



Nurse-Family Partnership Program[®]

An RWJF national program

SUMMARY

In 1979, the Robert Wood Johnson Foundation (RWJF) supported a demonstration project in Elmira, N.Y., that used registered nurses to take preventive health services into the homes of young, low-income pregnant women and first-time mothers.

Randomized controlled trials conducted in Elmira and subsequently Memphis, Tenn., and Denver showed the home visits yielded positive health and developmental outcomes for children and mothers. After two decades of research, David L. Olds, Ph.D., architect of the intervention, initiated a national program to replicate the model across the country. For more on Olds and his model see *The Story of David Olds and the Nurse Home Visiting Program*.

In 2007, the Denver-based program—named the *Nurse-Family Partnership*—embarked on a \$50-million expansion plan aimed at fielding 6,000 nurse visitors and serving approximately 99,000 families by the year 2017.

Key Results as of December 2007

- A total of 113 state, county and city agencies and private organizations provided *Nurse-Family Partnership* services in 290 counties in 23 states.
- An estimated 860 registered nurses were active as home visitors.
- Enrollment in the program averaged 13,272 families at any one time during the year.
- The cumulative number of families served by the program since the first dissemination effort in 1996 totaled an estimated 80,423.

Program Management

Initially the University of Colorado Health Sciences Center in Denver operated the national replication program under Olds' supervision. In 2003, *Nurse-Family Partnership* became a separate nonprofit organization with its own board of directors.

Olds—a professor in the university's department of pediatrics—did not take a position in the replication organization but continued to conduct program-related research and provide consultative support.

Funding

Since 1979, RWJF has provided 12 grants totaling \$26.8 million to support development of Olds' home-visiting model and its national replication as the *Nurse-Family Partnership* program. That includes \$10 million authorized by the Board of Trustees in October 2007 to support the replication effort for three additional years starting in January 2008.

Over the years, numerous other philanthropies and government agencies also provided funding. Most prominently, the Edna McConnell Clark Foundation has given \$20.3 million and played a lead role in the expansion effort.

PREFACE

Jennifer had just graduated from high school when pregnancy interrupted her plan to join the military. Bouts of depression didn't make the situation any easier. What did help was the registered nurse (RN) who showed up regularly at Jennifer's home in Reading, Pa., with information, encouragement and the most appreciated commodity of all: concern.

Here was someone to learn from and confide in—someone to telephone on a weekend when her child came down with a high fever. "She's like a family member," says Jennifer.

Jennifer is one of some 80,000 young women who have participated in *Nurse-Family Partnership*—a national home-visiting program designed to bring stability, direction and improved parenting skills to the lives of first-time, at-risk mothers and to increase their children's chances for healthy development.

After two decades of research, much of it supported by RWJF, the program is spreading across the country and abroad. Beginning during pregnancy and continuing to the child's second birthday, an RN follows a tightly prescribed visitation regime focused on building up the young mother's parenting knowledge, self-confidence and circle of resources.

In the process, if all goes well, the nurse builds a personal relationship of trust and constancy—something many of these women have never before experienced.

"I have clients who in six months have lived in six different apartments," says Barbara Werner, supervisor of Reading's *Nurse-Family Partnership* program as well as Jennifer's visiting nurse. "They don't have a lot of continuity in their lives."

As Jennifer's child turned 2 and her program participation came to a close, her life was unfolding with a new measure of continuity. She had enrolled in a vocational school, was

preparing to find a job and was making an effort to faithfully take her prescribed anti-depressant—something she had not done in the past.

Also significant was that Jennifer and the child's father—who had married a month before the child's birth—had survived a rocky period in their relationship and were back together, living in their own, newly purchased house.

In all of this—including stitching the marriage back together—Jennifer credited Werner, her nurse visitor, as a major influence. "I'm kind of sorry the program ends in two years," Jennifer volunteered.

In real life, of course, happy endings are not guaranteed, and *Nurse-Family Partnership* is no exception. Setbacks are part of the nurse visitor's job, flexibility a requirement. "If you're planning on talking about nutrition and your client's just been beaten up by her boyfriend, nutrition goes out the window," explained Jennifer McElwee, a former nurse visitor in the Reading program.

In ethnically diverse Reading and surrounding rural Berks County, participants in the program have an average annual household income of \$13,500 and an average age of 18 at enrollment, with some as young as 12.

Along with poverty and youth, many of the mothers are also dealing with alcohol and drug abuse and behavioral and mental health problems, among family members if not themselves.

"Most want to be good moms; they just don't know how," says Kathy Behm, another Reading nurse formerly involved in the program.

For a vivid account of the *Nurse-Family Partnership* program told through the challenging experiences of a nurse visitor in Louisiana, read "[Swamp Nurse](#)" by Pulitzer Prize-winning journalist Katherine Boo in the February 6, 2006 issue of *The New Yorker*.

THE PROBLEM

Many of the most pervasive and intractable problems faced by young children and parents in America today can be traced to adverse maternal health-related behaviors during pregnancy, compromised care of the child and stressful conditions in families' homes that interfere with parental and family function.

—David L. Olds, Ph.D., et al.

*"Prenatal and Infancy Home Visitation by Nurses: Recent Findings,"
The Future of Children, Spring/Summer Issue, 1999.*

Infant mortality, child abuse, accidental injury, impaired development of the nervous system and other costly problems of early childhood cross all segments of society. However, research shows that many of these problems are more common among children born to poor, single and teenage women.

Olds' introduction to this complex issue came in the early 1970s when he worked at an inner-city day care center in Baltimore. Olds, then fresh out of Johns Hopkins University with a bachelor's degree, concluded that for many of the children, the help they were getting at the center was, as he puts it, "too little, too late."

For Olds, the lesson was clear: by the time a child reaches age 4, many of the negative health and developmental outcomes of adverse parenting practices—including substance use during pregnancy—are already set in motion.

Olds took that lesson with him as he pursued a doctorate in developmental psychology at Cornell University in Ithaca, N.Y. While at Cornell, he went to work in nearby Elmira for a nonprofit community service organization—Comprehensive Interdisciplinary Development Services—that screened low-income children for health and developmental problems.

Although generally associated with the isolated hollows of West Virginia and eastern Kentucky, Appalachia encompasses parts of southern New York, including Elmira and surrounding Chemung County.

In addition to unemployment and related economic ills, the Elmira community was struggling with serious health issues. The local rates of child abuse, prematurity and infant mortality were among the highest in the state.

The Olds' Model: Its Conception

To reduce these health problems, Olds seized on the idea of taking preventive services into the homes of at-risk pregnant women and young mothers. In addition to reaching families who were without regular medical care, he saw an opportunity for home visitors to perform three critical functions that are beyond the scope of many office-based agencies:

- Evaluate the family's total environment.
- Modify unsafe conditions in the home, both physical and emotional.
- Encourage support of the mother from family members and friends.

Two Early Differences

The general strategy of home visiting has long played a role in U.S. public health efforts to promote the well-being of pregnant women and new parents. Olds, however, proposed to incorporate two key ingredients that would differentiate his intervention.

First, the visitors would be registered nurses (RNs or nurses). Nurses would have health care knowledge—a definite plus. But equally important, their professional status would enable RNs to command the respect—and thereby compliance—of mothers and other family members to a greater degree than could non-nurse visitors, Olds hypothesized.

Second, the program would serve only women pregnant for the first time. Olds reasoned they would be more receptive to preventive services than women who had already established parenting practices. The fear and unknown that typically accompanies a first pregnancy offered a rich teachable moment, he believed.

Aided by collaborators at the University of Rochester and the Elmira service agency where he worked, Olds designed a model of prenatal and postpartum nurse home visiting that:

- Targeted first-time pregnant women who were low-income, unmarried or adolescent.
- Set an intensive schedule of home visits to begin during pregnancy and continue until the child's second birthday.
- Aimed at reducing the risks for:
 - Poor pregnancy outcomes
 - Dysfunctional caregiving
 - Compromised life course for the mother.

Olds and his colleagues grounded the program's strategy and content in research and theory. For a closer look at key elements of the Olds model—as the intervention became known—see [Sidebar One: A Closer Look at the Olds Model](#).

THE TESTING PHASE: THREE CLINICAL TRIALS

The First Trial: Elmira

The Olds team proposed to test the effectiveness of the model by implementing a demonstration project in Elmira and Chemung County and evaluating the results through random assignment of participants to control and treatment groups. By tracking each group over an extended period of time—a longitudinal study—he would identify and assess the impact of the intervention.

Local agencies, hospitals and physicians agreed to cooperate, and the U.S. Department of Health and Human Services provided a four-year grant to pay for the visiting services and some data collection.

Enrollment of pregnant women in the demonstration began in April 1978. However, additional money was still needed for evaluation activities, including development of assessment procedures and data analysis.

RWJF's Initial Funding

Improving medical care for high-risk mothers and infants was always a key interest of RWJF. Foundation program staff viewed the Elmira study as an opportunity to provide health professionals and policy-makers with useful information on this vulnerable segment of the population.

Olds' structure of the evaluation as a randomized clinical trial made the project particularly attractive to RWJF. Randomization increases the likelihood that the results of an intervention are attributable to the intervention itself rather than to differences between members of the treatment groups and members of the control groups—thus giving the findings added validity.

The initial RWJF grant—\$183,203 awarded to Comprehensive Interdisciplinary Development Services in 1979 (ID# 005263)—supported evaluation of the impact of the Elmira project on families through the children's second birthday.

A second RWJF grant—\$439,972 in 1982 (ID# 006729)—helped fund a follow-up study of the Elmira families at the end of the children's fourth year to determine if program benefits continued after the visits ended. The grant recipient was the University of Rochester School of Medicine and Dentistry, where Olds was by then a member of the pediatrics department.

Olds considered the four-year follow-up essential because benefits produced by preventive programs can evaporate once the intervention ceases. Also, the second study included analysis of the costs of the visitation service versus the savings attributable to it.

Later, with funding from other sources, the Olds team conducted a third follow-up study of the Elmira families, this one when the children reached age 15. Throughout the model's testing phase, Olds obtained support from various philanthropies and public agencies. For an overview of these other funders, see [Appendix 1](#).

Implementation

Between April 1978 and September 1980, 400 pregnant women with no previous live births enrolled in the Elmira demonstration. Project staff recruited participants through local obstetrician offices, a free antepartum clinic, the schools and other agencies.

Although any woman experiencing a first-time pregnancy could participate, the program focused on enrolling women who were less than 19 years of age, single or of low-socioeconomic status.

The project team stratified the women by a number of demographic factors and randomly assigned them to one of four groups receiving different levels of treatment, all at no cost to the participants:

- Group One (94 women) received sensory and developmental screening for their children at ages 12 months and 24 months and, if needed, referral for further clinical help.
- Group Two (90) received the screening plus free transportation to prenatal and well-child care until the child's second birthday.
- Group Three (100) received screening and transportation plus nurse home visits during pregnancy.
- Group Four (116) received the same services as Group Three plus continued nurse visits until the child turned 2.

Five RNs hired specifically for the project and given three months' training conducted the home visits. Each had a caseload of 20–25 families at any one time.

For a more detailed description of the Elmira trial implementation and methodology, including the 15-year follow-up study conducted in the 1990s, see [Appendix 2](#).

