

Child and Adult Care Food Program

Assessment of Sponsor Tiering Determinations

Tier I



Tier II

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CONTENTS

Executive Summary	iv
Chapter 1: Introduction.....	1
Chapter 2: Assessment Design and Methodology	3
Verifying Tier I Status	3
Verifying Tier II Status.....	7
Constructing a Sample	7
Estimating the Share of Misclassified FDCHs	8
Estimating the Share of Meals Affected in Misclassified FDCHs	9
Annual Estimates of Under- and Over-Payments Because of Misclassifications	10
Estimating Upper and Lower Bounds of Misclassification Rate.....	12
Chapter 3: Data Collection Process	14
Chapter 4: Results of Data Collection	19
Tier I Share of FDCHs and Meal Reimbursements	19
Results of the File Documentation Data Collection	20
Results of Independent Verification of Tiering Determinations with Procedural Misclassifications	22
Results after Incorporating Independent Verification of Procedural Misclassification.....	24
Costs of Misclassifications	27
Chapter 5: Conclusion	29

List of Exhibits

Exhibit A: Estimated Misclassification Rates by Tiering Status in FY 2005.....	vii
Exhibit B: Costs of Verified Misclassifications in FY 2005	viii
Exhibit C: Share of Tier I Homes and Tier I Verified Misclassification Rate by State	ix
Exhibit 2.1 Sample Selected by Sampling Level.....	8
Exhibit 2.2 Share of Tier I Meal Types at Tier II FDCHs by State.....	10
Exhibit 4.1 Share of FDCHs Classified as Tier I by their Sponsors by State.....	20
Exhibit 4.2 Meals and Expenditures Reimbursed at Tier I and Tier II Rates.....	20
Exhibit 4.3 Basis of Tier I Qualification and Procedural Misclassification Rate—Original Data Collection Sponsor Files.....	21
Exhibit 4.4 Causes of Tier I Procedural Misclassifications.....	22
Exhibit 4.5 Procedural Misclassification, Documentation Failure, and Verification Follow-up	23
Exhibit 4.6 Flowchart of Independent Verification of Tiering Determinations with Procedural Misclassifications	24
Exhibit 4.7 Verified Misclassification Rates by Tiering Status	25
Exhibit 4.8 Comparison of Procedural to Verified Errors for Sampled FDCHs	25
Exhibit 4.9 Causes of Verified and Non-Verified Misclassification for Tier I FDCHs	26
Exhibit 4.10 Verified Tier I Misclassification Rate by State.....	27
Exhibit 4.11 Costs of Misclassifications	28
Exhibit 4.12 Annual Number of Meals Served and Number of Meals Reimbursed at Incorrect Rate by FDCH Tier Type	28

Appendices

Appendix 1: Tables.....	32
Table A1.1 Sample of States.....	32
Table A1.2 Monthly Adjustments for Seasonality	33
Table A1.3 Maximum Months of Available Meal Counts	33
Table A1.4 Sponsor Tier I Classifications and Misclassification Rates.....	34
Appendix 2: Assumptions in Sample Selection.....	38
Estimate Variance and Expected Rate of Misclassification	38
The Effect of Clustering.....	40
Appendix 3: Weighting Procedures.....	44
Appendix 4: Calculation of Table Figures.....	49
Appendix 5: Tiering Determination Instrument	53
Appendix 6: Examples of Poor Documentation of Tier I Status	63

Executive Summary

Overview

The Improper Payments Information Act of 2002 (Public Law 107-300) requires all Federal agencies to calculate the amount of erroneous payments in Federal programs and to periodically conduct detailed assessments of vulnerable program components. This study of the Family Day Care Home (FDCH) component of the U.S. Department of Agriculture's (USDA's) Child and Adult Care Food Program (CACFP) developed and conducted a program assessment for producing a national estimate of the share of CACFP FDCHs that are misclassified into the wrong reimbursement tier. Misclassifications translate into improper payments because misclassified FDCHs do not receive the appropriate level of reimbursement for the meals and snacks provided to the children. This study provides estimates of the amount of over- and under-payments resulting from tiering misclassifications.

A preview of our results—

- Twenty percent of all homes had a procedural misclassification (i.e., their file documentation did not support the tiering determination).
- The primary way in which tiering determinations are made is to look at the characteristics of the elementary school associated with an FDCH. More than 80 percent of procedural misclassifications were attributable to inadequate documentation linking an FDCH to an eligible school.
- Ninety-six percent of all homes were found to be correctly classified after the underlying data linking an FDCH to a school were independently verified for FDCHs with inadequate documentation.
- Improper payments resulting from verified tiering misclassifications were about \$13 million in 2005. This represents 1.8 percent of total 2005 FDCH reimbursements of \$719.7 million.
- There appear to be large variations in procedural misclassification rates across States. Study States have misclassification rates ranging between zero and over 16 percent.

Background

The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA) changed the meal reimbursement structure for FDCHs, establishing two tiers of reimbursement rates. The purpose was to concentrate program resources on low-income children. FDCHs qualify for the higher Tier I reimbursement rates on the basis of their location within low-income areas or the low-income status of the provider. Low-income areas are identified from elementary schools' free or reduced price enrollment data (at least 50 percent of the students must qualify) or census block group data (at least 50 percent of the children residing in the area are members of households with incomes at or below 185 percent of the poverty level). A low-income provider is one whose total household income (including all sources from all family members) is at or below 185 percent of the poverty level.

All other FDCHs, referred to as Tier II FDCHs, are reimbursed at lower rates. Tier II FDCHs can still receive the Tier I higher reimbursement rates for meals served to children from families with incomes at or below 185 percent of the poverty level, but the individual child's eligibility must be documented and recorded. Federal funds are channeled through States to childcare sponsors. These sponsoring organizations in turn reimburse the FDCHs they administer and make the tiering determinations that affect the level of each home's reimbursements.

To develop national estimates of erroneous payments in this program component, the study drew a nationally representative sample of sponsor files for 3,150 Tier I and II FDCHs from 95 distinct sponsors in 14 States. This represents about 2 percent of all FDCHs and 10 percent of all sponsors. Data collectors went to each of these sponsors with randomly drawn lists of 30 to 90 FDCHs and extracted meal counts and tiering decision information from the sponsors' files.

Initial tiering decisions are made by the sponsors when an FDCH enrolls in CACFP. All FDCHs that do not qualify for Tier I based on either location or provider income level are classified as Tier II. A Tier I designation is only valid for a limited period (depending on the method of qualification), while a Tier II designation never has to be reviewed, unless requested by the FDCH provider. The data collection involved identifying and extracting information from documents necessary to establish eligibility for Tier I reimbursements. These rules are defined in 7 C.F.R. §226 and described in the Food and Nutrition (FNS) and State agency documents that are provided to sponsors. For each of the methods of qualifying for Tier I status, various options are available to document adequately that the FDCH meets the program requirements of Tier I eligibility.

An instrument was created to guide the data collectors in collecting all of the relevant information needed to verify sponsors' tiering designations. In addition to filling out the paper form, copies of all relevant records were photocopied and returned with the completed instrument in a separate file for each of the surveyed FDCHs. Results from the instrument were entered into an analytic data file, and the photocopies were referenced to check results.

The same data collection instrument was used for Tier I and Tier II FDCHs, and all available information from documentation was entered. If documentation showed that a sponsor considered an FDCH for Tier I status on the basis of more than one method, data for each method were collected and evaluated. Similarly, documentation of Tier II FDCHs was collected to determine whether any of these FDCHs were eligible for Tier I status. Because Tier II is the default status, the majority of Tier II FDCHs had no documents in their folders other than the sponsor's statement indicating that the FDCH was a Tier II FDCH.

In addition to information on tiering, information was collected on the number of meals reimbursed by tier type (Tier II FDCHs can be reimbursed at Tier I rates for the meals of individual children who are income eligible.), meal type, and month from June 2004 through May 2005.

Once the analytic data set was created, each FDCH (including Tier II FDCHs) was evaluated to determine whether it qualified for Tier I status on the basis of the documents found in the sponsor's file. The data collection instrument was designed to consider all of the possible

documentary routes to qualifying for Tier I reimbursements. Therefore, each FDCH was evaluated to see whether any documents qualified it to be Tier I.

Findings

At the end of the data collection process, there was a determination of what tiering level the documents supported and what tiering level the sponsor had designated. Whenever there was a discrepancy between these two determinations, a possible procedural misclassification had been identified.¹ The initial results from information collected from the sponsor files showed that the documentation relating to the classification of 20 percent of all FDCHs sampled (unweighted) was incomplete and represented possible procedural misclassifications: 27 percent of the sampled Tier I homes (641 FDCHs) and less than 1 percent of the sampled Tier II homes (5 FDCHs).

More than 80 percent of Tier I procedural misclassifications were the result of inadequate documentation linking the FDCHs to a specific elementary school in a way that met USDA's requirements (expressed in regulations and program guidance). The three most common deficiencies were that the date on the school map was missing or too old, non-school maps were used, and initials were missing on the memo to the file documenting a staff phone call to an official school representative.

Although these cases had procedural mistakes in file documentation, it was likely that many of these FDCHs were indeed Tier I eligible. As a result, the study included follow-up verification phone calls to determine whether FDCHs with procedural misclassifications were misclassified, or were simply lacking all of the proper supporting documents in their files.

This verification data collection focused on the 549 of 641 FDCHs that had procedural misclassifications associated with an elementary school.² Of the 549 FDCHs checked, 95 percent were Tier I eligible (521 FDCHs) and 5 percent (28 FDCHs) were misclassified. These raw data were weighted to produce verified estimates that 96 percent of FDCHs nationally were correctly classified while 4 percent were not. A multistage verification process was employed.

- First, the 549 FDCHs were separated into two subsets.
- The first subset contained 446 FDCHs for which documentation named a school that had 50 percent or more pupils receiving free or reduced price meals, but did not appropriately document that the school served the neighborhood in which the FDCH is located.
- The second subset contained the remaining 103 FDCHs for which the eligibility of the school had not been established. This portion of the follow-up determined that 18 of the FDCHs were, in fact, served by the schools they had listed, but the schools did not make them Tier I eligible.

¹ A procedural error may or may not lead to an improper payment; the latter are addressed later in this document.

² The difference between 641 and 549 is 92 FDCHs in the sponsor files which contained documents that failed to establish Tier I status on the basis of provider income. These procedural errors were not investigated further, and 5 FDCHs classified as Tier II were found to qualify for Tier I status.

- The remaining 85 FDCHs, which were determined (through follow-up work) to be listed with an eligible school, were then combined with the 446 FDCHs that had originally been listed with an income eligible school to form a set of 531 FDCHs listed with eligible schools. It remained to determine how many of these FDCHs were actually within the boundaries of those schools. In most cases, the listed school was contacted to determine whether the school did serve the FDCH's neighborhood. In some cases, State or county education authorities were contacted. All but 10 of the 531 FDCHs were found to have been classified correctly, despite procedural errors. Combined with the 18 homes whose local elementary schools did not qualify them on the basis of the percentage of students eligible for free and reduced price meals, a total of 28 of the 549 FDCHs with procedural errors were confirmed to be misclassified Tier I FDCHs, and 521 were found to be classified correctly.

After the verification process was completed, statistical estimates were produced. The rate of misclassification was determined to be 4.0 percent for all FDCHs and 5.2 percent for Tier I homes (see Exhibit A).

Exhibit A: Estimated Misclassification Rates by Tiering Status in FY 2005

Type of Home	Verified Estimate of Misclassification Rate	Upper Limit*	Lower Limit*	Verified Estimate of FDCHs Incorrectly Classified**	Verified Estimate of FDCHs Correctly Classified	Estimated Total FDCHs
Tier I	5.2%	6.5%	3.8%	5,903	108,484	114,387
Tier II	0.7%	0.9%	0.4%	261	39,271	39,532
All Tier I or Tier II	4.0%	4.9%	3.1%	6,164	147,755	153,919
Type of Home	Pre-Verification Estimate of Misclassification Rate	Upper Limit*	Lower Limit*	Pre-Verification Estimate of FDCHs Incorrectly Classified	Pre-Verification Estimate of FDCHs Correctly Classified	Estimated Total FDCHs
Tier I	27.1%	35.3%	19.0%	31,024	83,363	114,387
Tier II	0.7%	0.9%	0.4%	261	39,271	39,532
All Tier I or Tier II	20.3%	26.7%	14.0%	31,285	122,634	153,919

* 90 percent confidence level

** All sampled FDCHs for which Tier I status cannot be documented, either initially or through follow up, are deemed incorrectly classified.

Source: 2005 CACFP Tiering Assessment, weighted estimates

Exhibit B shows the estimated costs associated with the verified estimates of misclassifications. For Tier I FDCHs, the estimated national overpayment was \$12.7 million or 2.1 percent of the \$613.3 million in total expenditures for CACFP Tier I meals estimated on the basis of the data collected, while the estimated Tier II underpayment was \$299,485. The total amount of improper payments was \$13 million (with a range from \$9.4 million to \$16.6 million) and represented 1.8 percent of the total FDCH meal reimbursements in 2005.

Exhibit B: Costs of Verified Misclassifications in FY 2005

	Estimated Costs*	Upper Bound Estimate**	Lower Bound Estimate**	Estimated Total FDCHs
Misclassified Tier I FDCHs	\$12,708,980	\$16,321,595	\$9,096,353	114,387
Misclassified Tier II FDCHs	\$299,485	\$420,461	\$178,508	39,532
All Misclassified FDCHs	\$13,008,465	\$16,619,960	\$9,396,958	153,919

* Cost estimates are the seasonally adjusted expected values where the expectation takes into account the average number of meals and snacks for which a Tier II home would be compensated at the highest (Tier I) level.

** 90 percent confidence level

Source: 2005 CACFP Tiering Assessment

As shown in Exhibit C, roughly three-quarters of all FDCHs nationally are classified as Tier I. Given that Tier I reimbursement rates per meal are much greater than Tier II rates and given that approximately 16 percent of meals at Tier II FDCHs are reimbursed at Tier I rates, the share of *meal expenditures* reimbursed at Tier I rates represents about 89 percent of all CACFP meal expenditures. Exhibit C also shows considerable variation across States in both their share of Tier I FDCHs and their misclassification rate. The sampling design was not developed to be accurate at the State level, so these State-specific percentages are only suggestive. These results show 3 States with 90 percent or more of their homes at Tier I, while 2 States had 60 percent or less of their homes classified as Tier I. Likewise, levels of verified misclassification vary widely by State, and though not conclusive, these findings suggest that Tier I misclassifications are more prevalent in some States than others.

Exhibit C: Share of Tier I Homes and Tier I Verified Misclassification Rate by State

State Id Number	Tier I Share	Verified Tier I Misclassification Rate
7	60%	16.8%
8	41%	11.7%
1	91%	8.2%
14	66%	6.9%
13	69%	5.1%
9	73%	4.5%
2	72%	4.1%
10	90%	4.1%
12	75%	3.7%
4	85%	3.2%
5	68%	2.9%
3	78%	1.9%
11	77%	1.9%
6	99%	0.0%
National Estimate	74%	5.2%

Source: 2005 CACFP Tiering Assessment

Chapter 1: Introduction

The U.S. Department of Agriculture's (USDA's) Child and Adult Care Food Program (CACFP) plays a vital role in improving the quality of day care by reimbursing providers for their costs of meals and snacks. Each day, nearly 3 million children receive nutritious meals and snacks through CACFP.³ USDA's Food and Nutrition Service (FNS) administers CACFP by means of grants to States, typically State educational agencies. Independent centers and sponsoring organizations enter into agreements with State agencies to assume administrative and financial responsibility for CACFP operations.

Since CACFP's establishment in 1968 (Section 17 of the National School Lunch Act [42 U.S.C. 1766]), the number of children served has grown and the method of compensating meals has changed. In 1976, family day care homes (FDCHs) also became eligible to participate, provided they met State-licensing requirements or otherwise obtained approval from an appropriate State or local agency. Rather than have FDCHs apply directly to State agencies, they were required to be sponsored by a public or private nonprofit organization that assumed responsibility for ensuring compliance with Federal and State regulations and acted as a conduit for meal reimbursements.⁴

The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA) changed the meal reimbursement structure for FDCHs, establishing two tiers of reimbursement rates. As part of an effort to concentrate program resources on needy children, FDCHs in low-income areas or operated by low-income persons were classified as Tier I and were reimbursed at higher rates than all other FDCHs, referred to as Tier II FDCHs. Tier II FDCHs can still receive the higher Tier I reimbursement rates for meals served to children from families with incomes at or below 185 percent of the poverty level, but the individual child's eligibility must be documented.

Sponsoring organizations are responsible for determining that FDCHs meet CACFP eligibility criteria, providing training and other support, designating each FDCH as either Tier I or Tier II, and monitoring the FDCHs to ensure that they comply with applicable Federal and State regulations. Sponsors receive and verify the FDCHs' claims for CACFP reimbursement, forward the claims to their State CACFP offices, receive the reimbursements, and distribute the meal reimbursements to the FDCHs.

The Improper Payments Information Act of 2002 (Public Law 107-300) requires Federal agencies to identify and reduce erroneous over- and under-payments in various programs, including CACFP. The purpose of this study is to identify erroneous payments arising from the misclassification of FDCHs for Tier I or Tier II program reimbursement.⁵

³ Another 86,000 adults are served.

