



State of Arizona
Office
of the
Auditor General

ANNUAL EVALUATION

**HEALTH START
PILOT PROGRAM**

Report to the Arizona Legislature
By Douglas R. Norton
Auditor General
January 1997
Report No. 97-1



STATE OF ARIZONA
OFFICE OF THE
AUDITOR GENERAL

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January 17, 1997

Members of the Arizona Legislature

The Honorable Fife Symington, Governor

Dr. Jack Dillenberg, Director
Department of Health Services

Transmitted herewith is a report of the Auditor General, an Annual Evaluation of the Health Start Pilot Program. This report is in response to the provisions of Session Laws 1994, Ninth S. S., Chapter 1, §9.

This is the second in a series of three reports. The final evaluation is scheduled to be released on or before December 31, 1997. Our evaluation finds that although there are some variations from the model, the services provided by Health Start address the Program's goals. Also, while Health Start clients are experiencing a low rate of low birth weight babies and are receiving adequate prenatal care, it is not yet known to what extent the outcomes can be attributed to the services the Program provides. The Department of Health Services has improved the contracting and reimbursement process with its Health Start providers. Finally, it is noted that there are some factors that may limit the outcome evaluation that is due by the end of the year.

My staff and I will be pleased to discuss or clarify items in the report.

This report will be released to the public on January 20, 1997.

Sincerely,

A handwritten signature in cursive script that reads "Douglas R. Norton".

Douglas R. Norton
Auditor General

Enclosure

SUMMARY

The Office of the Auditor General has completed the second year of a three-year evaluation of the Health Start Pilot Program. The evaluation was conducted pursuant to the provisions of Laws 1994, Ninth S. S., Chapter 1, §9. This second-year, interim evaluation report provides a description of and some preliminary outcomes for the Program. The final evaluation report will focus on the Program's impact and is to be released on or before December 31, 1997.

The Legislature established the Health Start Pilot Program with the legislation known as the Arizona Children and Families Stability Act of 1994. The Joint Committee on Community Program Evaluation was created by an amendment to that law, Laws 1996, Chapter 247, to oversee program implementation and recommend criteria concerning provider contracts, eligibility screening, and service delivery.

Administered by the Arizona Department of Health Services' Office of Women and Children's Health, Health Start uses lay health workers in prenatal education outreach efforts in selected Arizona communities. Arizona's Health Start Pilot Program attempts to provide children with a healthy start in life by identifying pregnant women in communities the Program serves and providing clients with education, advocacy, and referrals to needed services. The percentage of pregnant women the Program served in the targeted communities ranged from 3 to 90 percent.

The Program's specific goals are to increase pregnant women's access to prenatal care, reduce the incidence of low birth weight babies, improve childhood immunization rates, reduce the incidence of children affected by childhood diseases, provide information about preventive health care, and assist families in identifying programs that prepare children to start school.

Health Start Services Address Program Goals but Variations to the Model Exist (See pages 7 through 13)

The Health Start model as a home-based, community outreach program may be threatened by several program factors. The four-year follow-up period may be longer than needed to accomplish the Program's primary goals, and may diminish the Program's ability to provide prenatal services to eligible women in the communities. In addition, some Health Start providers are associated with health clinics and almost half receive more than one-fourth of their client referrals from the clinics, rather than recruiting direct lay health worker outreach effort clients who are more in need of services. Some of the large providers rely on providing services through group rather than individual encounters, which deviates from the lay health worker model.

Health Start does, however, appear to be providing services to clients who can benefit. Many Health Start clients face obstacles to receiving adequate prenatal care. They are predominantly low-income, minority women who, as a group, traditionally need help in understanding and accessing proper medical services.

In addition, the services Health Start provided target the goals mandated by the legislation. Education and referral services are the primary means by which the Program attempts to increase clients' understanding of health issues and prevent behaviors that can result in medical problems. Health Start's educational and referral services generally focus on program goals. These services are delivered in a variety of settings, including clients' homes, the program office, and group classes. It appears that the Program addresses most of its goals through educating clients and referrals to appropriate services.

To deliver these services, the Program recruits and trains lay health workers who are representative of, and therefore understand, the communities and cultures they serve.

Some Factors Affecting Outcomes are Unclear (See pages 15 through 17)

Preliminary results show individual Health Start clients are receiving adequate prenatal care and experiencing a low incidence of low birth weight babies. Preliminary analysis for the first year of data suggests that Health Start clients are experiencing positive outcomes. When compared to rates for the State, AHCCCS clients, or all women in communities that Health Start serves, individual Health Start clients are reporting adequate prenatal care and fewer low birth weight babies. However, it is not known to what extent the outcomes can be attributed to the services provided by Health Start.

Analysis of outcomes for individual Health Start communities shows no consistent program effects. The number of women receiving adequate prenatal services has increased in most communities, while the number of low birth weight babies has also increased. For example, in Guadalupe, the rate of low birth weight worsened from 6.2 to 7.8 percent between 1993 and 1995, but the percentage of women who entered prenatal care in their first trimester increased during this same period.

The Arizona Department of Health Services Has Improved Its Health Start Pilot Program Contracts (See pages 19 through 23)

Arizona Department of Health Services (ADHS) has improved its Health Start Pilot Program fiscal year 1997 contracts from the original contracts used in 1995 and 1996. These contract improvements include a better reimbursement process that equalizes rates across sites, increases

contractors' flexibility in providing services, and removes disincentives to providing services. The contract changes may, however, result in higher costs per client.

**Statutory Annual
Evaluation Components
(See pages 25 through 31)**

This report also contains information required to be included in each annual evaluation by Laws 1994, Ninth S.S., Ch. 1, §9. As part of this information, we note that some of the outcome evaluation due next year may be limited because of several factors. First, there is concern that it will not be possible to isolate other programs' efforts from the Health Start Program's effects. Additionally, the relatively short length of the evaluation may make it difficult to assess some program outcomes that are related to the age of the children in the Program, and some performance outcomes may be unrealistic expectations for a lay health worker-provided, home visitation program of limited intensity.

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INTRODUCTION AND BACKGROUND

The Office of the Auditor General has completed the second year of a three-year evaluation of the Health Start Pilot Program. The evaluation was conducted pursuant to the provisions of Laws 1994, Ninth S. S., Chapter 1, §9. This second-year, interim evaluation report provides descriptive and preliminary outcome information regarding the Program. The final evaluation report will focus on the Program's impact and is to be released on or before December 31, 1997.

Legislation and Appropriations

The Legislature established the Health Start Pilot Program with legislation known as the Arizona Children and Families Stability Act of 1994. Administered by the Arizona Department of Health Services' Office of Women and Children's Health (OWCH), Health Start uses lay health workers in prenatal education outreach efforts in selected Arizona communities. The Joint Committee on Community Program Evaluation was created by Laws 1996, Chapter 247, to oversee program implementation and recommend criteria concerning provider contracts, eligibility screening, and service delivery.

State appropriations for the 1995 fiscal year totaled \$975,000. For each of the fiscal years 1996, 1997, and 1998, \$1,400,000 was appropriated.

Need for the Program, Its Goals and Services

Timely and adequate prenatal care can reduce the incidence of low birth weight, which in turn can improve a child's health, reduce health care costs, and reduce infant mortality. Although it is important for pregnant women to receive prenatal care in the first trimester, vital statistics show that 31 percent of Arizona's pregnant women did not receive such care in 1993, the year prior to Health Start's implementation.¹ In addition, the incidence of low birth weight babies born in Arizona rose from 6.1 percent in 1983 to 6.8 percent in 1994.

Arizona's Health Start Pilot Program attempts to provide children with a healthy start in life by identifying pregnant women in communities the Program serves and providing them with education, advocacy, and referrals to needed services. The Program's specific goals are to increase pregnant women's access to prenatal care, reduce the incidence of low birth weight babies, improve childhood immunization rates, reduce the incidence of children affected by

¹ Vital statistics reported in the ADHS publication "Arizona Health Status and Vital Statistics 1993."

childhood diseases, provide information about preventive health care, and assist families in identifying programs that prepare children for school.

Health Start lay health workers strive to meet these goals by:

- Using outreach and networking techniques to identify and approach potential clients;
- Educating and assisting clients with accessing appropriate prenatal, child, and family health care;
- Educating clients about proper nutrition and preventive health care behaviors;
- Encouraging child immunization and enrollment in early childhood education; and
- Assisting participants in applying for applicable community and public services, including employment services.

Program Model Has Changed over Time

The program from which the Health Start Pilot Program was modeled has changed significantly since it was initiated in 1988. The predecessor to today's Health Start, Un Comienzo Sano/Health Start, began serving Arizona communities in 1988 through a federal Rural Health Outreach grant administered by Arizona State University. In 1993, the Program was expanded when ADHS began to provide monies, and it was expanded again in 1994 with the Arizona Children and Families Stability Act. Today's Health Start Pilot Program is a community outreach program delivering health education and referral services to women and their families through 12 providers in 66 communities in 11 of Arizona's 15 counties. Although the Program targets pregnant women in specific communities, the percentage of pregnant women the Program served in the targeted communities ranged from 3 to 90 percent. See Table 1 (page 4), for a listing of the program providers, the areas they serve, and their contract amounts. The following descriptions illustrate the Program's expanding focus.

■ 1988 Model – Prenatal Only Focus

Un Comienzo Sano/Health Start began in 1988 in Yuma County, Arizona. It focused on prenatal education, referral for health care needs, and client advocacy for pregnant women. Women received one post-natal visit, and little formal emphasis was placed on assisting the rest of the family.

■ 1993 Model – Prenatal and Immunization Focus

Health Start expanded its scope in 1993 with financial support from the National Association for the Education of Young Children to include a two-year follow-up period for Health Start

infants and their siblings. The follow-up period included at least six home visits by lay health workers in the first year of client enrollment and focused on the importance of immunization and preventative health care education.

■ **1994 Model – Prenatal and Family Preventive Health**

The 1994 legislation retained the lay health worker as the primary source for outreach and delivery of services to pregnant women in the Health Start Pilot Program, but expanded the Program's scope to include:

- 1) Extending the family follow-up period from two to four years;
- 2) Educating families on the importance of early identification of developmental abnormalities, and screening examinations for the entire family;
- 3) Assisting families in identifying private and public school readiness programs; and
- 4) Promoting client self-sufficiency, literacy, and community involvement.

