ASTHO
ASSOCIATION OF STATE AND TERRITORIAL HEALTH OFFICIALS

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Bringing Home Better Birth Outcomes

INTRODUCTION

According to data from the Centers for Disease Control and Prevention, the U.S. Infant Mortality Rate (IMR) increased in 2002 for the first time since 1958.[1] Data also indicate persistent and wide disparities in the IMR by racial/ethnic group with the IMR for black infants almost twice as high as the national average (13.9 vs. 7.0, respectively).[2]

Information from the Maternal and Child Health Bureau's Title V Information System, that compiles data reported to the federal government by state maternal and child health (MCH) programs, confirms that states recognize infant mortality and associated poor birth outcomes as continuing challenges. According to data reported in 2006, 29 out of 59 states and territories report not achieving their self-established target IMR goals and 36 out of 59 report not achieving their target IMR goals for black populations. Thirty-eight states identify risk factors associated with the three primary causes of infant death—birth defects, prematurity and low birthweight, and maternal complications of pregnancy—as state priority needs for the 2005-2010 period.[3] To address these priority needs, states have developed a variety of programs that target the risk factors for poor birth outcomes.

Some state health agencies have embraced home visiting as a strategy to improve birth outcomes among their MCH populations. This brief examines home visiting as a strategy employed by state health agencies to deliver public health interventions aimed at improving birth outcomes. The brief includes an overview of home visiting programs; a discussion of goals, target populations, common service components, outcomes, and financing of state-level programs; and examples of programs from four states and one territory. This brief is written in follow-up to ASTHO's *Strides Among States to Improve Birth Outcomes: A Compendium of Program,*[4] in which several featured states reported using home visiting programs to reduce infant mortality and disparities in birth outcomes.

HOME VISITING PROGRAMS

Home visiting programs have been used to deliver medical, public health, and social services to women and children in their homes since the 1880s. Home visiting programs typically focus on young children (often birth to five years of age) and involve a professional (e.g., a nurse or other health worker) or trained paraprofessional (e.g., a community leader or former program participant) periodically visiting the child's family in the home over a defined period of time that can range from several months to a few years. During these visits the home visitor assesses the child's and family's health and social needs; provides support, parenting tips and education; and refers the family to community services as relevant to the goals of the program. The home visiting programs featured in this brief have a particular emphasis on improving maternal and infant health.

The interventions delivered through home visiting vary from program to program. Programs which aim to improve birth outcomes, however, commonly contain interventions intended to:

- Improve access to prenatal care
- Reduce preterm birth and low birthweight
- Improve maternal and child nutrition
- Improve women's interconceptional health
- Improve the safety of the home environment

Examples of services provided by these programs during home visits include:

- Screening for maternal depression, smoking and substance use, and domestic violence
- Health and development assessments
- Referrals to medical care, mental health services, cessation programs, or other community resources as necessary
- Health education on topics such as breastfeeding, family planning, and birth spacing
- Nutrition counseling
- Education and training on parenting, stress management, and coping skills
- Linkage to other families participating in the programs via play groups or parent support groups

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Figure 1: Annual Funding for State Home Visiting Programs, 2004

	Georgia	Maine	Montana	Oklahoma	Puerto Rico
Medicaid	$2,258,328		Variable*	$600,000	
Title V MCH Block Grant					$4,582,030
Healthy Start					$500,000
State Funds	$712,776	$454,000	$550,000	$10,900,000	
Local Funds			Variable**		
Tobacco Settlement		$4,600,000			
TOTAL	$2,971,104	$5,054,000	Undetermined	$11,500,000	$5,082,030

**Funds case management, billed at $38.00 per hour with no ceiling on the amount of time that may be billed per client.*

***Amount varies by locality*

Home visiting is usually targeted to a specific population considered to be at risk for poor birth or health outcomes but may also be offered universally to all families in a community.

