common. For example, we could construct an interval for which we can be 90% confident that the total overpayment and/or underpayment error is between two estimated dollar values.

10. The mean per unit point estimate is made by estimating the mean value per unit in the sample, and multiplying this figure by the number of units in the total population. The behavior of the mean per unit estimate has been well studied for populations that do not fit the Normal curve. For this reason it is often relied upon in audited samples. Research suggests that in statistical audits, a confidence interval based on the mean per unit estimate provides conservative figures, so that its use would further mitigate the risk ordinarily placed on the audited party. Newer improved techniques, e.g. Bayesian techniques, may be used, but because their widespread use is recent, court cases relying on them are sparse.

11. In the present case, a list of the cases in which the OMIG found that overpayments had been made due to the practices of Provider was developed. In order to estimate the amount of payments that the OMIG

auditors would have judged to be overpayments had they reviewed all cases in the population of billed services, the following calculations were made:

N = population size =

N = sample size =

Sample average =

Sample standard deviation =

Point estimate of dollars paid in error =

Consequently, the unbiased maximum likelihood point estimate of what the OMIG auditors would have determined to be overpayments in the N-case population if they had audited all N cases is the Point estimate of dollars paid in error. A 90% confidence interval for the total dollars disallowed in the N-case population is the lower confidence limit to the upper confidence limit.

12. If negotiations or if a Hearing Officer in this matter determines that the amounts of overpayment in the samples are different than the amounts found by the OMIG auditors, the new amounts should be used in the above-mentioned estimation procedure to estimate what the entire audit and appeal procedure would have determined for the populations in this audit.

13. In arriving at the figures set out above, one utilizes standard generally accepted formulae for calculating a standard deviation and confidence intervals. Such calculations are defined and explicated in the following text: William Cochran, *Sampling Techniques*, Wiley.

14. Glossary of Statistical Terminology:

**Population or sampling frame:** The entire set, made up of individual elements, that is under consideration. In the context of third-party insurer audits, the population might be the set of all claims made over a certain period of time or the set of all recipients of medical care.

**Sampling unit:** The individual elements that make up the population or sampling frame. In the case of an insurer audit, the sampling unit might be the insurance recipient or the individual insurance claim or transaction.

**Probability sample:** A sampling procedure in which the probability that any member of the population will be included in the sample is known in advance. For example, in a simple random sample, each member of the population has an equal chance of being included in the sample. Valid estimation procedures require probability samples.

**Random sample:** A group of sampling units from a population where each unit has an equally likely chance of being independently selected from the population or sampling frame.

**Sampling procedure or technique:** The method used to select units for inclusion in a probability sample, for instance, choosing every tenth unit (systematic sampling), or using a random number table.

**Estimator:** The mathematical rule by which an estimate of some population characteristic is calculated from the sample results.

**Estimate:** The value obtained by applying the estimator to the random sample, and projecting it to the larger population. A point estimate is an estimate in which a single number is used as an estimate of a population characteristic. An interval estimate is one in which the estimate is given as a confidence interval within which the population characteristic will lie with a certain confidence level.

**Unbiased:** An estimator is unbiased if the average value of the estimate, taken over all possible samples, is exactly equal to the true population value.

**Confidence interval, confidence level:** The confidence interval is the range of values in which a population characteristic will lie with a given level of certainty (confidence level, expressed in percent). For example, we might be "95% confident" that the mean of a sampling frame is between two values, X1 and X2, which are the upper and lower bounds of the confidence interval.

Based on a simple random sample, if we wish to find  $\hat{Y}$ , an estimate of the total disallowance dollars in the universe. This estimate and its standard error are based on the sample mean,  $\bar{y}$ , and variance,  $s^2$ . The point estimate is  $\hat{Y} = N \bar{y}$ . The 90% confidence interval estimate is:

$$\hat{Y} - 1.65 (s / \sqrt{n}) \sqrt{1 - \frac{n}{N}}, \hat{Y} + 1.65 (s / \sqrt{n}) \sqrt{1 - \frac{n}{N}}.$$

The formulae for making these stratified estimates are below followed by specific results from this audit. We wish to find  $\hat{Y}_{(st)}$ , a stratified estimate of the total disallowance dollars in the universe. This estimate and its standard error are based on the individual strata means,  $\bar{y}_h$ , variances,  $s_h^2$ , and weights,  $W_h$ .

The weights  $W_h = \frac{N_h}{N}$ , where

$$N = \sum_{h=1}^L N_h$$

and  $L$  represents the number of strata.

The point estimate  $\hat{Y}_{(st)} = N \bar{y}_{(st)}$ , where

$$\bar{y}_{(st)} = \sum_{h=1}^L W_h \bar{y}_h$$

$$= \sum_{h=1}^L \frac{N_h}{N} \bar{y}_h$$

or equivalently,  $\hat{Y}_{(st)} = N \bar{y}_{(st)}$ .

The interval estimate depends on the variance of  $\hat{Y}_{(st)}$ , which is

$$s^2(\hat{Y}_{(st)}) = \sum_{h=1}^L N_h (N_h - n_h) \frac{s_h^2}{n_h}.$$

The 90% confidence interval estimate is  $\hat{Y}_{(st)} - 1.65 s(\hat{Y}_{(st)})$ ,  $\hat{Y}_{(st)} + 1.65 s(\hat{Y}_{(st)})$ .

Applying the stratified procedure outlined above, the Universal Diagnostic Laboratory audit yielded the following results, assuming that errors related to QC documentation are excluded.

<i>Strata</i>	<i>Strata Size</i>	<i>Sample Size</i>	<i>Estimate of the Total Dollars Disallowed</i>
1			
2			
3			
4			
5			
<i>Totals</i>			

The point estimate for the total disallowance dollars in this audit is the point estimate. The 90% confidence interval for the disallowance is (lower confidence limit, upper confidence limit).