The Second Trial: Memphis

Although the initial results of the Elmira project were positive (See [Trial Findings: Highlights](#)), Olds believed additional testing was advisable. His main concern was that the trial involved a predominantly White population in a small, semirural county.

Would nurse visiting also produce beneficial results among African Americans in a major urban area? Olds wanted to find out before attempting to disseminate his model. In January 1986, RWJF awarded the University of Rochester a second grant of \$83,078 (ID# 009677) to support a study to identify an appropriate site for this new trial.

The Olds team examined birth statistics for all U.S. cities with a population of 250,000 or more, contacted prospective collaborators in 22 of the most promising cities and visited three (Cleveland, Houston and Memphis, Tenn.). The conclusion was that Memphis best met the study's requirements. For the key factors in that choice, see [Appendix 3](#).

Implementation

RWJF awarded the University of Rochester two more grants (ID#s 011084 and 017934) to support planning and operation of the Memphis demonstration. Other supporters

included the federal Administration for Children and Families, National Institute of Child Health and Human Development and the Ford Foundation.

Although similar in general design to Elmira, the Memphis trial differed in a number of details, including recruitment of a larger sample. Between June 1, 1990, and August 31, 1991, the study enrolled a total of 1,139 first-time pregnant women—92 percent of whom were African American.

Another difference was that the local public health department administered the visitation services, not the study team. For a more detailed description of the Memphis project, see [Appendix 4](#).

In 1996–1997, RWJF made two additional grants (see below, ID#s 027901 and 031052) to help fund a follow-up study of the Memphis families as the children approached their fifth birthday.

Subsequently—with funding from other sources—Olds and his colleagues conducted two additional Memphis follow-up studies: at the children's sixth and ninth birthdays. For results of the Memphis project, see [Trial Findings: Highlights](#); for details on results at ages six and nine, see [Appendix 5](#).

Olds' Move to Denver

In 1993, Olds moved from the University of Rochester to the University of Colorado Health Sciences Center in Denver, and from there oversaw the remainder of the Memphis research. (The latter two RWJF grants supporting the Memphis work ID#s 027901 and 03105—went to the University of Colorado.)

Olds joined the university's pediatrics department and was director of the department's new [Prevention Research Center for Family and Child Health](#)—an entity created specifically to design, test and disseminate interventions to help low-income children and their families. The nurse-visiting model and its dissemination became a primary focus of the center's work.

The Third Trial: Denver

While the Memphis study was still underway, Olds and his team initiated a third randomized trial, this one in Denver with funding from the [Colorado Trust](#), a private foundation. The objective was to compare the effectiveness of nurse visitors with that of paraprofessional visitors.

Across the nation, numerous child-development and family-help programs used nonprofessionals (or paraprofessionals, to use Olds' terminology) as home visitors. These were often community members committed to helping their neighbors but with no formal education in helping skills or in nursing care.

Despite the number of paraprofessional visiting programs, there was little evidence from randomized trials that they had a beneficial effect. Olds wanted to know if this was due to the visitors' paraprofessional status or to other program factors.

The answer was relevant to his model. The use of RNs increases the cost of home visiting, and substituting paraprofessionals would make financial sense if effectiveness were not compromised.

Implementation

Between March 1994 and June 1995, the study team recruited 735 first-time pregnant women from 21 antepartum clinics serving low-income women in the Denver metropolitan area. The study sample was 45 percent Hispanic.

The study randomly assigned the women to either a control group or one of two home-visitation groups—one served by paraprofessionals, the other by RNs. The paraprofessional visitors had to have a high school education but could not have a bachelor's degree or any college preparation in the helping professions. By contrast, the nurse visitors had to be RNs, who have a bachelor of science in nursing.

Both the paraprofessionals and nurses received three months of training in program protocols, and both visited their client families from pregnancy through the child's second birthday. The control group—against which each of the visitation groups was compared—received only child screening and referral services.

The team analyzed impacts on the mothers and children when the child turned two and again at age four.

TRIAL FINDINGS: HIGHLIGHTS

Elmira and Memphis Findings

Overall...the Elmira and Memphis trials demonstrated that the nurse home visitation program achieved two of its most important goals—a reduction in the dysfunctional care of children and an improvement in maternal life course. Its impact on the third goal—the improvement of pregnancy outcomes (in particular, the reduction of preterm delivery and low birth weight)—was equivocal.

From "Prenatal and Infancy Home Visitation by Nurses: Recent Findings" by Olds and team members, published in the The Future of Children, 1999

The Olds team acknowledged the research results were not uniformly positive. Visitation, for example, had few impacts on child development early on, but, beneficial effects did emerge in the Memphis study as the children entered school.

In a 1998 article in the *Journal of Community Psychology* ("The Promise of Home Visitation: Results of Two Randomized Trials"), Olds and his colleagues cited the following key program effects—grouped by goal areas—for the Elmira and Memphis demonstrations:

Prenatal and Pregnancy Outcomes

Elmira

- In contrast to the comparison group, pregnant women who were visited by nurses:
 - Improved the quality of their diets to a greater extent.
 - Had fewer kidney infections.
 - Experienced greater informal social support.
 - Made better use of formal community services.
- In addition, nurse-visited women who were smokers smoked 25 percent fewer cigarettes by the end of pregnancy and had 75 percent fewer preterm deliveries. Among very young mothers (age 14–16), those who were nurse-visited had babies nearly 400 grams (14 ounces) heavier.

Memphis

- Compared to their nonvisited counterparts, nurse-visited pregnant women:
 - Were more likely to use other community services and to be working.
 - Had fewer yeast infections and fewer instances of pregnancy-induced hypertension.

Caregiving and Child Development

Elmira

- In the first two years after delivery, 19 percent of the poor, unmarried teens in the comparison group abused or neglected their children compared to 4 percent of the poor, unmarried teens who were visited by nurses.

While the difference in rates of abuse or neglect disappeared between the children's 2nd and 4th birthdays, the difference was again evident in the 15-year follow-up study. At 15 years, nurse-visited children who had been born to poor, unmarried mothers had been the subjects of .11 substantiated reports of child abuse and neglect compared to those in their comparison-group who had been the subject of .53 substantiated reports of abuse and neglect.

- Children of nurse-visited women who smoked a moderate-to-heavy amount at the beginning of the program had significantly higher IQ scores at ages 3 and 4 compared to children of mothers who smoked equivalent amounts in the comparison-group.

Memphis

- Nurse-visited children in the first two years of life had fewer health care encounters involving detected injuries and ingestions than children in the comparison group.
- Also, they were hospitalized for fewer days with injuries and ingestions.

Maternal Life Course

Elmira

- In the four years after delivery of the first child, the rate of subsequent pregnancy among low-income, unmarried women was 42 percent lower for the nurse-visited sample. Also, the number of months that these nurse-visited mothers participated in the workforce was 83 percent greater.
- In the 15 years after delivery, nurse-visited women who were unmarried and from low socioeconomic households when the program started had 1.3 subsequent births compared to 1.6 for their comparison-group counterparts.

Memphis

- By the first child's second birthday, nurse-visited women reported 23 percent fewer second pregnancies and 32 percent fewer subsequent live births than did comparison group women.

For a more detailed description of the Elmira and Memphis findings—including from the follow up studies—see [Appendix 5](#).

Denver Findings

In a September 2002 article in *Pediatrics* ("[Home Visiting by Paraprofessionals and by Nurses: A Randomized Controlled Trial](#)"), the Olds team reported that by the children's second birthday, the only statistically significant effect found for the paraprofessional-visited families was that mother and child interacted more responsively than their control group counterparts.

In contrast, the Olds team said nurse visits produced significant effect on a range of outcomes compared to the control group, including:

- Greater reductions in cotinine levels among pregnant women who smoked. (Cotinine is a biological compound that the body produces after exposure to tobacco smoke. Lower levels of cotinine in urine or saliva indicate less exposure.)

- Fewer subsequent pregnancies and births by the first child's second birthday.
- Greater workforce participation by the mothers.
- Less likelihood that children of women with low psychological resources (women with low measures of mental health, intelligence and "sense of mastery") would exhibit language delays at 21 months. At 24 months, nurse-visited children had superior mental development compared to the control group.

The Denver study found that nurses had no significant effect on women's use of ancillary prenatal services, educational achievement or use of welfare—or on their children's temperament or behavior problems.

In summary, the investigators said that in categories where visitation had an effect, "the paraprofessionals typically had effects that were about half the size of those produced by nurses."

For key findings from the four-year follow-up study of the Denver families, see [Appendix 6](#).

Limitations

Throughout its reporting, the Olds team warned that various findings should be viewed with caution because of a variety of factors, including the possibility of reporting bias.

For example, in a *Journal of the American Medical Association* article on the Elmira 15-year follow-up study ("[Long-Term Effects of Nurse Home Visitation on Children's Criminal and Antisocial Behavior: 15-Year Follow-Up of a Randomized Controlled Trial](#)"), the team noted that the arrest and conviction data came primarily from the children's and parents' own reports, and that these could be subject to bias. (As a validation measure, the investigators said they compared the self-reports to school and probation records.)

NATIONAL REPLICATION PHASE ONE: BIRTH OF NURSE-FAMILY PARTNERSHIP

Early Dissemination Efforts

Impressed by the trial findings, the U.S. Department of Justice in 1996 invited the Olds team to establish its home-visiting model in six high-crime neighborhoods around the nation as part of [Operation Weed and Seed](#), a federal crime-prevention program.

For Olds and his colleagues, the offer presented an opportunity to study factors that could affect replication of the model across a wide range of communities. With Justice Department funding as a catalyst, the team helped establish the intervention in Oklahoma

City, St. Louis, Clearwater, Fla. and the California cities of Oakland, Fresno and Los Angeles.

During this period, the Olds team also:

- Helped develop visitation services in three more communities: Omaha, Neb., Robeson County, N.C. and Miami.
- Provided home-visiting training and technical assistance in Dayton, Ohio and three counties in Wyoming.
- Consulted with Replication and Program Strategies, an RWJF-supported, Philadelphia-based organization experienced in spreading social programs. (See [Program Results](#) on ID# 022656.)

Most significantly, the Oklahoma legislature in 1996 selected the Olds model for replication at four pilot sites in the state and in 1997 appropriated \$5.3 million to establish the nurse-visiting service in every Oklahoma county.

As these initial replications took hold, Olds and his team agreed the time had come to disseminate the model nationally.

RWJF Funding

Concurrently, RWJF's leadership concluded that the Elmira and Memphis trial results validated the hypothesis that nurse-home visiting could favorably affect first-time, low-income mothers and their children.

Seeing an opportunity to disseminate an intervention grounded in solid science and proven to be effective, the Foundation awarded a series of three grants to help get Olds' national replication effort off the ground:

- \$49,780 (ID# 032371) in September 1997 to the University of Colorado Health Sciences Center to design a comprehensive replication strategy. The Olds team used the funds to plan a replication organization and revise the nurse training curriculum, home-visit guidelines and other tools developed during the trial stage.

Faculty at the University of North Carolina at Chapel Hill assisted in the planning as did colleagues at the University of Rochester, the Elmira trial site and Replication and Program Strategies.