As previously mentioned, home visits may be conducted by professionals or paraprofessionals. There are advantages to both approaches. For example, professionals may be better equipped to provide health education and anticipatory guidance than paraprofessionals, and families may perceive professionals as having more authority.[5] However, a major advantage associated with using paraprofessionals is reduced social distance between the paraprofessional home visitors and their client families since paraprofessionals often come from the communities they serve.[5]

BENEFITS AND COSTS

Home visiting has remained popular for over 100 years because it creates the opportunity to deliver public health interventions and services in the homes of the children and families. This strategy can significantly reduce barriers to access to care, especially those related to transportation and the geographic constellation of services. Home visiting also allows for tailoring of services and greater involvement of the family beyond the mother and child. In addition, the trust and rapport between the home visitor and the family developed through frequent visits may increase the effectiveness of the services being provided. As evidence supporting home visiting's positive health, development, and social impacts on women and children[6] has increased over the past decade, so has its popularity as a strategy for delivering a range of public health interventions.

Research has shown that home visiting improves children's cognitive and socioemotional development, improves parenting behaviors and attitudes, and prevents potential child abuse and neglect.[7] Further, a growing body of research suggests that home visiting may also positively impact birth outcomes. One program, the Nurse Family Partnership (NFP), that addresses birth outcomes using the Olds' Model for home visiting and has been rigorously evaluated. This model consists of a series of 64 visits starting during pregnancy and continuing for two years post-partum. Studies on this model indicate that women who are home visited by nurses have fewer subsequent pregnancies and births as well as increased spacing between births.[8,9,10,11] Participation in NFP is also associated with increases in use of prenatal care, increases in birth weight, decreases in the incidence of preterm birth, reductions in maternal smoking, improved nutrition during pregnancy, and increased interest of fathers in the pregnancies.[12]

It is important to note, however, that these outcomes may not be generalizable to all home visiting models and programs. A number of factors can impact outcomes such as the use of a professional versus paraprofessional, the specific population served, when services are initiated, the frequency of visits, and the intervention strategies employed in the program. Therefore, it is critical that state health agencies carefully review the literature to find model programs or program components which address the needs of their populations of interest and desired outcomes.

Improved outcomes come at a cost, and since home visiting is time intensive and delivers services to families one at a time, program costs can be quite high. It is estimated that home visiting costs approximately $5000-$9000 per child.[i,13] For the state programs featured in this brief, annual costs ranged from almost $3 million to about $11.5 million (see Figure 1).[ii] However, research indicates that home visiting is cost effective. On average, home visiting programs for at-risk mothers (e.g., teen

[i] This estimate is a total (not annual) program cost.
[ii] Per capita costs were not available. Total costs for Montana's home visiting program were not available.

mothers, women with low incomes, etc.) and their children return $2.24 for each dollar invested.[13] The NFP reports returns of $2.88[9] to $5.70[14] for each dollar invested when targeted to at-risk mothers.

State health agencies use a variety of funding streams to finance home visiting. The states featured in this brief and *Strides Among States to Improve Birth Outcomes: A Compendium of Programs* finance home visiting primarily with federal and state funds; however, some funding comes from other sources such as tobacco settlement dollars. Please see Figure 1 for more detailed information on financing.

STATE PROFILES

Georgia, Maine, Montana, Oklahoma, and Puerto Rico are among the states using home visiting to deliver interventions and services aimed at improving birth outcomes. Brief descriptions, including program goals and target population, for each of these state home visiting programs are outlined in the following text and summarized in Figure 2.

Georgia Division of Public Health

The Children 1st program, operated by the Georgia Division of Public Health (GDPH), seeks to promote healthy development of young children so they begin school healthy and ready for success. The program was created in 1992 as a key component of Georgia's child health strategy. In 1994, Children 1st received ASTHO's Vision Award for Excellence in Public Health through Innovation.

GDPH utilizes an Electronic Birth Certificate to identify children at risk for poor health and development whose families may benefit from intensive outreach. Families can also be referred to the program via a community provider. During home

