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ABSTRACT

During the summer of 1993, site-visit teams visited Arkansas, Arizona, Maryland, New Jersey, and Oregon to interview the Child Care Development Block Grant (CCDBG) lead agency staff about each state's child care management information system (MIS). The state information work group and experts recommended states with innovative, unique, and successful approaches to managing various aspects of child care programs. In each state, the site-visit team spent 2 to 3 days interviewing child care administrators, child care resource and referral (CCR&R) staff, programmers, and other MIS users. During these visits, the site-visit team obtained information on the state child care programs' background and evolution. Critical issues and lessons learned for other states include: (1) take time in the planning stages; (2) when implementing and developing a MIS, ensure close communication between policy and systems development staff; (3) involve the user at all points of development; (4) ensure that MIS staff understand existing child care policies and procedures; (5) obtain commitment from high-level program and MIS staff prior to developing the MIS; (6) resolve as many policy differences as possible before developing the automated system; (7) design the system to meet specific needs of the state, clients, and providers; (8) design the system to be flexible; (9) expect delays in the time required to develop an operational system; and (10) plan for comprehensive training. (Two appendices provide an overview of states' MIS design and architecture and a summary of states' organizational structure of child care and MIS.) (DR)

Child Care Management Information Systems: Applying Technology to Improve Child Care

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Preface

States and Programs Visited

During the summer of 1993, site-visit teams visited Arkansas, Arizona. Maryland, New Jersey, and Oregon to interview the Child Care and Development Block Grant (CCDBG) lead agency staff about each State's child care management information system (MIS). An information workgroup of 10 State child care administrators helped select the States to be visited, with additional information being provided by experts in child care management information systems. The State workgroup and experts reviewed information on State programs and recommended States with innovative, unique, and successful approaches to managing various aspects of child care programs. In each State, the site-visit team spent two to three days interviewing child care administrators, child care resource and referral (CCR&R) staff, programmers, and other MIS users. During these visits, the site-visit team obtained information on the State child care program's background and evolution, as well as specific information about promising practices to be highlighted in this article.

Child Care Management Information Systems: Applying Technology to Improve Child Care

Introduction

Managing child care services has become increasingly complex for State child care administrators: the demand for child care has grown substantially, new funding sources have become available, and an approach to providing "seamless" services has emerged. Administrators are beginning to develop and use automated management information systems to help them manage child care services.

The number of parents entering the work force in the last decade created heavy pressure on States to respond to the lack of child care supply, the instability of many child care arrangements, and the high percentage of family income that many parents pay for child care. Many States had little or no "infrastructure" to respond to these increased demands. States' traditional child care operations were not designed to handle the evolving intricacies, scope, and linkages among child care funding streams and between child care and other social service and public assistance programs that have become necessary today. While States tried to cope with these complex responsibilities, many also experienced reductions in staff due to State recessions.

Several new Federal funding sources have helped to meet this increased demand for child care by providing resources to expand and improve child care services. The major new sources of funds are the Child Care and Development Block Grant (CCDBG), the Title IV-A JOBS/Supportive Services Child Care, Transitional Child Care (TCC) and the At-Risk Child Care Program (ARCC). With the addition of these new sources of funds, State administrators began facing challenges of blending or "pooling" these monies from multiple funding streams to benefit children and families -- while at the same time responding to the separate rules and reporting requirements associated with each of these funding sources. Attempts to integrate these funding sources have resulted in an approach now referred to as seamless service delivery.

In addition to moving toward seamless services with an expanded number of funding streams, the CCDBG and ARCC programs also required States to develop "certificate" payment systems. Although certificate programs expanded family choices by allowing a wider variety of providers to receive funding (and thus the volume of child care providers increased dramatically), they often required major changes in provider eligibility requirements, payment procedures, processing capacities, reporting categories, rate structures and monitoring functions.

To cope with these many and complex changes, administrators found that they needed to design or adapt their child care services to move them toward coherent, related, equitable and continuous procedures and policies that could be readily understood by families, child care providers, and various State agency staff. Many State administrators are interested in managing their complex resources more effectively, turning to sophisticated computer systems to improve the management of their child care information and operations. A properly planned automated Management Information System will assist child care administrators in

developing seamless services by automating many functions associated with these common policies and procedures.

It is important to remember that when most States began child care services with Title XX or State funding (1970's), they developed manual eligibility and payment systems using computer technology when they could locate the resources to pay for and design them. Some advanced their computerized systems in the 1980's with the focus on the development of the Federally supported FAMIS system (Family Assistance Management Information System) that allowed for the inclusion of child care as a support for families receiving welfare. However it was 1991, when Federal resources for automation for child care specifically became available through title IV-A, that States began to move forward with automation.

This article summarizes five States' experiences with developing and operating computerized child care MIS. Each of the five States employed innovative strategies in the system planning and development stages and has installed creative system features. The combined experiences of these States illustrate common successful strategies as well as problems, pitfalls, and barriers to the successful development and implementation of an automated child care MIS.

The article is divided into the following sections:

- Benefits of an automated child care system;
- Planning a system;
- System development and implementation;
- System functions;
- System management and training; and
- Critical issues and lessons learned.

Appendix A provides a table with an overview of each State's system. Appendix B describes the organizational setting for each State's child care program and MIS.

