Kansas Department of Health and Environment
Healthy Start Home Visitor Program Evaluation

FINAL REPORT
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REPORT SUMMARY[1]

BACKGROUND

The Kansas Department of Health and Environment s (KDHE) Healthy Start Home Visitor (HSHV) Program is a part of KDHE s pre-, peri- and postnatal service continuum. At the time of this assessment, HSHV Program services were available in 104 of 105 Kansas counties. Between 1998 and 2000, there were 47,557 recorded HSHV Program visits to expectant and new mothers in Kansas.

Using funds from the Health Resources and Services Administration, KDHE issued a request for evaluation of its HSHV Program, and the Kansas Health Institute (KHI) was awarded the contract to conduct a research-based assessment of current HSHV Program practices. The assessment described characteristics of the populations served, examined how the HSHV Program was being implemented and evaluated how closely the HSHV Program implementation matched the HSHV Program Manual goals and objectives.

FINDINGS

There were important differences in the organization and function of local HSHV Programs. Six model types of local HSHV Programs were recognized in the study.

Model types are:

1. HSHV Program Local Health Department Clients (LHD) Model
2. HSHV Program All Mothers (ALL) Model
3. HSHV Program At-Risk Mothers (RISK) Model
4. HSHV Program Urban (URBAN) Model
5. HSHV Program Hispanic Client (HISPANIC) Model
6. HSHV Program Other (OTHER) Model

Differences among the model types include:

- Community characteristics (i.e., county population size and the percent of the population that is of Hispanic ethnicity)
- How the local HSHV Program defined its target population (i.e., all mothers versus at-risk mothers)

- How effective the local HSHV Program was at reaching beyond its own client-base to the entire community to recruit new clients

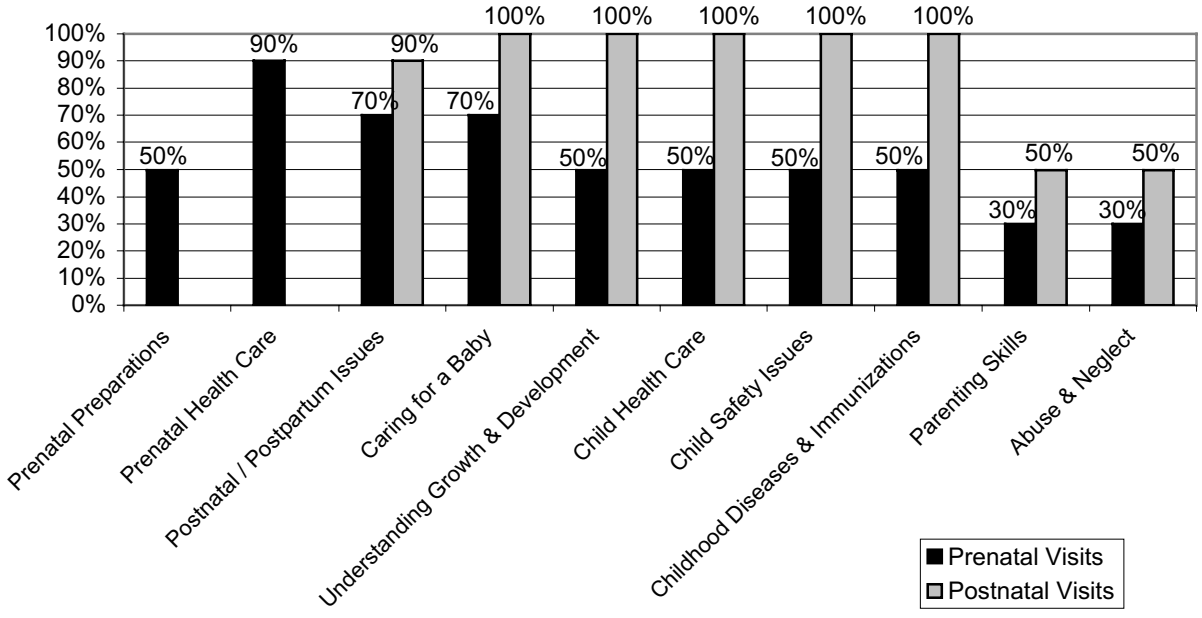
HSHV Program factors such as delivery mechanisms, target populations, community outreach, and community collaborations are not static. Local HSHV Program sites can and do make important changes in how they provide services to their community and are continuing to evolve.

Similarities among the model types include:

- How visits are conducted
- Information content of home visits
- Characteristics of the home visitor

Figure A displays the percentage of home visitors who mentioned or discussed each item as a main topic at prenatal and postnatal visits.

Figure A. HSHV Program Core Visit Content



About one-quarter of all HSHV Program visits occur prenatally. These visits include:

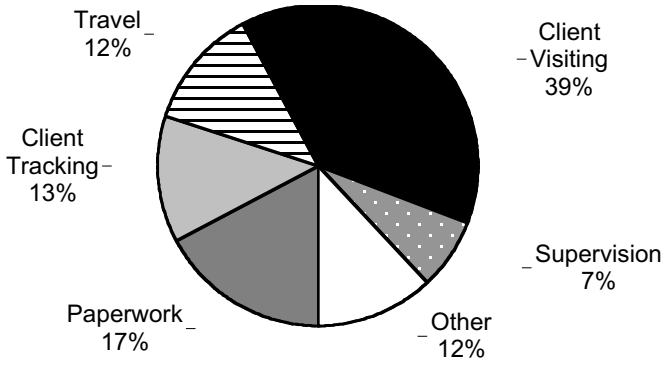
- Discussions of prenatal health care for the mother and child
- Preparations for the baby (i.e., purchasing clothing, supplies, etc.)
- Discussion of postpartum issues and tips on caring for the baby

About three-quarters of all HSHV Program visits take place after the baby is born. Depending on the site, this visit may take place in the hospital a few hours after delivery or in the client s home several weeks after the birth. Topics discussed in a typical post-natal visit include:

- Postpartum health issues for both mother and child (depression, umbilical cord care, breastfeeding)
- Caring for the baby
- Child growth and development
- Child health care issues (including immunizations)
- Child safety issues (e.g., electrical outlet protectors, car seats)

All Kansas HSHV Program home visitors were female. A composite of the surveyed visitors indicated that the average home visitor was 51 years of age and had raised three or four of her own children. On average, these individuals had been a home visitor for four and one-half years but had more than eight years of experience in public health and/or maternal and child health services. Figure B indicates the percentage of time home visitors spent on their weekly activities.

Figure B. Weekly Home Visitor Activities



The skills, attributes, and/or characteristics that are reported to make HSHV Program home visitors well suited to the job according to nurse supervisors include being:

- Experienced mothers
- Friendly and non-threatening
- Good listeners and good communicators
- Dependable and able to work independently
- Caring and supportive
- Non-judgmental of the clients with whom they work

Three Key Characteristics of Effective HSHV Program Sites

This assessment revealed there are three elements critical to the functioning of a local HSHV Program site in Kansas. Those HSHV Program sites that lack one or more of these key components appear less able to fulfill the stated goals and objectives of the HSHV Program as outlined in KDHE s HSHV Program Manual.

1. High quality and dedicated HSHV Program home visitors

One of the most important elements that contribute to the HSHV Program is a qualified and dedicated home visitor. The home visitor s role is critical to the success of service provision. This individual requires interpersonal skills for establishing rapport with the family, organizational skills for delivering the HSHV Program curriculum while simultaneously responding to any crisis that might arise, problem-solving skills to immediately address family issues, and cognitive skills to complete the paperwork necessary to document each encounter.

The most successful home visitors are committed to the HSHV Program and believe in what they are doing and that what they are doing has a positive impact on their clients lives. They are non-threatening and non-judgmental and are able to quickly gain the trust of clients. Over time, the most successful HSHV Program home visitors appear to gain not only the trust of their clients, but also the respect of their community.

2. Effective mechanisms for bringing clients into the HSHV Program

Using effective mechanisms for engaging and recruiting new clients makes it possible for HSHV Program sites to serve more fully their target populations. To accomplish this, it is important that the HSHV Program be integrated with other maternal and child health services, such as the Women, Infants, and Children (WIC) program, at the local health department. In addition, those HSHV Program sites that were most successful in meeting HSHV Program goals and objectives also established mechanisms for identifying and contacting new clients from other community resources.

3. Ongoing and effective community collaborations

HSHV Program sites that had established effective community collaborations were able to identify and recruit new clients, were able to appropriately serve their clients, and were able to impact positively the entire service system for area prenatal and postnatal clients.

By knowing the other providers in a community, HSHV Program staff members were better able to make appropriate referrals for their clients. An awareness of local community resources helps ensure greater access for families. In addition, being familiar with the quality and range of services from particular providers improved the quality of the referrals that could be made.

In more populated areas, effective collaboration was even more important. When there were insufficient resources for the HSHV Program to visit all potential expectant and new mothers, effective community collaboration allowed the health care and social service provider system to make referrals to the HSHV Program. Coordination among services allowed a greater number of clients to be served effectively in the community by reducing overlap. Furthermore, appropriate service coordination can reduce the burden on the client.

Options Indicated From This Assessment

There are a number of options available for more closely aligning local HSHV Program sites with KDHE s HSHV Program Manual goals and objectives. These options include:

1. Ensuring HSHV Program home visitors are well trained and have the necessary interpersonal skills

Because committed home visitors are so important to the success of the HSHV Program, attempts to increase the consistency of the quality of these staff members are key. This can be addressed in at least two ways:

A. Ensure the staff members have appropriate interpersonal skills, cultural competency and technical background
B. Train staff members efficiently and effectively

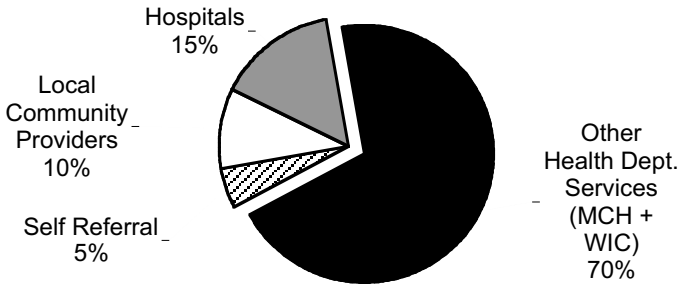
2. Developing more effective community collaborations

Effective community collaboration is essential for local HSHV Program sites. In establishing collaborative relationships, issues of client confidentiality must be addressed. In addition, many sites must find ways to overcome the absence of local providers by developing collaborative relationships with others outside their immediate area.

3. Ensuring there are effective client intake and referral paths

HSHV Program sites need to integrate fully their services with other local health department services to maximize their ability to reach expectant and new mothers. At a minimum, coordination with WIC, Maternal and Infant, Child Health, and Family Planning, along with school health services programs is needed. Local HSHV Programs need to facilitate and promote referrals from community providers. Figure C reflects the variety of client intake sources of the HSHV Program.

Figure C. Intake Paths into the HSHV Program



4. Increasing the ratio of prenatal visits

Almost all HSHV Program sites provided more postnatal (75 percent) than prenatal visits (25 percent). This level of service does not meet the HSHV Program goals of promoting early prenatal health care and reducing the number of low birth weight babies. The dependence on hospitals as a major referral source for new clients helps create the observed postnatal service bias. One way to increase the number of prenatal visits is to develop stronger relationships with WIC and other prenatal service providers.

5. Ensuring there are updated and consistent HSHV Program materials and resources

There is an opportunity to improve the quality and consistency of materials used during home visits. One solution could include a centralized process of disseminating information to HSHV Program sites by identifying all approved KDHE HSHV Program client distribution materials and making them available on the Internet.

6. Improving ongoing data collection and HSHV Program assessment activities

The current data collection system (Client Visitation Record or CVR) does not allow for an impact assessment of the HSHV Program. Improvements to the current data collection system could allow local HSHV Program sites to better self-monitor performance. This might include the development of a process that reliably creates or tracks client-level information. In addition, it would be useful to have a record of when a visit occurs with reference to the mother s expected delivery date.

7. Decreasing liability and legal exposure regarding client personal health information

This assessment found that the majority of collaborative relationships between local HSHV Program sites and other community providers (e.g., hospitals, physicians, social service agencies) were informal and based on personal relationships. While the sharing of information that occurs may be highly efficient, it may expose the HSHV Program and/or other providers to legal risk due to confidentiality issues. It would be prudent for the HSHV Program to find workable solutions to reduce this legal exposure. This could include mechanisms to obtain client releases to share information and/or the creation of formal agreements between agencies regarding sharing and use of confidential information.

Assessment Limitations

The assessment provides a current description of the HSHV Program in Kansas. In addition, it provides information that can be used to bring the HSHV Program sites more in line with the HSHV Program goals and objectives described in the HSHV Program Manual. It does not however, provide insights into the impact of the HSHV Program on stated goals and objectives such as a decrease in abuse and neglect rates or increases in the use of cost-saving preventive health care. The current available data do not allow for this analysis.

[1] This Report Summary has also been published as a handout entitled, Healthy Start Home Visitor Program Evaluation Report Summary, June 2002.

CHAPTER ONE: BACKGROUND

HISTORY OF THE HEALTHY START HOME VISITOR PROGRAM IN KANSAS

In 1977, the Kansas Department of Social and Rehabilitation Services (SRS) received a two-year grant from the National Center for Child Abuse and Neglect to establish a home visiting project in Kansas. Shortly after the award, administrative responsibility for this grant was transferred to the Department of Health and Environment (KDHE), Bureau for Children, Youth and Families (BCYF). Eleven counties in north central Kansas were funded by the grant in fiscal year 1977. Kansas City-Wyandotte County Health Department was funded in fiscal year 1978 with discretionary grant funds. These 12 sites became the core of the Kansas Healthy Start Home Visitor (HSHV) Program.[1] Since that time the HSHV Program has expanded to provide services in 104 of 105 Kansas counties. One county does not participate in the HSHV Program.

Funding for the HSHV Program comes from three sources: federal funds (e.g., Health Resources and Services Administration s Maternal and Child Health Bureau block and public health block grants); Kansas legislative allocation, which includes Tobacco Settlement funds;[2] and a mandated local county match of 40 percent. During state fiscal year 2002, the legislative allocation was $1,204,795 (which included $250,000 in Tobacco Settlement funds), plus $481,918 in local matching funds from the counties.[3]

In fiscal year 1999, maternal and child health funding was increased to facilitate HSHV Program rollout into 20 additional counties. Recent statewide expansion of the HSHV Program during fiscal year 2000 was made possible by the Tobacco Settlement funds.

HSHV PROGRAM SERVICES

All expectant and new mothers with infants are eligible for HSHV Program services. Priority is given to high-risk families with the goal of enabling them to become healthier and more self-sufficient through improving their access to early intervention services.

Home visits, plus support from nurse supervisors, are considered important tools in meeting HSHV Program objectives.

The HSHV Program is a part of KDHE s pre-, peri- and postnatal service continuum provided by health departments and other local agencies in its effort to promote services to the mothers and children in the state. The HSHV Program has based its service model on the assumptions that preservation of the family is essential, that the rights and integrity of the family must be respected, and that the family will make its own decisions about utilization of community resources.[1] As defined at the June 8-9, 1999, *Revisiting Home Visiting Workshop*, funded by the David and Lucile Packard Foundation and sponsored by the Board on Children, Youth, and Families of the National Research Council and Institute of Medicine, home visiting is not an intervention *per se* , but rather a *context* for intervention . Neither a program nor an intervention, home visiting is a strategy for delivering services, a *type* of program, and a location . It may be better to think of home visiting not as a programmatic model, but rather as a set of principles. [4]

In an effort to improve the implementation and quality of services within the HSHV Program, using funds from the U.S. Department of Health and Human Services Health Resources and Services Administration, KDHE issued a request for evaluation of the HSHV Program.[5] The Kansas Health Institute (KHI) was awarded the contract and conducted a research-based assessment of current HSHV Program practices. This assessment is intended to be useful in understanding the current nature of the HSHV Program and to assist the state, along with local HSHV Program sites, to improve the quality of their services.

WHY HAVE A HSHV PROGRAM IN KANSAS?

Like other states, Kansas is challenged to provide services that address the myriad of health and social problems that affect pregnant women and young children, including teen pregnancy, child abuse and neglect. Each year nearly 40,000 children are born in Kansas

families; not all of these children are born into optimal family circumstances. Consider these facts about children in Kansas:

- In 1999, there were 1,543 live births to teenagers between the ages of 10-17 years in Kansas. More than 20 percent of these teenagers will have a repeat pregnancy before they are 20 years old.[6]
- Almost 15 percent of pregnant women in Kansas receive no early prenatal care, and some research suggests that babies of mothers who do not receive prenatal care are up to four times more likely to die before their first birthday.[7,8,9]
- In 1999, 2,762 (or 7.1 percent) of births in Kansas were low birth weight babies. The estimated risk of death during the first year is 20 times higher for these low birth weight babies.[10,11]
- The case rates of reported child abuse during 1996 to 1998 indicated an increase of 31 percent over the previous reporting period.[12]
- In fiscal year 1999, there were 41,186 reports of child maltreatment in Kansas.[13]
- Between 1995 and 1999, there were 1,272 infant deaths in Kansas.[14]
- In 2000, 9.5 percent of the adult population, and 15.4 percent of children in Kansas lived in poverty.[15]

The HSHV Program is designed to provide a setting where interventions involving support and education to pregnant women and family units with newborns can be delivered. Previous research on home visitor programs has provided indications that such programs may result in an increased use of preventive health services. By improving access to earlier interventions, the HSHV Program is designed to enable at-risk families to become healthier and more self-sufficient.[1]

FINDINGS FROM PREVIOUS RESEARCH

The David and Lucile Packard Foundation publication *Home Visiting: Recent Program Evaluations* states, policymakers and practitioners should maintain modest expectations for home visiting services. [16] The research suggests that services for at-risk families are most effective when combined with a range of other services targeted at families and young children. Consequently, it is not always easy to determine which intervention is responsible for making the greatest impact. Rather, the literature suggests that a combination of services results in positive outcomes. The role of linking families to other community services is a critical one for the home visitor, and it is a role not usually filled by other intervention approaches.[4] There is great diversity as well from one home visiting

model to another, and there is also a high level of variation within programs. Evaluation findings from a wide range of home visiting programs are inconsistent, and generalizations about home visiting are difficult to draw because of the variety of goals, designs, and philosophies.

