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Feasibility and Accuracy of Record Linkage To Estimate Multiple Program Participation

Volume I, Record Linkage Issues and Results of the Survey of Food Assistance Information Systems

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Abstract

Administrative data from USDA's food assistance and nutrition programs (FANPs) provide statistics on the number and characteristics of program participants. However, policymakers and researchers often want more information than these administrative data provide about participation in multiple programs or the characteristics of families who choose to participate in some, but not all, programs for which they are eligible. This study investigates the feasibility of linking administrative data across FANPs to provide statistics on multiple-program participation. This report presents the results of the first phase of the study. The results are based on the Survey of Food Assistance Information Systems, taken in 26 States from directors of the Food Stamp Program (FSP), the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and Child Nutrition Programs. The survey collected information about the characteristics and content of FANP information systems. Findings indicate that FSP and WIC statewide information systems vary significantly in the number and types of client identifiers, extent of data verification, and rules for data retention and overwriting. The survey also found that participant data from the child nutrition programs are currently unavailable at the State-level except from a handful of States.

To review the survey instruments, see *Feasibility and Accuracy of Record Linkage To Estimate Multiple Program Participation: Volume II, Survey of Food Assistance Information Systems—Survey Instruments*, E-FAN-03-008-2.

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Chapter One
Introduction

USDA's food assistance and nutrition programs (FANPs) provide benefits to a large number of American children each year. Administrative data from these programs provide statistics on the number and characteristics of program participants. Administrative data from FANPs do not, however, universally provide information about multiple-program participation, or the characteristics of families who choose to participate in some, but not all, FANP programs for which they are eligible.

This study is investigating the feasibility of linking administrative data across programs to provide statistics on multiple program participation within the FANPs. The study has two phases. In the first phase, directors of FANPs from a sample of States were surveyed to obtain information about administrative data system characteristics that are relevant to data linkage. The survey included State directors of the Food Stamp Program (FSP), the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and the Child Nutrition Program (CNP). CNP directors oversee the National School Lunch Program (NSLP), School Breakfast Program (SBP), Child and Adult Care Food Program (CACFP), and Summer Food Service Program (SFSP).

The second phase of the study recruited a limited number of FANP agencies to provide current and historic administrative data. These data are being used to test the feasibility and accuracy of linking data from different nutrition assistance programs to obtain unduplicated counts of participants, examine multiple program use by participants and by households, and examine participation dynamics. Examination of rates of multiple program participation provides a basis for evaluating the benefits of program integration for purposes of streamlining program operations. Results from the second phase of the study will be presented in a separate report.

This chapter provides brief descriptions of the FANPs and a description of the survey of FANP directors that underlies much of this report. Chapter Two provides background for the study, including an overview of research uses of administrative data, and record linkage issues. The remainder of the report presents survey results and summarizes the features of FANP information systems that are relevant to record linkage. Detailed tables are included in the appendix.

Food Assistance and Nutrition Programs

The United States Department of Agriculture, Food and Nutrition Service oversees 15 FANPs funded at a level of $34 billion in fiscal year 2001.[1] The FSP, WIC, and NSLP account for 84 percent of total FANP funding; the SBP, CACFP, and SFSP account for an additional 10 percent of funding. The FANPs operate on a federal model, with federal dollars distributed to State agencies, which oversee local entities. While all FANPs fall under one federal agency umbrella, each FANP operates independently of the others and applicants must apply separately to each program.

The overlap in populations served by the FANPs is seen mostly among children. Subject to income-eligibility requirements, all children 18 years and younger may participate in the FSP and SFSP; CACFP primarily serves children age 12 years and younger; and WIC serves infants and children up to their 5th birthday. NSLP/SBP reimbursable meals are available to any child, regardless of income

[1] "Annual Summary of Food and Nutrition Service Programs" (www.fns.usda.gov/pd/annual.htm).

level, who attends a participating school. Eligibility for free- and reduced-price meals is determined by household income.

Food Stamp Program

Eligibility for the FSP is determined primarily by income. Households must have gross income at or below 130 percent of poverty (except households containing elderly persons) and net income (gross income less deductions) at or below 100 percent of poverty.[2] Households must also meet an assets limit. In addition, work-related eligibility conditions apply to certain household members, and a few groups are categorically ineligible (strikers, most persons who are not citizens or permanent residents, postsecondary students, and persons living in institutional settings). Households are deemed financially eligible for FSP regardless of income and assets if all household members are receiving Temporary Assistance for Needy Families (TANF), Supplemental Security Income (SSI), or in some States general assistance.

The FSP accounted for 52 percent of Federal expenditures for food assistance programs in FY 2001. The program served 17.3 million persons in 7.4 million households; 51.1 percent of all FSP participants were children; 34.5 percent of participants were school-age children and 16.6 percent were children age 4 years or younger (Tuttle, 2002).

In 2000, all State food stamp agencies had a statewide *Automated Case Certification and Management System (ACS)*, which is the food stamp participant database (USDA/FNS, 2002).[3] These statewide data systems are integrated with TANF and Medicaid in 35 states, as a result of federal funding initiatives encouraging integrated information management systems at the state level to streamline eligibility determination across all three programs. This integration was feasible, despite differences in income-eligibility rules across programs. FSP information systems maintain eligibility data (including demographics, income, and assets information) and benefit disbursement data.

WIC Program

WIC participants must be categorically eligible, income eligible, and at nutritional risk. Categorical eligibility is limited to pregnant and postpartum women, infants up to one-year old, and children up to their fifth birthday. Income eligibility is established by household income at or below 185 percent of poverty, with participants in FSP, TANF, and Medicaid deemed to be adjunctively income eligible for WIC regardless of income. Applicants must also be at nutritional risk, as determined through a medical or nutritional assessment by a competent professional authority.[4]

The WIC program accounted for 12 percent of Federal food assistance outlays in FY 2001. In that year, 7.3 million persons were enrolled in WIC in an average month; 50 percent of enrollees were children and 26 percent were infants.

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[2] Net income is equal to gross income less a standard deduction and deductions for work expenses, excess shelter costs, childcare expenses, and excess medical expenses (Food Stamp Act of 1977, as Amended).

[3] The California interim statewide system operated in 35 of 58 counties.

[4] The WIC program adopted a standard list of nutrition risk criteria for use by all States beginning April 1999. Nutrition risks include anemia, overweight or underweight status, nutritionally related medical conditions, dietary deficiencies, and inadequate nutritional patterns.

WIC is administered by 88 State WIC agencies, including the 50 geographic States, the District of Columbia, U.S. territories (American Samoa, Guam, Puerto Rico, Virgin Islands), and 33 Indian Tribal Organizations. State WIC agencies maintain statewide information systems with participant certification data (demographics, income, and nutritional risk information) and benefit issuance data.

Child Nutrition Programs

The child nutrition programs include the NSLP, SBP, SFSP, and CACFP. The NSLP and SBP provide meals to school-aged children in public and non-profit private schools; SFSP provides meals to children at summer food service locations; CACFP provides meals in child care centers and day care homes (CACFP also has an adult component not discussed in this report). The population served by each program depends on age and the venue where meals are provided.[5]

Children are eligible for NSLP-free meals if family income is at or below 130 percent of poverty, and NSLP reduced-price meals if family income is between 130 and 185 percent poverty. Children are deemed income-eligible for NSLP-free if the household participates in the FSP. Eligibility for the SBP is the same as for NSLP, but the SBP operates in about 75 percent of the schools participating in the NSLP.

CACFP provides free and reduced-price meals for children age 12 years and younger enrolled in participating child care centers and meeting the income eligibility guidelines of the NSLP. Meals are also provided to all children age 6 years and younger attending eligible family day care homes in low-income areas. Children attending child care centers are categorically eligible for free meals if their family receives benefits from FSP or TANF. SFSP provides free meals to all children age 18 years and younger residing near summer food service sites, which are located in low-income areas.

Federal food assistance outlays for the child nutrition programs in FY 2001 were: $6.5 billion for NSLP (19 percent of all FANP outlays); $1.45 billion for SBP; $1.74 billion for CACFP; and $272 million for SFSP. The daily average number of children receiving free or reduced-price lunch was approximately 15.6 million; 6.5 million received free or reduced-price breakfast; 2.7 million received CACFP meals; and approximately 2 million children received SFSP meals.

State CNP directors oversee the child nutrition programs administered by School Food Authorities or local sponsoring agencies. CNP directors generally reside within State Departments of Education, but most information systems for the child nutrition programs are not integrated at the State level. For the most part, participant-level information is maintained at benefit delivery sites (schools, child care centers, summer food service sites) and state-level agencies receive only aggregate data for participant counts and meal counts.[6]

Multiple Program Participation

Currently there are no administrative mechanisms to provide USDA with accurate and ongoing statistics on multiple program participation. Interest in these data stems from the fact that FANPs

[5] FSP and WIC provide benefits that are redeemed at food retailers for food consumed at home. In contrast, the child nutrition programs serve meals at program-specific distribution points. For example, children can participate in SBP only if they attend a school operating the program.

[6] USDA does not maintain information on CNP information systems. The survey conducted for this report found that only 5 of the 26 States surveyed had statewide student information systems that include indicators of certification for NSLP (free or reduced-price school lunch).

Table 1—Food Assistance and Nutrition Programs (FANPs) Serving Children

Program		Age of eligible children	Income eligibility
Food Stamp Program	FSP	0-18 yrs	≤ 130%
Supplemental Nutrition Program for Women, Infants, and Children	WIC	0-4 yrs	≤ 185%
Child Nutrition Programs			
Child and Adult Care Food Program (centers)[1]	CACFP	0-12 yrs	≤ 130% free meals
National School Lunch Program[2]	NSLP	5-18 yrs	
School Breakfast Program[2]	SBP	5-18 yrs	131-185% reduced-price meals
Summer Food Service Program[3]	SFSP	0-18 yrs	

[1] CACFP also serves children of migrant workers up to age 15, and children 18 years and younger if enrolled in an institution or child care facility. CACFP snacks are available to children 18 years and younger in eligible afterschool programs.

[2] NSLP and SBP provide meals to children in schools, without age eligibility criteria; ages shown in table correspond to the typical age range for school children.

[3] SFSP meals and snacks are also available to persons with disabilities, over age 18, enrolled in school programs.

serve overlapping populations. The overlap of programs is evident from the age and income-eligibility criteria discussed above and summarized in table 1. Most of the overlap is for children, although women may participate in both FSP and WIC during the period around childbirth, and pregnant teenagers may participate in FSP, WIC, NSLP, SBP, and SFSP.

Survey data provide evidence of the overlap in populations served by FANPs. Data from the most recent Current Population Survey (CPS) provide the following program participation rates for households with school-age children: 22 percent participate in free- or reduced-price NSLP, 8 percent in the FSP, and 6.7 percent in both (i.e., 30 percent of NSLP households also participate in FSP; 82 percent of FSP households with school-age children also participate in NSLP).[7] The program participation rates for households with preschool children are 19 percent in WIC, 11.5 percent in the FSP, and 7.1 percent in both.[8]

While survey data provide estimates of multiple program participation for the FANPs, these data suffer from several limitations. First, survey data have been found to underestimate program participation compared to administrative data counts. Data from the Survey of Income and Program Participation (SIPP) showed that participation in most programs is underestimated by 10 to 15 percentage points, and WIC participation is underestimated by 15 to 30 percentage points (Trippe, 2000). Differential underreporting of program participation in survey data leads to biased estimates of multiple program participation.

[7] CPS statistics are author's calculations of data from the March 2001 Current Population Survey. The CPS sample included 1,325 households participating in FSP, 3,752 participating in free-NSLP, and 1,441 participating in WIC.

[8] CPS data show that, among all households with children receiving any of FSP, WIC, NSLP, 35 percent receive benefits from two programs and 5.4 percent receive benefits from all three programs. Similar analyses of 1996 SIPP data showed that 32.5 percent received benefits from two programs and 10 percent received benefits from three programs (Trippe, 2000; Table B-5).

A second limitation of survey data is that national surveys typically include small numbers of persons participating in multiple programs, and small cell sizes result in estimates that are subject to a high degree of sampling variation (Tordella, 2002). Furthermore, the small cell sizes in national survey data do not support detailed analyses such as regional and State-level estimates.

Some estimates of multiple program participation are available from administrative data. Two mechanisms make this possible: integrated data systems and deemed eligibility. Integrated data are common for FSP and TANF, providing accurate counts of FSP clients receiving cash assistance, but integrated systems are rare for multiple food assistance programs (as discussed in Chapter Three). Deemed-eligibility, on the other hand, is used in WIC, CACFP, and the school nutrition programs. WIC applicants are adjunctively income eligible if they participate in FSP (and TANF and Medicaid), children are categorically eligible for CACFP (free meals) if they participate in FSP (and TANF), and children participating in FSP (and TANF) may be directly certified for NSLP/SBP.[9] Estimates of multiple program participation based on deemed eligibility are lower bound estimates, however, because deemed eligibility procedures may not be used in all cases for which it is applicable. Furthermore, the extent of underestimation is not known, although it could be determined by a study of linked administrative records.

Survey of Food Assistance Information Systems

This report presents results of the *Survey of Food Assistance Information Systems,* conducted with 26 States. The survey was designed to collect information about the characteristics and content of FANP information systems that are relevant to record linkage across programs. Survey questions were modeled on the inventory of administrative data systems compiled by the University of California, Data Archives and Technical Assistance branch (UC Data, 1999). The UC Data survey was conducted in 1998 and documented the types of data systems used to administer each of nine public assistance programs, the degree of system integration, and the existence of record linkage projects.[10] The Food Stamp Program was the only FANP included in the UC Data study.

The *Survey of Food Assistance Information Systems* was conducted as a mail survey, with mailings in December 2001; all surveys were complete by March 2002. Respondents to the survey were State FSP directors, State WIC directors, and State CNP directors or their designees. Three survey instruments were prepared with questions tailored to the three agencies. The 26 States included in the survey are shown in figure 1. This sample of states, taken from the UC DATA study, includes the ten largest states plus four states sampled from each of the four census regions. These states represent approximately 80 percent of the FSP and TANF population in the United States.[11] The UC Data sample of states was used, rather than a population survey, to conserve costs and maintain comparability with the prior study, however, this is not a random sample and results cannot be used to make inferences about the population of all States.

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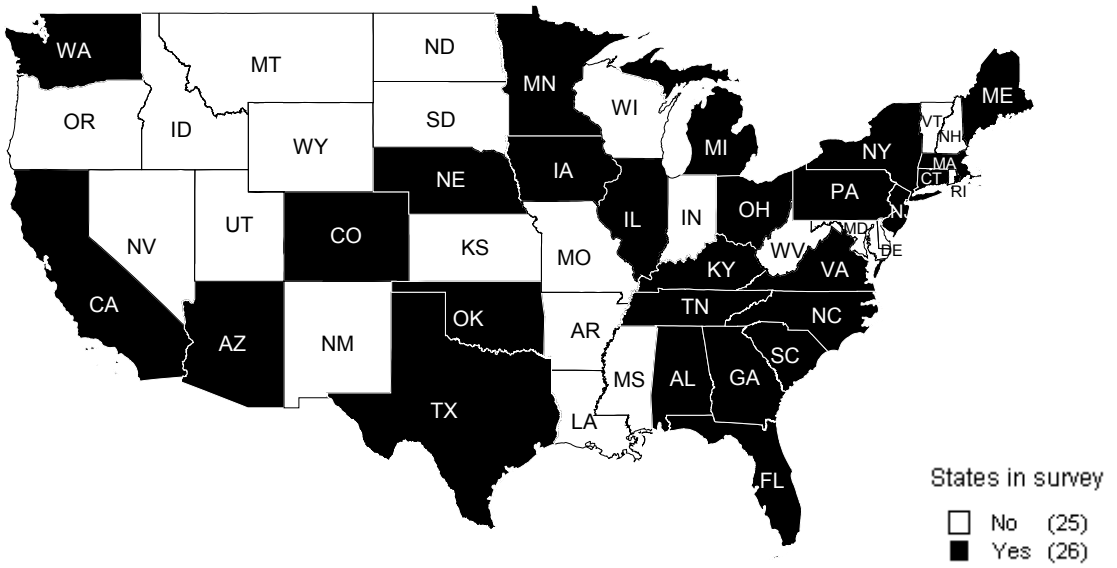
[9] Chapter Three presents information on the methods used by FANPs to implement and verify adjunct-eligibility and direct certification.

[10] The nine programs included in the survey were TANF, FSP, Medicaid, Child Support Enforcement, Child Protective Services, Child Care, Foster Care, JOBS, and Unemployment Insurance earnings records.

[11] The 26 States contained 78 percent of the FY2001 FSP recipients (USDA/FNS, 2003) and 83 percent of FY2001 TANF recipients (http://www.acf.dhhs.gov/news/stats/recipientsL.htm).

Figure 1—States included in Survey of Food Assistance Information Systems



The following topics were included in the survey:

- Information system architecture—system hardware and software; database structure; record retention and archival; data overwriting policies; type of connections between state and local agencies.
- Participant identifiers—primary identifier; demographic identifiers; retention of primary identifier over multiple spells; data verification and standardization.
- Integration with other programs—system integration; file exchanges for NSLP direct certification; verification of WIC adjunctive income eligibility; inclusion of program in state master client index.
- Research uses of administrative data—research purposes; organizations using administrative data.

The main goal of the survey was to determine the potential for record linkage across programs. This potential is indicated by presence of common identifiers, program integration, and evidence of data sharing arrangements reported by respondents.

Findings

FSP and WIC maintain statewide systems that are generally updated in real-time. There are significant differences, however, between FSP and WIC in terms of hardware, software, file structure, data retention rules, and number and types of individual identifiers. Many differences between FSP and WIC are due to characteristics of the programs. For example, FSP enrolls households and most FSP systems use hierarchical file structures whereby one household record is linked to one or more individual records. On the other hand, WIC enrolls individuals and provides numerous services; as a result, most WIC systems use relational databases to link individual certification records to other information such as food package prescriptions, voucher data, and nutrition education appointments.

Other differences between FSP and WIC are due to different regulatory requirements: all FSP agencies collect Social Security Numbers (SSNs) for participants as required by law; few WIC programs collect this information as a mandatory data item because there is no regulatory requirement to do so.

In contrast to FSP and WIC, child nutrition programs do not have statewide information systems. Most of the 26 State CNP directors reported that they maintain information about CACFP and SFSP sponsors and sites, but not participants. Ten of the 26 State CNP directors reported statewide student information systems maintained by the Department of Education in their State, but only half of these systems contain information about student eligibility for the NSLP and SBP.

There is currently no integration between FSP, WIC, and the child nutrition programs and, among these FANPs, only FSP is significantly integrated with other public assistance programs. The FSP has a history of integration with AFDC/TANF and Medicaid; and in some States, integration is reported with several other programs. In addition, the FSP is included in the master client indexes of social service clients maintained by 11 of the 26 States surveyed, while WIC is included in master client indexes in only 3 States.

Among the FANPs, only FSP routinely conducts record linkage or computer matching activities. Computer matching by the FSP is required by law to verify SSNs and detect ineligible participants. FSP agencies also routinely match participant records with neighboring States to detect dual participation. Record linkage in WIC, however, is primarily limited to efforts to detect dual participation in WIC and the Commodity Supplemental Food Program (CSFP) (reported by 12 of the 26 WIC agencies surveyed). The CSFP provides USDA commodities to elderly persons and to women, infants, and children as a food distribution alternative to the WIC program. Simultaneous participation in CSFP and WIC is prohibited by law.[12]

Two main findings from the survey are relevant to a record-linkage project for the FANPs. First, participant data from the child nutrition programs are currently unavailable at the state-level except from a handful of States maintaining NSLP/SBP eligibility information in statewide student information systems. Statewide student information systems, however, currently operate in ten States and are under development in an additional eight States, providing the architecture for future development of statewide maintenance of nutrition program information.

The second finding is that FSP and WIC data systems differ in terms of the number and types of client identifiers (particularly SSNs), the extent of data verification, and the rules for data retention and overwriting. As discussed in the next chapter, the lack of a single unique identifier common to FSP and WIC precludes use of simple computer matching to link records from these programs. Nonetheless, many States have FSP and WIC data systems with sufficient common identifiers to support testing the feasibility of probabilistic record linkage for research on multiple program participation.

[12] In FY2001, women, infants, and children (W-I-C) comprised 20 percent of total CSFP participation. The number of W-I-C in CSFP was nearly 84,000; or just over one percent of total participation in WIC.

Chapter Two
Administrative Data and Record Linkage Issues

For research purposes, administrative data have the advantage of detailed and accurate measurement of program status and outcomes, complete coverage of populations of interest (enabling detailed subgroup analyses), data on the same individuals over long periods, low cost relative to survey data, and the ability to obtain many kinds of information through matching (Hotz et al., 1998). In addition, many types of administrative data have relatively high degrees of uniformity in content across geographic areas.[13,14]

Government agencies have recognized the potential research uses of administrative data. Of 10 data development initiatives recently identified by USDA's Economic Research Service, only one did not involve administrative data (Wittenburg et al., 2001). Five of the 10 initiatives involve creation of linked databases matching administrative records from multiple agencies, or matching administrative records to survey responses.