Benefits of a Child Care Management Information System

Managing and integrating the various child care funding streams is difficult for child care administrators to accomplish with a manual information system. The five States in this study concluded that they could not have coped without automation. Several principal needs acted as catalysts for these States to develop an automated child care MIS:

- The need to enhance the service system's ability to provide families and children with continuous services by organizing the administrative functions associated with various funding sources to benefit families (to make it more seamless to families);
- The need to assist families in obtaining child care in the simplest, quickest, and least obtrusive manner;
- The need for prompt payments to child care providers;
- The need for quick and accurate determinations of client eligibility; and
- The need to make sense of the information being processed so that planning, analysis, and reporting could occur in a timely manner and with a high degree of accuracy.

The goal of a seamless child care system is to provide eligible families with continuous access to approved providers while maximizing families' choices of child care settings, regardless of any changes in the source of funding that supports a particular family. A child care MIS provides administrators with invaluable tools for

matching funding sources that are beneficial to the State, providers, and families as efficiently as possible. Prompt payment features, fostered by a well designed MIS and linked to a responsive State financial system, act as an incentive for providers who might otherwise be reluctant to participate in subsidized child care. Automated eligibility determination (and re-determination) is not only quick and convenient for families, but also ensures that funds are drawn down from the most appropriate source and are not over or underspent.

What Can an Effective MIS Accomplish?

The MIS should automate basic service delivery and business functions. This assists local caseworkers, parents, child care providers, and State agency directors.

- *For parents,* an MIS can reduce the time it takes to enroll in various programs. It quickly processes their eligibility so that parents can find out almost instantly for which programs they are eligible. Also, an MIS can provide information and referral listings for parents.

- *For child care providers,* an MIS makes payments to providers quickly, it reduces errors, speeds payments, and produces reports for child care providers.

- *For child care intake workers (also known as child care specialists, eligibility workers),* an MIS can greatly reduce data management work. By building in determination of eligibility and funding stream priorities, the MIS can do the tedious "looking-up" of tables, schedules, policies, and funding availability. In this way, States found that their MIS reduced the amount of time caseworkers must spend on paperwork allowing them more time for an increased caseload and for managing their work.

- *For program administrators,* an MIS can manage funding streams; provide organized information on program resources and utilization; generate detailed demographic data on children and families using child care; produce claims and expenditure reports corresponding to both State and Federal requirements; and detect duplicate payments, fraud, and other financial problems.

Planning a System

An automated MIS is only as good as the planning that goes into it. Before the MIS can be designed, States must develop a clear and detailed plan for the system. The planning should include a needs assessment, feasibility study, a review of alternatives and an analysis of the required hardware and software. It is helpful for the various agencies related to child care in a State to include in the needs assessment the various requirements of funding sources so that the MIS can be used to integrate them and produce reports. Then, they must develop the policies and procedures associated with the eligibility and payment system, including the changes that may be connected with the certificate program. Planning requires close cooperation between child care agency staff and the MIS developers. This section contains suggestions made and methods used by the five States in their MIS planning processes.

Using Systems Developed in Other States

Ideally, a State interested in developing a child care MIS would learn from another State that has already gone through the process. The States in this study had discussions with other States about how they designed their systems. Arizona, Arkansas, and Maryland actively

looked at the systems developed in other States. Arizona was impressed with Utah's modular system, and ultimately adopted the same general design. Arkansas system developers learned about Tennessee's touch-tone billing system during a site visit, and ultimately adopted the concept. Maryland staff, on the other hand, looked at several systems but did not find any that offered the type of comprehensive system they wanted. Ultimately, the five States found that, while other States offered them ideas, their unique situations required systems tailored to their individual needs.

Interagency Oversight Committees

In each State, the functions necessary for planning and implementing an MIS are divided among different agencies. Typical participants in MIS operations include computer resource divisions, the State treasurer or comptroller, social services agencies, and county and regional agencies. All of these positions need to be included in MIS development.

Four of the five States used an interagency oversight committee to avoid turf issues and ensure that all agencies with a potential interest in the MIS would participate. These committees discussed the outcomes desired, set policy, developed system specifications and requirements, and directed system development. The committees varied widely in size from fewer than 10 members to more than 100. Larger committees formed subcommittees or task forces to address specific problems or issues. Several States reported that the interagency committee was critical to MIS development, but that the process was also intense and often fraught with frustration.

Arkansas's oversight committee's operating philosophy required that all committee members be informed of and approve any changes to the system. This philosophy helped to eliminate problems generated by the differing needs of various divisions and units. The operating philosophy became necessary because of the gap in understanding between computer specialists on the committee and the program services specialists without much computer knowledge. Committee members felt this gap was contributing to major problems: seemingly minor changes in the computer system required a disproportionately large effort to implement. Arkansas and other States found that an operating philosophy of valuing close coordination among all key people was absolutely essential. The ability to translate child care system needs into information that is helpful to computer specialists and the ability to translate the technical information needed by the computer specialists to the child care staff is key to the planning, development, and operation of an MIS.

Arkansas Oversight Committee's Operating Philosophy

"Individual divisions, units, or agencies cannot make a change in any part of the system without informing all committee members of the proposed change(s) and obtaining approval from a majority of the committee members."

Advisory and User Groups

A successful MIS must be accurate, accessible, and responsive to the people who will use it, such as local caseworkers. Users know what data must be gathered as well as the special problems and circumstances that do not fit standard procedures. They also know the actual flow of their work day and can provide a "reality-check" for programmers who may only have an abstract understanding of the job. For this reason, the five States involved potential system users in every phase of the design and development of their MIS.

Several States assessed the staff activities of local child care offices in order to understand caseworkers' jobs and the problems with then-current procedures. Intrinsic to effective

system design is not only an understanding of how things work, but also an understanding of how they should work. Arkansas used a group of child care providers to help plan its MIS. New Jersey checked with each of its counties to learn how they implemented State guidelines in their manual systems before developing the computer edits for the MIS. In Maryland, each local department of social services office was asked to complete daily task sheets which were subsequently incorporated into the specifications for the system. Child care and information management staff also conducted a joint analysis of the offices where the local caseworkers would be using the system. After installation, State staff returned to the local offices to orient local users to the system.