Fig 2: Home Visiting to Improve Birth Outcomes, State Programs at a Glance

State Health Agency	Program Name	Target Population	Provider	Services	Annual Cost
Georgia Division of Public Health	Children 1st	Infants and children up to age five at risk for poor health/developmental outcomes	Nurse	Family assessments; health education; linkage to community resources and a primary health care provider	$2,971,104
Maine Center for Disease Control and Prevention	Home Visiting	First-time families, pregnant/parenting adolescents, pre-/ postnatal women, children up to age five	Not specified	Education on child health/development and parenting skills; parent support groups; play groups	$5,054,000
Montana Department of Public Health and Human Services	Public Health Home Visiting	High-risk pregnant women and their infants in 16 counties and three tribes	Nurse, with assistance from social worker, nutritionist, and parapro-fessionals	Health and developmental assessments; health education; parenting skills; linkage to community resources	Not specified
Oklahoma State Department of Health	Children First (Nurse Family Partnership)	Medicaid eligible first-time mothers who are not beyond their 28th week of gestation	Nurse	Health and developmental assessments; parenting skills; health education; linkage to health and mental health services, child care, job training, and other community resources	$11,500,000
Puerto Rico Department of Health	Healthy Start	At-risk pregnant women, mothers up to 24 months post-partum, at-risk children up to 24 months of age	Nurse, with assistance from parapro-fessionals	Family assessment; anticipatory guidance; health education; linkage to community resources, medical services, and social services	$5,082,030

visits, public health nurses complete a family assessment which includes indicators of health and nutrition, adult and child education, and parenting skills including child discipline. Based on the assessment, the home visitor provides the child's parent(s) or caregiver(s) with information on community resources that will meet the family's needs and links the family to a private physician, public health programs, and community services for ongoing care. Children 1st has consequently become known by many state and local medical and social service groups as an entry point for clients into the public health system.

Children 1st serves all 159 counties that make up Georgia's 19 health districts. The nurses and nurse coordinators in each district coordinate activities, collect data, and monitor processes differently according to the district's needs. All districts monitor participating children until age five.

Maine Center for Disease Control and Prevention

The Maine Center for Disease Control and Prevention's (MCDC) Division of Family Health aims to enhance healthy parenting and child development to prevent child abuse and neglect. First time families, pregnant and parenting adolescents and pre- and post-natal women are the primary program participants. Families are eligible from pregnancy until the child's entry into school. The home visitor delivers health education during several visits to a family's home. Home visitors also organize parenting groups and play groups to provide additional support, education, and assistance to parents.

Maine does not have a county or local public health infrastructure in place, so MCDC contracts out all of its home visiting services.

Montana Department of Public Health and Human Services

The home visiting program offered by the Montana Department of Public Health and Human Services (MDPHHS) is designed to improve pregnancy outcomes and family functioning, to help families build healthy home environments, and to decrease parental drug and alcohol use. The program targets women at high risk for poor pregnancy outcomes and their infants; most participants have low incomes and also participate in Medicaid and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). The program is modeled after the NFP and includes parental education on child health and development, parenting tips, and linkages to community resources. A team of professionals delivers the program's services: a public health nurse conducts most of the visits but receives assistance from both a social worker and a nutritionist. Some sites also supplement the team with a paraprofessional who provides services beyond the scope of those required by the professionals.

MDPHHS contracts with 16 counties and three tribes to provide home visiting services to approximately 1,500 women in the state. This represents about 15 percent of births in Montana.

Oklahoma State Department of Health

The Oklahoma State Department of Health's (OSDH) home visiting program, Children First, seeks to improve pregnancy outcomes, child health and development, and maternal life course development. Children First is a statewide implementation of the NFP[iii] and exclusively targets first-time low-income mothers. The nurse visits the family 14 times during pregnancy, 28 times during the first year after birth, and 22 times in the second year. Over the course of these visits, the home visiting nurse provides education and resources focused on women's health, parenting, and life-course development. The nurse also attempts to engage others in the family who can support the mother and helps the family to access other health and human services in the community.

Currently, over 170 public health nurses from county health departments provide home visits in Oklahoma's 77 counties. Staff from OSDH's central Children First office provide training, quality assurance, and general consultation to the public health nurses and their supervisors. Central office staff is housed in the Family Support and Prevention Service at OSDH and consists of a director, three nurse consultants, an epidemiologist and administrative staff.

Puerto Rico Department of Health

The Puerto Rico Department of Health aims to reduce low birthweight, premature birth, and infant mortality through home visiting services delivered through its federally-funded Healthy Start project. Eligible participants in the Puerto Rico Healthy Start project are pregnant women at risk for poor birth

[iii] Colorado, Louisiana, and Pennsylvania also have statewide NFP initiatives, though not all are housed within the state health agency.

outcomes, children up to 24 months of age at risk for poor health outcomes, and interconceptional women up to 24 months postpartum. The home visiting nurse performs an assessment of the biological, psychological, and social needs of the family that includes screening for depression, domestic violence, and alcohol, tobacco, and drug use. The mother and home visiting nurse jointly prepare a prioritized list of needs. The nurse then provides health education; gives anticipatory guidance; and makes referrals to health, social, and community services as relevant to those needs. Community health workers assist with outreach and recruitment for home visiting as well as lead community health promotion activities such as parenting classes and health fairs.