■ **1996 Model – Eligibility Criteria Inclusion**

The 1996 legislation retained all of the 1994 model provisions but required ADHS to develop eligibility criteria for individuals. Previously, all pregnant women in a contractor's service area were eligible for the Program. As of October 1996, ADHS had developed criteria and began using a 35-point screening tool based on behavioral, physical, and social risk factors. Women who score above a designated level are eligible for the Program.

1995 Report and Follow-up

In the first year's report, several problems with the Health Start Pilot Program were identified (Auditor General Report 96-2). In response to these concerns, the Legislature created new requirements for the Program through Laws 1996, Second Regular Session, Chapter 247. The ADHS has responded in the following ways to the concerns that were identified in the first-year report and addressed by the 1996 legislation:

Procedures for selecting pilot sites need to be improved— Although problems with pilot site selection were identified in the first-year report, ADHS did not revise criteria for site selection since new contractors were not sought for the 1997 fiscal year. ADHS has reported it will seek new contractors if and when the Program is expanded and will revise site selection criteria only if this occurs.

Table 1

**Health Start Pilot Program
Providers, Service Areas, and Contract Amounts
Years Ended or Ending June 30, 1995, 1996, and 1997
(Unaudited)**

| Provider | Service Area | Contract Amounts | | |
|---|--|------------------|--------------------|--------------------|
| | | 1995 | 1996 | 1997 |
| County Health Departments | | | | |
| Cochise | Douglas and Bisbee | \$ 30,150 | \$ 57,900 | \$ 84,000 |
| Coconino | Page and surrounding areas | | 60,800 | 86,400 |
| Pima | Tucson and rural areas | 24,210 | 82,000 | 75,300 |
| Pinal | Eloy plus Casa Grande in 1997 | 38,080 | 114,050 | 121,000 |
| Yavapai | Various communities | 31,650 | 73,500 | 70,300 |
| Yuma | Yuma and surrounding communi- ties | 69,650 | 168,725 | 163,000 |
| Area Health Education Centers | | | | |
| Northern Arizona ¹ | Hopi and Navajo reservation, and other communities in Navajo County plus communities in La Paz and Mohave Counties for 1996 and 1997 | 57,850 | 237,700 | 210,040 |
| Western Arizona | Communities in La Paz and Mohave Counties | 40,450 | | |
| Community Health Centers/Behavioral Health Centers | | | | |
| Centra de Amistad, Inc. | Guadalupe | 15,000 | 84,700 | 91,600 |
| Clinica Adelante, Inc. | Migrant areas around Phoenix | 42,620 | 118,500 | 99,000 |
| Indian Community Health Service, Inc. | Native Americans in metropolitan Phoenix area | 23,860 | 59,600 | 67,700 |
| Mariposa Community Health Center | Nogales and Rio Rico areas | 57,800 | 135,700 | 118,500 |
| Mountain Park Health Center | South Phoenix | <u>41,250</u> | <u>102,000</u> | <u>105,000</u> |
| Total | | <u>\$472,570</u> | <u>\$1,295,175</u> | <u>\$1,291,840</u> |

¹ Northern Arizona Area Health Education Center merged with the Flagstaff Community Free Clinic in 1996 to form the North Country Community Health Center and assumed responsibility for communities in La Paz and Mohave Counties.

Source: Auditor General staff analysis of data provided by the Arizona Department of Health Services, Health Start, proposals and contracts, Office of Women and Children's Health summary map of Health Start providers and sites, and Health Start database.

Efforts needed to coordinate with related programs— In the first year, it was reported that some sites might be over-serving women or enrolling participants who would be better served by another program. In response to this concern, Chapter 247 established the

requirement for ADHS to conduct a Health Start Program coordination study. The coordination study, published October 1, 1996, repudiates some of the Office of the Auditor General's concerns by failing to identify many similar programs the Health Start Program could coordinate with or which might be providing similar services to the same population.¹ However, the study's conclusions are open to interpretation because it reports that only three programs have clear similarities to Health Start, and its criteria for "similar" are so narrow that two of the Health Start sites do not fully meet the criteria. Regarding coordination and consolidation, the report cites three specific activities that have been undertaken and identified seven areas, such as training and administration, that are appropriate for coordination and are being included in a plan to coordinate programs administered by various agencies and offices.

Lack of individual eligibility criteria – In the first-year evaluation it was reported that lack of eligibility criteria for the Program could result in Health Start serving families who do not need services or who might be better served by another program. As a result of these concerns about lack of eligibility criteria, the ADHS has identified 35 factors to assess women's eligibility for the Program. The risk factors include health problems, such as heart problems or high blood pressure; use of drugs, alcohol, or tobacco; being homeless or migrant; and having a history of miscarriages. All newly enrolled clients will be assessed in all of these areas. ADHS began using the eligibility screen on October 1, 1996. The appropriateness of the criteria and the minimum eligibility score will be assessed in the last year of the evaluation and will be discussed in the final report.

The information gathered from the eligibility assessment will also be used by the lay health workers to identify the specific types of services and referrals each client needs. For example, a pregnant woman who does not have enough money to meet basic needs could be referred to private charitable or public assistance programs, or a mother who does not speak English could be counseled to take an English class.

Evaluation Scope and Methodology

The Arizona Children and Family Stability Act requires the Office of the Auditor General to annually evaluate the results of the Health Start Pilot Program. The Act requires evaluation of items such as the Program's effectiveness, its organizational structure and efficiency, the type and level of criteria used to establish eligibility for the Program, and the number and characteristics of the people receiving services from the Program.

The primary methods used in this evaluation include: 1) analysis of program participant data contained in the ADHS' Health Start database, 2) review of Health Start Pilot Program

¹ ADHS contracted with Gill and Cannon, Inc., to conduct the required assessment of the feasibility of the comprehensive program coordination for the Health Start Pilot Program.

documents, 3) interviews with Health Start providers, 4) observations during 19 lay health workers' client visits, and 5) analysis of aggregated vital statistics from the Arizona Department of Health Services. In addition, 17 staff trainings were observed and literature concerning the prevention of low birth weight babies and improving the effectiveness of lay health worker programs was reviewed.

This evaluation is the second in a series of three. In addition to the issues discussed above, the first-year evaluation report included information regarding the Program reverting a significant amount of its appropriation due to the short amount of time it provided services during the 1995 fiscal year, and information on the *Arizona Family Resource Guide*, a list of medical services statewide that is to be given to Health Start clients and to all women in the State released from hospitals after giving birth. This second report provides information regarding the Program's implementation. Specifically presented are:

- How Health Start appears to be providing services mandated by legislation, but some questions about the implementation and effectiveness of the model cannot be answered;
- Preliminary analysis of how outcomes show results are mixed.
- Information on contract reimbursement procedures.
- A report on statutory annual evaluation components including client characteristics and program costs.

The third and final report will focus on the Program's effectiveness in meeting its goals and objectives and the impact the Program has had on program participants.

The Auditor General and staff express appreciation to the Director of the Department of Health Services, the Chief and staff of ADHS' Office of Women and Children's Health, and the Health Start Pilot Program staff for their cooperation and assistance during the second year of the Health Start Pilot Program Evaluation.

FINDING I

HEALTH START SERVICES ADDRESS PROGRAM GOALS BUT VARIATIONS TO THE MODEL EXIST

The Health Start model as a home-based, community outreach program may be threatened by several program factors. The lengthy four-year family follow-up period, the relationship between providers and their parent organizations, and a reliance on group versus individual-based services may threaten the Program's ability to provide adequate services. However, the Program does appear to be providing services to clients who will benefit, the services appropriately target program goals, and the Program recruits and trains lay health workers who are representative of, and therefore understand, the communities and cultures they serve. The ADHS should monitor the program providers to ensure the potential benefits of the program model and the services provided are not compromised.

Background

The Health Start Pilot Program was designed to serve communities with a high incidence of inadequate prenatal care, inadequate infant health care, low birth weight babies, or inadequate early childhood immunization. To effect positive changes in these outcomes, lay health workers educate families on the importance of early and adequate prenatal care, family planning, good nutrition, child development, preventive health care, benefits of education for all, and self-sufficiency. Lay health workers also help families access needed social, nutritional, and medical services through referrals and one-on-one assistance.

Deviations from Health Start Home Visit Model

The Health Start model as a home-based, community outreach program may be threatened by several program factors. First, the Program has a lengthy four-year family follow-up period, which may interfere with prenatal services. Second, the relationship between providers and their parent organizations may focus services on clients with less need. Third, reliance on group versus individual-based services may threaten the Program's ability to provide adequate services. The ADHS should monitor the program providers to ensure the benefits of the program model are not compromised.

Four-year follow-up period may be too extensive— Many clients elect to enter the family follow-up phase of the Program after delivering their babies. Family follow-up is currently designed to last for four years to ensure healthy behaviors are being maintained. However,

this lengthy period reduces the amount of time lay health workers have to work with pregnant clients. For example, of the seven providers who met or exceeded the number of family follow-up visits in their contracts, only two met or exceeded their contracted number of prenatal services. No providers met their contracted number of prenatal services, but not their family follow-up contracts. In addition, during the second year of implementation, the Program was serving many more clients in family follow-up than in prenatal. This may reduce the Program's ability to positively impact their communities' birth outcomes, because a lower percentage of pregnant women in the community are being served.

To limit family follow-up's impact on reducing services to pregnant women, consideration should be given to reducing it to two years. Children should be fully immunized by age two, and this period should be sufficient to provide the educational and referral support to prepare families to find assistance independently. If further support is needed, families could be referred to other social service agencies for more intensive family support, allowing the lay health workers to focus on providing the prenatal and family follow-up services they are best prepared for.

Some providers rely heavily on medical clinic and public health office connections – Many clients served by Health Start are referred to the Program by the medical clinics and public health offices contracted to provide Health Start services. This creates a relationship in which the Program is an extension of the services being received through the contractor's parent organization. In such instances, many clients are those who sought prenatal care themselves and then were directed to Health Start services, not Health Start finding and recruiting clients and getting them into prenatal care they would otherwise avoid.