States found that, during actual system development and programming, day-to-day contact between policy and programmer staff is best handled by just one or two people who act as liaisons. The liaison staff, the "translators," were selected for their ability to describe computer system functions in language that both program and policy staff can understand and to describe program functions in a way that programmers can understand.

The Link Between Planning for the Certificate System and the MIS

Close coordination among MIS staff, child care agency staff and licensing staff is needed to smoothly incorporate the changes related to the operation of a certificate program within the overall child care MIS. The CCDBG legislation requires that the State give parents the flexibility to choose from an expanded array of child care providers. Certificates, defined as financial assistance to parents, are the mechanism for expanding choice and increasing the supply of child care that receives public funding. This law allows Federal subsidies to go to previously unregulated (exempt) providers who meet the registration requirements of the CCDBG and to relative caregivers.

In order to meet the dual objectives of attracting new, unregulated child care providers, and providing some degree of consumer protection, the provider eligibility and payment system must be simple, stable, and quick. The core of any child care MIS is its ability to track payments to approved providers on behalf of families who meet the programs' eligibility requirements. Although the MIS functions as a funds management tool (usually linked to, and in combination with, the State financial system), the child care MIS can address broader information and policy needs.

While States had different degrees of certificate payment systems in place before the Federal deadline of October 1, 1992, many States used the certificate payment system as an entree to making major changes in their child care MIS. Major issues typically included the following:

- making and accounting for payments;
- addressing administrative and case management issues, especially establishing fiscal controls;
- exchanging data with other social service, licensing, welfare and education systems;
- maintaining a list of providers; and
- providing families with information on choosing and locating child care.

Certain States noted that, as much as possible, policy and procedural issues regarding certificate programs should be resolved before developing the MIS. The importance of child care and computer specialist translators, or liaisons, is key. Without them, major changes made in policies after the system was designed necessitated expensive changes in the MIS. Several States also recommended that program staff write a manual for the computer programmers responsible for

designing the MIS that describes how the child care program operates.

System Development and Implementation

Strict attention to details is necessary at every stage of MIS development. States had several recommendations about how to achieve an optimal system. These relate to the use of advisory and user groups, phased-in system development, choosing database designs and the use of contractors.

Phased-in System Development

Most of the States visited for this project developed their MIS in stages. They found that, by phasing in the system development activities over time, they were able to provide more flexibility for staff to adjust to changes. Phasing also permitted central office staff to make necessary linkages with other systems in an orderly manner. The development of each State's MIS required different stages based on the current state of automation of their system, the need for interfaces with other systems, and other factors such as scheduling and budgets. However, the following stages were typical in the development of the systems in several States:

- *Defining the system.* The agency completes a needs assessment, does a feasibility study, and identifies its automation goals and objectives. The agency defines which work processes need to be automated, designates the potential users, selects the types of information needed to operate the program, and identifies other computer systems with which the MIS interfaces.

- *Conducting a requirements analysis.* States typically study every aspect of the system. This includes identification of the computer hardware and software, lists of all data that need to be entered into the system, relationships between modules, the structure of computer reports, and other issues such as data security, confidentiality, and training needs. Linkages with other databases need to be determined, such as the State's Family Assistance MIS (FAMIS) and other financial systems.

- *Developing a functional design.* Computer programmers and system analysts usually prepare detailed flow charts showing how the program will store and manipulate data, and programmers prepare descriptions of what will actually appear on the user's computer screen. The design stage also should show users what computer reports will look like and what data they will include.

- *Testing and piloting the system.* As modules (stages, components, tables) are completed, the developers should test each to make certain that it works. Then a small group of users should pilot the system to ensure that the MIS performs adequately.

- *Installing and implementing the system.* After testing to remove bugs, more hardware and software are installed, and users are trained in the system's use. The entire system can be installed at once or individual modules can be installed in phases.

- *Maintaining the system.* Training and support to both the child care program staff and the technical support staff is key to the ongoing operation of the MIS. Most systems need occasional fine-tuning as bugs materialize and better data entry and reporting methods are developed. Also regular communication is needed between the child care staff, computer

personnel, accounting and finance systems staff.

Modular System Design

Management information systems should be very flexible. By initiating a modular design, changes can be made to one module without necessitating changes to the entire system. System functions can be performed by a single module or through the interplay of several modules. If the entire system must be established quickly, numerous programmers can work concurrently on separate modules. A longer development period permits the phasing in and testing of each module, with new modules being added as time and budget permit. The Arizona Social Services Information and Statistical Tracking System (ASSISTS) illustrates the logic of a modular system developed sequentially (see box).

Arizona's ASSISTS: A Modular Approach

The five modules in ASSISTS are:

- **Client Pathway Module:** maintains client data and adds clients to the system
- **JOBS Module:** provides an on-line interface with the JOBS database.
- **Provider Module:** stores data on licensed centers, certified homes, relative providers, and child welfare service providers.
- Payment Processing: generates payment warrants.
- **Alerts Subsystem:** sends both computer and "hardcopy" notices when information changes among the ASSISTS modules as well as the data systems with which it interfaces.

Using Contractors to Design and Develop the MIS

Of the States reviewed, three decided to develop the MIS in-house, and the other two opted for computer contractors. The decision to contract out depended upon the availability of agency or other State computer specialists capable of designing a large-scale system. Arizona decided to do the project in-house, in spite of tight deadlines.