CHALLENGES

Funding has proven challenging for state-wide implementation of home visiting programs, especially when increased population needs couple with federal and state budget constraints. The state health agencies in Georgia and Puerto Rico tackle this challenge by jointly financing home visiting programs with Medicaid and Healthy Start, respectively. Montana addresses the funding challenge through the use of state general funds acquired by demonstrating the need, value, and cost-benefit of home visiting to state legislators.

Maintaining family engagement in the program presents another common challenge for home visiting programs.[5] Georgia's Children 1st, Oklahoma's Children First, and Puerto Rico's Healthy Start all report difficulty retaining families in their programs. These states report that the mobile nature of the populations they serve, the lack of phone service, and scheduling conflicts (especially an issue in families with working mothers) make it difficult to maintain contact, and as a result, family participation in the programs. Staff turnover, which may also contribute to program attrition in that it disrupts continuity of service delivery, is a related challenge faced by home visiting programs.[5]

Home visitors, even when well-trained, may not be able to deal with all of the complex needs of the populations they serve; this is especially true for issues such as domestic violence, maternal depression, and substance abuse.[5] Lack of availability and access to needed social services, mental health clinics, and substance abuse treatment centers further complicates this matter. Oklahoma reported this to be a particular challenge for Children First especially in rural parts of Oklahoma.

Finally, the great variance between state home visiting programs and the additional variation at the local level within the state program make evaluating home visiting difficult. Despite this, all five states managed to complete some level of evaluation. Georgia, Maine, and Puerto Rico each completed a process evaluation to inform program improvement efforts. Georgia's Children 1st process evaluation pointed to the need for a statewide data system to carry out tracking and follow-up activities and noted the important role community partners play in the program. Maine hopes to secure funding for an evaluation of outcomes so that it can use this data to support expansion to universal home visiting rather than at-risk home visiting. Montana completed an outcome evaluation, but was unable to document a significant impact of its home visiting program on the outcome of interest: birth weight. However, a published evaluation of Oklahoma's Children First program showed that single women who participated in the program had lower risks for preterm delivery, low birthweight, very low birthweight, and infant mortality; these reductions in risk were not seen in married participants.[15]

CONCLUSION

Home visiting requires substantial funding and staff time, especially for home visitors and others responsible for outreach, tracking, and follow-up activities. Financing for home visiting will continue to be a challenge, especially as federal and state budgets continue to address multiple priorities. However, research indicates that home visiting holds significant potential to improve birth outcomes, improve child health and development, improve parenting skills, and reduce child maltreatment. Further, cost savings resulting from the improved health, developmental, and social outcomes associated with home visiting can make this approach a cost-effective investment for states. As states continue to address the challenge of reducing infant mortality and preterm birth, maternal and infant morbidity, and disparities in birth and pregnancy outcomes, home visiting presents a promising strategy for states to consider.

HOME VISITING RESOURCES

State Programs Featured in this Brief [iv]

- Children 1st (GA)
  health.state.ga.us/programs/childrenfirst/index.asp

[iv] Web sites not available for Home Visiting in MCDC or Healthy Start in Puerto Rico.

- Public Health Home Visiting (MT) www.dphhs.state.mt.us/hpsd/family-health/home-visiting/home-visiting-index.htm
- Children First (OK) www.health.state.ok.us/program/c1/

Nationally Organized Home Visiting Models

- Early Head Start www.ehsnrc.org
- Healthy Families America www.healthyfamiliesamerica.org
- Home Instruction for Parents of Preschool Youngsters www.hippyusa.org
- Nurse Family Partnership www.nursefamilypartnership.org
- The Parent-Child Home Program www.parent-child.org
- Parents as Teachers www.parentsasteachers.org

Publications on Home Visiting

- No Place Like Home, State Home Visiting Policies and Programs, K. Johnson www.cmwf.org/usr_doc/johnson_home_452.pdf
- Home Visiting: Recent Program Evaluations-Analysis and Recommendations, the Future of Children Vol. 9, Num. 1 www.futureofchildren.org/index.htm

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