⁴ The CACFP Web site (<http://www.fns.usda.gov/cnd/Care/CACFP/cacfpfaqs.htm>) presents a detailed history of the changes in program participation and rules.

⁵ In a parallel effort, FNS has been conducting a comprehensive onsite assessment of a sample of participating FDCH sponsors to review compliance with recordkeeping requirements and supportability of claims for meal reimbursement by FDCHs.

Specifically, the study was to—

1. Develop the program assessment design and methodology for producing nationally representative estimates of the number of FDCHs participating in CACFP that have been assigned an incorrect tiering status.
2. Collect the required data to develop nationally representative estimates of FDCHs participating in CACFP that have been assigned an incorrect tiering status.
3. Report an estimated range from the highest to the lowest likely amount of the cost, in terms of misallocated meal/snack reimbursements, of misclassifying FDCHs as Tier I as well as the underpayments associated with inaccurate Tier II designations.

The remainder of this report presents the assessment design and methodology, the data collection procedures, and the results.

Chapter 2: Assessment Design and Methodology

This project had three key methodological tasks—

1. Establish a procedure to verify the current tiering status of FDCHs as they are listed in sponsors' files.
2. Develop a sampling design to estimate the misclassification rate within an upper and lower bound of 2.5 percentage points at the 90 percent confidence level.
3. Estimating the upper and lower bound of the amount of overpayments associated with misclassified Tier I FDCHs and underpayments associated with misclassified Tier II FDCHs.

The purpose of this chapter is to explain in depth the procedures that were adopted to perform these tasks.

Verifying Tier I Status

All sponsors understand that one of their initial tasks in enrolling an FDCH in CACFP is to determine the tiering level of the FDCH. They have been given instructions from their State representatives and they can rely on a booklet from FNS (*Child and Adult Care Food Program: Eligibility Guidance for Family Day Care Homes*), which details the requirements for Tier I status. To assist sponsors in understanding how to make tiering decisions properly, this booklet explicitly defines how an FDCH's tiering status should be determined.

The definitions of tiering status are set forth in 7 C.F.R. §226.2:

Tier I day care home means (a) a day care home that is operated by a provider whose household meets the income standards for free or reduced price meals, as determined by the sponsoring organization based on a completed free and reduced price application, and whose income is verified by the sponsoring organization of the home in accordance with §226.23(h)(6); [The quoted definition does not mention that a day care home operated by a provider currently participating in a Government means-tested program in which the income of the provider's household is less than 185 percent of the poverty level is deemed categorically eligible for Tier I reimbursements.]

(b) A day care home that is located in an area served by a school enrolling elementary students in which at least 50 percent of the total number of children enrolled are certified eligible to receive free or reduced price meals; or

(c) A day care home that is located in a geographic area, as defined by FNS based on Census data, in which at least 50 percent of the children residing in the area are members of households that meet the income standards for free or reduced price meals.

Tier II day care home means a day care home that does not meet the criteria for a *Tier I day care home*.

There are only two types of FDCHs (Tier I or Tier II); any FDCH that does not qualify as a Tier I FDCH is automatically a Tier II FDCH. Sponsors are responsible for the determination of the tiering level of each FDCH, and they can use any of the following four methods (two on the

basis of area eligibility and two on the basis of income eligibility) to classify an FDCH as eligible for Tier I status:

- School: The FDCH is located in an area served by an elementary school at which at least 50 percent of the children are eligible for a free or reduced price meal.
- Census: The FDCH is located in a Census block group in which at least 50 percent of the children under 13 years old are in families with incomes less than or equal to 185 percent of the Federal poverty level.⁶
- Income: The total income of the household of the day care provider is less than or equal to 185 percent of the Federal poverty level.
- Categorical: The provider is currently participating in a Government means-tested program that has a household income eligibility level less than or equal to 185 percent of the Federal poverty level.

For each of these methods, various documents can be used to prove eligibility. A Tier I designation is only valid for a limited period (depending on the method of qualification), while a Tier II designation never has to be reviewed unless the FDCH requests a review of its status. Therefore, each approach requires a detailed listing of the necessary dated documents that must be present in the sponsor's file for an FDCH to be properly classified as Tier I. Each of these four approaches or "algorithms" is explained in detail below.

⁶ There may be some confusion about using the Census approach to establish Tier I status because of the instructions in FNS's Child and Adult Care Food Program: Eligibility Guidance for Family Day Care Homes. In a section entitled "Questions & Answers About Classification of Family Day Care Homes," the third question is: "If there is a conflict between Census data and elementary school free and reduced price enrollment data, how should a determination be based?" The answer on page 18 is: "Census block group data should not be used when relevant, current-year information on free and reduced price eligibility in neighborhood elementary schools is available." This answer mirrors the discussion on pages 6 and 7 of FNS's CACFP document where the use of Census data is limited to relatively few situations (rural area, magnet school, and local area does not reflect elementary school conditions).

However, §226.15 (f) states:

Day care home classifications. Each sponsoring organization of day care homes shall determine which of the day care homes under its sponsorship are eligible as Tier I day care homes. A sponsoring organization may use current school or Census data provided by the State agency or free and reduced price applications collected from day care home providers in making a determination for each day care home. When using elementary school or Census data for making Tier I day care home determinations, a sponsoring organization shall first consult school data, except in cases in which busing or other bases of attendance, such as magnet or charter schools, result in school data not being representative of an attendance area's household income levels.

This directive only requires that sponsors check school data; they may use Census data even if relevant school data are available.

The following algorithm specifies the evidence considered acceptable for determining⁷ Tier I area eligibility on the basis of the *local elementary school data* in the current analysis.

- A. The tiering decision was made after June 1, 2001.⁸
- B. The FDCH provider's address must be linked to a specific school. All of the following are acceptable forms of documentation:
 - A dated official school boundary-identifying map
 - Pages from a dated address directory linking the FDCH's address to a specific elementary school
 - A dated and signed letter from a local school official indicating that the FDCH's address is served by this school
 - A report (initialed and dated) of a phone call to a school official indicating that the FDCH's address is served by this school
 - A printed copy of a Web site linking addresses to specific elementary schools; some form of dating must be present.
- C. The named school must have at least 50 percent of its students eligible for free or reduced price meals. Acceptable documentation includes the following:
 - A dated State master list of schools indicating which elementary schools are eligible or showing the percentage of children receiving free and reduced price meals
 - A dated and signed letter from a local school official indicating that at least 50 percent of enrolled children are eligible for free or reduced price meals.
- D. If there was no documentation in the file about the share of students at the listed school eligible for free and reduced price meals, ORC Macro checked the lists provided by the States to determine whether the elementary school met the eligibility standard.

The following algorithm specifies the evidence considered acceptable for determining Tier I area eligibility on the basis of *Census block group data*.

- A. Documentation that the address lays within a specific block group. Acceptable documentation includes an official map, output from a geo-mapping computer program, or output linking specific addresses and Census block groups.

⁷ In two States in this study, the State agency, rather than the sponsors, determined the tiering status on the basis of school and census eligibility. While this is inconsistent with the CACFP rule that the sponsors have to determine eligibility, FNS instructed that the State determinations be accepted as valid even though there was no documentation onsite in the sponsors' files.

⁸ In legislation that took effect in June 2004, the period for which school eligibility was valid was extended from 3 to 5 years. This change, which was not retroactive, applied only to FDCHs whose Tier I eligibility was determined in May 2001 or later; the original eligibility period did not expire until after the new legislation took effect. Thus, any FDCH that was Tier I on the basis of school eligibility before May 2001 had to re-establish its eligibility under the 3-year rule that was in effect through May 2004.

- B. Documentation that 50 percent of children under 13 years old within the block group are in households with income less than or equal to 185 percent of the Federal poverty level.

The following algorithm specifies the evidence considered acceptable for determining Tier I income eligibility on the basis of the provider's eligibility for other Government means-tested programs.

- A. All forms must be dated after 4/1/2004.
- B. A certification, letter, or printout from Temporary Assistance for Needy Families (TANF) State program award letter showing that the provider is eligible for TANF benefits at the time of tiering evaluation.
- C. A certification, letter, authorization card, or printout showing that the provider is eligible for Food Stamp benefits at the time of tiering evaluation.
- D. A notice of eligibility for Food Distribution Programs on Indian Reservations (FDPIR) showing that the provider is eligible for FDPIR benefits at the time of tiering evaluation.
- E. A certification, letter, authorization card, or printout showing that the provider is eligible for another qualifying Government income-based program at the time of tiering evaluation.

The following algorithm specifies the evidence considered acceptable for determining Tier I income eligibility on the basis of *provider's income*, which must be less than or equal to 185 percent of the Federal poverty level for the number of people in the household.

- A. A signed and dated application (equivalent to the free and reduced price meals benefit form). This form must also contain the provider's Social Security Number and be filled out after April 1, 2004 (based on data collection on provider status as of May 2005).
- B. A listing of all of the sources of income for each member of the household with income. Income from retirement accounts or from child care payments are included.
- C. No business loss can be used to offset other sources of income.
- D. Each income source must be dated to show that it documents income from April 1, 2004 on. However, tax forms for 2003 are acceptable as long as the provider says that the information on the return reflects current household income.
- E. Each income source must be dated and validated by one of the following:
 - Tax Forms 1040 or Schedule C (for business income from running an FDCH)
 - Recent pay stub
 - Letter from employer

- Ledger or tax books
- Benefit award letter
- Court decree or divorce agreement (for child support)
- Bank statement (for direct deposit of Social Security or other monthly retirement check)
- Copy of checks to document benefits or child support/alimony.

Verifying Tier II Status

Because all FDCHs that are not designated as Tier I are designated as Tier II, no supporting documents are required for this designation. If upon entry to the program, an FDCH is certified as Tier II, sponsors are under no obligation to recertify the FDCH, unless the provider requests recertification to determine whether the FDCH qualifies as Tier I.

All FDCHs were treated identically, and field data collectors were instructed to collect all of the documentation in each FDCH's file. Therefore, a Tier II FDCH was deemed misclassified if there were documents in the file that showed that it qualified for Tier I status. Another possibility was that a Tier II FDCH had asked to have its tiering status reviewed, hoping to become a Tier I FDCH. Therefore, it was possible that such an FDCH was misclassified even though there were no documents in the file. To accommodate this possibility, the data collectors were asked to look in the files for any indication that the provider had requested that the sponsor review the home's tiering status. No such requests were found, but if they had existed, then the appropriate elementary school for such an FDCH would have been identified. If the school was income eligible, then that FDCH would have been determined to be misclassified.

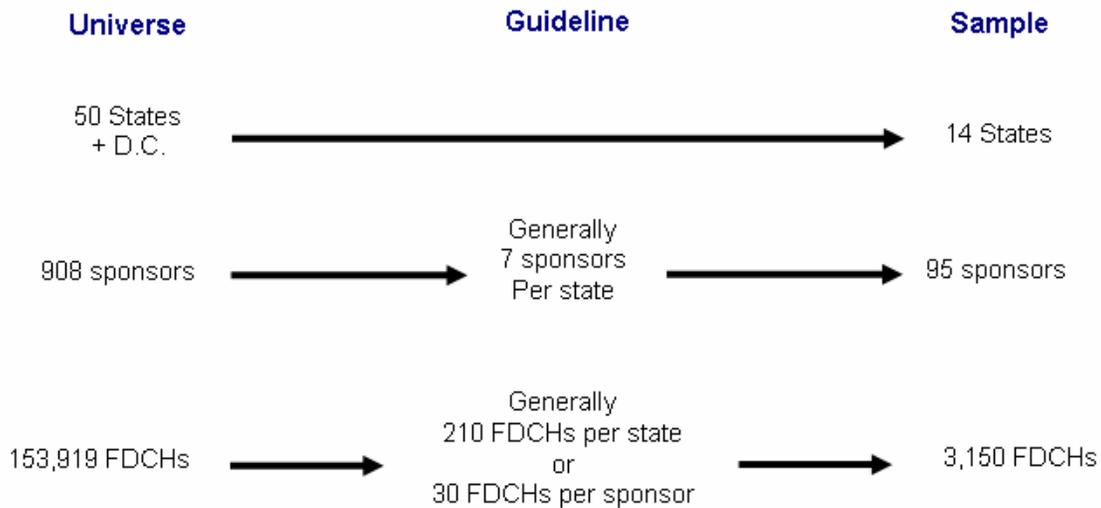
Constructing a Sample

For this study, a sampling strategy was required to produce national estimates of an error rate with 90 percent certainty for no greater than plus or minus 2.5 percentage points (i.e., if the results of the assessment indicated that 20 percent of all FDCHs were misclassified, then the computed confidence level with 90 percent certainty would lie between 17.5 and 22.5 percent). See Appendix 2 for the statistical details of the sampling.

To minimize any design effect, each FDCH had approximately the same probability of selection. The approach used produces approximately the same probability of selection for every FDCH while retaining a diversity of States. Exhibit 2.1 summarizes the sampling procedures that were used.

On the basis of the data provided by FNS, 14 distinct States were sampled. For all of the States but California, 210 FDCHs were included in the sample; for California, 420 FDCHs were included in the sample.

Exhibit 2.1 Sample Selected by Sampling Level



Having selected the States, the next step was to select 7 sponsors from each State (except California in which 14 sponsors were selected). The sponsors within each State were chosen randomly on the basis of the number of FDCHs served by each sponsor. One sponsor had to be replaced when its owners became ill and stopped operations. Another sponsor tried to opt out of the study but was convinced by the State representative to participate.

The next step involved choosing the FDCHs to be included in the study. An FDCH was eligible for selection if it had been reimbursed for meals served during May 2005.⁹ For each sponsor, 30 FDCHs that had been active in May 2005 were randomly selected and an additional 10 FDCHs were selected as possible replacements. Some sponsors were so large that they were selected more than once. For sponsors that had been selected more than once, multiples of 30 FDCHs were chosen depending on the number of times the sponsor had been selected (see Appendix 2 for details).

Estimating the Share of Misclassified FDCHs

Once all of the data were entered into the analytic database (the creation of which is described in the next chapter), the tiering algorithm was applied and each FDCH was classified by ORC Macro as either Tier I or Tier II. The validity of the documentation supporting an FDCH's tiering determination was based on whether the study-determined tiering was the same as the one that appeared in the sponsor's files.

To develop a national estimate of the procedural (i.e., document-based) misclassification rate, the data collection process had to be reviewed to determine the weights to be assigned to each FDCH. Although the sampling design was developed to be approximately self-weighting, there were data inconsistencies between the various sources of information on the number of FDCHs per sponsor and per State. These differences reflected the fact that FDCH providers are

⁹ Sponsors have up to 90 days to submit initial or revised meal counts, so May was the last month in which reliable, final data were available to the data collectors beginning in August of 2005.

constantly moving in and out of the program. Consequently, the number of FDCHs per sponsor or per State is constantly changing.¹⁰

These discrepancies meant that weights had to be developed for each sponsor to get the best, unbiased national estimate of misclassified FDCHs. See Appendix 3 for a more detailed discussion.

The formula used to determine the percentage of misclassified FDCHs is presented in the following equation:

$$(2.1) P(X) = \sum_{i=1}^{3,150} w_i x_i \text{ divided by } 153,919, \text{ where}$$

x_i is equal to 1 when FDCH_{*i*} is misclassified, and 0 otherwise;

w_i is equal to the weighted probability of selection; and

$P(X)$ is the percentage of misclassified FDCHs

A similar computation was done separately for the 2,338 sampled FDCHs classified by sponsors as Tier I and the 812 sampled FDCHs classified as Tier II.

Estimating the Share of Meals Affected in Misclassified FDCHs

Determining the cost of each misclassified FDCH requires different approaches for Tier I and Tier II FDCHs. The cost of any misclassification must take into account the fact that the meals of some children in Tier II FDCHs are reimbursed at Tier I rates.

For Tier II FDCHs, a misclassification means that all of the meals should have been reimbursed at Tier I rates. Thus, the added cost of reimbursement at the higher, Tier I rate had to be applied to all of the meals that were originally reimbursed at Tier II rates.

In misclassified Tier I FDCHs, the added costs only apply to the meals served to children who do not qualify individually for Tier I reimbursement rates, even if the FDCH was Tier II. However, there was no information available to determine how many children in each misclassified Tier I FDCH would qualify for the higher reimbursement rates. Consequently, an estimate of this number was developed on the basis of the experience of Tier II FDCHs in the State in which the FDCH was located.

¹⁰ Depending on when the data were collected, State, national, and sponsor information can vary in three ways. First, in choosing States and sponsors, FDCH counts from FNS were used to select the States. However, the total number of FDCHs derived from the State list varied from the number derived from the national list. Second, a similar discrepancy arose in dealing with sponsors: Sponsors were chosen on the basis of the number of FDCHs that the State said the sponsor had. However, this number varied from the number of FDCHs on the sponsors' lists. Third, when the data collectors appeared at the sponsor's administrative headquarters with their lists of randomly chosen FDCHs, in a handful of cases a selected FDCH was found not to have been active in May 2005 and hence was ineligible to be in the sample. This was not a problem because replacement options were available, so the data collectors were able to extract information easily for the appropriate number of FDCHs at that sponsor site. However, discrepancies between State-supplied and sponsor-provided lists required further adjustment of weights.