Currently, at least five providers receive between 25 and 73 percent of their clients from clinics. These same providers receive only 10 to 47 percent of their clients from lay health workers' direct outreach efforts. These relationships create a different mode of service delivery and bring into question the Program's mission as provided by these contractors. It is unclear if Health Start is bringing people who need prenatal care into clinics, or if clinics are using Health Start resources to supplement services they are already providing.

Large providers are relying on group rather than individual service delivery – Many of the larger providers frequently use group classes as opposed to individual visits to provide services. This differs from the model of a "home-based" system of service delivery. The classroom-type atmosphere differs dramatically from the intimate, and presumably more confidential, atmosphere of the client's home. While the efficiency of such methods of delivery may be beneficial, such a public setting brings into question the Program's ability to address sensitive client needs.

Problems with model have not resulted in poor services – The concerns about clients being referred from clinics and services provided in group rather than individual settings does not mean that clients are receiving poor service, only that there is variation from the service delivery model that must be controlled by the Health Start administration. Health Start

needs to closely monitor the relationships among these contractors to ensure the benefits of a home-based, community outreach-type program are not compromised.

Health Start Clients' Poverty and Cultural Barriers May Deter Prenatal Care

Despite the deviations from the program model, the Program does appear to provide services to clients who will benefit from them. Many Health Start clients face obstacles to receiving adequate prenatal care. These obstacles include poverty, as well as cultural and language barriers.

Poverty has long been recognized as a leading factor for women not receiving adequate prenatal care, and many Health Start clients would be defined as living in poverty according to federal guidelines. Eighty-six percent of Health Start's clients were enrolled in AHCCCS at the time they gave birth.¹ In comparison, approximately 12 percent of all Arizonans are enrolled in AHCCCS. This high percentage of clients enrolled in AHCCCS suggests Health Start clients are much more likely to have lower incomes than the general population. Poverty, however, is not the only potential barrier to adequate prenatal care that Health Start clients face.

Cultural and language barriers are also recognized as deterrents to women receiving prenatal care. New immigrants to the U.S. often seek medical attention only when illness occurs, and pregnancy is not considered an illness. Preventive health care is not a familiar concept to many new Health Start clients. Language barriers also present an obstacle to prenatal care if women cannot effectively communicate with their medical providers. As seen in Figure 1 (see page 10), Health Start is serving a primarily Hispanic population, requiring many lay health workers to be bilingual.

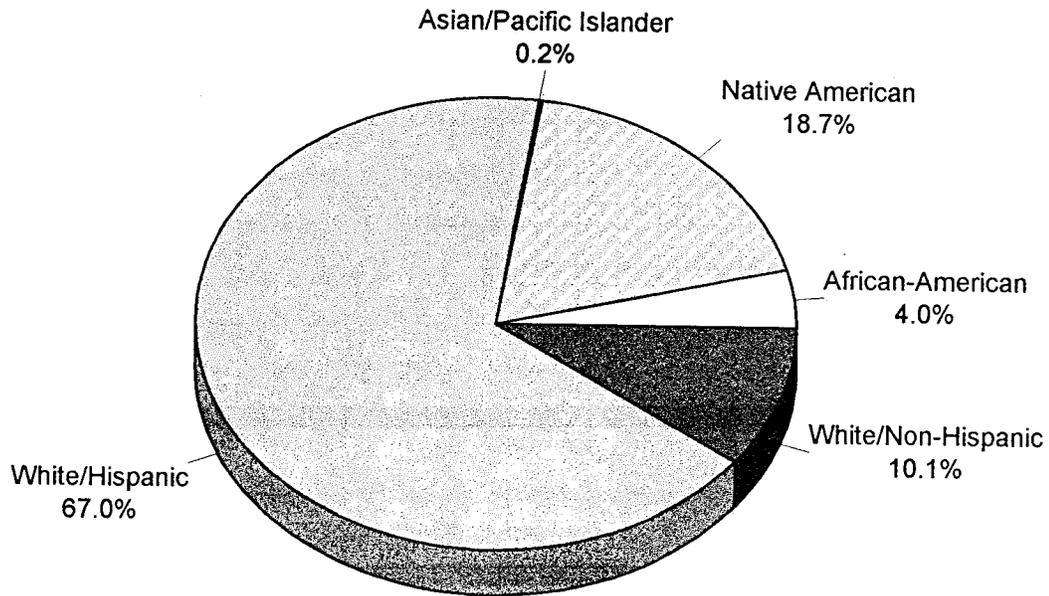
Health Start Provides Relevant Information in a Variety of Settings

Health Start providers use various methods to dispense relevant information to clients. Clients can receive services in their homes, in provider offices, and in various community locations. Many of the Program's goals are addressed by educating clients about relevant topics or referring clients to appropriate services.

Services delivered in a variety of settings—Health Start lay health workers provide services to clients in various places and in various ways. For example, services are provided at clients' homes, in clinics, in group classes, and in other locations. Preliminary Health Start

¹ AHCCCS, the Arizona Health Care Cost Containment System, is the State's program to provide health care to the indigent.

Figure 1
Health Start Pilot Program
Client Ethnicity
March 1, 1995 through February 29, 1996



Number of women = 2,020

Source: Auditor General staff analysis of Health Start database.

data show clients received an average of seven lay health worker visits during their pregnancies, which exceeds the Program's goal of at least five prenatal visits. Fifty-four percent of these meetings were at clients' homes, 12 percent were at Health Start offices, and 17 percent were at other places (such as community centers, clinics, schools, or hospitals). Another 17 percent of the services were not provided on an individual basis, but in group classes.

Services provided relate to program goals—The educational topics discussed during client visits cover a wide range of subjects, most of which relate to the goals and instruction specified in the legislation establishing the Program. Health Start program data indicates at least 27 educational topics were discussed with clients during the Program's first year. Table 2 (see page 11), illustrates those topics discussed most often during visits and classes.

Lay health workers refer clients to services—Part of the Program’s mission is to inform participants how to receive prenatal care and assist them in accessing appropriate prenatal and social services. During the first meeting with lay health workers, half of the women are referred to the Women, Infant and Children Program (WIC), which provides nutritious food for needy expectant mothers. Over 40 percent are referred to AHCCCS, and one-third are referred directly to a clinic, hospital, or doctor’s office. Nearly 20 percent are referred to the Department of Economic Security (DES) for social services. With each visit, clients’ needs are assessed and further needed referrals are made. Helping clients translate forms, arranging appointments, and even providing bus tokens are also part of the Program’s referral and assistance activities.

Table 2

**Health Start Pilot Program
Percentage of Clients Receiving Instruction
by Educational Topics
and Related Legislated Goals
March 1995 through July 1996**

| <u>Percentage</u> | <u>Educational Topic</u> | <u>Legislated Goal</u> ¹ |
|-------------------|--------------------------|---|
| 94 | Breast feeding | Improve the overall health of children through good nutrition |
| 93 | Prenatal care | Increases prenatal services |
| 87 | Emotions/feelings | (No directly stated goal or instruction) |
| 82 | Women’s health | Educate on the benefits of preventive health care |
| 81 | Children’s nutrition | Improve the overall health of children through good nutrition |
| 74 | Immunization needs | Encourage age-appropriate immunization |
| 72 | Transportation | Increase prenatal care services |
| 70 | Infant care | Reduce the incidence of children affected by childhood disease |
| 67 | Child development | Promote early identification of developmental disabilities. |
| 65 | Safety | Educate on the benefits of preventive health care |
| 65 | Finances | Assist in obtaining financial assistance (a legislated service but not a goal). |

¹ Six of the eight Health Start goals mandated by the enabling legislation are covered by these topics. One goal not covered—reducing the rate of low birth weight babies—is an indirect goal achieved through increased prenatal visits. The other goal is identifying public and private preschool programs.

Source: Auditor General staff analysis of Health Start database.

However, it is unknown whether other needed self-sufficiency topics were discussed with clients because Health Start providers never collected data for these key components. For example, no data exists regarding a client's employment referrals or community service activities. This lack of data prevents any systematic analysis of these important program efforts. A newly designed form that recently went into effect includes areas for collecting data on employment and hearing/vision referrals, and an analysis of efforts in these areas will be included in the third evaluation due in December 1997.

Health Start Oversees Lay Health Worker Recruitment and Training

Health Start oversees the screening, training, and certification of lay health workers to ensure they are qualified and prepared to perform their duties. The lay health worker often becomes the conduit through which clients access health, nutritional, and social services. Lay health workers are representative of the populations they serve; therefore, providers work to recruit and hire lay health workers with the same ethnic, cultural, and social-economic characteristics as their clients. Additionally, as required by legislation, all lay health workers must undergo a background check as a condition of employment and complete an affidavit that they have not committed a felony or misdemeanor involving moral turpitude.

Health Start uses a specific training and testing program to ensure lay health workers are qualified to serve clients. Workers must complete a core training course that contains 60 specific educational objectives. They must then pass a test specific to this training with a score of 90 percent or better. Prior to the core training workers must also complete eight hours of orientation training in seven key educational topics:

- The lay health worker's role
- Pregnancy
- Child growth and development
- Communication skills
- Identifying and accessing community resources
- Documentation and confidentiality
- Supervised home visits.

Lay health workers must complete orientation training and demonstrate proficiency in conducting home visits before they are able to work independently. Core training must be completed within 90 days after workers are hired. This includes training unique to their community (for example, referrals to Indian Health Services in predominantly Native American communities). ADHS issues a Certification of Completion when training is finished. Each lay health worker also has an individual continuing education plan, which includes at least 6 annual hours of ADHS-approved courses.

Recommendations

1. If the Health Start Pilot Program is reauthorized for fiscal year 1999, the Legislature should consider reducing the family follow-up period to a maximum of two years.
2. The ADHS should monitor the program providers to ensure adherence to the home-based, community outreach model.

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FINDING II

SOME FACTORS AFFECTING OUTCOMES ARE UNCLEAR

Preliminary results show Health Start clients are receiving adequate prenatal care and experiencing a low incidence of low birth weight babies. However, these positive outcomes cannot, at this time, be attributed to the services provided by the Program. In addition, analysis of low birth weight and adequate prenatal care rates for communities Health Start serves reveals no consistent improvements in the community-level rates.