One of the main barriers to the success of home visiting programs is the lack of intention of parents to commit to the home visiting programs. Lack of motivation to change is a major barrier in producing better outcomes.[4] Furthermore, previous research suggests that even home visitor programs that are implemented perfectly should not be expected to produce dramatic outcomes.[16] Problems faced by today s families are complex and multi-faceted. No single service strategy can be expected to meet the needs of all families. Home visitor programs are often best viewed as part of a continuum of services offered to families with young children.[16]

Given the inherent difficulties in evaluating outcomes of home visiting programs, the assessment conducted by KHI focused mainly on HSHV Program structure and process. Building upon previous research findings, KHI sought to achieve three major goals:

1. Evaluate HSHV Program structure and functioning
2. Understand and describe what occurs during the home visit process
3. Suggest improvements where possible

CHAPTER TWO: METHODOLOGY

ASSESSMENT PHILOSOPHY

Findings from *Home Visiting: Recent Program Evaluations*[16] served as the foundation for the KHI assessment approach and design. Of particular importance to KHI s methodology was the fact that while research on several home visiting models has shown some positive outcomes, these benefits have not been large nor have they been demonstrated consistently across multiple locations.[16] This variation may be due in part to the fact that there are large differences within and across models as programs seek to find effective ways to implement services as intended. At the same time, programs are dealing with staff skills, training, turnover, and curricula delivery, each of which is known to affect program outcomes.[16]

Because nationally available research indicates the lack of measurable outcomes associated with home visitation, a research design that focused solely on client outcomes of the HSHV Program would likely have been of limited success. Instead, KHI has attempted an assessment that can be used to help understand the current diversity of implementation models and activity among the counties with a HSHV Program.

In *Understanding Evaluations of Home Visitation Programs*, Deanna S. Gomby and colleagues (1999) support the above approach. Evaluations of human-service programs are designed typically to answer one or more of the following questions: What services did the program provide? Who received the services? Did the services produce the anticipated outcomes? If the primary purpose of the evaluation is to help program staff hone a new (or improved) program, then answering the first two questions may be enough. [17]

KHI researchers attempted to understand the characteristics of the populations served, understand how the HSHV Program was being implemented (e.g., intensity, duration, and referral patterns) and evaluate how closely the HSHV Program implementation matched

the HSHV Program goals and objectives as described by KDHE s HSHV Program Manual.[1]

While the assessment initiative covered a finite period, it must be understood that the key to continuous quality improvement includes ongoing assessment of practices such as training requirements and support for staff, delivery of curricula, along with ongoing monitoring of enrollment, engagement, and family attrition rates.[16] It is anticipated that the findings of this assessment will serve these ongoing improvement efforts.

ASSESSMENT PROCESS

In undertaking the HSHV Program assessment, KHI collected and/or analyzed three distinct data sources: existing statewide HSHV Program data; mailed survey data collected by KHI from local health department HSHV Program sites and staff; and detailed information regarding the functioning of local HSHV Program sites collected by KHI via site visits with selected local health departments and home visitors.

Analysis of Existing Statewide HSHV Program Data

Each time a client contact is made in a maternal and child health program funded by the BCYF (including the HSHV Program) visit data are collected and reported to KDHE. In most counties, these data are recorded on a form called the Client Visitation Record (CVR). In addition to HSHV Program contacts, the CVR is used to record other local health department visits (e.g., Family Planning, Maternal and Infant, Child Health, and school health services programs). KHI analyzed data on the sites and clients served by the HSHV Program through county-specific, visit-level information collected on these CVRs. The data studied was comprised of the CVR dataset provided by KDHE. Because 25 new HSHV Programs began providing county-level services during 1999 and 2000, the start date for data included in the study commenced with the individual county health department s date of HSHV Program inception or September 9, 1997 (whichever was later) through July 27, 2001 (the cutoff time used for the data requested).

During this time span, 17 counties provided an annual summary to KDHE rather than visit-level data. These summaries included items similar to those recorded on the CVR. While these data were not as comprehensive as that of the remaining 87 counties that submitted individual CVR data, this summary data was included in analyses when possible.

While the CVR is primarily a program tool and works well in that regard, its usefulness is more limited from an evaluation perspective. A major limitation of these data is that they cannot track clients over time because they lack client-specific identifiers. Consequently, it was difficult to determine how many visits each client received or how they moved between local health department programs. It should be noted that due to the realities of the HSHV Program, no changes in these forms are planned at this time (personal communication, KDHE, May 2002). Furthermore, there was substantial inconsistency across health departments in how client data were collected and reported on the CVR. It is understandably difficult to obtain and maintain current client-specific information. An example of data collection and reporting difficulties is the way in which HSHV Program sites reported client health insurance. Reporting was so inconsistent it made analysis of the data unreliable.

The limitations of the CVR data constrained the types of analysis that could be conducted. Nevertheless, KHI gleaned information at the HSHV Program site level including limited demographics of the client population, frequency and patterns of home visitations, numbers and types of referrals provided to clients, and utilization patterns of other health department services.

The KDHE/BCYF CVR dataset included a total of 150,089 recorded client contacts. Of these, 39,920 (26 percent) were HSHV Program client contacts. These records, when combined with those counties that report data in summary form, yielded a total of 47,557 HSHV Program client contacts (initial and repeat) between 1998 and 2000 that were used for the primary data analysis.

Survey of Local Health Departments or Agencies

While an analysis of existing data provided valuable information regarding the KDHE s HSHV Program and clients, these data were limited in their ability to describe the local HSHV Program and to identify specific community factors. In an effort to gather data that addressed HSHV Program functioning, KHI developed a three-part, 15-page mail survey for completion by local health department staff members (see Appendix A). This mailed survey was targeted at three respondents within each local health department: administrators, HSHV Program nurse supervisors, and HSHV Program home visitors. In many locations, the health department administrator and HSHV Program nurse supervisor were the same person, and as such they were requested to complete both sections.

A packet containing a letter of introduction from KHI, a KDHE/BCYF letter endorsing the assessment, KHI s confidentiality policy, payment voucher, self-addressed stamped return envelope, and questionnaire was mailed to the 104 local health departments in Kansas with the request that the survey be completed by the HSHV Program home visitors, HSHV Program nurse supervisors, and agency administrators. To facilitate the completion and return of the questionnaire, KHI provided a stipend of $50 upon receipt of the completed survey to help defray costs for each agency participating in this phase of the research. Ninety-seven of the 104 surveys were completed, yielding a 93 percent response rate.

HSHV Program Model Development

The research team anticipated there would be natural variations in the way that the HSHV Program evolved over time to meet the needs of individual communities. For example, it was anticipated that HSHV Program sites located in urban communities, which have thousands of births each year, might operate differently than HSHV Program sites in rural communities that only have a handful of births per year. To identify these differences, information from the CVR and summary data sets, KHI s mail survey of responses, and additional existing county-level data items were used to create a typology (i.e., a

systematic classification of characteristics) describing the similarities and unique characteristics of HSHV Program sites.

A complete description of this process can be found in Appendix B. This analysis resulted in the recognition of six HSHV Program models that describe variations in HSHV Program structure. These six HSHV Program models will be discussed individually in the Findings section under the headings Description of the Six Model Types, on page 33, and Comparative Overview of the Six Model Types, on page 42.

Site Visits to Local Health Departments

After identifying the six HSHV Program models, we followed up selectively with a more in-depth data collection process to confirm and refine the models, and to obtain a detailed understanding of the HSHV Program home visit process. This data collection phase consisted of site visits that provided rich contextual information.

Ten of the local health departments that responded to the written survey were selected for site visit. All 10 local health departments invited to participate in the follow-up site visits agreed to do so, along with an eleventh site selected to pilot the interview instruments. The sites were selected to provide diversity of geographic location, population density (frontier, rural, densely-settled rural, semi-urban and urban), client characteristics, and HSHV Program service models. These sites included the health departments in Crawford, Harper, Greeley, North East Kansas (NEK) multi-county (Atchison, Brown, and Jackson), Pawnee, Saline, Seward, Sherman, Stanton, and Wyandotte counties. Franklin county served as the pilot site. Project sites were paid $100 as compensation for staff time because the on-site visit took place during normal business hours.

In order to increase the firsthand local health department and HSHV Program experience of the research team, KHI worked in collaboration with the Kansas Association of Local Health Departments (KALHD) to conduct these site visits. KALHD provided a representative, Sylvia Penny Selbee, R.N., to participate in KHI s HSHV Program

evaluation site visits. In addition to having worked for a number of years as a public health nurse and administrator, Ms. Selbee also chaired the KALHD maternal and child health standards committee. KALHD agreed to participate in this process as the information from this assessment would likely be useful in the development of local health department, maternal and child health performance standards being undertaken by KALHD.

To facilitate the site visit process and ensure consistency across interviews, a standard set of questions was developed. The questionnaires were comprised of three types of questions: open-ended, open-ended with response categories, and closed-ended (see Appendix C). Similar to the mail survey, different questions were asked of the health department administrator, the HSHV Program nurse supervisor, and the HSHV Program home visitor.

During each site visit, one KHI researcher and the KALHD representative spent, on average, one hour interviewing the health department administrator and HSHV Program nurse supervisor, and ninety minutes interviewing the HSHV Program home visitor at nine of the 10 project sites. Interviews for the final site were conducted over the telephone due to bad weather and project time constraints. Two KHI researchers alone conducted the initial interview for the pilot site and the weather-necessitated final telephone interviews.

The site visits provided an opportunity to interact with a sample of sites and through firsthand observation determine the differences in how they implement KDHE s HSHV Program, describe the strengths and weaknesses of each site, and refine the identified HSHV Program models. The information gathered during this process was important in two ways; it provided critical information for this assessment and helped KALHD in its development of maternal and child health standards for local health departments. Additional visit time was spent touring the facility and meeting other local health department staff members. The designated KALHD representative s home health department was not included in the pilot or the full site visit study phase to avoid potential conflict of interest issues.

Analysis and Interpretation of HSHV Program Data

Data analysis focused on service indicators, HSHV Program components, client characteristics, and home visitor characteristics. This was done by statewide examination of the HSHV Program, an examination of the effect of population density, and an examination of HSHV Program model type. Qualitative and contextual data were analyzed to identify themes that had implications for the quality and delivery of services in KDHE s HSHV Program. In addition to using the data collected via this evaluation, other existing data sources were utilized to enhance the analysis and interpretation of these findings. These secondary data sources included data from: the U.S. Census; KDHE vital statistics; Kansas Hospital Association; Women, Infant, and Children (WIC) program; Centers for Disease Control and Prevention; and publications of the University of Kansas, School of Social Welfare.

The methodological design of this assessment, creation of the survey tools, and analysis of the data were conducted in an effort to answer the following specific questions:

- Who does the HSHV Program serve?
- Who are the HSHV Program home visitors?
- What does a HSHV Program home visitor do during the workweek?
- How has the HSHV Program evolved in relation to the needs of individual communities?
- How do women become clients in the HSHV Program?
- How do HSHV Program sites cooperate and coordinate with other services in the community?
- What are the barriers to cooperation and coordination?
- What happens during a HSHV Program home visit?
- What self-assessment procedures for HSHV Program sites are in place?
- What are the key components of effective HSHV Program sites?

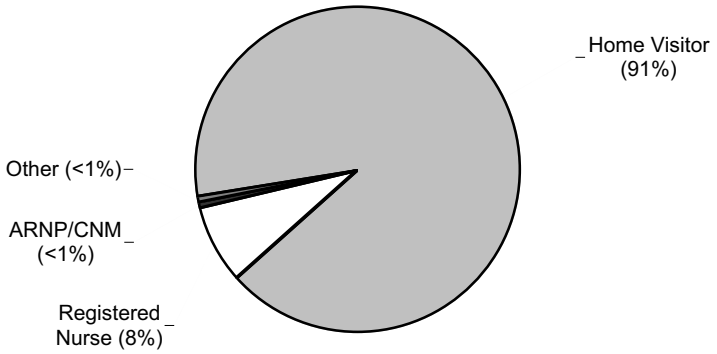
Due to the wealth of data generated by this assessment process, an attempt was made to extract only the most important and meaningful findings for inclusion in this report.

CHAPTER THREE: FINDINGS

CHARACTERIZING THE HSHV PROGRAM

At the time of the evaluation, HSHV Program services were available in 104 of 105 Kansas counties. Between 1998 and 2000, there were 47,557 recorded HSHV Program visits (both initial and repeat) to expectant or new mothers in Kansas (1998, N=16,201; 1999, N=15,442; and 2000, N=15,914). Approximately 25 percent of all HSHV Program visits were prenatal contacts, and the remaining 75 percent were postnatal visits. Home visitors indicated they saw about one half of their HSHV Program clients more than once, and for those clients seen more than once, two or three visits were typical. Not surprisingly, home visitors conducted more than 90 percent of all HSHV Program visits, but the importance of nurse supervisors was also apparent in the fact that nurses conducted eight percent of HSHV Program visits. Figure 1 depicts the HSHV Program visits by provider types.

Figure 1. HSHV Program Home Visit Provider Types

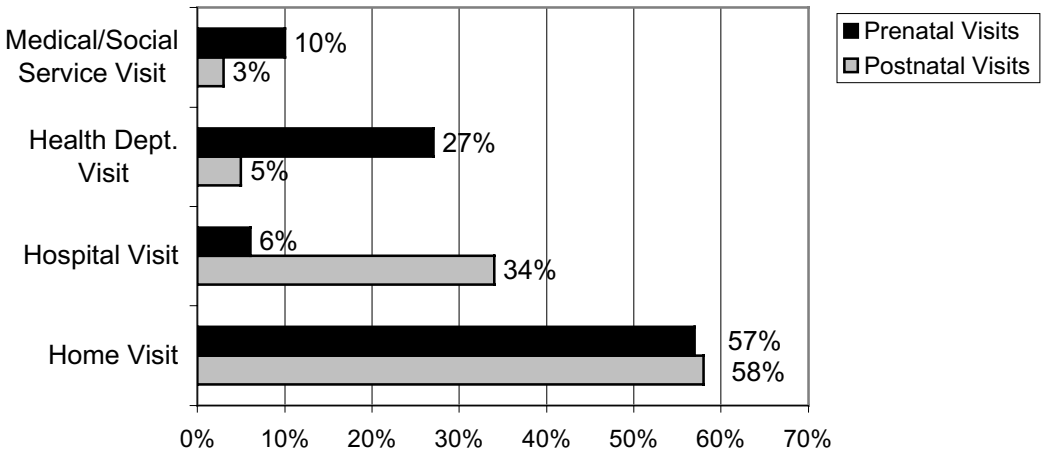


ARNP = Advanced Registered Nurse Practitioner
CNM = Certified Nurse Midwife

On average, HSHV Program home visitors saw 18 mothers each month. They drove an average of 12 miles to each appointment, and a little more than 25 percent of their visitation attempts were unsuccessful because the client was not home at the scheduled time or services were declined or refused. Not all HSHV Program visits took place in the

client s home. More than 25 percent of all visits took place in the hospital, shortly after delivery. Another 10 percent of the visits (usually prenatal visits) took place in the local health department. Each visit that was completed lasted about one hour. Figure 2 indicates the percentage of prenatal and postnatal HSHV Program visits by location of the visit setting.

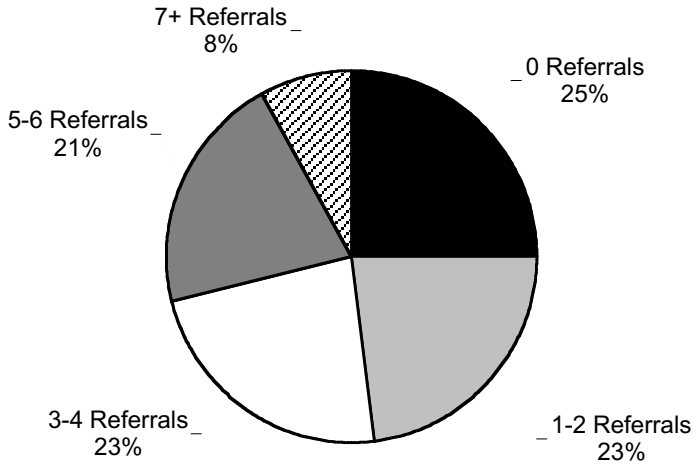
Figure 2. HSHV Program Visit Services by Visit Location



Once contact was made with a client, HSHV Program home visitors almost always provided the mother with a package of information along with baby care or safety gifts (e.g., informational brochures, medicine droppers, spoons, smoke detectors). The home visitor then spent time reviewing the information and assessing the mother s needs. Prenatal visits tended to focus on issues pertaining to prenatal health care, postnatal and/or postpartum issues, and preparations for caring for the baby when it arrived. Postnatal visits usually focused on a wider set of issues including: postpartum concerns (e.g., depression, umbilical cord care, breastfeeding); caring for the baby; understanding child growth and development; child health care topics (including immunizations); and child safety issues. Once the relevant information had been reviewed, the home visitor, in cooperation with the mother, assessed the mother s need for referrals to other services. About 75 percent of all mothers received at least one referral from the HSHV Program home visitor to other

services. Once the visit was completed, the home visitor reviewed the visit with the HSHV Program nurse supervisor, and together they assessed the need for follow-up visits. Figure 3 represents on a percentage basis the number of referrals clients received during both prenatal and postnatal home visits.