- \$9,995,995 (ID# 035369) in September 1999 to support the first three years of a six-year national replication plan developed by the Olds team. The central purpose of the grant was to establish a national program center in Denver and a regional center at University of North Carolina at Chapel Hill.

The recipient of this grant—which was subsequently extended from three years to 54 months—was Children's Hospital Association of Denver, home of the university's pediatrics department.

- \$3 million (ID# 044319) in January 2004 to continue support of the replication program for an additional 24 months, later extended to 45 months.

An Ambitious Plan

A principal goal of the initial, six-year replication plan was to establish home-visiting services in 100 communities and enroll 10,000 low-income families by the end of the sixth year.

Once replication achieved that level, the Olds team projected the program would be robust enough to support expansion to full national coverage in another 14 years—or 20 years total from the 1999 beginning of the formal replication effort.

At this 20-year mark, the expectation was that nurse visitors would serve an estimated 180,000 low-income mothers and their families. The 180,000 target represented 60 percent of the number of births to first-time mothers on Medicaid in 1995. This is the typical penetration rate for a program of this type, according to the Olds team.

A caseload of 180,000 would require 18,000 nurse visitors plus 1,800 nurse supervisors with master's degrees, the team projected. The plan included development of a system of regional support centers to help replicate the visitation program in local communities and train enough nurse visitors to serve the sites.

The nurse visitors would work for—and be directed by—local and state agencies, not the national program center in Denver. The implementing agencies would be state, county and city health departments, visiting nurses associations, hospitals, home care agencies and similar kinds of service organizations.

With assistance from the marketing firm [Fleishman-Hillard](#), the Olds team adopted *Nurse-Family Partnership*[®] as the name of the national home-visiting program. It set up a mechanism for receiving private and corporate donations through the [University of Colorado Foundation](#).

A Key Ingredient: Government Support

At full scale, the *Nurse-Family Partnership* program would cost about \$3,000 per family per year, the Olds team estimated. With each family remaining in the program 2.5 years, the projected cost of serving 180,000 would be \$1.35 billion (in 1997 dollars).

To reach that level of operation, Olds knew the program would need government support, with Medicaid a likely source. To tap a funding stream sufficient to sustain the

replication effort, Olds and other program supporters would have to convince policy-makers that the benefits of nurse visitation resided not just in improved health but spanned broad societal interests, including education, social welfare and the justice system.

To that end, the replication plan called for a strong communications effort focused on policy-makers, funders, opinion leaders and the medical community. The objective would be to differentiate the nurse model from other home-visiting programs by emphasizing the scientific evidence of its impact—not by pointing out weaknesses in the competing models.

Nurse-Family Partnership was only one of many home-visiting programs aimed at helping families and young children. (For more information, see [Sidebar Two: A Brief Overview of the Home-Visiting Field](#).)

Early Organizational Structure

The *Nurse-Family Partnership* replication program operated under the aegis of the [Prevention Research Center for Family and Child Health](#)—the entity that Olds directed within the pediatrics department at the University of Colorado Health Sciences Center in Denver.

However, since that was a research organization, the university in 1999 created a new entity—the National Center for Children, Families and Communities—to manage the replication effort.

The new national center had offices in the university's college of nursing, and Patricia A. Moritz, Ph.D., R.N., professor of nursing and later dean of the nursing school, became its director. Day-to-day operations rested with Peggy Hill, M.S., who was associate director of both the national center and the [Prevention Research Center for Family and Child Health](#).

Olds was not directly involved in the center's day-to-day operation but served on the executive committee—along with Moritz, Hill and others—that guided replication policy. He also formed and chaired a committee of outside experts that advised the program, and with colleagues at the prevention research center, continued to evaluate the program's effectiveness.

Olds considered his main talents to lie in research and program development, not program replication. Also, he believed a passive role in the replication would extinguish any perception that his research was compromised.

The national center staff—which grew to 32—divided into three work groups that focused on:

- Developing local replication sites.
- Training nurse visitors.
- Evaluating and improving the quality of the replication effort.

In addition to direct staff in Denver, David Racine, president of Replication and Program Strategies, took a lead role in developing *Nurse-Family Partnership* sites and identifying public funding sources. (In early 2002, his firm merged with—and became a division of—[Public/Private Ventures](#), another Philadelphia-based program development organization.)

Site Development

In the first years of the replication effort, state and local agency officials across the country learned of *Nurse-Family Partnership* through research literature, conference presentations, news media coverage and word-of-mouth. There was no call for proposals or other formal solicitation mechanism.

When a community indicated interest, site development staff from the national center in Denver met with local leaders to ascertain the community's capacity for implementing and sustaining the nurse-visitation service.

As part of this process, prospective sites completed an application designed to identify local strengths and vulnerabilities. Once the community demonstrated commitment to the model and finalized its implementation and financing plan, the national center approved the site for participation and executed a contract with the local agency sponsoring the replication.

The contract obligated the agency to follow the model's prescribed standards and to use—and pay for—certain services of the national center, including nurse training and the program's Web-based database. (See [Clinical Information System](#).)

The system used information provided by nurses on the families they visited to track a core set of variables and provide real-time data on program implementation and outcomes. For other services provided by the Denver staff to the sites, see [Appendix 7](#).

Operational Funding for Local Sites

The implementing agencies were responsible for securing their own operational funds; they received no financial assistance from the national center. Early in the replication effort, the average cost for the first three years of serving 100 families was \$780,000.

(As of 2008 the three-year implementation cost averaged \$1.4 million, with about 88 percent going for nurse salaries and other personnel expenses. For additional 2008 cost figures, see [Appendix 8](#).)

Many sites relied for support on Medicaid/CHIP or the federal [Temporary Assistance for Needy Families \(TANF\)](#) program. Other sources included federal Maternal and Child Health Block Grant money, U.S. Department of Justice grants, [national tobacco settlement funds](#), state and local revenues and private foundation grants.

A Shift in Site Development Strategy

Initially the national staff focused on developing sites in individual communities, no matter how scattered they were. After two years the program leadership decided to concentrate on developing networks of sites in a few states and large metropolitan areas where government officials showed commitment to the program and the outlook for success was most promising.

In Colorado, Pennsylvania, Oklahoma and later Louisiana, the program developed the kind of strong state funding commitment that the national staff hoped to encourage elsewhere in the country. For more about those four states initiatives, see [Appendix 9](#).

The new policy reflected the conclusion that a selective approach to replication would use program resources more efficiently. Also, experience showed that small sites operating in geographic isolation without strong state support had more difficulty growing and thriving.

While most sites remained open, there was some attrition. For example, an Alabama site operated through the state health department closed as the result of a state fiscal crisis. (As of May 2008, there were no sites in Alabama.)

At least in part because of this shift in development strategy, the national center dropped the initial plan to develop a series of university-based regional program centers. Instead, the Denver staff worked directly with state and local agencies to implement the model. The University of North Carolina at Chapel Hill—which was already operating as a regional center—subsequently ceased its involvement in the program.

Fidelity to the Model and the Problem of Attrition

Ensuring the replication sites remained faithful to the model as designed by Olds and tested in the trials was a key function of the national center. Enrollment of women within the first 28 weeks of pregnancy was a program element closely monitored by the staff. Another was adherence to the prescribed visit-by-visit guidelines.

Using the [Clinical Information System](#), the Denver staff tracked outcomes at each site, assessed performance and provided consultation and other technical assistance to address emerging problems.

For example, data analysis showed the client-dropout rate—women who enrolled but left the program before their child reached age two—was higher for the replication program

than during the trials (50 percent compared to 38 percent in the Denver trial and less than 30 percent in Memphis and Elmira.)

Olds considered client attrition the most significant clinical challenge facing the replication effort. In response, the national staff worked directly with the sites to increase retention while Olds and colleagues at the [Prevention Research Center for Family and Child Health](#) researched the problem and solutions.

The result was a set of new strategies designed to give mothers more control over their program participation—including more flexibility in visit scheduling. With funding from the [William T. Grant Foundation](#), Olds tested the new approach in a randomized control trial at several sites. Data collection ended in October 2007, and he planned to report the results in 2008.

Progress...

By 2002, the *Nurse-Family Partnership* program had expanded to 223 counties and communities in 23 states and was serving approximately 11,000 families. Since the first replications in 1996, an estimated 28,000 families had participated and some 775 nurses had undergone training.

The national center had secured site contracts representing approximately \$2.5 million in fees and had obtained more than \$2.5 million from other sources, including grants from the David and Lucile Packard Foundation (\$1 million) and Doris Duke Charitable Foundation (\$629,063).

Nurse-Family Partnership was also receiving favorable recognition. A 1998 Rand study estimated the intervention in Elmira would produce \$4 in governmental savings over time for each \$1 in program costs for high-risk families. For an overview of this and subsequent cost-benefit analyses by outside organizations, see [Sidebar Three: An Overview of Cost-Benefit Evaluations](#).

...and Challenges

In 2003, instead of continuing to grow, annual enrollment of new families in the program declined—to about 8,400 nationwide from almost 10,000 the year before, according to figures reported to RWJF. In 2004—when the goal was to enroll 10,000 new families—the actual number was about 8,500.

Nurse-Family Partnership leaders attributed the reversal largely to tightening state budgets, making it harder to recruit new implementation sites. The situation underscored that funding to sustain and expand the replication remained a critical need.

For example, at one point funding difficulties put the future of the Reading, Pa., program in doubt, causing some of the nurses to take other jobs and forcing a cutback in the number of families served. The Reading program survived and eventually built its nursing staff back up—but not before turning away dozens of young women referred for help.

While Medicaid, TANF and other government programs provided some support, regulations and policies limited the ability of implementing agencies to fully recover their expenses. One obstacle was that Medicaid rules, as interpreted by the states, prevented reimbursement for parent education costs—a major component of *Nurse-Family Partnership* services.

There was also competition from other home-visiting programs. The greater the geographic penetration that *Nurse-Family Partnership* achieved, the greater the chance of running up against other visitation programs—some of which had built strong political support in their operating areas. (See [Sidebar Two](#) for a brief overview of the home-visiting field.)

Meanwhile, *Nurse-Family Partnership* staff in Denver was having difficulty attracting new philanthropic support for the replication effort, and a downturn in the national economy was increasing the financial pressure on social service programs in general.

NATIONAL REPLICATION PHASE II: A NEW ORGANIZATION AND EXPANSION PLAN

Edna McConnell Clark Foundation: A Leadership Role

The [Edna McConnell Clark Foundation](#) in New York City seeks to help low-income youth by making large, long-term investments in the development of nonprofit youth service programs that show strong evidence of effectiveness. The foundation's funding objective is to help these proven organizations achieve sustainability.

In 2002, convinced that the *Nurse-Family Partnership* had the strongest evidence base of any youth-development program in the nation, the foundation initiated a series of grants aimed at strengthening the organization and ensuring its financial viability. By 2008, the foundation's commitment to *Nurse-Family Partnership* totaled \$20.3 million.

The foundation's first step was to help the Denver program staff develop a long-term business plan for the replication. In addition to awarding a \$250,000 planning grant to the University of Colorado, the foundation directly engaged the Bridgespan Group, a nonprofit consulting firm, to guide the plan's development.