Linked databases are a way to create "new" data from existing sources. For example, the National Center for Health Statistics (NCHS) determines infant mortality rates using state files of linked data from birth and death certificates (Mathews et al., 2002). The Department of Transportation examines motor vehicle crash outcomes by linking records of police-reported crashes to hospital discharge data, EMS data, and hospital emergency department data (NHTSA, 1996a). In the social services arena, a number of States have developed master client indexes that match administrative records from multiple social service programs to obtain unduplicated counts of clients and examine patterns of multiple program use (UC Data, 1999).

In a recent report, the U.S. General Accounting Office (GAO, 2001) noted that: "Federally sponsored linkage projects conducted for research and statistical purposes have many potential benefits, such as informing policy debates, tracking program outcomes, helping local government or business planning, or contributing knowledge that, in some cases, might benefit millions of people." The GAO also noted that record linkage projects generally raise significant concerns about privacy protection because "person-specific data are involved and because actual linkages typically occur at the individual level, multiplying the quantity of data recorded on each individual." But the GAO concluded that various techniques may help address privacy concerns (such as signed consent forms, masked data sharing, and secure data centers) and strategies for enhancing data stewardship could help ensure the confidentiality and security of linked data.

This chapter discusses research uses of administrative data, methods of implementing record linkage, and issues that must be considered in planning or implementing record linkage systems.

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[13] Many data elements in State administrative systems are required to meet federal regulations. The result is content uniformity, even though the data systems may vary in structure and format.

[14] Administrative data have some disadvantages: the data can be costly to collect and process; for some purposes, administrative data may be missing many data elements of interest and some data elements may have considerable measurement error; and administrative data are not easily accessed by researchers.

Administrative Data

Administrative data are the data assembled for program operations. Data for individual program participants are maintained in management information systems designed to determine eligibility and benefits at application, collect participant characteristics for reporting purposes, maintain histories of benefit receipt, and, in the case of WIC, track client activities such as referrals and appointments for nutrition education.

Administrative data systems for social service programs have become more complex over time. In the past decade, two pieces of federal legislation put increased demands on data systems. The *Personal Responsibility and Work Opportunity Act of 1996* (PRWORA) replaced Aid to Families with Dependent Children (AFDC) with TANF and introduced work requirements and time limits for some participants in the FSP. Both TANF and FSP information systems now track longitudinal data in order to implement rules and monitor compliance. The *Government Performance and Results Act of 1993* (GPRA) requires government agencies to develop strategic plans with measurable goals. GPRA requirements place demands on administrative data systems to monitor progress against performance goals. For example, USDA's Food and Nutrition Service strategic plan includes a goal to increase breastfeeding initiation among WIC participants (USDA/FNS, 2000), and WIC administrative data systems were modified in 1998 and 2000 to provide data on breastfeeding initiation that is consistent across time and across State agencies.

Research Uses of Administrative Data

Historically, administrative data from the FANPs have been used for a variety of research purposes. Administrative data are used to periodically take stock of the number and characteristics of program participants. For example, the biennial *WIC Participant and Program Characteristics Studies* (PCs) (Bartlett, et al. 2002) are based on administrative data collected from State WIC agencies, and the annual *Characteristics of Food Stamp Households* (Tuttle, 2002) are based on FSP administrative data assembled for quality control purposes.

Administrative data are also regularly used for program evaluation. USDA evaluation studies have used administrative data to create sample frames for surveys and to examine a wide array of program operation and program outcome issues. These studies, however, are one-time evaluations and the scope of data collection and analysis is sometimes limited to a single application.

Research uses of FANP administrative data are paralleled by other social service programs. The University of California (UC Data, 1999) conducted an inventory of research uses of administrative data and found over 100 examples of research uses of administrative data among social service programs. The 100 examples were found across the substantive areas of welfare experiments, child welfare research, and health care research. Many of these examples were one-time evaluations.

The UC Data report highlighted efforts to link databases for research and evaluation, or to create ongoing data systems to enhance the reporting capabilities of administrative data. Three linkage strategies were identified:

- Data integration—multiple data systems are integrated on the same computer hardware, or through data exchange in real-time.
- Computer matching—personal identifier (usually SSN) is used to retrieve data from external databases through batch merges or ad-hoc queries.

- Record linkage—data extracts from multiple systems are combined to create a new database (data warehouse).

Data integration and computer matching are techniques applied to internal operations and usually arise to support program operations (data integration streamlines operations and computer matching enables data verification). The end result is an administrative database with enhanced capability to meet research needs. Record linkage, on the other hand, generally occurs outside of normal program operations by a research division or external research entity for the primary purpose of enhanced reporting and research capabilities.[15] Examples of each of these techniques are discussed below.

Data Integration

The most common example of data integration cited by UC Data is the integration of AFDC/TANF, food stamps, and Medicaid data systems. In 1998, 20 of the 26 States surveyed by UC Data had integrated systems for these three programs; 12 of the integrated systems also included the Job Opportunities and Basic Skills (JOBS) program. Programs that were less commonly integrated into these systems were: Child care subsidies (3 States); Foster Care (2 States); Child Support Enforcement (1 State); General Assistance (1 State); and Child Protective Services (1 State).

Data integration enables direct measurement of multiple program participation from a single client database. For example, in integrated systems, food stamp cases are automatically denoted FS-PA (food stamps and public assistance) or FS-NPA (food stamps and no public assistance) according to the case status in public assistance programs (TANF, SSI, and general assistance). Longitudinal case histories from the single data system can be examined to determine whether the dynamics of FSP and TANF entry and exit coincide.

Computer Matching in the Food Stamp Program

The FSP uses computer matching to improve program efficiency and integrity. Federal regulations require FSP applicants to provide their Social Security number (SSN) (7 CFR 273.6) and regulations authorize State FSP agencies to use SSNs to routinely match FSP participant records to external data systems.

State food stamp agencies perform computer matches for three main purposes: to identify ineligible participants, detect dual participation, and verify eligibility. Ineligible participants are identified by computer matches with the Social Security Administration (SSA) Death Match file and the Prisoner Verification System are done to identify ineligible participants. Dual participation is detected through computer matches with FSP data systems in neighboring States. And eligibility is verified through computer matches to external databases to verify information provided by participants during the certification process (State Wage Information Collection Agency (SWICA), State Data Exchange (SDX), Unemployment Insurance (UI), and Beneficiary Data Exchange (BENDEX)).[16] Currently, the only computer matches that are mandated for FSP agencies are matches to the SSA Death Match file and Prisoner Verification System (USDA/FNS, 2002).

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[15] Databases created through record linkage have limited potential to serve operational needs because the databases are generally not updated in real-time.

[16] These data systems are all part of the Income Eligibility and Verification System (IEVS). IEVS was mandated for use by the FSP, prior to 1996. PRWORA (1996) removed the mandate but IEVS continues to be used because these systems are perceived to provide useful data (USDA/FNS, 2002).

USDA found that use of computer matching by State FSP agencies almost doubled in the decade from 1991 to 2001—from an average of 7.5 matching systems used per State, to 14 (USDA/FNS, 2002). In addition, increases in computer processing capacity and growth in communications networks led to a transition from batch processing to real-time links between FSP data systems and external databases.

Computer matching typically involves transmission of data from one agency to another, with a "result code" returned to indicate the quality of the match. Computer matching, as used by FSP agencies, does not pull source data from an external database to add to the primary database. Use of computer matching for program operations demonstrates the technological feasibility of linking large separate data systems by use of a single, unique, verified identifier (SSN).

Record Linkage Projects within the Social Services

Record linkage projects join records from two or more separate data systems to create a new record in a new database. [17] Two recent studies provide numerous examples of record linkage projects. The UC Data inventory of administrative data systems cites examples of record linkage from welfare demonstration evaluations and from State projects creating "master client indexes" of social service clients. GAO (2001) provides examples of record linkage projects conducted under federal auspices or with federal funding.

Many welfare evaluation studies created linked databases to join information about program participation to outcomes data on employment and earnings. For example, the Alabama ASSETS demonstration project in the mid-1990s linked monthly AFDC, Food Stamps, JOBS, child support, and UI earnings data to create linked longitudinal databases. Similarly, the Florida Family Transition Program (FTP) demonstration study linked data extracts from AFDC/TANF/FSP to Department of Labor quarterly earnings records, Medicaid claims, and childcare subsidy records. However, linked databases from welfare evaluations were created at a point in time and do not support ongoing reporting.

Much interest has been generated in recent years from development of data warehouses that link data from multiple social service programs on an ongoing basis. Linked databases have been developed under the auspices of State Departments of Health to provide improved data access and data quality to State agencies responsible for surveillance, research, and program planning. In 1999, UC Data found that five States were developing or operating state-level master indexes of social service clients.[18] Linked databases appear in some cases (Texas is discussed below) to provide an interim solution on the way toward fully integrated data systems for all social service programs.

Record linkage across many social service programs is more difficult to achieve than computer matching based on verified SSN. Many programs do not collect or do not verify SSNs and, as a result, record linkage must rely on personal identifiers (name, date of birth, gender, race, address, phone) that are not unique and are subject to change over time. While the UC Data study cites several

[17] Pioneering work on record linkage was done by Newcombe in the 1950s in the area of health research (Newcombe et al., 1959).

[18] Texas was operating The Integrated Database Network (IDBN); Washington was operating the Client Services Database (CSD); South Carolina maintained a data warehouse called the "master file" that brought together data from the separate FSP, TANF, and Medicaid systems in that State; and Tennessee and Minnesota had data warehouse projects under development.

examples of record linkage projects, for the most part, that study did not indicate the methods used to link data. Methods may be as simple as a merge on shared program ID or SSN, or as complex as probabilistic record linkage (these methods are discussed below).

One of the first efforts at an integrated cross-agency database constructed by probabilistic record linkage is the Illinois Integrated Database (IDB) on Children's Services developed by the Chapin-Hall Center for Children at the University of Chicago (Goerge et al., 1994; Goerge, 1997). Development of this database began in the early 1980s with construction of a longitudinal foster care database to study foster care dynamics. Currently, the database contains data from eight social service agencies and documents all contacts that a child has with TANF, Medicaid, food stamps, child welfare, special education, corrections and juvenile justice, mental health, and substance abuse (Goerge and Van Voorhis, 2002).

The Chapin-Hall database exists outside the Illinois State agency information system, and maintains longitudinal case histories. In 1997, the Illinois Department of Human Services (DHS) implemented the Common Client Index containing an unduplicated list of recipients of all DHS services; this system contains the most recent information about a client but does not contain case histories (UC Data, 1999).

Other States have developed master client indexes that have evolved over time. For example, UC Data reported on the Washington State Department of Social and Health Services (DSHS) development of the Needs Assessment Database. This database was developed in 1990 to determine the number of clients served by multiple agencies within DSHS. The database combined data extracts from 15 agencies to determine the number of shared clients and the total costs accrued for shared clients. The effort was a point-in-time linkage of cross-sectional data extracts, and was repeated in 1992 and 1994. In 1996 this database evolved into the Client Services Database (CSDB) which links extracts on a more frequent basis.

In Texas, the Integrated Database Network (IDBN) was implemented in 1995, linking data from four agencies with separate data systems. UC Data reported that the IDBN was developed for two distinct purposes: to assist workers in the field to rapidly collect information on clients necessary for case processing, and to assist state agency staff in statistical and management reporting. The system was designed to eventually link data from all eleven agencies within the Department of Health and Human Services. IDBN, however, will be superseded by the Texas Integrated Eligibility Redesign System (TIERS) project, launched by State legislation in 1999. TIERS will be developed as a fully integrated eligibility and enrollment system to include services provided by the Texas Department of Human Services (Food Stamps, TANF, Medicaid, Children’s Health Insurance Program (CHIP), Refugee Assistance, Community Care for the Aged and Disabled, and Hospice) and support for sharing data with other State agencies (TDHS, 1999).

Record Linkage Methods and Issues

Record linkage and computer matching are terms that refer to a process of matching records from different data files — from multiple data systems or from the same data system at different points in time. Computer matching typically refers to the process of matching (or verifying) specific information with an external file and adding a result code to the primary file indicating the quality of the match. Record linkage typically describes a process that links records from more than one file and returns a new record for a completely new data file.

Types of Record-Linkage

There are three methods of record linkage: match-merge, deterministic linking, and probabilistic linking (Whalen et al., 2001). A match-merge relies on an exact match of a single common identifier present in two files. Deterministic record linkage requires an exact match of identifying information, but uses multiple criteria to establish a match. Probabilistic record linkage is made when the calculated statistical probability of a match exceeds a certain threshold.

Match-merge techniques are generally used only when information originates from the same data system or when identifiers (such as SSN) are very reliable.[19] For example, a match-merge may be used to link FSP participants in data extracts drawn at different points in time, with participants linked by the FSP system ID. A match-merge will fail in this case only for participants who exit and re-enter the system with new IDs.

Deterministic record linkage uses multiple criteria to establish a match between records. For example, the link might require a match on SSN *or* name and date of birth. Multiple criteria introduce the complication that data items vary in quality or reliability. Match routines use information about the varying quality of data items, either explicitly or implicitly. Some applications sequentially test multiple deterministic criteria, excluding matches at each step from the next step of matching. Information about quality of data items is used to establish the ordering of criteria. Alternatively, several criteria could be applied at the same time, with points assigned to each criterion and a point threshold used to establish a match. Assigning different points to different identifiers provides a way to recognize variations in quality or reliability of different data items.[20]

Probabilistic record linkage identifies a match between records based on a formal statistical model. The advantage of probabilistic record linkage is that it uses all available identifiers to establish a match (e.g., name, sex, date of birth, SSN, race, address, phone number) and does not require identifiers to match exactly. Identifiers that do not match exactly are assigned a "distance" measure to express the degree of difference between files. Each identifier is assigned a weight and the total weighted comparison yields a score, which is used to classify records as linked, not linked, or uncertainly linked according to whether the statistical probability of a match exceeds a certain threshold (Winkler, 1999).

Probabilistic record linkage models were first introduced by Newcombe (1959) and formalized by Fellegi and Sunter (1969). Modern probabilistic record linkage is a collection of techniques from computer science, statistics, and operations research (Winkler, 1994). These techniques include string comparison methods, algorithms for scaling commonly occurring values, and methods for scoring the comparisons of multiple identifiers and assigning a match probability to the total score. Probabilistic methods provide the most accurate means of matching files that do not share a single common identifier.[21]

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[19] Reliability of the single identifier must be comparable across the files being matched. For example, a match merge on SSN across the FSP, which verifies SSN, and another program, which does not verify SSN, may result in large numbers of false positive and false negative matches.

[20] An example given by Whalen (2001) requires a total point score of 25 or greater to establish a match, with points assigned as follows: 20 points for SSN agreement, 15 points for last name agreement, 8 points for first name agreement, 5 points for date of birth agreement, 1 point for gender agreement and –10 points if gender does not agree.

[21] One validity study compared Statistics Canada's linked birth and infant death records to hospital records and found "a high degree of agreement … suggest(ing) a high degree of validity" (Fair, et. al, 2000).

Record-Linkage Issues

Deterministic and probabilistic record linkage methods are used to link databases that lack a unique and reliable common identifier. If SSNs are present on the databases of all social service programs, and are verified at application, record linkage could be achieved by a simple match-merge. In reality, however, SSNs are not used by all social service agencies, and SSNs are not always verified when they are collected.

The success of deterministic and probabilistic record linkage depends on common identifiers, standardized data fields, and data retention that ensures that contemporaneous data are available for the files being linked. Identifiers are data items that identify an individual — first and last name, SSN, date of birth, race, gender, address, phone. Common identifiers must be present in the files to be matched and they must appear in the same format.

Data standardization involves recoding categorical data items and standardizing the structure and content of data fields. Categorical data items, such as race and gender, will not match across files if based on different coding schemes (e.g., GENDER may be coded as 1/2 or M/F for male/female). Imposing a consistent coding scheme is usually a simple matter of recoding variables in some of the files being matched.

Standardizing data fields that are not categorical, such as name and address, often requires parsing data items and translating the contents of data fields. For example, if a NAME field contains first and last name, it must be parsed to separate fields (FNAME, LNAME) to enable separate matching of first and last name. It may be desirable to translate the content of name fields to increase the likelihood of matches; for example, by replacing all nicknames with formal names or removing all titles (Mr., Mrs., Jr.). With address fields, content translation is imperative to eliminate variations that would preclude a match. Typically all spelling variations on street types (Avenue, Boulevard, Circle, Highway, Road, Route) and prefix/suffix direction on street names (East, West) are translated to standard Census abbreviations prior to matching. Address data must also be parsed into separate fields (house number, street name, street type, directional prefix/suffix) to enable separate comparisons of comparable data fields.

Data retention refers to retention of information when individual data fields are updated to reflect change. Most personal identifiers are subject to change over time — names change due to marriage, divorce, or adoption; addresses and phone numbers change due to relocation; ZIP Codes may change due to reassignment by the postal system. Two data files extracted from separate data systems at the same point in time may contain information on the same individual *entered* at different points in time. Probabilistic record matching can incorporate "old" information by testing for a match on every combination of current information and old information across two data files.

Methods of Implementing Probabilistic Record Linkage

Probabilistic record linkage has been implemented in record linkage software systems that are available commercially and from government agencies (Winkler, 2001). Current record linkage systems are described below with examples of their application.

The Department of Transportation's Crash Outcome Data Evaluation System (CODES) links records of police-reported motor-vehicle crashes to hospital discharge data, Emergency Medical System (EMS) data, and hospital emergency department data. The system was developed in response to a

Congressional mandate to determine the benefits of safety belt use and motorcycle helmet use.[22] The CODES system was implemented in seven States in 1996 and the National Highway Traffic Safety Administration (NHTSA) has since funded the system in an additional 20 States.[23] The system uses commercial AutoMatch software, which is no longer available under the AutoMatch name. AutoMatch was acquired by Vality Technology, which is now a part of Ascential Software; this matching software has evolved into part of the Integrity enterprise solution product.[24]

The Master Child Index (MCI) being developed by the City of New York, Department of Health links records from the Citywide Immunization Registry (CIR) and Lead Poisoning Prevention Program (LPPP) to facilitate the identification and tracking of children for immunizations and lead screening. In April 2002, the ChoiceMaker commercial software was chosen to implement record linkage.[25] ChoiceMaker Technologies® was established in 1998 and has developed matching software with partial funding from the National Science Foundation.

The Integrated Data Base developed by the Substance Abuse and Mental Health Services Administration (SAMHSA) of the U.S. Department of Health and Human Services used probabilistic record linkage to link client records from three agencies in each of six States. The agencies were Medicaid, State mental health, and State substance abuse agencies. The integrated database was built with 1996 data and supported research on treatment services received from each type of agency (Coffey, et al., 2001). Record linkage was implemented by a system of SAS® programs; these programs are available on the SAMHSA web site. [26]

Statistics Canada and the U.S. Bureau of the Census use record linkage for population enumeration operations. The software used by Statistics Canada is CANLINK; this software contains record linkage operations but does not perform name or address standardization (Winkler, 2001). The U.S. Bureau of the Census uses software for name standardization, address standardization, and record linkage. The Census software was written in C++ and the compiled code runs on all computers. Source code and documentation for the Census programs are available, but not supported (Winkler, 2001).

While record linkage software is available, Winkler cautions that "record linkage is like messy data analysis … individuals need to recognize patterns in data" and "groups undertaking matching must be aware of the large amounts of time and resources needed for developing person skills and for cleaning up lists" (Winkler, 2001). Phase II of this project will investigate the SAS system developed for SAMHSA and the Census software, for application to FANP data.

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22 Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991.

23 Information is available at www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/CODES.html.

24 A discussion of the original AutoMatch software can be found in Jaro (1995). Information about Integrity is available at www.vality.com. Winkler (2001) cites the price of Integrity as $195,000 plus 15% maintenance.

25 Information about ChoiceMaker is available at www.choicemaker.com.

26 The system contains 6 primary SAS programs and 23 SAS macros. The programs are available at www.samhsa.gov.

Chapter Three
Characteristics of FSP and WIC Data Systems

This chapter describes some of the characteristics of the information systems (IS) used by the food stamp and WIC programs. Data are from the *Survey of Food Assistance Information Systems* conducted as part of this study. Child nutrition program information systems are discussed in Chapter Five.

The *Survey of Food Assistance Information Systems* collected information specifically related to the participant database portion of FANP information systems. The survey was designed to provide information for researchers interested in using administrative data to study participant characteristics and participation dynamics, and to investigate the potential for record linkage across programs. The survey was narrowly focused on FANP participant databases and data sharing arrangements and did not collect information about other aspects of FANP information systems. For example, FANP information systems provide many functions in addition to participant eligibility and tracking. FSP systems track Electronic Benefit Transfer (EBT) card issuance and replacement, benefit disbursement, and employment and training activities (especially for able-bodied adults without dependents (ABAWDs)). WIC systems track benefit issuance and vendor authorization; and may track health care and social service referrals and nutrition education appointments.

As described in Chapter One, the *Survey of Food Assistance Information Systems* collected information from 26 States. All 26 States have statewide information systems for the WIC program, and all States except California have statewide information systems for the FSP. In the body of this report, the FSP data for California are from the California Interim Statewide Automated Welfare System (ISAWS). At the time of the survey the California FSP was transitioning to a statewide system, with 35 of 58 counties included in the ISAWS system.[27]

Hardware and Software

Table 2 provides information about system maintenance, hardware, software, and database structure used by FSP and WIC agencies in managing participant data. Information about hardware and software systems is typically not important to researchers requesting data extracts, however, it can be indicative of the variety of record formats that exist in different systems.