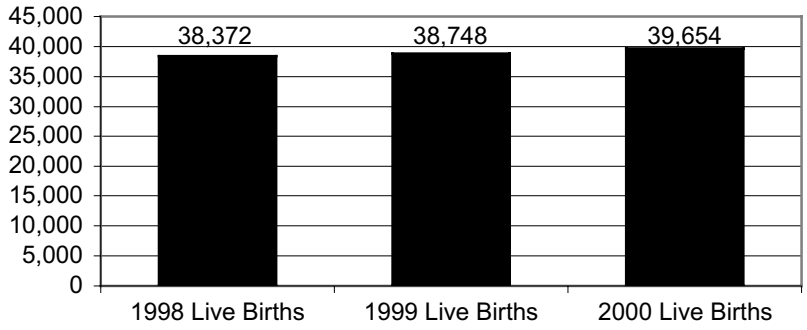
Figure 3. Frequency of HSHV Program Visit Referrals



WHO DOES THE HSHV PROGRAM SERVE?

According to KDHE s HSHV Program guidelines, services technically are available to all expectant and new mothers in Kansas. Between 1998 and 2000, the number of live births in Kansas increased by 4.7 percent. Figure 4 depicts the annual number of live births in Kansas during the years 1998 to 2000 that represents the potential pool of clients to be served by the HSHV Program.

Figure 4. Kansas Live Births, 1998-2000[18]



The HSHV Program served a wide variety of expectant mothers and mothers with newborns. Table 1 displays the demographic characteristics of the population of HSHV Program mothers as compared to the characteristics of all Kansas mothers.

Table 1. 1997-2000 Client Characteristics Compared to 1995-1999 Statewide Characteristics

		HSHV Program			
Mother's Characteristics		**[a] Prenatal Visits**	**[a] Postnatal Visits**	**[a] All HSHV Visits**	**Kansas Statewide**
Age:	10-19 years	28%	17%	20%	[b]13%
	20-29 years	57%	59%	59%	[b]55%
	30-39 years	15%	22%	20%	[b]30-34yrs = 21%
	40+ years	1%	2%	1%	[b]≥35yrs = 11%
Race:	White	93%	93%	93%	[c]88.9%
	Black	4%	4%	4%	[c]7.3%
	American Indian	<1%	<1%	<1%	[c]1.0%
	Asian	1%	1%	1%	[c]2.5%
	Other/Unknown	2%	1%	1%	[c]0.3%
Ethnicity:	Hispanic	29%	18%	21%	[c]10.8%
	Non-Hispanic	65%	78%	74%	[c]89.0%
	Unknown	7%	4%	5%	[c]0.2%

[a]1997-2000 CVR Data, [b]1995-1999 KDHE Data,[19] and [c]1998-2000 KDHE Data[20]

The disproportionate number of Whites as compared to other racial groups served by the HSHV Program, as compared to the Kansas statewide population demographics, appears to be a function of geographic distribution. Geographically, the majority of the Black population is found in the state s urban counties. HSHV Programs located in urban county health departments struggle to provide services to all expectant and new mothers whatever their racial characteristics because of the sheer volume of countywide pregnancies and births. While census data support the fact that there are people of Hispanic ethnicity residing in urban counties, it also emphasizes the growing Hispanic population in frontier and rural southwestern counties, along with Oklahoma/Kansas border counties. The counties where the Hispanic community readily accepts the HSHV Program tend to reflect high HSHV Program service utilization.

WHO ARE THE HSHV PROGRAM HOME VISITORS?

All Kansas HSHV Program home visitors were female. A composite of the surveyed visitors indicated that the average home visitor was a mother, 51 years of age, who had raised three or four of her own children. On average, these individuals have been a home visitor for four and one-half years, but have more than eight years of experience in public health and/or maternal and child health services.

The skills, attributes, and/or characteristics that are reported to make HSHV Program home visitors well suited to the job, according to nurse supervisors and home visitors, include being:

- Mothers with experience rearing children
- Friendly and non-threatening
- Good listeners and good communicators
- Dependable and able to work independently
- Caring and supportive
- Non-judgmental of the clients with whom they work

Table 2 provides the rank order of characteristics nurse supervisors and home visitors themselves feel are essential attributes for home visitors.

Table 2. Essential HSHV Program Home Visitor Attributes

Rank Order		
Supervisor	**Home Visitor**	
1	2	Experienced mothers
2	3	Friendly/pleasant, non-threatening
3	6	Good communicators/listeners
4	7	Dependable/responsible/work independently
5	1	Non-judgmental
6	4	Caring/supportive
7	8	Understands the community/resources
8	9	Experience in the field/education
9	10	Self-motivated
10	NM	Honest/trustworthy
11	5	Flexible
12	NM	Organized/organizational skills
13	NM	Spanish-speaking
14	NM	Respected in the community

NM = not mentioned

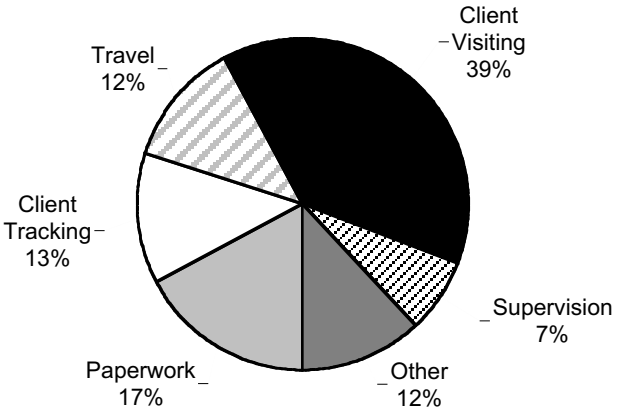
Except in the most populated Kansas counties, the workload and/or funding for a home visitor was insufficient to support a full-time position. In some areas, home visitors spent as little as three hours per week performing home visitor duties. Most home visitors worked in other capacities at the local health department, worked less than 40 hours a week, or worked some combination of these two arrangements. This included working in the WIC program, performing clerical duties, serving as a translator, or some other duty. The connection of the home visitor with other health department activities appeared to have an impact on how the HSHV Program was structured within the health department.

WHAT DO HSHV PROGRAM HOME VISITORS DO DURING THE WORKWEEK?

As might be expected by the title home visitor, home visitors spend the largest amount of their time, about 39 percent, face-to-face with expectant and new mothers. They spend about 13 percent of their time tracking the location of potential clients and scheduling interviews, and 12 percent traveling to and from appointments. About 17 percent of their time is spent completing paperwork associated with the HSHV Program and another seven percent is spent in supervision or consultation with their supervisor. They spend the

remainder of their time, about 12 percent, involved in additional activities that include collaboration with other providers, coordination with other local health departments, and attending trainings. Figure 5 provides a breakdown of the weekly percentage of effort home visitors spend in their job.

Figure 5. HSHV Program Home Visitor Activities



KHI asked a number of specific questions regarding the training that HSHV Program staff members received. Table 3 reflects the amount and type of training the responding home visitors indicated they had participated in during the past year. In addition to other training, staff were required to attend quarterly statewide meetings, including the annual Governor s Conference for the Prevention of Child Abuse and Neglect[21] and periodic regional meetings. When home visitors were asked how HSHV Program training could be changed to maximize effectiveness, there were a number of comments regarding the annual Governor s Conference. Many home visitors felt that while it provides a wide breadth of topics that is good for a new home visitor to experience, most of the information is not geared to or useful for the majority of home visitors.

Table 3. Amount and Type of Training HSHV Program Home Visitors Received During 2000

Training Type	No Training	1-2 Days	3-4 Days	5-6 Days	7+ Days
HSHV Program Training	11%	5%	26%	34%	24%
General Public Health Training	71%	11%	4%	6%	8%
Mother & Infant, Child Health, School-Linked Clinic, Child Care Licensing	88%	4%	3%	2%	3%
Family Planning Training	93 %	6%	0	1%	0

HOW HAS THE HSHV PROGRAM EVOLVED IN RELATION TO THE NEEDS OF INDIVIDUAL COMMUNITIES?

HSHV Program Goals and Objectives

The HSHV Program Manual provides a detailed description of the HSHV Program goals, objectives, and staff responsibilities. It is the goal of the HSHV Program to enable at-risk families to become healthier and more self-sufficient by improving their access to early intervention services. [1] This goal is further defined by seven broadly stated objectives:

1) Identify families at risk
2) Reduce incidence of child abuse and neglect by improving parents nurturing skills
3) Improve and enhance parenting and problem-solving skills
4) Increase use of cost-effective prevention health care services such as prenatal care, family planning, immunizations, nutrition, and well child
5) Promote early prenatal care to reduce the incidence of premature and low birth weight babies
6) Discourage unhealthy behaviors such as substance abuse
7) Cut health care costs by utilizing home visitors to promote preventive health care and provide home visits under nursing supervision [1]

In addition to the goals and objectives, the HSHV Program Manual outlines action steps for which the nurse supervisor and home visitor are responsible.

To measure HSHV Program effectiveness, it was necessary to determine the actions steps for which HSHV Program sites were accountable. These action steps could then be used as measurable goals and objectives. KHI identified the following list of action steps

taken from the home visitor responsibilities outlined in the HSHV Program Manual. Among other things the HSHV Program staff members should:

- Be available to all pregnant women and infants in the service area
- Visit all families within seven days of referral
- Visit families with or expecting newborns to provide non-threatening, friendly support
- Promote early prenatal care to reduce the incidence of premature and low birth weight babies (indicating a need for at least one prenatal visit)
- Increase use of other cost-effective prevention health care services such as family planning, immunizations, nutrition, and well child (indicating a need for at least one postnatal visit)
- Observe families for any current or potential problems
- Provide a resource list to families for local service options such as transportation, babysitting, childcare, services available at SRS, etc., and make referrals to these local resources
- Make return visits to provide continued support to families as needed
- Serve as facilitator for crisis intervention
- Seek referrals from local health department programs, hospitals, physicians, SRS, and all available local resources to initiate visits to clients prior to delivery or during the hospitalization period
- Promote effective interagency cooperation with other community resources and programs
- Consult with other professionals who have provided referrals to the HSHV program
- Promote the HSHV Program through all available media resources in cooperation with public health nurse supervisors[1]

Although these are the stated overarching goals and objectives of the HSHV Program, it is expected that the extent to and way in which different HSHV Program sites meet these goals and objectives vary across Kansas. To describe and understand these variations, key descriptive variables that could explain the differences between sites were identified. An attempt was first made to determine the impact that population and population density had upon HSHV Program sites. While it was found to be one important factor in describing the differences among HSHV Program sites, it was not sufficient to describe the variations found. Consequently, a multi-factoral model was developed to describe variations among HSHV Program sites.

Rural Versus Urban Settings

An attempt was made during data collection and analysis to examine the effect that population density had on the nature of HSHV Program sites. In 1997, the KDHE Division of Health, Bureau of Local and Rural Health Systems defined geographic areas across the state for policy and planning purposes. These definitions categorized population density into five groups based on the number of persons per square mile (ppsm).[22] KHI used the KDHE designations: Frontier < 6.0 ppsm; Rural = 6.0-19.9 ppsm; Densely-Settled Rural = 20.0-49.9 ppsm; Semi-Urban = 50.0-149.9 ppsm; and Urban $\geq$ 150.00 ppsm.

Geographic density of the county in which the HSHV Program is located was an important characteristic that affected how HSHV Program sites were structured, but by itself was not sufficient to describe fully the variation among HSHV Program sites. An examination of the data from this perspective did, however, provide some indication of how the HSHV Program expanded across the state. As Table 4 indicates, the HSHV Program was initially established in more populated counties and only recently was phased into the less populated counties. This may be an important explanatory factor in understanding the nature of the HSHV Program in some of the less populated counties. This point will be discussed in more detail later in the report.

Table 4. Year HSHV Program Commenced by County Population Density

County Density Categorization	Average Year HSHV Program Started
Frontier	1995
Rural	1991
Densely-Settled Rural	1986
Semi-Urban	1986
Urban	1984

Models of HSHV Program Sites

An examination of population density was insufficient to describe the variations among HSHV Program sites. To enhance descriptive power, a typology (i.e., a systematic classification of characteristics) of HSHV Program sites was developed using a statistical method called cluster analysis.

Cluster analysis is a method of combining observations (in this case local HSHV Program site characteristics) into groups based on their similarity and differences. The Cluster Procedure of the SAS® software system was used to conduct this analysis [23] (see Appendix B for a complete explanation of cluster analysis). This analysis determined that five key characteristics describing the HSHV Program sites and their representative counties were critical in understanding the variations among sites. The five key characteristics were:

1. The population characteristics of the county (census data). Programs with large populations (i.e., with thousands of expectant and new mothers) were found to be different from HSHV Program sites with small populations (fewer than 20 births a year).
2. The percentage of HSHV Program clients who were of Hispanic ethnicity (based on CVR and summary data). Because cultural differences can be important in service delivery, HSHV Program sites must consider this population s unique needs when designing services.
3. The ratio of HSHV Program client visits in 1999 to the number of live births by county of residence in 1999 (CVR and summary data/KDHE data). This ratio is an indication of how adequately the HSHV Program served its target population (i.e., whether the visits were proportional to the births in the county).
4. HSHV Program definition of target population - all mothers versus at-risk mothers (KHI mail survey: questions V1.10 and V1.11). Whether a HSHV Program site was trying to serve all available mothers or just target at-risk groups was an important HSHV Program site difference.
5. The percentage of HSHV Program clients who were also receiving other local health department services (KHI mail survey: question A1.03). This appears to be an indicator of how effective HSHV Program mechanisms are for recruiting new clients.

Of the 104 counties available for inclusion in these analyses, one county did not participate in a home visitation program staffed by non-nurses (i.e., paraprofessionals) and an additional seven counties had insufficient data to be categorized. What follows is a

typological description of the remaining 96 counties. This typology is a description of the HSHV Program model types operating in Kansas during the study period. This report does not, however, provide information regarding which county-level HSHV Program sites belong to which HSHV Program model, although some categorizations will undoubtedly be obvious to the reader. This information has been omitted for two reasons: 1) confidentiality of site-level information (the researchers assured respondents in both the mail survey and site visits that their site and attributable site-level information would not be identified); and 2) the site-level categorization within model types is not static. HSHV Program sites are evolving and can move from one model type to another dependent upon changes in staff and community providers and community characteristics.

The analysis produced six distinct groupings of HSHV Program sites, which have been labeled as follows:

1. Local Health Department Clients (LHD) model
2. All Mothers (ALL) model
3. At-Risk Mothers (RISK) model
4. Urban (URBAN) model
5. Hispanic (HISPANIC) model
6. Other HSHV Program (OTHER) model

Figure 6 displays the distribution of the six models across all HSHV Program sites (N=96). The most common model configuration in the Kansas HSHV Program is the LHD model (n=34), followed by the ALL model (n=25), the RISK model (n=19), the OTHER model (n=7), the URBAN model (n=6), and the HISPANIC model (n=5).

Figure 6. Kansas HSHV Program Model Distribution Among the 96 Counties

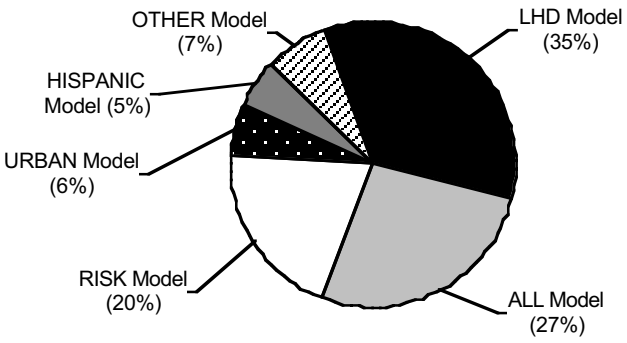


Table 5 presents the HSHV Program model type distribution across the range of the KDHE-defined population densities described earlier in the report. Although population density is clearly a factor that contributes to the structure of these HSHV Program models (i.e., URBAN model sites occur in densely-settled areas), it is clearly not the only factor at work. That is to say, it is not possible to predict the model structure of a rural or frontier county based solely on its population density.

Table 5. HSHV Program Models and Population Density
(Number of Counties/Row Percentage)

No. of Counties	Model	Frontier		Rural		Densely-Settled Rural		Semi-Urban		Urban	
34	LHD	13	38.2%	14	41.2%	7	20.6%	NI	NI	NI	NI
25	ALL	8	32.0%	12	48.0%	3	12.0%	2	8.0%	NI	NI
19	RISK	5	26.0%	4	21.0%	7	37.0%	3	16.0%	NI	NI
6	URBAN	NI	NI	NI	NI	NI	NI	2	33.0%	4	67.0%
5	HISPANIC	1	20.0%	2	40.0%	2	40.0%	NI	NI	NI	NI
7	OTHER	2	28.5%	2	28.5%	2	28.5%	1	14.0%	NI	NI

NI = none included

DESCRIPTIONS OF THE SIX MODEL TYPES

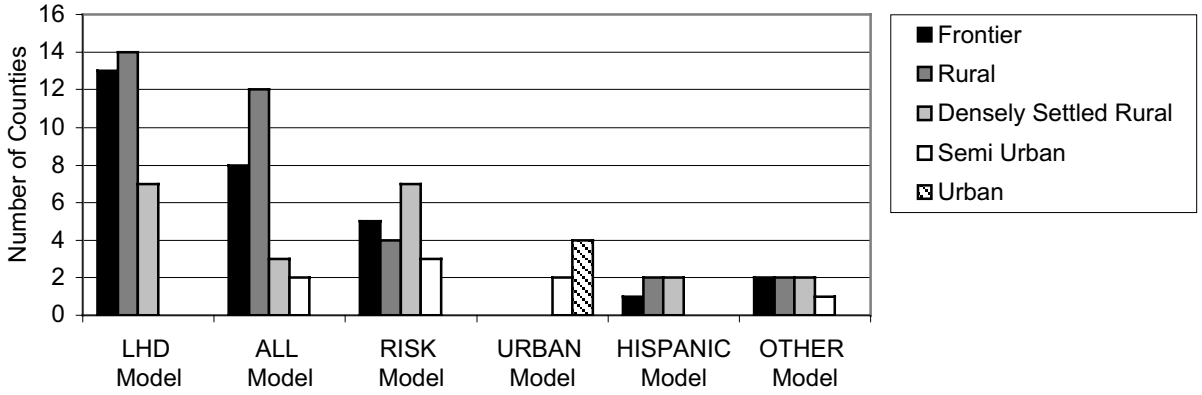
A description follows of the six HSHV Program model types. While none of these model types completely meet the goals and objectives of the HSHV Program, some do come close. Each model reflects the different ways local HSHV Programs have adapted to meet the needs of their communities. The text that follows is an attempt to help the reader understand the context, which appears important in the development of each of these individual models, but it will be left to the reader to determine the relative value of each model type.