Two of the five States, Maryland and New Jersey, used outside contractors. Maryland staff developed several explicit requirements for their contractor including an extensive user training guide, a software documentation manual and customized programs.

Training

The five States provided both elementary training (basic introduction to computers, how to use the keyboard, etc.) and more sophisticated training on the MIS and system features to (such as report writing), to MIS users.

Maryland delivered training at each implementation phase. State-level child care and information management staff, who had been trained directly by the contractor, instructed local-office staff. As each module of the system was implemented, local-office staff came to the State center in Baltimore for training. Staff received a detailed systems operation manual and, upon returning to their offices, went through additional self-training through an interactive computer program. Local-office staff referred any questions to the State information management staff.

In Arizona, new staff receive two weeks of training on the various child care programs and how the MIS is structured. Workers learn how databases are linked through key index fields and how edits in one system affect the other systems.

In New Jersey, staff of the community-based organizations (CBO) who use the system to administer child care subsidy

programs, received four days of training on programmatic and financial functions. The development contractor conducted two training sessions in the State capital, with half of the counties attending each session. In addition, State child care and information management staff spent a half-day at each county site training local staff on the system. The participation of State staff from both offices was critical because, in the course of the computer training, many trainees asked questions about CCDBG policies and procedures. The involved CBO's are predominately Child Care Resource and Referral (CCR&R) agencies) whose staff also received ongoing training, technical assistance, and retraining as necessary from State MIS specialists.

Security and Confidentiality

Data security is a critical issue in the management of a child care MIS, since financial fraud and confidential information about families' financial status could invite computer intrusion. To help ensure that appropriate staff have access to only the information they need, States have developed a variety of security levels for different data. This, in effect, customizes each user's ability to either read or enter data in each module. For example, the security system may only permit a receptionist at a local CCR&R to read information on providers. A caseworker, on the other hand, might be able to both read and enter confidential client data.

To handle security and confidentiality issues, New Jersey named a security administrator in each CBO/CCR&R. The security administrator accesses all information in the system, controls access to data by each staff member, and has the authority to assign and change passwords that provide access to the system.

Oregon has developed a security system that allows each category of user to have a different level of access to the system. Contract agencies, such as CCR&Rs, must be issued a license to use the system.

Help Desks

Even with good training, MIS users frequently need help as they learn the system and perform non-routine operations. Several States use "help desks" for providing ongoing assistance to users. Oregon, New Jersey, and Arizona provide several forms of assistance to MIS users. A centralized help desk, staffed by State MIS staff, is also available. Help desk staff can display the field worker's computer screen on their own computer, view what the worker has done so far, and then troubleshoot over the phone. Arizona also has a permanent users' group, which includes members from each district in the State and acts as a resource to field staff as well as providing peer support.

System Functions

The key question for any MIS is, "What does it do?" This section reviews functions common among most of the five State systems. Three of the systems reviewed were under development or only partially operational at the time of the site visits. Consequently, the comments from States reflect a somewhat limited experience with a child care MIS.

Each State's MIS offered some or all of six separate functions related to subsidized child care:

- Determine eligibility
- Maintain client case information
- Maintain provider information
- Issue payments
- Produce reports
- Exchange information with other systems

Determination of Eligibility

Many States try to keep the intake process very flexible to accommodate the different situations of potential clients. Several States permit applicants to apply in person, by telephone, or by mail-in application. For in-person and the phone applications, caseworkers can enter data directly into the MIS while the client waits.

According to Arkansas plans, State workers located at child care centers, department stores, and malls will use notebook PCs and portable printers to enroll new clients. Clients will know immediately if they qualify and will a receive a certificate printed on the spot.

New Jersey and Oregon decided to use local CCR&R's or other community-based organizations as intake points. New Jersey has equipped 21 community based organizations with PCs and a locally based data system to offer eligibility and payment services. The staff of these organizations have been trained to conduct the initial intake for subsidized child care. During a pilot program, Oregon placed State staff in CCR&R offices with terminals to conduct intake interviews, access the mainframe to determine eligibility, and issue certificates. Now that the program has been implemented, CCR&R offices are being equipped with terminals, and staff are being trained to assist clients to apply for services and to troubleshoot payment problems.

Eligibility determination involves several separate activities and the collection of certain key information, including basic data about the family and children, the need for services, income eligibility, and identification of potential funding sources to pay for the services. The ease and accuracy with which a selection of funding sources for a family/child is made is directly related to the funding stream requirements and the family, child, provider information that is collected, stored, and available for use.

Some systems permit instantaneous determination of family eligibility. When eligibility rules are built into the system, the MIS performs calculations automatically and can set funding source selection priorities. A child care specialist in Maryland reported that the use of the MIS reduces intake time from one hour to 20-25 minutes per client.

In Arkansas, the MIS calculates virtually all "decision points" about a family's eligibility and selection of child care. That is, the system assesses information about the family based on programmed policy guidelines and determines which options are available. Since the child care MIS closely interfaces with other data systems, caseworkers do not have to repeatedly re-enter commonly collected data on clients.

> In Arkansas, the "authorization/eligibility" module assists case workers in determining eligibility and idenifies all eligible funding sources for the caseworker. The MIS automatically assigns priorities and appropriate funding sources, lists accessible and available providers, and prints a certificate for eligible clients at the end of the intake session.

Maryland also has an intake process that is almost completely automated. When a client requests services, a caseworker enters pertinent key information into the MIS and assigns a category code for the type of care needed. The MIS processes this information, determines the client's eligibility status, and assigns a funding priority.