System Maintenance and Hardware

The majority of FSP and WIC information systems are maintained by the State agencies administering the programs (table 2). Of the 26 states surveyed, 21 FSP agencies and 16 WIC agencies maintain their own information system; States and contractors share maintenance responsibilities in four FSP agencies and four WIC agencies; and only one FSP system and 6 WIC systems are maintained completely by contractors.

[27] Detailed appendix tables include information about ISAWS and the Los Angeles county food stamp information system (LEADER: Los Angeles Eligibility, Automated Determination Evaluation and Reporting).

Table 2—Hardware and software systems for maintaining participant data in FSP and WIC information systems

	Food Stamp Program[1]		WIC Program	
	Number States	Percent	Number States	Percent
Computer system is maintained by				
State	21	81%	16	62%
Contractor	1	4	6	23
Both	4	15	4	15
Type of hardware system				
Mainframe	25	96	14	54
Unix system	1	4	4	15
Midrange computer	–	–	5	19
PC server	–	–	3	12
Other	–	–	–	–
File structure of client database				
Relational database	7	27	17	65
Flat file	2	8	6	23
Hierarchical file	10	38	3	12
Other	7	27	–	–
Type of software system[2]				
Legacy system	14	54	10	38
DB2	4	15	6	23
ORACLE	1	4	5	19
SYBASE	–	–	2	8
IMS DB/DC	8	31	–	–
Adabas	2	8	2	8
Other	9	35	6	23

– Zero States in category.
1 The FSP information system in California is not fully integrated at the State level. Table includes data from the California Interim Statewide Automated Welfare System (ISAWS), operating in 35 California counties.
2 Survey respondents checked all applicable items.

Source: *Survey of Food Assistance Information Systems*, 2002.
Survey was completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois,Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

Nearly all (25 of 26) FSP agencies but only half of WIC agencies surveyed maintain participant databases on mainframe computers. WIC systems are also found on UNIX or midrange computer systems.

Database Structure and Software

A majority of FSP agencies maintain hierarchical databases (table 2). Hierarchical databases are particularly suited to the FSP participant database because FSP enrolls households, and maintains information on the "case" or "household head" as well as all individuals in the household. The most common database structure for WIC is a relational database. A relational database allows for multiple linked data "tables" containing certification records, food package codes, voucher issuance records, and appointment scheduling.

It is difficult to characterize the software used by FSP and WIC agencies because information systems generally consist of multiple computer languages: operating system languages, enterprise middleware

such as database or transaction servers, and high-level languages such as Natural or COBOL (for legacy systems). Fourteen FSP agencies characterized their system as a "legacy system" (table 2). The database/transaction software used by FSP agencies includes IMS hierarchical database (IBM), DB2 relational database (IBM), and Adabas database. The database products used by WIC agencies include DB2, Oracle, Sybase, and Adabas.[28]

Local Agency Connections

The statewide information systems maintained by FSP and WIC agencies send and receive information to and from local offices. Food stamp offices are generally located within county welfare or social service departments. The 88 WIC State agencies oversee nearly 2,000 local agencies, which are generally public or private nonprofit health or human service agencies.

Figure 2 shows the number of States by type of local office connections for sending certification data to the central State facility. Most FSP agencies (22 of 26) maintain a statewide network to connect local offices in real-time; only two FSP agencies report that local offices submit files.[29] In contrast, just half of WIC agencies connect local offices via a statewide network in real-time; 12 WIC agencies report that local offices periodically submit files. The frequency of file submission varies. Both FSP agencies using file submission, and 6 of the 12 WIC agencies, report that all local offices submit files nightly. In the remaining 6 WIC agencies, some local offices submit files nightly, some weekly, and some less than weekly.

Planned Upgrades

The majority of FSP information systems are stable, with 15 FSP agencies (of the 26 surveyed) planning no major hardware or software upgrades in the next 2 years; in contrast, only 5 of 26 WIC state agencies report no planned upgrades (figure 3). Among the 11 FSP agencies with planned upgrades, 2 agencies will upgrade hardware, 3 will upgrade software, and 6 agencies will upgrade both hardware and software. Among the 21 WIC agencies with planned upgrades, one will upgrade hardware, 5 will upgrade software, and 15 will upgrade both.

Figure 2—Local agency connections

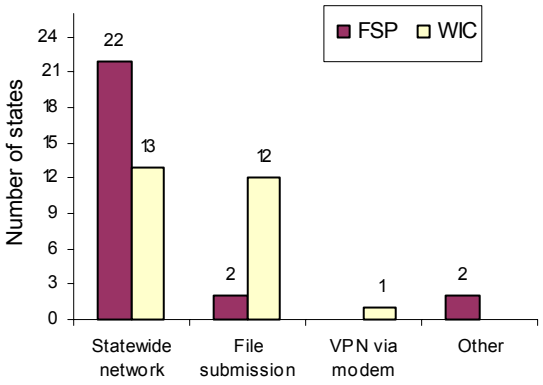
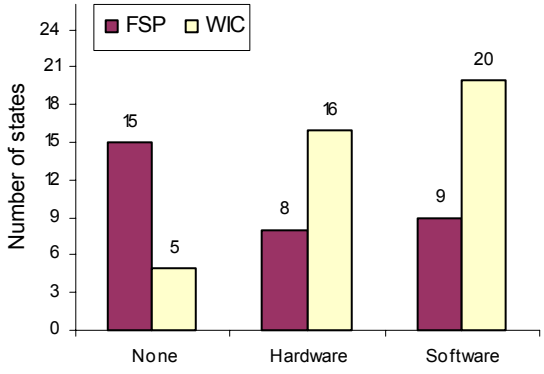


Figure 3—Planned upgrades



[28] "Legacy" was a response category chosen by respondents. Respondents choosing "Other" and providing open-end responses of operating system software (OS/390, OS2200, VM) were categorized as having legacy systems.

[29] Two FSP agencies reported "Other method" and open-ended responses did not clearly indicate the methods used.

Historic Data

Availability of historic data is an important consideration when using administrative records for research purposes. Studies of participation dynamics require longitudinal data files, compiled either retrospectively or prospectively. Record linkage projects, bringing together data from different programs, require data that are contemporaneous across programs. Retention and overwriting policies determine whether historical data are available to fill these research requirements.

Federal regulations govern record retention policies for FSP and WIC. FSP regulations (7 CFR 275.4) and WIC regulations (7 CFR 246.25) require all records, including certification records, be retained for a minimum of three years.

Record retention does not necessarily indicate the usefulness of historical records in compiling longitudinal case histories. Additional considerations include overwriting policies governing each data field, the ability to link historical records, and the method by which "old" information is retained. For example, an FSP participant database can be thought of as a large transaction system. The main component of the system is the list of all current and former program participants with an indicator of status. A change in program status or a name change is a transaction that updates the current record. A researcher using these data must know whether the old information is overwritten or retained, and where the "old status" information is retained — is it on the current record in an array of "old" items, or is it in a history file that must be linked to the current record?

For this study, we asked FSP and WIC administrators about four issues related to record retention: a) record archival policies, b) availability of past cross-sections of active caseloads, c) availability of participant enrollment histories, and d) overwriting policies for individual data fields. Survey responses are shown in tables 3 and 4.

Record Archival and Retention

Slightly more than half of surveyed FSP and WIC agencies indicated that they take participant records offline for archival: 14 FSP agencies and 15 WIC agencies (table 3). Most of these 14 FSP agencies indicated that the trigger for record archival is the number of months inactive (i.e., the number of months since last receipt of benefits). Most WIC agencies also archive records after a particular time period of inactivity (seven agencies use the number of months inactive as a trigger for archival and four agencies use the end date of participation as the trigger) (table 3). Four WIC agencies use other triggers for archival, including client's age and size of the data file.

Most survey respondents from the 26-state sample indicated that they retain inactive case records in their online computer system for time periods that exceed the three-year federal regulation for record retention. Of the 26 states in the survey, 21 FSP agencies retain inactive case records online for five years of longer, and 10 agencies retain inactive case records online for 10 years or longer (table 3). Two FSP agencies and four WIC agencies reported online record retention of inactive cases for less than three years. Regulations do not require that records be retained online, as opposed to offline, but online retention of inactive cases increases the likelihood that applicants with previous histories will be identified and linked to their past history by assignment of the same case ID.

In general, WIC agencies retain inactive case records online for shorter time periods than FSP agencies. Only 5 WIC agencies retain records for more than 10 years, 11 agencies retain records for 5 to 10 years, and 10 agencies retain records for less than 5 years. Shorter retention periods in the WIC

Table 3—Record archival, record retention, and enrollment histories in FSP and WIC information systems

	Food Stamp Program[1]		WIC Program	
	Number States	Percent	Number States	Percent
Record archival				
System archives clent records offline				
Yes	14	54%	15	58%
No	12	46	11	42
Trigger for archiving client records[2]				
Number months inactive	13	50	7	27
Start date of participation	1	4	1	4
End date of participation	1	4	4	15
Other	–	–	3	12
Record retention				
Length of time records are retained online for inactive cases				
Less than 3 years	2	8	4	15
3-4 years	3	12	6	23
5-10 years	11	42	11	42
More than 10 years	10	38	5	19
Caseload histories				
System is able to recalculate past monthly caseload totals from online data				
Yes	19	73	20	77
No	7	27	6	23
Past monthly caseloads could be calculated for				
Less than 2 years	2	8	5	19
2-4 years	5	19	10	38
5 or more years	12	46	5	19
Not applicable	7	27	6	23
Client enrollment histories				
Information about enrollment prior to current certification is found				
On current record	15	58	8	31
In history file	3	12	8	31
Requires special programming	8	31	10	38

– Zero States in category.
1 The FSP information system in California is not fully integrated at the State level. Table includes data from the California Interim Statewide Automated Welfare System (ISAWS), operating in 35 California counties.
2 Pennsylvania reported both 'number months inactive' and 'end date' as triggers for archival.

Source: *Survey of Food Assistance Information Systems*, 2002.
Survey was completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois,Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

program reflect the fact that participation periods are limited by categorical eligibility: women participate during periods around childbirth and children participate up to 5 years of age.

Caseload Histories

Record retention does not guarantee that a snapshot of the caseload at a point in time can be reconstructed at some point in the future. To determine this capability, we asked program administrators if past monthly caseload counts could be recalculated from online data. About half (12

of 26) of FSP agencies could recalculate monthly caseload counts from online data for the past 5 years or longer (table 3) and 7 agencies could recalculate past monthly caseload counts for a period of less than 5 years. Only 5 WIC agencies could recalculate past monthly caseloads from online data going back 5 years, and 15 agencies could do it for less than 5 years. Some agencies (7 FSP agencies and 6 WIC agencies) are unable to recalculate past monthly caseload counts from online data.

Finally, program administrators were asked if individual participants' enrollment histories could be determined from their current record, from a history file, or only by special programming. If the enrollment history is on the current record, then an important indicator (past participation outside the current participation spell) is easily accessible. Fifteen of 26 FSP agencies retain participant enrollment histories on the current record (table 3); the remaining 11 agencies do not have the information on the current record and must retrieve it from a history file (3 agencies) or by special programming (8 agencies). Only 8 WIC agencies indicated that participant enrollment history is on the current enrollment record; eight WIC agencies indicated that participant enrollment histories must be retrieved from a history file; and ten WIC agencies can retrieve enrollment history only by special programming.

Overwriting Policies

Overwriting policies determine the data items that are overwritten when they change, and those that are retained. For example, a data system may contain several fields for "last name" so that a history of name changes is retained on the current record. Alternatively, the current record may contain only the current name (data are overwritten), but all changes to the current record trigger a save of the previous record in a history file so that the history of name changes is accessible (albeit with more programming). Some data systems do not retain "old" data on the current record or in a history file, but maintain it only in the archives of past "current" records.

Overwriting policies are an important consideration for record linkage projects. Over time, individuals may change their address, phone number, or name (via adoption or changes in marital status). Record linkages may not be possible if data extracts are not contemporaneous, and even then, if an individual enrolls in two programs at different points in time the data extracts (taken at a single point in time) may contain different information.

Table 4 shows the overwriting and retention policies reported by FSP and WIC agencies for name, address, phone, date of birth, and SSN. Agencies were asked to indicate whether changes in identifying information were retained in separate data fields on the current record. FSP agencies are more likely to retain old information on the current record, compared to WIC agencies. It is not known, however, whether the difference between FSP and WIC agencies is because WIC agencies do not retain old information, or because WIC agencies are more likely to retain old information in a separate file rather than on the current record (this is more feasible in the relational database structure prevalent among WIC agencies, compared to the hierarchical database structure used by FSP).

Among FSP agencies, date of birth is the most commonly overwritten data item — reflecting the fact that this item doesn't change, but it may be updated to correct previous entry errors. In contrast, a slight majority of FSP agencies retain changes to name and address in separate data fields — these items are likely to experience real changes over time.

Table 4—Overwriting policies for individual data fields in FSP and WIC information systems

	Food Stamp Program[1]		WIC Program	
	Number States	Percent	Number States	Percent
Overwrite/retention rules for changes in data items				
Name				
Overwrite	12	46%	20	77%
Retain	14	54	6	23
Address				
Overwrite	11	42	23	88
Retain	15	58	3	12
Phone number				
Overwrite	14	54	22	85
Retain	9	35	4	15
Not specified	3	12	–	–
Date of birth				
Overwrite	17	65	20	77
Retain	9	35	6	23
Social Security Number				
Overwrite	14	54	13	50
Retain	11	42	6	23
Not specified	1	4	7	27

– Zero States in category.
1 The FSP information system in California is not fully integrated at the State level. Table includes data from the California Interim Statewide Automated Welfare System (ISAWS), operating in 35 California counties.

Source: *Survey of Food Assistance Information Systems*, 2002.
Survey was completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois,Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

Participant Information in FSP and WIC Databases

FSP and WIC information systems contain data for all enrolled individuals. Individuals are uniquely identified within each information system by a primary identifier. Individual and/or case records also contain contact information and demographic characteristics.

Primary Identifiers

Primary identifiers are generally numeric or alphanumeric and are used in program operations to uniquely identify individuals and cases. The FSP enrolls households and assigns primary identifiers to households (or cases), as well as to each individual in the household. (The ID of the household head is sometimes used as the case ID.) WIC programs enroll individuals and assign primary identifiers to individuals, although some WIC programs also assign "family IDs" to associate multiple participants who are related.

We asked FSP and WIC directors to characterize their primary identifier as: SSN, system-generated ID, or shared ID. A shared ID is shared with other public assistance programs—for example, states with integrated information systems for FSP, TANF, and Medicaid may use the same primary identifier to identify individual participants across the three programs.

Table 5—Primary identifiers for FSP and WIC program cases

	Food Stamp Program[1]		WIC Program	
	Number States	Percent	Number States	Percent
Primary identifier for cases				
Social Security Number	2	8%	3	12%
System generated ID	7	27	20	77
ID shared with other programs	16	62	2	8
Other	1	4	1	4
Continuity of primary identifier				
Does client ID follow through multiple participation spells?				
Yes	26	100	18	69
Yes, if enrolled through same local agency	–	–	5	19
Yes, if enrollment is continuous	–	–	3	12
Search for past records				
At application, is system searched for current or past record of client?				
Yes	26	100	24	92
No	–	–	2	8
Information used to search for current or past participation[2]				
Name	26	100	23	96
Social Security Number	26	100	13	54
Program ID	19	73	16	67
Date of birth	19	73	17	71
Other	7	27	9	38
Time period searched for past participation				
All available data	25	96	19	73
4 months	–	–	1	4
18 months	–	–	1	4
3 years	–	–	1	4
6 years	–	–	1	4
Not specified	1	4	1	4
Not applicable	–	–	2	8

– Zero States in category.
1 The FSP information system in California is not fully integrated at the State level. Table includes data from the California Interim Statewide Automated Welfare System (ISAWS), operating in 35 California counties.
2 Survey respondents checked all applicable items.

Source: *Survey of Food Assistance Information Systems,* 2002.
Survey was completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois,Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

SSNs are not commonly used as primary identifiers for FSP and WIC (table 5). Only 2 FSP agencies and 3 WIC agencies use the SSN as a primary ID.[30] Sixteen FSP agencies report use of a "shared ID" and 7 agencies report use of a system-generated (but not shared) primary ID. Two WIC programs

[30] One FSP agency indicated that a shared ID is used if the SSN is not provided at certification. All three WIC agencies indicated that a system-generated ID is used if the SSN is not provided at certification.

report use of a shared ID (Illinois and Tennessee), but most WIC agencies (20 of 26) report use of a system-generated ID unique to their agency. [31]

While SSNs are not used as primary identifiers by most FSP and WIC agencies, all FSP agencies and some WIC agencies collect SSNs. Federal law requires individuals to provide their SSN to receive FSP benefits and authorizes State FSP agencies to use SSNs to verify eligibility, prevent duplicate participation, and determine the accuracy and/or reliability of information given by households (7CFR273.6). This requirement does not exist for WIC.

There are limits, however, on the use of SSNs by government agencies.[32] The Social Security Act declares that SSNs obtained or maintained by authorized individuals are confidential and prohibits their disclosure. This limit may explain why SSNs are not widely used as primary identifiers by FSP and WIC. Use of system-generated IDs that are unique to each FANP, however, limits the ability to easily link individuals across FANPs for research and reporting.

All FSP agencies, but only some WIC agencies, indicate that primary identifiers follow participants through multiple spells of participation. In five WIC agencies, IDs follow participants through multiple certifications only when they re-enroll through the same local agency. In three WIC agencies, IDs may be reassigned when participation is not continuous.

In order for a primary ID to reliably follow a participant through multiple spells of participation, the data system must be searched for past records of participation at each application. As shown in table 5, all FSP agencies use name and SSN to search their system for past records of participation, and thereby assign a continuous ID. The continuity of primary identifiers in the WIC program is less reliable because, as shown in table 5, only half of WIC agencies use SSN to search for past records.

Personal Information

In addition to primary identifiers, FSP and WIC data systems maintain three types of personal information for enrolled individuals: identifiers (name, SSN); contact information (name, address, phone); and demographics (date of birth, gender, race/ethnicity, primary language). Because FSP and WIC (and other FANPs) do not use a common primary identifier, a record linkage project must rely on the availability of other personal information to link participants across programs.

To ascertain the types of personal identifying information contained in FSP and WIC information systems, we asked program administrators to indicate the data fields present in their data system and the data fields required to be filled (fields not permitted to be blank). Table 6 presents survey responses.

Data fields for first and last name, SSN, date of birth, gender, and race/ethnicity are present in all FSP and WIC participant databases. A very small number of agencies reported that data fields for address (3 FSP and 2 WIC agencies) and phone (3 FSP agencies) are not available.

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[31] States were asked whether their ID is a shared ID, but were not asked to identify the program with which they share IDs. The programs integrated with WIC in States with a shared ID are: Child Protective Services, CHIP, and Medicaid in Illinois; Commodity Supplemental Food Program (CSFP) and Medicaid in Tennessee.

[32] SSNs are widely used by government and the private sector to uniquely identify individuals. SSNs were created to track workers' earnings and eligibility for Social Security benefits; SSNs also serve as taxpayer identification numbers (GAO, 2000).

Table 6—Client identifying information maintained in FSP and WIC information systems[1]

	Food Stamp Program[2]		WIC Program	
	Number States	Percent	Number States	Percent
First name				
Required field	24	92%	26	100%
Available, not required	2	8	–	–
Not available	–	–	–	–
Last name				
Required field	26	100	26	100
Available, not required	–	–	–	–
Not available	–	–	–	–
Social Security number				
Required field	16	62	5	19
Available, not required	10	38	15	58
Not available	–	–	6	23
Date of birth				
Required field	26	100	26	100
Available, not required	–	–	–	–
Not available	–	–	–	–
Address				
Required field	19	73	20	77
Available, not required	4	15	4	15
Not available	3	12	2	8
Mailing address				
Required field	14	54	10	38
Available, not required	12	46	10	38
Not available	–	–	6	23
Phone number				
Required field	3	12	8	31
Available, not required	20	77	18	69
Not available	3	12	–	–
County				
Required field	22	85	16	62
Available, not required	2	8	4	15
Not available	2	8	6	23
Gender				
Required field	23	88	23	88
Available, not required	3	12	3	12
Not available	–	–	–	–
Race/ethnicity				
Required field	23	88	26	100
Available, not required	3	12	–	–
Not available	–	–	–	–
Primary language				
Required field	13	50	11	42
Available, not required	4	15	5	19
Not available	9	35	10	38

– Zero States in category.

1 Table indicates information maintained by FSP systems for household heads, and by WIC for women. See Appendix tables for detail on FSP other family members and WIC infants/children.

2 The FSP information system in California is not fully integrated at the State level. Table includes data from the California Interim Statewide Automated Welfare System (ISAWS), operating in 35 California counties.

Source: *Survey of Food Assistance Information Systems*, 2002.
Survey was completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois,Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

Table 6—Client identifying information maintained in FSP and WIC information systems[1] — Continued

	Food Stamp Program[2]		WIC Program	
	Number States	Percent	Number States	Percent
First certification date				
Required field	16	62	21	81
Available, not required	3	12	2	8
Not available	7	27	3	12
Start and end dates of each certification period				
Required field	18	69	17	65
Available, not required	5	19	4	15
Not available	3	12	5	19
Monthly indicators of participation				
Required field	14	54	11	42
Available, not required	3	12	3	12
Not available	9	35	12	46

1 Table indicates information maintained by FSP systems for household heads, and by WIC for women. See Appendix tables for detail on FSP other family members and WIC infants/children.
2 The FSP information system in California is not fully integrated at the State level. Table includes data from the California Interim Statewide Automated Welfare System (ISAWS), operating in 35 California counties.