As Exhibit 2.2 shows, an estimated 15 to 16 percent of meals at Tier II FDCHs were reimbursed at Tier I levels. The variation across States, however, was quite large. In State 7, for example, between 5 and 9 percent of meals in Tier II FDCHs were compensated at the higher rate. By contrast, the corresponding numbers for State 10 were 42 to 47 percent. These State ratios by meal type were used to develop a national estimate of the number of meals that would have been reimbursed at Tier I rates for misclassified Tier I FDCHs.

Exhibit 2.2 Share of Tier I Meal Types at Tier II FDCHs by State

State ID Number	Tier I Breakfasts	Tier I Lunches/ Dinners	Tier I Snacks
1	31%	27%	31%
2	13%	12%	13%
3	45%	45%	46%
4	20%	26%	27%
5	19%	18%	18%
6	28%	54%	47%
7	5%	9%	7%
8	9%	10%	10%
9	19%	19%	18%
10	42%	45%	47%
11	8%	8%	9%
12	15%	13%	15%
13	18%	21%	18%
14	16%	21%	20%
National Estimate	15%	16%	16%

Source: 2005 CACFP Tiering Assessment. Table contains weighted estimates based on sponsor files for 812 Tier II FDCHs. Percentages by State are for descriptive purposes only because State-level samples are too small to produce robust State-level estimates.

Annual Estimates of Under- and Over-Payments Because of Misclassifications

The choice of using FDCHs that were reimbursed in a single month (May) had consequences for how the annual costs associated with misclassified FDCHs were estimated. Ideally, the sample would have been drawn from all FDCHs that were active at any point from June 2004 through May 2005. Because of data constraints, the sample was drawn only from FDCHs that had reimbursable meals in May 2005. By using only FDCHs active in May, FDCHs that did not have reimbursable meals in May but had been active in some of the prior 11 months (June 2004 through April 2005) were missed. To compensate for this loss, FDCHs that were active in May were treated as if they were open all 12 months of the year. For many FDCHs, this was not true because they had been part of the program for less than 12 months or because they had no reimbursements for at least one month of the year. Consequently, the meals that were added to the FDCHs for which the FDCHs had actually not been reimbursed are assumed to offset the

meals that were missed from FDCHs that were active at some point in the previous 12 months but not active in May.¹¹

Another problem was that 17 sponsors did not provide meal counts for all 12 months. For these FDCHs and for FDCHs that were not active in all 12 of the previous months (even when the sponsor had 12 months of meal counts to make available), average monthly meal counts by type of meal and level of reimbursement (Tier I or Tier II) were developed on the basis of only the months during which they had reimbursed meals. This monthly figure was multiplied by 12 to get an “adjusted” yearly total of meals. To avoid any bias associated with the specific months in which these FDCHs were open, a seasonality factor (based on national total meals served by type and by month; see data in Appendix Table A1.2) was computed for each of the months that FDCHs were open. Therefore, the average monthly figures were first seasonally adjusted by month before they were combined into yearly totals.

At this point, the total under- and over-payments resulting from tiering misclassification were computed. For Tier I FDCHs that were not validly classified, the cost for each FDCH was determined by the sum of equations 2.2 to 2.4.

$$(2.2) \quad \text{Breakfast loss} = 12 * \text{AvgMonthlyBrks} * (1 - \text{BRSHARE}_{\text{State}}) * (1.04 - .39)$$

where ...

$\text{BRSHARE}_{\text{State}}$ = the share of breakfasts in Tier II FDCHs in that State that were reimbursed at Tier I rates

AvgMonthlyBrks = the average number of breakfasts served by the FDCH in a month

$(1.04 - .39)$ = the difference between Tier I and Tier II payments

$$(2.3) \quad \text{Snack loss} = 12 * \text{AvgMonthlySnks} * (1 - \text{SNSHARE}_{\text{State}}) * (.57 - .15)$$

where

$\text{SNSHARE}_{\text{State}}$ = the share of snacks in Tier II FDCHs in that State that were reimbursed at Tier I rates

AvgMonthlySnks = the average number of snacks served by the FDCH in a month

$(.57 - .15)$ = the difference between Tier I and Tier II payments

$$(2.4) \quad \text{Lunch/Supper loss} = 12 * \text{AvgMonthlyLDs} * (1 - \text{LNSHARE}_{\text{State}}) * (1.92 - 1.16)$$

where

$\text{LNSHARE}_{\text{State}}$ = share of lunches and suppers in Tier II FDCHs in that State that were reimbursed at Tier I rates

AvgMonthlyLDs = the average number of lunches and suppers served by the FDCH in a month

$(1.92 - 1.16)$ = the difference between Tier I and Tier II payments

¹¹ This approach results in an unbiased annual estimate of the number of meals served. However, because the sample could not be drawn from all homes that had been active at some point from June 2004 through May 2005, the variance of the final estimates was higher.

To obtain an estimate of the monies not paid to Tier II FDCHs that were misclassified, a similar strategy of getting monthly totals was followed. Because the share of children who were already being reimbursed at Tier I rates was known, no State-based estimates were needed.

The national estimates of monies under- and over-compensated at Tier I and Tier II FDCHs was simply the total of each misclassified FDCH multiplied by its respective weight.

Estimating Upper and Lower Bounds of Misclassification Rate

In such a complex survey design as used in this study, the calculation of the variances of the estimates is likewise complex. The Taylor expansion method was used to estimate sampling errors of estimators.¹² This method obtains a linear approximation for the estimator and then uses the variance estimate for this approximation to estimate the variance of the estimate.

For a multistage sample design, the variance estimation method depends only on the first stage of the sample design. Thus, the required input includes only first-stage cluster or primary sampling units (PSUs) and first-stage stratum identification. There is no need to input design information about any additional stages of sampling. This variance estimation method assumes that the first-stage sampling fraction is small or that the first-stage sample is drawn with replacement. If the sampling rate varies (unequal probability sampling), as in this study, one can create strata that approximate a uniform sampling rate.

The PSUs (clusters) in the study were the States. However, one State (California) was a certainty and one (Minnesota) was a near-certainty. Thus, in those States each sponsor became a PSU. There was an odd number of sponsors in Minnesota, and one of the sponsors was large. The FDCHs associated with this sponsor were divided into two subgroups, and the sponsor was treated as if it comprised two different sponsors.

The clusters were then paired into “strata,” assigned so that clusters in the same strata were of the same kind (State or sponsor), in the same State (for sponsors), and with similar probabilities of selection. There were 32 clusters and 16 strata. The average probability of selection of the two clusters in a stratum was entered as the sampling rate of the stratum. This pairing of clusters is common in many variance estimation procedures, particularly when one needs to use a finite population correction.

The first estimate was the proportion of misclassifications, obtained for the total population and the Tier I and Tier II domains separately. The estimate was obtained by adding the weights of the FDCHs incorrectly classified and dividing them by the sum of the weights.

The second estimate was the total dollars associated with meals in misclassified FDCHs (120 Tier I FDCHs and 5 Tier II FDCHs). In this case, the average was first obtained and then was multiplied by the reported total number of FDCHs (see Appendix Table A1.1). In this way, the variance of the estimates of the total number of FDCHs in the program did not have to enter into the variance.

¹² The SAS procedure SURVEYMEANS was used. For further explanation of the statistical qualities of this approach, see: <http://www.pop.upenn.edu/cores/computing/sasdoc/sashtml/stat/chap11/sect3.htm>.

The variance estimates have their own error of estimate. As a result, when calculating the confidence intervals, one must take into account the variance of the variance estimates. To do this, first obtain the degrees of freedom (the number of clusters minus the number of strata) then multiply the standard error by the t-value for the 90 percent confidence interval for the degrees of freedom in question. In this case, the number of degrees of freedom is 16, and thus, the confidence interval is multiplied by 1.746.

Chapter 3: Data Collection Process

The data collection process was logically organized in six sequential steps designed to abstract the FDCH case file and determine whether the FDCH file contained documentation to support a the tiering designation for the FDCH, and to collect information regarding meal counts during a 12-month period (June 2004 through May 2005). Following an April 27, 2005, kickoff meeting, a detailed timetable was developed to ensure that all of the data from the 95 sponsors in 14 States were collected and entered into an analytic data set by the end of September 2005.

Step 1. Create Data Collection Instrument

The Tiering Determination Instrument (see Appendix 4) is based on the algorithms shown in the previous chapter. It was developed with input from FNS (especially on the exact conditions for Tier I eligibility) and pretested at four sponsors from two States that were not part of the main sample.

The Tiering Determination Instrument is a paper form created to collect the essential data elements needed to verify sponsors' tiering designations. The instrument was used for Tier I and Tier II FDCHs, and all available information was entered. If there was information showing that an FDCH tried to qualify for Tier I status in more than one manner, all of the data were collected and evaluated. Similarly, documentation of Tier II FDCHs was collected to determine whether any of these FDCHs were eligible for Tier I status. Because Tier II is the default status, no documentation is needed. Consequently, the vast majority of Tier II FDCHs had no documents in their folders other than the sponsor statement indicating that the FDCH was a Tier II FDCH.

In addition to collecting information on tiering, information on the number of meals reimbursed by tier type (Tier II FDCHs can have the meals of individual children who are income eligible reimbursed at Tier I rates), meal type, and month during the period from June 2004 through May 2005 was collected.¹³

Step 2. Recruit and Train Data Collectors

Fifteen data collectors from the States that were part of the study (two were from California) were selected. Most came from the pool of 100 ORC Macro field staff with experience from a similar improper payment study.

Each of the data collectors participated in a 2-day training in the Washington, DC area, on July 19–20. The training provided a background for this study and CACFP, a hands-on review of sample FDCH files, instruction on the Tiering Determination Instrument, and practice with its use. The purpose was for the data collector to gain familiarity with the actual types of

¹³ Most sponsors only had information on the number of meals for which they claimed reimbursement and not the number of children served per month. During the day, FDCHs can serve up to six food courses: breakfast, morning snack, lunch, afternoon snack, dinner, and evening snack. For each individual child, FDCHs can be reimbursed for a maximum of 2.5 meals (where a snack counts as a half of a meal). Consequently, during each day, different children receive different reimbursable meals and snacks, and one cannot determine the total number of children served during the day from just counts of meals claimed for reimbursement. This problem is obviously complicated even further when only monthly meal counts are available, as the same children need not be served all of the days that the FDCH is open. Therefore, there is no method to translate monthly meal counts to a total number of children for whom meal reimbursement claims are made that month.

documents that would be encountered in the field and from which data would be abstracted. Five mock files were created, and there were separate practice sessions filling out the collection instrument for each of the mock cases.

During the training, each data collector was provided with a field data manual to obtain a solid background in the purpose and procedures of the project, to be effective at interacting with staff at sponsoring organizations when reviewing and abstracting data from files, and to communicate effectively with supervisory staff at ORC Macro headquarters. The data collectors referred to the manual when questions arose in the field, and, if necessary, they were instructed to call ORC Macro to deal with any unforeseen issues during a site visit.

Step 3. Arrange Site Visits

After the States were selected, FNS Regional Offices then contacted State representatives (first by mail, then by phone) to explain the purpose of the project, enlist their support, and determine whether there were any unique features in how the CACFP operated in their State. The first task was to get the requisite information to pull the sponsor sample for each State, including the number of sponsors and the number of FDCHs for each sponsor. It was inquired whether there were any unique features in their States that would affect the data collection. With two exceptions, all States said that they followed the procedures established by FNS. In two States, the State office was responsible for determining Tier I area eligibility on the basis of Census and elementary school eligibility.

Once the sponsors were selected, they were sent a letter of introduction that explained the purpose of the study. As indicated in the letter, a follow-up phone call was made to ask questions about where their tiering determination documents were kept. The exact date of each site visit was established by the data collectors, who called the relevant sponsor contact to establish a mutually convenient time.

Because sponsors organize their files in different ways, data collectors asked detailed questions about accessing the files. By asking multiple questions about file locations, enough information was obtained to ensure that the data collectors would be able to complete the data collection instrument accurately.

Step 4. Collect Data at Sponsor Administrative Sites

When the data collectors arrived at the sponsor locations, they presented the sponsor's representative with the list of FDCHs that were to be abstracted. This was the first time the sponsors were provided with the list of FDCHs to be studied. A couple of sponsors had asked to see the list before arrival, so they could have the relevant files ready when the data collectors arrived. Though this seemed a good faith effort to be cooperative, the sponsors' request was refused to avoid the possibility of them altering the data for the FDCHs.

Once at the site, most of the data collectors were left alone to do their work. In one State, a State representative accompanied the data collector on each of the site visits. There was a failed attempt to discourage this practice, but there was no interference with the data collection process. In fact, the State representative helped the data collector to number pages and photocopy documents.

From time to time, sponsor representatives checked on the data collectors to ensure that everything was going smoothly. These contacts did not affect the data collection, with one exception. In that case, the sponsor's representative noticed that there was no income documentation in a specific FDCH's file. The data collector then overheard the sponsor calling that provider to request a fax of her income tax form. Moments later, the sponsor's representative showed up with the documentation that had been faxed and dated the day of the visit. It was not accepted.

In general, the data collection process went smoothly. The preliminary contacts had prepared the sponsor to have the necessary files available for all of their FDCHs. The data collectors had been instructed to contact ORC Macro if they encountered any problems onsite. This happened a few times, but, in each case, the problem was minor and easily resolved.

The central part of the data collection was filling out the Tiering Determination Instrument and photocopying all relevant documents in each FDCH's records. As indicated, information on meal counts was collected first. The data collector had to ensure that each FDCH had received reimbursements in May of 2005. In 24 cases for 17 sponsors, the records indicated that some of the sampled FDCHs did not have meal reimbursements in May. When this happened, the FDCH was dropped and the data collector used the ordered list of FDCHs to replace the FDCH that was not in scope.

For 22 of the 95 sponsors surveyed, meal counts for the previous 12 months were not available because they had been archived at a storage facility offsite. As shown in Appendix Table A1.3, at least 9 months of meal counts were obtained from most of the sponsors. However, 8 sponsors had fewer than 9 months of meal counts.

The rest of the data collection involved the identification of appropriate documentation in each file. In most cases, there was at least a single sheet of paper indicating the provider's name, when the FDCH was open, and what tier the FDCH was assigned. For Tier II FDCHs, this was often the only document in their file.

In all Tier I files and some Tier II files, it was critical to identify any documentation attempting to demonstrate eligibility for Tier I status. The data collector's job was to fill out the instrument and ensure that all the relevant documentation was photocopied. However, ORC Macro made the final decision as to whether the FDCH was correctly classified.

The data collectors were provided with separate folders for each FDCH. Each sheet of the instrument and each page that was photocopied also had to have that FDCH's unique study ID present. Once all data from a sponsor was complete, the data collectors conveyed the materials to ORC Macro.

Step 5. Create Data Analysis File

After the data collection instruments were returned, they were checked for completeness and legibility. These edited data collection instruments were double-key entered with a 100 percent accuracy check.

After all of the instruments had been transferred to an electronic format, a thorough review of the data elements was conducted to verify meal counts, check for missing data elements, and verify that all listed elementary schools met the standard of at least half of its students being eligible for free and reduced price meals (when adequate documentation for this was missing from the file). Tiering classifications were carefully evaluated for correctness. Because of the complexity of the income eligibility process (there were often many different sources of income from different family members), every FDCH in which income data were entered was rechecked to ensure that all of the fields were correctly entered.

Step 6. Rechecking School Eligibility for FDCHs with Inadequate Documentation Tying an FDCH to a Specific Elementary School

Once the analytic data set was created, a computer analysis program was developed to determine which FDCHs were improperly classified and what the reason was for the deficiency. As reported in Chapter 4, 641 Tier I FDCHs were found not to have documentation linking the FDCH to a specific elementary school in a way that met all of the requirements of the school eligibility criterion, or failed to adequately document their eligibility on the basis of another criterion (e.g., provider income). Common problems included the date on the school map missing or too old, non-school maps used, and initials missing on the memo to the file documenting a staff phone call to an official school representative. Although these cases were technically deficient, it was likely that most of these FDCHs were indeed Tier I eligible. As a result, FNS decided to expand the data collection to include follow-up verification phone calls to determine whether these FDCHs were indeed served by elementary schools in which at least 50 percent of the students are eligible for a free or reduced price meal.

A total of 549 Tier I listed FDCHs that had incomplete school information or no documentation at all in their files were included in the follow-up data collection. Most of the files for these FDCHs did identify the name of a local elementary school. However, 18 FDCHs did not have any sort of documentation to support their Tier I status. For those FDCHs, the Mapquest feature was used to identify the nearest elementary school, which was then tentatively chosen as the elementary school serving these FDCHs. This was only a preliminary allocation that was verified by follow-up phone calls.

Once all the FDCHs had a school identified, the telephone numbers of the schools were obtained from the National Center for Educational Statistics Web site¹⁴ or other Web-based sources. Each of the schools was called to verify that the address of the FDCH was served by that school.¹⁵ In most cases, the person answering the phone (often an administrative assistant or secretary) was able to give a definitive response. If not, other school representatives were contacted until a definitive answer was obtained.

When school representatives said that the FDCH was not in their service area, they were asked for a likely suggestion of the proper school for this address. In most cases, an alternative school was given. When no alternative option was given, Mapquest was used to identify the next most likely school. This school was then contacted to verify that they served the address of the

¹⁴ <http://nces.ed.gov/ccd/schoolsearch/>

¹⁵ In 24 cases, school district directories were available online and used to verify the link of the address to a specific school.