Background

Program outcomes can be viewed at two different levels, the client level and the community level. Health Start is working to effect improvement at both levels. By educating clients on how to ensure good reproductive and family health, and directly assisting clients in accessing medical, nutritional, and social services, the Health Start Program hopes to effect community change, one client at a time. For this reason, both levels are being examined and the differences discussed.

Preliminary Analysis Shows Positive Client-Level Outcomes

Preliminary data from women delivering babies in the first year of usable Health Start data suggests positive outcomes are occurring. When compared to the state rate, AHCCCS clients, or communities that Health Start serves, more Health Start clients are reporting adequate prenatal care and fewer low birth weight babies. However, it is not known if Health Start services or other factors are affecting these results.

Health Start clients receive adequate prenatal medical visits—Most clients are receiving adequate prenatal medical visits. Adequate prenatal care, as defined by five or more medical prenatal visits, is the standard at both the state and federal level, and is the Program's goal. Almost all of the Program's clients received five or more prenatal medical visits. In fact, nine out of ten clients received five or more prenatal visits. As a group, clients averaged ten prenatal visits.

Health Start clients have fewer low birth weight babies—Health Start clients show a reduction in low birth weights. ADHS defines low birth weight as less than five-and-a-half

pounds. Health Start clients' babies had a combined low birth weight rate of 4.6 percent, which compares to a statewide rate of 6.8 percent and a rate for Health Start communities of 6.7 percent. A low birth weight rate of no more than 5 percent is Health Start's goal, and reflects both state and national standards for the year 2000.

AHCCCS not the reason for low birth weight rates— Most of the women who deliver babies while in the Program report being enrolled in AHCCCS (86 percent). Even so, AHCCCS does not appear to be a factor in Health Start clients' reduced low birth weight rate. AHCCCS clients statewide have a low birth weight rate of 7.4 percent, which is worse than the state average. AHCCCS participation among Health Start clients cannot explain positive birth outcomes; however, other sources may still be affecting the Health Start rates and need to be investigated.

Why outcomes appear better for Health Start clients not yet known— Health Start's low birth weight rates are better rates for the total population of women in communities served by Health Start, but why they are better requires further investigation. Self-selection into the Program, programs such as Baby Arizona working with the same population, and statistical anomalies are just a few factors that could explain the differences between Health Start clients and their communities as a whole. A more detailed analysis, including a comparison group and analysis of factors which may explain differences, will be included in the third and final evaluation due in December 1997.

Positive Outcomes Not Appearing at the Community Level

While individual clients in the Program are receiving adequate prenatal care and are having few low birth weight babies, there are mixed results regarding the Program's impact at the community level. These community-level data show that the number of women receiving adequate prenatal services has increased in most communities between 1993 and 1995, while low birth weight rates are often higher. It is unlikely that the community-level impacts of Health Start, if they occur, will be measurable with only one additional year of data.

At the community level, the number of women receiving adequate prenatal services has increased in most communities, but low birth weight rates are often worse. From 1993, the year before Health Start began, to 1995, eight of the ten providers' communities showed increases in the number of women receiving prenatal care in the first trimester, and seven of ten communities showed increases in the percentage of women receiving five or more prenatal visits.

Low birth weight rates, however, were higher for six of the ten providers' communities. For example, in Guadalupe, the low birth weight rate worsened between 1993 (6.2 percent),

and 1995 (7.8 percent). During this same period, however, more women received prenatal care in the first trimester.

It is unlikely that Health Start's effects on community-level outcomes will be measurable as part of next year's final evaluation. Analysis of community-level data will be constrained by the limited data available on these outcomes. Additionally, the small numbers of pregnant women in some of the Health Start communities who are served by the Program make it unlikely that the Program, if it is effective, would show community-level effects in this limited period.

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FINDING III

THE ARIZONA DEPARTMENT OF HEALTH SERVICES HAS IMPROVED ITS HEALTH START PILOT PROGRAM CONTRACTS

ADHS has improved its fiscal year 1997 program contracts to include a better reimbursement process. The contract revisions remove some disincentives to providing services and should allow reimbursement rates to be more appropriately equalized across sites. However, the changes also result in a higher cost per client and the creation of new disincentives to contractors.

The Health Start providers are paid a flat dollar amount plus a rate for each client service to a maximum amount as defined by contract. Contractors do not receive additional reimbursement if they exceed the maximum number of service units stipulated in their contracts. As a result, providers maximize revenues by providing as many services as contractually allowed.

Health Start Pilot Program Negotiates Improved Performance Contracts

The contracts for 1997 are improved over the original contracts used in 1995 and 1996. The services that contractors are to provide have been reclassified, resulting in the removal of disincentives to contractors providing services. Additionally, Health Start reimbursement rates have been equalized across sites.

Restructuring of Health Start reimbursement system removes disincentives – For fiscal year 1997, ADHS has reclassified the services that contractors are to provide. Under the original structure, providers were reimbursed for prenatal services based on the number of clients. For clients in family follow-up, contractors were reimbursed based on the number of services or visits provided. The contracts for fiscal year 1997 have combined the prenatal clients and the family follow-up services into a “client visit” service. Under the 1997 structure, providers are reimbursed for each visit for both prenatal and family follow-up clients.

Under the original contract structure, providers might not be reimbursed for all the services they provided. The contract limited the amount of money a contractor could be paid for

each service category. Consequently, as described in the following example, a contractor might not receive reimbursement for all services.

- A contractor had a maximum of 200 family follow-up visits and 20 prenatal clients in their contract. Under the old contracts, if the contractor provided 220 family follow-up visits and served 15 prenatal clients, the contractor would not be reimbursed for 20 of the 220 family follow-up visits conducted because the allowable number of 200 was exceeded. This would occur even though the contractor had not reached the maximum dollar amount of the contract because only 15 of the potential 20 prenatal clients were served. Combining service categories under the new contracts would now allow this contractor the flexibility to serve clients without concern for whether the client is prenatal or family follow-up, so long as the contract amount is not exceeded. As a result, the contractor may now be reimbursed for a higher percentage of the services provided.

In addition, the original contracts reimbursed providers the same amount regardless of the number of services clients received. Under the original structure, a contractor received the same rate for an outreach and prenatal client, whether they had three or more home visits. Although the Program's goal is to have workers provide at least five client visits during the prenatal period, previously, contractors had no incentive to provide more than the minimum requirement of three visits, since they would not receive any additional reimbursement. However, contractors are now paid for each visit.

1997 reimbursement rates vary less than the 1996 contracts— ADHS has modified its Health Start Pilot Program rate structure. The 1995 and 1996 rates for direct client services varied substantially among providers. For example, in 1996, rates for "outreach only" clients ranged from \$20 to \$80, and the rate ranged from \$200 to \$380 for each "outreach and prenatal" client. The 1997 rate for "client visits," which replaces the outreach only and outreach and prenatal services, ranges from \$50 to \$60.

Improved Contracts Impact Program Delivery and Costs

Although the Health Start Pilot Program's new contracts equalize rates for sites and increase contractors' flexibility in providing services, the changes may result in higher costs per client, and create an incentive to provide more services to fewer clients. In addition, reimbursement for group activities based on the number of clients in attendance could create an incentive to rely more on group classes than on home visits.

Rates increase for outreach and prenatal, and family follow-up— Because contractors can now be paid for each outreach and prenatal visit, contractors can receive higher reimbursements for these clients. Contractors averaged 5.7 prenatal visits per client in fiscal

year 1995-96 but were paid only their base outreach and prenatal or outreach only rate for these clients. For example, a contractor who received \$250 per outreach and prenatal client received this amount whether the client received 3 or 8 home visits. Under the 1997 structure, at \$50 per visit, the contractor would receive only \$150 for the client who received 3 visits, but would receive \$400 for the client who received 8 visits. Using past performance as a measure, as seen in Table 3 (see page 22), all but 2 of the sites will receive more for outreach and prenatal clients in 1997 than in 1996.

In addition to the increased payments for prenatal clients, the rate for family follow-up visits increased from \$30 to either \$50 or \$60. As a result of these changes, contractors may now have an incentive to provide more services to fewer clients rather than enrolling more clients. However, the new client registration payments provide a small incentive to enroll new clients. Since the Program targets a specific number of visits (five prenatal, and six per year for family follow-up), ADHS should set guidelines for the number of prenatal visits that can be reimbursed for each client and the number of family follow-up visits per year that can be reimbursed for each client.

Reimbursement of group classes may result in disproportionate compensation for services—Contractors will receive the same client visit reimbursement for home visits, clinic visits, or group classes. This means a contractor will be reimbursed at the individual client visit rate for each client who attends a group class. For a one- or two-hour class that is attended by ten clients, a contractor can receive \$500.¹ Contractors who rely on home visits would spend about ten hours providing services to ten clients in order to receive the same reimbursement. While it makes sense to reimburse contractors more for a class than for a single client visit, and group classes add to the variety of services provided through Health Start, reimbursing contractors for each client at the same rate as for individual services may not be necessary. To reinforce the Program's home visit model and to ensure that contractors who rely more heavily on group classes do not receive disproportionate compensation, reimbursement rates for classes should be renegotiated. In addition, a lower rate for individual visits held in the Program's offices versus home visits would further prevent programs from receiving reimbursement at rates above costs and would help to maintain the home visit model.

¹ Two of the largest contractors rely heavily on group classes as a form of client visit.