Source: *Survey of Food Assistance Information Systems*, 2002.
Survey was completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois,Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

Data fields that are required to be filled in FSP and WIC participant databases are shown in table 6. Last name and date of birth are the only fields required in all 26 FSP and WIC agencies. First name is required by all WIC agencies and all but 2 FSP agencies. Address information is required by most FSP and WIC agencies (19 and 20 respectively), but phone numbers are rarely required (3 FSP and 8 WIC agencies).[33]

Data fields for gender and race/ethnicity are required by most FSP and WIC agencies. These data are needed for reporting of participant characteristics by age, sex, and race/ethnicity. However, 3 FSP and 3 WIC agencies indicated that gender is not a required field, and 3 FSP agencies indicated that race/ethnicity is not a required field. Primary language is required by only half of the surveyed FSP agencies and 11 of the 26 surveyed WIC agencies.

While SSNs are not commonly used as primary identifiers, SSNs are maintained in participant databases. All FSP agencies and 20 of 26 WIC agencies indicated that their participant database contains a field for SSN. The SSN is reported to be a required field in 16 FSP agencies and 5 WIC agencies.[34]

[33] Address information has become less important to FSP program operations since EBT has replaced mailings of paper food stamp coupons as the method of benefit disbursement.

[34] Applicants to the FSP are required by law to report an SSN for all household members. However, the data field may not be considered a required field because some individuals do not have SSNs prior to application and the data field is left blank until an SSN is acquired.

Participation Indicators

Participant databases for FSP and WIC contain one record for each participant and an indicator of current status — for example, active, inactive, terminated, waitlist. Systems differ in the ways they store information about past participation. Most (21 of 26) WIC agencies and 16 of 26 FSP agencies indicated that the participant database contains a field for "first certification date" (table 6).[35] Start and end dates of participation spells are maintained in the participant database of 18 FSP and 17 WIC agencies; and monthly participation indicators (which indicate breaks in receipt of benefits mid-spell) are maintained in the databases of 14 FSP and 11 WIC agencies.

Only one FSP agency and 2 WIC agencies have none of the three indicators of participation listed in table 6 (first date of certification, start and end dates of each certification period, and monthly indicators of participation).

Links Between Family Members

The FSP enrolls households and all household members are linked in the participant database by a case ID. The WIC program, however, enrolls individuals. Basic information about families receiving WIC benefits is available within a State only if the participant database assigns a family ID to each individual participant.

As shown in figure 4, 10 WIC agencies report that family IDs assigned by their system provide a reliable link between all family members who ever participated in WIC. In 4 States, WIC family IDs reliably link all currently participating family members; while in another 4 States, WIC family IDs reliably link only some currently participating family members. In 8 of the 26 States, WIC family IDs are not assigned or not reliable.

Figure 4—Assignment of family IDs in WIC participant databases

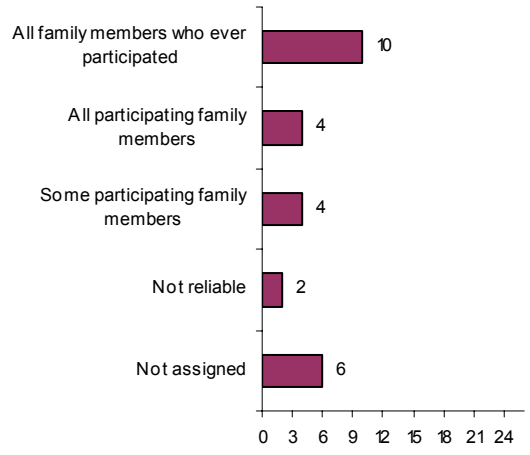
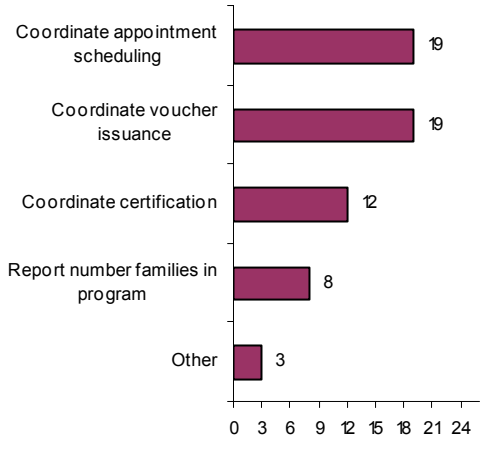


Figure 5—Reported uses of WIC family IDs



[35] The WIC Participant and Program Characteristics Study collects "date of first certification" as a supplemental data item; in 2002, 57 of 88 WIC state agencies included this item in their data submission.

Among the 19 WIC agencies reporting assignment of family IDs, all reported that WIC family IDs are used to coordinate appointment scheduling for families, and most report coordination of voucher issuance for families (figure 5). Only 8 WIC agencies use family IDs to report the number of families participating in the program.

Data Verification

FSP and WIC administrators were asked about data verification and standardization. Data verification refers to methods of verifying the accuracy of data supplied by households, using external data sources. Data standardization refers to methods of imposing standard formats and/or standard spellings, usually at data entry, to ensure that identical information appears consistently within the data system.

FSP regulations require verification of SSNs (7CFR273.2). SSNs are verified through queries to databases maintained by the Social Security Administration (SSA). SSA provides two interfaces for online queries of individual SSNs: the State Verification Exchange System (SVES) and the State Online Query System (SOLQ). SVES is an electronic overnight query process (SSA, 2001a), whereas SOLQ is a real-time query system that allows caseworkers to key a request and get an immediate response from the SSA.[36] In addition, SSNs may be verified via batch methods whereby large numbers of records are periodically matched to SSA databases.

Methods of verification are shown in table 7. For this survey, respondents were asked to characterize verification methods as "computer lookup," "SVES interface," "batch search of SSN database," or "other". Ten FSP agencies reported multiple methods of SSN verification, including both online queries ("computer lookup," "SVES interface") and batch search methods. The "other" methods reported by three States were edit checks for validity, and were done in addition to SSA matches. Three States did not provide information about verification methods, but data were obtained for two States from another source (USDA/FNS, 2002); California did not provide information about verification methods and is not reflected in the table.

WIC agencies are not required to verify SSNs and only one WIC agency reported SSN verification (table 7). WIC regulations do, however, require verification of adjunctive income eligibility. The burden of documentation of adjunct income eligibility, however, is on WIC applicants; regulations specify that local WIC agencies must require adjunctively income eligible applicants to "document their eligibility for the program that makes them income-eligible" for WIC. Nonetheless, our survey asked WIC agencies about methods to verify adjunctive income eligibility at certification, to ascertain whether WIC agencies use computer matching strategies. Most WIC agencies reported that documentation is required from applicants; no WIC agencies reported use of batch computer matching methods; 2 WIC agencies reported use of a real-time computer link to verify FSP and TANF adjunctive income eligibility; and 6 WIC agencies reported use of a real-time computer link to verify Medicaid adjunctive income eligibility. Six agencies also report that Medicaid eligibility can be verified via a phone link to the Medicaid program (2 of these use both phone and computer links).

Address information (street, city, ZIP Code) is sometimes standardized upon data entry. For example, city names may be entered via a master list of cities to ensure a consistent spelling on all records; or

[36] SOLQ was being piloted in five States in FY2001 (SSA, 2001b).

Table 7—Data verification and standardization in FSP and WIC information systems

	Food Stamp Program[1]		WIC Program	
	Number States	Percent	Number States	Percent
Data verification				
Social Security numbers are verified				
Yes	26	100%	1	4%
No	na	na	13	50
Methods of verifiying Social Security numbers[2,3]				
Computer look-up	6	26	–	–
SVES interface	13	57	na	na
Batch search of SSN database	16	70	–	–
Other	3	13	1	100
Data standardization and validation				
Address fields standardized during data entry[2]				
Street address	9	35	4	15
City	13	50	12	46
County	14	54	11	42
ZIP code	15	58	11	42
None	6	23	9	35
Phone number validation				
Validate area code and local exchange	1	4	–	–
Validate area code only	3	12	4	15
Do not validate phone numbers	22	85	22	85

– Zero States in category.
na Not applicable.
1 The FSP information system in California is not fully integrated at the State level. Table includes data from the California Interim Statewide Automated Welfare System (ISAWS), operating in 35 California counties.
2 Survey respondents checked all applicable items.
3 California did not provide information about methods of SSN verification.

Source: *Survey of Food Assistance Information Systems*, 2002.
Survey was completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois,Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

ZIP Codes may be entered via a master list to ensure their validity.[37] FSP and WIC agencies are about equally likely to do some address standardization: 15 FSP agencies and 14 WIC agencies standardize one of more fields. Table 7 shows the number of agencies standardizing each address field. Street address is least likely to be standardized.

As noted above, only a small number of FSP and WIC agencies require phone numbers in their participant databases (3 FSP agencies and 8 WIC agencies). Similarly, only a small number of agencies validate area codes (4 FSP agencies and 4 WIC agencies) and only one validates local telephone exchanges. Curiously, there is little overlap between agencies requiring phone numbers and those validating phone number information; of the 11 agencies requiring phone numbers, only one agency validates the data.

[37] Alternatively, city names may be standardized by linking ZIP Codes to a list of city names.

Integration with Other Programs

The FSP has historically been integrated with AFDC/TANF and Medicaid through the development of statewide integrated data systems (as discussed in Chapter Two). This type of system integration implies that programs share the same computer system and possibly share primary identifiers (participant ID). A master list of participants from an integrated data system provides an unduplicated list of participants in one or more programs.

For this survey, we defined system integration to mean that one program shares the same computer system with another program, or has real-time access to the records of the other program. Real-time access allows one program to obtain information from another program for verification purposes.

Among the 26 surveyed States, 23 have FSP data systems that are integrated with other public assistance programs (Alabama, Colorado, and North Carolina do not have integrated data systems). All integrated systems include TANF, and 20 include Medicaid.[38] Many FSP data systems are integrated with additional programs, as shown in table 8; the most common are Foster Care and Refugee Assistance.

Only 7 of 26 WIC agencies report system integration. The most common integration is with Medicaid (5 WIC agencies), but one or two WIC agencies also reported integration with Child Protective Services, CHIP, TANF, FSP, or CSFP. All five States that have WIC/Medicaid integrated systems, also have FSP/TANF/Medicaid integrated systems; the WIC agencies in two of these States reported that integration with Medicaid allows WIC to verify participation (i.e., adjunctive income eligibility) in all three adjunct programs.

Indicators of Participation in Other Programs

FSP and WIC data systems in some States contain indicators of participation in other public assistance programs. The reliability of these indicators is greatest when they result from integrated data systems. But even when systems are not integrated, indicators of participation in other programs may be maintained if referrals are made to those programs, or if information about participation in other programs is used during the income-eligibility determination process.[39]

All WIC data systems contain indicators of participation in FSP, TANF, and Medicaid because adjunctive income eligibility in the WIC program is determined by participation in those programs.[40] Adjunctive income eligibility must, by law, be documented by applicants to the WIC program. As shown in figure 6, few WIC agencies have data fields in their participant database for FSP and TANF case numbers, indicating that adjunctive income eligibility is not verified by computer matching. Half of the 26 States surveyed indicated that WIC participant databases have data fields for Medicaid case numbers, but the data are required in only 2 States (data not shown).

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38 USDA/FNS (2002) found that, among all States, FSP is integrated with TANF in 35 States, Medicaid in 29 States, the Child Support System in 19 States, and General Assistance (GA) in 9 States.

39 Income from other programs may be countable income for purposes of determining income eligibility. In addition, income-eligibility for WIC is deemed by participation in TANF, FSP and Medicaid.

40 Documentation of adjunct eligibility was required by the William F. Goodling Child Nutrition Reauthorization Act of 1998 (PL 105-336).

Table 8—Integration of FSP and WIC with other public assistance programs

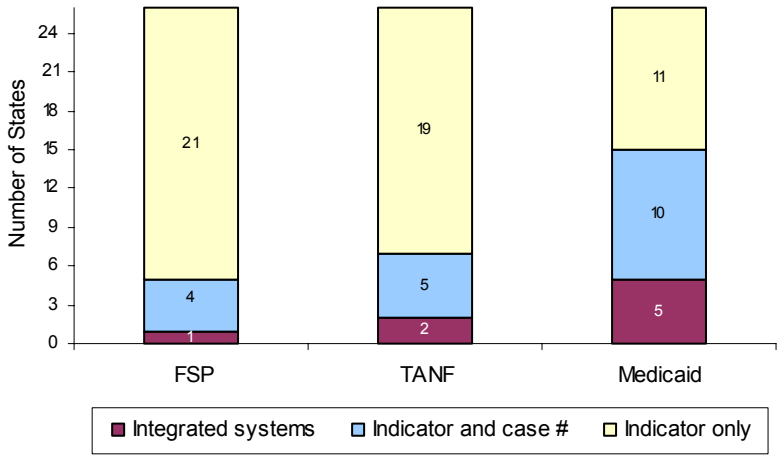
	Food Stamp Program[1]		WIC Program	
	Number States	Percent	Number States	Percent
Client database is integrated with other public assistance programs				
Yes	23	88%	7	27%
No	3	12	19	73
System is integrated with				
Child Abuse System	1	4	–	–
Child Support Enforcement	3	13	–	–
Child Protective Services	2	9	1	14
Child Welfare	3	13	–	–
Children's Health Insurance (CHIP)	7	30	2	29
Employment Security Commission wage records	–	–	–	–
Foster Care	10	43	–	–
Head Start	–	–	–	–
JOBS	7	30	–	–
Low Income Home Energy Assistance (LIHEAP)	4	17	–	–
Medicaid eligibility	20	87	5	71
Medicare	4	17	–	–
Refugee assistance program	15	65	–	–
TANF	23	100	2	29
Other	8	35	1	14
Nutrition assistance programs				
Commodity Supplemental Food Program (CSFP)	–	–	2	29
Food Assistance Program on Indian Reservations (FDPIR)	na	na	–	–
Food Stamp Program	na	na	1	14
WIC	–	–	na	na

– Zero States in category.
na Not applicable.
1 The FSP information system in California is not fully integrated at the State level. Table includes data from the California Interim Statewide Automated Welfare System (ISAWS), operating in 35 California counties.

Source: *Survey of Food Assistance Information Systems*, 2002.
Survey was completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois,Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

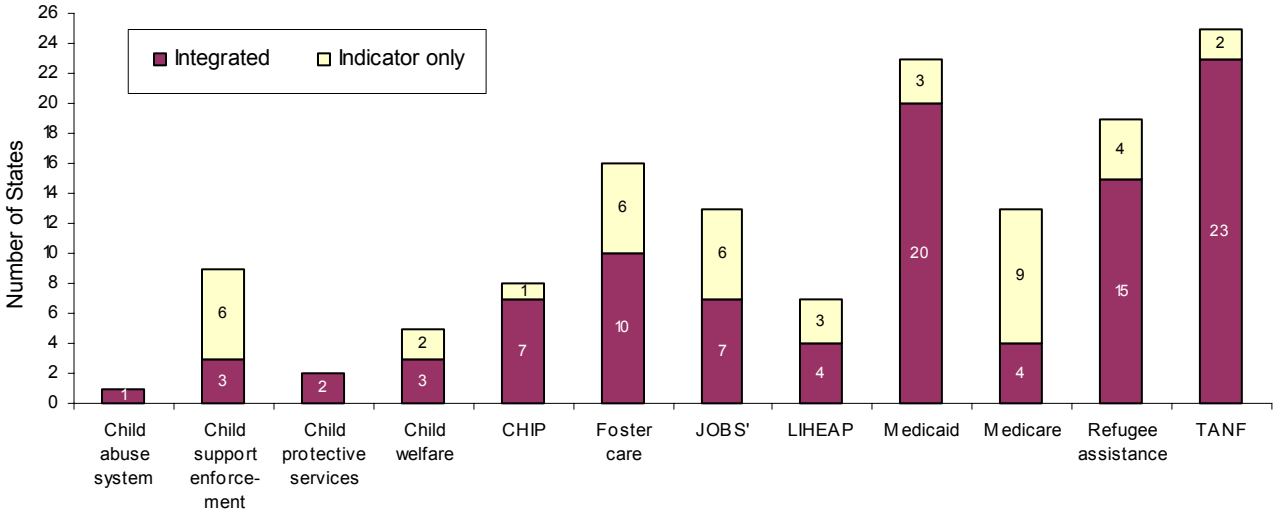
Many FSP data systems contain indicators of participation in other programs even when the data systems are not integrated. Figure 7 shows the number of FSP data systems that are integrated with other programs (same as table 8) and the additional number of data systems that include indicators of participation, in the absence of system integration.

Figure 6—WIC system integration and indicators of participation in adjunct programs



Notes: "Integrated systems" means that the program shares the same computer system with WIC or that WIC has real-time access to the records of the other program. "Indicator and case #" means that the WIC participant database contains data fields for an indicator of participation in the other program and for the case number in the other program.

Figure 7—FSP integration with other programs and indicators of participation in the absence of system integration



Notes: CHIP = Children's Health Insurance; LIHEAP = Low Income Home Energy Assistance; Medicaid = Medicaid eligibility records.

None of the 26 surveyed FSP agencies are integrated with CSFP (Commodity Supplemental Food Program), Head Start, or WIC. One State FSP database has indicators of participation in CSFP and Head Start; two States have indicators of participation in WIC.

Chapter Four

Record Linkage Activities and Research Uses of FSP and WIC Data

The FSP's use of computer matching methods is widely recognized as an effective and efficient means of detecting dual participation and verifying income eligibility for program applicants. FSP computer matching activities are required by law and documented elsewhere (USDA/FNS, 2002). This chapter presents information about other types of record linkage activities used by FSP and WIC agencies, and discusses research uses of FSP and WIC data.

The *Survey of Food Assistance Information Systems* asked WIC administrators about record linkage activities used to detect dual participation or verify adjunctive income eligibility; FSP administrators were asked about record linkage methods used to establish direct certification for the NSLP. In addition, both FSP and WIC were asked about research uses of administrative data from their participant databases, and about their program's participation in State master indexes of social service clients.

Record Linkage Activities

Possible uses of computer matching in the WIC program include verification of adjunctive income-eligibility, detection of dual participation with neighboring States, and detection of dual participation with the Commodity Supplemental Food Program (CSFP). As reported in Chapter Three, none of the WIC agencies included in the survey reported use of batch computer matching methods to verify adjunctive income eligibility. Two States (California and Florida) report use of a real-time computer link to verify FSP and TANF adjunctive income eligibility, and six States (Alabama, California, Florida, Kentucky, North Carolina, Tennessee) report use of a real-time computer link to verify Medicaid adjunctive income eligibility.

Record linkage activities to detect dual participation were reported by 14 of the 26 WIC agencies surveyed. Efforts to detect dual participation are more commonly done within State rather than across States (figure 8). Twelve WIC agencies report computer matching to detect dual participation between WIC and CSFP within State. Only four WIC agencies (Arizona, Colorado, Maine, and Oklahoma) report computer matching with other State WIC agencies to detect dual participation in WIC.[41] The four States that match records with other WIC programs were not asked to identify the neighboring States, but all four States have Indian Tribal Organizations (ITOs) operating WIC programs within their borders and Maine and Oklahoma volunteered that they match records with the ITO agencies.[42]

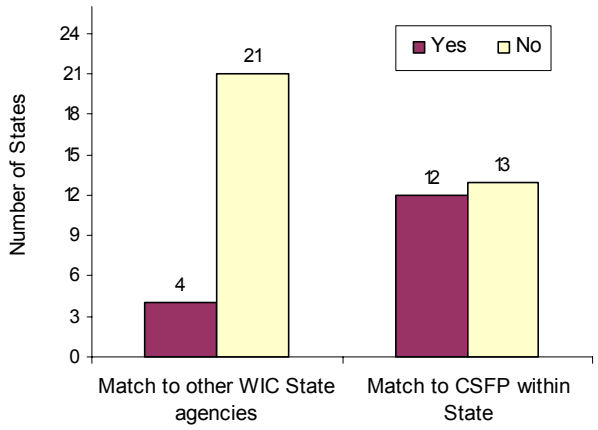
FSP computer matching methods to detect dual participation and verify income eligibility are not examined in this report because they are described thoroughly elsewhere (see USDA/FNS, 2002). We

[41] Two of these four programs also match records to detect dual participation in WIC and CSFP.

[42] Arizona reported matching records with 2 other WIC programs; Colorado matches records with one other program; Maine matches records with New Hampshire and two ITOs; Oklahoma matches records with eight ITO WIC programs operating in Oklahoma.

did, however, ask FSP administrators about use of record linkage methods to establish direct certification for the NSLP.