Maintain Client Case Information

The case information component of the MIS maintains required data (address, demographics, income, etc.) on each family and child. When used in conjunction with funding stream data the MIS can automate eligibility updates and assist program administrators in planning and monitoring services. The MIS can also determine changes in overall caseloads and client characteristics.

Although case management was not a central concern of most of the MIS design staff

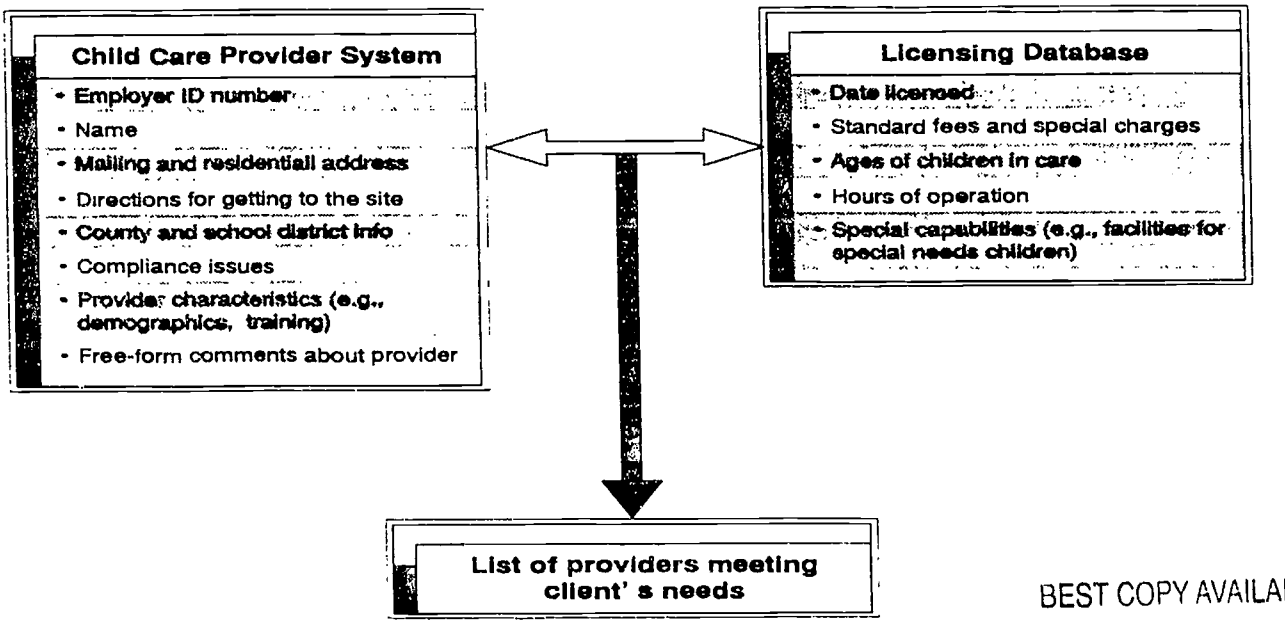
when most States began planning, several States have reported that client information in the MIS is used for case management purposes. Oregon's system was designed to determine eligibility and sends notices to clients for periodic reviews of income and eligibility. The MIS also generates notices if a parent is not using authorized care or making co-payments. In New Jersey, program officials expect that full implementation of their MIS will allow program counselors to spend less time on data management and more time counseling parents.

Arizona's ALERTS subsystem interfaces with several social services automated systems. As a result, changing information in one of these systems automatically informs the child care MIS of a change in client status. For example, if a JOBS caseworker changed the employment status record of a client, an alert would be generated for the child care case worker to redetermine eligibility. Caseworkers expect that when the system's planned feature of generating automatic notices to parents and providers is operational, they will have 20 percent more time to perform actual casework with clients.

Maryland's Child Care Administration Management Information System and New Jersey's Child Care Automated Resource and Eligibility System also perform client case updates automatically which caseworkers have found useful for tracking clients. For example, in Maryland, when a child turns two years old, the system recalculates payment rates and notifies the caseworker and the child care provider of the action. In New Jersey, CARES automatically readjusts rates and recalculates parental co-payments when a child turns two and a half. CARES also automatically adjusts service needs for school-age children based on the public school calendar, so that the child receives authorization for part-time services during the school year, but full-time care during the summer and holidays.

Maintain Provider Information

The provider component serves two main purposes: linking families with providers who meet State standards and facilitating payments to authorized providers. Provider modules typically incorporate information on provider location and size, charges (or rates paid), licensing or registration, services provided, hours of operation, payments made, and children enrolled and attending as well as complaints about the provider made to the licensing/registration agency.



As illustrated above, in Arizona, two modules maintain information on providers. The MIS interfaces the child care provider system and the licensing unit's database, which allows case managers to obtain on-line information about provider characteristics. For example, if a client needs help finding a provider convenient to his or her home or job, a caseworker can search both of the provider databases by ZIP code and create a detailed list of all of the nearby providers who can provide the type of child care needed.

Some States have chosen to build on existing provider databases maintained by CCR&Rs. The Oregon CCR&R staff compare State-generated lists of approved providers with their own database, thereby expanding the information that is available to clients. Similarly, in Maryland, data on licensed providers is transferred to the State MIS from the CCR&Rs' databases.

Arkansas' MIS can provide clients looking for child care centers and other regulated family child care homes with information on finding a choice of accessible and available providers by printing a hard-copy list of providers by county or ZIP code. The list can also include information on license violations and complaints within the current reporting period.