FDCH. This process was repeated until a definitive positive answer was received. Once a new school was identified, the State lists of eligible schools (based on the percentage of free or reduced price meals) were used to confirm that the correct school was on the list. If the school was not on the list, then the FDCH was considered as misclassified.

Chapter 4: Results of Data Collection

This section presents the results of the data collection, beginning with an overview of FDCHs classified as Tier I and meal reimbursements by tier. It then moves to misclassification rates based on review of documentation in sponsor files during the initial data collection period. Initial data collection did not include any independent verification of documents. Next, the results focus on the second round of data collection, during which missing or poor documentation linking the FDCH to a qualifying elementary school was obtained or verified. This led to the incorporation of these data to obtain revised misclassification rates and their associated costs.

In this section, all percentages shown are weighted and derived from the study sample. Actual numbers of FDCHs cited are unweighted. As expected in a sample that used probabilities proportional to size, the weighted percentages are often very close to those that would have been obtained from unweighted data.

Tier I Share of FDCHs and Meal Reimbursements

On the basis of the sampling and weighting procedures of this data collection, nearly three-quarters of FDCHs (74.3 percent) were classified as Tier I by their sponsors (Exhibit 4.1) during the 12-month study period.¹⁶ It should be noted, however, that there is considerable variation across sponsors and States on the share of Tier I FDCHs. At the State level, 3 States had more than 90 percent of their FDCHs classified as Tier I, while only 1 State had fewer than 60 percent of its FDCHs designated as Tier I. At the sponsor level, 12 sponsors classified all of their FDCHs as Tier I, while 12 sponsors classified 50 percent or less of their FDCHs as Tier I (see Appendix Table A1.4).

¹⁶ Of the 3,150 FDCHs surveyed, 2,338 were classified as Tier I.

Exhibit 4.1 Share of FDCHs Classified as Tier I by their Sponsors by State

State ID Number	Tier I Share
6	99%
1	91%
10	90%
4	85%
3	78%
11	77%
12	75%
9	73%
2	72%
13	69%
5	68%
14	66%
7	60%
8	41%
National Estimate	74%

Source: 2005 CACFP Program Assessment. Based on sponsor files for 3,150 FDCHs. Percentages by State are for descriptive purposes only because State-level samples are too small to produce robust State-level estimates.

Another way to look at the use of program resources is by the share of expenditures for Tier I reimbursed meals and snacks. This figure is greater than the share of Tier I FDCHs for two reasons. First, because Tier I meals are reimbursed at a much higher rate, the monetary share of Tier I reimbursed meals was higher than the share of FDCHs. Second, at Tier II FDCHs, many meals and snacks (15 to 16 percent) were reimbursed at Tier I rates because of the income status of individual children. Consequently, the national estimate from this study is that 79 percent of the meals and snacks, and 89 percent of expenditures were for Tier I reimbursed meals (see Exhibit 4.2) during the study period.

Exhibit 4.2 Meals and Expenditures Reimbursed at Tier I and Tier II Rates

	Number of Meals and Snacks	Expenditures	Share of Meals and Snacks	Share of Expenditures
Tier I	533,275,783	\$639,152,935	79%	89%
Tier II	140,626,394	\$80,538,744	21%	11%
Total	673,902,177	\$719,691,679	100%	100%

Source: 2005 CACFP Tiering Assessment. National, weighted, seasonally adjusted estimates based on sponsor files for 3,146 FDCHs. Four FDCHs used blended rates and are not included.

Results of the File Documentation Data Collection

After all of the data were extracted from sponsor records of the sampled FDCHs, the tiering algorithms were applied to determine whether the available documentation supported the listed tiering status. Of the 2,338 Tier I FDCHs, sponsors did not have adequate supporting documentation of this status for 641 FDCHs. Of the 812 Tier II FDCHs, 5 had documents in the file showing that they were eligible for Tier I status. In percentage terms, the weighted

procedural misclassification rates were 27.1 percent and 0.7 percent for Tier I and Tier II FDCHs, respectively. For the Nation as a whole, the overall estimated procedural misclassification rate was 20.3 percent.

As Exhibit 4.3 shows, the most common way in which FDCHs were qualified by their sponsors for Tier I status was through area eligibility using the local elementary school (74.2 percent), followed by income of the provider (12.7 percent), area eligibility using Census (4.0 percent), and income eligibility by categorical documents (0.8 percent). Slightly more than 8 percent of FDCH records included at least partial documentation for two or three different approaches.

**Exhibit 4.3 Basis of Tier I Qualification and Procedural Misclassification Rates—
Original Data Collection Sponsor Files**

Documentation Type	Percentage of Documentation*	Procedural Misclassification Rate	Weighted National Estimates of Tier I FDCHs
School	74.2%	29.6%	84,864
Income	12.7%	20.8%	14,556
Census	4.0%	5.5%	4,531
Categorical	0.8%	11.3%	887
Multiple Types of Documentation	8.4%	25.8%	9,550

*The percentage of documentation sums to more than 100% because of rounding.

Source: 2005 CACFP Tiering Assessment. Based on sponsor files for 2,338 Tier I FDCHs (unweighted).

Exhibit 4.3 also displays the procedural misclassification rate by type of approach used to qualify for Tier I status. For sponsors using multiple types of documentation, an FDCH was considered procedurally misclassified if the documentation in the file did not support Tier I classification regardless of which approach might have been used.¹⁷ The highest rate of possible error (29.6%) occurred when sponsors used the area-eligibility school approach. This high rate plus the 80 percent share of FDCHs classified through this approach¹⁸ meant that the vast majority of possible error involved linking the FDCH with a specific elementary school. Exhibit 4.4 provides additional information on the specific types of errors found in the FDCH files. In nearly one-third of these potential errors, there was no map or no official school map (e.g., a Mapquest map). In 46 percent of the cases, there was an official map but it was either undated (25 percent) or not valid (21 percent) because the date preceded 2001 (e.g., “last revised in 1998”) (see Appendix 5 for examples of these cases).

¹⁷ It is worth emphasizing that the FDCH was considered procedurally and not substantively misclassified. In 8.4 percent of cases, sponsors attempted to qualify FDCHs for Tier I status using two or three criteria. The procedural misclassification rate relates the percentage of times that the use of a specific criterion—without regard to the number of criteria they may have attempted—failed to support the claim for Tier I status. Thus, when a sponsor attempted to use the characteristics of the local elementary school solely, they failed to document the school’s eligibility almost 30 percent of the time. However, in the majority of such cases, further investigation led to the conclusion that the FDCH was indeed qualified for Tier I status even though sponsor documentation was inadequate. For about 8 percent of the FDCH records examined, sponsors attempted to use multiple approaches. In almost 26 percent of these instances, all of the approaches failed.

¹⁸ As Exhibit 4.3 indicates, 74 percent of FDCHs attempting to qualify for Tier I status attempted to do so on the basis of the local elementary school *only*. However, among the 8 percent that took multiple approaches, most involved the use of local elementary school demographics, raising the overall rate to 80 percent.

There were also many FDCHs in which the income statement of the provider did not adequately meet the requirements of the program. For 32 FDCHs in 11 sponsors across 7 States, typical monthly expenses and revenues were listed in a sample “ledger sheet” (see Appendix 5 for three examples). In some cases, there were receipts that made this approach acceptable. However, when there were no receipts, there was no way to verify these self-declared statements. FNS representatives determined that this procedure was not an acceptable form of documentation for Tier I status. Other documentation errors included the income eligibility form (not properly signed, dated, and with the provider’s Social Security Number), failure to date or document a source of income, or total income being above the threshold set for the household size.

Exhibit 4.4 Causes of Tier I Procedural Misclassifications

Causes of Misclassification	Percentage	Weighted National Estimates of Tier I FDCHs with Procedural Misclassifications
Inappropriate or Missing Map	31.1%	9,634
No Date on Map	25.0%	7,764
Expired Date on Map	21.1%	6,533
No Date or Initial on Memo	8.2%	2,540
School Not Eligible	3.3%	1,036
Unacceptable Ledger Sheet	5.6%	1,724
No Documentation for Income Source	1.2%	364
Excess Income	1.1%	343
Missing Element on Income Eligibility Application	2.8%	873
Census	0.7%	202
Total	100%	31,024

Source: 2005 CACFP Assessment. Weighted estimates based on sponsor files for 2,338 Tier I FDCHs.

The procedural misclassifications were not evenly distributed across sponsors and States. For example, 21 sponsors with more than half of their FDCHs classified as Tier I had procedural misclassification rates above 50 percent. By contrast, 13 sponsors with at least 50 percent of their FDCHs classified as Tier I did not have a single error relating to classification in their files (see Appendix Table A1.4).

As for Tier II FDCHs, five did have documentation in their files showing that they were Tier I eligible. In two cases, this was because of a note in the file saying that the husband had lost his job, but no new tiering decision was made. In three cases, there was proper documentation of Tier I status, but the wrong tiering level was recorded. In one unusual case, there was a note in the file saying that the FDCH provider refused Tier I status even though the provider qualified for it. This latter case was not considered to be in error.

Results of Independent Verification of Tiering Determinations with Procedural Misclassifications

Of the 641 Tier I FDCHs with a procedural misclassification, 488 were the result of poor documentation linking a specific elementary school to the FDCH’s address. In other words, any one of a number of different elementary schools may have served the FDCH. Another 43

FDCHs had a specific elementary school listed, but the supporting documents in their files were too weak to definitively link that school to the FDCH. Another 18 cases had neither a school listed nor another form of documentation showing how the sponsor determined that this FDCH was Tier I. Sponsors attempted to qualify 92 FDCHs on the basis of another criterion rather than elementary school, and failed to provide adequate documentation. Consequently, the purpose of the follow-up data collection was to determine whether these remaining 549 FDCHs that had been classified as Tier I by their sponsors were indeed Tier I eligible on the basis of their local elementary school having at least 50 percent of its students eligible for a free or reduced price meal. Exhibit 4.5 summarizes this breakdown.

Exhibit 4.5 Procedural Misclassification, Documentation Failure, and Verification Follow-up

	Unweighted Count of Sampled Tier I FDCHs
Documentation of Tier I Status Failure	
A <i>specific</i> , qualified school could not be identified from documentation.	488
A link between the FDCH and the listed school could not be validated through sponsor records.	43
No indication <i>at all</i> concerning how the FDCH Tier I status was determined. The school criterion was assumed and verification attempted.	18
Follow-up conducted to verify procedural misclassifications (subtotal)	549
Sponsor did not attempt to qualify the FDCH on the basis of elementary school, attempted to document Tier I status on the basis of provider income, census tract, or participation in a government needs-based program (categorical). Documentation was inadequate, but not followed up because follow-up was limited to insufficient documentation for school area criterion.	92
Total Tier I Procedural Misclassifications (unweighted)	641

For 446 of the total of 549 FDCHs procedurally misclassified on the basis of local elementary school, the sponsors' files contained appropriate documentation that the listed school was eligible on the basis of free or reduced price meal percentages.¹⁹ However, for the remaining 103 FDCHs, there was insufficient documentation indicating that 50 percent or more of the students at the elementary school linked to the FDCH qualified for free or reduced price meals.

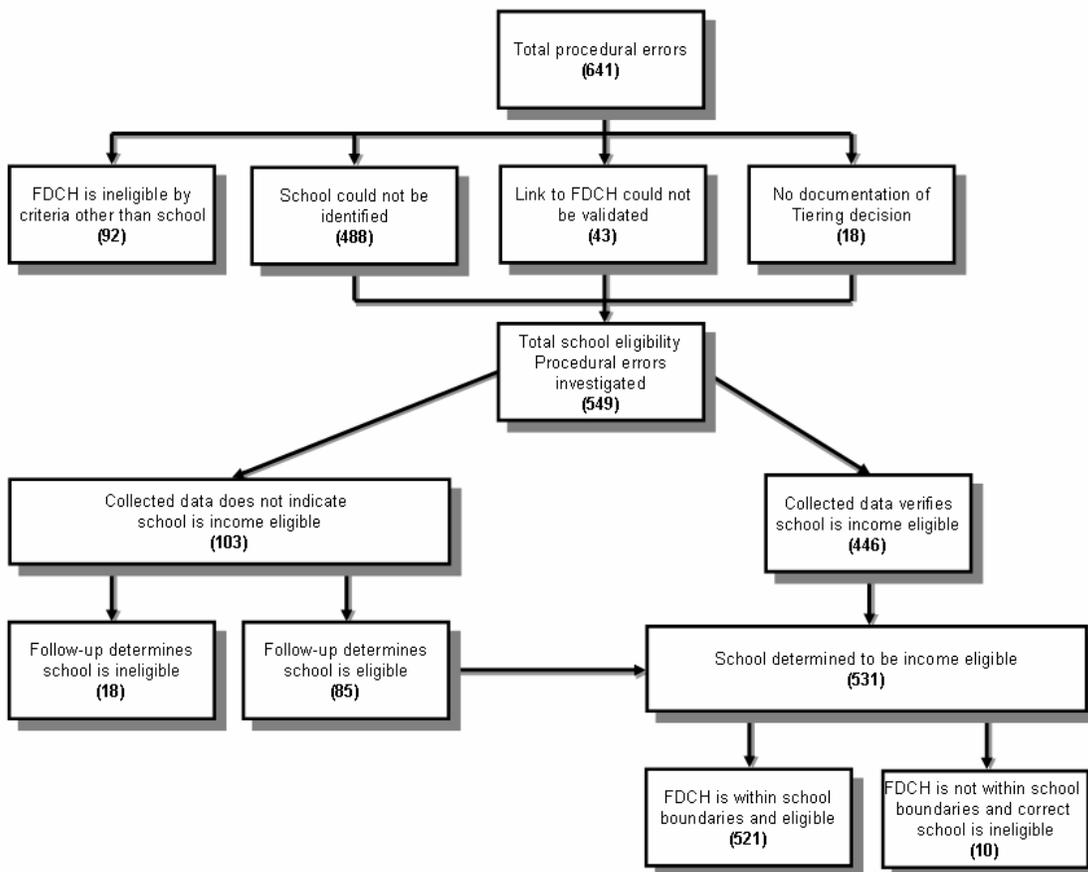
Eligibility was verified using the following method:

By referring to the National Center of Education Statistics Web site (<http://nces.ed.gov/globallocator/>), the number of students listed as receiving either free or reduced price lunches was divided by the total student population. If the result was greater than .5, the school could qualify FDCHs within its boundaries for Tier I funding. Otherwise, FDCHs were not eligible. Eighteen FDCHs were found to be listed with schools that did not qualify them to be eligible to receive Tier I funding, and 85 FDCHs were found to be listed with schools that did qualify them to receive funding.

¹⁹ In most of these cases, official State records of eligible schools were available, but it could not be determined which of these schools serviced the FDCH. For the other 42 FDCHs (446 + 42 = 488), not only was it impossible to identify which of several schools serviced the FDCH, but school eligibility could also not be verified from sponsor files.

These 85 FDCHs were then added to the 446 FDCHs mentioned earlier, producing a set of 531 FDCHs determined to be listed with schools that made them eligible to receive Tier I funding. It remained to verify that these FDCHs were indeed within the boundaries of the schools' attendance areas. Phone calls were made to each of these schools to verify whether or not the addresses of the FDCHs were within their attendance areas, and 521 FDCHs were confirmed to be within the attendance areas and, therefore, eligible for Tier I funding. Ten were confirmed to be outside of the schools' attendance areas (and therefore not eligible to receive Tier I funding).

Exhibit 4.6 Flowchart of Independent Verification of Tiering Determinations with Procedural Misclassifications



Results after Incorporating Independent Verification of Procedural Misclassification

Once the Tier I status was confirmed for the 521 surveyed FDCHs (out of the 549 FDCHs for which follow-up checks were conducted), the national estimate of the misclassification rate was determined to be 5.2 percent for Tier I FDCHs (see Exhibit 4.7), compared with the 27.1 percent of FDCHs for which documentation was missing or inadequate in the first round. The Tier II misclassification rate did not change, remaining at 0.7 percent, and the overall misclassification rate fell to 4.0 percent from 20.3 percent. Also included in Exhibit 4.7 are estimates for the upper and lower bounds of these estimates. In addition (data not shown), the first-round

misclassification rate of 29.6 percent potential errors among Tier I FDCHs using the local elementary school approach (as was shown in Exhibit 4.3) dropped to 2.4 percent after the second round. None of the other misclassification rates in Exhibit 4.3 changed. Exhibit 4.8 presents the unweighted counts of both procedural and verified errors.

Exhibit 4.7 Verified Misclassification Rates by Tiering Status

Type of FDCH	Verified Misclassification Rate	Upper Limit*	Lower Limit*	Weighted National Estimates of FDCHs
Tier I	5.2%	6.5%	3.8%	114,387
Tier II	0.7%	0.9%	0.4%	39,532
All Tier I or Tier II FDCHs	4.0%	4.9%	3.1%	153,919

* 90 percent confidence level

Source: 2005 CACFP Tiering Assessment. Based on sponsor files for 3,150 FDCHs and follow-up verification (weighted estimates).