Figure 8—WIC program record linkage to detect dual participation



Direct certification for free school meals was authorized by the Child Nutrition and WIC Reauthorization Act of 1989 (PL 101-147). Direct certification enables school food authorities (SFAs) to certify children eligible for free school meals "without further application, by directly communicating with the appropriate State or local agency to obtain documentation that the children are members of either a household receiving food stamps or an assistance unit receiving AFDC."[43] SFAs work with FSP agencies to determine methods of establishing direct certification. Five methods may be used and FSP agencies may use multiple methods to respond to the needs of SFAs within their State. The five allowed methods are:

- FSP sends letters to participating households, which are submitted to schools
- FSP sends data files to State Department of Education for computer matching
- FSP receives data from school districts and matches student records to the FSP database
- FSP receives data from the State DOE and matches student records to FSP database
- FSP sends data files to school districts for computer matching

Among the 26 States surveyed, the two most common means of establishing direct certification are the letter method (10 States), which does not involve record linkage, and the delivery of FSP data to State Departments of Education for use in computer matching (13 States). Only 4 FSP agencies reported that they did computer matching to establish direct certification (3 agencies receive data from the State DOE and one FSP agency receives data from school districts).[44] Two FSP agencies

[43] Federal Register, Vol. 64, No. 248, page 72466.

[44] The survey of CNP directors, conducted for this study, revealed consistent results, except that much of the data that FSP agencies deliver to State Departments of Education appears to be passed on to school districts. CNP directors reported that the letter method is used in 9 States, FSP agencies do computer matching in 4 States, State DOEs do the matching in 9 States, and school districts do the matching in 12 States.

reported that they send data files to school districts. And two FSP agencies indicated that they participate in none of the five methods for establishing direct certification for the NSLP.[45]

Computer matching to establish direct certification relies on varying types and amounts of information (name, address, date of birth, SSN) across States, though it almost always utilizes unique Social Security Numbers to make the match between FSP participant records and school records. Among the 4 FSP agencies that perform computer matching for direct certification, only one did not report use of the SSN in the matching process. And among the seven State Departments of Education that perform computer matching for direct certification (as reported by CNP directors), only one did not report use of the SSN in the matching process.

Research Uses of Administrative Data

For this project, record linkage has been discussed within the context of "research uses of administrative data." To gauge the prevalence of research using FSP and WIC administrative data, we asked survey respondents about specific research uses of participant databases by their own agency and external organizations. Survey respondents were also asked about research partnerships maintained with organizations outside of FSP and WIC agencies.

Table 9 shows that FSP participant data are more likely to be used for research than WIC participant data. A larger number of FSP agencies reported use of their data for the research questions we posed—17 of 26 State FSP agencies versus 13 of 26 WIC agencies. This difference reflects a greater amount of research conducted internally by FSP agencies, compared to WIC agencies (12 FSP agencies versus 7 WIC agencies). But FSP and WIC agencies were equally likely to report use of their participant data for research conducted by outside organizations; half of the surveyed FSP and WIC agencies reported that their participant data was used for research by outside organizations such as other State agencies, universities, or research organizations.

Research by outside organizations is often facilitated through partnership agreements, especially when research is ongoing over a period of time. FSP and WIC agencies were asked: "Does your agency maintain relationships, such as research partnerships, with universities or other organizations who conduct research using the program's administrative data?" Ten FSP agencies and 13 WIC agencies reported research relationships with outside organizations (table 9). Universities are the most common partner in these relationships. The partner organizations identified by FSP and WIC agencies are listed in table 10.

Master Client Indexes

Several State FSP and WIC agencies participate in State-level master client indexes of social service clients. Master client indexes are created by record linkage and provide States with an unduplicated list of clients across several social service programs. This study found that 11 of 26 States had master client indexes in 2002; in 1997, only 5 of 26 States had master client indexes that linked data from multiple public assistance programs (UC Data, 1998). Master client indexes are typically stand-alone databases that receive data from multiple public assistance programs and link client records to produce a master list of clients with indicators of participation in each program.

[45] In the two States where FSP directors reported no methods of direct certification, CN directors reported that direct certification is established by computer matching performed by school districts.

As part of this study, both FSP and WIC administrators were asked if they had knowledge of a master file or index of clients from multiple public assistance programs maintained by any agency in their State. Taken together, the responses from FSP and WIC administrators identified 14 master client indexes in 11 States. FSP administrators were more likely to know of the existence of these databases, compared to WIC administrators. This reflects the fact that information from the FSP is included in

Table 9—Research uses of FSP and WIC administrative data

	Food Stamp Program[1]		WIC Program	
	Number States	Percent	Number States	Percent
Reported uses of administrative data				
To examine:[2]				
Duration of participation	14	54%	10	38%
Rates of recertification	12	46	5	19
Rates of enrollment by program clients in other public assistance programs	12	46	9	35
Employment patterns of clients after they leave the program	4	15	na	na
Rates of enrollment by multiple members of the same family	na	na	1	4
Any of the above	17	65	13	50
None of the above	9	35	13	50
Types of organizations using administrative data for research[2]				
Responding agency	12	71	7	50
Any outside organization	12	71	12	92
Types of outside organizations[2]				
Other state agency	4	24	6	43
University	8	47	6	43
Research organization	8	47	4	29
Other	1	6	3	21
Does agency maintain research partnerships?				
Yes	10	38	13	50
No	16	62	13	50
Type of organization in research partnership				
Other state agency	2	20	2	15
University	10	100	10	77
Research organization	6	60	3	23
Other	–	–	2	15

– Zero States in category.
na Not applicable.
1 The FSP information system in California is not fully integrated at the State level. Table includes data from the California Interim Statewide Automated Welfare System (ISAWS), operating in 35 California counties.
2 Survey respondents checked all applicable items.

Source: *Survey of Food Assistance Information Systems*, 2002.
Survey was completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois,Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

master indexes in all 11 states—some "indexes" are the FSP/TANF/Medicaid system with integration of additional programs; the WIC program is included in master client indexes in only 3 states.

The list of master client indexes is shown in table 11. Systems that were identified as "master indexes" but contain only FSP/TANF/Medicaid are not included in the list. Master client indexes are often maintained by the same State agency that runs the FSP data system. These 14 master client indexes contain information from an average of more than 7 public assistance programs. The most commonly represented programs are: FSP (11 States), TANF (11 States), Medicaid (10 States), Foster care (9 States), and Refugee assistance (8 States).

Table 10—Research partnerships with FSP and WIC agencies

	Type of organization	Name of organization
Food Stamp Progam		
California (LEADER)	State agency Research org.	LA County Chief Administrator Office RAND
Colorado	University Research org.	Colorado State University, University of Colorado Berkeley Planning Associate (BPA)
Illinois	University	University of Chicago - Chapin Hall Center for Children
Iowa	University Research org.	Iowa State University Mathematica Policy Research Inc.
Kentucky	State agency University Research org.	Department of Education University of Louisville Task Force on Hunger, Family Resources and Youth Services Centers and other Community Action agencies
Maine	Research org.	Mathematica Policy Research Inc., Robert Wood Johnson
Michigan	University Research org.	Univ. of Michigan Poverty Research and Training Center Abt Associates Inc., MDRC
North Carolina	University	Jordan Institute for Families
Oklahoma	University	University of Oklahoma
Tennessee	University	Tennessee State University, University of Tennessee
Texas	University Research org.	University of Texas, Texas A&M University Legislative Council
WIC Program		
Arizona	State agency	ADHS Tobacco Education & Prevention Program
California	University	University of California at Berkeley
Florida	State agency University	Florida Agency for Health Care Administration University of Florida Maternal Child Health and Evaluation and Data Center
Georgia	State agency	Epidemiology
Illinois	University Research org.	University of Illinois, University of Chicago -- Chapin Hall Health Systems Research
Iowa	University	Iowa State University
Kentucky	University	Children's Hospital Medical Center
Massachusetts	University Research org.	Cornell University Prospect Associates, Market Street Research
Michigan	University	Emory University, Michigan State University
New Jersey	Federal agency	Centers for Disease Control and Prevention (CDC)
New York	University	SUNY at Albany School of Public Health
North Carolina	State agency University	North Carolina Center for Health Statistics UNC -- Chapel Hill School of Public Health
Virginia	University	University of VA, VA Commonwealth University

Table 11—State master indexes of public assistance program clients

	Name of index	Agency	Programs represented in index
Arizona	High level Client Index	Department of Economic Security	Child Support Enforcement; Child Protective Services; Child Welfare; Foster care; JOBS; Medicaid eligibility; Medicare; TANF; Food Stamps
California	Medi-Cal Eligibility Data System (MEDS)	California Dept. of Health Services	Foster care; Medicaid eligibility; Refugee assistance; TANF; Food Stamps
	Statewide Client Index (SCI)	California Dept. of Health Services	CHIP; Medicaid eligibility; Other
	Welfare Data Tracking Implementation Project (WDTIP or TRAC)	Health and Human Services Data Center	Child Protective Services; Child Welfare; Foster care; Refugee assistance; TANF; WIC; Food Stamps; Other
Colorado	Colorado Benefits Management System (CBMS)	Colorado Dept. of Human Services	Child Support Enforcement; Child Welfare; Foster care; JOBS; LIHEAP; Medicaid eligibility; Medicare; Refugee assistance; TANF; Food Stamps
Florida	Florida On-Line Recipient Data Access (FLORIDA) System	Department of Children and Families	Child Support Enforcement; Foster care; LIHEAP; Medicaid eligibility; Refugee assistance; TANF; Food Stamps
Illinois	Client Database (CDB)	Illinois Department of Human Services	Foster care; Medicaid eligibility; TANF; Food Stamps
	Cornerstone	Illinois Department of Human Services	Child Protective Services; Commodity Supplemental Food Program; Medicaid eligibility; WIC; Other
Massachusetts	MassCARES	Executive Office of Health and Human Services	Child Abuse System; CHIP; Foster care; Head Start; Medicaid eligibility; Medicare; Refugee assistance; TANF; WIC; Food Stamps; Other
Michigan	Client Information System (CIS)	Family Independence Agency	Child Protective Services; Child Welfare; Foster care; Medicaid eligibility; Refugee assistance; TANF; Food Stamps
Minnesota	Person Master Index (PMI)	Department of Human Services	CHIP; Medicaid eligibility; Refugee assistance; TANF; Food Stamps; Other
Nebraska	Nebraska Family Online Client User System (N-Focus)	Nebraska Health and Human Services System	Child Abuse System; Child Protective Services; Child Welfare; CHIP; Employment Security Commission wage records; Foster care; JOBS; LIHEAP; Medicaid eligibility;Refugee assistance; TANF; Food Stamps
New Jersey	Alpha-X	Office of Information Technology	Child Support Enforcement; Child Protective Services; TANF; Food Stamps
New York	Welfare Management System (WMS)	Office of Temporary and Disability Assistance	Child Welfare; LIHEAP; Medicaid eligibility; Medicare; Refugee assistance; TANF; Food Stamps

Source: *Survey of Food Assistance Information Systems*, 2002. Survey was completed by program administrators in 26 States.

Chapter Five
Child Nutrition Programs

State CNP directors were surveyed for this study and asked about the characteristics of data systems used to maintain child nutrition program data at the State level. CNP directors often reside within State Departments of Education and they oversee the CACFP, SFSP, NSLP, and SBP.

A particular concern, for a record linkage project, is whether or not participant-level data are maintained by the State. Prior experience suggested that participant-level data for the child nutrition programs are generally not maintained at the State level. These data are maintained at benefit delivery sites (schools, childcare centers, summer food service sites), with state-level agencies receiving only aggregate data for participant counts and meal counts. This prior experience was confirmed by the findings from this survey.

CACFP and SFSP Program Data

CNP directors were asked about types of data maintained at the State level, hardware and software used to maintain program data, and methods of data delivery from local agencies to the State agency.

Nearly all of the 26 State CNP directors included in the survey maintain an electronic database of CACFP and SFSP sponsors; 22 CNP directors maintain electronic databases of CACFP and SFSP sites; only one CNP director reported that participant data are maintained by the State (figure 9). Table 12 shows that most CNP directors maintain CACFP and SFSP data with Microsoft-Access or Microsoft-Excel on PC servers; only a few States store CACFP and SFSP program data on mainframe computers.

Fewer than half of the CNP directors surveyed indicated that they have a system allowing CACFP and SFSP sponsors to electronically submit applications and/or claims data (figure 10). But more than two-thirds of CNP directors indicated that they are planning system changes or implementation of new technology for the CACFP or SFSP program data within the next two years (figure 11).

Figure 9—Electronic databases maintained by State CNP director

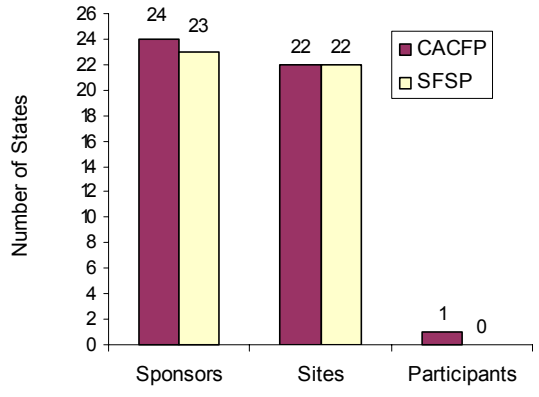
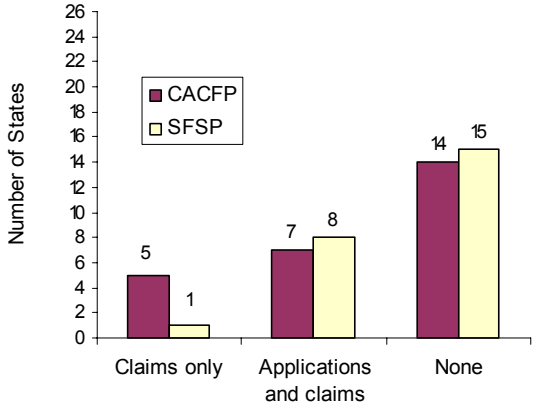


Figure 10—Electronic submission of applications and claims data to State agencies



Note: CACFP information is from 26 States. SFSP information is from 24 States: Colorado did not provide information about the SFSP and the CN director does not administer the SFSP in Michigan.

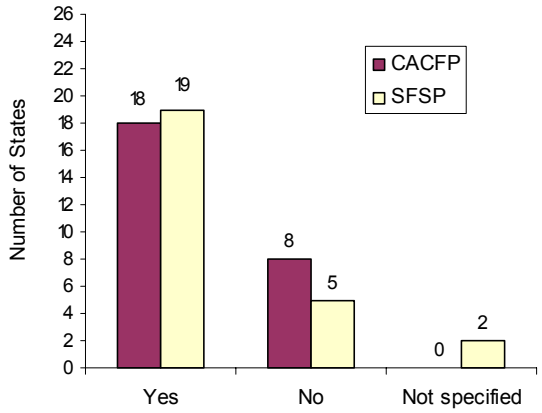
Table 12—Hardware and software systems used by State agencies to maintain CACFP and SFSP program data

	Child and Adult Care Food Program		Summer Food Service Program[1]	
	Number States	Percent	Number States	Percent
Type of computer used for databases				
Single PC	1	4.0%	4	17.0%
PC server	20	83.0	18	78.0
Mainframe	5	21.0	4	17.0
Other	1	4.0	1	4.0
Type of software used for databases				
MS-Word	1	4.0	5	22.0
WordPerfect	4	17.0	3	13.0
MS-Excel	7	29.0	7	30.0
MS-Access	12	50.0	13	57.0
FoxPro	1	4.0	1	4.0
Paradox	1	4.0	–	–
Rbase	1	4.0	–	–
Oracle	2	8.0	2	9.0
SQL	8	33.0	6	26.0
Custom mainframe system	4	17.0	3	13.0
Other	5	21.0	4	17.0

– Zero States in category.
1 Colorado did not provide information about the SFSP and the CN director does not administer the SFSP in Michigan.

Source: *Survey of Food Assistance Information Systems*, 2002.

Figure 11—Planned system changes or implementation of new technology in next 2 years



Note: CACFP information is from 26 States; SFSP information is from 24 States. Colorado did not provide information about the SFSP and the CN director does not administer the SFSP in Michigan.

NSLP and SBP Program Data

The 26 States included in the *Survey of Food Assistance Information Systems* contain 72 percent of public school districts in the United States, and 80 percent of public school students. This sample of States has the same percentage of students eligible for free- and reduced-price lunch as the overall United States (39.2 versus 38.7 percent).[46]

Consistent with the overall goals of the survey, CNP directors were asked about state-level databases with information on NSLP/SBP participants. CNP directors were also asked about methods (including record linkage) of establishing direct certification of NSLP eligibility, electronic submission of claims data to the State, and the prevalence of point-of-sale (POS) systems in districts and schools in their State.

CNP directors in all 26 States reported that direct certification is used in their State. Within each State, survey responses from CN directors generally confirmed responses provided by FSP directors; that data was presented in Chapter Three and is not repeated here.

All CNP directors reported that at least some school districts in their State use POS systems. Point-of-sale systems are cashier/check-out systems used in school cafeterias; these systems capture information about actual participation in NSLP/SBP by individual students. Nearly half (12 of 26) of CNP directors, however, were unable to provide data on the prevalence of POS systems in their State (i.e., the numbers of districts and schools using POS). The remaining CNP directors provided estimates of POS prevalence in their State, but only one CNP director maintained a list of SFAs using POS systems. (The estimates of POS prevalence are shown in appendix table A-10).

Electronic submission of meal claims is more prevalent for the school nutrition programs than for CACFP and SFSP. More than half of CN directors (17 of 26) reported that they have a system in place to accept electronic submission of meal claims; 15 States use web-based forms and two States use other methods of file transfer (responses are shown in appendix table A-10).

The remainder of this section provides information about the types of student data maintained at the state-level.

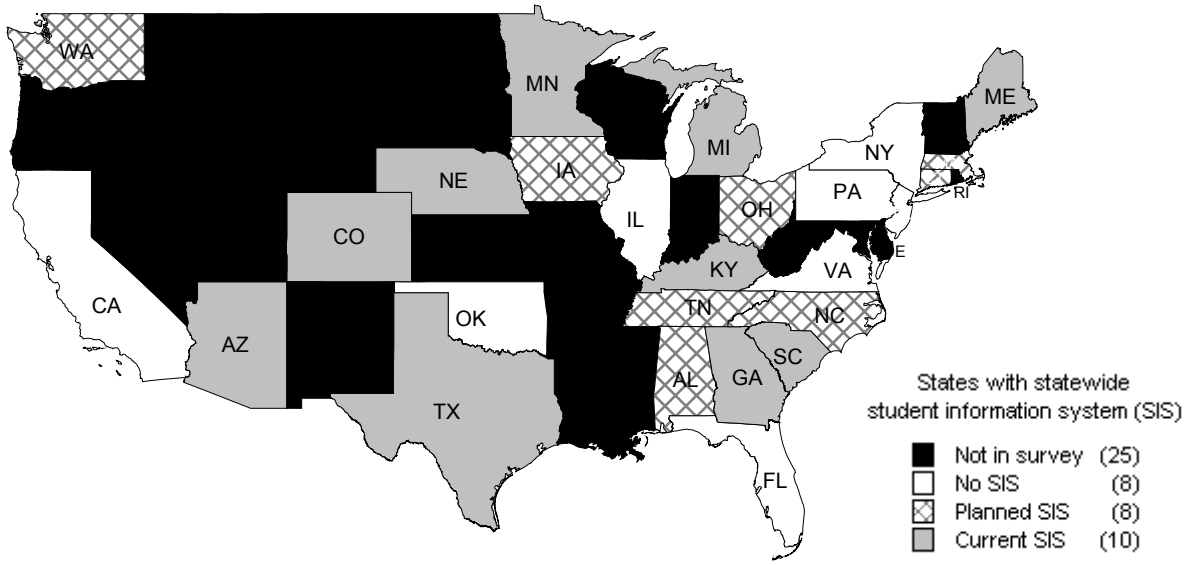
Statewide Student Information Systems

In some States, information about NSLP participation is maintained at the State level within Department of Education statewide student information systems (SIS). Only 10 of the 26 CNP directors surveyed reported a statewide SIS in their State. Of the remainder, 8 States expect to implement a statewide SIS within the next five years. Figure 12 shows the States with current and planned student information systems. Five States without a current statewide SIS nonetheless report that they have access to records identifying students certified for free or reduced-price meals.

Table 13 shows some of the characteristics of current statewide SIS. Current systems are largely consistent in terms of software and database structure: 8 of the 10 current systems have a relational

[46] These percents were calculated from NCES (2002); the number of students eligible for free- and reduced price lunch was not reported by five States overall, and one State in the 26-State sample. Appendix table A-10 shows the numbers of districts, schools, and students for each surveyed State, along with survey responses.

Figure 12 — States with current and planned statewide student information systems



database structure, and most use Oracle or other DBMS software. All but one SIS contains student demographic data (as interpreted by the respondent), four of the 10 current systems contain student transcript data, six contain student transfer data, and two contain immunization data. Three of the 10 SIS databases are maintained through a statewide computer network, as evident from the file transfer methods indicated in table 13 (network and server upload); the remaining seven statewide systems receive data from school districts via file submission, mainly via the internet (web uploads). The frequency of file submissions to the State varies from 'every 10 days' to 'once per year'.

Statewide SIS contain information identifying all students in the State school system. Table 14 shows that all 10 current SIS contain data fields for student name, grade, date of birth, gender, and race/ethnicity. Some, but not all systems maintain data for: address (6), phone (4), SSN (6), parent/guardian name (5). Only half of the 10 statewide SIS identify NSLP eligibility of individual students, and only one SIS contains information for NSLP certification date. Six of the ten States with a statewide SIS indicated that upgrades to their system are planned for the next two years.