Issue Payments

Resolving billing problems in a manual payment system often takes a long time, leading to slow payments and frustrated child care providers. In the five States visited, the child care program administrators worried that new providers would be reluctant to participate in their programs if payment delays continued. What they have found is that a well-designed payment component of the MIS can speed payments and make the information more useful by:

- verifying authorization for payment;
- creating a payment history for each provide :
- reconciling payment with invoices; and
- recovering unwarranted payments and adjusting underpayment.

Arizona MIS staff indicated that their payment process is now 99 percent error-free. When caseworkers process authorization or billing information, the MIS cross-references all of the information in its databases, simultaneously verifying the information. The system catches and corrects virtually all data entry errors. Eliminating errors has greatly increased the speed with which providers are paid.

Produce Reports

An automated child care MIS generates management reports for local and State agencies, fiscal and statistical reports for State and Federal oversight, and system- and worker-generated reports for information and client assistance. These reports enable caseworkers and administrators to monitor their programs and assign payments to the appropriate funding stream.

Each of the State systems studied has report generation capabilities. System designers decided to have the MIS automatically create the following Federal reports:

Although State staff are generally very pleased with their systems' capability to generate Federal and State reports, some realize more work is necessary to better organize the claims process and maximize the use of Federal resources. In some States, staff enhanced the reporting capabilities of the MIS in order to provide a variety of other types of needed information, such as ad hoc statistical and management reports for case managers and program supervisors, reports responding to legislative issues, and reports to study payment and utilization of different types of care.

- ACF-231
- ACF-115
- ACF-700
- SF 269 OR 269A
- FSA-108
- IRS-1099

Exchange Information with Other Databases

Another important function of a MIS is to automatically exchange information, including making referrals, with other systems and databases. Some of the databases with which the five child care system exchange information on-line are FAMIS, CCR&Rs, AFDC, JOBS, the Food Stamp program, licensing and registration, and child welfare agencies. The extent to which the child care MIS shares data with other systems also varies (see box).

State Data Sharing

- In Oregon, the MIS and CCR&R systems exchange provider information. The CCR&Rs receive basic provider information, and the MIS obtains data on payment rates and parent co-payments.
- Arizona's system interfaces with its FAMIS, JOBS, and Food Stamp databases.
- The Arkansas MIS provides immediate on-line access to JOBS and Food Stamp databases as well as FAMIS. Clients who participate in any one of these programs do not have to provide basic information about themselves. The system uses identification numbers to match existing records, and uses existing data to create a new record for the child care MIS, freeing up caseworker time.

Several systems also have linkages to State criminal information systems for child care provider background checks. However, these linkages do not provide direct on-line access. Instead, data is exchanged and compared by what is known as a batch process. Pieces of data are grouped and held until they can be exchanged or linked by means of occasional transfer, rather than interactively. For large volumes of data, the batch process is more efficient than individual exchanges of data which can tie up or slow down computer networks. For example, batch files are often processed automatically late at night, when the system is not used as heavily.

In Oregon, the child care agency staff enter the names of all new providers into the MIS. Once a week, the MIS creates a batch file of these names and sends the batch to the child care licensing agency to review law enforcement data system and child abuse records. The child care agency refuses to consider the provider eligible for payment if the provider or someone associated with the provider does not pass the records check.

Other Features: Telephone and Modem Submission of Bills and Pre-authorization of Bills

Presently, Arkansas providers receive hard-copy certificates from parents. Each certificate has five "tear-off" bills that the provider fills out and the parent signs. The providers mail these bills to the State finance unit for processing. The Arkansas MIS, when fully implemented, will allow providers three billing options: (1) continue the current hard-copy process; (2) enter payment data directly into the State MIS via modem; or (3) enter data into the State MIS using a touch-tone telephone payment system.

With the last two methods, error-checking routines in the computer program will identify billing errors quickly. Providers will be notified of billing problems within 24 hours and allowed to correct them immediately, which will reduce payment delays and provider frustration.

Oregon's MIS generates a monthly Child Care Billing Form for each provider to submit claims. The form pre-authorizes billing for each family and eligible children and lists co-payments. Each form has a unique voucher number to prevent the form from being used more than one time. At the end of the month, the provider has each parent sign and date the form and mails the form to the Direct Pay Unit, where the claim is entered. Typically, the Direct Pay Unit issues checks within one day after the form arrives. The State has a 24-hour telephone line to allow providers to check the status of child care provider payments.

Oregon's System for Provider Information by Telephone

- Calls in 1-800 number on touch-tone phone
- Punches in ID number
- Punches in voucher number
- Listens to a message telling if voucher
  - Has not been keyed into system
  - Needs more information before processing
  - Has been processed and check sent
  - Has been denied

New Jersey uses a different approach: a "prospective" payment system. The system makes automated monthly payments to providers in advance. When providers join the program, they receive an initial payment. At the end of the first month, and each subsequent month, a voucher signed by both a parent and the provider must be submitted to the CCR&R for processing. Attendance information is entered into the MIS and adjustments to payments, if necessary, are automatically made on the following month's check by the CCR&R staff. Generally the providers are paid in full for the entire month by the 10th of the month.

Critical Issues and Lessons Learned

Every State experienced its share of difficulties and successes in the planning, development, and implementation of its automated child care system. Child care and MIS Staff from each of the five States were asked what issues and problems other States should keep in mind when designing a child care MIS. This section summarizes those suggestions.

- ***Take time in the planning stages.***

Oregon first implemented a pilot version of its system in order to predict needs and problems before going statewide. The results of the pilot indicated the need for more training time, better policy procedures, improved communications, and accommodation for a greater volume of providers and clients. Arkansas staff advised that having adequate time for system development was essential, and emphasized the need for a schedule to ensure that the system will be implemented within set time limits. Both New Jersey and Maryland found that implementing the system in phases helped resolve problems as they developed.