In an effort to provide the reader with an understanding of the six model types, we have developed a series of seven figures and tables, which compare structural characteristics across the six models. These figures and tables highlight geographic distribution, ratio of visits to number of births in home county, births by county of residence and county of occurrence, referrals and visits for 1999, target population served, percentage of prenatal and postnatal visits, and Hispanic ethnicity of client population. Where appropriate, these individual figures and/or tables will be referenced in the text when discussing the characteristics of each individual model.

1. HSHV Program Local Health Department Clients (LHD) Model

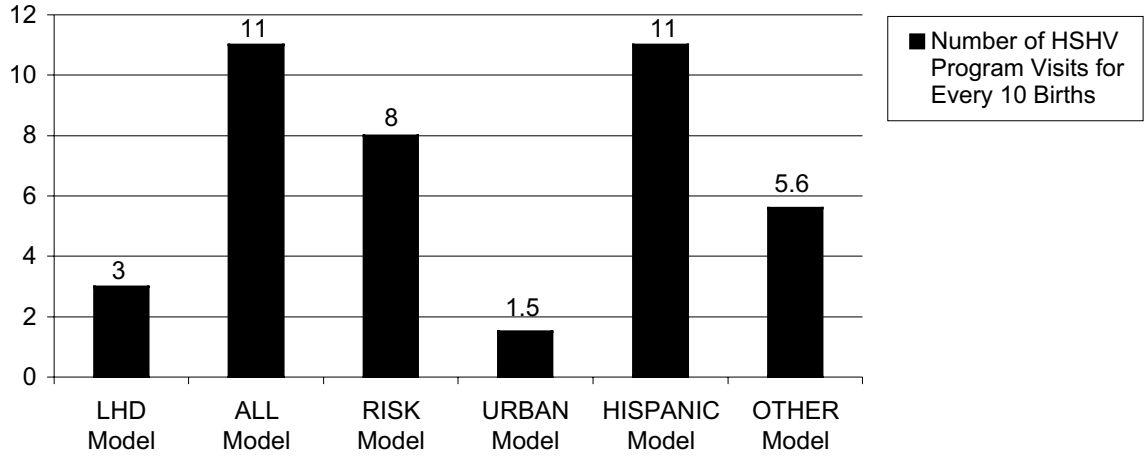
The LHD model is the most common model found among HSHV Program sites, accounting for 35 percent of all sites. It is found in densely-settled rural, rural, and frontier counties. Figure 7 shows the number of counties, identified by geographic type, in each of the HSHV Program models.

Figure 7. Geographic County Distribution of HSHV Program Models



Two things define the LHD model type: first, it has the highest percentage of HSHV Program clients who also receive other health department services of any model (93 percent), and second, it has a low ratio of HSHV Program visits to available births in the home county. For every 10 births in their area, they perform an average of three visits. Figure 8 depicts the ratio of HSHV Program visits to births by model type.

Figure 8. HSHV Program Visits to Available Births in Home County

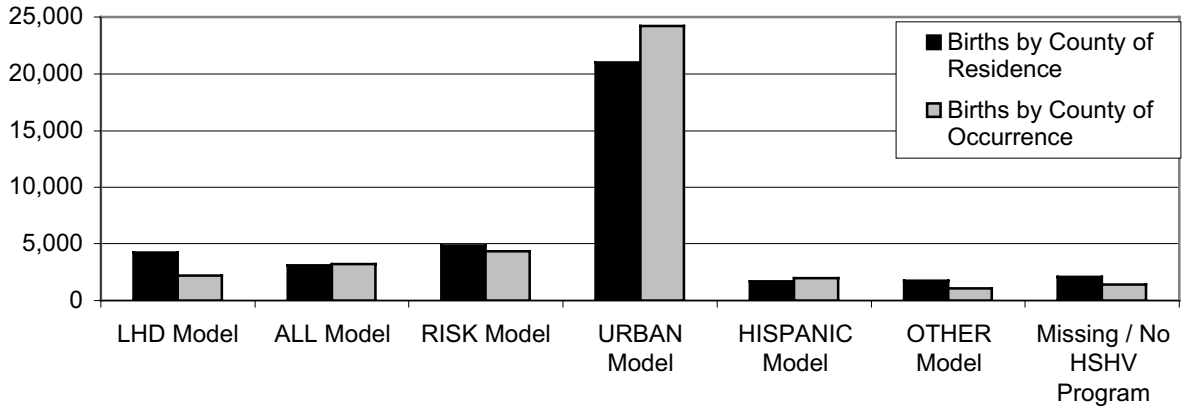


As compared to other HSHV Program sites, the LHD model sites appear to have relatively weak mechanisms for bringing new clients into the HSHV Program. They rely primarily,

if not exclusively, on referrals from other programs within the local health department. As such, they serve almost exclusively their own clients and consequently miss reaching a pool of new mothers who do not use local health department services. Providing HSHV Program services to only a portion of the available population does not appear to be an intentional exclusion; indeed the LHD model sites indicated that their goal was to serve all mothers in their area. Why then does this tendency for HSHV Programs to serve primarily only local health department clients exist? Based on qualitative data analysis, the problem appears to be related to a lack of collaborative arrangements with local and area providers and/or a lack of providers with whom to collaborate. Counties that are LHD model sites appear to be far less likely to have key providers in their communities to whom they can refer clients or from whom they can receive new clients.

The LHD model site counties account for 11 percent of all the births in Kansas (4,232 births in 1999) when examined by family residence. However, these same counties delivered less than six percent of all births in Kansas (2,200 in 1999). Due to the lack of specific hospital services or no in-county hospital, approximately half of the births to mothers who live in these counties occurred in some other county. As will be discussed later, hospitals are a key to developing effective community collaborations for HSHV Program sites. As reported by local health department staff members, when key providers do exist, they may not be interested in collaborating with the HSHV Program and in fact may have a negative view of the local HSHV Program due to a misconception around services or because of client confidentiality issues. Figure 9 indicates, by HSHV Program model type, the number of Kansas births by county of residence and by county of occurrence.

Figure 9. 1999 County-Level Birth Data by HSHV Program Model[18 & 24]



The LHD model sites appear to have only weakly penetrated the potential and intended client base for their services. Although they comprise the greatest number of counties (N=33), they serve proportionally the fewest clients of any model type, conducting as few as eight percent of all HSHV Program visits. In addition, with the exception of the URBAN model sites, based on their own estimates, the LHD model sites saw the lowest percentage of repeat clients (about one-third of all clients) more than once. Table 6 highlights, by model type, the number of HSHV Program referrals and visits during 1999.

Table 6. Other HSHV Program Model Characteristics

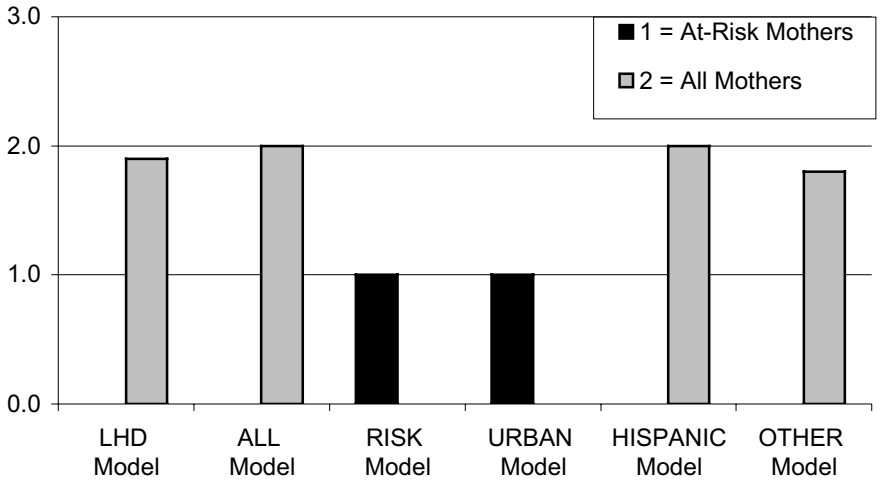
Model	Average number of Referrals per Visit	Number of Visits 1999	Percent of Visits 1999
LHD	2.91	*1,903	**12.3% (8%)
ALL	2.15	3,346	21.70%
RISK	3.28	3,898	25.20%
URBAN	4.62	2,866	18.60%
HISPANIC	2.58	1,868	12.10%
OTHER	2.57	984	6.40%
Missing/ No HSHV Program		577	3.70%
Totals		15,442	100%

* One-third of visits are from one HSHV Program site.
** Sixty-five percent of the 12.3% are from one HSHV Program site.

2. HSHV Program All Mothers (ALL) Model

The ALL model is the second most common model, accounting for 27 percent of all sites. Like the LHD model, the ALL model is found predominately in less populated counties (see Figure 7). Indeed, the average total county population for the ALL and LHD model sites is nearly identical, appropriately 10,500 persons per county. What defines this group is a very high ratio of HSHV Program visits to births in the county. For every 10 births in their area, they performed almost 11 HSHV Program visits (see Figure 8). These sites define their target population as all new mothers, and they appear to come close to meeting that goal. Figure 10 identifies the population of mothers at whom the six model types target their HSHV Program services.

Figure 10. Target Population of HSHV Program Services by Model

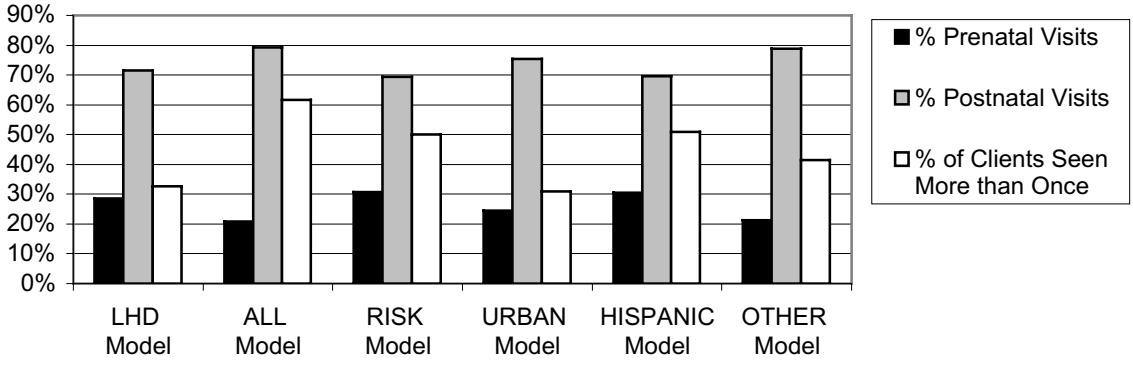


Why were these HSHV Program sites successful in serving all new mothers when the LHD model sites were not? Again, the problem appears to be related to the ability to collaborate with local and area providers and the presence of providers with whom to collaborate. While the LHD model site mothers deliver approximately one-half of all births in another county, the ALL model sites actually deliver more than their resident population expected number of births. ALL model site residents had 3,095 births in 1999,

yet providers in these counties delivered 3,231 babies (see Figure 9). ALL model sites are far more likely to have key hospitals in their communities with which to collaborate.

Because of the opportunity to bring more mothers into the HSHV Program, ALL model sites are more active than LHD sites. While they account for only eight percent of the births in Kansas, they account for nearly 22 percent of statewide HSHV Program visits. ALL model clients are the most likely to receive multiple visits, with nearly 62 percent of their clients being seen more than once. Because their intake path often involves visiting clients in the hospital after delivery, ALL model sites have proportionally the fewest prenatal visits (about 21 percent). It appears that the use of post-delivery notification inhibits ALL sites from making prenatal client contacts. Figure 11 shows the percentage of prenatal and postnatal visits conducted by model type, and also indicates how many clients were seen more than once.

Figure 11. HSHV Program Visit Characteristics by HSHV Program Model



3. HSHV Program At-Risk Mothers (RISK) Model

RISK model sites account for 20 percent of all HSHV Program sites, with about half of RISK model sites located in densely-settled rural or semi-urban counties, and the remaining half in rural or frontier counties (see Figure 7). What defines these HSHV Program sites is the manner in which the staff members identify their target population for

HSHV Program services as being an at-risk population (see Figure 10). By at-risk these sites said that they were particularly concerned about expectant or new mothers who exhibit the following characteristics: have medical and/or health problems; are teenage and/or single; use alcohol and/or other drugs; experience economic and/or poverty issues; do not receive prenatal care; and exhibit mental and/or emotional problems. Additional noted risk warning signs include mothers who have multiple births and/or a number of small children, have no family support, experience abuse and violence, and receive poor quality nutrition.

Although these counties defined their primary target group as at-risk, they served a sizeable proportion of the available population of new mothers, conducting eight HSHV Program visits for every 10 births in the county (see Figure 8). In fact, the RISK model sites are among the most active and together had more client visits than any other HSHV Program model type. While the RISK model sites are responsible for serving 13 percent (N=4,828) of all Kansas births (as measured by county of residence) in 1999 (see Figure 9), they conducted over 25 percent (N=3,898) of all HSHV Program visits in 1999 (see Table 6).

This focus on the at-risk population may be responsible for the somewhat higher proportion of clients in RISK model counties receiving prenatal visits (31 percent), and the relatively high percentage (50 percent) of HSHV Program clients who received more than one visit.

4. HSHV Program Urban (URBAN) Model

Approximately six percent of all HSHV Program sites are classified as URBAN model sites (see Figure 7). As is clear by the name, these HSHV Program sites are found in the most populated areas of the state. The URBAN model HSHV Program sites are classified as a different group because serving a highly populated area necessitates a different kind of program structure.

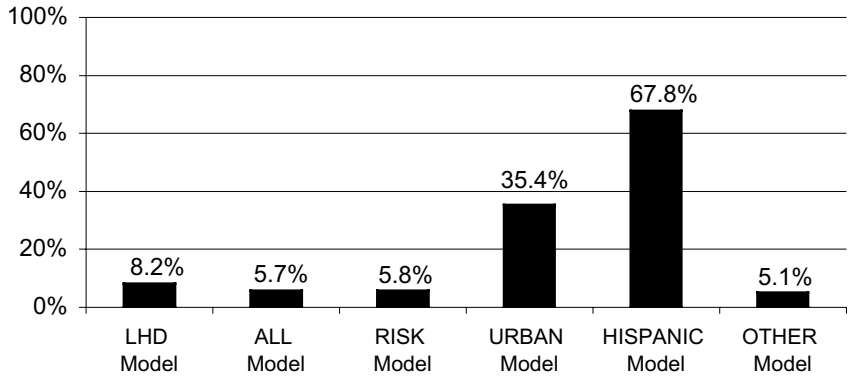
Due to the ratio of staff members to the number of county pregnancies and births, URBAN model sites had the lowest ratio of HSHV Program visits to the available population of new births. For every 10 births in their service area, they conducted about one and one-half HSHV Program visits (see Figure 8). The URBAN model sites accounted for over half of all births in Kansas in 1999 (54 percent, N= 21,021 based on county of residency), and delivered 63 percent (N=24,196) of all new babies born in Kansas (based on county of delivery) (see Figure 9). Having such a large population of potential HSHV Program clients made it challenging to visit all new mothers in their area given the current structure and funding of the HSHV Program. All URBAN model sites have focused on an at-risk population (see Figure 10). The URBAN model sites have the highest percentage of minority clients, which includes a substantial number of clients of Hispanic ethnicity (35 percent).

In total, URBAN model sites performed about 19 percent of all HSHV Program home visits (N=2,866) in 1999 (see Table 6). Their clients were the least likely (31 percent) to have received more than one visit, but on average received a large number of referrals to other community services (about six referrals for each mother receiving at least one visit) as compared to the other HSHV Program models.

5. HSHV Program Hispanic Client (HISPANIC) Model

The HISPANIC model is comprised of about five percent of all HSHV Program sites. What set these HSHV Programs apart from other model types was the high percentage of clients who were of Hispanic ethnicity (68 percent). Figure 12 indicates by model type the percentage of HSHV Program clients of Hispanic ethnicity. HSHV Program sites that served primarily a Hispanic population were found to have a different kind of HSHV Program structure. The HISPANIC model sites were found in densely-settled rural, rural, and frontier counties (see Figure 7).

Figure 12. HSHV Program Client Population of Hispanic Ethnicity



In many aspects, the HISPANIC model sites were similar to the ALL model sites in that they had a high ratio of HSHV Program visits to the available number of births (11 visits for every 10 births) (see Figure 11), and they defined their goal as serving all new mothers (see Figure 10). They are similar, but unique due to cultural differences such as language, care-seeking behavior and family-centered philosophy. A little more than one-half (51 percent) of HISPANIC model clients received more than one HSHV Program visit. Unlike the ALL model sites, the HISPANIC model sites had a relatively low percentage of clients (65 percent) who also received other local health department services.