Program Data Maintained by School Food Authorities

As discussed above, only five of 26 States maintain State-level data systems with information on students eligible for the NSLP. In all other States, those data are maintained only by School Food Authorities. It was not within the scope of this study to survey a representative sample of SFAs to determine the characteristics of their data systems. Instead, three SFAs were surveyed in each State to identify candidate sites for data collection for phase II of the study.[47] The three SFAs surveyed in

[47] Phase II of the study will not collect data from SFAs. At its Spring 2001 meeting, the Education Information Advisory Council (EIAC) recommended the overall concept paper for this project. At its Spring 2002 meeting, however, the committee did not recommend the child nutrition component of phase II of this project, which will investigate the feasibility of linking administrative records for estimation of multiple program participation rates in four volunteer sites.

Table 13—Characteristics of State Department of Education statewide student information systems (SIS)

	Type of software	File structure	Types of data				Data transfer method	File submission method	Frequency of data transfer
			Demographics	Transcripts	Transfer records	Immunization records			
Arizona	Other DBMS	Relational	–	–	✔	–	File submission	Web upload	Every 10 days
Colorado	Legacy, Oracle	Relational	✔	–	–	–	File submission	Web upload	Once per year
Georgia	Other	Flat file	✔	✔	✔	–	File submission	Web/email/physical media	Once per year
Kentucky	Oracle	Relational	✔	✔	✔	✔	Server upload	–	Every 10 days
Massachusetts	Oracle	Relational	✔	–	✔	–	File submission	Web upload	Per quarter/semester
Michigan	Legacy system	Relational	✔	–	✔	–	Network & files	Web upload	Twice per year
Minnesota	Other	Flat file	✔	–	–	–	File submission	Web upload	Monthly
North Carolina	Oracle	Relational	✔	✔	✔	✔	Network	–	–
South Carolina	Other DBMS	Relational	✔	✔	–	–	File submission	Modem	Once per year
Texas	DB2	Relational	✔	–	–	–	File submission	Web upload	Per quarter/semester

Table 14—Student identifiers in statewide student information systems (SIS)[1]

	Student identifiers											
	Name	Grade	Address	Phone number	Gender	Date of birth	SSN	Race/ ethnicity	Primary language	NSLP cert. date	NSLP cert. type (free or reduced)	Parent/ guardian name
Arizona	✔	✔	–	–	✔	✔	–	✔	✔	–	–	✔
Colorado	✔	✔	–	–	✔	✔	–	✔	✔	–	✔	–
Georgia	✔	✔	✔	✔	✔	✔	✔	✔	✔	–	–	✔
Kentucky	✔	✔	✔	✔	✔	✔	✔	✔	✔	–	✔	✔
Massachusetts	✔	✔	–	–	✔	✔	–	✔	✔	–	–	–
Michigan	✔	✔	✔	✔	✔	✔	–	✔	✔	–	✔	✔
Minnesota	✔	✔	–	–	✔	✔	✔	✔	✔	–	–	–
North Carolina	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
South Carolina	✔	✔	✔	–	✔	✔	✔	✔	–	–	–	–
Texas	✔	✔	✔	–	✔	✔	✔	✔	✔	–	✔	–

1 Tables show only States reporting a statewide student information system (SIS).
✔ Indicates SIS contains data field; — indicates SIS does not contain data field.

Source: *Survey of Food Assistance Information Systems*, 2002. Completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

each State were nominated by the State CNP director as agencies that are likely to comprehensively track NSLP data on application, certification, and participation. Surveys were mailed to 78 SFAs. Responses were received from 68 SFAs (87 percent response rate), although some surveys were incomplete.

SFAs were asked about the school meals programs offered (lunch only or breakfast and lunch), the type of software used to manage the school meals programs, the networking of schools in the district, the presence of POS, the capability of POS to track participation in NSLP/SBP, and the student identifying information contained in the data system. The main purpose of the SFA survey was to determine if SFA data systems identify school meal participants, if student data are centralized at the SFA level, and if available data are sufficient for linking records of NSLP participants to FSP to determine rates of multiple program participation.[48] The SFAs included in the survey appear in appendix table A-11.

The data from the survey of SFAs are illustrative of the characteristics of data systems maintained by school food authorities, but these data are not representative of any larger population because the sample was purposively selected. Table 15 shows the characteristics of the responding SFAs. Nearly all (65 of 68) surveyed SFAs are unified school districts. They vary in size from less than 5,000 students to over half a million students; 64 of the 68 SFAs serve USDA breakfast and lunch.

Over half of the surveyed agencies reported that all schools in the SFA are networked, providing centralized access to data. Nearly all surveyed agencies reported POS systems, as expected, because the SFAs were purposively selected as those with POS. Table 15 shows that 66 of the 68 surveyed SFAs have POS systems and 65 of these systems identify the students who receive meals each day (i.e., program participation is measured for individual students). SFAs with POS systems do not necessarily use them in all schools: only 30 percent of SFAs reported POS systems in all schools, while one-quarter of the surveyed SFAs reported POS in less than half their schools.

Table 16 shows that the student identifying information maintained by SFAs varies considerably across agency. All SFAs responding to this question reported that student names are in their database, but no other data item was universally reported. Most agencies (59 or 66) have address information for students; more than half of SFAs have SSN and/or FSP case number in their electronic database. While the amount and type of student data maintained by SFAs varies, it is evident that many SFAs maintain sufficient student information, centralized at the SFA-level, to support a record linkage study.

[48] Students are identified as eligible for free- or reduced-price meals during the application process. Participation in the program, however, involves actual receipt of meals. Identification of participants is made possible by electronic POS systems.

Table 15—Characteristics of School Food Authorities (SFAs) responding to the survey of information systems

	School Food Authorities[1]	
	Number SFAs	Percent
Type of school district[2]		
Unified	65	96.0%
Elementary	3	4.0
Number of schools[2]		
Less than 11	16	24.0
11-40	17	25.0
41-85	18	26.0
86-195	16	24.0
695	1	1.0
Number of students[2]		
Less than 5,000	12	18.0
5,000-25,000	21	31.0
25,001-50,000	18	26.0
50,001-157,000	16	24.0
Approx. 720,000	1	1.0
USDA meals served		
Breakfast and lunch	64	97.0
Lunch only	2	3.0
Not reported	2	3.0
Direct certification used for NSLP eligibility determination		
Yes	59	87.0
No	9	13.0
Portion of SFA schools connected to same computer system		
All	39	57.0
Some	10	15.0
None	17	25.0
Not reported	2	3.0
Any schools use POS?		
Yes	66	97.0
No	2	3.0
Percent of SFA schools using POS		
None	–	–
Less than 50%	17	25.0
50-75%	6	9.0
76-99%	24	35.0
100%	21	31.0
Does POS identify students receiving meals each day?		
Yes, all	65	96.0
Yes, some	1	1.0
No	–	–
Not reported	2	3.0

– Zero SFAs in category.

1 Three SFAs were surveyed in each of 26 States. SFAs responding to the survey are not representative of all school food authorities in the 26 states.

2 Data for type of district, number schools, and number students are from the Common Core Data files for SY2000-01.

Source: *Survey of Food Assistance Information Systems*, 2002.
Survey was completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois,Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

Table 16—Student identifying information maintained in SFA information systems

	School Food Authorities[1]	
	Number SFAs	Percent
Student name		
Yes	66	100.0%
No	–	–
Student grade level		
Yes	65	98.0
No	1	1.0
Student address		
Yes	59	89.0
No	7	10.0
Student phone number		
Yes	49	74.0
No	17	25.0
Student date of birth		
Yes	44	67.0
No	22	32.0
Student Social Security Number		
Yes	34	52.0
No	32	47.0
Student food stamp case number		
Yes	36	55.0
No	30	44.0
Student TANF case number		
Yes	31	47.0
No	35	51.0
Student gender		
Yes	30	45.0
No	36	53.0
Parent or guardian name		
Yes	48	73.0
No	18	26.0
Parent or guardian SSN		
Yes	34	52.0
No	32	47.0
Certification date		
Yes	47	71.0
No	19	28.0
Type of certification: free vs. reduced-price		
Yes	60	91.0
No	6	9.0

– Zero SFAs in category.

1 Two responding SFAs did not respond to the items in this table. Three SFAs were surveyed in each of 26 States. SFAs responding to the survey are not representative of all school food authorities in the 26 states.

Source: *Survey of Food Assistance Information Systems*, 2002.
Survey was completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois,Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

Chapter Six
Conclusions

This report is part of a study investigating the feasibility of linking administrative data from USDA's FANPs in order to estimate multiple program participation and the dynamics of participation across programs. The report reviews methods of record linkage; describes current record linkage systems that bring together administrative data from separate social service or health service programs; and summarizes characteristics of FANP participant databases that are relevant to a record linkage project.

Record linkage is a means of joining records from separate data systems when system integration does not exist. Record linkage methods range from the simple match-merge using a single verified identifier such as SSN, to complex probabilistic record linkage using all available identifiers and employing a collection of techniques from computer science, statistics, and operations research. When verified identifiers, such as SSN, are not present, probabilistic record linkage is the most reliable record linkage method, in terms of maximizing the percentage of true matches and minimizing the percentage of false matches.

Examples of probabilistic record linkage systems include the Department of Transportation's Crash Outcome Data Evaluation System (CODES), the Integrated Data Base developed by the Substance Abuse and Mental Health Services Administration (SAMHSA) of the U.S. Department of Health and Human Services, and Chapin Hall's Illinois Integrated Database on Children's Services. The latter two systems were developed with the primary goal of understanding the extent of shared clientele between social service agencies, and the types of services received by clients participating in multiple programs.

The *Survey of Food Assistance Information Systems*, fielded under this study, collected data from State directors of FSP, WIC, and child nutrition programs in 26 States. State directors were asked about characteristics of their participant database, integration with other public assistance programs, and record linkage activities.[49]

FSP and WIC maintain statewide systems that are generally updated in real-time. There are significant differences, however, between FSP and WIC systems in terms of hardware, software, file structure, data retention rules, and number and types of individual identifiers. Many differences between FSP and WIC are due to characteristics of the programs. For example, most FSP systems use hierarchical file structures while WIC uses relational databases because FSP enrolls households while WIC enrolls individuals. Other differences between programs are due to different regulatory requirements: all FSP agencies collect SSNs for participants as required by law; few WIC programs collect this information as a mandatory data item as there is no regulatory requirement to do so.

In contrast to FSP and WIC, child nutrition programs do not have statewide information systems. Most of the 26 State CNP directors reported that they maintain information about CACFP and SFSP sponsors and sites, but not participants. Ten of the 26 State CNP directors reported statewide student

[49] One goal of the survey was to identify States where FSP, WIC, and child nutrition participant databases had sufficient common identifiers to support a test of record linkage between programs in phase II of this study.

information systems maintained by the Department of Education in their State, but only half of these systems contain information about student eligibility for the NSLP and SBP. While statewide student information systems are not currently prevalent, eight States reported to have statewide systems in the planning process so that 70 percent of the 26 surveyed States will have statewide systems at some point in the future.

There is currently no integration between FSP, WIC, and the child nutrition programs. And among these FANPs, only FSP is significantly integrated with other public assistance programs, and only FSP routinely conducts record linkage or computer matching activities. The FSP has a history of integration with AFDC/TANF and Medicaid, and in some States, integration is reported with several other programs (see table 8). In addition, 11 of the 26 States surveyed have a master client index linking records of social service programs; FSP is included in each of these master client indexes, while WIC is included in master client indexes in only 3 States. Record linkage, or computer matching, is routine in the FSP, as required by law; but record linkage in WIC is primarily limited to efforts to detect dual participation in the CSFP, reported by 12 of the 26 WIC agencies surveyed.

The *Survey of Food Assistance Information Systems* provides data for a preliminary assessment of the feasibility of record linkage between FANPs. This study has two main findings. First, FSP and WIC data systems differ in terms of the number and types of client identifiers (particularly SSNs), the extent of data verification, and the rules for data retention and overwriting. The findings indicate that record linkage is feasible in a number of States, but that a record linkage project to join participant data from USDA FANP programs would necessarily require probabilistic record linkage methods and careful consideration of the timing of data contained in each data system.

A second finding is that participant data from the child nutrition programs are currently unavailable at the state-level except for a handful of States. For CACFP and SFSP, there was no indication from survey responses that this is likely to change in the near future. Five States, however, currently maintain state-level databases with information on students eligible for NSLP/SBP. Five additional States have statewide student information systems, but do not maintain data on NSLP/SBP eligibility. And eight States are planning statewide student information systems for the future. Monitoring the development of these systems and encouraging the inclusion of data on school meals program eligibility should be priorities for the future.

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Appendix A
Detailed Tables

Table A-1—Hardware and software used to maintain client information in FSP and WIC information systems

	Food Stamp Information Systems				WIC Information Systems			
	Client data maintained by	Hardware	File Structure	Software	Client data maintained by	Hardware	File Structure	Software
Alabama	State	Mainframe	Relational	DB2, Legacy	State	PC server	Relational	Oracle, Other
Arizona	State	Mainframe	Relational	Legacy, Other	Contractor	UNIX system	Relational	Oracle
California[1]	Both	Mainframe	Flat file	Other	State	Mainframe	Relational	DB2
California (LEADER)[2]	Contractor	Mainframe	Relational	Other	–	–	–	–
Colorado	State	Mainframe	VSAM	Legacy	State	Mainframe	Relational	Legacy, Other
Connecticut	State	Mainframe	Hierarchical	Legacy,IMS DB/DC	State	Mainframe	Flat file	DB2, Other
Florida	State	Mainframe	Hierarchical	IMS DB/DC	State	Mainframe	Relational	DB2
Georgia	State	Mainframe	Relational	DB2, IMS DB/DC	Contractor	Mainframe	Flat file	Other
Illinois	State	Mainframe	VSAM	Legacy,IMS DB/DC	Both	Midrange	Relational	DB2, Other
Iowa	State	Mainframe	Flat file	Other	State	Mainframe	Relational	Legacy
Kentucky	State	Mainframe	Hierarchical	IMS DB/DC	Contractor	PC server	Flat file	Legacy
Maine	State	Mainframe	Indexed Seq.	Legacy, Other	State	UNIX system	Relational	Oracle
Massachusetts	State	UNIX system	Relational	Oracle, Other	State	Mainframe	Relational	Adabas
Michigan	State	Mainframe	Indexed Seq.	Legacy	State	Mainframe	Hierarchical	Legacy
Minnesota	State	Mainframe	Semi-relat.	Adabas	Contractor	Midrange	Flat file	Legacy
Nebraska	State	Mainframe	Relational	DB2	State	UNIX system	Relational	Oracle
New Jersey	State	Mainframe	Hierarchical	Legacy	Contractor	Midrange	Relational	Oracle, Other
New York	State	Mainframe	Other	Legacy	Both	UNIX system	Relational	Sybase
North Carolina	State	Mainframe	Relational	DB2, Legacy	State	Mainframe	Relational	DB2, Legacy
Ohio	Both	Mainframe	Hierarchical	Legacy	State	Mainframe	Hierarchical	Legacy
Oklahoma	State	Mainframe	Hierarchical	IMS DB/DC	State	Mainframe	Relational	Legacy
Pennsylvania	Contractor	Mainframe	Hierarchical	Other	State	Mainframe	Flat file	Legacy
South Carolina	State	Mainframe	Relational	Adabas, Legacy	Both	Mainframe	Flat file	Other DBMS
Tennessee	State	Mainframe	Hierarchical	IMS DB/DC	Contractor	Midrange	Relational	DB2
Texas	State	Mainframe	Hierarchical	Legacy, Other	State	Midrange	Relational	Legacy
Virginia	Both	Mainframe	Other	Legacy, Other	State	Mainframe	Hierarchical	Adabas
Washington	Both	Mainframe	Hierarchical	Other	Both	PC server	Relational	Sybase

– Not applicable
1 California record corresponds to the Food Stamp Program Interim Statewide Automated Welfare System (ISAWS), operating in 35 California counties; and the California WIC Program.
2 LEADER = Los Angeles Eligibility, Automated Determination Evaluation and Reporting. This system operates in Los Angeles county only.

Source: *Survey of Food Assistance Information Systems*, 2002. Completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

Table A-2—FSP and WIC local office connections to the central State client database

	Food Stamp Information Systems					WIC Information Systems				
	Type of connections	Percent of offices using file submission	Percent of offices by frequency of file submission			Type of connections	Percent of offices using file submission	Percent of offices by frequency of file submission		
			Nightly	Weekly	Less then weekly			Nightly	Weekly	Less then weekly
Alabama	Wide-area network	–				Wide-area network	–			
Arizona	Wide-area network	–				File submission	100.0	100	0	0
California[1]	Wide-area network	–				Wide-area network	–			
Colorado	Wide-area network	–				File submission	100.0	82	14	4
Connecticut	Wide-area network	–				File submission	100.0	100	0	0
Florida	Wide-area network	–				Wide-area network	–			
Georgia	Wide-area network	–				File submission	–	100	0	0
Illinois	File submission	100.0	100	0	0	Wide-area network	–			
Iowa	Wide-area network	–				File submission	100.0	50	40	10
Kentucky	Wide-area network	–				Wide-area network	–			
Maine	Wide-area network	–				Wide-area network	–			
Massachusetts	Wide-area network	–				File submission	100.0	32	45	23
Michigan	Wide-area network	–				Wide-area network	–			
Minnesota	Wide-area network	–				File submission[2]	100.0	30	65	5
Nebraska	Wide-area network	–				Wide-area network	–			
New Jersey	Wide-area network	–				File submission	100.0	100	0	0
New York	Wide-area network	–				Wide-area network	–			
North Carolina	Other	–				WAN, Internet, file submission	5.0	0	100	0
Ohio	Other[3]	–				Wide-area network	100.0	100	0	0
Oklahoma	File submission[4]	100.0	100	0	0	File submission	100.0	100	0	0
Pennsylvania	Wide-area network	–				Wide-area network	–			
South Carolina	Wide-area network	–				File submission	100.0	0	0	100
Tennessee	Wide-area network	–				File submission	100.0	100	0	0
Texas	Wide-area network	–				File submission	100.0	85	10	5
Virginia	Wide-area network	–				Wide-area network	–			
Washington	Wide-area network	–				WAN, Internet, other[5]	–			

– Not applicable
1 California record corresponds to the Food Stamp Program Interim Statewide Automated Welfare System (ISAWS), operating in 35 California counties; and the California WIC Program.
2 Through dial-up replication.
3 Certification data are retained at County offices.
4 IMS- system-generated file submissions.
5 Sybase replication via internet connection (VPN, modem).

Source: Survey of Food Assistance Information Systems, 2002. Survey was completed by program administrators in 26 States.

Table A-3—FSP and WIC system upgrades planned for the next two years, by State

	Food Stamp Information Systems		WIC Information Systems	
	Hardware	Software	Hardware	Software
Alabama	No	No	Yes	Yes
Arizona	No	No	No	No
California[1]	No	No	Yes	No
California (LEADER)[2]	No	Yes	na	na
Colorado	Yes	Yes	No	Yes
Connecticut	No	No	No	No
Florida	No	No	Yes	Yes
Georgia	No	Yes	Yes	Yes
Illinois	Yes	Yes	Yes	Yes
Iowa	No	No	Yes	Yes
Kentucky	No	No	No	Yes
Maine	Yes	Yes	No	Yes
Massachusetts	Yes	Yes	Yes	Yes
Michigan	No	No	Yes	Yes
Minnesota	No	No	No	No
Nebraska	No	No	No	No
New Jersey	No	No	Yes	Yes
New York	No	No	Yes	Yes
North Carolina	No	No	Yes	Yes
Ohio	No	Yes	No	Yes
Oklahoma	Yes	No	No	Yes
Pennsylvania	No	Yes	Yes	Yes
South Carolina	No	No	Yes	Yes
Tennessee	No	No	No	No
Texas	Yes	Yes	Yes	Yes
Virginia	Yes	No	Yes	Yes
Washington	Yes	Yes	Yes	Yes

1 ISAWS = Interim Statewide Automated Welfare System, operating in 35 California counties.
2 LEADER = Los Angeles Eligibility, Automated Determination Evaluation and Reporting. This system operates in Los Angeles county only.
na Not applicable.