A New Replication Organization

A key outcome of the planning process was the university's decision to move responsibility for the replication to an independent entity. The result was the creation in September 2003 of *Nurse-Family Partnership* as a separate Denver-based 501(c)(3) nonprofit organization with its own board of directors.

In November 2004 most of the replication staff transferred from the university to the nonprofit organization. (Workers responsible for the [Clinical Information System](#) remained with the university until the new organization fully developed its information technology capability.) The National Center for Children, Families and Communities—the entity initially created by the university to manage the replication—continued in a support role, providing the program with data management and analysis services.

As of early 2008, the nonprofit had 48 employees with plans to increase to 55. Most of the staff—which the organization termed the national service office—worked in Denver. However, in a 2006 reorganization to strengthen the expansion effort, *Nurse-Family Partnership* stationed a number of regional program developers across the country, each responsible for developing new sites in that area.

The staff also included new positions in Washington and New York focused on securing government support for the program. See [Policy Advocacy](#).

Thomas R. Jenkins Jr., M.S., who previously held positions in private business and the Pennsylvania Department of Public Welfare, joined the staff in 2006 and became the organization's president and CEO in February 2007. The employee roster of the *Nurse-Family Partnerships*' National Service Office is [online](#).

In addition to its own employees, *Nurse-Family Partnership* worked closely with two other nonprofit organizations that together provided nine additional full-time positions in support of the program:

- [Public/Private Ventures](#) assisted in developing and managing program sites in the nation's northeast region and in California.
- Denver-based [Invest in Kids](#) provided similar services in Colorado.

Olds' [Prevention Research Center for Family and Child Health](#) at the university remained the program's research and development component under a March 2004 agreement setting out terms of the program's transfer. As director of the center, Olds continued to conduct program-related research and to support the program's quality improvement effort.

The organization's management recruited a nationally representative board of directors composed of experienced executives from the public policy, private industry and

academic sectors (including the deans of the University of Colorado's schools of nursing and of medicine). (The board membership list is [online](#).)

The 10-Year Plan

In 2006, *Nurse-Family Partnership* personnel worked with a consultant, George Overholser, director of [Nonprofit Finance Fund Capital Partners](#), to build a financial model of the replication.

Encouraged by the model's indication that self-sufficiency from service fees was possible, management and staff constructed a more detailed financial model and business plan to guide the program's growth over 10 fiscal years—2008–2017. The plan—which was vetted by Overholser, Olds, Edna McConnell Clark Foundation staff and the board of directors—forecast:

- By the end of 2017, program enrollment nationwide would grow to 98,948 families—or about 18 percent of all low-income mothers who were both eligible for the program and also likely to enroll, compared to 2.4 percent in 2007. (For an explanation of the term likely enrollment, see [Appendix 10](#).)
- By 2017, there would be 6,027 active nurse visitors (including full- and part-time)—a seven-fold increase over the number in 2007. (The caseload target for a full-time nurse visitor was 25 families, but because the plan foresaw a mixture of full- and part-time nurses, it used a ratio of 16.4 families per nurse.)
- By the end of the 10-year expansion, revenue from services to the implementing agencies would cover almost all of the Denver organization's annual funding needs. The remaining gap would be small and easily filled by state grants for extra support to statewide program implementations, according to staff.
- *Nurse-Family Partnership* would need \$50 million in growth capital from outside sources to achieve the 10-year objective. The \$50 million—by fueling program expansion—would leverage \$1.9 billion in government funding for sites over the 10 years.

The Capital Campaign

The Edna McConnell Clark Foundation took the lead in mounting a campaign to raise the \$50 million in growth funds. The foundation committed \$12 million of its own money (in addition to \$8.3 million given earlier) and approached other philanthropies for the remainder. As of May 2008, the campaign had secured commitments for the full \$50-million goal.

Given RWJF's long-running association with *Nurse-Family Partnership*, its participation in the campaign was critical, said Woodrow C. McCutchen, portfolio manager for the Edna McConnell Clark Foundation. The philanthropic world viewed *Nurse-Family*

Partnership as "RWJF's baby," and having RWJF onboard made it much easier to approach other funders, he said.

RWJF awarded *Nurse-Family Partnership* a \$10-million, three-year grant (ID# 062870) beginning January 2008. The other major contributors as of May 2008 were:

- **Bill and Melinda Gates Foundation:** \$10 million.
- **Kresge Foundation:** \$3 million.
- **W.K. Kellogg Foundation:** \$3.56 million.
- **Picower Foundation:** \$3 million.
- ***Nurse-Family Partnership's* board of directors:** \$8 million. (The directors committed to raise or give \$4 million by the end of 2009 and another \$4 million by the end of 2011.)
- **Other private grants and gifts:** \$0.44 million.

The Funding Partners Collaborate

The funding partners entered into an unusually collaborative arrangement. Instead of individually monitoring the grants, they agreed to a common set of performance metrics and a single progress report to be submitted quarterly by the Denver staff to the Edna McConnell Clark Foundation.

The arrangement called for McCutchen, as chief liaison, to review each quarterly report and then confer with representatives of the other funders to assess the program's progress and determine the timing of grant payments based on achievement of the milestones established by the 10-year plan.

This cooperative process avoids burdening the Denver organization with multiple performance measures, reporting obligations and foundation oversight personnel, freeing program staff to focus on executing the 10-year expansion plan, said McCutchen.

Policy Advocacy

Robust policy advocacy to increase funding available to the implementation sites was a key element of the growth strategy. *Nurse-Family Partnership* funded its policy work with earned revenues and eligible philanthropic giving. RWJF prohibits use of its grant money for lobbying activities.

A top priority was enactment of federal legislation to help *Nurse-Family Partnership* sites gain greater access to Medicaid resources. In March 2007, Senators Ken Salazar, D-Colo., and Arlen Specter, R-Pa. —representing two key program states—introduced a bill that would do just that. (As of early 2008, neither the Senate nor House had acted on the

legislation.) For details of this and other key federal policy agenda items, see [Sidebar Four](#).

In addition, President Bush's 2008 fiscal budget proposed—and Congress appropriated—\$10.2 million for competitive grants to help states and counties replicate the program.

To carry out the policy agenda, *Nurse-Family Partnership* established a Department of Policy and Government Affairs based in Washington and New York and retained a Washington-based government relations firm. At the state level, staff worked to allocate state funds to program sites and to modify state Medicaid plans to include reimbursement of visitation services.

The program leadership reported to RWJF in late 2007 that the concerted advocacy effort had produced "significant improvement in receptiveness" at the federal and state levels. Much of the progress came as the result of individual meetings that showcased materials on the program's outcomes and cost-effectiveness, the organization said.

Other Expansion Strategies

In addition to stepped-up policy advocacy, the expansion strategy focused on:

- Investing in marketing communications to broaden awareness of the program and generate preferential funding for evidence-based, early interventions.
- Investing in resources to further develop the program in states with existing sites—increasing enrollment at those sites and establishing new sites.
- Responding quickly to unsolicited interest in the program in states that have large program-eligible populations and are likely to support national funding of the program.

OVERALL PROGRAM RESULTS

- **In September 2003, *Nurse-Family Partnership* incorporated as an independent, Denver-based 501(c)(3) nonprofit organization with its own board of directors.**
- **The program achieved growth in numbers of sites developed, nurses trained and families served.** As of December 2007:
 - A total of 113 state, county and city agencies and private organizations provided *Nurse-Family Partnership* services in 290 counties in 23 states.

The agencies and their nurse-visiting service ranged widely in size and reach—from the Oklahoma State Department of Health, which provided visiting services in all 77 Oklahoma counties, to a two-nurse operation serving small, rural Garrett County in Maryland.

For a list of the 23 states, see [Appendix 11](#). For the implementing agencies and their service areas in each state, see the [interactive map](#) on the program websites.

- An estimated 860 registered nurses were active as home visitors, an increase over approximately 730 nurses in 2006.

Nurses worked in teams of up to eight plus a nurse supervisor. Some agencies fielded one team, some multiple teams.

Partnership staff acknowledged the existence of the national nursing shortage but reported no unusual difficulties in sites' recruiting nurses to the program. Small case loads and close connections to families were selling points for the program, they believed.

- Enrollment in the program averaged 13,272 families a day during 2007, up from 12,746 in 2006. Enrollment in December 2007 was 13,619.

The number of new families enrolled in 2007 was 8,297—still below the 10,000-families-per-year goal that the program had hoped to achieve in 2004. The program leadership said reorganization momentarily diverted staff resources from the growth effort but expressed confidence that the new structure and aggressive expansion policy would have an impact in the coming years.

As of late 2007, regional program developers had more than 60 prospective implementing agencies in various stages of preparation for start-up, the organization reported to RWJF.

- The cumulative number of first-time mothers served by the program since the first replication effort in 1996 totaled an estimated 80,423.
- **As of May 2008, *Nurse-Family Partnership's* capital campaign had raised its goal of \$50 million in growth capital, with leadership from the Edna McConnell Clark Foundation.**

Communications

As part of the expansion strategy, *Nurse-Family Partnership* retained the marketing firm of [Lipman Hearne](#) to develop a national communications plan integrating the organization's government affairs, program development and fund-raising objectives. Work on the plan was ongoing as of December 2007.

Creating a "Brand"

Nurse-Family Partnership was also in the process of developing a credentialing system to "brand" the implementing sites, allowing them to publicize their services as part of the program network.

The intention was to gain for *Nurse-Family Partnership's* position as "one of the premier prevention programs for women and children in the country," the same degree of name recognition as enjoyed by the [Head Start](#) and [Big Brothers Big Sisters](#) programs, the staff said.

Getting the Word Out

Throughout the development of *Nurse-Family Partnership*, published research provided a primary avenue for disseminating program information. Olds and his colleagues reported results of the randomized trials and follow-up studies in numerous articles in professional journals, including *Pediatrics*, *American Journal of Public Health*, *Journal of Community Psychology*, *Journal of the American Medical Association* and other publications. (See the [Bibliography](#).)

The articles drew attention in the child development field and served as the basis for positive published evaluations of the program by outside organizations, which in turn enhanced the effort to convince policy-makers of the program's value. (See [Sidebar Three: An Overview of Cost Benefit Analyses](#).)

Olds and other program leaders presented information about their research and the replication at numerous academic and professional conferences and, in recent years, to Congress—including an appearance by Olds in July 2007 before the House Subcommittee on Income Security and Family Support. (For details of his and other congressional testimony, see the [Bibliography](#).)

In addition to academic publications, the program received coverage in the mass media, including the *Washington Post*, *Wall Street Journal*, *New Yorker*, *Newsweek*, *CBS Evening News*, *CBS Sunday Morning* and National Public Radio's *Morning Edition*.

Additionally, *Nurse-Family Partnership* leaders and staff:

- Created a [websites](#) with program information for the general public, including an interactive U.S. map identifying the implementing agencies in each state. A password-protected section provided information for staff at the implementing agencies.
- Initiated [Newslink](#), an online newsletter reporting program-related developments, including progress at individual sites and research by the [Prevention Research Center for Family and Child Health](#).
- Disseminated promotional brochures, videos and other materials designed to increase awareness of the home-visiting program among different audiences: the general public, policy-makers, nursing community and staff of potential implementing agencies.