In total, the HISPANIC model sites were responsible for just over four percent (N=1,696) of all the births in Kansas (as measured by county of residence in 1999) (see Figure 9), yet these sites conducted over 12 percent of all HSHV Program visits (N=1,868) (see Table 6).

In their effort to promote positive interactions with clients of Hispanic ethnicity, HSHV Program home visitors in the HISPANIC model sites seem to have mastered the nuances of cultural sensitivity and have been accepted by the Hispanic families in their community. Once this level of acceptance was achieved, a large number of HSHV Program referrals were made by word-of-mouth, i.e., friend or relative telling friend or relative. The HSHV Program home visitors who were Spanish-speaking and/or were

themselves Hispanic seemed to have an advantage, be more accepted, and be more effective working with these clients.

6. HSHV Program Other (OTHER) Model

In any empirical typology, there are those observations (in this case HSHV Program sites) that are not easily classified or described. The sites that fall into the OTHER model are comprised of HSHV Program sites that do not quite fit the profile created by the five other model classifications. This analysis has seven such counties (about 7 percent of all sites) that are each different enough not to be described adequately by the previously discussed models.

We know that several, but not all, of these sites are part of multi-county health departments. The OTHER model sites are defined by their low percentage of clients (42 percent) who also received other local health department services. These sites also had a relatively low ratio of HSHV Program visits to available births, i.e., 5.6 visits for every 10 births (see Figure 8). These OTHER model sites were found in counties with all categories of population density except urban (see Figure 7).

HSHV Program sites in the OTHER model classification were the least active and conducted a few more than six percent (N=984) of all HSHV Program visits in 1999 (see Table 6). HSHV Program sites in the OTHER model group appeared to lack local providers, similar to the problem encountered by the LHD model sites. In 1999, the OTHER model sites accounted for almost five percent of all births by county of residence (N=1,772), but delivered less than three percent of all births (1,050), an indication that about 40 percent of all births took place outside the county of residence (see Figure 9).

COMPARATIVE OVERVIEW OF THE SIX MODEL TYPES

In an effort to provide a composite comparison of the six HSHV Program model types, we have developed a matrix highlighting the various model attributes. Table 7 presents this

information in columns and rows, with the six models heading each column and the various HSHV Program characteristics previously discussed identified as rows.

Table 7. Site-Specific Attributes Compared Across the Six HSHV Program Model Types

HSHV Program Attributes	LHD Model	ALL Model	RISK Model	URBAN Model	HISPANIC Model	OTHER Model
Number of Counties	34	25	19	6	5	7
Average Year Program Started	1992	1990	1988	1987	1992	1986
[a]County Population (average)	10,528	10,546	13,791	111,120	10,075	21,141
Percentage of Population of Hispanic Ethnicity	8.2%	5.7%	5.8%	35.4%	67.8%	5.1%
Ratio of HSHV Program Visits for Every 10 Births in Home County	3.0	11.0	8.0	1.5	11.0	5.6
Target Population: At-Risk = 1 All Mothers = 2	1.9	2.0	1.0	1.0	2.0	1.8
Percentage of Clients Seen More than Once	32.6%	61.6%	50.0%	30.9%	51.0%	41.4%
Percentage of Prenatal Visits	28.5%	20.8%	30.7%	24.5%	30.4%	21.2%
Percentage Postnatal Visits	71.5%	79.2%	69.3%	75.5%	69.6%	78.8%
Percentage of Births by County of Residence	10.92%	7.98%	12.46%	54.25%	4.37%	4.57%
Percentage of Births by County of Occurrence	5.73%	8.41%	11.32%	63.00%	5.03%	2.73%
Percentage of Clients who Receive Other Health Dept. Services	92.9%	86.7%	85.5%	76.0%	65.0%	41.6%

[a]Data taken in part from Reference 25

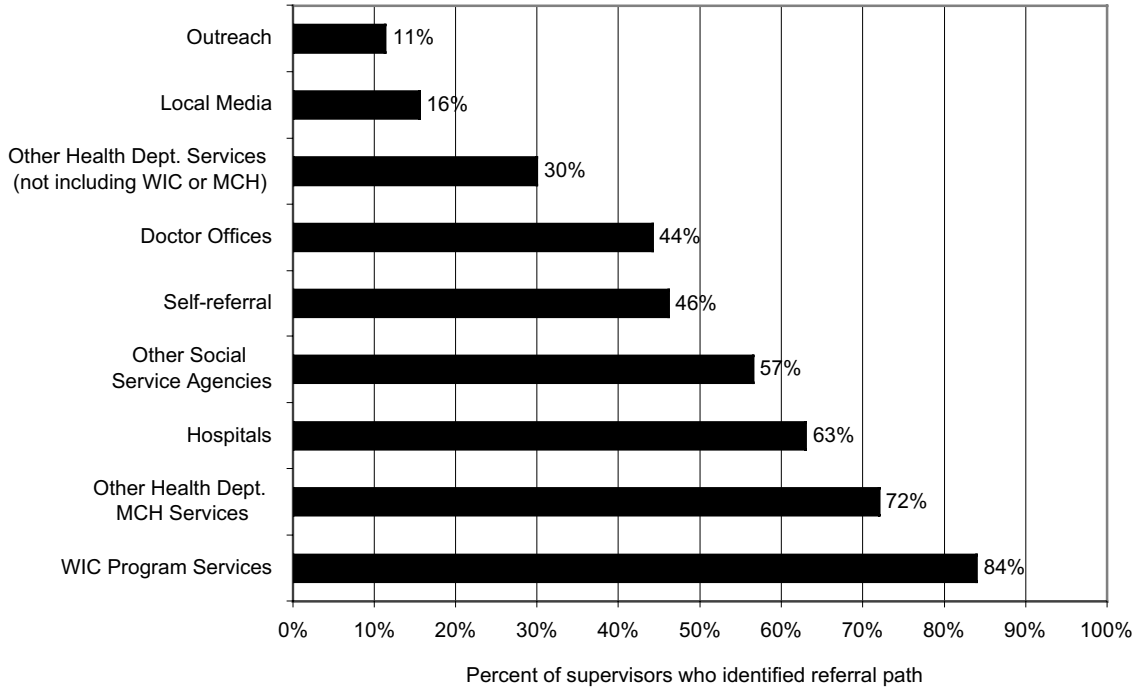
HOW DO WOMEN BECOME CLIENTS IN THE HSHV PROGRAM?

One of the most important factors in assessing the effectiveness of HSHV Program sites was the structure they used to bring new clients into their HSHV Program. Intake paths

determine the ability of a HSHV Program site to serve its target population and community. Those HSHV Program sites that attempted to serve all mothers or all high-risk mothers, yet only came into contact with a small percentage of the available population, were neither able to serve the larger population of mothers nor refer them to other appropriate services. Figure 13 shows the percentage of supervisors who identified client referrals paths into the HSHV Program, along with those clients who also received other health department services. This assessment found that there were four major pathways for clients to enter the HSHV Program:

- Referrals to HSHV Program from WIC and other local health department programs
- Referrals to HSHV Program from local hospitals
- Referrals to HSHV Program from other community providers
- Referrals to HSHV Program from word-of-mouth

Figure 13. Referral Paths into HSHV Program



Referrals to HSHV Program from WIC and other Local Health Department Programs

The primary source of new HSHV Program clients was referrals of existing clients from within the local health departments. Ninety-one percent of HSHV Program nurse supervisors indicated that their HSHV Program received referrals from within their local health department. It was estimated that across Kansas, approximately 70 percent of all HSHV Program clients were brought into the HSHV Program though this type of referral. These referrals came from a variety of other local health department program contacts including Maternal and Infant visits, Family Planning pregnancy testing, Well Child visits, and Immunizations. However, the single most important source of new HSHV Program clients was referrals from the WIC program (84 percent of HSHV Program supervisors indicated that their HSHV Program received clients from WIC) (see Figure 13).

The WIC program was established by the United States Department of Agriculture s Food and Nutrition Service to safeguard the health of low-income women, infants, and children up to age five who are at nutritional risk˚by providing nutritious foods to supplement diets,˚information on healthy eating, and referrals to health care. [26] In Kansas, WIC is distributed in 102 of the 105 counties, either through permanent on-site programs or traveling services (personal communication, KDHE/WIC, March 2002). Three of the most southwestern counties in the state have no in-county WIC services. This requires residents in these counties to travel to other adjacent counties to receive WIC services. Most of the on-site WIC programs are operated at the local county health department, except when there is limited space for voucher distribution. The WIC programs that are not administered out of the local health department, but are staffed by a team of WIC program representatives that travel from county-to-county, are found in the rural areas of southwestern, northwestern and southeastern Kansas.

As stated previously, the referrals from WIC and to a lesser extent other local health department programs were the primary mechanism for bringing new clients into the HSHV Program. This was particularly true in the 33 LHD model sites for which this was

the main mechanism for bringing in new HSHV Program clients. The WIC target population includes low-income pregnant women and infants up to one year of age and serves 45 percent of all infants born in the United States.[8] Promoting breastfeeding is a strong component of the WIC program philosophy, and each site has a breastfeeding coordinator available to conduct direct client counseling as well as provide trainings to other agency staff (i.e., HSHV Program home visitors).

Referrals to the HSHV Program from WIC typically seemed to occur when a pregnant woman or new mother came to the health department to enroll in the WIC program. In calendar year 2000, 14,594 expectant or new mothers enrolled in the WIC program (personal communication, KDHE/WIC, April 2002), each one a potential HSHV Program client. The better the coordination and collaboration between HSHV and WIC Program staff members, the more efficient and reliable was the referral. Many sites have recognized this important connection (76 percent of the HSHV Program nurse supervisors said their HSHV Program collaborated with the WIC program, and in many counties the HSHV Program home visitor also worked part-time with the WIC program).

Because WIC was such an important referral source for local HSHV Programs, those counties that do not have WIC programs integrated with their health departments appeared to be at a disadvantage for receiving referrals. These HSHV Programs did not benefit from the spontaneous referral interactions that could have occurred if the programs had been co-located.

Referrals to HSHV Program from Local Hospitals

The second most important mechanism for bringing new clients into the HSHV Program was referral from hospitals. Sixty-three percent of the HSHV Program supervisors indicated they receive referrals from hospitals. It is estimated that across Kansas approximately 15 percent of all HSHV Program clients were initially referred from local hospitals (see Figure 13).

The key to receiving referrals from hospitals was that the HSHV Program staff attempted and was successful in collaborating with key hospital personnel. In several of the ALL model sites, this connection with the local hospital was the most important connection in the success of their HSHV Program. Some HSHV Program home visitors went to the hospital daily and saw all new mothers almost immediately after birth. This kind of connection is not uncommon and, indeed, 27 percent of all HSHV Program visits and 34 percent of all postpartum visits occurred in the hospital rather than in the client s home. The ability to receive referrals from local hospitals depended both on the existence of an appropriate hospital that provided referrals and a collaborative relationship with that hospital s staff. In those counties where delivery hospitals did not exist, it appeared very difficult for HSHV Program staff members to effectively form relationships with the potential multiple providers in out-of-county areas. Furthermore, many hospitals are becoming reluctant to share information about clients or allow access to clients due to concerns about confidentiality.

Referrals to HSHV Program from Other Community Providers

The third most common referral route to the HSHV Program was made from other (non-hospital) local professionals (i.e., physicians, doctor office personnel, and social service providers). Sixty-nine percent of HSHV Program supervisors indicated that they received referrals from these community sources. It is estimated that across Kansas approximately 10 percent of all HSHV Program clients were initially referred from local community providers (see Figure 13).

To receive these types of referrals, the HSHV Program must be visible to local providers, and HSHV Program staff members must develop and maintain a positive community reputation. Before referring their clients to the HSHV Program, community providers must feel comfortable that their clients will receive quality service and have a positive outcome. At some sites, some providers appeared to have a lack of knowledge and misinformation about the HSHV Program, its services, and goals.

Referrals to HSHV Program from Word-of-Mouth

A final important mechanism for bringing new clients into the HSHV Program was through self-referral or word-of-mouth via family and friends. Forty-four percent of HSHV Program supervisors said they received at least a few new clients from self-referral or that clients heard about the HSHV Program through word-of-mouth. It is estimated that across Kansas about five percent of all new HSHV Program clients were self-referred or referred by friends and family.

Although this referral mechanism did not seem highly important statewide, it did appear to be important in the HISPANIC model sites. In some counties where the HSHV Program was integrated into and accepted by the local Hispanic community, up to 40 percent of all new clients were self-referrals or referred by family and friends.

HOW DO HSHV PROGRAM SITES COOPERATE AND COORDINATE WITH OTHER SERVICES IN THE COMMUNITY?

Another important characteristic of HSHV Program sites was the ability to collaborate with community providers. These collaborative relationships were important for several reasons. First, they facilitated involvement of expectant and new mothers in the HSHV Program. As the HSHV Program became more integrated into the provider community, they developed formal and informal relationships with providers that allowed for referrals to the HSHV Program. Second, these connections enabled the HSHV Program home visitor to make additional, targeted referrals to local providers for other services. As the HSHV Program staff members became more aware of the providers in their communities and the services that they provide, they had more detailed information with which to provide referrals. Finally, community collaboration is more important as the number of potential clients increase.

In more urban settings, it was difficult for the HSHV Program to see all mothers based on current funding and staffing levels. As a result, RISK and URBAN model sites selectively targeted a sub-population of all available mothers. As such, it became increasingly

important for the HSHV Program to be integrated into the continuum of providers and services both within the local health department and within the larger community. Those sites that were able to coordinate with the network of other providers, particularly other home visiting programs (e.g., Parents as Teachers, visiting public health nurses, Nurse Family Partnership), were better able to ensure that all mothers in the area received the most appropriate available services.

Although referring clients to and receiving referrals from local providers was the most common form of cooperation, it was not the only collaborative activity that local health departments undertook. Many health departments had formal arrangements with community health care providers or social service programs to receive referrals for all eligible clients. It was also common to find HSHV Program sites coordinating with home visitors in other HSHV Program counties. This was particularly useful when there was a lack of local providers in a given community and neighboring HSHV Program home visitors were able to identify potential new clients and share that information with the mothers home county HSHV Program. An even more developed level of coordination existed with some HSHV Program sites that made arrangements to share staff members with other community programs or co-locate staff members with other providers, thereby facilitating the ability to share information about clients with each other. The highest levels of coordination (found in a handful of HSHV Program sites) attempted to coordinate client services, including home visits, with other providers. This was done both to increase the impact of services for the client, and to reduce overlap and confusion of services.

WHAT ARE THE BARRIERS TO COOPERATION AND COORDINATION?

There was a great deal of variation among sites with regard to how well they were able to coordinate with the local providers in their communities. This assessment attempted to determine what the obstacles to cooperation and coordination with other providers of prenatal and postnatal services in local communities were, and identify how these might be overcome.

Unwillingness to Share Information with HSHV Program

In many communities, there was a high level of openness and exchange of information regarding clients between the HSHV Program and local providers. Hospitals, doctors, and social service agencies would provide the HSHV Program staff with names and contact information regarding clients they felt could use the HSHV Program services. In many cases, hospitals notified the HSHV Program staff about a new mother and allowed the home visitor to see that client in the hospital. However, this openness did not exist everywhere. The most commonly cited barrier to collaboration with local providers was an unwillingness of local providers to share information about their clients. This reluctance seemed to come from two sources.

First, there was a growing concern among providers about sharing confidential client information. Many providers felt as though they could not share any information about their clients, even the existence of these clients, with the HSHV Program or any other provider without written authorization. Proposed Health Insurance Portability and Accountability Act (HIPAA) regulations regarding the confidentiality of client information have only increased these concerns among local providers. Once providers made a determination that client information was confidential, very little effort was made by local providers to obtain written consent or to make these connections with the HSHV Program. This assessment did not find any example where such a process had been established. The HSHV Program still may have received some referrals from these providers if the provider s staff educated clients about the HSHV Program and encouraged them to contact the HSHV Program. However, this required the client to take the initiative to contact the HSHV Program, thereby decreasing the likelihood of follow through. Furthermore, it required that the provider exhibit a sufficient level of understanding about the HSHV Program to educate the client about the HSHV Program benefits and then follow up with a referral.

Second, in many cases there appeared to be a lack of interest or support for the HSHV Program by local providers. As reported by health department staff, local providers did not

coordinate or collaborate with the HSHV Program because they did not think of it as a valuable service, or one that was appropriate for their clients. In such cases, the HSHV Program was unlikely to be successful in its attempts at collaboration or receiving referrals from these providers.

Lack of Local Provider Collaboration

The second most commonly mentioned barrier to cooperation and coordination was a lack of local providers with whom to collaborate. This included both the lack of a local hospital that delivered babies, and a limited number of other direct care and social service providers. In many counties, expectant mothers are forced to travel out-of-county to receive prenatal care, see specialists, and have their babies delivered. As stated previously, a lack of in-area hospitals that deliver babies was an issue for many LHD model sites, and a lack of local providers was the number one barrier indicated by RISK model sites.

Lack of Information / Misinformation about the HSHV Program

A third commonly cited barrier to community cooperation and coordination was a lack of awareness of the HSHV Program by local providers or a lack of accurate information about HSHV Program services. It appeared that in many counties, particularly in LHD model sites, many local providers were not aware of the HSHV Program s existence.

WHAT HAPPENS DURING A HSHV PROGRAM HOME VISIT?

Although there was a degree of structural difference (e.g., intake paths, community collaboration, target population) among the various HSHV Program models along with differences in how the HSHV Program home visitor and client interacted and who the HSHV Program served, this assessment found that what took place during an actual HSHV Program visit was fairly consistent across all model sites.