Exhibit 4.8 Comparison of Procedural to Verified Errors for Sampled FDCHs

Type of Home	Procedural Error		Verified Error	
	Yes	No	Yes	No
Tier I	641	1,697	120	2,218
Tier II	5	807	5	807
All Sampled Tier I or Tier II FDCHs	646	2,504	125	3,025

Source: 2005 CACFP Tiering Assessment. Based on sponsor files for 3,150 FDCHs including follow-up for 549 Tier I FDCHs with procedural errors based upon local elementary school.

The large decline of the share of misclassified Tier I FDCHs based on school eligibility produced changes in the shares of the misclassifications attributable to other causes (see Exhibit 4.9). Because the vast majority of Tier I FDCHs tried to establish their status on the basis of local elementary schools, the low rate of misclassifications still meant that a sizeable share (28.4 percent) of the remaining misclassifications was a result of the local elementary school not having at least 50 percent of its students being eligible for a free or reduced price meal.

The major source of remaining misclassifications was the result of inadequate documentation that proved the FDCH provider was personally income qualified. Half of these misclassifications resulted from either the use of self-reported monthly ledgers, lack of adequate documentation and dating of the income sources of all of the family members, excess income, and a missing element on the income eligibility form.²⁰ The remaining misclassifications were the result of either inadequate Census documentation or failures to earn Tier I status, even though multiple methods were tried.

²⁰ It is quite possible that many of these providers would qualify for Tier I status on the basis of their low income if the proper documentation was present. It was beyond the scope of this data collection to make this determination.

Exhibit 4.9 Causes of Verified and Non-Verified Misclassification for Tier I FDCHs

Causes of Misclassification	Percentage	Weighted National Estimates of Misclassified Tier I FDCHs
Verified Misclassification		
▪ School Not Eligible*	28.4%	1,673
Non-Verified Misclassification		
▪ Unacceptable Ledger Sheet	27.7%	1,634
▪ No Documentation for Income Source	15.3%	901
▪ Excess Income	5.1%	303
▪ Missing Element on Income Eligibility Application	4.2%	249
▪ Census Ineligible	2.6%	153
▪ Multiple Forms of Documentation**	16.8%	990
Total	100%	5,903

* All FDCHs without any documentation are assumed to have been Tier I on the basis of area eligibility by elementary school.

** Some FDCHs had documents in their files that supported different approaches for Tier I eligibility.

Source: 2005 CACFP Tiering Assessment. Based on sponsor files for 2,338 Tier I FDCHs and follow-up verification (weighted estimates are provided).

Of the 95 sponsors in the sample, 43 did not have a single Tier I misclassification. Another 37 had a misclassification rate of less than 10 percent (see Appendix Table A1.4). Of the remaining 15 sponsors, only 3 had misclassification rates over 20 percent. These 3 sponsors tended to use provider ledger sheets, which is an unacceptable form of documentation. At the State level (see Exhibit 4.10), only 2 States had misclassification rates over 10 percent (coincidentally these were the two States with the lowest share of Tier I FDCHs). At the other extreme, one State had no misclassifications, even though it had the highest share of its FDCHs classified as Tier I.

Exhibit 4.10 Verified Tier I Misclassification Rate by State

State ID Number	Verified Tier I Misclassification Rate
7	16.8%
8	11.7%
1	8.2%
14	6.9%
13	5.1%
9	4.5%
2	4.1%
10	4.1%
12	3.7%
4	3.2%
5	2.9%
3	1.9%
11	1.9%
6	0.0%
National Estimate	5.2%

Source: 2005 CACFP Tiering Assessment. Based on sponsor files for 2,338 Tier I FDCHs and verification follow-up. Percentages by State are for descriptive purposes only because State-level samples are too small to produce robust State-level estimates.

Costs of Misclassifications

Using the procedures discussed in Chapter 2, the annual cost of improper payments²¹ associated with misclassified FDCHs is estimated to be about \$13 million, with a 90 percent confidence range of between \$9.4 and \$16.6 million (see Exhibit 4.11). Most of these are overpayments to misclassified Tier I FDCHs, which are estimated to be \$12.7 million, with a confidence range of between \$9.1 and \$16.3 million. The share of overpayments to Tier I FDCHs represents 2.1 percent of the estimated expenditures for meal reimbursements at Tier I FDCHs (\$613,254,449). This ratio is less than the misclassification rate of Tier I FDCHs (5.2 percent) because only part of the cost of the meal—the difference between Tier I and Tier II reimbursement rates—translates into an overpayment. More specifically, meals at misclassified Tier I FDCHs would be reimbursed at approximately half the rate of Tier I reimbursed meals (especially when accounting for the fact that about 16 percent of Tier II FDCHs meals are reimbursed at the higher Tier I rate).

²¹ That is, the sum of the overpayments to Tier I homes and the absolute value of the underpayments to Tier II homes.

Exhibit 4.11 Costs of Misclassifications

	Estimated Cost	Cost as % of Total Reimbursements	Upper Bound Estimate*	Upper Bound as % of Total	Lower Bound Estimate*	Lower Bound as % of Total	Weighted National Estimates of FDCHs
Tier I FDCHs (Overpayment)	\$12,708,980	2.1%	\$16,321,595	2.7%	\$9,096,353	1.5%	114,387
Tier II FDCHs (Underpayment)	\$299,485	0.3%	\$420,461	0.4%	\$178,508	0.2%	39,532
All FDCHs (Improper Payments)	\$13,008,465	1.8%	\$16,619,960	2.3%	\$9,396,958	1.3%	153,919

* 90 percent confidence level

Source: 2005 CACFP Tiering Assessment. National estimates based on sponsor files for 3,150 FDCHs and verification follow-up. Weighted figures are presented.

For Tier II FDCHs, the amount of underpayments was estimated to be \$299,485, which represents 0.3 percent of funding for meals at Tier II FDCHs (an estimated \$106,437,230). Combining the absolute value of the estimated cost of Tier I and Tier II misclassifications leads to a total amount of under- and over-spending of \$13,008,465, which represents 1.8 percent of total spending for all Tier I and II FDCHs.

Exhibit 4.12 shows the number of meals that were provided at FDCHs by their listed tiering level and the number of meals that were reimbursed at the wrong rate. In Tier I FDCHs, about 21.1 million out of the 514.8 million meals reimbursed were reimbursed at the wrong rate, and for Tier II homes, 492,866 out of the 159 million meals served were reimbursed at the wrong rate.

Exhibit 4.12 Annual Number of Meals Served and Number of Meals Reimbursed at Incorrect Rate by FDCH Tier Type

	Breakfasts	Lunches and Suppers	Snacks	Total Meals and Snacks
Tier I FDCHs				
Total	121,939,306	197,723,546	195,171,951	514,834,803
Reimbursed at Wrong Rate*	5,186,115	7,811,530	8,098,196	21,095,841
Tier II FDCHs				
Total	42,557,586	56,326,215	60,183,573	159,067,374
Reimbursed at Wrong Rate	150,641	170,099	172,126	492,866

Source: 2005 CACFP Tiering Assessment. Figures based upon seasonally adjusted monthly averages within States.

*The calculation of meals at Tier I FDCHs reimbursed at the wrong rate takes into account the fact that, with a change in tiering status, not all meals would be reimbursed at Tier II rates. The adjustment is made by deducting State proportions of Tier I meals served in Tier II homes. For Tier II FDCHs, only meals reimbursed at Tier II rates are subject to error. Eighteen of the Tier I FDCHs in the sample that were incorrectly classified claimed some Tier II meals. These Tier II meals were not included in the estimate of meals reimbursed at the wrong rate, but are included in the total meals for Tier I FDCHs.

Chapter 5: Conclusion

Tiering was introduced to target CACFP to low-income children. Providers who were located in low-income areas or were themselves in low-income households would be eligible for higher meal reimbursements compared with other providers. In developing this approach, alternative methods were developed to establish Tier I status.

Along with their other duties, sponsors are responsible for determining whether FDCHs qualify for Tier I status. In the initial review of the information collected from sponsor files for 3,150 FDCHs, 27 percent of the FDCHs that had been classified as Tier I did not have adequate documentation for this status. However, after independently contacting the schools for 549 FDCHs with incomplete or incorrect documentation, the misclassification rate fell to 5.2 percent. This independent verification only applied to school eligibility. If a similar analysis had been done for providers classified Tier I on the basis of another criteria, such as income, the misclassification rate might have been lower.

Some sponsors appear to be doing a poor job meeting the program requirements for documenting Tier I status. Explanations given to our field data collectors for poor documentation include the following:

“We know that everyone in that area is poor.”

“All the schools in that city qualify.”

“The boundaries of school districts have not changed since World War II.”

While many of these sponsors have not been diligent in appropriately documenting their tiering decisions, independent verification indicates that the tiering assignments tend to be correct. They have relied on their own estimate of an area’s income-poverty level to justify shortcuts in their documentation. As proven by the independent verification, their tacit knowledge was often, but not always, correct: 43 of the 95 sampled sponsors had no tiering misclassifications after verification.

Most of the classification problems involve poor maps connecting the address of an FDCH to a specific elementary school. The rules are clear: Only an official school boundary map can be used, the map must be dated, and the date must be current or a note must be present indicating that a map with an old date is still applicable. If maps are not available, telephone calls to schools are permitted as long as there is an initialed and dated memo in the file indicating the name of person who verified that the school served the FDCH address.

The second way sponsors determine Tier I status is on the basis of the income of the provider. The typical form of income verification is the provider’s income tax form from the most current year. With a few exceptions, the income tax form can be used to document income, although several sponsors seemed unaware of the provisions that disallowed negative business income or that retirement income and child care allowances count toward tiering eligibility.

Sponsors failed to document the tiering status of 4.0 percent of the FDCHs adequately. The lower and upper bounds of this rate were 3.1 and 4.9 percent, respectively. In terms of dollars, either overpayments on Tier I reimbursements or underpayments on Tier II reimbursements, the total amount of improper payments is estimated at \$13 million, with a lower bound of \$9.4 million and an upper bound of \$16.6 million.

Appendix 1: Tables

Appendix 1: Tables

Table A1.1 Sample of States

State	FDCHs	Sampled
RI	370	0
MA	5,316	0
CT	962	0
VT+NH	801	0
ME	1,311	0
NY	8,556	1
WV	1,793	0
PA	2,267	1
VA+DC	2,750	0
MD	3,948	0
DE	897	0
NJ	888	0
GA	3,464	1
NC	3,715	0
SC	953	0
MS	508	0
FL	2,654	1
TN	1,603	0
KY	817	0
AL	1,465	0
OH	3,363	0
IN	1,901	0
MN	10,159	1
WI	3,733	1
MI	6,973	1
IL	7,601	0
AR	957	0
LA	5,762	1
TX	7,483	1
NM	6,053	0
OK	3,280	1
MT	888	0
UT	2,153	0
ND	1,514	0
MO	1,817	0
NE	2,757	0
IA	2,268	1
WY	456	0
KS	4,306	0
SD	674	0
CO	2,385	0
WA	3,742	1
ID	390	0
HI	335	0
AK	507	0
OR	2,811	0
NV	297	0
AZ	3,956	1
CA	20,370	2

Table A1.2 Monthly Adjustments for Seasonality

	Breakfasts	Snacks	Lunch and Dinners
January	0.98	0.91	0.98
February	0.94	0.88	0.93
March	1.09	1.04	1.08
April	1.02	0.99	1.02
May	1.01	0.96	0.99
June	1.04	1.20	1.02
July	0.95	1.17	0.96
August	1.01	1.15	1.00
September	1.01	0.91	1.01
October	1.01	0.92	1.02
November	0.97	0.90	0.99
December	0.96	0.96	1.00

Table A1.3 Maximum Months of Available Meal Counts

Number of Months	Number of Sponsors	Percentage
3	7	7.4
5	1	1.1
8	10	10.5
9	1	1.1
11	3	3.2
12	73	76.8

Table A1.4 Sponsor Tier I Classifications and Misclassification Rates

Sponsor	Sampled FDCHs	Share of FDCHs Sponsor Classified as Tier I	Tier I Misclassification Rates	
			Procedural Misclassification Rate	Verified Misclassification Rate
1	30	96.7%	58.6%	3.4%
2	30	90.0%	25.9%	14.8%
3	30	86.7%	96.2%	0.0%
4	30	96.7%	20.7%	6.9%
5	30	80.0%	25.0%	4.2%
6	30	93.3%	82.1%	21.4%
7	30	93.3%	78.6%	10.7%
8	30	66.7%	10.0%	5.0%
9	30	56.7%	64.7%	11.8%
10	30	40.0%	41.7%	8.3%
11	30	83.3%	32.0%	0.0%
12	30	83.3%	56.0%	0.0%
13	30	63.3%	94.7%	5.3%
14	30	76.7%	17.4%	8.7%
15	30	83.3%	0.0%	0.0%
16	30	73.3%	13.6%	13.6%
17	30	60.0%	0.0%	0.0%
18	30	80.0%	75.0%	0.0%
19	30	56.7%	52.9%	11.8%
20	30	100.0%	26.7%	3.3%
21	30	83.3%	96.0%	8.0%
22	30	60.0%	5.6%	0.0%
23	30	83.3%	4.0%	4.0%
24	60	88.3%	30.2%	1.9%
25	30	93.3%	3.6%	0.0%
26	30	53.3%	25.0%	6.3%
27	30	90.0%	0.0%	0.0%
28	30	100.0%	6.7%	3.3%
29	30	100.0%	93.3%	3.3%
30	30	63.3%	5.3%	0.0%
31	60	78.3%	6.4%	0.0%
32	30	86.7%	7.7%	7.7%
33	30	96.7%	10.3%	10.3%
34	30	76.7%	17.4%	4.3%
35	30	53.3%	12.5%	6.3%
36	31	35.5%	9.1%	9.1%
37	30	93.3%	53.6%	3.6%
38	30	66.7%	15.0%	0.0%
39	30	96.7%	34.5%	0.0%
40	29	41.4%	8.3%	0.0%
41	30	96.7%	6.9%	0.0%
42	30	100.0%	0.0%	0.0%
43	30	93.3%	0.0%	0.0%
44	30	100.0%	16.7%	0.0%

Sponsor	Sampled FDCHs	Share of FDCHs Sponsor Classified as Tier I	Tier I Misclassification Rates	
			Procedural Misclassification Rate	Verified Misclassification Rate
45	30	100.0%	0.0%	0.0%
46	30	100.0%	0.0%	0.0%
47	30	100.0%	0.0%	0.0%
48	30	66.7%	5.0%	5.0%
49	90	43.3%	23.1%	10.3%
50	60	65.0%	46.2%	41.0%
51	30	93.3%	67.9%	0.0%
52	30	43.3%	0.0%	0.0%
53	30	46.7%	21.4%	21.4%
54	30	30.0%	0.0%	0.0%
55	30	23.3%	0.0%	0.0%
56	90	47.8%	16.3%	16.3%
57	30	80.0%	0.0%	0.0%
58	30	53.3%	12.5%	12.5%
59	30	50.0%	33.3%	26.7%
60	30	60.0%	11.1%	0.0%
61	30	63.3%	84.2%	5.3%
62	30	100.0%	50.0%	3.3%
63	30	100.0%	100.0%	0.0%
64	30	100.0%	30.0%	0.0%
65	30	96.7%	51.7%	3.4%
66	30	93.3%	75.0%	0.0%
67	30	86.7%	80.8%	3.8%
68	30	90.0%	55.6%	14.8%
69	30	90.0%	44.4%	3.7%
70	30	76.7%	82.6%	8.7%
72	30	100.0%	0.0%	0.0%
73	30	96.7%	3.4%	3.4%
74	30	86.7%	3.8%	3.8%
75	30	50.0%	6.7%	0.0%
76	23	82.6%	5.3%	5.3%
77	7	71.4%	0.0%	0.0%
78	30	60.0%	0.0%	0.0%
79	30	83.3%	12.0%	4.0%
80	30	60.0%	22.2%	0.0%
81	30	80.0%	4.2%	4.2%
82	30	83.3%	52.0%	4.0%
83	30	53.3%	56.3%	6.3%
84	30	96.7%	6.9%	0.0%
85	30	73.3%	9.1%	9.1%
86	30	86.7%	26.9%	3.8%
87	30	63.3%	31.6%	0.0%
88	30	86.7%	0.0%	0.0%
89	30	63.3%	10.5%	10.5%
90	30	53.3%	12.5%	12.5%
91	60	65.0%	5.1%	5.1%

Sponsor	Sampled FDCHs	Share of FDCHs Sponsor Classified as Tier I	Tier I Misclassification Rates	
			Procedural Misclassification Rate	Verified Misclassification Rate
92	30	40.0%	8.3%	8.3%
93	60	41.7%	16.0%	16.0%
94	90	76.7%	7.2%	7.2%
95	30	86.7%	0.0%	0.0%
96	30	63.3%	0.0%	0.0%
Unweighted Total	3,150	74.2%	27.4%	5.1%

Appendix 2: Assumptions in Sample Selection

Appendix 2: Assumptions in Sample Selection

Two main factors affected sample selection—size of error and variance in error rates. If the error rate is close to 50 percent, a larger sample is required than if the error rate is closer to 0 or 100 percent. FDCHs are clustered within sponsors, and sponsors, in turn, are nested within individual States. To the degree that sponsors and States have similar error rates (similar percentages of FDCHs misclassified), the required sample size is lower and the ratio of FDCHs per sponsor is higher.