Table 3

**Health Start Pilot Program
Provider Reimbursements for Prenatal Clients
Years Ended or Ending June 30, 1996 and 1997¹
(Unaudited)**

| Provider | 1996 | 1997 (Projected)² |
|---|--------------|---|
| County Health Departments | | |
| Cochise County | \$200 | \$285 |
| Coconino | 380 | 468 |
| Pima | 250 | 375 |
| Pinal | 225 | 330 |
| Yavapai | 300 | 245 |
| Yuma | 200 | 360 |
| Area Health Education Center | | |
| Northern Arizona | 350 | 324 |
| Northern Arizona-West | 350 | 300 |
| Community Health Centers/Behavioral Health Centers | | |
| Centra de Amistad, Inc. | 250 | 340 |
| Clinica Adelante, Inc. | 250 | 365 |
| Indian Community Health Service, Inc. | 200 | 225 |
| Mariposa Community Health Center | 260 | 325 |
| Mountain Park Health Center | 250 | 540 |
| Average reimbursement for each client | \$267 | \$345 |

¹ Reimbursements are based on each contractor's negotiated and average number of visits provided. The 1996 client rates ranges from \$200 to \$380. The 1997 service rates range from \$50 to \$60 and the projected average number of prenatal visits ranges from 3.3 to 9.6.

² This amount also includes the new "client registration" payment, which each contractor receives for enrolling new clients. No client registration payments were made in 1996.

Source: Auditor General staff analysis of Arizona Department of Health Services Health Start database and additional information provided by the Arizona Department of Health Services.

Recommendations

In order to ensure that all clients receive an appropriate number of services and home visits, and contractors are appropriately and equitably reimbursed for services, the ADHS should:

1. Set guidelines for the number of prenatal visits per year that can be reimbursed for each client.
2. Set guidelines for the number of family follow-up visits per year that can be reimbursed for each client.
3. Renegotiate rates for group classes.
4. Renegotiate rates for office visits.

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STATUTORY ANNUAL EVALUATION COMPONENTS

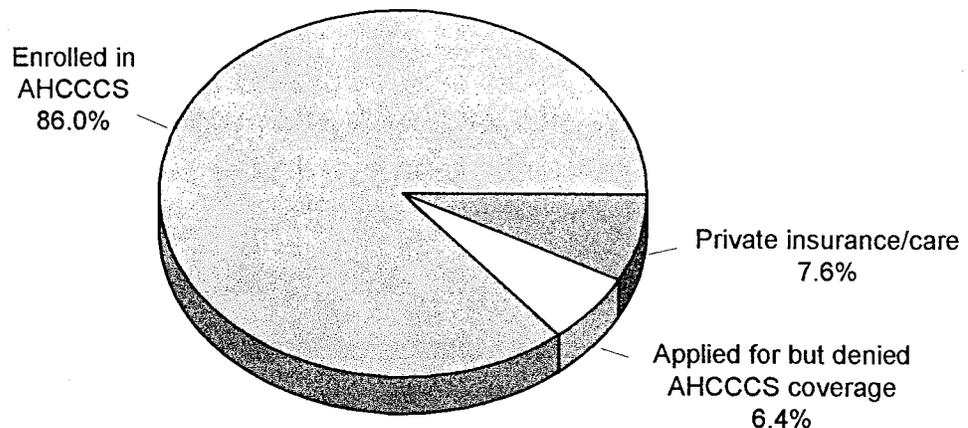
According to Laws 1994, Ninth S. S, Chapter 1, §9 the Office of the Auditor General is to address ten factors in annual programmatic evaluations of the Health Start Pilot Program. Responses to these factors are listed below.

1. Information on the number and characteristics of the program participants.

Health Start served approximately 2,000 primarily low-income, minority populations between March 1995 and February 1996. Only 10 percent of program clients are non-Hispanic whites (see Figure 1, page 10). As seen in Figure 2, 86 percent were enrolled in AHCCCS at the time they delivered their babies.

Figure 2

Health Start Pilot Program
Client Health Insurance Coverage
at Time of Giving Birth
March 1, 1995 through February 29, 1996



Number of women = 1,105

Source: Auditor General staff analysis of Health Start database.

Additionally, most of Health Start's clients are single. Only 37 percent are married and 15 percent are cohabitating, leaving nearly half without a partner.

2. Information on contractors and program service providers.

The OWCH originally contracted with 13 providers for Health Start services in over 60 urban and rural sites across Arizona. One contract was not renewed for 1996, and services for that area are now being provided by one of the other original contractors. The 12 contractors for fiscal years 1996 and 1997 are 6 county health departments and 6 private, not-for-profit providers. Five contractors serve metropolitan areas in Phoenix, Tucson, and Yuma, and 9 contractors serve rural areas throughout 11 of Arizona's 15 counties. Two of the contractors (one urban, one rural) serve primarily Native American participants.

Table 1 (see Introduction and Background, page 4), shows the contractors and contractor type, their service areas, and their pilot program contract award for fiscal years 1995, 1996, and 1997.

As seen in Table 4 (see page 27), contractors did not provide all of the services contracted for in their fiscal year 1996 contracts. While only one-fourth or less of the 12 providers met the prenatal and outreach, outreach only, and sibling immunizations contract amounts, seven providers exceeded and one met the contracted number of family follow-up visits.

The targeted number of client visits in fiscal year 1997 ranges from 350 client visits for the smallest contractor to 2,184 for the largest contractor. Contracts for fiscal year 1997 also define a "client registration" service unit.¹ Client registration goals vary across contractors, with between 80 and 400 new clients being targeted.

3. Information on program revenues and expenditures.

Revenues for the Program include \$1.4 million in Family Stability Act appropriations, \$200,000 appropriated to ADHS in a separate line item to provide prenatal services, and \$18,793 in federal monies for a total of \$1,618,793. The budget for the 1996 revenues is presented in Table 5 (see page 27). Of the total amount available, the Program spent \$1,386,249.

¹ "Client registration" is enrolling a client into the Program.

Table 4

Health Start Pilot Program
Services Contracted and Provided
Year Ended June 30, 1996

| Service | Number Contracted | Number Provided | Percentage Provided |
|------------------------------------|-------------------|-----------------|---------------------|
| Family follow-up visits | 4,850 | 5,077 | 105% |
| Outreach only clients | 1,145 | 848 | 74 |
| Outreach and prenatal clients | 1,325 | 942 | 71 |
| Sibling immunization verifications | 2,254 | 981 | 44 |

Source: Auditor General staff analysis of invoice records provided by the Department of Health Services.

Table 5

Health Start Pilot Program
Budget
Year Ended June 30, 1996
(Unaudited)

| Category | Percentage of Budget | Amount |
|-----------------------------------|----------------------|--------------------|
| Monthly contractor base rate | 35% | \$ 560,375 |
| Outreach and prenatal services | 21 | 346,200 |
| Sibling immunizations | 11 | 177,300 |
| Family follow-up services | 9 | 145,500 |
| ADHS personnel | 7 | 114,475 |
| Professional and outside services | 6 | 95,000 |
| Outreach only services | 4 | 65,800 |
| Other operating costs | 3 | 45,000 |
| ADHS employee-related costs | 2 | 29,764 |
| Unallocated | 2 | 32,879 |
| Travel | | 6,500 |
| Total | <u>100%</u> | <u>\$1,618,793</u> |

Source: Auditor General staff analysis of budget and contract information provided by Health Start.

4. Information on the number and characteristics of enrollment and disenrollment.

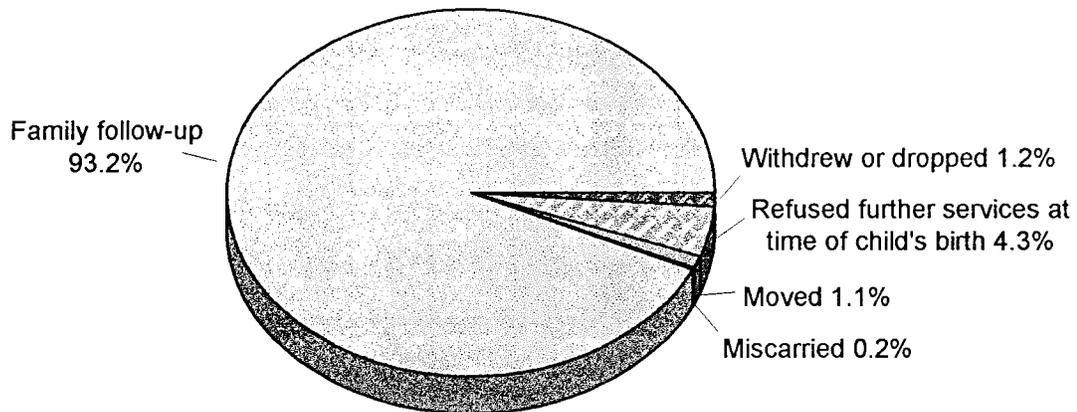
Of the approximately 1,100 women delivering babies while in Health Start's first year of available data, over 93 percent chose to continue in the family follow-up phase of the Program. Figure 3 shows enrollment and disenrollment patterns of women immediately after giving birth while in the Program.

5. Information on the average cost for each participant in the Program.

As seen in Table 6 (see page 29), the cost per visit has significantly decreased in the program year ended June 30, 1996. The cost per prenatal and outreach clients has increased because the average number of prenatal visits increased from 2.7 in 1995 to 5.7 in 1996, which is closer to the program goal of 5. The figures for 1995 are for a limited four-month service period, whereas the 1996 figures cover a full 12 months of services and, consequently, a longer prenatal period.

Figure 3

**Health Start Pilot Program
Percentage of Clients Entering
Postnatal Family Follow-up or Disenrolling
March 1, 1995 through February 29, 1996**



Number of women = 1,127

Source: Auditor General staff analysis of Health Start database.

Table 6
Health Start Pilot Program
Cost per Client and Visit
Years Ended June 30, 1995 ¹ and 1996

| Expenditures | Visits | | Prenatal and Outreach Clients | |
|--------------|--------------|--------------|-------------------------------|--------------|
| | 1995 | 1996 | 1995 | 1996 |
| Contractor | \$145 | \$104 | \$401 | \$590 |
| ADHS | <u>118</u> | <u>32</u> | <u>327</u> | <u>183</u> |
| Total | <u>\$263</u> | <u>\$136</u> | <u>\$728</u> | <u>\$773</u> |

¹ 1995 costs are for a four-month service period only.

Source: Auditor General staff calculations are based on data provided by the Department of Health Services.

6. Information concerning progress of program participants in achieving goals and objectives.

In Finding II (see pages 15 through 17), we report on prenatal medical care visits and reduced low birth weight rates for Health Start participants. In Finding I (see pages 7 through 13), we also report on the services that are being provided to the Health Start clients.