HSHV Program Visit Process

Most HSHV Program visits occurred in a similar manner. The first step was to receive a referral and/or schedule an appointment. The more integrated the HSHV Program was within the other health department services, the more efficiently and effectively these referrals were received. The most effective method was when the HSHV Program home visitor was the contact person making the referral to the HSHV Program. For example, this might occur when a home visitor is working with the WIC voucher distribution, or when a HSHV Program nurse supervisor sees a client in the family planning clinic. In these cases, the staff person told the client about the HSHV Program directly and scheduled an appointment immediately. In other cases, HSHV Program staff members received the client referral and contacted the client to schedule an appointment.

Once a referral was made and an appointment set, the next step was to make personal contact with the client. This most often occurred at the client s home and could be timed to take place a few days or weeks after the delivery of the baby. Although the home was the most frequent meeting location, HSHV Program visitation in the hospital accounted for about one-quarter of all visits. In these cases, the appointment contact was usually made with a hospital nurse and not directly with the client. Even though an appointment had been set in advance, it was not uncommon for the home visitor to arrive at the client s home and find the mother not there or unwilling to receive services. About one-quarter of all visit attempts were not completed for these reasons. In almost all cases, a second attempt was made to see the client.

At the time that contact was made, the home visitor quickly attempted to establish rapport with the client. To facilitate this process, home visitors almost always arrived with a gift bag of information and useful baby items. These gift bags contents varied significantly from site to site. Items in these bags may have included some of the following: smoke or carbon monoxide detectors, electrical outlet plug covers, safety door latches, books, medicine droppers, feeding spoons, and thermometers. Information in these packets included a broad range of flyers and pamphlets discussing: the health department, car seat

safety, fire prevention, poison control, childhood immunization schedules, postpartum depression, breast- and formula feeding, sudden infant death syndrome (SIDS), shaken baby syndrome, lead poisoning and/or testing, and contraceptive options. Building rapport was reported to be the most difficult part of the HSHV Program home visit process, because many people were suspicious about letting government people into their homes. It is not uncommon for the HSHV Program staff to be confused with social workers from SRS, and many mothers were concerned they were being judged or were at risk of losing their children by talking to the HSHV Program staff.

Once a modest level of rapport had been established, HSHV Program home visitors provided client education and reviewed informational materials. The content of each visit and the emphasis each home visitor placed on different topics varied according to the needs of the client and the background and experience of the home visitor. Some HSHV Program home visitors placed particular emphasis on Lamaze, car seat safety training, and/or La Leche League breastfeeding. Despite these differences in emphasis, there appeared to be a core set of issues that were addressed during each visit (see Figure 14).

During the visit process, each home visitor conducted an informal assessment of the strengths, weaknesses, and needs of the client. Once this informal assessment was completed, the home visitor and the client discussed the types of services the client might find helpful.

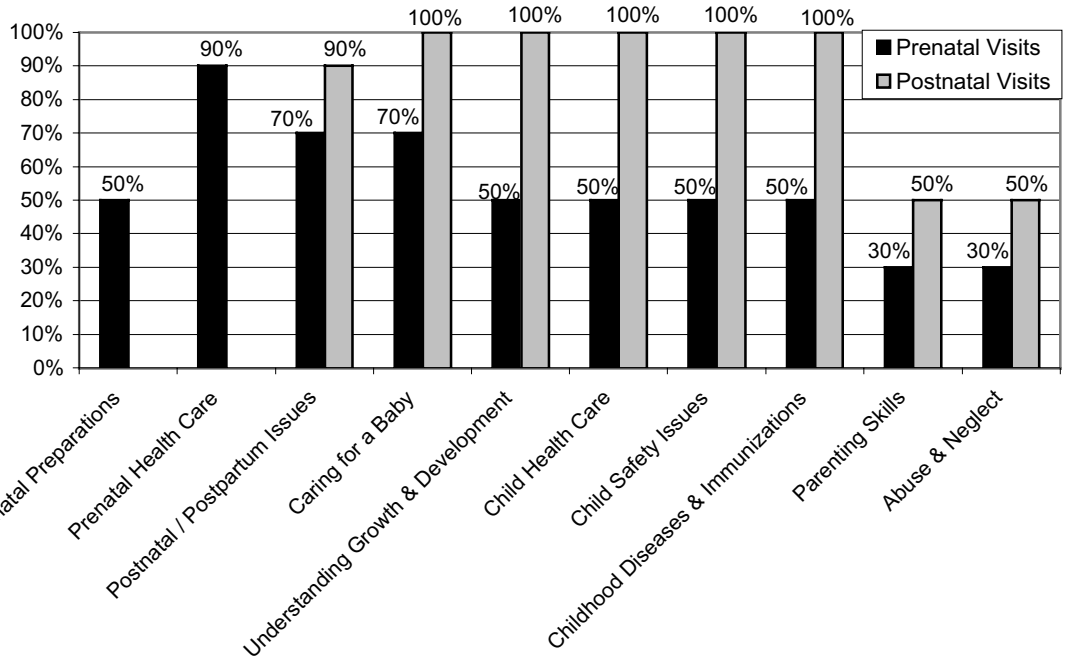
Most home visitors used the information gained from the informal assessment of client needs as the basis for providing client referrals to other health department and local community services. The HSHV Program home visitor was expected to have a comprehensive list of community health and social services available. A copy of this list was often given to the client with encouragement from the home visitor for the client to contact the providers directly.

Often at the end of the visit with the client, and then again in discussions with the HSHV Program nurse supervisor, the need for follow-up visits was discussed. To some degree, the likelihood of a follow-up visit was dependent on available HSHV Program resources, other available community resources, and the needs of the client.

HSHV Program Visit Content

The topics discussed and the amount of emphasis placed on particular topics during a HSHV Program home visit appears to be a function of: 1) an informal assessment by the home visitor of what information is needed by the client; 2) the prenatal or postnatal nature of the visit; 3) the likelihood of additional visits; and 4) the background experience and interests of the home visitor. A core set of items was addressed by all home visitors. Figure 14 identifies topics that home visitors mentioned or discussed during each prenatal or postnatal home visit.

Figure 14. HSHV Program Core Home Visit Content Areas



Prenatal Visits: About one-quarter of all HSHV Program visits occurred before the child was born. Because the birth had not yet occurred, the content of these visits differed

somewhat from postnatal visits. The most frequently discussed issue during these visits was prenatal health care for the mother and child. Postpartum issues and caring for a baby also were discussed. It also was not unusual for prenatal visits to include issues related to making prenatal preparations for the baby (e.g., purchasing clothing, supplies).

The degree to which other issues were discussed in a prenatal visit appeared to be dependent on the number of visits anticipated. If the HSHV Program home visitor anticipated returning for another visit after the child had been born, she was less likely to deal with topics that would be more important after the birth. However, if the home visitor anticipated that the prenatal visit would be the only one the mother received, then the discussion was more likely to include postnatal topics.

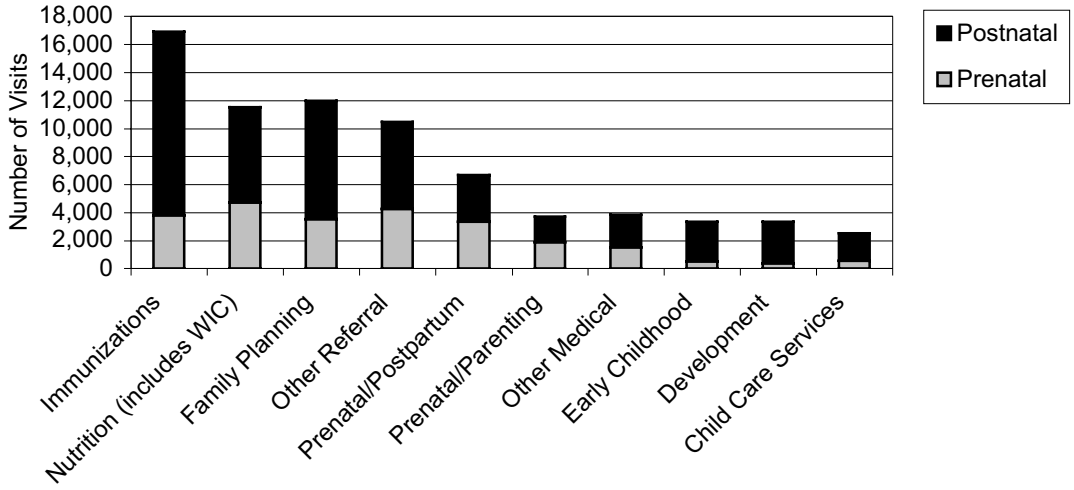
Postnatal Visits: About three-quarters of all HSHV Program home visits took place after the child had been born. Depending on the site, this visit may have taken place any time from a few hours after delivery to several weeks after the child had been born. Topics that dealt with prenatal issues were not discussed in a typical postnatal visit.

As with prenatal visits, during postnatal visits, there was a core set of items that were always discussed by the HSHV Program home visitor. These include postpartum mother and child health issues (depression, umbilical cord care, breastfeeding); caring for the baby; understanding child growth and development; child health care issues (including immunizations); and child safety issues (e.g., electrical outlet protectors, car seats).

HSHV Program Referrals to Other Services

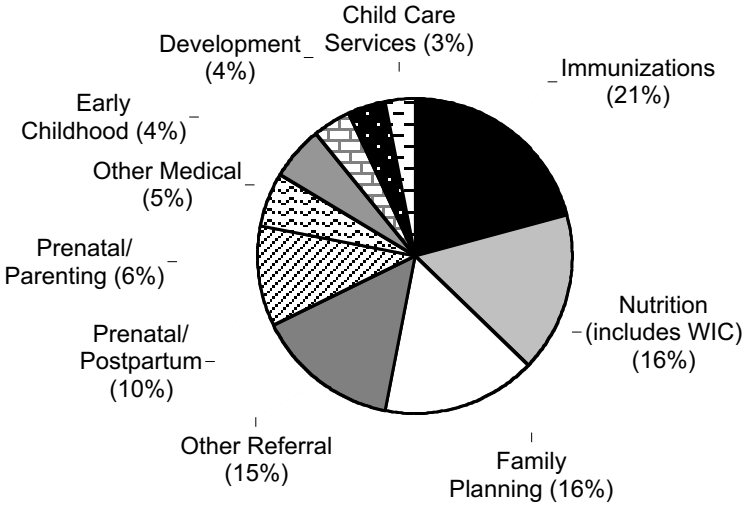
In 2000, there were 34,322 referrals given to HSHV Program clients. On average, during a HSHV Program visit, each client received about three referrals, and 75 percent of all clients received at least one referral to other local health department or non-health department services. Of the mothers receiving referrals, on average, they received almost four referrals each. Figure 15 indicates the breakdown between prenatal and postnatal referrals made during each visit in the 10 most frequent types of referral categories.

Figure 15. Breakdown Between Pre- and Postnatal HSHV Program Visits Made During 1998-2000



The most common referral was for child immunizations, accounting for 21 percent of all referrals; the second most common referral was for nutritional services, including WIC, which accounted for 16 percent of all referrals; and the third most common referral was for family planning services at 16 percent of all referrals. Taken together, these three services accounted for 53 percent of the total referrals made. Given the location where these services were offered, over one-half of all referrals were made back to local health department services. Figure 16 presents the percentage breakdown of the top ten most common referrals made during all HSHV Program home visits.

Figure 16. Ten Most Common Types of Referrals Made During All HSHV Program Visits



Problems Encountered During HSHV Program Home Visits

As part of the assessment, we asked HSHV Program home visitors what problems they encountered during visits. The problems they cited in order of frequency included: no-show clients and reluctance to participate in visits; difficult environment for the home visitor (dogs, dirt, television, lack of air conditioning); suspected neglect and/or abuse; suspicious and/or wary client; client did not understand why home visitor was there (confused with SRS); unwilling or unmotivated client; and misconception that home visitor was a nurse. HSHV Program home visitors indicated they dealt with problems by leaving a note at the client s home and repeating the visit to catch the client at home; discussing the problem with their supervisor; and having their supervisor conduct a follow-up visit.

WHAT SELF-ASSESSMENT PROCEDURES FOR THE HSHV PROGRAM ARE IN PLACE?

Most HSHV Program sites used a postcard-based evaluation system established by KDHE. These postcards were postage-paid by the local HSHV Program site and were addressed to KDHE/BCYF in Topeka. The HSHV Program Manual suggests two methods

for distributing the postcards to clients: one section of the HSHV Program Manual states that the home visitor will distribute a client feedback postcard to each family visited, while the Healthy Start Home Visit Return Card instruction in the Operational Guidelines section of the same Manual[1] indicates cards should be handed out to every 5th to 10th family visited. The postcards are an assessment tool prepared by KDHE on which clients can comment about the usefulness of recently received HSHV Program services. KDHE/BCYF receives approximately 200 postcards per month out of the estimated 1,326 HSHV Program home visits conducted each month (based on 2000 data).

Once Topeka staff members have reviewed the postcards, they are transmitted within the month to the respective HSHV Program site. The local health department administrator or HSHV Program nurse supervisor then reviews them. In the event that there is a complaint (which was indicated as a rarity), the administrator or nurse supervisor follows up with the HSHV Program home visitor to address the situation. Most sites did not distribute the postcards on any regular interval basis, and as such their usefulness may be somewhat limited. The only other local HSHV Program quality assurance procedure used was the review of home visitor paperwork by the nurse supervisor. The study team did not find any formalized and/or written assessment procedures in place in any of the sites visited regarding this review process.

WHAT ARE THE KEY COMPONENTS OF EFFECTIVE HSHV PROGRAM SITES?

This assessment revealed that there were three elements critical to the functioning of a HSHV Program site in Kansas. Those HSHV Program sites that lacked one or more of these key components were less able to fulfill the goals and objectives as stated in the KDHE s HSHV Program Manual. They are:

- Qualified and dedicated HSHV Program home visitors
- Effective mechanisms for bringing clients into the HSHV Program
- Ongoing and effective HSHV Program community collaboration

Quality and Dedicated HSHV Program Home Visitors

One of the most important elements that contributed to the HSHV Program was a qualified and dedicated home visitor. Not all HSHV Program home visitors in Kansas meet the level of quality and dedication necessary to achieve HSHV Program goals and objectives. The home visitor s role is critical to the success of service provision and requires the personal skills to establish rapport with families, the organizational skills to deliver the home visiting curriculum while still responding to family crises that may arise, the problem-solving skills to be able to address issues that families present in the moment when they are presented, and the cognitive skills to do the paperwork that is required. [17]

Home visitors were experienced mothers with some previous public health or childcare experience. A HSHV Program cannot be effective if home visitors are not able to recognize conditions such as substance abuse, maternal depression, and domestic violence. These are conditions that interfere with a safe child environment, family engagement, and HSHV Program implementation and effectiveness.

The most successful home visitors were committed to the HSHV Program and believed the program had a positive impact on their clients lives. They were non-threatening and non-judgmental in nature, while also being able to walk into a stranger s home and quickly gain their trust. Over time, the most successful HSHV Program home visitors appeared to gain not only the trust of their clients, but also the respect of the entire community.

When HSHV Program home visitors are of a different culture, race, or ethnic background than their client, it is important for the home visitor to be able to distinguish between cultural beliefs and practices that are different than their own and those practices that are dysfunctional.[13] Furthermore, home visitors must be able to connect socially with their clients. This seems particularly important in communities with large Hispanic populations. At those HSHV Program sites that serve clients of Hispanic ethnicity but do not employ a Hispanic home visitor or do not have translators available, the HSHV Program seems to

engage fewer clients and does not seem to be as accepted or trusted by the Hispanic community.

Effective Mechanisms for Bringing Clients into the HSHV Program

Without effective mechanisms for engaging and recruiting new clients, HSHV Program sites can never fully serve their target populations. Many barriers can impede the ability of a site to serve its intended population. In some cases, HSHV Program sites appeared to have narrowly defined their target population. They served their built-in health department referral clients rather than defining a specific target population and then creating the intake mechanisms and processes to engage that population. An example of this was the frontier and rural counties that said they served an at-risk population. Although by serving their own clients, they may indeed have served clients who were at-risk, HSHV Programs in these less populated areas should have the capacity to serve all mothers. Failure to do so was due to an inability to attract all appropriate clients.

It is important that the HSHV Program be highly integrated into the daily functions of the other maternal and child health services at the local health department. In those sites where the HSHV Program staff had little interaction with other health department program staff, and where coordination between HSHV Program and other maternal and child health programs was not intentional or systematic, there was a significant disadvantage for recruiting and serving new clients. Referrals from within the local health department are the most common source of new clients for the Kansas HSHV Program; consequently, it is important that this relationship be maximized. In most county health departments, WIC and other programs serve more than one-half of the expectant mothers and newborn children in their area. This provides an ideal access point for connecting with this population.

It is important however, that internal referrals not be the only mechanism a HSHV Program use for identifying new clients. HSHV Program sites that were successful in meeting HSHV Program goals and objectives also established mechanisms for identifying

and contacting new clients from other community collaborators, the local delivery hospitals being among the most common partners. HSHV Program staff members must establish successful individual and program relationships with community providers. Many of the most successful relationships were informal agreements to share information and client access with the HSHV Program.

The final element involved in bringing new clients into the HSHV Program is to ensure that once clients are contacted, they are willing to participate. HSHV Program sites must initially establish and then maintain a positive community reputation and high visibility within the general population. Expectant and new mothers who have never heard of the HSHV Program or as noted by some local health department staff members, may have heard less than positive things about it were far less likely to engage in services with the HSHV Program.