Estimate Variance and Expected Rate of Misclassification

The variance of the estimate of a variable measured as a percentage (p) is:

$$\text{Variance} = p * (1-p).$$

If $p = 10$ percent (or 90 percent), the variance is 0.09. Conversely, if p equals 50 percent, then the variance is 0.25. The maximum variance occurs when p equals 50 percent. Conceptually, variance around the extremes of 0 and 100 percent are lower than the variance around the midpoint of 50 percent because at these points we approach certainty.

With no prior knowledge of what the true rate of misclassification might be, scientific rigor would demand that we assume the worst (from the investigator’s perspective). That is, we would assume that the rate of misclassification is 50 percent. Doing so allows us to be 90 percent confident that even where the variance of the estimate is at its maximum, we will still be able to state that our estimate is within plus or minus 2.5 percentage points of the true, unknown value.

The desired distance from the estimate of 2.5 percentage points may be expressed as:

(1) $d \leq z \frac{\sigma}{\sqrt{n}}$ where d is the distance and $\frac{\sigma}{\sqrt{n}}$ is the standard error. Dividing both sides of

(1) by $z = 1.645$ and substituting in $d = 2.5$, we find that the standard error for our estimate must be no greater than 1.52 percentage points for us to say with 90 percent confidence that the estimate is within 2.5 percent of the true value. Given that the variance and, therefore, the standard deviation (σ) of a single dichotomous event (e.g., classify an FDCH correctly or incorrectly; flip a coin and get “heads” or “tails”) reaches its maximum when the probability of the occurrence of the event is 0.5, we can thus write:

$$(2) \frac{\sigma}{\sqrt{n}} = 1.52 \text{ percentage points} = 0.0152$$

$$\frac{\sqrt{p(1-p)}}{\sqrt{n}} = 0.0152$$

$$\frac{\sqrt{.5(1-.5)}}{\sqrt{n}} = 0.0152$$

$$n = \frac{.25}{0.0152^2} = 1,082$$

Therefore, we would need a sample size of 1,082 FDCHs, drawn from an infinitely large population of FDCHs, for us to express 90 percent confidence that our estimate of misclassification will be within plus or minus 2.5 percentage points of the true value, no matter what value the estimate might take.

However, we know that the population of FDCHs is not infinitely large. In fact, according to information provided by FNS during the initial stages of this project, there are only 153,929 FDCHs in the 50 States and the District of Columbia. Because this number may have changed from when the data was originally gathered, for the purpose of developing the sample design, we rounded up to 160,000. This allowed us to reduce the required sample size by applying a “finite population correction.”²² The finite population correction, or *fpc*, is equal to:

(3) $fpc = (1 - f)$ where *f* is the sampling fraction (the proportion of the total, finite population) we would need to obtain estimates of the same power and precision as the sample drawn from the infinitely large population. Writing *f* as $(n_f) / N$, we must solve for the unknown n_f using the following relationships:

$$(4) fpc = 1 - \frac{n_f}{N}$$

$$(5) n_f = fpc(n)$$

where n_f is the corrected sample size we wish to determine, and *n* is the sample size we would need if we were drawing from an infinitely large population of FDCHs and wished to express, with 90 percent confidence, that our estimates are within 2.5 percentage points of the true value. Substituting equation (5) into equation (4), rearranging terms, and then using the values of 1,082 and 160,000 for *n* and *N* respectively we arrive at:

$$(6) n_f = \frac{1,082}{1 + \left(\frac{1,082}{160,000}\right)}^{23}$$

$$= 1,075$$

Therefore, if we were sampling randomly without replacement from 160,000 FDCHs, we would need a sample size of 1,075 to achieve an estimate with a power of 90 percent and a precision of plus or minus 2.5 percentage points.

²² For a discussion of finite population correction, see Kish, L. 1965. Survey sampling. New York: John Wiley and Sons, Inc. (Chapter 2, particularly sections 2.3 through 2.6).

²³ Ibid, equation 2.6.2, p.50.

The Effect of Clustering

A number of issues—not the least of which is cost—make it undesirable to select FDCHs at random. Instead, we developed plans to select a limit number of States, and within each State, the same number of sponsors. Within each sponsor, we surveyed the same number of FDCHs. The design of this selection process increases variance and requires increasing the sample size above the 1,075 number cited above.

This design effect is inextricably bound to the concept of “intraclass correlation,” which is, in this context, a measure of the homogeneity of error (misclassification) rates among FDCHs associated with a particular sponsor, and of sponsors located in a particular State. Thus, it is related to the clustering of FDCHs within sponsors and sponsors within States. If we know the intraclass correlation, *and if we know the costs associated with sampling FDCHs within an additional State and within an additional sponsor*, then we can create an optimal design and calculate the necessary sample size to obtain the desired power and precision.

Another equally important concept is that of *effective* sample size. The effective sample size is equivalent to that which would be necessary if we were to draw FDCHs by means of simple random selection. In this instance, and for a power and precision of 90 percent plus or minus 2.5 percentage points, the effective sample size needed is equal to 1,075.

We estimated that for the cost of visiting an additional sponsor we could, instead, select and examine an additional 60 FDCHs from an existing set of sponsors. In like manner, for the price of selecting and examining an additional State, we could add 15 sponsors from a set of already selected States. Therefore, we arrived at the following cost function:

$$(7) C = C_0 + u (C_1s + C_2sp + C_3sph)$$

where C_0 is the fixed costs, u is the unit cost per FDCH, s is the number of States, p is the number of sponsors examined in each State, and h is the number of records of FDCHs examined within each sponsor. Given available information and past experience, we believed that reasonable estimates for the multipliers, C_i ($i = 1,2,3$), are:

$$C_1 = 900$$

$$C_2 = 60$$

$$C_3 = 1$$

Returning to the concept of intraclass correlation (hereafter symbolized as ρ), we restate that ρ is a measure of the degree to which clusters of entities (FDCHs within sponsors, or sponsors within States) share a common fraction of the variable to be estimated. The value of ρ is always less than or equal to 1 in absolute value, and only on rare occasions is it negative. Thus, a very high value of ρ might mean that misclassification of FDCHs is common for some sponsors but a rarity for others. An estimate of ρ can be obtained through an analysis of variance corrected for the size of the clusters (e.g., the number of FDCHs within each sponsor). Unfortunately, the figures necessary to conduct such an analysis for CACFP were unavailable. Though we did possess estimates of the intraclass correlation for other entitlement programs, and these were used as

approximations for the ρ relevant to CACFP. Using the Pell Grant program (students clustering within schools clustering within States), the Public Housing program (beneficiaries clustering within Public Housing Authorities), and the Assisted Housing Voucher program (clustering identical to that for the Public Housing program), we arrived at an estimate of the intraclass correlation of about .06 for the equivalent of sponsors, and about .02 for States.

With these estimates, we determined the optimal number of FDCHs to be selected per sponsor, given the cost function and the intraclass correlation. Minimizing the variance subject to the cost constraint,²⁴ the number of FDCHs per sponsor should be:

$$(8) \text{ FDHC/Sponsor} = \sqrt{\left(\frac{C_2}{C_3}\right)\left(\frac{1-\rho}{\rho}\right)}$$

Substituting estimated values of C_2 and C_3 from (7) and $\rho = .06$, we arrived at a figure of about 30 FDCHs per sponsor. Using the same formula, but replacing $\left(\frac{C_2}{C_3}\right)$ with $\left(\frac{C_1}{C_3}\right)$ and allowing ρ to equal .02, we came to 210 FDCHs per State or, given 30 FDCHs per sponsor, 7 sponsors per State.

For this study, the overall design effect is equivalent to the product of the design effect resulting from the clustering of FDCHs within sponsors, the effect resulting from the clustering of sponsors within States, and the effect resulting from weighting. We can express the design effect at each level with the equation:

$$(9) \text{ Design effect} = 1 + (b-1) \rho$$

where b is the size of the cluster. At the level of sponsors, b is equal to 30 and $\rho = .06$, yielding a design effect of 2.74. At the level of States, b is equal to 7 and $\rho = .02$, rendering an effect of about 1.12. To calculate the overall design effect, we still needed to include the effect resulting from weighting.

As the difference in selection weights gets larger, so too will the design effect resulting from weighting. While in theory the probability of selection of individual FDCHs should be the same, in practice there are many reasons why this may not be so. In particular, the counts of FDCHs by State provided by FNS, the counts of sponsors provided by the State, and the number of FDCHs actively participating may not be the same. Some sponsors may also have fewer than 30 FDCHs. Past experience suggested that a design effect resulting from weighting of approximately 1.3 is reasonable.

By multiplying the three effects ($2.74 \times 1.12 \times 1.30$), we arrive at an approximate total design effect of slightly under 4.0. For a population of 160,000 and precision of a 90 percent confidence interval of 2.5 percentage points, we would need about 4,200 FDCHs. To obtain this number, we multiply the needed random sample for an infinite population, as derived in equation (2), by the overall design effect (3.99), and apply the finite population correction.

²⁴ Kish, L. 1965. Survey sampling. New York: John Wiley and Sons, Inc. p.269, equation 8.3.7.

$$(10) n_d = n(\text{design effect}) fpc$$

$$n_d = 1,082(3.99)\left[1 - \frac{1,082(3.99)}{160,000}\right]$$

$$n_d \cong 4,200$$

With 7 sponsors per State and 30 FDCHs per sponsor, this tells us that we should select exactly 20 States if we assume that the error rate is at 50 percent. However, in consultation with FNS, we recomputed the desired sample size assuming that no more than 25 percent of FDCHs would be misclassified. Using this number for ρ , the ideal sample for this level of precision was 3,150 FDCHs within 105 sponsors and within 15 States.

Appendix 3: Weighting Procedures

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The sampling design was developed to be approximately self-weighting. That is, every FDCH participating in CACFP nationally will have the same probability of selection, and hence an equal weight. However, in choosing States and sponsors, we relied on FDCH counts from FNS first, and then the States. Because of the different sources, the FDCH counts varied. In other words, in selecting States, we used national summary data provided by FNS. For example, suppose that State A was selected and then contacted to provide a list of sponsors and numbers of FDCHs per sponsor. The FNS data may have reported 4,000 FDCHs for State A, while the State provided data listed 3,500 FDCHs. Similarly, the State data may have indicated that Sponsor B had 300 FDCHs, but when we contacted this sponsor, their list showed 350 active FDCHs.

The discrepancy in these numbers means that the probability of selection of homes varied from State to State and sponsor to sponsor. Because State A was chosen on the basis of having 4,000 FDCHs when it had only 3,500 FDCHs, the chance of a FDCH being selected from State A was higher than it should have been (4,000 is greater 3,500). To offset this bias, we had to “weight” the observations in each State on the basis of the difference between the number of FDCHs that we thought were in the State and the number of FDCHs that were actually in the State.

The same logic applies to the choice of sponsors. In the cited example, we chose Sponsor B on the basis of having 300 active FDCHs, when it actually had 350 FDCHs. We had to make a second adjustment in computing the weight of each FDCH from this sponsor to account for this difference.

There is also the issue of FDCHs that were selected for each sponsor. Nearly all the FDCHs selected were used in our study. However, in a handful of cases, we found that a FDCH was not active in May 2005, when we collected meal counts at the sponsor’s location. As noted, we were ready with a replacement FDCH, but this factor also affects the randomness of the selection process. If 3 of the 30 FDCHs selected from Sponsor B were found to be out of scope, we had to assume that 10 percent of Sponsor B’s entire list of FDCHs would also be out of scope. So the effective number of FDCHs from Sponsor B would not be 350 FDCHs but 315 FDCHs.

In selecting weights, one uses the probability of selection, but this is a somewhat ambiguous term. One can use the unconditional probability of selection, which means that one uses the probability of selection of a unit as calculated before the sampling procedure even begins. Or one can use the probability of selection at each stage, conditional on the results of the sampling at the previous stage. The original intent was to use the unconditional probabilities. However, preliminary reports indicate that the intraclass correlation (i.e., the degree to which errors cluster in States and sponsors) would be higher than anticipated, and recent findings (Saavedra, 2005) indicate that the conditional probability of selection is more effective under those circumstances. It is not the case that every FDCH has the same probability of selection *at every stage*. Therefore, even with exact counts, using weights would be more effective than using unweighted estimates.

The specific procedures we used in obtaining the weight of an FDCH—correctly or incorrectly classified—are described in equations 9–14. For example, we describe the probability of selection of an FDCH from a State that contains less than one-fifteenth of all FDCHs nationally, and from a sponsor that administrates less than one-seventh of all FDCHs within the State. The probability of selection for the FDCH will be equal to the probability that the State is selected, multiplied by the probability that the FDCH’s sponsor is selected (given the fact that the State was selected m times), multiplied by the probability that the FDCH is selected (given the fact that the FDCH sponsor was selected k times). If data acquired from all sources were completely accurate, we would have:

$$(9) \Pr[\text{State is selected}] = 15 * \left(\frac{N(\text{FDCH in State})}{N(\text{FDCH in Nation})} \right) \text{ for the probability of State selection;}$$

$$(10) \Pr[\text{Sponsor selected} | \text{State selected}] = 7 * \left(\frac{N(\text{FDCH in Sponsor})}{N(\text{FDCH in State})} \right) \text{ for the probability that the sponsor is selected given that the State is selected; and}$$

$$(11) \Pr[\text{FDCH selected} | \text{sponsor selected}] = \left(\frac{30}{N(\text{FDCH in Sponsor})} \right) \text{ for the probability that the}$$

FDCH is selected given that the sponsor is selected, where \Pr signifies “probability that,” $N(\text{FDCHs in Nation})$ denotes the total number of FDCHs in the Nation, and $N(\text{FDCHs in State})$ denotes the total number of FDCHs in the selected State, and so forth.

Multiplying these three probabilities, while recalling that we have already determined that we will select 30 FDCHs within each of 7 sponsors within each of 15 States, we get:

$$(12) \Pr[\text{FDCH is selected}] = \frac{3,150}{N(\text{FDCH in Nation})} = \frac{3,150}{153,929} = 0.02$$

However, there are two sources of information for $N(\text{FDCHs in State})$ and two for $N(\text{FDCHs in Sponsor})$, and these sources did not reconcile perfectly. FNS and the sampled States each provided a count of FDCHs in the State. Data from FNS describing $N(\text{FDCHs in State})$ were used to select the State, while the State provided a count that was used to select sponsors. Likewise, both the State and the selected sponsors provided a count of $N(\text{FDCHs in sponsor})$. Therefore, the probability of selection of a FDCH is:

$$(13) \Pr[\text{FDCH is selected}] =$$

$$\frac{15 * N(\text{FDCH in State} \leftarrow \text{FNS})}{N(\text{FDCH in Nation} \leftarrow \text{FNS})} * \frac{7 * N(\text{FDCH in sponsor} \leftarrow \text{State})}{N(\text{FDCH in State} \leftarrow \text{State})} * \frac{30}{N(\text{FDCH in sponsor} \leftarrow \text{sponsor})}$$

which can be rewritten as

$$(14) \quad 3,150 * \left(\frac{N(\text{FDCH in State} \Leftarrow \text{FNS})}{N(\text{FDCH in State} \Leftarrow \text{State})} \right) \left(\frac{N(\text{FDCH in Sponsor} \Leftarrow \text{State})}{N(\text{FDCH in Sponsor} \Leftarrow \text{Sponsor})} \right) \Bigg/ N(\text{FDCH in Nation})$$

where \Leftarrow means “according to.” Weights differ to the extent that State and sponsor data do not reconcile. The inverse of the probability of selection serves as the initial weight, where the probability of selection is calculated by the equation above.

The above equations are calculated based on the assumption that the probabilities of States being selected and of sponsors being selected within States are solely dependent on the number of FDCHs in the State or sponsor. In instances where a State *could* be selected more than once, we are really dealing with an “expectation” and not a true probability. For example, an expectation of 1.8 means that the State will have a 20 percent probability of being selected only once, and an 80 percent probability of being selected twice.²⁵

However, the weighting scheme presented here uses the actual number of times a State was selected and the actual number of sponsors sampled from that State. It also uses the actual number of times a sponsor was selected and the actual number of FDCHs selected from that sponsor. Therefore, if a State was selected twice (as was the case with California), the probability of selection of the State was 1 and the probability of selection of the sponsor was based on sampling 14 sponsors from the State. An analogous calculation takes place if a sponsor is selected more than once. Equations 9–11 become:

$$(9) \quad \text{Pr}[\text{State is selected}] = \min\left(1, 15 * \left(\frac{N(\text{FDCH in State})}{N(\text{FDCH in Nation})} \right)\right)$$

for the probability of State selection;

$$(10) \quad \text{Pr}[\text{Sponsor selected} | \text{State selected } m \text{ times}] = \min\left(1, m * 7 * \left(\frac{N(\text{FDCH in Sponsor})}{N(\text{FDCH in State})} \right)\right)$$

for the probability that the sponsor is selected given that the State is selected m times; and

$$(11) \quad \text{Pr}[\text{FDCH selected} | \text{sponsor selected } k \text{ times}] = \min\left(1, \left(k * \left(\frac{30}{N(\text{FDCH in Sponsor})} \right)\right)\right)$$

for the probability that the FDCH is selected given that the sponsor is selected k times.