Source: *Survey of Food Assistance Information Systems*, 2002. Completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

Table A-4—Record archival, retention and enrollment histories in FSP and WIC information systems

	Food Stamp Information Systems						WIC Information Systems					
	Record archival			Record retention			Record archival			Record retention		
	Client records taken offline?	Trigger for archival	Months inactive	Inactive case records are retained for (months)	Past monthly caseloads can be calculated for (months)	Availability of client enrollment history	Client records taken offline?	Trigger for archival	Months inactive	Inactive case records are retained for (months)	Past monthly caseloads can be calculated for (months)	Availability of client enrollment history
Alabama	No	–	–	36	0	By programming	Yes	# months inactive	24	120	24	Current record
Arizona	Yes	# months inactive	12	182	60	By programming	Yes	Certif. start date	–	65	65	History file
California[1]	Yes	Certif. start date	–	90	90	Current record	No	–	–	60	60	Current record
California (LEADER)[2]	Yes	# months inactive	13	10	10	By programming	–	–	–	–	–	–
Colorado	Yes	# months inactive	48	84	0	By programming	Yes	Certif. end date	–	73	36	Current record
Connecticut	Yes	# months inactive	13	146	146	By programming	Yes	# months inactive	72	74	0	By programming
Florida	Yes	# months inactive	21	117	21	Current record	Yes	# months inactive	30	30	30	By programming
Georgia	No	–	–	29	29	Current record	Yes	Certif. end date	–	45	0	Current record
Illinois	No	–	–	60	0	By programming	No	–	–	127	127	Current record
Iowa	Yes	# months inactive	24	205	0	History file	Yes	Other	–	66	0	By programming
Kentucky	No	–	–	105	105	Current record	No	–	–	72	0	History file
Maine	No	–	–	60	0	By programming	No	–	–	36	28	Current record
Massachusetts	No	–	–	185	185	Current record	No	–	–	37	0	By programming
Michigan	Yes	# months inactive	36	55	0	History file	Yes	Certif. end date	–	49	0	History file
Minnesota	No	–	–	137	137	Current record	Yes	Certif. end date	–	145	49	History file
Nebraska	No	–	–	68	68	Current record	Yes	# months inactive	36	52	52	History file
New Jersey	Yes	# months inactive	36	60	60	History file	Yes	# months inactive	6	181	181	By programming
New York	No	–	–	236	24	By programming	No	–	–	32	8	Current record
North Carolina	No	–	–	217	157	By programming	Yes	Other	–	120	36	By programming
Ohio	No	–	–	125	125	Current record	Yes	# months inactive	12	60	4	By programming
Oklahoma	Yes	# months inactive	36	163	36	Current record	No	–	–	18	18	History file
Pennsylvania	Yes	# months inactive or certif. end date	48	181	48	Current record	Yes	# months inactive	4	86	4	History file
South Carolina	Yes	# months inactive	36	36	37	Current record	Yes	Other	–	41	41	Current record
Tennessee	No	–	–	101	101	Current record	No	–	–	84	35	By programming
Texas	Yes	# months inactive	12	12	12	Current record	No	–	–	80	80	History file
Virginia	Yes	# months inactive	12	88	0	Current record	No	–	–	72	12	By programming
Washington	Yes	# months inactive	60	70	70	Current record	No	–	–	30	30	By programming

– Not applicable
1 California record corresponds to the Food Stamp Program Interim Statewide Automated Welfare System (ISAWS), operating in 35 California counties; and the California WIC Program.
2 LEADER = Los Angeles Eligibility, Automated Determination Evaluation and Reporting. This system operates in Los Angeles county only.

Source: *Survey of Food Assistance Information Systems*, 2002. Completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

Table A-5—Overwriting and retention policies in FSP and WIC client databases

	Food Stamp Information Systems		WIC Information Systems	
	Disposition of old data when identifying information is updated			
	Retain old data in separate data field	Overwrite old data	Retain old data in separate data field	Overwrite old data
Alabama	–	Name, Address, Phone, Date of birth, SSN	–	Name, Address, Phone, Date of birth, SSN
Arizona	Name, Address, Date of birth, SSN	Phone	Name	Address, Phone, Date of birth
California[1]	–	Name, Address, Phone, Date of birth, SSN	Name, Date of birth, SSN	Address, Phone
California (LEADER)[2]	Name, Address, Phone, Date of birth, SSN	–	–	–
Colorado	–	Name, Address, Date of birth	–	Name, Address, Phone, Date of birth
Connecticut	Name, Address, Phone, Date of birth, SSN	–	–	Name, Address, Phone, Date of birth, SSN
Florida	Name, Address, Phone, SSN	Date of birth	–	Name, Address, Phone, Date of birth, SSN
Georgia	Name, Address, Phone, Date of birth, SSN	–	–	Name, Address, Phone, Date of birth, SSN
Illinois	–	Name, Address, Phone, Date of birth, SSN	–	Name, Address, Phone, Date of birth
Iowa	–	Name, Address, Phone, Date of birth, SSN	–	Name, Address, Phone, Date of birth, SSN
Kentucky	Name, Address, Date of birth, SSN	Phone	Name, Address, Phone, Date of birth, SSN	–
Maine	–	Name, Address, Phone, Date of birth, SSN	–	Name, Address, Phone, Date of birth, SSN
Massachusetts	Name, Address, Phone, Date of birth, SSN	–	–	Name, Address, Phone, Date of birth
Michigan	Name	Address, Date of birth, SSN	Name, Address, Phone, Date of birth, SSN	–
Minnesota	Name, Address, Phone, SSN	Date of birth	–	Name, Address, Phone, Date of birth
Nebraska	Name, Address	Phone, Date of birth, SSN	–	Name, Address, Phone, Date of birth, SSN
New Jersey	–	Name, Address, Phone, Date of birth, SSN	–	Name, Address, Phone, Date of birth
New York	–	Name, Address, Phone, Date of birth, SSN	Name, Phone, Date of birth, SSN	Address
North Carolina	–	Name, Address, Date of birth, SSN	Name, Address, Phone, Date of birth, SSN	–
Ohio	Name, Address, Date of birth, SSN	Phone	–	Name, Address, Phone, Date of birth, SSN
Oklahoma	Address, Phone	Name, Date of birth, SSN	–	Name, Address, Phone, Date of birth, SSN
Pennsylvania	Name, Address, Phone, Date of birth, SSN	–	Date of birth, SSN	Name, Address, Phone
South Carolina	Address	Name, Phone, Date of birth, SSN	–	Name, Address, Phone, Date of birth, SSN
Tennessee	Name, Address, Phone, Date of birth, SSN	–	–	Name, Address, Phone, Date of birth, SSN
Texas	–	Name, Address, Phone, Date of birth, SSN	–	Name, Address, Phone, Date of birth, SSN
Virginia	Name, Address	Phone, Date of birth, SSN	–	Name, Address, Phone, Date of birth, SSN
Washington	Name, Address, Phone, Date of birth, SSN	–	–	Name, Address, Phone, Date of birth

– Not applicable
1 California record corresponds to the Food Stamp Program Interim Statewide Automated Welfare System (ISAWS), operating in 35 California counties; and the California WIC Program.
2 LEADER = Los Angeles Eligibility, Automated Determination Evaluation and Reporting. This system operates in Los Angeles county only.

Source: *Survey of Food Assistance Information Systems*, 2002. Completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

Table A-6—Primary identifiers for FSP and WIC cases

	Food Stamp Information Systems			WIC Information Systems		
		Search for past records at certifcation			Search for past records at certifcation	
	Primary identifier[1]	Information used to search for current or past record	Time period searched for past participation	Primary identifier[1]	Information used to search for current or past record	Time period searched for past participation
Alabama	Program ID	Name, SSN, program ID	All data	Other	Name, SSN, date of birth, other	All data
Arizona	Shared ID	Name, SSN, program ID, date of birth, other	All data	Program ID	Name, date of birth, other	All data
California[2]	Shared ID	Name, SSN, program ID, date of birth	All data	Program ID	Name, SSN, program ID, date of birth, other	All data
California (LEADER)[3]	Shared ID	Name, SSN, program ID, date of birth	All data	–	–	–
Colorado	SSN	Name, SSN	4 months	Program ID	Name, program ID, date of birth	18 months
Connecticut	Program ID	Name, SSN, program ID, date of birth, other	All data	Program ID	Name, date of birth	All data
Florida	Shared ID	Name, SSN	All data	Program ID	SSN, program ID	All data
Georgia	Shared ID	Name, SSN, date of birth	All data	Program ID	Name, SSN, program ID, date of birth, other	All data
Illinois	Shared ID	Name, SSN, program ID, date of birth	All data	Shared ID	Name, SSN, date of birth, other	All data
Iowa	Shared ID	Name, SSN, date of birth	All data	SSN	Name, SSN	All data
Kentucky	Shared ID	Name, SSN, program ID, date of birth	All data	SSN	Name, SSN, date of birth	18 months
Maine	Shared ID	Name, SSN, program ID, date of birth	All data	Program ID	Name, SSN, program ID, other	All data
Massachusetts	Program ID	Name, SSN, date of birth	All data	Program ID	Name, date of birth, other	All data
Michigan	Shared ID	Name, SSN, program ID, date of birth	All data	Program ID	Name, program ID, date of birth	All data
Minnesota	Shared ID	Name, SSN, program ID, date of birth, other	All data	Program ID	Name, program ID	All data
Nebraska	Shared ID	Name, SSN, program ID, date of birth, other	All data	Program ID	Name, program ID	All data
New Jersey	Other	Name, SSN, program ID	All data	Program ID	Name, program ID, date of birth	All data
New York	Shared ID	Name, SSN, program ID, date of birth	All data	Program ID	Name, SSN, date of birth	All data
North Carolina	Shared ID	Name, SSN, program ID	All data	Program ID	—	–
Ohio	Shared ID	Name, SSN, program ID, date of birth	All data	Program ID	Name, SSN, program ID, date of birth	All data
Oklahoma	SSN or Shared ID	Name, SSN, date of birth	All data	Program ID	Name, program ID	4 months
Pennsylvania	Shared ID	Name, SSN, program ID, date of birth, other	All data	SSN	Name, SSN, program ID, date of birth	4 months
South Carolina	Program ID	Name, SSN, program ID	All data	Program ID	Name, SSN, program ID, other	–
Tennessee	Program ID	Name, SSN, date of birth	All data	Shared ID	Name, SSN, program ID, date of birth	All data
Texas	Program ID	Name, SSN, program ID	All data	Program ID	—	–
Virginia	Shared ID	Name, SSN, program ID, date of birth, other	All data	Program ID	Name, program ID, date of birth	All data
Washington	Program ID	Name, SSN, program ID, date of birth, other	All data	Program ID	Name, program ID, date of birth, other	All data

– Not specified.
– Not applicable
1 Program ID is unique to the FSP or WIC program; shared ID is shared with other public assistance programs such as TANF or Medicaid.
2 California record corresponds to the Food Stamp Program Interim Statewide Automated Welfare System (ISAWS), operating in 35 California counties; and the California WIC Program.
3 LEADER = Los Angeles Eligibility, Automated Determination Evaluation and Reporting. This system operates in Los Angeles county only.

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Table A-7—Personal identifying information maintained in FSP and WIC information systems

	First name	Last name	SSN	Date of birth	Address	Mailing address	Phone number	County	Gender	Race/ ethnicity	Primary langua-ge	Date of first certifica-tio	Start & end dates of each cert. period	Monthly indicato-rs of particip-ation	WIC Only		
															Food Stamp case number	TANF case number	Medica-id case number
Alabama																	
Food Stamp Program																	
Household head	✔	✔	✔	✔	✔	✔	❑	✔	✔	✔	—	✔	✔	✔			
Other family members	✔	✔	✔	✔	—	—	—	—	✔	✔	—	—	—	—			
WIC Program																	
Women	✔	✔	❑	✔	✔	✔	❑	✔	✔	✔	—	✔	❑	—	—	—	❑
Infant/child	✔	✔	❑	✔	✔	✔	❑	✔	✔	✔	—	✔	❑	—	—	—	❑
Arizona																	
Food Stamp Program																	
Household head	✔	✔	✔	✔	✔	❑	❑	✔	✔	✔	✔	✔	✔	✔			
Other family members	✔	✔	✔	✔	✔	❑	❑	✔	✔	✔	✔	✔	✔	✔			
WIC Program																	
Women	✔	✔	—	✔	✔	✔	❑	✔	✔	✔	✔	✔	✔	—	—	—	—
Infant/child	✔	✔	—	✔	✔	✔	❑	✔	✔	✔	✔	✔	✔	—	—	—	—
California[1]																	
Food Stamp Program																	
Household head	✔	✔	✔	✔	❑	✔	❑	✔	❑	✔	✔	✔	✔	✔			
Other family members	✔	✔	❑	✔	—	—	—	✔	❑	✔	—	✔	✔	✔			
WIC Program																	
Women	✔	✔	❑	✔	✔	❑	❑	—	❑	✔	❑	✔	✔	✔	—	—	❑
Infant/child	✔	✔	❑	✔	✔	❑	❑	—	✔	✔	❑	✔	✔	✔	—	—	❑
California (LEADER)[2]																	
Food Stamp Program																	
Household head	✔	✔	❑	✔	✔	✔	❑	—	✔	✔	✔	✔	✔	✔			
Other family members	✔	✔	❑	✔	✔	✔	❑	—	✔	✔	❑	✔	✔	✔			
Colorado																	
Food Stamp Program																	
Household head	✔	✔	✔	✔	—	✔	—	✔	✔	✔	—	✔	✔	✔			
Other family members	✔	✔	✔	✔	—	—	—	—	✔	✔	—	—	—	—			
WIC Program																	
Women	✔	✔	—	✔	❑	✔	✔	✔	✔	✔	✔	✔	✔	✔	—	—	❑
Infant/child	✔	✔	—	✔	❑	✔	✔	✔	✔	✔	✔	✔	✔	✔	—	—	❑

[1] California record corresponds to the Food Stamp Program Interim Statewide Automated Welfare System (ISAWS), operating in 35 California counties; and the California WIC Program.
[2] LEADER = Los Angeles Eligibility, Automated Determination Evaluation and Reporting. This system operates in Los Angeles county only.
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															Food Stamp case number	TANF case number	Medica-id case number
Connecticut																	
Food Stamp Program																	
Household head	❑	✔	❑	✔	✔	❑	❑	—	✔	✔	❑	❑	❑	❑			
Other family members	❑	✔	❑	✔	❑	❑	❑	—	✔	✔	—	❑	❑	❑			
WIC Program																	
Women	✔	✔	❑	✔	✔	❑	✔	—	✔	✔	✔	✔	—	❑	—	—	❑
Infant/child	✔	✔	❑	✔	✔	❑	✔	—	✔	✔	✔	✔	—	❑	—	—	❑
Florida																	
Food Stamp Program																	
Household head	✔	✔	✔	✔	✔	❑	❑	✔	✔	✔	✔	❑	❑	❑			
Other family members	✔	✔	✔	✔	—	—	—	—	✔	✔	—	—	—	—			
WIC Program																	
Women	✔	✔	✔	✔	✔	❑	❑	✔	✔	✔	—	✔	✔	—	❑	❑	❑
Infant/child	✔	✔	✔	✔	✔	❑	❑	✔	✔	✔	—	✔	✔	—	❑	❑	❑
Georgia																	
Food Stamp Program																	
Household head	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
Other family members	✔	✔	✔	✔	—	—	—	—	✔	✔	—	✔	✔	✔			
WIC Program																	
Women	✔	✔	❑	✔	✔	—	❑	✔	✔	✔	❑	❑	❑	—	—	—	❑
Infant/child	✔	✔	❑	✔	✔	—	❑	✔	✔	✔	❑	❑	❑	—	—	—	❑
Illinois																	
Food Stamp Program																	
Household head	✔	✔	✔	✔	✔	✔	❑	❑	✔	✔	✔	—	✔	✔			
Other family members	✔	✔	✔	✔	—	—	—	—	✔	✔	✔	—	✔	✔			
WIC Program																	
Women	✔	✔	❑	✔	✔	❑	❑	✔	✔	✔	❑	✔	✔	✔	—	—	❑
Infant/child	✔	✔	❑	✔	✔	❑	❑	✔	✔	✔	❑	✔	✔	✔	—	—	❑
Iowa																	
Food Stamp Program																	
Household head	✔	✔	✔	✔	❑	✔	❑	❑	❑	❑	—	✔	❑	—			
Other family members	✔	✔	✔	✔	❑	✔	❑	❑	❑	❑	—	✔	❑	—			
WIC Program																	
Women	✔	✔	✔	✔	✔	—	❑	✔	✔	✔	✔	—	✔	✔	—	—	❑
Infant/child	✔	✔	✔	✔	✔	—	❑	✔	✔	✔	✔	—	✔	✔	—	—	❑
Kentucky																	
Food Stamp Program																	
Household head	✔	✔	✔	✔	✔	❑	❑	✔	✔	✔	✔	✔	✔	✔			
Other family members	✔	✔	✔	✔	—	—	—	—	✔	✔	✔	✔	✔	✔			

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															Food Stamp case number	TANF case number	Medica-id case number
Kentucky																	
WIC Program																	
Women	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	—	✔	✔	✔	—	—	—
Infant/child	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	—	✔	✔	✔	—	—	—
Maine																	
Food Stamp Program																	
Household head	✔	✔	❑	✔	—	✔	❑	✔	✔	✔	✔	—	—	—			
Other family members	✔	✔	❑	✔	—	—	—	—	❑	✔	❑	—	—	—			
WIC Program																	
Women	✔	✔	❑	✔	✔	—	❑	✔	✔	✔	—	✔	✔	✔	—	—	—
Infant/child	✔	✔	❑	✔	✔	—	❑	✔	✔	✔	—	✔	✔	✔	—	—	—
Massachusetts																	
Food Stamp Program																	
Household head	❑	✔	❑	✔	✔	✔	❑	—	✔	✔	✔	✔	✔	✔			
Other family members	❑	✔	❑	✔	✔	✔	❑	—	✔	✔	✔	✔	✔	✔			
WIC Program																	
Women	✔	✔	—	✔	✔	✔	❑	—	✔	✔	✔	✔	—	—	—	—	—
Infant/child	✔	✔	—	✔	✔	✔	❑	—	✔	✔	✔	✔	—	—	—	—	—
Michigan																	
Food Stamp Program																	
Household head	✔	✔	✔	✔	✔	❑	—	✔	✔	✔	—	✔	✔	✔			
Other family members	✔	✔	✔	✔	✔	—	—	✔	✔	✔	—	—	—	—			
WIC Program																	
Women	✔	✔	❑	✔	✔	❑	❑	—	✔	✔	—	✔	✔	—	❑	❑	❑
Infant/child	✔	✔	❑	✔	✔	❑	❑	—	✔	✔	—	✔	✔	—	❑	❑	❑
Minnesota																	
Food Stamp Program																	
Household head	✔	✔	❑	✔	✔	❑	❑	✔	✔	✔	✔	❑	❑	—			
Other family members	✔	✔	❑	✔	—	—	—	—	✔	❑	❑	❑	❑	—			
WIC Program																	
Women	✔	✔	—	✔	✔	❑	✔	✔	✔	✔	✔	✔	✔	✔	—	—	—
Infant/child	✔	✔	—	✔	✔	❑	✔	✔	✔	✔	✔	✔	✔	✔	—	—	—
Nebraska																	
Food Stamp Program																	
Household head	✔	✔	❑	✔	✔	❑	❑	✔	✔	✔	❑	✔	✔	✔			
Other family members	✔	✔	❑	✔	❑	❑	❑	❑	✔	✔	❑	✔	✔	✔			
WIC Program																	
Women	✔	✔	❑	✔	—	✔	❑	✔	✔	✔	❑	✔	✔	✔	—	—	—
Infant/child	✔	✔	❑	✔	—	✔	❑	✔	✔	✔	❑	✔	✔	✔	—	—	—

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															Food Stamp case number	TANF case number	Medica-id case number
New Jersey																	
Food Stamp Program																	
Household head	✔	✔	✔	✔	❑	❑	❑	✔	❑	✔	❑	—	—	❑			
Other family members	✔	✔	✔	✔	—	—	—	—	❑	✔	—	—	—	—			
WIC Program																	
Women	✔	✔	—	✔	✔	✔	✔	✔	✔	✔	✔	—	❑	—	—	—	—
Infant/child	✔	✔	—	✔	✔	✔	✔	✔	✔	✔	✔	—	❑	—	—	—	—
New York																	
Food Stamp Program																	
Household head	✔	✔	❑	✔	✔	❑	✔	✔	✔	❑	—	—	✔	—			
Other family members	✔	✔	❑	✔	✔	❑	✔	✔	✔	❑	—	—	✔	—			
WIC Program																	
Women	✔	✔	❑	✔	❑	❑	❑	❑	✔	✔	❑	✔	✔	❑	✔	✔	✔
Infant/child	✔	✔	❑	✔	❑	❑	❑	❑	✔	✔	❑	✔	✔	❑	✔	✔	✔
North Carolina																	
Food Stamp Program																	
Household head	✔	✔	❑	✔	—	✔	—	✔	✔	✔	—	—	✔	—			
Other family members	✔	✔	❑	✔	—	✔	—	✔	✔	✔	—	—	✔	—			
WIC Program																	
Women	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	—	✔	✔	✔	❑	❑	❑
Infant/child	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	—	✔	✔	✔	❑	❑	❑
Ohio																	
Food Stamp Program																	
Household head	✔	✔	✔	✔	✔	✔	❑	✔	✔	❑	✔	✔	✔	✔			
Other family members	✔	✔	✔	✔	✔	✔	❑	✔	✔	❑	✔	✔	✔	✔			
WIC Program																	
Women	✔	✔	❑	✔	❑	—	✔	—	✔	✔	✔	—	—	—	—	—	—
Infant/child	✔	✔	❑	✔	❑	—	✔	—	✔	✔	✔	—	—	—	—	—	—
Oklahoma																	
Food Stamp Program																	
Household head	✔	✔	❑	✔	✔	❑	❑	✔	✔	✔	❑	✔	✔	✔			
Other family members	✔	✔	❑	✔	✔	❑	❑	✔	✔	✔	❑	✔	✔	✔			
WIC Program																	
Women	✔	✔	❑	✔	✔	—	✔	—	✔	✔	✔	✔	✔	✔	—	—	✔
Infant/child	✔	✔	❑	✔	✔	—	✔	—	✔	✔	✔	✔	✔	✔	—	—	✔
Pennsylvania																	
Food Stamp Program																	
Household head	✔	✔	✔	✔	✔	✔	❑	✔	✔	✔	✔	—	✔	—			
Other family members	✔	✔	✔	✔	—	—	—	—	✔	✔	—	—	✔	—			