Additional Steps to Increase Awareness Supported by RWJF

A social marketing and public relations campaign. In December 2002 RWJF contracted with a Washington-based communications firm, LISBOA, to support a social marketing and public relations campaign to increase awareness and support of the *Nurse-Family Partnership* program among the public and policy-makers.

Federal and state legislators and their staffers were the primary target audience of the campaign, along with potential partner organizations. RWJF awarded LISBOA two contracts (ID#s 046798 and 050016) totaling \$327,453 and covering the period December 2002–May 2004.

A key focus was organization of a March 11, 2004 Washington event that featured presentations by RWJF CEO and President Risa Lavizzo-Mourey, M.D., M.B.A., Olds, members of the replication staff and several nurse visitors and participating families from sites around the country. Also, Senators Hillary Rodham Clinton, D-N.Y., Barbara Boxer, D-Calif., and Specter made remarks supportive of the program.

Titled *Nurse-Family Partnership* National Forum and held in a Senate office building, the event drew about 100 people, including congressional staff and program site personnel. As a result of the event and related promotional efforts, *Nurse-Family Partnership* received implementation commitments from several agencies willing to serve as program sites, according to RWJF program staff.

Also as part of its work, LISBOA produced program brochures with information and messages for use by the media and partner organizations. See the [Bibliography](#).

In addition to the March 11, 2004, forum, *Nurse-Family Partnership* convened forums in Washington during 2007 and 2008 to raise awareness about *Nurse-Family Partnership* among key congressional and executive branch agency staff, other policy-makers and partners and advocacy groups. See the [Bibliography](#) for details.

- April 24, 2007, briefing for congressional staff on SCHIP and nurse home visitation, 100 attended.
- May 8, 2008, congressional briefing at the Capitol, 75-100 by-invitation-only targeted attendees.

Public awareness forums in four states. As a similar but separate initiative, RWJF in December 2005 awarded the University of Colorado Health Sciences Center a \$100,000 grant (ID# 056177) to enable Olds to conduct "public awareness forums" in four states targeted for program expansion.

Olds invited key policy-makers, health and child welfare agency officials, foundation representatives and representatives of both potential and existing implementing agencies in the area—as well as the general public.

The four forums—held in 2006 and early 2007—were in:

- Columbus, Ohio, August 31, 2006, with more than 100 people attending.
- Los Angeles, October 6, 2006, more than 130 people.
- Seattle, October 17, 2006, 100 people.
- New York, February 8, 2007, more than 200 people.

LESSONS LEARNED

In written reports to RWJF and interviews, Olds and program staff offered the following lessons:

1. **Expect in-depth research to be expensive and the related fund-raising to be time-consuming.** Developers of new interventions should be aware that research of this kind and raising the money to fund it require time and persistence. However, the randomized controlled trials conducted to evaluate the nurse-visiting model helped build support for the replication, especially among policy-makers. (David Olds/Program Innovator)
2. **Do not let the complexity of a randomized controlled trial dissuade you from undertaking this type of research.** The *Nurse-Family Partnership* experience shows it is possible to conduct randomized trials of complex interventions in community settings and maintain the scientific integrity of the research over time. (Report to RWJF)
3. **Take time to build support among interested groups when moving a program from the trial stage to replication.** In the long run, the time investment may pay large political dividends. *Nurse-Family Partnership* made significant progress in Colorado by partnering with a nonprofit organization, [Invest in Kids](#). The group played a central role in winning state legislation to fund program replication throughout much of Colorado. It also helped build within communities an understanding of the program and how it could improve local conditions. (David Olds/Program Innovator)
4. **Be aware that maintaining fidelity to a model is not easy and requires use of standardization tools.** A science-based intervention is dependent on the quality of replication. *Nurse-Family Partnership* requires site staff to undergo a series of training sessions, follow established protocols and use various program publications.
5. **Clearly define the requirements for successful program implementation at the local level.** *Nurse-Family Partnership* learned that clear and repeated

communications to the field about program requirements fostered a more rapid development of effective practices by agencies implementing the program.

Also, the clearer the national staff is about what success means at the local level, the more focused and efficient its support services can be. (David Olds/Program Innovator; Paul Jellinek, RWJF Program Officer)

6. **Remember that salary is not always the only thing that matters to nurses.** Nurse home visitors often make less money than their hospital colleagues, and they have to deal frequently with frustrating and emotionally draining situations. However, there are advantages that can make the position appealing despite its drawbacks.

A key compensation is the relatively small caseload. With a maximum of 25 families, the nurse is able to build a relationship with clients, share in their successes and feel a sense of accomplishment and reward—dividends that nurses may not get in other settings. This may explain at least in part why the nationwide nursing shortage has not proved so far to be a barrier to program replication. (Paul Jellinek/RWJF Program Officer; Annual Report to RWJF; and Barbara Werner, nurse supervisor of the Reading, Pa., program site)

7. **Be prepared for a significant culture shift when transitioning from an academic institution to a service organization.** After *Nurse-Family Partnership* left the University of Colorado Health Sciences Center and became an independent nonprofit, the leadership found it took time to come to grips with the need to be strategic and politically active in building program awareness and support.

The high quality of the program's research evidence was only one part of the formula for success. The other part was being astute in influencing the processes for policy change and budgeting decisions in the public sector. (David Olds/Program Innovator, J.A. Grisso/RWJF Senior Program Officer)

8. **Be clear about your core values and principles when forming an independent organization to take a model to scale.** The *Nurse-Family Partnership* management made a commitment to maintain program integrity and quality and worked to find appropriate allies to help position the program for expansion. (David Olds/Program Innovator)

9. **Start off a replication by adding a few local sites one by one.** A deliberate launch allows the program's national staff to gain confidence in the fidelity of its replication process.

A science-based intervention depends on the quality of replication, and building a sufficient mass of local sites that adhere closely to the program model is necessary before trying to operate on the state or federal level. (David Olds/Program Innovator)

10. **Don't underestimate the importance of a strong infrastructure when trying to disseminate a model nationally.** The *Nurse-Family Partnership* experience shows

that an intervention, no matter how effective, is likely to have little impact until it can be integrated into a solid network of support.

Initially, *Nurse-Family Partnership* widely disseminated its nurse-visitation model across the country. But adding one site at a time was slow and, just as important, had no systematic impact. The sites were geographically separated and without a tie-in to a network of government agencies and funding.

With RWJF support, the home-visitation program changed its replication strategy to focus on developing statewide systems that are better able to sustain replication. (Terrence Keenan/Original RWJF Program Officer)

11. **Take care to ensure that the replication criteria for a new intervention are strong enough to keep local operations faithful to the underlying model.** David Olds insisted that local replications of his nurse home-visiting intervention remain faithful to the model as tested in a series of randomized controlled trials—a strategy that helped make the replication effort successful. (Original RWJF Program Officer/Keenan)
12. **Don't automatically make the innovator the replicator.** Inventing a model and disseminating it take different talents. David Olds developed the successful home-visiting model but believed he was not the best person to lead the model to scale. His skills are in research and development; replication requires management and business expertise. (David Olds/Program Innovator, J.A. Grisso, RWJF Senior Program Officer)
13. **Bring in experts to help build an organization that is taking a model from demonstration to scale.** *Nurse-Family Partnership* gained significant benefit from business consultants who guided development of its financial model and expansion plan. (J.A. Grisso/RWJF Senior Program Officer)
14. **Communicate positive evaluation results as a means of building support for a program.** Communications promoting *Nurse-Family Partnership* talked about the positive evaluation results of the nurse-visiting intervention, and that approach helped attract backing for the program. (Ann Christiano/RWJF Communications Officer)

CHALLENGES FOR THE FUTURE

- **Securing federal and state funding sources to sustain and expand the replication effort remains a critical need.** The *Nurse-Family Partnership* staff acknowledges that public dollars are scarce but believes that policy-makers will direct government revenue to the program based on its proven outcomes.
- **The 2017 enrollment target of 98,948 families represents more than a seven-fold increase over the 2007 enrollment.** Failure to meet that goal will delay the program's self-sustainability and require additional outside resources. RWJF program

staff said the program's expansion forecasts were built on actual experience and were conservative.

- **Public health nursing salaries (such as those paid for home visiting) are chronically below those paid to medical and surgical nurses, making recruitment of nurse visitors often a slow process.** In Reading, Pa., where a nurse makes \$10,000 a year more in a hospital job than as a home visitor, it took almost a year for the *Nurse-Family Partnership* agency to fill a vacancy, said Beth Werner, the local supervisor. Even getting a prospect to come in for an interview was difficult, she added.

The *Nurse-Family Partnership* staff, however, believes that the expansion and communications efforts will increase awareness of the program in the nursing profession and make employment more attractive.

Also, although there has long been a national shortage of nurses, the staff notes that the 6,000 nurses needed for the program's expansion represent only 0.25 percent of the 2.4 million RNs.

- **Ensuring high quality program implementation at the local level requires vigilance.** RWJF staff said *Nurse-Family Partnership* was "aggressively improving" efforts to ensure program quality during the period of rapid expansion.

Through interviews with implementing agency personnel and evaluation reports generated by the Clinical Information System, the program staff was continually assessing the extent to which sites were following the Olds model. In 2007, the organization initiated regular conference calls with site supervisors to discuss topics selected according to site needs.

- **Minimizing client attrition is an ongoing goal.** While the dropout rate varies, it averages about 3 percent per month over the program's established 2.4-year participation period, according to staff.

The program leadership sought to address the problem through consultation with site managers and nurses and the implementation of new engagement strategies developed by Olds.

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APPENDIX 1

Sources of Funding for Development and Dissemination of the Nurse-Family Partnership Program

(Current as of the time of the grant; provided by the grantee organization; not verified by RWJF.)

Since its initiation in the late 1970s, the program now operating as the *Nurse-Family Partnership* has received \$26.8 million in funding from the Robert Wood Johnson Foundation (RWJF) for development and replication. However, numerous other sources—both private and governmental—have provided millions of dollars in additional support.

Elmira Demonstration

The history of the original demonstration site in Elmira, N.Y., provides an example of the wide funding net cast by the program's chief architect, David L. Olds, Ph.D.

The initial grant for the Elmira work came from the Maternal and Child Health Bureau in the U.S. Department of Health and Human Services (HHS). RWJF, which had provided complementary funding for other Maternal and Child Health Bureau projects, agreed to support the evaluation phase of the Elmira demonstration. Later, RWJF provided a second grant to support a study of the children in their third year of life.

To extend this follow-up study through the children's fourth year, the project team obtained additional money from other sources, including HHS and the William T. Grant and Ford foundations. Still later, grants from the National Institute of Mental Health and HHS supported assessment of the families in the children's 15th year.

Other sources that supported the Elmira work included:

- Carnegie Corporation of New York
- The Commonwealth Fund
- National Center for Nursing Research
- National Institutes of Health
- Pew Charitable Trusts.

Memphis Trial

Olds spent much of his time raising and coordinating funding of the various program trials. For example, funding for the Memphis follow-up study fell short of the budgeted amount when a federal spending cut eliminated anticipated governmental support. RWJF,

which a year earlier had awarded a grant to cover half the study's cost, agreed to make a supplemental award so the work could proceed.