- ***When implementing and developing a MIS, ensure close communication between policy and systems development staff.***

States stressed the importance of communication among policy and systems staff and that both speak the same language. Many of the States recommended creating a committee that includes both program and management information staff to oversee the planning and development of the overall policy decisions for the MIS. States also recommended that a liaison be selected to manage day-to-day contact between policy staff and programmers. The liaison staff (the "translators") should be chosen for their ability to describe computer system functions in a language that program and policy staff

can understand and describe program functions in a way that system staff or programmers understand. State staff also recommended that the liaison staff be "people-oriented" rather than "computer-oriented." States stressed the importance of scheduling regular meetings throughout the planning process. Frequent meetings are more useful for resolving differences between departments and agencies because they force committee members to resolve problems rather than placing them "on the back burner."

- ***Involve the user at all points of development.***

Input and buy-in from users need to be absolute priorities from the very beginning of the planning process. Although the States tried to involve users, many users still felt that they did not have enough input into system design. States recommended that MIS development staff understand users' daily activities and what regulations and procedures they must follow. Obtaining this information from users will enable the MIS staff to design a system that reflects the needs of the users and also allows MIS staff to explain to users how the system can ease their workload. In both New Jersey and Maryland, including local level staff in the planning process was considered essential because so much responsibility for operating the system will be placed on them.

- ***MIS staff need to understand existing child care policies and procedures.***

MIS programmers and systems staff need to learn and understand what is involved with child care services and policies prior to initiating the design for the MIS. The needs to better operate child care programs should drive MIS development, not the needs of the programmers.

- ***Obtain commitment from high-level program and MIS staff prior to developing the MIS.***

Several States recommended that all persons involved in the design and implementation of the system make a commitment to the project. Commitment from persons at the top levels of the organizations is especially important, since problems arising during the design and implementation stages will require additional decisions from top management.

- ***Resolve as many policy differences as possible before developing the automated system.***

Agencies should resolve and clarify policy in the very beginning of the planning and development process. States recommended that the policies and definitions used by various department and agencies involved in the MIS be clearly articulated in writing as early in the developmental process as possible. Failure to do so may result in a system that does not meet the expectations of policy makers or users.

- ***Design the system to meet specific needs of State, clients, and providers.***

State staff indicated that directly borrowing another State's MIS probably will not work. States take different approaches to service delivery (e.g., State versus county-based, mode of payment, and relationship to FAMIS). They shared that the main reason for designing their own systems was their particular situation had unique aspects that could be best addressed by building their systems from the ground up. For this reason, Maryland staff explained, States need to understand that technology should be tailored to specific State needs. The needs assessment and feasibility study should identify existing systems (such as FAMIS and child welfare systems) and decide how and where to link or build on those systems.

- ***Design the system to be flexible***

Child care policies are constantly changing and the MIS will need to be adapted to reflect these changes. Designing the MIS to be flexible is critical; minor policy changes should not force major re-programming. Designing it to link with other relevant State and county databases is also important.

- ***Expect delays in the time required to develop an operational system.***

Staff indicated that the system almost always will NOT work perfectly the first time. States should prepare for delays. Also, testing the system is critical, and generally takes longer than expected.

States reported that the greater the level of integration of each system with other data systems, the longer the development time. Programmers must learn how the other systems work in order to interface with them. Some States indicated that the lack of direct access to other systems inhibited testing and caused delays. To avoid such delays, States recommended developing procedures to allow programmers to test system interfaces and ensure that programmers have updated documentation on each system.

- ***Plan for comprehensive training.***

State staff identified the training of users as a critical factor. Many users will have few, if any, computer skills. Throughout the various phases of development and ongoing operation of the MIS, technical and program training for both the child care and technical support staff should be provided.

Appendix A
Overview of States' MIS Design and Architecture

	Arizona	Arkansas	Maryland	New Jersey	Oregon
System Acronym	ASSISTS	ADCS	CCAMIS	CARES	CMS, SAS, and PPS
Full Title	Arizona Social Services Information and Statistical Tracking System	Automated Day Care System	Child Care Administration Management Information System	Child Care Automated Resource and Eligibility System	Client Maintenance System, Service Authorization System, and Provider Payment System
Status	Fully operational	Fully operational June 1994	Partially operational	Fully operational November 1993	Fully operational
Department	Child Care Administration, Division of Children and Family Services	Division of Children and Family Services, Department of Human Services	Child Care Administration, Department of Human Resources	Division of Family Development, Department of Human Services	Adult and Family Services Division, Department of Human Resources
Hardware	State mainframe with remote terminals	State mainframe with PCs and notebook PCs	Interconnected mainframe and mini-computer with remote terminals	County-level PCs with State mainframe back-up	State mainframe with remote terminals
Funding sources administered	CCDBG, At-Risk, JOBS, TCC, AFDC-employed	CCDBG, At-Risk	CCDBG	CCDBG, At-Risk, JOBS, TCC	CCDBG, At-Risk, JOBS, TCC, AFDC-employed
Interfaces	FAMIS, JOBS, CIS	FAMIS, Food Stamps, JOBS	FAMIS (future)	FAMIS, JOBS, CPS (all future)	Food Stamps, Medical, ADC, CCR&R
Administration level	State	State	State	State	State
User level	Local State offices	State	County	State and County Community Based Organizations/CCR&Rs	Branch Offices, District CCR&Rs
Developer	In-house	In-house	Contractor	Contractor	In-house

Appendix B
Summary of States' Organizational Structure of Child Care and MIS

ARIZONA

Created in 1991, the Child Care Administration (CCA) administers the child care system in Arizona. The CCA is one of three components (Child Welfare, Medical, and CCA) of the Division of Children and Family Services (DCFS), which is itself one of six program divisions (Developmental Disabilities, Child Support, Benefits and Medical Eligibility, Employment and Rehabilitation, Adult and Aging, and the DCFS) within the State's Department of Economic Security (DES). Formed in 1973, DES joined separate agencies--welfare, manpower demonstration, vocational rehabilitation--under one umbrella agency. The CCA's links closely to the Employment and Rehabilitation and Benefits and Medical Eligibility divisions.