The third and final evaluation report will focus primarily on determining if the Health Start Pilot Program has effectively achieved the Program's goals. Measures for the following six goals are straightforward.

- (1) Increasing prenatal care services;
- (2) Reducing the incidence of low birth weight babies;
- (3) Increasing the number of children receiving age-appropriate immunizations by age two;
- (4) Educating families on developmental assessments to promote early identification of learning disabilities.

- (5) Educating families on the benefits of preventative health care and the need for screening examinations such as hearing and vision.
- (6) Educating families on the importance of good nutritional habits to improve the overall health of their children.

While the measures for these goals are straightforward, it may be difficult to attribute outcomes specifically to the Health Start Program. For example, while the incidence of low birth weight babies can be determined, we may not be able to identify the exact mechanisms that contribute to the rate or associate Health Start services in a casual manner to differences between the rate for Health Start clients and the rate for the State. Additionally, while we can measure the number of women in Health Start who receive adequate prenatal care, effects from programs such as Baby Arizona may confound interpretation of the results.

The Program's effectiveness in reaching the other two goals will be more problematic to measure due to the limited evaluation time. These two goals, assisting families to identify private and public school readiness programs, and reducing the incidence of children affected by childhood diseases, will be difficult to capture since the oldest children in the Program will be only about 2 years old when data collection is complete for the evaluation, and these goals are more applicable to older children.

Finally, the the Health Start Pilot Program's effectiveness in promoting family unity and strengthening family relations, reducing dependency on welfare, increasing employment, and increasing self-sufficiency will be addressed in the final report. However, the Program's primary purpose and goals, the method of service delivery, and the low intensity of the program model raise serious questions as to whether the Health Start Pilot Program will have measurable impacts on these factors.

7. Recommendations regarding program administration.

We have no recommendations regarding program administration at this time.

8. Recommendations regarding informational materials distributed through the programs.

The Health Start Program has distributed the *Kare Book* among its clients. These books provide parents with information on child development, nutrition, and well-baby care. The books are not solely for Health Start, and were developed by ADHS and the Sonora, Mexico, Health Department to serve residents of U. S./Mexico border communities. As a result, the Spanish version of the book provides immunization and medical standards that are used in Mexico rather than in the U. S. The Mexican guidelines are inadequate and potentially dangerous. Mothers who receive the Spanish version of

the *Kare Book* and advice from the lay health worker will receive mixed messages about proper immunizations for their babies.

The *Kare Books* should be distributed with U.S. immunization guidelines only.

9. Recommendations pertaining to program expansion.

The Office of the Auditor General has no recommendation pertaining to program expansion at this time.

10. Recommendations regarding the method used in preparing the *Arizona Children and Families Resource Directory*.

The Office of the Auditor General has no recommendation pertaining to the *Arizona Children and Families Resource Directory*.

Agency Response

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FIFE SYMINGTON, GOVERNOR
JACK DILLENBERG, D.D.S., M.P.H., DIRECTOR

January 13, 1997

Mr. Douglas R. Norton, CPA
Auditor General
Office of the Auditor General
2910 North 44th Street, Suite 410
Phoenix, Arizona 85004

Dear Mr. Norton:

Thank you for the opportunity to review the preliminary report of the second Annual Evaluation of the Health Start Pilot Program. This has been a very productive year for the Program.

ADHS agrees with most of the findings included in the your report and would like to thank you for identifying some of our successes. We are pleased that the preliminary results show that individual Health Start clients are experiencing positive outcomes by receiving adequate prenatal care and experiencing a low incidence of low birth weight babies. Similar results were reported in the Summary of the ADHS Health Start Evaluation Report, which is attached. We are also pleased that your report shows that ADHS has improved its Health Start Pilot contracts. ADHS also agrees that some of the Success by Six goals are not appropriate for a community based health education and referral program.

Some statements in your report require additional clarification.

Finding 1. Health Start Services Address Program Goals, Although Variations from the Model Exist

"The four year family follow-up period may be longer than needed to accomplish the Program's primary goals."

ADHS agrees with this finding, the original Health Start program was for a period of two years. The four year period was specified in the 1994 legislation. ADHS would welcome the ability to offer the Program with only a two year follow-up to enable more pregnant women to be served.

"In addition, some Health Start providers are associated with Health Clinics, and almost half receive more than one fourth of the client referrals from the clinics."

Mr. Douglas R. Norton, CPA
January 13, 1997

While ADHS agrees that some providers are receiving referrals from their parent organization, there are many reasons for this finding. (1) Data is from the one year time period beginning with the initiation of the Health Start Pilot Program contracts. (2) In many instances, for new contractors who are anxious to begin serving their communities, referrals from agencies, including a parent organization, is the most efficient method of implementing a new program. (3) The door-to door enrollment method which is possible in small communities is impractical in some communities, such as those served by the Indian Community Health Center, whose community is pregnant Native Americans in the entire Phoenix metropolitan area. The ability of providers to tailor the Health Start program to the needs of their communities is one of the strong points of the Program.

"Some of the large providers rely on providing services through group, rather than individual encounters."

ADHS agrees with this finding and thanks you for identifying another success. One site's program format is predicated on their original promotor program, which was begun in 1988, before the institution of the Health Start Pilot Program. While program staff has questioned this format and that the group format may not be consistent with the model, as does your report, the ADHS Health Start Evaluation Team determined that, "Outcome measures from the ADHS evaluation indicate that the site has achieved outcome results for which the benefit is greater than the cost." In addition, one of the strong points of the Health Start Program is the ability of providers to modify the program to meet the needs of the community. Program staff are investigating group class concerns and addressing these concerns through collaboration with other OWCH Programs and looking at the implications of redefining "Client Visit".

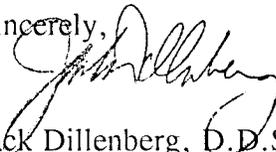
Finding 2. Some Factors Affecting Outcomes are Unclear

"The number of women receiving adequate prenatal services has increased in most communities, while the number of low-birth weight has also increased."

Health Start has not yet affected perinatal statistics in some communities. ADHS recognizes that the number of women receiving adequate prenatal services has increased in some communities, while the number of low birth weight babies has increased as well. Current research indicates that an increase in low birth weight babies in a community may be accompanied by a decrease in fetal deaths. ADHS is exploring mechanisms to compare these rates. Overall, the Health Start Evaluation Report indicates that Health Start clients had fewer low-birth weight babies and very low-birth weight babies than a control group (matched comparison group) from the same communities.

We look forward to working with your staff in the coming year and to continuing to provide the benefits of the Health Start Pilot Program to families in Arizona.

Sincerely,


Jack Dillenberg, D.D.S., M.P.H.
Director

JD/MB:bm

Arizona Department of Health Services Summary of Health Start Program Evaluation Report

Introduction

The Arizona Department of Health Services (ADHS) implemented a comprehensive strategy to strengthen the program evaluation efforts for the Health Start Program. This report includes a summary of the measures initiated, in the first year of this multi-year project, in data collection and quality assurance to enhance the capacity required to evaluate program outcomes. Recommendations made by the Office of the Auditor General in the Program Evaluation Report of January 1996 concerning data collection and quality assurance have also been implemented.

The implementation of this comprehensive program evaluation strategy addressed the following areas:

- ◆ Protocols for **Site Visits** were developed to collect information about sites; interview guides were developed for use with the Health Start Program Coordinators and Lay Health Workers. Site visits were made by ADHS staff to all Contractors to monitor program implementation and contract compliance.
- ◆ Procedures were developed and initiated to conduct **Data Integrity Checks** at each site to compare data in case files with the Health Start data base for completeness and accuracy.
- ◆ The **Health Start data collection forms** were reviewed and revised to collect additional information and resolve past data collection problems, with the new forms being implemented in July, 1996.
- ◆ Outcome indicators for the Health Start Program were reviewed, and various methods of measurement explored. One aspect of this process included reviewing instruments for possible use in the Health Start program. A **questionnaire** was developed by the Auditor General's Office, in coordination with ADHS staff, for use by the Lay Health Workers.
- ◆ A **Data Integration Project** was implemented to use existing data bases, maintained by ADHS, to track Health Start clients and provide a foundation for the measurement of outcome indicators. Several key data bases, that include Health Start Program information, birth information from Vital Records and Newborn Intensive Care Program (NICP) data, were used to construct a matched data set, consisting of Health Start clients who had given birth during 1995 and a comparison group. Additional data bases can be incorporated into the merged data set beginning in early 1997, which may include the Women's Infants and Children Nutrition Program (WIC) and potentially the Hospital Discharge Data. Data from the Data Integration Project was utilized to provide descriptive information about Health Start clients and provide outcome measures.

- ◆ Work was initiated to develop a **Cost Benefit Model** and initial analysis for the Health Start Program. This aspect included examining existing data collected by Contractors, ADHS, expenditure reports and outcome data.

Background

The Health Start Program was implemented by ADHS in 1992, designed to support the increasing numbers of women receiving inadequate or no prenatal care, and to promote primary health care for their children. It stressed activities to educate women on the benefits of early prenatal care and assist them to obtain this care. It included activities to follow the family for up to two years to assist women to obtain immunizations for their children. Primarily a home visiting program, with services provided through Community Lay Health Workers, **Health Start's mission is to educate, support and advocate for families at risk by promoting optimal use of community-based family health and education services to reduce the incidence of low birth weight babies, increase prenatal services to pregnant women and improve childhood health through a comprehensive multi-strategy approach.**

The present Health Start Program was created by the **Arizona Children and Families Stability Act**, enacted during the 1994 9th Special Session (Laws 1994, 9th SS., Ch.1 §8). This Health Start Pilot Program was built upon the previous Health Start program, but with an expanded scope and extended length of the family follow-up period (from two to four years after birth). A range of services, delivered using a home visiting model, address the seven primary program goals.