Through all of its phases, the multiyear Memphis evaluation received support from a mix of public and private sources. In addition to RWJF, they included:

- Administration for Children and Families, Department of Health and Human Services (HHS)
- Assistant Secretary for Planning and Evaluation, HHS
- Carnegie Corporation of New York
- Ford Foundation
- Hearst Foundations
- Maternal and Child Health Bureau, HHS
- National Center for Child Abuse and Neglect
- National Institute of Child Health and Human Development
- National Institute of Nursing Research
- Pew Charitable Trusts
- Smith Richardson Foundation
- William T. Grant Foundation

Replication Funders

Since Olds began disseminating his model in 1996, a broad array of organizations has supported the replication effort, including:

- Bill and Melinda Gates Foundation
- Centers for Disease Control and Prevention
- Children's Hospital and Research Center Foundation
- Church of the Risen Christ
- Colorado Department of Public Health and Environment
- Colorado Trust
- David and Lucile Packard Foundation
- Denver Foundation
- Doris Duke Charitable Foundation

- Edna McConnell Clark Foundation
- Ewing Marion Kauffman Foundation
- Health Resources and Services Administration, Division of Nursing, HHS
- Hill Foundation
- John G. Duncan Charitable Trust
- Mabel Y. Hughes Foundation
- Oklahoma Children First
- Pennsylvania Commission on Crime and Delinquency
- Picower Foundation
- Ronald McDonald House Charities
- U.S. Department of Justice
- W.K. Kellogg Foundation

APPENDIX 2

Implementation and Methodology of the Elmira Demonstration

(Current as of the time of the grant; provided by the grantee organization; not verified by RWJF.)

Between April 1978 and September 1980, project staff recruited 400 pregnant women with no previous live births to participate in the demonstration. Some 85 percent had one or more of the three risk factors on which the project was focusing, and 23 percent had all three. The three risk factors were:

- Under 19 years of age
- Single
- Low-socioeconomic status.

Project staff intended to exclude women more than 25 weeks pregnant. However, because of the difficulty of determining gestation at enrollment, 30 participants were between the 26th and 29th week of pregnancy. Reflecting local demographics, the study sample was 89 percent White.

The mothers randomly assigned to one of the two visitation groups (Groups Three and Four) received a visit approximately once every two weeks during pregnancy, each visit lasting about an hour and a quarter.

For the mothers receiving postpartum visits (Group Four), nurses visited according to a schedule of decreasing frequency—from weekly visits in the first six weeks following delivery to one visit every six weeks between the child's 20th month and the end of the family's participation at 24 months.

The nurses followed a detailed curriculum that guided the content of the visits through three subject areas:

- Parent education.
- Enhancement of the woman's informal support systems.
- Linkage of the family to community services.

The nurses made an effort to emphasize the family's strengths and worked closely with personnel at clinics and offices responsible for the mother's prenatal care.

Outcomes Assessment

The assessment focused on three major goal areas:

- Improving pregnancy outcomes.
- Preventing subsequent child health and developmental problems.
- Improving the mother's own development.

To evaluate outcomes, staff:

- Conducted periodic interviews with the women (at enrollment, in the 32nd week of pregnancy and in the child's 6th, 10th, 22nd and 46th months of life).
- Administered standardized testing of the children at 36 months and 48 months of life.
- Reviewed medical and social service records.
- Observed in-home conditions and mother-child interaction.

Because the two nonvisitation groups (Groups One and Two, which both received screening for their children and, for Group Two, transportation to appointments) showed similar use of routine prenatal and well-child care, they formed a single comparison group for purposes of analysis. The individuals making the assessments were unaware of the families' group assignments.

To mitigate the potential impact of attrition on the analyses, estimates of the program's effects included all nurse-visited families regardless of their length of participation.

Cost-Benefit Analysis

For the cost-benefit analysis, project staff considered:

- On the benefit side:
 - Governmental expenditures that presumably would be reduced by the visitation program through improved maternal and child health and functioning (for example, savings in Medicaid).
 - Tax revenues generated by the mother's participation in the workforce.
- On the cost side:
 - Nurses' salaries and other direct expenses of visitation.
 - Cost of services to which the families were linked by the nurses (for example, the Women, Infants and Children (WIC) nutritional supplementation program) and transportation for the families.

15-Year Follow-Up Study

With backing from other supporters—RWJF funding was not involved—the Olds team conducted a follow-up assessment of the impact of the Elmira demonstration program when the children reached age 15.

Of the original 400 women, 324 participated. Of these, 130 were unmarried and of low socioeconomic status when they initially enrolled in the demonstration. Of this high-risk subgroup, 38 had received both prenatal and postnatal visits.

In addition to questions about their children's behavioral problems, study staff asked the women about their own alcohol and drug use, arrests and convictions, and the number of months they received [Aid to Families with Dependent Children \(AFDC\)](#) and other public assistance.

The mothers provided consent for review of Child Protective Service records and completed a life-history calendar designed to help them recall additional births, marriages, employment and other events in their lives.

The 15-year follow-up also included interviews with 315 adolescent offspring. Staff questioned them on such subjects as disruptive school behavior, arrests and use of cigarettes, alcohol and illegal drugs. Additionally, staff reviewed court and arrest records.

For findings from the Elmira study, see [Appendix 5](#).

APPENDIX 3

Key Factors in the Selection of Memphis for the Second Trial

(Current as of the time of the grant; provided by the grantee organization; not verified by RWJF.)

The Olds team reported to RWJF that Memphis had:

- A large concentration of women who would fit the projected sample criteria.
- Rates of infant mortality and morbidity among the highest in the nation, and rates of preterm delivery and low birth weight comparable to those found in major metropolitan areas in the Northeast and Midwest.
- A limited number of health care facilities used by the target population, a situation that would facilitate the tracking of program participants and one not found in most Northeastern and Midwestern cities. (Health services to the indigent of Memphis and Shelby County were provided largely by two hospitals and six primary care centers.)
- A long-standing history of cooperation between the project's two local collaborators, a factor expected to facilitate coordination of study operations. The collaborators were the Memphis-Shelby County Health Department and the University of Tennessee.

APPENDIX 4

Implementation and Methodology of the Memphis Demonstration

(Current as of the time of the grant; provided by the grantee organization; not verified by RWJF.)

Implementation

Between June 1, 1990, and August 31, 1991, the study team recruited 1,139 first-time pregnant women from the Regional Medical Center at Memphis. Participants had to:

- Be less than 29 weeks pregnant.
- Have no specific chronic illness that would contribute to fetal growth retardation or preterm delivery.
- Meet at least two of the following three sociodemographic risk conditions: unmarried, unemployed and fewer than 12 years of education.

Of the 1,139 participants:

- 92 percent were African American.
- 98 percent were unmarried.

- 85 percent were from households with income at or below the federal poverty guideline.
- 64 percent were age 18 or younger at registration.

The sample was randomized by a computer program into four treatment groups, which differed slightly from those used in the Elmira trial:

- Group One (166 women) received free round-trip taxicab transportation to scheduled prenatal care appointments.
- Group Two (515) received taxicab transportation plus developmental screening and referral services for the child at 6, 12 and 24 months of age.
- Group Three (230) received those two services plus nurse home visits during pregnancy, one postpartum visit in the hospital before discharge and another in the home.
- Group Four (228) received the same services as Group Three plus postnatal nurse home visits until the child's second birthday.

As in Elmira, the nurse visitors followed a detailed visit-by-visit protocol as they sought to improve the women's health-related behavior, care of their children and life-course development. Each nurse completed an average of seven home visits during pregnancy and 26 in the two years following birth.

Unlike the earlier demonstration, the local public health department administered the visitation services, not the study staff. The trial took place during a nursing shortage, leading to significant staff turnover as nurses left the health department for higher-paying hospital jobs. The project team believed this provided a possible preview of the real-world situation that could be expected if the program were replicated on a large scale.

Assessment Procedures

The participating women completed brief tests of their intellectual functioning and were interviewed at registration, in the 28th and 36th weeks of pregnancy, and in the child's 6th, 12th and 24th months of life.

At the postpartum interviews, public health department staff observed the mother's teaching-interaction behavior with the child. At the last interview, department staff tested the child for development. Department staff also abstracted the families' obstetrical and newborn medical records and social service agency records of welfare and food stamp use.

Research staff who conducted the interviews and records abstraction was unaware of the women's treatment group assignments. For the prenatal evaluation, the researchers

combined Groups One and Two for comparison with Groups Three and Four. For the postnatal assessment, they contrasted Groups Two and Four.

Pilot testing disclosed that some outcomes in the Elmira trial involved conditions occurring too infrequently in the Memphis population to serve as a viable outcome measure. One was prenatal smoking; only 9 percent of the Memphis sample smoked compared to 55 percent in the Elmira, N.Y., study.

Another was the rate of state-verified reports of child abuse and neglect (3 to 4 percent). To deal with the latter situation, the project team used children's health care encounters for injuries as a proxy for deficient caregiving and hypothesized that the program would lower such encounters.

For the five-year follow-up evaluation, staff interviewed the mothers in Groups Two and Four when their children were in their 54th month (that is, six months before their fifth birthday). Some 91 percent participated, not counting women who experienced fetal or child death.

The study team estimated the women's socioeconomic status based on occupation, and abstracted agency records to update AFDC and food stamp use through the child's 60th month.

The Olds team conducted additional follow-up studies of the Memphis families when the children reached ages six and nine.

For findings from the Memphis study, see [Appendix 5](#).

APPENDIX 5

Findings Reported for the Elmira and Memphis Studies

(Current as of the time of the grant; provided by the grantee organization; not verified by RWJF.)

Elmira Trial Findings Through the Children's 4th Birthday

The project team reported the following in various journals, including American Journal of Public Health; Journal of Community Psychology; Medical Care; Pediatrics; and The Future of Children:

Prenatal

- **Contrasted with their counterparts in the comparison group, nurse-visited women by the end of pregnancy experienced: (1) greater informal and formal social support; (2) greater reductions in the number of cigarettes smoked; (3)**

greater improvements in the quality of their diets; and (4) fewer kidney infections.

The project team hypothesized that the reduced incidence of kidney infection was explained at least in part by the nurses' encouragement to mothers to contact a physician at the first sign of a pregnancy complication and might also reflect a "salutary interaction between improved maternal health habits and social support."

- **Babies born to nurse-visited women identified as smokers were 75 percent less likely to be born prematurely than were children of comparison group counterparts (2.1 percent versus 9.8 percent).**

Also, nurse-visited adolescents (under 17 at registration) had babies with higher mean birth weights than their counterparts. However, for the nurse-visited sample overall, there were no treatment effects on birth weight or length of gestation.

Postnatal

- **During the first two years of life, nurse-visited children born to low-income, unmarried teens had 80 percent fewer verified cases of child abuse and neglect. However, in the two years after the visits ended—in the 3rd and 4th years of life—there was no impact on child abuse and neglect rates.**

The project team suggested that this beneficial effect evaporated in years three and four as the result of a detection bias triggered by the end of the nurse visits. That is, the team hypothesized that as the program came to a close, nurses brought to the attention of the human service system those families that they believed had the potential for mistreatment, thus placing those nurse-visited families under greater surveillance by authorities than families in the comparison group.

In support of this hypothesis, investigators noted that the intervention's positive effect on child abuse and neglect reappeared when the families were reassessed in the children's 15th year. (The 15-year follow-up study is described below.)