Arizona's fully operational child care management information system, "Arizona Social Services Information and Statistical Tracking System" (ASSISTS), partially integrates with the FAMIS system. The system designers identify it as "somewhere between an integrated and modular model." The system is mainframe-based, with county and State workers communicating with the mainframe through terminals. The system includes AFDC-employed child care, JOBS, TCC, At-Risk, and CCDBG.

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ARKANSAS

Arkansas' child care system, a State-administered and State-delivered system, is administered by the Division of Children and Family Services (DCFS), one of eleven divisions of the Arkansas Department of Human Services (DHS). DCFS is responsible for child welfare services such as Protective Services, Foster Care, Adoptions, Child Care Licensing, IV-E Eligibility and Day Care Eligibility. The DCFS has been responsible for child care. However, when DHS was reorganized in 1986, the Division of Economic and Medical Services (DEMS) was created. This Division is responsible for AFDC and therefore now administers Arkansas' JOBS program, Project Success. The Arkansas Early Childhood Commission, through the Department of Education, works in close cooperation with DCFS administering CCDBG 25 percent funds. The actual administration of child care services within DCFS resides in the Day Care Eligibility Unit, which is responsible for administering CCDBG funds and At-Risk funds.

Arkansas expects its "Automated Day Care System" (ADCS) to be implemented statewide by June 1994. The system is somewhere between an integrated and a modular system. The ADCS shares data with other subsystems of FAMIS (AFDC, Food Stamps, and JOBS subsystems). The system is PC-based, with field staff using notebook computers connected to the mainframe computer at the State level. The system began field testing in August 1993.

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MARYLAND

Maryland child care services are State-administered and county-operated and delivered. At the State level, services are administered by the Child Care Administration (CCA), which is under the Department of Human Resources (DHR), an umbrella human services agency. The CCA brings together the State functions related to child care: licensing, program development, program standards, and program support. Income Maintenance Administration, also in DHR, administers the AFDC program.

Maryland's system, the Child Care Administration MIS (CCAMIS), is only partially operational. The CCAMIS currently operates as an independent system. However, Maryland plans to interface CCAMIS with FAMIS, which is under development, at a later date. The system is based on a minicomputer connected to the State mainframe computer. End-users, caseworkers in the county Department of Social Services, use 3270-type terminals to access the system.

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NEW JERSEY

New Jersey has a State-administered, county-delivered service system. At the State level, child care services are administered the Department of Human Services but are provided by two divisions, the Division of Family Development (DFD) and the Division of Youth and Family Services (DYFS). The DFD is the lead agency for the CCDBG and is responsible for administering the majority of child care programs--CCDBG, At-Risk, JOBS, TCC--and the State's contracts with 21 county-based CCR&Rs. The DYFS regulates child care and administers child care contracts (Title XX).

New Jersey's Child Care Automated Resource and Eligibility System (CARES) was fully implemented in November 1993. The independent system currently has no connection with FAMIS, OMEGA (the MIS that contains JOBS information), the CCR&R's MIS or the Licensing MIS. However, New Jersey plans to interface the CARES with these MIS at a later date. The personal computer-based CARES system is a stand alone system but has the capability of backing up data to the State mainframe computer via communications software. The system operates locally with personal computers being located at 21 county-based community organizations (mostly CCR&Rs).

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OREGON

Oregon's subsidized child care services are State-administered and delivered at the branch level. Oregon has historically emphasized both local decision-making and cross-agency responsibility for child care services. Four agencies have primary responsibility for child care. The Adult and Family Services Division (AFS) within the State's Department of Human Resources administers the following child care programs: Aid to Dependent Children (ADC), JOBS, At-Risk, Transitional Child Care, and the certificate program part of CCDBG. The agency administers the certificate program combining the employment and related child care subsidies into a seamless program. The Department of Education administers the USDA Child Care Food Program, school-age child care, and the early childhood education/ early intervention program. The Child Care Division, within the Employment Department is the lead agency for CCDBG, licensing, advocacy, and direct child care services to high-risk populations. The Oregon Community Children and Youth Services Commission works with communities to identify child care needs and to plan local child care programs and initiatives. The design of child care service delivery systems in Oregon is based on an assessment of local needs and available resources through a collaborative planning process. In an effort to expand access and avoid stigmatizing subsidized child care, AFS, CCR&Rs and other local child care agencies formed a partnership. The CCR&Rs provide a number of child care services including consumer education, technical assistance to providers, and research on child care issues. They can also serve as the intake points for families and, in some cases, as outstation bases for eligibility determination and case management.

The fully operational Oregon child care MIS is an independent, stand-alone system. The State has no FAMIS system. Caseworkers access the mainframe-based system via terminals. The system is composed of three independent but linked sub-systems: the Client Maintenance System (CMS), the Service Authorization System (SAS), and the Provider Payment System (PPS).

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