Ongoing and Effective HSHV Program Community Collaboration

As discussed above, HSHV Program sites that did not have effective community collaborations were less able to identify and recruit new clients into their HSHV Program. Furthermore, they were less able to appropriately serve their clients, and may negatively affect the entire service system for area prenatal and postnatal clients. This collaboration is achieved through a variety of techniques, including dedicating service time to community-level program boards and conducting provider presentations so community providers are more familiar with and accepting of the HSHV Program.

By knowing the other providers in a community, HSHV Program staff members are better able to make appropriate referrals for their clients. An awareness of local community providers ensures a greater set of resources. In addition, being familiar with the quality and range of services from particular providers improves the quality of the referrals that can be made.

In larger URBAN and RISK model sites, effective collaboration was even more important. When there were insufficient resources for the HSHV Program to visit all potential clients, effective community collaboration allowed the provider system to make more appropriate referrals to the HSHV Program. Coordination between services allowed a greater number of clients to be served in the community by reducing overlap among programs. Appropriate service coordination can reduce the burden on the client. In some HSHV Program sites this was accomplished by co-located services or by having multiple providers perform visits together.

These collaborative efforts are often hindered by a lack of appropriate providers in the local community. This then requires the HSHV Program to reach beyond its geographic borders to collaborate with out-of-county hospitals, providers, and other HSHV Program sites. Unfortunately, the growing concern about client confidentiality among many community providers results in a reluctance to share client information and may be a significant limiting factor in HSHV Program effectiveness.

CHAPTER FOUR: IMPLICATIONS AND RECOMMENDATIONS

The preceding report provides the reader with an understanding of the HSHV Program at the local level. We provided information on the overall HSHV Program and on the six HSHV Program model types currently functioning in Kansas.

If KDHE/BCYF determines that change across the HSHV Program or among the models is desirable, there are a number of alternatives that might be considered. One option would be to encourage fidelity to the HSHV Program goals and objectives and to find ways to assist local HSHV Program sites to become more closely aligned with these goals and objectives. A second option would be to consider identifying which among the six model types best exemplifies core elements of the HSHV Program and leverage local sites experience to help others mimic their approach. A third option may be for the KDHE/BCYF to consider endorsing and/or encouraging the diversity identified in this assessment and continue to allow the HSHV Program to be community-driven and locally responsive.

It is critical to recognize that this assessment did not attempt to determine the impact of the HSHV Program on client outcomes. HSHV Program sites currently are not judged on their ability to affect HSHV Program objectives; rather, they are asked to report on their site s activity (e.g., how many clients did they see, what did they do with them). If client outcomes (such as reduced child neglect or increased prenatal care services) are of interest, accountability for these measures will need to be incorporated into the HSHV Program. Doing so will promote greater HSHV Program improvement through the identification of service practices and models that have a positive impact on client outcomes. Only then will there be measurable outcomes and the possibility of a true client-based evaluation of the HSHV Program.

ADDRESSING THE NEED FOR CHANGE

Based on available literature, this assessment s findings regarding the characteristics that distinguish one HSHV Program model from another, and the guidelines provided through

KDHE s HSHV Program Manual, there are a number of options available for more closely aligning local HSHV Program sites with the HSHV Program goals and objectives.

Seven key factors should be considered in approaching modifications to the HSHV Program at both the state and local HSHV Program site levels. They are:

1. Dedicated and committed HSHV Program home visitors
2. Targeted community collaborations
3. Effective client intake and referral paths
4. Increasing prenatal visits
5. Updated and consistent HSHV Program materials and resources
6. Ongoing data collection and HSHV Program assessment activities
7. Decreasing liability and legal exposure around client-based information

Each factor is discussed below in detail so that overall planning, modifications and HSHV Program improvement can be achieved. The help of local staff members is key to implementing these modifications.

Dedicated and Committed HSHV Program Home Visitors

Because committed home visitors are critical to the success of the HSHV Program, attempting to increase the quality of these staff members is key. This can be addressed in at least two ways: 1) making sure staff members have appropriate interpersonal skills, cultural competencies, and technical background, and 2) efficiently and effectively training the staff. Hiring candidates is made more difficult because of the typical part-time employment status of the HSHV Program position, and the local health department s perceived need to provide a full-time or close to full-time employment opportunity to facilitate staff retention. It is often tempting for administrators to fill the HSHV Program home visitor position with staff members who are already available within the local health department. Administrators should, however, carefully consider the consequences of this action, as the available person may not always have the appropriate interpersonal skills necessary for the job.

In its effort to maintain and improve the HSHV Program home visitor knowledge base, KDHE/BCYF sponsors informative meetings dedicated to training the HSHV Program staff. Data collected show consensus that home visitors appreciate the training currently offered, but indicated the number of topics covered could be expanded (e.g., breastfeeding, labor and childbirth-warning signs, car seat use and safety, first aid, immunizations, child development, substance abuse issues, involving males in the maternal and child health process, engaging and working with resistant families). Creating a packet or notebook of training materials used during previous meetings could provide an additional training tool and resource for new HSHV Program home visitors.

Targeted Community Collaborations

Effective community collaboration is essential for a HSHV Program site. But how does a HSHV Program site go about developing collaborative community relationships? Communities that have already established these collaborative relationships mentioned several mechanisms the HSHV Program staff used to build the relationships. Such partnerships have developed when staff serve on community program boards or participate in interagency meetings. Promoting the HSHV Program to local providers via presentations and other interaction mechanisms was also found to be useful in some counties.

Not all HSHV Program sites have the same opportunities for developing these community relationships. As discussed in the Findings section, there are a number of barriers that limit the ability of some HSHV Program sites to develop collaborations. These include provider skepticism about the HSHV Program (and associated concerns about client confidentiality), provider apathy or lack of interest in the HSHV Program, and the absence of local providers. When asked what it would take to overcome these barriers, HSHV Program staff members suggested increased promotion of the HSHV Program and better communication with local community providers as the most common solutions.

HSHV Program promotion efforts may be more effective and efficient if promoted on a statewide basis, and in collaboration with organizations like the Kansas Medical Society, Kansas Chapter of the American Academy of Pediatrics, and the American Academy of Family Physicians. This is particularly true for negotiating interagency relationships that facilitate information exchange between KDHE and SRS (e.g., monthly Medicaid enrollment schedule distributions at the county level) or the promotion of local hospital collaborations through KDHE and Kansas Hospital Association discussions.

A long-term solution to the problems surrounding client confidentiality issues must be addressed initially on a statewide basis because of the impact of the issue at a local level. Concerns about client information exchange were mentioned by HSHV Program staff members as a reason that some providers were unwilling to participate. As HIPAA rules and regulations become more stringently enforced, formalized mechanisms for providing client information between providers must be negotiated. A possible solution would include a release of information form that hospitals could use with all new mothers, which would allow the hospital to contact the HSHV Program staff to discuss the client and/or to establish an appointment for the client for HSHV Program services.

Another barrier to collaboration was the absence of local community providers. Faced with this situation, HSHV Program staff members in areas without an adequate supply of providers must take it upon themselves to develop collaborative relationships with potential providers outside their immediate area. Typically, these HSHV Program sites need to reach beyond their county borders to collaborate with providers. This assessment also identified an opportunity for improvement in the willingness of adjacent county HSHV Program home visitors to share information with each other and collaborate with providers.

Developing collaborative relationships requires large amounts of staff time and the payroll expenses associated with it. Along with the expenditure of more effort, many sites indicated that overcoming the barriers described above requires additional funding. A few

years ago, the Maternal and Child Health block grant funding that previously had been allocated to three distinct maternal and child health programs HSHV Program, Maternal and Infant, and Child Health was commingled in an effort to provide as much flexibility as possible to stretch the available dollars. The result of this change is that now local health department maternal and child health programs can control allocation of these funds in alignment with their program service needs. However, even with this relatively new control, resources and staff are limited. It is a challenge for local health departments to allocate time or request that personnel participate in the time-consuming process of building collaborative relationships with other community providers (e.g., attending and presenting at evening meetings, serving on coalitions and/or community program boards, coordinating and staffing booths at community health fairs). Nevertheless, these relationships need to be developed and nurtured over time in order to increase visibility and strengthen the community role and visibility of the HSHV Program.

Effective Client Intake and Referral Paths

One of the most important mechanisms for bringing new clients to a HSHV Program is referral from community providers. This in turn requires solid collaborative community relationships. However, referrals from community partners are not the only mechanism for recruiting new clients, and are not even the most common source.

HSHV Program sites need to fully integrate their services with other local health department services to maximize their ability to reach the largest percentage of expectant and new mothers. At a minimum, this means working in coordination with the WIC, Maternal and Infant, Child Health, Family Planning, and school health services program staffs. The HSHV Program must coordinate its efforts with those of other local health department programs serving the population of expectant and new mothers to ensure that all of these mothers receive information about, and when appropriate a referral to, the HSHV Program. This integration works effectively in local health departments with either shared staffing situations (i.e., the HSHV Program home visitor also works on the WIC

program, and/or the HSHV Program nurse supervisor works with the Maternal and Infant program), or where there is a policy regarding referrals. Because it is likely that more than half of the expectant and new mothers in an area will receive some other service from their local health department, this is considered the most important single source for securing new clients for the HSHV Program.

Increasing Prenatal Visits

One characteristic of almost all the HSHV Program sites was that they provide a greater number of postnatal than prenatal visits. The HSHV Program includes in its goals and objectives the promotion of early prenatal health care and the reduction of low birth weight babies. These goals and objectives can only be accomplished by interacting with clients during the prenatal period.

It appears that the higher number of postnatal visits is a function of the intake procedures used to identify and refer clients to the HSHV Program. In most cases, it seems HSHV Program staff members do not become aware of new clients until after the birth of the baby.

The dependence on hospitals as a major referral source for new clients helps create the HSHV Program postnatal service base. Hospitals usually only come in contact with new mothers at the time of delivery. If HSHV Programs are to increase their number of prenatal visits, they must develop stronger relationships with the other prenatal service providers (e.g., physician clinics, OB/GYN specialists), while continuing to nurture their relationships with hospitals.

Even with WIC acting as a primary referral source, the sharing of client information is not optimized. Of the 14,594 women enrolled in Kansas WIC services during 2000, 23 percent enrolled in their first trimester, 27 percent enrolled in their second trimester, 22 percent enrolled in their third trimester, and the remaining 28 percent enrolled postpartum (personal communication, KDHE/WIC, April 2002). These WIC contacts indicate an

inverse client service utilization (72 percent prenatal versus 28 percent postnatal) as compared to the provision of HSHV Program services (25 percent prenatal versus 75 percent postnatal). The WIC numbers suggest a missed prenatal referral opportunity to the HSHV Program.

Updated and Consistent HSHV Program Materials and Resources

In addition to improving the content of HSHV Program staff training, improvements could also be made in the quality of materials used during home visits. It was noted during the assessment process that the KDHE Health Education Library provided a limited amount of resource material to the HSHV Program sites for distribution to clients until the library was eliminated in the mid-1990s. Currently, single copies of pamphlet and handout materials are available through the Kansas State University Extension Services for local sites to use as master copies for photocopying and distributing to their clients. It is the financial responsibility of local HSHV Program sites to compile and reproduce the materials that each includes in its prenatal and postnatal information packets. There are resource materials published by the American Academy of Pediatrics and the American College of Obstetricians and Gynecologists, which can be ordered through the KDHE/BCYF office in Topeka, but these materials also must be purchased by the local HSHV Program sites. This has led to inconsistencies in the information discussed and materials distributed during home visits.

The development and distribution of particular materials appears to be a vital link in facilitating collaborative relationships among not only community providers, but also surrounding county health departments. If HSHV Program sites lack printed and updated resource lists to provide to both their clients and adjacent county HSHV Program sites, they struggle with coordination of resources and are less able to collaborate.

In an effort to improve continuity, achieve cross-site consistency, and ultimately provide a common basis for disseminating information to clients, centralized distribution of these hard copy materials would be beneficial. However, due to KDHE resource constraints, this

alternative is unlikely to be implemented (personal communication, KDHE, May 2002). An alternative method of achieving consistency would be to make all the approved KDHE/BCYF HSHV Program client distribution materials available for downloading from the Internet.

Ongoing Data Collection and Program Assessment Activities

The current data collection system (i.e., the CVR) does not allow for an impact assessment of the HSHV Program. If the HSHV Program is to increase the use of prenatal care services, decrease child abuse and neglect, and/or decrease infant mortality, then the current data collection system cannot adequately provide the information necessary to address and measure the stated goals of the HSHV Program.

Improvements to the current data collection system would allow local HSHV Program sites to better monitor their performance. For example, most LHD model sites were unaware that they were not serving a large percentage of the available population of mothers. If they could, over time, monitor the ratio of visits (or preferably clients) to available births in their county, they would have the information needed to track their services.

Currently, data are collected primarily via the CVR and through summary reporting by individual health departments. The primary purpose for this reporting is to generate the information necessary for federal grant reporting requirements. As such, certain indicators describing the client interaction process are collected with consistency (e.g., number of visits, racial and age breakdowns of client population, number of referrals made). Other indicators that would be helpful from an ongoing evaluation perspective are either not collected at all or not collected with enough accuracy and/or consistency to make them useful. Two changes to the collection process would improve the usefulness of the data.

First, developing some system that reliably creates or tracks client-level information would be extremely useful. There is currently no consistent mechanism to track client

service utilization over time, or to look longitudinally at any set of outcome indicators. There is no way of determining who receives repeat visits, or what the duration, intensity, frequency, or content are of multiple visits. Additionally, there is no means for obtaining an accurate count of unique clients served by HSHV Program sites. Having a unique identifier for each client would begin to solve this problem, but no changes in these processes are planned at this time.

Second, it would be useful to have available in the data an indication of when a visit occurs with reference to the mother s expected delivery date (i.e., trimester or post delivery). Although the current system provides differentiation between prenatal versus postnatal visits, there is no indication of when visits occur in relation to delivery date. The HSHV Program goals and objectives state that mothers should receive multiple visits: prenatal visits to discuss prenatal topics including health care and making preparations for the baby, and postnatal visits to address any after-delivery challenges such as breastfeeding. What is the ideal timing for these visits? A prenatal visit one week prior to the delivery is of little use in promoting the use of prenatal health care, and a postnatal visit two weeks after the birth to discuss the importance of breastfeeding is again of limited use. Data that tracks clients over time, reflects the content and nature of each visit, and identifies subsequent referrals in relation to the delivery date would provide valuable information for addressing HSHV Program improvements.

Decreasing Liability and Legal Exposure Around Client-Based Information

This assessment found that the majority of collaborative relationships between HSHV Program sites and other community providers (e.g., hospitals, physicians, social service agencies) were informal and based on personal relationships. While the sharing of information that occurs in these relationships may be highly effective and efficient, it may expose the HSHV Program and/or other community providers to litigation risk.

It was common to find local providers sharing client information with the HSHV Program staff without any client or agency agreement or safeguard regarding the confidentiality of

the client s personal health information. In some cases, hospital personnel telephone the HSHV Program staff when a mother delivers and tell the HSHV Program home visitor about the delivery, allow the home visitor to visit the client in the hospital, and sometimes allow the home visitor to view the client s records — all without the client s consent or under the auspices of an institutional confidentiality agreement.

Local physicians or social service providers may telephone the HSHV Program staff regarding clients they feel are at-risk and need HSHV Program services. These providers will often share explicit details with the home visitors about the client and why they surmise the client may be at-risk. Again, this is often done without client permission or formal data sharing agreements between agencies.

It should be noted this sharing of information is always done with the best of intentions and for the benefit of the clients (mother and child). Furthermore, it is this type of interaction and information sharing that is necessary to promote the client referrals that are essential to the HSHV Program. However, if for some reason a client were angry about information being shared, or if somehow a negative experience (i.e., psychological or physical damage to mother or child) were to result from a home visit because of information provided during a home visit, or by the inadvertent release of personal health information (e.g., a HIV/AIDS diagnosis) the HSHV Program, local health department, and local community providers could be exposed to legal liability.

It would be prudent for the HSHV Program to find workable solutions to reduce its legal exposure. This could include mechanisms to obtain client releases to share information and/or the creation of formal agreements between agencies regarding the sharing and use of confidential information.

CHAPTER FIVE: CONCLUSION

It was the purpose of this assessment to provide an overview of the Kansas HSHV Program. The three distinct data sources used for analysis covered the period from September 1997 through July 2001 (statewide CVR data), September 2001 through November 2001 (KHI mailed survey data), and December 2001 through January 2002 (KHI site visit data). Consequently, the assessment included data spanning less than one-fifth (or roughly four and one-half years) of the 25-year existence of the Kansas HSHV Program. It is anticipated the findings will be viewed in the context of the time covered, but ultimately prove most useful in the longer-term efforts for ongoing revision of the HSHV Program now that it has achieved statewide expansion.

In the process of reviewing the data, we addressed 10 specific questions in our attempt to assess the Kansas HSHV Program. Identifying whom the population is that the Kansas HSHV Program serves, who its home visitors are, and what these home visitors do, provided the context for the HSHV Program assessment. By identifying six models of service, we were able to compare the HSHV Program goals and objectives across model types. Focusing on referral mechanisms into and out of the HSHV Program, along with how the HSHV Program is integrated with other services in the community, emphasized the importance of both internal and external collaborative relationships to reach the target population. The assessment determined that there was remarkable consistency regarding the content of a HSHV Program home visit. The lenient self-assessment processes currently in place across most HSHV Program sites highlights the need for additional monitoring. Finally, there are seven overriding factors recommended for consideration prior to instituting HSHV Program modifications.

This assessment provided a description of the local HSHV Program sites as they are now. There is evidence that some HSHV Program sites have changed over time and continue to evolve from one model type to another dependent upon variables such as their time in existence, current staff philosophy and dedication, and the nature of community provider

relationships. The fact that evolution can and does take place when new elements are introduced indicates that change is possible and likely in most, if not all, sites.