The equations for overall weights proceed analogously.²⁶

The weights according to the above equation will not add up to the total number of FDCHs as it appears in the FNS files. It in fact corresponds to an estimate based on the information obtained from the sampled States and sampled sponsors, and represents the number of FDCHs that had any chance of being selected. The number in the FNS report, on the other hand, represents a

²⁵ $(0.2)(1.0) + (0.8)(2.0) = 1.8$; thus, the expectation of selection, or expected value, is 1.8.

²⁶ For further discussion of this issue, see Saavedra, P.J. 2005. *Comparison of two weighting schemes for sampling with minimal replacement*. Proceedings of the Joint Meetings of the American Statistical Association. Minneapolis.

count by FNS at a given point in time and can be assumed to be correct, at least for that point in time. As a result, the weights were adjusted so that they added to the total number of FDCHs appearing in the FNS report. This was done by using the formula $w' = w(N'/N)$, where w is the weight described above, N is the sum of the weights over the entire sample, N' is the number in the FNS report, and w' are the adjusted weights used in the study. As a result, the sum of w' is 153,919.

Appendix 4: Calculation of Table Figures

Appendix 4: Calculation of Table Figures

Exhibit	Calculation
Exhibit A	<p>Pre-Verification Estimate of Misclassification Rate and Variance Estimates:</p> <ul style="list-style-type: none"> - Rate of misclassification is the weighted quotient of FDCHs with procedural errors divided by the total number of FDCHs. Confidence intervals generated through the use of the SAS Survey Means procedure. See equation 2.1 (p.9) for the calculation of the percentage of misclassified FDCHs. <p>Verified Estimate of Misclassification Rate and Variance estimates:</p> <ul style="list-style-type: none"> - Identical to pre-verification estimates except that it incorporates the results of the follow-up to determine the Free and Reduced price Lunch Status of the school associated with the FDCH.
Exhibit B	<p>Estimated Costs of Verified Misclassifications:</p> <ul style="list-style-type: none"> - See pp. 10–12 for the details on the calculation of costs associated with misclassification. - Costs of misclassification for each verified error are then weighted and summed. Resulting figures are monthly averages and must be multiplied by 12 to produce annual figures. - Confidence intervals are generated through the use of the SAS Survey Means procedure.
Exhibit C	<p>Share of Tier I Homes and Tier I Verified Misclassification by State:</p> <ul style="list-style-type: none"> - Weighted number of Tier I homes as a percentage of all homes in the State. - Weighted number of Tier I homes with verified misclassifications as a percentage of all Tier I homes in the State. - National estimates are weighted over the entire sample.
Exhibit 2.1	<p>Sample Selected by Sampling Level:</p> <ul style="list-style-type: none"> - -Graphic
Exhibit 2.2	<p>Share of Tier I Meals at Tier II FDCHs by State:</p> <ul style="list-style-type: none"> - Weighted Tier I meals by type as a percentage of all meals served at Tier II homes of each type (i.e., Tier I meals plus Tier II meals). National estimate is also provided.
Exhibit 4.1	<p>Share of FDCHs Classified as Tier I by their Sponsors by State:</p> <ul style="list-style-type: none"> - Weighted frequencies of sponsor determined Tier I homes as a percentage of all homes by each study State.
Exhibit 4.2	<p>Meals and Expenditures Reimbursed at Tier I and Tier II Rates:</p> <ul style="list-style-type: none"> - Meals are the weighted sum of seasonally adjusted monthly averages by Tier. The sums are then multiplied by 12 to produce annual figures. Tier II meals recorded for Tier I homes are not included. - Expenditures are the weighted sum of costs based upon the meal counts. \$1.04 is added for each Tier I breakfast and 39 cents for each Tier II breakfast. Fifty-seven cents are added for each Tier I snack and 15 cents for each Tier II snack. \$1.92 is added for each Tier I lunch or supper and \$1.16 for each Tier II lunch or supper.
Exhibit 4.3	<p>Basis of Tier I Qualification and Procedural Misclassification Rate for Original Data Collection Sponsor Files:</p> <ul style="list-style-type: none"> - See lines 1527 through 1567 of the SAS code in File Documentation Deliverable. Records were first scanned to determine if at least partial documentation was present to indicate that the sponsor had used school, provider income, census, or categorical approaches to determining a home's Tier I status. A new variable was created that designated the tiering approach as— <ol style="list-style-type: none"> 1) School if documentation exists ONLY for the school approach. 2) Income if documentation exists ONLY for the provider's income.

Exhibit	Calculation
	3) Census if documentation exists ONLY for the Census approach. 4) Categorical if documentation exists ONLY for the categorical qualification approach. 5) Multiple if documentation exists for multiple approaches. A procedural error is recorded only if the FDCH failed to qualify for Tier I status by any of the approach used. Weighted frequencies then produce the information provided in this exhibit.
Exhibit 4.4	Causes of Tier I Procedural Misclassifications: <ul style="list-style-type: none"> - Weighted percent and number of causes of procedural misclassifications for Tier I FDCH with procedural misclassifications.
Exhibit 4.5	Procedural Misclassification, Documentation Failure, and Verification Follow-up: <ul style="list-style-type: none"> - Unweighted counts describing the nature of the procedural error for the 641 Tier I FDCH with procedural errors. 549 of these errors were related to the school associated with the FDCH. - These counts cannot be reproduced within the data set CACFP_Final, though the results of the follow-up procedure can be documented with the variable "macromap" on line 155 of the SAS code.
Exhibit 4.6	Flowchart of Independent Verification of Tiering Determinations with Procedural Misclassifications: <ul style="list-style-type: none"> - Graphic
Exhibit 4.7	Verified Misclassification Rates by Tiering Status: <ul style="list-style-type: none"> - Rate of misclassification is the weighted quotient of FDCHs with procedural errors divided by the total number of FDCHs. Confidence intervals generated through the use of the SAS Survey Means procedure.
Exhibit 4.8	Comparison of Procedural to Verified Errors for Sampled FDCHs: <ul style="list-style-type: none"> - Unweighted frequencies (counts) of error for Tier I, Tier II, and all FDCHs; pre- and post-follow-up.
Exhibit 4.9	Causes of Verified and Non-Verified Misclassification for Tier I FDCHs: <ul style="list-style-type: none"> - Weighted relative frequencies of the causes of misclassification. - "Verified Misclassification" refers to Tier I FDCH using area eligibility based upon local elementary school. FDCH for which follow-up did not establish the eligibility of the local elementary school are considered misclassified. - "Non-Verified Misclassification" refers to errors in tiering that involve approaches other than school-based.
Exhibit 4.10	Verified Tier I Misclassification Rate by State: <ul style="list-style-type: none"> - Weighted relative frequency of post follow-up misclassification rates for Tier I FDCHs only, by State.

Exhibit	Calculation
Exhibit 4.11	<p>Cost of Misclassifications:</p> <ul style="list-style-type: none"> - To calculate the cost of overpayments, first the number of lost meals is calculated by subtracting from the annually averaged, seasonally adjusted the State-wide share of meals at Tier II FDCHs that are reimbursed at Tier I rates. This reflects the assumption that if a Tier I FDCH was to have its status changed to Tier II, not all of the formerly Tier I FDCH meals would be reimbursed at Tier II rates. Thus, $\text{LostT1Breakfasts} = \text{Seasonally adjusted Monthly Average of reimbursed Tier I Breakfasts} * (1 - \text{the State share of Breakfasts reimbursed at Tier II FDCHs that are reimbursed at Tier II rates}) * 12;$ $\text{LostT1Lunches/Suppers} = \text{Seasonally adjusted Monthly Average of reimbursed Tier I Lunches/Suppers} * (1 - \text{the State share of Lunches/Suppers reimbursed at Tier II FDCHs that are reimbursed at Tier II rates}) * 12;$ $\text{LostT1Snacks} = \text{Seasonally adjusted Monthly Average of reimbursed Tier I Snacks} * (1 - \text{the State share of Snacks reimbursed at Tier II FDCHs that are reimbursed at Tier II rates}) * 12;$ Lost meals are then multiplied by their respective reimbursement rates to arrive at an estimate of the cost of overpayments. - To calculate the cost of underpayments to Tier II FDCHs, first the seasonally adjusted, annual averages of Tier II meals reimbursed at Tier II FDCHs is calculated. Meals reimbursed at Tier I rates at misclassified Tier II FDCHs are not included because a change in Tier status would not change the rate at which such meals would be reimbursed. Thus, for erroneously classified Tier II FDCHs, $\text{LostT2Breakfasts} = \text{Seasonally adjusted, monthly average of reimbursed Tier II (only) Snacks} * 12;$ $\text{LostT2Lunches/Suppers} = \text{Seasonally adjusted, monthly average of reimbursed Tier II (only) Lunches/Suppers} * 12;$ $\text{LostT2Snacks} = \text{Seasonally adjusted, monthly average of reimbursed Tier II (only) Snacks} * 12;$ Lost Tier II meals are then multiplied by the difference in their respective Tier I and Tier II reimbursement rates to arrive at an estimate of the cost of underpayments.
Exhibit 4.12	<p>Annual Number of Meals Served and Number of Meals Reimbursed at Incorrect Rate by Tier Type</p> <ul style="list-style-type: none"> - For Tier I FDCHs, the total number of all types (reimbursement levels) of breakfasts, lunches/suppers, and snacks are summed based upon the seasonally adjusted, monthly averages for all meal types. Meals reimbursed at the wrong rate are calculated by deducting the State share of meals at Tier II FDCHs reimbursed at Tier I rates. - For Tier II FDCHs, the total number of all types (reimbursement levels) of breakfasts, lunches/suppers, and snacks are summed based upon the seasonally adjusted, monthly averages for all meal types. Meals reimbursed at the wrong rate are based upon Tier II meals only.

Appendix 5: Tiering Determination Instrument

CACFP Program Assessment of Sponsor Tiering Determinations

	December 2004						January 2005						February 2005					
	Tier I		Tier II		Tier II blended		Tier I		Tier II		Tier II blended		Tier I		Tier II		Tier II blended	
	adding	total	adding	total	adding	total	adding	total	adding	total	adding	total	adding	total	adding	total	adding	total
# of breakfasts																		
# of snacks																		
# of lunch/dinners																		

Study ID #:

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ST SP FDCH

Part II B – FDCH Basic Information

Complete one form for each FDCH

FDCH Name:	Sponsor Assigned FDCH ID Term used: <i>this may be a name or a number, or not be available</i> optional: ID #:
FDCH Address:	

<u>Most Recent</u> Tiering Determination (circle one):	Tier I	Tier II	For Tier I: Date of most recent tiering determination: _____ For Tier II: Date of most recent tiering determination optional: _____ / _____ / _____ mm dd yyyy
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If <u>Tier II</u> , is there evidence that the FDCH requested a new tiering determination in the last three years? (circle one)	Yes	No	N/A	If yes, date of request for new tiering determination: _____ / _____ / _____ mm dd yyyy
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Photocopy needed? Yes. Photocopy most recent tiering determination including the date. If <u>Tier II</u> and there is evidence that FDCH requested a new tiering determination in the last three years, photocopy request.	Photocopies made (check here)?:
---	--

Date of <u>2nd</u> most recent tiering determination (enter only if in file) optional: _____	_____ / _____ / _____ mm dd yyyy
---	--

If FDCH is being dropped (after acquiring permission from headquarters), complete the section below

Reason for dropping FDCH*:	Who approved dropping FDCH?	FDCH being replaced by (study ID # and name of replacement):
*CODES FOR DROPPING FDCH: 1) No meal reimbursement during study time 2) Other (specify) _____		

In most instances you will collect data in Parts III – VI of this form for FDCH that have a Tier I classification. For a Tier II FDCH if there is documentation in the file that work was done to gain Tier I status (e.g., copies of income tax forms), complete parts III-VI of this form as you would for a Tier I FDCH.

Study ID #: _____

Tiering Determination

Part III – Tiering Determination by Area Eligibility – School Boundary Area

If there is evidence that school boundary information was collected to make the most recent tiering determination, complete the table below. If no such evidence is found, check “none” at the bottom of the table.

Full Name of School:									
Address of School, if available optional:									
If information is available in the file, circle all grades included in the school named above optional: Pre –K K 1 2 3 4 5 6 7 8 9 10 11 12									
A.	B.	C.	D.	E.	F.	G.	H.		
Type of Documentation									
		Present at sponsor site? Y/N	Dated? Y/N	If dated, enter date (mm/dd/yyyy) <i>Date may be school year, e.g. 2004-2005</i>	Initial or signed? Y/N	Photocopy needed?	Wall map or other map not available for photocopy (specify reason)	Photocopy made? Y/N	
Documentation of School Status									
State or county list of schools showing which schools meet the low-income eligibility standard*						YES			
Letter from school official to sponsor indicating school has 50% of children eligible for free/reduced price meals						YES			
Other (specify): _____						YES			
None (check here): _____						YES			
Documentation That FDCH Is in School Boundary Area									
Official School Boundary Identifying map (date may be school year e.g., 2004-2005)						YES			
Letter/Memo from school official or state agency indicating that previous years’ map is still valid						YES			
Page(s) from directory linking FDCH address to elementary school**						YES			
Memo to the file about information from school/state official						YES			
Printed copy of Website information						YES			
Other (specify): _____						YES			
None (check here): _____									

*The low income eligibility standard is at least 50% of children eligible for free or reduced price meals. This can be either a list of all schools showing the share of income-eligible children per school OR a list of the names of the schools that meet or surpass the 50% standard. Photocopy the page that displays the relevant elementary school.

**The source of these pages must be from a public agency such as the state Board of Education, local area School District or county busing coordinator.

Study ID #:

ST	SP	FDCH
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Tiering Determination (continued)

Part IV – Tiering Determination by Area Eligibility – Census Block Group

If there is evidence that census block group information was collected to make the most recent tiering determination, complete the table below. If no such evidence is found, check “none” at the bottom of the second section of the table.

Documentation Showing Location of the Home in a 2000 Census Block Group	Present at site? (Y/N)	Photocopy needed?	Photocopy made? (Y/N)
2000 block group boundary map from either census or geo-mapping computer software program		YES	
Document showing that this address is in a specific census block group		YES	
Other (specify):		YES	
None (check here): _____			
Documentation Showing That the Block Group Meets Income Eligibility Standard*			
A page from a document showing the census block group is income eligible*		YES	
A map of the census block group indicating (possibly through color coding) the census block group is income eligible*		YES	
Other (specify)		YES	
None (check here): _____			
Other Question			
Is there any documentation that the sponsor rejected using the school census block option because the school was in a rural area, had bused in students or was a magnet school? (check one)			
Yes _____ No _____			

*At least 50% of children are eligible for free and reduced price meals.

Study ID #:

ST	SP	FDCH
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Tiering Determination (continued)

Part V – Tiering Determination by Eligibility of Provider – Categorical

If there is evidence that information was collected about the provider’s participation in any of the programs listed below to make the most recent tiering determination, complete the table below. If no such evidence is found, check “none” at the bottom of the table.

Type of Documentation	Present at site? (Y/N)	Dated? (Y/N)	Expiration date (mm/dd/yyyy)	Initialed or signed? (Y/N)	Case number? (Y/N)	Photocopy needed?	Photocopy made? (Y/N)
Food Stamps							
Certification / Letter / Printout from food stamp office						YES	
Authorization to participate card						YES	
Memo or record of phone call from agency official confirming eligibility						YES	
TANF / State Welfare							
Certification / Letter / Printout from TANF office						YES	
Memo or record of phone call from agency official confirming eligibility						YES	
Food Distribution Programs on Indian Reservations (FDPIR)							
Document that confirms participation in this program						YES	
Other							
Document that confirms participation in other Government welfare program (specify):						YES	
None (check here):							

Study ID #:

ST	SP	FDCH

Tiering Determination (continued)

Part VI A – Tiering Determination by Eligibility of Provider – Income, Information used by sponsor to make latest tiering determination

If there is evidence that information on provider income was collected to make the most recent tiering determination, complete the table below. If no evidence is found for an item, check the appropriate box at the bottom of each section.

This information may be found on form that displays latest tiering determination, application, worksheet or other sponsor kept record.

Type of Information	Amount / number on form	Frequency ****	Y/N	If yes, date (mm/dd/yyyy)	Photocopy needed?	Photocopy made? (Y/N)
Income Amount Used in Tiering Determination						
Total household income on tiering determination form or worksheet	\$				Yes, if not already made	
If <u>no indication on tiering determination form, worksheet or other sponsor kept record</u> of what amount of household income was used in tiering determination, check here: _____						
Household Size Used in Tiering Determination						
Number of <u>household members</u> on tiering determination form or worksheet	#				Yes, if not already made	
If <u>no indication on tiering determination form, worksheet or other sponsor kept record</u> of what number of household members was used in tiering determination, check here: _____						
Additional Questions						
Is the SSN of the adult who signed the form included on the form?						
Is the form signed by an adult household member?					Yes, if not already made	
**** Frequency of Income on Documentation – A=annual M=monthly TW=every two weeks TM=twice a month W=weekly D=daily O=any other frequency (specify in table)						

Study ID #:

ST	SP	FDCH

Tiering Determination (continued)

Part VI B – Tiering Determination by Eligibility of Provider – Income Documentation Found in File

Documentation found in file for provider income

Complete one form for each household member who has income. (Exception: If a tax form is used to verify income and a joint return was filed, put the joint income on this form and write the names of the persons filing jointly and insert the relationship to provider.) If the household member listed under “Member Name” has more than one source of income, and it is not included on a tax form that has already been listed as documentation, fill out an additional row for documentation found for each source of income not already listed on the tax form.