According to Olds, the reappearance suggests the two-year absence of effect was a reporting artifact that attenuated with the passage of time. Also in support of the hypothesis, the team cited indications that the incidents involving nurse-visited families were less serious than those involving comparison families.

- **In their second year, nurse-visited children, irrespective of the mother's risk, were seen in emergency rooms 32 percent fewer times than control group children.** This included 56 percent fewer visits for injuries and ingestions.

This positive effect on health care encounters for injuries continued in the two-year period after the visits ended. In-home assessments conducted in the children's 34th and 46th months found fewer hazards for children of nurse-visited mothers.

- **The impact of home visits on child abuse and neglect and on emergency room use was greater among children whose mothers had little sense of control over their lives as measured at the start of the trial.** A low sense of control over life's circumstances—which the project team associated with limited psychological resources—was viewed as a risk for compromised child caring.

Among poor, unmarried, teenage mothers in the comparison group, the incidence of child maltreatment increased as the mother's measured sense of control declined. However, among nurse-visited mothers with those same high-risk characteristics, abuse and neglect did not increase as maternal sense of control declined. The study found a similar pattern in emergency room visits.

- **Children of nurse-visited women who smoked a moderate to heavy amount during pregnancy had significantly higher IQ scores at ages 3 and 4 than did their comparison group counterparts.**

The project team attributed this effect in part to the nurse-visited women's reduction in cigarette use and improvement in diet during pregnancy. In the nurse-visited sample overall, there were no effects on children's mental development.

- **In the four years after delivery of the first child, nurse-visited women who were low-income and unmarried at registration had 42 percent fewer subsequent pregnancies than their comparison group counterparts.** They also delayed the birth of their second child 12 months longer on average.
- **Nurse-visited mothers had 83 percent greater participation in the workforce.**

For low-income families, the estimated government savings resulting from the visitation program exceeded program costs by the children's 4th birthday. For low-income families, the per-family program cost averaged \$3,133 (in 1980 dollars) and saved \$3,313, producing a net saving of \$180. The analysis, however, was not favorable when applied to the entire sample. The per-family program cost for all families averaged \$3,246 and saved the government \$1,664—for a net cost of \$1,582.

The study team noted that subsequent enactment of federal welfare reform legislation called into question the applicability of this cost-benefit analysis since most of the calculated savings resulted from reductions in welfare expenditures under the old system.

However, in 1998 Rand published its own study-based in part on the Olds team's earlier work—that estimated over time the visitation program as conducted in Elmira would save \$4 in governmental spending for each \$1 in program expenditures on high-risk families. (See [Sidebar Three](#).)

Elmira: 15-Year Follow-up

As with the earlier studies, the team found most of the positive results concentrated among mothers who were poor and unmarried when the nurse visits began. The team

reported the following in the *Journal of the American Medical Association* and *The Future of Children*:

- **Nurse visits had a beneficial effect on rates of child abuse and neglect in the 15 years following the birth of the first child.** During those 15 years, women who had prenatal and postnatal nurse visits were identified as perpetrators of child abuse and neglect in an average of 0.29 verified reports per participant compared to 0.54 for the comparison group.

The effect was greater for women who were poor and unmarried at program enrollment and was especially strong for the 4–15 years after the child's birth.

- **Nurse-visited women who were poor and unmarried had 1.3 subsequent births versus 1.6 for their comparison counterparts, and had 65 months between the births of their first and second children compared to 37 months.** They also had fewer months of AFDC, less impairment due to alcohol and drug use and fewer arrests. For the nurse-visited sample overall, however, there were no effects on measures of maternal life course.
- **Adolescents born to nurse-visited women who were poor and unmarried reported less serious antisocial behavior than their comparison counterparts.** This included fewer instances of running away (0.24 versus 0.60); fewer arrests (0.20 versus 0.45); and fewer convictions and violations of probation (0.09 versus 0.47).

Additionally, children of nurse-visited women who were poor and unmarried indicated fewer lifetime sex partners, fewer cigarettes smoked per day and fewer days in which they consumed alcohol in the last six months. Also, parents in the poor, unmarried nurse-visited sample reported their children had fewer behavioral problems related to drug and alcohol use.

However, there were no effects on the children's use of illegal drugs or less serious forms of antisocial behavior, or initiation of sexual intercourse. Also, adolescents born to nurse-visited women who were not poor or unmarried showed few benefits.

Children of nurse-visited parents, irrespective of the risk profile of the parent(s), reported being stopped by police more frequently, although they also reported fewer arrests and convictions. The project team attributed the higher rate of being stopped to a sampling or reporting artifact.

Memphis Trial Findings through the Children's 54th Month

The project team concluded that impacts on the predominantly African-American sample in Memphis tended to be smaller overall than on the White families studied in Elmira but were nevertheless consistent with those earlier results.

In two *Journal of the American Medical Association* articles on the Memphis trial—one in 1997 on the original Memphis study and the other in 2000 on the 54th-month follow-up—team members reported the following:

Prenatal

- **Nurse visitation had no effect on birth weight, length of gestation, preterm delivery or Apgar scores (which measure the baby's condition at birth).**

Also, unlike the Elmira results, there was no impact on the rate of preterm delivery by mothers who smoke—a result that the project team suggested reflected the sample's small number of smokers.

- **There were no effects on women's use of standard prenatal care or obstetrical emergency services.** Nurse-visited women who were in school at registration had twice as many predelivery hospitalizations, a difference for which there was no certain explanation.
- **By the 36th week of pregnancy, nurse-visited women were more likely to use other community services than were women in the control group (0.29 versus 0.20).**
- **Nurse-visited women had fewer yeast infections (0.14 versus 0.19) and fewer instances of pregnancy-induced hypertension (0.13 versus 0.20) than their counterparts.** Among women with hypertension, those who were nurse-visited had mean arterial blood pressure 4.6 points lower.

24 Months Postnatal

- **During the first two years of life, nurse-visited children had fewer health care encounters involving injuries and ingestions than their counterparts (0.43 versus 0.55).** The difference was primarily in outpatient encounters. However, nurse-visited children also were hospitalized fewer days for injuries and/or ingestions (0.03 versus 0.16), and were hospitalized at older ages and for less serious reasons. These effects were greater for children born to women with few psychological resources.
- **By the child's 24th month, nurse-visited women held fewer child-rearing beliefs associated with child abuse and neglect (lack of empathy, belief in physical punishment and unrealistic expectations for infants), and their homes were rated as more conducive to child development.**

Nurse-visited mothers reported attempting breast-feeding more frequently than their counterparts, although there was no difference in duration of breast-feeding.

- **Children of nurse-visited mothers with low psychological resources were observed to be more communicative and responsive to their mothers than were their counterparts.** However, there was no effect on maternal teaching behavior in the first two years of life.

- **By the 24th month there were no effects on the children's immunization status, mental development, use of well-child care or reported behavioral problems.**
- **By the 24th month, nurse-visited women reported fewer second pregnancies (.36 versus .47) and higher levels of perceived control over life circumstances.** But there were no effects on the women's reported educational achievement or length of employment.

54 Months Postnatal

- **By the children's 54th month, nurse-visited women had fewer subsequent pregnancies (1.15 versus 1.34), fewer subsequent pregnancies under six months after the previous delivery (0.22 versus 0.32) and longer intervals between the birth of the first and second child (30.25 versus 26.60 months).**

They also had higher rates of living with a partner (43 percent versus 32 percent) and of living with the father of the child (19 percent versus 13 percent).

- **By the 54th month, nurse-visited mothers had fewer months of using AFDC (32.55 versus 36.19) and food stamps (41.57 versus 45.04) and had partners who had been employed for longer duration (35.15 months versus 26.45).**
- **The impact on the rates and timing of subsequent pregnancies was concentrated among women with higher levels of psychological resources as measured at their enrollment in the trial.** The effect on other outcomes was similar for high- and low-resource women.
- **By the 54th month, there were no significant effects on maternal educational achievement, employment or use of Medicaid.**

Memphis: Age 6 Follow-Up

In a 2004 *Pediatrics* article ("[Effects of Nurse Home-Visiting on Maternal Life Course and Child Development: Age 6 Follow-Up Results of a Randomized Trial](#)"), the Olds team reported the following:

Maternal Life Course

- **Compared to their control-group counterparts, nurse-visited women had:**
 - **Fewer subsequent pregnancies and births and longer intervals between births of the first and second children.**
 - **Longer relationships with their partners.**
 - **Fewer months of using welfare and food stamps between the children's 54th and 72nd months of life.**
 - **Their children more likely enrolled in formal out-of-home care.**

- **There were no statistically significant program effects on:**
 - **Women's mastery or mental health.**
 - **Education or employment.**
 - **Marriage or in a partnered relationship or living with the father of the child.**
 - **Use of marijuana or behavioral problems attributable to alcohol or drug use.**
 - **Domestic violence.**

Child Outcomes

- **Nurse-visited children had:**
 - **Higher scores on tests of intellectual function and receptive language.**
 - **Fewer behavior problems "in the borderline or clinical range" as reported by the mother.**
 - **Among children born to mothers with low levels of psychologic resources: higher arithmetic achievement test scores and less aggression and incoherence in response to stories.**

Conclusion

"Four years after the end of the program at child age 2 years, it continued to produce effects in the lives of urban black women and their children."

Memphis: Age 9 Follow-Up

In a 2007 *Pediatrics* article ("[Effects of Nurse Home Visiting on Maternal and Child Functioning: Age-9 Follow-Up of a Randomized Trial](#)"), Olds and his colleagues reported:

- **"Through the first child's ninth birthday, the program continued to increase the interval between the births of first and second children, reduced the cumulative number of subsequent live births per year, increased the stability of mothers' relationships with their partners and reduced women's use of welfare and food stamps."** The impact on cumulative subsequent live births was limited to mothers with initially higher levels of psychological resources.
- **"Through the first three years of elementary school, the program improved the academic achievement of children who were born to mothers with low psychological resources, and as a trend, it reduced the rate of infant and childhood mortality among firstborn children."**

APPENDIX 6

Denver Four-Year Follow-Up Study Findings

(Current as of the time of the grant; provided by the grantee organization; not verified by RWJF.)

In a 2004 article in *Pediatrics* ("Effects of Home Visits by Paraprofessionals and by Nurses: Age 4 Follow-Up Results of a Randomized Trial"), Olds and his colleagues reported on their study of the Denver trial families at the children's fourth birthday—or two years after their participation ended. The findings included the following:

Maternal Life Course

Paraprofessional Effects

- **Compared with the control group, paraprofessional-visited women were less likely to be married and to live with the child's biological father, but they "worked more between child age 2 and age 4," and "had a greater sense of mastery" and "better mental health."**
- **"There were no statistically significant paraprofessional effects on women's educational achievement, use of welfare, use of marijuana or alcohol, behavior problems attributable to substance use, or experience of domestic violence."**

Nurse Effects

- **Compared to the control group, nurse-visited women had "greater intervals between the births of their first and second children" and reported less domestic violence.** They also reported enrolling their children less frequently in preschool, Head Start or licensed day care.
- **"There were no statistically significant nurse effects on women's educational achievement, employment, use of welfare, mental health, mastery, use of marijuana or alcohol, behavior problems attributable to substance use, marriage or living with a partner or father of the child."**

Home Environments, Mother-Child Interaction and Child Development

Paraprofessional Effects

- **Compared with the control group, paraprofessional-visited women-child pairs "displayed more sensitive and responsive interactions."** Also, mothers with low-psychologic resources at registration "had home environments more supportive of early learning."
- **"There were no statistically significant paraprofessional program effects on children's language, executive functioning, emotional regulation or behavioral adaptation or on mothers' reports of externalizing behavior problems."**

Nurse Effects

- **Compared with the control group, nurse-visited children born to mothers with low psychologic resources "had home environments more conducive to early learning," "better language development," "superior executive functioning" and "better behavioral adaptation during testing."**
- **"There were no statistically significant nurse effects on sensitive-responsive mother-child interaction, children's emotional regulation or externalizing behavior problems."**

Conclusion

"Paraprofessional-visited mothers began to experience benefits from the program two years after the program ended at child age 2 years, but their first-born children were not statistically distinguishable from their control group counterparts."