REFERENCES

1. Kansas Department of Health and Environment, Bureau of Children, Youth and Families, Healthy Start Home Visitor Program, (January, 1992 & Revised, 1999). *Healthy Start: A Guide for Home Visits to Pregnant Women and Families with Newborns* Manual. Topeka, KS.

2. *Master Settlement Agreement* (November 1998). Agreement between states and the tobacco manufactures that was the impetus for passage of Kansas Senate Substitute for House Bill 2558 (1999), which dedicated 95 percent of the state's portion of the Master Tobacco Settlement to improving the health and well being of the state's children and youth. Topeka, KS.

3. Information provided by Kansas Department of Health and Environment, Bureau of Children, Youth and Families, Maternal and Child Health Program, (July 8, 2001). "Aid to Local Grant Worksheet" and "State Fiscal Year 2002 C&F Section: ATL Overview." Topeka, KS.

4. Institute of Medicine, Commission on Behavioral and Social Sciences and Education (1999). *Revisiting Home Visiting: Summary of a Workshop*. As found on the National Academy Press World Wide Web site: http://books.nap.edu/books/NI000203/html1/1.html (accessed April 2001).

5. Kansas Department of Health and Environment, Bureau for Children, Youth, and Families, (March 2001). Request for proposal announcement, Healthy Start Home Visitor Program Evaluation, Topeka, KS.

6. Kansas Department of Heath and Environment, Center for Health and Environmental Statistics, (September 2000). "Teenage Pregnancy Report, Kansas 1999 - Research Summary." Topeka, KS. From the World Wide Web: http://www.kdhe.state.ks.us/hci/tnpreg99.pdf (accessed September 2001).

7. University of Kansas, School of Social Welfare, "Births with Early Prenatal Care." Lawrence, KS. From the World Wide Web: www.socwel.ukans.edu/~kidcount/ind/lbw_01.htm (accessed October 21, 2001).

8. Hwang, M.Y. (May 27, 1998). "Oh baby: Women receive more prenatal care today than a decade ago," *Journal of the American Medical Association.* Vol. 279(20):1672. From the World Wide Web: JAMA and Archives Journals American Medical Association: Medical Library http://www.medem.com/search/article_display.cfm?path=n:&mstr=/ZZZ7PSGOO9C.html&soc=AMA&srch_typ=NAV_SERCH (accessed April 2002).

9. McCormick, M.C. and Siegel, J.E. (November-December 2001). "Recent Evidence on the Effectiveness of Prenatal Care," *Ambulatory Pediatrics*, Vol.1(6):321-325.

10. University of Kansas, School of Social Welfare, "Low Birth Weight Babies and Infant Mortality," Lawrence, KS. From the World Wide Web: www.socwel.ukans.edu/~kidcount/ind/lbw_01.htm (accessed October 2001).

11. Annie E. Casey Foundation. (2000). *KIDS COUNT Data Book: 2000*, Baltimore, MD: Author.

12. Kansas Department of Health and Environment (2000). *Selected Joint State Needs Assessment Products.* Compact Disc compiled by Connie Satzler: Manhattan, KS.

13. University of Kansas, School of Social Welfare, "Reported Child Abuse and Neglect: 1995-1998 and 1999," Lawrence, KS. From the World Wide Web: www.socwel.ukans.edu/~kidcount/ind/lbw_01.htm (accessed October 2001).

14. Kansas Department of Health and Environment, Center for Health and Environmental Statistics. "Table 32 - Infant Deaths by County of Residence, Kansas 1995-1999." From the World Wide Web: http://www.kdhe.state.ks.us/hci/vital99/table32.html (accessed October 2001).

15. U.S. Census Bureau Historical Poverty Tables, "Table 19 - Percent of Persons in Poverty, by State: 1998, 1999, 2000." From the World Wide Web: www.census.gov/hhes/poverty/hispov/hstpow19.html (accessed October 2001).

16. The David and Lucile Packard Foundation, (Spring/Summer 1999). *The Future of Children: Home Visiting: Recent Program Evaluations*, Vol. 9(1), Los Altos, CA.

17. Gomby, D.S., Culross, P.L, and Behrman, R.E. (Spring/Summer 1999). "Home visiting: Recent program evaluations—analysis and recommendations." *The Future of Children: Home Visiting: Recent Program Evaluations*, Vol. 9 (1), Los Altos, CA.

18. Kansas Department of Health and Environment, Center for Health and Environmental Statistics. "Table 5 - Live Births by Number and Rate by County of Residence, KS 1995-1999." From the World Wide Web: www.kdhe.state.ks.us/hci/vital99/table5.html (accessed October 2001).

19. Kansas Department of Health and Environment, Center for Health and Environmental Statistics. (July 2001). "Cesarean Section Rates and Vaginal Birth after Previous Cesarean Rates, Kansas, 1990-1999: Research Summary." From the World Wide Web: http://www.kdhe.state.ks.us/ches/csection.pdf (accessed

February 2002).

20. Kansas Department of Health and Environment, Center for Health and Environmental Statistics. "Number and Percentage of Live Births by Race and Hispanic Origin by Adequacy of Prenatal Care Utilization (APNCU) Index Kansas for 1998, 1999, and 2000." From the World Wide Web: http://www.kdhe.state.ks.us/hci/pcrace98.html, http://www.kdhe.state.ks.us/hci/prace99.html, http://www.kdhe.state.ks.us/hci/prace00.html (accessed April 2002).

21. Governor's Conference for the Prevention of Child Abuse and Neglect. An annual event in Kansas addressing the issue of child abuse and neglect. Kansas Children's Service League, lead agency with co-sponsoring Kansas organizations, Topeka, KS. From the World Wide Web: http://www.kcsl.org/ (accessed March 2002).

22. Morrissey, R. (November 4, 1997). "Memorandum: Definitions of Rural and Urban," Kansas Department of Health and Environment, Division of Health, Bureau of Local and Rural Health Systems, Topeka, KS.

23. SAS Institute Inc. (2001). Statistical software, Cary, NC.

24. Kansas Department of Health and Environment, Center for Health and Environmental Statistics (Analysis Requested November 6, 2001 / Received November 13, 2001). "Special Analysis: Kansas Births by County of Occurrence by year 1998–2000," Topeka, KS.

25. Kansas Department of Health and Environment, Center for Health and Environmental Statistics. "Table 2: County Population Kansas 1995–1999." From the World Wide Web: http://www.kdhe.state.ks.us/hci/vital99/table2.html (accessed October 2001).

26. Program Mission Statement for the U.S. Department of Agriculture's Food and Nutrition Services agency Women, Infants, and Children Program. From the World Wide Web: http://www.fns.usda.gov/wic/ (accessed February 2002).

27. Rapkin, B.D. and Luke, D.A. (1993). "Cluster analysis in community research: Epistemology and practice." *American Journal of Community Psychology*, Vol. 21(2):247-277.

28. Lorr, M. (1983). *Cluster analysis for social scientists*. Washington, DC: Jossey-Bass.

29. Gower, J.C. (1971). "A general coefficient of similarity and some of its properties." *Biometrics*, Vol. 27:857-74.

30. Ward, J.H. (1963). "Hierarchical grouping to optimize and objective function." *Journal of the American Statistical Association*, Vol. 58:236-244.

DETAILED DESCRIPTION OF CLUSTER ANALYSIS PROCEDURE

Understanding and describing the variation in programmatic structure found among the HSHV Program sites was a key goal of this project. To facilitate this characteristic identification, an empirical cluster analysis was performed.

Cluster analysis is a method of combining observations (in this case HSHV Program sites) into groups based on their similarity within a set of predetermined characteristics. The Cluster Procedure of the SAS® software system was used to conduct this analysis.[23]

Results can be influenced by variable selection, treatment of outliers and missing cases, and the method of clustering applied. The steps used to conduct the cluster analysis in this assessment were based on the work of Rapkin and Luke (1993) following their suggestions for using cluster analysis as a tool for research.[27] Rapkin and Luke's method is a modification of Lorr's (1983) cluster analysis technique that includes outlining the analytic sequence. These steps include: 1) identifying cases for analysis, 2) selecting; reducing; and scaling variables, 3) deriving proximity measures to be used, 4) choosing the clustering method, 5) determining the number of clusters, 6) interpreting cluster profiles, 7) determining cluster stability, and 8) presenting cluster results.[28]

IDENTIFYING CASES FOR ANALYSIS

Of the 105 counties in the state, only one does not provide HSHV Program services and therefore receives no HSHV Program funds, and a second uses its HSHV Program funds to support a professional nurse (not paraprofessional) home visitor. These two sites were not considered true HSHV Programs and were not included in this assessment of the HSHV Program. All of the remaining Kansas local health departments (N=103) were selected as the observations for analysis. As all observations were included (i.e., the entire population), concerns over adequate and representative sampling and the extrapolation of results to a larger population were not a concern.

SELECTING, REDUCING, AND SCALING VARIABLES

Selecting

The variables selected for initial consideration in the clustering analysis were based on 1) the stated goals and objectives of the Kansas Department of Health and Environment, Bureau of Children, Youth and Families' HSHV Program, 2) a review of past research on home visiting programs, and 3) the insights and experiences of the research team. These variables were selected as descriptors of the HSHV Program and/or to provide information regarding the context (i.e., county characteristics) in which the HSHV Program had been created and evolved. Because of the year-to-year variability among some of the county-level variables, it was determined that these indicators would be most representative if multi-year averages were used rather than one-year point-in-time estimates. These multi-year averages were not always available in a form that covered exactly the same time frames, but the final range included reliable data available within the years 1994-2000. It should be noted that none of these multi-year variables were retained in the final descriptive variable set.

Analysis began with 26 variables that were descriptive of the local HSHV Program sites and counties. These variables included:

- Average client age
- Average county abuse and neglect rate (1995-1998)
- Average county birth rate (1995-1999)
- Average county infant mortality rate (1994-1998)
- Average number of referrals per client for each HSHV Program
- Average percentage of births with early prenatal care (1995-1998)
- Average percentage of births defined as low birth weight (1994-1998)
- County population 1999
- County population density
- HSHV Program client primary insurance coverage
- HSHV Program primary referral sources
- HSHV Program target population
- Number of live births by county of residence (1997)
- Number of live births by county of residence (1998)
- Number of live births by county of residence (1999)
- Number of HSHV Program client visits (1997)

- Number of HSHV Program client visits (1998)
- Number of HSHV Program client visits (1999)
- Percentage of HSHV Program clients receiving other health department services
- Percentage of county population living in poverty
- Percentage of county population that were white
- Percentage of HSHV clients that were of Hispanic ethnicity
- Percentage of HSHV clients that were white
- Ratio of HSHV Program visits to live births (1998)
- Ratio of HSHV Program visits to live births (1999)
- Year HSHV Program started in respective county

Reducing

Once the initial variable list was developed, an examination of the descriptive statistics for each variable was undertaken (e.g., mean, standard deviation, maximum and minimum scores, and range) to identify variables with insufficient differences between county or HSHV Program site characteristics to produce sufficient discriminant power. If, for example, all counties had the same percentage of residents living in poverty, that information would be of little use in discriminating among counties or HSHV Program sites.

The final reducing step included conducting an examination of correlation among the remaining selected variables. Multiple variables that are highly correlated add little to the descriptive power of an analysis. For example, if the ratio of HSHV Program visits to live births in 1998 and 1999 were nearly identical or highly correlated, having both in the analysis would not provide any better explanation of the data than the 1999 ratio alone.

Variables with little or no discriminant power or that were highly correlated were removed from the original list of 26 variables. This reduction process removed 14 variables resulting in the following selected set of 12 variables:

- Average county abuse and neglect rate (1995-1998)
- Average county birth rate (1995-1999)
- Average county infant mortality rate (1994-1998)
- Average percentage of births with early prenatal care (1995-1998)
- Average percentage of births defined as low birth weight (1994-1998)
- County population (1999)

- HSHV Program primary referral sources
- HSHV Program target population
- Percentage of HSHV Program clients receiving other health department services
- Percentage of county population living in poverty
- Percentage of HSHV Program clients that were of Hispanic ethnicity
- Ratio of HSHV Program visits to live births (1999)

Scaling

Cluster analysis procedures are affected by the magnitude of the variables included. That is to say, variables with large numbers (i.e., county population) have a greater impact on the outcome of the analysis than variables with small magnitudes (i.e., percentage of HSHV Program clients who also receive other health department services). To control for this imbalance, scaling was performed which converted all scores (with the exception of binary variables) to *Z* scores. (*Z* scores are the conversion of variables to a mean of zero and a variance of one.)

DERIVING THE PROXIMITY MEASURES TO BE USED

The current analysis used a distance dissimilarity measure "DGOWER" based on a general coefficient of similarity developed by Gower (1971). In this case, two HSHV Program sites (*a* and *b*) may be compared on characteristics such as county population or target population (*k*). The sites can then be assigned a similarity score (S_{abk}), that is zero when *a* and *b* are considered different (i.e., one site serves all mothers as its target population, while the other site serves at-risk mothers as its target population) and a positive score between zero and one when they have some degree of agreement and/or similarity (i.e., the comparative size of their county population). A measurement of the difference (dissimilarity) between the sites can be represented numerically as $1\text{-}S_{abk}$. Using this numeric representation, a dissimilarity matrix can be calculated to measure the difference between cases on multiple variables concurrently (i.e., both county population and target population at the same time).

A major benefit to the "DGOWER" method is that it accepts all types of data in the same analysis (i.e., ratio, interval, ordinal, nominal, and asymmetric nominal). Furthermore, it

does not manifest the obstacles inherent in using Euclidian distance (i.e., covariance problems).[29]

CHOOSING THE CLUSTERING METHOD

Clustering can be accomplished by following any one of several pre-specified series of steps and decision rules. Because of the exploratory nature of this analysis, an agglomerative hierarchical method was used. The starting point was to treat each observation (local HSHV Program site) as a separate entity, and then combine observations in sequence so that those similarities are collapsed into the same cluster produced early in this hierarchical process. The Ward method (Ward 1963) for combining observations was used, which strives to identify grouped observations that cluster tightly.[30] This clustering was done with the goal of minimizing the within-cluster variability and resulted in clusters that were well differentiated from each other.

CONCURRENT ANALYSIS DECISIONS: DETERMINING THE NUMBER OF CLUSTERS AND INTERPRETING CLUSTER PROFILES

Once the variable list was completed and clustering decisions had been made, an iterative process of analysis began. During this process, the cluster profiles were examined and individual variables removed from the analysis to determine the impact on results. This was done with the goal of maximizing the usefulness of the individual clustering process results. During this process, variables that had no significant impact on the outcome of the clustering and accounted for little of the variance (as determined by eigenvalues) systematically were removed from the clustering analysis. This process resulted in a final clustering data set of five variables, which defined and described the programmatic structure of HSHV Program sites, their affiliate health departments, and the county context in which they operated. The final five variables were:

1. County population (1999)
2. HSHV Program target population
3. Percentage of HSHV Program clients receiving other health department services
4. Percentage of HSHV Program clients who were of Hispanic ethnicity
5. Ratio of HSHV Program visits to live births (1999)

The final clustering solution for the five variables' descriptive power and associated eigenvalue is presented in Table B-1.

Table B-1. Eigenvalues of the Correlation Matrix

Variable	Eigenvalue	Difference	Proportion	Cumulative
1	1.6203	0.3565	0.3241	0.3241
2	1.2638	0.4038	0.2528	0.5768
3	0.8601	0.1309	0.1720	0.7488
4	0.7292	0.2025	0.1458	0.8947
5	0.5267		0.1053	1.0000

Each iteration of the clustering analysis involved an examination of the hierarchical clustering history and an interpretation of the immediate cluster results. Once the final variable set had been established, a detailed examination of the hierarchical clustering history was undertaken to understand why groups were formed (i.e., how were they similar), why different clusters joined, and what was gained and/or lost in each combination. The best clustering solution, based on the interpretability of the results and associated cluster statistics, was found to be a six-cluster solution.

DETERMINING CLUSTER STABILITY

Because this analysis process included the entire population of Kansas HSHV Program sites rather than merely a sample, determining cluster stability is less critical. These findings are a description of that entire population (not a sample) of HSHV Program sites and will not be extrapolated to a larger population where the nature of the clusters could be different.

CLASSIFICATION OF CASES WITH MISSING DATA

Because cluster analysis measures the distance between two or more cases (in this study HSHV Program sites) across multiple variables at the same time, these complex computations cannot be completed on cases with any missing data. As such, any HSHV

Program sites that had one or more missing data items on any of the five key defining variables were not initially classified by the cluster procedure. Of the 103 HSHV Program sites, 30 sites had at least one missing data item that prevented an initial classification. This resulted in an initial clustering of 73 HSHV Programs sites within the sample.

Missing data is a problem common to cluster analysis for which researchers have three options:

1. Remove all cases with missing data from the analysis. In this case, this would only allow an evaluation of 73 HSHV Program sites.
2. Replace missing data with approximate values, usually mean or mode scores. It was felt that in this case, given the exploratory nature of the analysis, this could result in a large number of HSHV Program sites being misclassified.
3. Once the models have been established, determine the probability of model membership for each case based on existing data.

That is to say, determine what the probability is that a case belongs to a particular model type based on the existing data. Because of the clear key indicators that defined each model, the third option was used. For example, although the one urban HSHV Program site was not able to be classified by the cluster procedure due to missing data, it was easily classified as an URBAN model HSHV Program site because of remaining key indicator data that were available (in this case county population, which is a predictive characteristic of the URBAN model).

Using this technique, the analytic process was able to classify 23 of the 30 HSHV Program sites that had missing data. In seven cases, more than one of the five key defining variables were missing, which resulted in these HSHV Program sites being omitted from the analysis and discussion of the HSHV Program models. The final dataset contained 96 HSHV Program sites from which the subsequent model-based analysis was performed.