Type of Documentation	Relationship to provider*	Income code**	Documentation in file? (Y/N)	Type of documentation in file***	Date of documentation (mm/dd/yyyy)	Amount of income on doc.+	Net or gross? (N/G)	Frequency of amount ****	Photocopy needed?	Photocopy made? (Y/N)
Member Name										
									YES	
<u>If Tax Form Filed Jointly</u>, Insert Name of Joint Filer on Tax Form and Relationship to Provider										
Documentation of Other Income for the Person Listed Under “Member Name” Above										
									YES	
									YES	
	None (check here):									

*	Relationship to Care Provider – CP=care provider SP=spouse of CP CH=child of care provider P=parent of care provider O=other (specify relationship in table)
**	Income Codes – E=earned, wages, self-owned business WUC=welfare, unemployment, child support, alimony PS=pensions, retirement, social security O=any other earned income (specify in table)
***	Type of documentation in file – T=Federal tax form CT=schedule C of Federal tax form S=State tax form PS=pay stubs PO=printout from official agency LE=letter from employer BL=benefit letter SF=statements from DC families about payment to provider D=statement from provider (self declaration) O=other (specify in table)
****	Frequency of Income on Documentation - A=annual M=monthly TW=every two weeks TM=twice a month W=weekly D=daily O=any other frequency (specify in table)
+	If abstracting data tax form, use amount on line 22 from Form 1040, line 4 from Form 1040 EZ or line 15 from Form 1040A. If abstracting data from Form 1040 Schedule C to document self-employment income, use line 5; or if Schedule C-EZ is used, use line 3 instead.

Study ID #:

ST	SP	FDCH
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Notes About Meal Counts:
Notes About Tiering Determination Documents:
Other Notes:

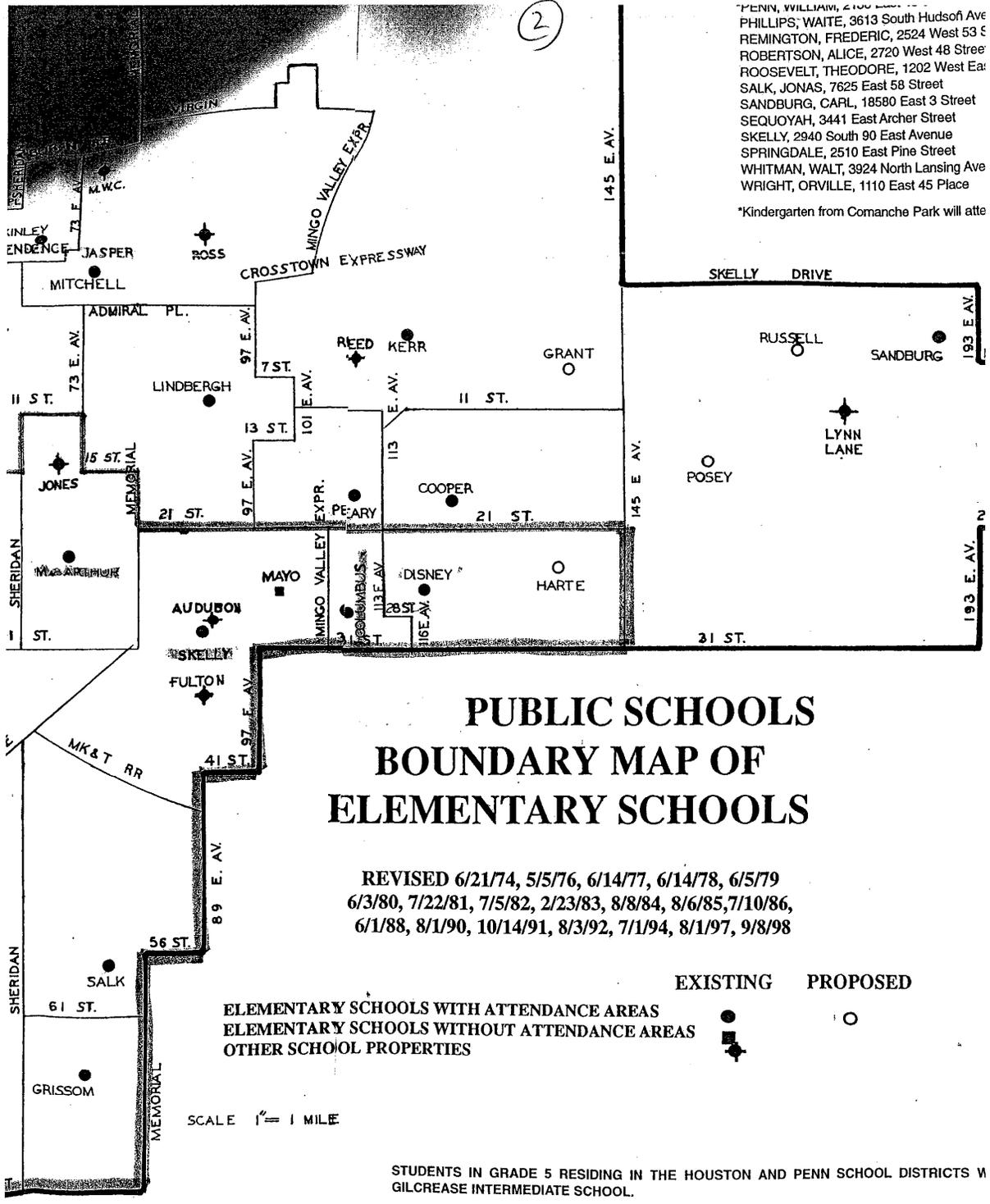
Appendix 6: Examples of Poor Documentation of Tier I Status

Appendix 6: Examples of Poor Documentation of Tier I Status

Example 1: No Date on School Map



Example 2: Date on School Map Prior to 2001



Example 3: Not Official School Map



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2508 E 133rd St, Compton, CA 90222
Phone: (310) 898-6190

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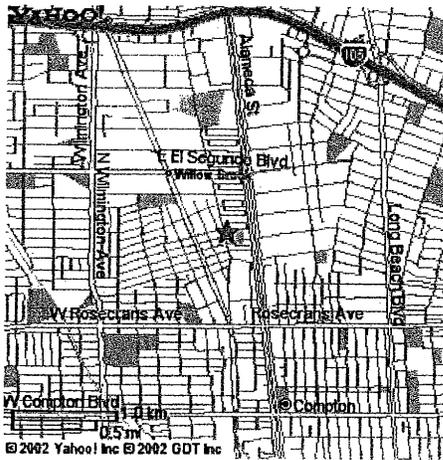
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ID#: 11435267

Date: 5/9/02 Intl. JS
Tier: 1 2 MIX 72.99%

Example 4: Not Official School Map

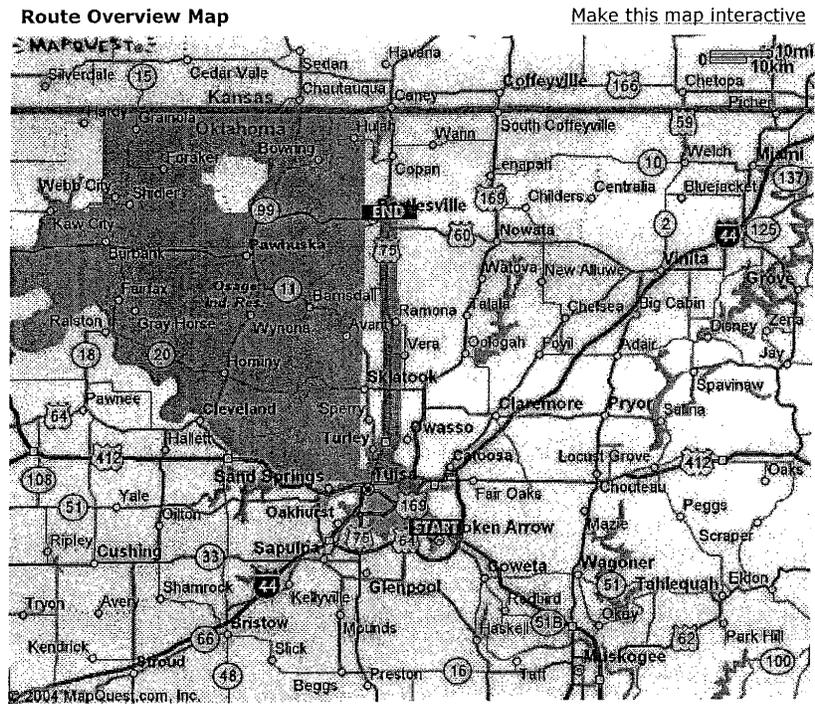
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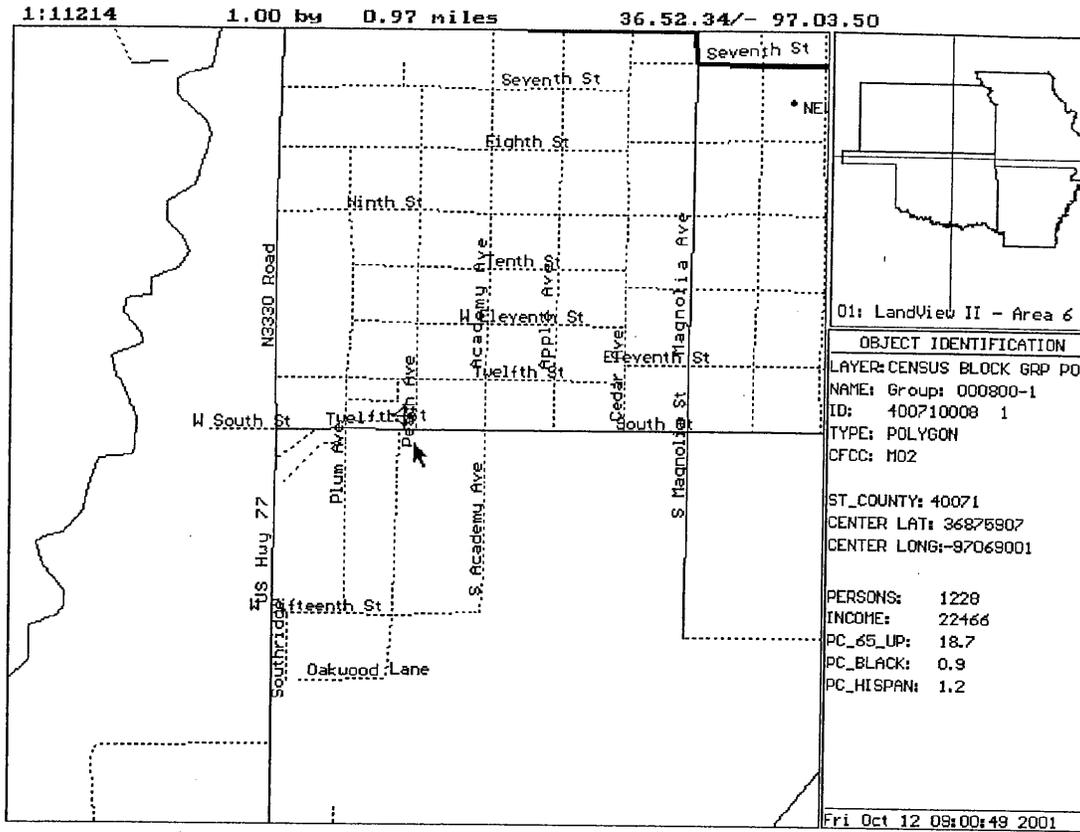


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Example 5: Census Map, Not Official School Map



529 S. Peach
Newkirk OK 74647

*Newkirk Schools
do qualify. 10-01*

Kay County	Ponca City city	400710006	3	436	209	7	0.49541
Kay County	Kaw City city	400710007	1	170	21	2	0.13529
Kay County	Newkirk city	400710008	1	221	25	0	0.11312
Kay County	Newkirk city	400710008	2	205	98	11	0.53171
Kay County	Newkirk city	400710008	3	47	7	0	0.14894

Census does not qualify.

Example 7: Self-Declared Ledger Sheet



8

Profit or Loss From Child Care Business (Income Verification Sheet)

NAME of day care provider _____

For The Month of July OR Prior Year _____

Income
 Monies from parents for providing child care: 1200.00(1)
 Total money from the food program for month of July: 490.00(2)
 Gross Income (Add lines 1 and 2) 1690.00(3)

Expenses:
 Money spent on ads for day care 35.00(a)
 Car expenses (gas) incurred for day care 65.00(b)
 Day care insurance 0(c)
 Office expense for day care 20.00(d)
 Repairs & maintenance for day care 35.00(e)
 Toys/books/videos/educational supplies 50.00(f)
 Paper products & cleaning supplies for day care 27.00(g)
 License/inspection fees 0(h)
 Association dues & publications 0(i)
 Utilities incurred for day care (% of home used) 67.00(j)
 Rent/Mortgage for day care (% of home used only) 45.00(k)
 Pay for day care helpers 20.00(l)
 Total day care food cost 375.00(m)
 Bank service charges 8.00(n)
 Other expenses(list) _____ 0(o)

808.00(4)

TOTAL EXPENSES (a through o)

Tentative profit (loss) - Subtract line 4 from line 3 882.00

I hereby certify that all the above information is true and correct. I understand that this information is being given in connection with the receipt of federal funds; and that deliberate misrepresentations may subject me to prosecution under applicable state and federal criminal statutes.

 Signature of Day Care Provider

8/17/04
 Date

My signature certifies that either: (Please check *one* box below.)

This statement accurately reflects my actual circumstances. Receipts and/or other appropriate documentation that I retain on file support income and expenses listed. **OR**

This is an estimate of my income and expenses to be used for a temporary eligibility determination. After 45 days, I will submit a statement based on actual income and expenses, as supported by receipts and/or appropriate documentation that I will retain on file.

Return with your gold income application.

Example 8: Self-Declared Ledger Sheet

Provider Name _____ 9 _____ Provider Number: _____

Monthly Net Child Care Profit/Loss Statement

This statement may be used to document your current net day care income if your tax forms (1040 and Schedule C) from the previous year do not accurately represent your day care's current net income situation. Self-Employed means business expenses subtracted from gross receipts. Expenses include cost of goods (including groceries) purchased, supplies, heat, child care insurance, etc. Gross receipts (income) include fees from parents and income from the CACFP for meals served to day care children. A net loss is reported as zero income (0).

Income (from previous month)

Parent Fees (include payments made by county)	\$	<u>504</u>
Child and Adult Care Food Program Payments	\$	<u>0</u>
Miscellaneous Income (field trip fees, etc.)	\$	<u>0</u>
Total Income		\$ 504

General Expenses (from previous month)

Food	\$	<u>70⁰⁰</u>
Supplies (paper towels, soap, art & craft supplies, etc.)	\$	<u>26</u>
Toys (for business use)	\$	<u>20⁰⁰</u>
Child Care Insurance (divide annual premium by 12 months)	\$	<u>14</u>
Car Mileage (for business use)	\$	<u>10⁰⁰</u>
Outside Labor (payments to helpers)	\$	<u>0</u>
Educational Classes (for business use)	\$	<u>0</u>
Advertising Costs	\$	<u>0</u>
Miscellaneous Office Expenses (bank fees, record keeping supplies, etc.)	\$	<u>20⁰⁰</u>
Legal/Tax Preparation Expenses/Bookkeeping Help	\$	<u>35⁰⁰</u>
<i>Fire Ext</i>		<u>195</u>

Expenses for Business Use (BU) of Your Home (monthly)
(See reverse side of page to compute business use percentage (BU%))

	\$ Monthly	x	BU %	=	\$ Expense
Interest on Mortgage (if buying)	\$ <u>402.00</u>	x	<u>23</u> %	=	\$ <u>92.46</u>
Rent (if renting)	\$ _____	x	_____ %	=	\$ <u>118.00</u>
Electric	\$ <u>50⁰⁰</u>	x	<u>23</u> %	=	\$ <u>17.48</u>
Gas/Oil	\$ <u>76⁰⁰</u>	x	<u>23</u> %	=	\$ <u>17.48</u>
Water/Sewer	\$ <u>35⁰⁰</u>	x	<u>23</u> %	=	\$ <u>8.</u>
Garbage	\$ <u>10⁰⁰</u>	x	<u>23</u> %	=	\$ <u>2.30</u>
Home Repairs	\$ <u>20⁰⁰</u>	x	<u>23</u> %	=	\$ <u>4.60</u>
Property Taxes	\$ <u>158.00</u>	x	<u>23</u> %	=	\$ <u>36.34</u>
Homeowner's Insurance	\$ <u>55.00</u>	x	<u>23</u> %	=	\$ <u>12.65</u>
Depreciation on Home	\$ _____	x	<u>23</u> %	=	\$ _____
Depreciation on Equip/Furnishings	\$ _____	x	<u>23</u> %	=	\$ _____
Other	\$ _____	x	_____ %	=	\$ _____

Total Expenses (General Expenses plus Business Use Expenses) \$ 170.34

Monthly Net Income (Total Income minus Total Expenses) \$ 139