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															Food Stamp case number	TANF case number	Medica-id case number
Pennsylvania																	
WIC Program																	
Women	✔	✔	❑	✔	✔	—	❑	✔	✔	✔	—	✔	✔	—	—	—	—
Infant/child	✔	✔	❑	✔	✔	—	❑	✔	✔	✔	—	✔	✔	—	—	—	—
South Carolina																	
Food Stamp Program																	
Household head	✔	✔	❑	✔	✔	❑	❑	✔	✔	✔	—	✔	✔	✔			
Other family members	✔	✔	❑	✔	—	—	—	—	✔	✔	—	✔	✔	✔			
WIC Program																	
Women	✔	✔	❑	✔	✔	❑	❑	❑	❑	✔	—	✔	—	—	—	❑	—
Infant/child	✔	✔	❑	✔	❑	❑	❑	❑	❑	✔	—	✔	—	—	—	❑	—
Tennessee																	
Food Stamp Program																	
Household head	✔	✔	✔	✔	✔	❑	❑	✔	✔	✔	—	✔	✔	—			
Other family members	✔	✔	❑	✔	✔	—	—	✔	✔	✔	—	✔	✔	—			
WIC Program																	
Women	✔	✔	✔	✔	✔	✔	❑	✔	✔	✔	✔	✔	—	✔	—	—	—
Infant/child	✔	✔	✔	✔	✔	✔	❑	✔	✔	✔	✔	✔	—	✔	—	—	—
Texas																	
Food Stamp Program																	
Household head	✔	✔	✔	✔	❑	✔	❑	✔	✔	✔	—	—	—	—			
Other family members	✔	✔	✔	✔	—	—	—	—	✔	✔	—	—	—	—			
WIC Program																	
Women	✔	✔	❑	✔	—	✔	❑	✔	✔	✔	✔	✔	✔	—	—	—	❑
Infant/child	✔	✔	❑	✔	—	✔	❑	✔	✔	✔	✔	✔	✔	—	—	—	❑
Virginia																	
Food Stamp Program																	
Household head	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	❑	✔			
Other family members	✔	✔	✔	✔	❑	❑	✔	✔	✔	✔	✔	✔	❑	✔			
WIC Program																	
Women	✔	✔	❑	✔	✔	❑	❑	❑	✔	✔	—	✔	✔	—	—	—	—
Infant/child	✔	✔	❑	✔	✔	❑	❑	❑	✔	✔	—	✔	✔	—	—	—	—
Washington																	
Food Stamp Program																	
Household head	✔	✔	❑	✔	✔	✔	❑	✔	✔	✔	✔	✔	✔	—			
Other family members	✔	✔	❑	✔	❑	—	—	—	✔	✔	—	✔	✔	—			
WIC Program																	
Women	✔	✔	—	✔	❑	❑	❑	❑	❑	✔	—	❑	❑	❑	—	—	—
Infant/child	✔	✔	—	✔	❑	❑	❑	❑	❑	✔	—	❑	❑	❑	—	—	—

✔ Indicates data field is required to be filled; ❑indicates data field is available but not required to be filled; — indicates data field is not available.

Source: *Survey of Food Assistance Information Systems*, 2002. Completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

Table A-8—Assignment and use of family IDs by WIC programs

	Program assigns family ID	Family ID is used for:					Family ID provides a reliable link between:			
		Coordinate appointment scheduling for multiple family members	Coordinate voucher issuance for multiple family members	Coordinate certification for multiple family members	Report number of families participating in WIC	Other	All currently participating family members	Some currently participating family members	All family members who ever participated	Not a reliable link between family members
Alabama	No	–	–	–	–	–	-	-	-	-
Arizona	Yes	Yes	Yes	No	Yes	No	-	-	✔	-
California	Yes	Yes	Yes	Yes	Yes	Yes	-	-	✔	-
Colorado	Yes	Yes	Yes	No	No	No	-	✔	-	-
Connecticut	Yes	Yes	Yes	No	Yes	Yes	✔	-	-	-
Florida	Yes	Yes	Yes	Yes	No	No	-	✔	-	-
Georgia	Yes	Yes	Yes	Yes	No	No	✔	-	-	-
Illinois	Yes	Yes	Yes	Yes	No	No	-	-	✔	-
Iowa	No	–	–	–	–	–	-	-	-	-
Kentucky	No	–	–	–	–	–	-	-	-	-
Maine	No	–	–	–	–	–	-	-	-	-
Massachusetts	Yes	Yes	Yes	Yes	Yes	No	✔	-	-	-
Michigan	Yes	Yes	Yes	Yes	No	No	-	✔	-	-
Minnesota	Yes	Yes	Yes	No	No	No	-	-	✔	-
Nebraska	Yes	Yes	Yes	Yes	Yes	No	-	-	✔	-
New Jersey	Yes	Yes	Yes	Yes	No	No	-	-	✔	-
New York	Yes	Yes	Yes	No	No	No	✔	-	-	-
North Carolina	No	–	–	–	–	–	-	-	-	-
Ohio	Yes	Yes	Yes	Yes	Yes	No	-	-	-	✔
Oklahoma	Yes	Yes	Yes	No	No	No	-	✔	-	-
Pennsylvania	Yes	Yes	No	No	No	No	-	-	-	✔
South Carolina	Yes	Yes	Yes	Yes	Yes	No	-	-	✔	-
Tennessee	No	–	–	–	–	–	-	-	-	-
Texas	Yes	Yes	Yes	Yes	No	No	-	-	✔	-
Virginia	Yes	No	Yes	No	Yes	No	-	-	✔	-
Washington	Yes	Yes	Yes	Yes	No	Yes	-	-	✔	-

– Not applicable

Source: *Survey of Food Assistance Information Systems*, 2002. Completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

Table A-9—Data verification and standardization in FSP and WIC information systems

	Food Stamp Information Systems				WIC Information Systems		
	SSN verification		Data standardization		SSN verification	Data standardization	
	Verified	Method	Standardized address fields	Validated phone fields	Verified	Standardized address fields	Validated phone fields
Alabama	Yes	SVES interface	–	–	Yes[1]	County	Area code
Arizona	Yes	Other	–	Area code	No	City, county, ZIP	–
California[2]	–	–	–	–	No	Street, city, ZIP	–
California (LEADER)[3]	–	–	–	–	–	–	–
Colorado	Yes	Batch search	County	–	No	–	–
Connecticut	Yes	Batch search	Street, city, ZIP	Area code	No	City, ZIP	–
Florida	Yes	SVES interface, batch search	City, ZIP	–	No	–	–
Georgia	Yes	Batch search	Street, city, county, ZIP	Area code, exchange	No	Street, city, county, ZIP	–
Illinois	Yes	Computer lookup, SVES interface, other	Street, city, county, ZIP	–	No	County	–
Iowa	Yes	SVES interface, batch search, other	–	–	No	County, ZIP	–
Kentucky	Yes	Batch search	Street, city, ZIP	–	No	–	–
Maine	Yes	Batch search	County	–	No	City	–
Massachusetts	Yes	Computer lookup, SVES interface, batch search	Street, city, ZIP	–	No	City, ZIP	Area code
Michigan	Yes	SVES interface	Street, city, county, ZIP	–	No	Street, city, ZIP	Area code
Minnesota	Yes	SVES interface, batch search	Street, city, ZIP	–	No	County	–
Nebraska	Yes	SVES interface	City, county, ZIP	–	No	City, county	–
New Jersey	Yes	SVES interface	County	–	No	–	–
New York	Yes	Batch SVES interface	County	–	No	Street, city, county, ZIP	–
North Carolina	Yes		City, county, ZIP	–	No	–	–
Ohio	Yes	Computer lookup, batch search	Street, city, county, ZIP	–	No	–	–
Oklahoma	Yes	Computer lookup, SVES interface, batch search	County, ZIP	–	No	–	–
Pennsylvania	Yes	Computer lookup, SVES interface, batch search, other	–	–	No	–	–
South Carolina	Yes	Batch search, other	City, ZIP	Area code	No	–	–
Tennessee	Yes	SVES interface	–	–	No	City, county, ZIP	Area code
Texas	Yes	File exchange with SSA	County	–	No	City, county, ZIP	–
Virginia	Yes		County, ZIP	–	No	ZIP	–
Washington	Yes	Computer lookup, batch search, other	Street, city, county, ZIP	–	No	City, county	–

– Not applicable
1 SSN is verified with on-line edit checks.
2 California record corresponds to the Food Stamp Program Interim Statewide Automated Welfare System (ISAWS), operating in 35 California counties; and the California WIC Program.
3 LEADER = Los Angeles Eligibility, Automated Determination Evaluation and Reporting. This system operates in Los Angeles county only.

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Table A-10—Characteristics of school systems, and prevalence of POS and electronic claims systems

	Number of regular public schools, districts, students[1]				Survey responses					
					Point-of-sale systems[2]				Meal claims submission to State	
	Districts	Schools	Students	Percent free and reduced lunch eligible	Districts		Schools		Electronic	Electronic method
					Number	Percent	Number	Percent		
Alabama	128	1,337	737,871	46.0	124	96.9	1,200	89.8	No	–
Arizona	410	1,556	860,142	.	92	22.4	.	.	No	–
California	985	7,544	5,933,508	46.6	.	.	.	.	No	–
Colorado	176	1,503	715,089	26.9	.	.	.	.	No	–
Connecticut	166	987	541,941	.	60	36.1	300	30.4	No	–
Florida	67	2,931	2,398,299	44.3	.	.	.	.	Yes	Web form
Georgia	180	1,917	1,437,712	43.2	150	83.3	.	.	Yes	Web & file transfer
Illinois	894	3,910	2,007,816	.	.	.	.	.	No	–
Iowa	374	1,482	489,139	26.7	.	.	.	.	Yes	Web form
Kentucky	176	1,300	662,521	47.6	125	71.0	1,000	76.9	Yes	File transfer
Maine	282	684	207,037	28.9	.	.	.	.	Yes	Web form
Massachusetts	349	1,817	935,169	24.3	.	.	.	.	No	–
Michigan	734	3,589	1,725,904	29.6	.	.	.	.	Yes	Web form
Minnesota	415	1,608	827,855	25.6	265	63.8	.	.	Yes	Web & file transfer
Nebraska	576	1,240	284,482	30.4	150	26.0	400	32.2	Yes	Web form
New Jersey	604	2,249	1,264,670	27.2	200	33.1	.	.	No	–
New York	703	4,157	2,813,015	42.9	65	9.2	300	7.2	Yes	Web & file transfer
North Carolina	120	2,109	1,284,583	36.4	100	83.3	1,700	80.6	Yes	Web form
Ohio	662	3,696	1,774,492	26.3	.	.	.	.	Yes	Web & file transfer
Oklahoma	544	1,811	623,110	48.2	543	99.8	1,831	101.1	Yes	Web form
Pennsylvania	501	3,143	1,783,468	28.1	200	39.9	.	.	Yes	Web form
South Carolina	90	1,044	674,701	47.1	.	.	.	.	No	–
Tennessee	138	1,547	905,750	.	128	92.8	1,035	66.9	Yes	Web form
Texas	1,040	6,656	4,010,904	44.9	.	.	.	.	Yes	Web form
Virginia	135	1,777	1,135,756	28.0	50	37.0	1,200	67.5	Yes	File transfer
Washington	296	1,819	970,608	.	.	.	.	.	Yes	Web form

. Data not available.
– Not applicable
1 Data for number schools, number students, and percent of students receiving free and reduced-price lunch are from the U.S. Department of Education Common Core Data (SY2000-01).
2 Numbers of districts and schools with POS systems are estimates provided by State CNP directors

Source: *Survey of Food Assistance Information Systems*, 2002. Completed by program administrators in 26 States: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

Table A-11—Characteristics of School Food Authorities (SFAs) responding to the survey of information systems

	District characteristics			School meal computer systems			
	Number schools[1]	Number students[1]	Percent free and reduced lunch[1]	Software system	Schools networked	SFA operates POS	Percent of schools with POS
Alabama							
Andalusia City Public Schools	3	1,768	41.0%	B.O.S.S. (Back Office Software Solutions)	None	Yes	67.0
Demopolis City Public Schools	4	2,301	55.0	PCS Revenue Control Systems	All	Yes	100.0
Geneva County Public Schools	3	1,356	45.0	Kyrus (Formerly Accu Series)	None	Yes	100.0
Arizona							
Mesa Unified School District	86	73,587	na	Snap Systems	All	Yes	87.0
Murphy Elementary District	32	24,723	na	Snap Systems	All	Yes	100.0
Washington Elementary District	4	2,506	na	–	–	–	–
California							
Sacramento City Unified SD	77	52,734	61.0	Schoolhouse (Ca/Trac)	All	Yes	44.0
Los Angeles Unified SD	659	721,346	73.0	CAFS (Computer Assisted Food Service)	None	Yes	–
San Francisco Unified SD	116	59,979	54.0	–	–	–	–
Colorado							
Cherry Creek Public Schools	49	42,320	9.0	PCS Revenue Control Systems	All	Yes	98.0
Denver Public Schools	129	70,847	60.0	CAFS (Computer Assisted Food Service)	All	Yes	100.0
Jefferson County Public Schools	161	87,703	14.0	B.O.S.S. (Back Office Software Solutions)	All	Yes	84.0
Connecticut							
Coventry Public Schools	5	2,074	na	Microcheck0s MCM	None	Yes	80.0
New Britain Public Schools	16	10,295	na	Snap Systems	All	Yes	6.0
South Windsor Public Schools	8	5,057	na	PCS Revenue Control Systems	All	Yes	88.0
Florida							
Collier County Public Schools	50	34,203	32.0	B.O.S.S. and PCS	All	Yes	66.0
Putnam County Public Schools	20	12,624	61.0	MAPS Software, LunchByte Systems	None	Yes	80.0
Palm Beach County Public Schools	177	153,871	40.0	Snap Systems	All	Yes	85.0
Georgia							
Cobb County Schools	123	95,958	55.0	Snap Systems	All	Yes	100.0
DeKalb County Schools	94	95,781	20.0	Horizons: V Boss, Fast Lane	None	Yes	100.0
Gwinnett County Schools	85	110,075	21.0	–	–	–	–
Illinois							
Bloomington School District	9	5,731	na	Snap Systems	All	Yes	89.0
Rock Island School District	18	6,745	na	Snap Systems	All	Yes	83.0
Springfield School District	36	15,387	na	Other	All	No	–
Iowa							
Davenport Community Schools	34	16,874	39.0	Snap Systems	All	Yes	29.0
Des Moines Public Schools	64	32,435	45.0	CAFS (Computer Assisted Food Service)	All	Yes	42.0
Iowa City Community Schools	21	10,481	19.0	–	–	No	–

na Data not available.
– Survey not received.
1 Data for number schools, number students, and percent of students receiving free and reduced-price lunch are from the U.S. Department of Education Common Core Data (SY2000-01).

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Table A-11—Characteristics of School Food Authorities (SFAs) responding to the survey of information systems — Continued

	District characteristics			School meal computer systems			
	Number schools[1]	Number students[1]	Percent free and reduced lunch[1]	Software system	Schools networked	SFA operates POS	Percent of schools with POS
Kentucky							
Taylor County Public Schools	4	2,569	35.0	Cafeteria Suite (Horizon)	Some	Yes	75.0
Hardin County Public Schools	24	13,171	43.0	B.O.S.S. (Back Office Software Solutions)	All	Yes	92.0
Fayette County Public Schools	66	33,130	36.0	Lunchbox (Kyrus Corp.)	None	Yes	80.0
Maine							
Augusta School System	8	2,652	37.0	PCS Revenue Control Systems	All	Yes	100.0
Gorham School Department	6	2,619	13.0	PCS Revenue Control Systems	All	Yes	83.0
Lewiston School System	9	4,475	41.0	–	–	–	–
Massachusetts							
Boston Public School	131	63,024	72.0	Snap Systems	Some	Yes	–
Springfield Public School	49	26,526	67.0	Snap Systems	Some	Yes	24.0
Worcester Public Schools	50	25,828	52.0	Other	None	Yes	8.0
Michigan							
Brighton Public Schools	9	7,025	4.0	Other	Some	Yes	100.0
Grand Rapids Public Schools	98	25,625	65.0	–	–	–	–
Lakeview Public Schools	6	2,714	7.0	–	–	–	–
Minnesota							
Bloomington Public Schools	15	10,833	20.0	PCS Revenue Control Systems	All	Yes	100.0
Rosemount Public Schools	37	28,330	9.0	PCS Revenue Control Systems	All	Yes	78.0
Inver Grove Heights Public Sch	8	4,047	15.0	PCS Revenue Control Systems	All	Yes	75.0
Nebraska							
Grand Island Public Schools	20	7,207	42.0	Bon Appetit Software	All	Yes	90.0
Lincoln Public Schools	62	31,354	25.0	Snap Systems	All	Yes	79.0
Omaha Public Schools	82	45,197	51.0	In house programs	None	Yes	22.0
New Jersey							
Trenton Board of Education	23	11,177	73.0	B.O.S.S. and Snap	Some	Yes	4.0
Elizabeth Board of Education	25	19,674	74.0	Other	All	Yes	100.0
Jersey City Board of Education	39	31,348	72.0	–	–	–	–
New York							
Chappaqua Central SD	11	8,999	10.0	PCS Revenue Control Systems	All	Yes	100.0
Nyack Union School District	5	3,869	1.0	Other	None	Yes	20.0
Shenendehowa Central SD	5	2,917	21.0	Other	Some	Yes	80.0
North Carolina							
Charlotte-Mecklenburg Public Sch	135	103,336	35.0	PCS Revenue Control Systems	None	Yes	95.0
Guilford County Public Schools	98	63,417	39.0	CMS (Cafeteria Management System)	Some	Yes	97.0
Winston-Salem Forsyth Public Sch	67	44,769	36.0	Other	None	Yes	100.0

– Survey not received.
1 Data for number schools, number students, and percent of students receiving free and reduced-price lunch are from the U.S. Department of Education Common Core Data (SY2000-01).

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Table A-11—Characteristics of School Food Authorities (SFAs) responding to the survey of information systems — Continued

	District characteristics			School meal computer systems			
	Number schools[1]	Number students[1]	Percent free and reduced lunch[1]	Software system	Schools networked	SFA operates POS	Percent of schools with POS
Ohio							
Dayton City Schools	45	23,522	74.0	Snap Systems	None	Yes	29.0
Cleveland City Schools	125	75,684	80.0	Snap Systems	All	Yes	9.0
Princeton City School District	11	6,668	36.0	–	–	–	–
Oklahoma							
Oklahoma City Public Schools	92	39,750	77.0	Kyrus (Formerly Accu Series)	All	Yes	12.0
Ponca City Public Schools	11	5,773	45.0	–	None	Yes	100.0
Tulsa Public Schools	82	42,812	65.0	Snap Systems	All	Yes	100.0
Pennsylvania							
Derry Township School District	4	3,357	6.0	CAFS (Computer Assisted Food Service)	All	Yes	100.0
Norwin School District	9	5,025	20.0	Cafe Terminal (POS), KTRAC (NSMP), and in-house program	All	Yes	100.0
Susquehanna Township SD	5	3,034	16.0	–	–	–	–
South Carolina							
Greenville County SD	52	27,061	58.0	Bon Appetit Software	None	Yes	92.0
Laurens County School District	11	6,366	46.0	Snap Systems	Some	Yes	100.0
Richland County School District	93	59,875	32.0	B.O.S.S. and Lunchbox	Some	Yes	94.0
Tennessee							
Jackson-Madison Cnty Schools	24	13,640	na	Lunchbox (Kyrus Corp.)	None	Yes	100.0
Metro-Davidson Cnty Schools	125	67,669	na	In-house mainframe system	–	Yes	1.0
Memphis City Schools	164	113,730	na	CAFS (Computer Assisted Food Service)	All	Yes	100.0
Texas							
Brady ISD	4	1,356	56.0	MAPS	None	Yes	100.0
Plano ISD	59	47,161	9.0	PCS Revenue Control Systems	All	Yes	97.0
Birdville ISD	34	21,246	27.0	–	–	–	–
Virginia							
Fairfax County Public Schools	70	54,646	21.0	Snap Systems	All	Yes	100.0
Norfolk City Public Schools	60	37,349	59.0	CAFS (Computer Assisted Food Service)	All	Yes	88.0
Prince William Cnty Public Sch	195	156,412	18.0	Snap Systems	All	Yes	92.0
Washington							
Seattle School District	119	47,575	na	PCS Revenue Control Systems	Some	Yes	74.0
Spokane School District	69	31,725	na	Snap Systems	All	Yes	67.0
Kent School District	44	26,535	na	Systems Design, Inc.	All	Yes	91.0

na Data not available.
– Survey not received.
1 Data for number schools, number students, and percent of students receiving free and reduced-price lunch are from the U.S. Department of Education Common Core Data (SY2000-01).

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