- Increase prenatal services to pregnant women
- Reduce the incidence of low birth weight babies
- Reduce the incidence of children affected by childhood diseases
- Increase the number of children receiving age appropriate immunizations by two years of age
- Educate families in the importance of good nutritional habits to improve the overall health of their children
- Educate families on developmental assessments to promote the early identification of learning disabilities, physical handicaps or behavioral health needs
- Educate families on the benefits of preventive health care and need for screening examinations such as hearing and vision

The services to be provided by the Health Start Program through lay workers, as outlined in ARS § 36-697 include:

- ▶ Identify pregnant women in the lay health worker's neighborhood or community, and enroll them in the program.
- ▶ Inform clients of how to receive prenatal care services.

- ▶ Assist clients to access appropriate prenatal care.
- ▶ Educate clients on appropriate prenatal and neonatal care, preventive health care and child wellness, including appropriate nutritional habits to improve the overall health of their children.
- ▶ Assist and encourage clients to provide age appropriate immunizations so that their children are fully immunized by two years of age.
- ▶ Assist and encourage clients and their families to access comprehensive public and private preschool and other school readiness programs.
- ▶ Assist clients to apply for private and public financial assistance.
- ▶ Assist clients and their families to access other applicable community and public services, including employment services.
- ▶ Provide clients with a list of local private, both nonprofit and for profit, and public educational institutions and governmental agencies that provide program and referral services (Arizona Children and Families Resource Directory).
- ▶ Assist clients to access adult services including, continuing education, employment, and other community involvement, such as religious or social services, as appropriate

Rationale for the Home - Visiting Approach

Health Start, along with other models of home visiting programs, brings **family-centered services** to the home, using an individualized approach according to the needs of each family. Because home visitors bring services to a family rather than requiring the family to come to an agency office, home visiting programs can break down barriers to care and reach families who otherwise might not receive services, as well as connecting families with existing services in the community, such as medical care, employment or job training.

Evaluations of home visiting programs have assessed a variety of outcomes, depending upon the goals of the particular home visiting programs studied. These outcomes have included rates of low birth weight and pre-term births, children's motor or cognitive development, utilization of health services, rates of child abuse and other benefits for mothers or communities. ¹

The Health Start Program model was selected by ADHS to address the diverse needs of Arizona's target population. The Program was designed to encourage the development of

¹The Future of Children- Home Visiting: Analysis and Recommendations, Packard Foundation, Vol 3 No. 3 Winter 1993 p. 10.)

community-based programs that could be responsive to the specific needs in the community, while building capacity and community support for improved health of pregnant women and their children. The home visiting model also provided the opportunity to address barriers to health care that include:

- Lack of Insurance coverage
- Fear or distrust of existing health care provider agencies
- Lack of education about health care
- Lack of access to transportation
- Language or Cultural barriers
- Low literacy levels
- Other Individual client barriers

Health Start Contractors

ADHS contracts with public and private agencies who provide Health Start Services. They employ **Lay Health Workers** who focus on outreach to pregnant women in their communities to enroll them in the program and **provide health education, support, advocacy and referrals** to these women and their families. Twelve Health Start Contractors, comprised of primarily County Health Departments and Community Health Centers, provide Health Start services in 60 communities around the state. These communities include economically disadvantaged urban neighborhoods in South Phoenix and Tucson, migrant farm worker communities, Native American reservations and isolated rural communities.

Contractors have developed and manage a network of resources and referral sources that Lay Health Workers utilize to serve the Health Start Clients. Within policies and guidelines specified by ADHS, the Contractors utilize methods that are appropriate for the demographics and particular characteristics of their community to achieve program standards and desired outcomes. Within the framework of the Health Start Program is the flexibility for Contractors to implement the program in a manner that “fits” their neighborhood or community.

Site visits have been made to each Contractor to monitor program implementation and contract compliance. Topics reviewed included: staff and their recruitment, hiring, job responsibilities and training process; policies being used at each location; service delivery and documentation; quality assurance activities; and coordination of services. In general, Contractors have done a good job in implementing the Health Start Pilot Program.

Comprehensive descriptions were completed for three sites: Mountain Park Health Center, Pima County Health Department and Yuma County Health Department.

The scope of the information collected for the latter covered the following general areas: identification and needs of communities being served; program history and evolution; program participants; contractor/program agency; staff and their recruitment, hiring and training process; service delivery, coordination of services and quality assurance activities; program barriers, challenges, achievements and changes; and community support.

Additional information was also obtained as to the process used for collection of cost data on health care services and related programs. This information will be critical in providing a basis for the cost benefit analysis for the program. Resources and Training materials were also reviewed at each of the three sites. ADHS provides program development and support to Contractors and purchases educational materials for distribution to program participants.

Characteristics of Health Start Participants

Information on Health Start Program Participants was obtained through two methodologies: 1) **the Health Start data base** for clients served in FY 96 (July 1, 1995-June 30, 1996), and 2) **the Data Integration Project** via a data set consisting of Health Start clients who gave birth in calendar year 1995 (January 1,1995 - December 31, 1995) matched with a control population of women from Vital Statistics records.

Data from the Health Start Data base

Data can be extracted from the Health Start data base to cover three periods of time: Registration/Enrollment; the Prenatal Period; and the Postnatal/Family Follow-up Period.

--Health Start Participants Who Registered/Enrolled in FY 96

The women who are initially contacted by the Lay Health Workers may be registered in the Program, and basic demographic information obtained. These women may later enroll as Health Start clients if they are pregnant and sign an informed consent form. During FY 96, Health Start Contractors registered 1,837 women. Of these 1,837 women, 282 were tested and found not to be pregnant (15%), 113 declined services (6%) and 1,442 (79%) were enrolled in Health Start.

Approximately one third (32%) of the clients came in Health Start directly through the outreach efforts of the Lay Health Workers, making these contacts the most common single source of referrals to the Health Start program. Clinics and Public Health Nurses accounted for the second largest source of clients (29%), followed by friends, relatives and other clients (19%), self referrals (10%), and other sources (10%).

The majority of the new enrollees were Hispanic (71%); one fifth were American Indian. More than half of the Health Start Participants were married or living with a partner (59%), 35% had never married, and 6% were divorced, separated or widowed. Over 50% of the women were between the ages of 20 and 29, with another 27.5% being below the age of 20. The majority of participants did not have children (43%) or had one other child (41%).

One of the roles of the Lay Health Workers is to help their clients to utilize available resources, as needed. Thus, an important part of their job is making referrals. Lay Health Workers reported referring 1,168 of the new clients to additional services during the registration/enrollment process. An average of 2.4 referrals per participant were made (range from 1-8), for a total of 2,820 referrals overall. The Lay Health Workers made three or more referrals for almost 35% (491) of the new clients, 5% (73) needed 5 or more.

Referrals to the WIC program (59%) accounted for the majority of referrals reported, followed by referrals to AHCCCS (46%) and to a clinic or hospital (37%). More than a third (38%) of the women were not enrolled in AHCCCS at the time of registration into Health Start, as compared to 62% who were enrolled. Mental health services (0.3%), followed by child care services (1.3%), public health nurse (2.6%), and social worker services (3.3%) were those utilized least by the Lay Health Workers. Potential reasons for the low utilization of social workers and mental health services may include cultural biases or accessibility to services.

--Health Start Participants Who Gave Birth in FY 96

Data available at the end of the prenatal part of the Program include: if the client had a baby, information about the baby, AHCCCS status, referrals made throughout the prenatal period, education provided to the client, and the number of times the client met with the Lay Health Worker.

The Health Start program had 987 clients who delivered babies in FY 96. Of the 984 women for whom there was data, 845 (86%) were enrolled in AHCCCS at the time of delivery. This is in contrast to only 607 (62%) having been on AHCCCS at the time of their enrollment into Health Start. Another 7% had private insurance. Of the 73 women who were not on AHCCCS and did not have any insurance, 44% had applied for AHCCCS; 12 of them were waiting for status notification and 20 of them had been denied.

Lay Health Workers provide health education to clients. The most frequently discussed topics were Prenatal Care, Emotions and Feelings During Pregnancy, Nutrition/Diet, Breastfeeding, and High Risk Prenatal Conditions. This education provides clients with information which helps the clients feel more comfortable with the pregnancy and alerts them to topics they could discuss with their doctors.

A total of 3,020 referrals were recorded throughout the prenatal period, with a mean of 3.1 referrals per client. Approximately 12% of the women had no referrals reported, while over 51% had 1-3 referrals and 37% had 4 or more. The most common referrals were to WIC, followed by clinic, doctor or hospital, and then by Arizona Dept. of Economic Security (DES).

One of the unique features of the Health Start program in relation to other programs serving pregnant women is a focus on providing services to women in their own homes, i.e., making home visits. The mean number of home visits recorded was 4.13 per participant. However, the number of visits ranged from no home visits reported to 19 home visits. Of the 976 women reporting home visits, 65% had 1-4 home visits reported, while 35% had 5 or more reported.

While home visits are a focus of the Health Start program, they are not the only way that services are delivered; the ability to use a combination of strategies can usually best serve clients. The need for home visits varies by case, with teenagers, for example, often needing more intense services than older women. In addition, not all women welcome Health Start staff into their homes (and some do not even have permanent homes), and, thus, may be better served through office visits.

--Health Start Participants in Family Follow-up in FY 96

After the baby is born, a client may choose to continue receiving visits from her Lay Health Worker and enter the Family Follow-up portion of the Health Start program. Of the women who had babies in FY 96, 94% chose to begin Family Follow-up. Family Follow-up visits were predominantly home visits (83%).

The education provided by the Lay Health Workers to the new mothers covered a variety of topics. The most frequently discussed were: Immunizations, Family Planning, Child Growth and Development, Emotions and Feelings of the New Mother, and Infant Care. The Lay Health Workers also provided referrals to services needed by the clients. The most common referrals were to a Clinic, Doctor or Hospital, followed by referrals for Immunizations or for Family Planning, and then by referrals to WIC or AHCCCS.

--Plans for FY 97

During FY 97 (July 1996 - June 1997), the Health Start Program has expanded the case documentation and data collection process, which will result in additional information being collected about program participants, and available for analysis.