"Nurse-visited mothers and children continued to benefit from the program two years after it ended. The impact of the nurse-delivered program on children was concentrated on children born to mothers with low levels of psychologic resources."

APPENDIX 7

Services Provided by the Program Staff to Implementing Agencies

(Current as of the time of the grant; provided by the grantee organization; not verified by RWJF.)

The following are among the services provided by the *Nurse-Family Partnership's* Denver-based staff to program sites across the country:

- Assistance in implementing and managing nurse-visiting services.
- Professional development of nurse visitors, including initial training and continuing consultation.
- Use of—and support for—the program's Clinical Information System, a Web-based system that tracks a core set of process and outcome variables. Nurse visitors in all sites but one (Oklahoma) gather information on these variables and feed it in to the Clinical Information System. Oklahoma has its own information system, data from which is transferred to the *Nurse-Family Partnership* Clinical Information System monthly.
- Reports on program implementation and evaluation.
- Access to the *Nurse-Family Partnership* name, logo and communications materials.
- Assistance in accessing Medicaid reimbursement for program services.

- Policy and government affairs consultation to increase state and local government support.

APPENDIX 8

Site Costs

(Current as of the time of the grant; provided by the grantee organization; not verified by RWJF.)

In early 2008 program staff reported the following cost figures for implementing sites across the nation:

- The average budget for the first three years was:
 - For an eight-nurse implementation serving up to 200 families: \$2,516,000 or an average of \$4,193 per family per year.
 - For a four-nurse implementation serving 100 families: \$1,430,000 or an average of \$4,768 per family.
- Since the average client remains in the program 1.68 years, the total cost per family averaged between \$7,000 and \$8,000.
- The salary and benefits received by nurses and other program personnel vary widely between states, regions and employing institutions but constituted about 88 percent of an implementing agency's budget for the program.

APPENDIX 9

Four State Initiatives

(Current as of the time of the grant; provided by the grantee organization; not verified by RWJF.)

Colorado, Pennsylvania, Oklahoma and Louisiana each developed strong state support—the kind that the national staff sought to encourage elsewhere:

- **Colorado:** In 2000, the Colorado legislature earmarked a gradually increasing share of the state's [national tobacco settlement funds](#)—eventually up to \$19 million a year—for implementation of the nurse-visitation model.

The [Colorado Department of Public Health and Environment](#) awarded competitive grants to interested communities. In addition, [Invest in Kids](#)—a private nonprofit group funded by the [Colorado Trust](#)—worked in partnership with the national center to develop sites in the state.

As a result of this combined public-private support, just over half of Colorado's 63 counties were receiving program services by mid-2002. As of May 2008, 17 agencies were implementing the program in some 50 counties.

- **Pennsylvania:** The Pennsylvania government made \$24 million in TANF funds available to help 20 sites across the state implement the intervention. The state Commission on Crime and Delinquency handed out most of the money in grant funds matched by local funds. Subsequently the state Department of Public Welfare provided the funding. The state contracted with the national center in Denver to provide support services to the sites. As of May 2008, 24 agencies were implementing the program in some 40 counties.
- **Oklahoma:** With funding from the state legislature, nurse-visitation services became available in all 77 Oklahoma counties. Because Oklahoma implemented the program rapidly and early in the replication effort, it operated semi-independently of the national program center in Denver.

For example, the state—not the Denver staff—trained Oklahoma's 270 nurse visitors. Oklahoma even has its own program name—*Children First*. However, since reorganizing as an independent nonprofit in 2004, *Nurse-Family Partnership* and Oklahoma State Department of Health have worked increasingly together "to bring Oklahoma fully into the NFP community," staff said.

- **Louisiana:** Starting in 1999, the state used federal Maternal and Child Health Block Grant funds and Medicaid reimbursements to develop a system of *Nurse-Family Partnership* sites providing services in 28 of Louisiana's 64 parishes.

APPENDIX 10

Definition: Likely Enrollment

(Current as of the time of the grant; provided by the grantee organization; not verified by RWJF.)

Nurse-Family Partnership's expansion plan forecasts enrollment of 98,948 families by the end of 2017—or about 20 percent of the likely maximum enrollment. Program staff explained the term likely maximum enrollment as follows:

- Based on 2003 Medicaid data and Census Bureau population growth estimates, Medicaid in 2006 covered an estimated 650,000 first births. The staff used this Medicaid figure as a surrogate for the number of potential program clients.
- However, only about 50 percent of eligible mothers who are offered participation in the program actually enroll, according to feedback from implementing agencies, meaning likely new enrollment during a year would be 325,000.
- If a mother enrolled in the *Nurse-Family Partnership* program when 18 weeks pregnant and continued through the child's second birthday, she would participate 2.4

years. However, some women enroll later than 18 weeks and some drop out early, making the average enrollment period 1.68 years.

- Multiplying the Medicaid first births in 2006 likely to enroll (325,000) by 1.68 years, staff figured the program had a potential maximum enrollment of 546,000 at any given time.
- Thus, the 98,948 enrollment targeted for 2017 represented about 18 percent of the likely maximum number. By comparison, the 13,272 clients enrolled in 2007 represented about 2.4 percent of the likely total.

APPENDIX 11

States With the Nurse-Family Partnership Program

(Current as of the time of the grant; provided by the grantee organization; not verified by RWJF.)

These 23 states had an active *Nurse-Family Partnership* program in at least one county as of December 2007. The number of implementing agencies follows the state name. (For the identity of the implementing agencies and their service areas, see the [interactive map](#) on the program websites.)

- Arizona: 1
- California: 9
- Colorado: 17
- Illinois: 2
- Kentucky: 1
- Louisiana: 12
- Maryland: 1
- Michigan: 4
- Minnesota: 4
- Missouri: 3
- New Jersey: 6
- New York: 6
- North Carolina: 1
- North Dakota: 1
- Ohio: 4
- Oklahoma: 1
- Oregon: 1
- Pennsylvania: 24
- South Dakota: 2
- Texas: 1
- Washington: 10
- Wisconsin: 1
- Wyoming: 1



APPENDIX 12

Glossary

(Current as of the time of the grant; provided by the grantee organization; not verified by RWJF.)

501(c)(3): The subsection of the U.S. Internal Revenue Code that grants nonprofit organizations exemption from the federal income tax.

Aid to Families with Dependent Children (AFDC): The principal federal assistance program until 1996, when Congress overhauled the welfare system.

Clinical Information System: A Web-based information system developed by *Nurse-Family Partnership* to track a core set of variables and provide real-time data on program implementation and outcomes.

National tobacco settlement funds: Money paid to the states by tobacco companies under a 1998 agreement that settled a civil law suit brought by the states to recover smoking-related health care costs.

Prevention Research Center for Family and Child Health: An entity of the Department of Pediatrics at the University of Colorado Health Sciences Center. Its mission is to design, test and disseminate interventions to help low-income children and their families. A primary focus has been the nurse home-visitation model developed by David L. Olds., Ph.D., who is the center's director.

State Children's Health Insurance Program (CHIP): A program enacted by Congress in 1997 to provide coverage to children in families earning too much to qualify for Medicaid but not enough to be able to afford private insurance. It is funded by the states and the federal government.

Temporary Assistance for Needy Families (TANF): The federal program that replaced Aid to Families with Dependent Children as part of federal welfare reform enacted in 1996.

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Grantee Websites

www.nccfc.org. A website developed by the National Center for Children, Families and Communities at the University of Colorado Health Sciences Center. Originally it included information for the public about the *Nurse-Family Partnership* program but is now accessible only to authorized users of the program's Clinical Information System. Denver, CO: National Center for Children, Families and Communities.

www.nursefamilypartnership.org. The website of *Nurse-Family Partnership*, providing public information about the program plus a password-protected section for the program's implementing agencies. Denver, CO: *Nurse-Family Partnership*.

Presentations and Testimony

Clay Yeager, "Statement of Clay Yeager, President & CEO, *Nurse-Family Partnership*," to the House Committee on Appropriations, Subcommittee on Labor, Health and Human Services, Education and Related Agencies, April 14, 2005, Washington. Written letter scheduling the testimony from subcommittee chair, Representative Ralph Regular, R-OH, March 18, 2005.

Michele Ridge, testimony before the House Committee on Education and the Workforce, Subcommittee on Education Reform, September 27, 2006, Washington. Representative Todd Platts, R-PA, made a written request for Ridge to testify.

David Olds, "Testimony Before the Subcommittee on Income Security and Family Support," to the House Ways and Means Committee, Subcommittee on Income Security and Family Support, July 19, 2007, Washington. Chairman Jim McDermott, D-WA, made a written request asking Olds to testify before his subcommittee.

Sponsored Conferences

"*Nurse-Family Partnership* National Forum," March 11, 2004, Washington. Attended by about 100 individuals, including congressional staff and nurses and families participating in *Nurse-Family Partnership* program sites around the country. Presentations by program staff and participants, members of Congress and officials of the U.S. departments of Justice and Health and Human Services.

"SCHIP and Nurse Home Visitation," April 24, 2007, Washington. Co-sponsored by the Congressional Nursing Caucus, moderated by Bob Hill, with remarks by Senator Salazar and Congresswoman Capps, Julia Isaacs from the Brookings Institution, Jon Baron from the Coalition for Evidence-Based Policy, David Olds, and a nurse home-visitor client and her son from California. Attended by approximately 100 individuals, including congressional and executive branch agency staff, other policy-makers and partners and advocacy groups in Washington.

Congressional briefing at the Capitol, May 8, 2008, co-sponsored by the Capital Co-Investors, RWJF, Edna McConnell Clark, Gates, Kellogg, Picower and Kresge foundations. Honorary hosts Senators Specter, Salazar and Representatives DeGette and Emerson. Presentations by representatives of RWJF, Clark, Gates and Kellogg foundations, Senators Salazar and Casey, Representatives Emerson and McCarthy, a New Jersey nurse home visitor and client, and the Centers for Disease Control and Prevention and Coalition for Evidence-Based Policy. A webcast of the event is available [online](#). Approximately 100 by-invitation-only targeted attendees, including program representatives from six states who made visits to their state congressional delegations earlier in the day.

Relevant Studies and Reports by Third Parties Not Connected to Grantee Organization

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SIDEBAR LIST

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