Data Integration Project

--Background and Methodology

Recognizing that the Health Start Program needed to measure outcome indicators and the extent of involvement of Health Start clients with other public programs in Arizona and that the Program did not have the capacity to collect all of the necessary data, especially when clients moved, several data bases managed by ADHS were examined for their potential value in providing outcome information and measurements for the Health Start Program. The required information already existed, but accessing this data required matching the Health Start data to other data files, namely the Vital Statistics files and the Newborn Intensive Care Program (NICP) and the WIC files. ADHS authorized the merging of data from Vital Statistics, and data bases maintained for WIC and NICP, with the Health Start data base to set a foundation for tracking program participants in the various data sets and for the creation of comparison groups of women giving birth who did not receive the Health Start Services. **A Data Integration Project was implemented to use these existing data bases to track Health Start clients and provide descriptive information and outcome measures.**

For this report, a data set was matched with Vital Records data using Health Start clients who delivered babies during the period January 1, 1995 - December 31, 1995, in order to coincide with the Vital Records Data Base. The matched data set was used to derive descriptive characteristics and look at birth outcomes for Health Start. **A control was selected for each participant, and the groups were compared.** Variables used for matching included: Mother's Age, Race, Ethnicity, Marital Status and Education. Additional variables that can be examined using this combination of data include: Gestation Period, Alcohol Use, Tobacco Use and Responsible Party.

Additional data bases can be incorporated into the merged data set beginning in early 1997. Types of analysis that could be conducted for Health Start to look at outcome indicators were identified. Program differences among the sites were also important to consider to adequately interpret data. Using this methodology, it will be feasible to analyze outcomes by contractor.

--Outcomes

Based on the preliminary analyses for the statewide program, the following trends were evident.

- ▶ **Health Start Participants were more likely to receive Prenatal Care earlier (62.7%) in the first trimester, as compared to the comparison group of non participants (57.0%).**
- ▶ **Health Start participants were less likely to have pre-term babies (5.9% as compared to 7.7% of the comparison group). The Gestation Period of 37 weeks or more for Health Start participants was 93.7%, as compared to the comparison group (91.6%) .**
- ▶ **Women enrolled in Health Start were less likely (66.7%) to be on AHCCCS, as compared to the comparison group (73.9%), but also less likely to be uninsured (3.0%), as compared to the comparison group (5.7%).**
- ▶ **Health Start participants were more likely to have a normal birth weight baby (95%), as compared to the control group (93%).**

Cost Benefit Analysis

The Health Start program seeks a number of objectives. **The data that are currently available limit the evaluation of benefits to the objective of reducing the incidence of low birth weight babies.** Thus, the benefit calculations do not include the benefits derived from the immunization of children, nor of the activities occurring during the family follow up portion of the program. Neither do they include the benefits of services provided to mothers who participate in the Health Start program during pregnancies that did not come to term during calendar year 1995. **The estimates of benefits that are described are, therefore, lower than the actual benefits produced by Health Start's activities.**

Selection of a Control Group

The effectiveness or lack of effectiveness of Health Start's activities in reducing the incidence of Very Low Birth Weight (VLBW) or Low Birth Weight (LBW) infants can only be measured by comparison to the birth outcomes of women who have the same risk profiles as the Health Start participants but who were not served by Health Start. Thus, in the simplest terms, **the benefit of Health Start activities directed toward the improvement of birth outcomes can be represented as the difference in birth outcomes between Health Start participants and the non-participants or "control cases".**

There are 1,306 Health Start participants with 1,306 matched controls in the data set used for this analysis. The characteristics of the control cases and the participants with whom they are matched are described in **Table # 1**.

The results of the match show that exact matches were obtained on age and ethnicity, and very nearly exact matches were obtained on race, marital status and education. There are, for example, nine more women who are African American in the Health Start group than in the control group. Since African American women are generally at a higher risk for LBW or VLBW babies than women of other races, the difference implies that at least nine of the women in the Health Start group are at higher risk for LBW or VLBW babies than are the women with whom they are compared. **Thus, the benefits attributable to Health Start are likely to be understated by the results for this group.**

The Health Start participants are very slightly better educated than the controls in that four more women completed high school than among the controls and three more women completed college. Since better educated women are generally more likely to have better birth outcomes than less well educated women (all else being equal), this difference could overstate the benefits of Health Start participation in the results.

Birth Weights and Participation in Health Start

The birth weights of children born to mothers participating in the Health Start program, compared to the birth weights of the matched control cases, are included in **Table # 1**.

In total, four more children with very low birth weights (<1500 grams) were born to controls than to Health Start participants. Twenty-six more children with low birth weights (1501-2500 grams) were born to control group mothers than to Health Start mothers. **The results are consistent with the hypothesis that participation in Health Start reduced the incidence of very low birth weight and low birth weight babies among infants born during calendar year 1995.**

The criteria used to match the cases does not, however, guarantee that the differences between the characteristics of the Health Start participants and the control cases that could influence the outcomes have successfully been eliminated. In addition, variations among Contractors in their implementation of the Program or in the adequacy of selection criteria for the control group to account for differences in risk among the populations served by the Contractor may affect the quality of the match. These factors indicate a need to more carefully analyze the differences among Contractors in the characteristics of their clients and in the nature and quantity of the services that were provided to the clients. It is also important to recognize that identification of differences, if any are found, in the effectiveness of different approaches to the minimization of undesirable birth outcomes would be an very important contribution of the Health Start evaluation.

Table # 1
Characteristics of Health Start Participants and Controls with Births in 1995

| Characteristics | | Health Start | | Controls | |
|-----------------------------|------------------------------|--------------|-----|----------|-----|
| | | No. | % | No. | % |
| Mother's Age (m) | 19 and Under | 338 | 26% | 338 | 26% |
| | Over 19 | 968 | 74% | 968 | 74% |
| Mother's Race (m) | White | 1,106 | 85% | 1,107 | 85% |
| | Black | 58 | 4% | 49 | 4% |
| | Other | 142 | 11% | 150 | 11% |
| Mother's Ethnicity (m) | Hispanic | 1,004 | 77% | 1,003 | 77% |
| | Non Hispanic | 301 | 23% | 301 | 23% |
| Mother's Marital Status (m) | Married | 649 | 50% | 645 | 49% |
| | Not Married | 657 | 50% | 661 | 51% |
| Mother's Education (m) | Did Not Complete High School | 702 | 55% | 703 | 56% |
| | Completed High School | 405 | 32% | 401 | 32% |
| | College | 158 | 13% | 155 | 12% |
| Prior Pregnancies | Yes | 771 | 59% | 813 | 62% |
| | No | 535 | 41% | 493 | 38% |
| Alcohol | Used | 9 | 1% | 17 | 1% |
| | Did Not Use | 1,296 | 99% | 1,285 | 99% |
| Tobacco | Used | 43 | 3% | 69 | 5% |
| | Did Not Use | 1262 | 97% | 1233 | 95% |
| Medical Risk Factors | None | 1098 | 84% | 1047 | 80% |
| | One or more | 208 | 16% | 259 | 20% |
| Birth Weight | Very Low | 11 | 1% | 15 | 1% |
| | Low | 49 | 4% | 75 | 6% |
| | Normal | 1,246 | 95% | 1,216 | 93% |
| Gestation Weeks | Less Than 37 | 77 | 6% | 101 | 8% |
| | Greater Than 37 | 1,224 | 94% | 1,196 | 92% |

*(M) indicates characteristic used to match.

Potential Savings from Health Start

The savings that are reasonably attributable to the differences in the average costs of care between normal and LBW or VLBW babies at the time of birth may be estimated. It is important to note that the data on the health care costs of VLBW and LBW babies is lower than true costs because it omits the costs of hospital care for mothers with VLBW or LBW children and the costs of care for children who died. The data do not include health care costs for follow-up care after birth, except for a one year estimate for hospital charges for the first year after birth for the VLBW children.

The benefits of Health Start can be estimated as the savings that are obtained from the prevention of the need for health care for VLBW or LBW children. The direct costs of care for VLBW children are obtained from the estimate in the 1995-1996 report by ADHS that includes the costs of NICU care, physician time in NICU and hospital charges for the first year after a child is born. The estimate from the report is that the cost of health care for an average VLBW infant was approximately \$123,000 in 1991. Assuming that the costs have increased at the rate of the medical care component of the Consumer Price Index (urban consumers), the equivalent in terms of 1995 dollars is approximately \$153,000.

The measure of potential savings due to the reduction of the incidence of LBW births in the Health Start population is the difference between the average hospital charges for LBW and normal births for all births in Arizona that were recorded in the hospital discharge data base. The average hospital charges for normal infants were \$1,100 and the average charges for LBW infants were \$7,700. Thus, the savings from the prevention of a LBW baby is an average of \$6,600.

Total amounts paid to contractors by the State under the provisions of their contracts include, the costs of all services to Health Start clients rather than the costs of services designed to improve birth outcomes for the clients who bore children in calendar year 1995. **These costs substantially overstate the costs of the services that could have produced the benefits that we measure for 1995.** This is enhanced by the omission of the value of the other outcomes, such as immunizations, that could be produced by Health Start.

Recognizing that the measured benefits do not include costs of maternal care or the future costs of care for VLBW or LBW children and that charges overstate actual costs, the estimates imply that **the lower bounds of the benefits of the birth weight portion of the Health Start program range from approximately \$790,000 to \$1.4 million.**

Conclusion

Overall the performance and outcome indicators for the Health Start appear very promising. As the program is in the initial stages of development, additional work must be done to insure reliability of measures and accuracy of data before conclusions can be drawn. For example, more information as to the characteristics of clients served (i.e. medical conditions, substance abuse, etc.) and types and duration of services provided to Health Start participants must be available for analysis. However, in view of the modifications made to the

Health Start data collection forms and the ability to interface with other data bases, this task appears more promising for the future.

In terms of cost benefit analysis, examples of the types of information on the costs and benefits of Health Start activities that could be used to evaluate the performance of individual contractors and the program as a whole are being explored. The comparisons that have been presented are explicitly oversimplified with some obvious bias towards overstating the cost segments of the calculations. These procedures were adopted to be conservative in the appraisal and to substitute obvious, understandable biases for more subtle problems that could not be resolved from the current data.

The results, although simplistic, provide some information that has been unavailable in previous evaluations of the Health Start program. Chief among these is the introduction of carefully **selected control group experimental group comparisons that permit the definition of the contributions of Health Start to the reduction in the incidence of VLBW and LBW children.**