The Role of Home-Visiting Programs in Preventing Child Abuse and Neglect

Kimberly S. Howard and Jeanne Brooks-Gunn

Summary

Kimberly Howard and Jeanne Brooks-Gunn examine home visiting, an increasingly popular method for delivering services for families, as a strategy for preventing child abuse and neglect. They focus on early interventions because infants are at greater risk for child abuse and neglect than are older children.

In their article, Howard and Brooks-Gunn take a close look at evaluations of nine home-visiting programs: the Nurse-Family Partnership, Hawaii Healthy Start, Healthy Families America, the Comprehensive Child Development Program, Early Head Start, the Infant Health and Development Program, the Early Start Program in New Zealand, a demonstration program in Queensland, Australia, and a program for depressed mothers of infants in the Netherlands. They examine outcomes related to parenting and child well-being, including abuse and neglect.

Howard and Brooks-Gunn conclude that, overall, researchers have found little evidence that home-visiting programs directly prevent child abuse and neglect. But home visits can impart positive benefits to families by way of influencing maternal parenting practices, the quality of the child's home environment, and children's development. And improved parenting skills, say the authors, would likely be associated with improved child well-being and corresponding decreases in maltreatment over time. Howard and Brooks-Gunn also report that the programs have their greatest benefits for low-income, first-time adolescent mothers.

Theorists and policy makers alike believe strongly that home visiting can be a beneficial and cost-effective strategy for providing services to families and children. If home-visiting programs are to have their maximum impact, service providers must follow carefully the guidelines mandated by the respective programs, use professional staff whose credentials are consistent with program goals, intervene prenatally with at-risk populations, and carry out the programs with fidelity to their theoretical models.

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Home visiting is an increasingly popular method for delivering services for families. Particularly for high-risk families with infants and young children, providing services within the context of the family's home appears to be a useful and effective strategy. In general, the goals are to provide parents with information, emotional support, access to other services, and direct instruction on parenting practices (although programs vary in how they achieve these goals and in the relative importance of the goals).[1] Many programs have been implemented, and quite a few have been evaluated rigorously, using random assignment to an intervention or a control group. Indeed, two earlier issues of *The Future of Children,* one in 1993 and the other in 1999, have focused on home-visiting programs for families with young children,[2] and several articles in other issues of the journal have also touched on the topic.[3] A number of good meta-analyses have been published in other journals as well, although some include only randomized experiments while others include both experimental and non-experimental evidence.[4]

The 1999 article in *The Future of Children* evaluated home visiting as a general intervention strategy, without specific regard to preventing child abuse and neglect. Of the six programs that were evaluated, four provided services to families with infants. The fifth program enrolled children beginning around age three, and the sixth enrolled children anytime from birth through age three and continued through age five.[5] In this article, we focus on early interventions because infants are at the greatest risk for child abuse and neglect.[6] In addition to the four programs examined in the 1999 issue—the Nurse-Family Partnership, Hawaii Healthy Start, Healthy Families America, and the Comprehensive Child Development Program—we also examine Early Head Start, the Infant Health and Development Program, the Early Start Program in New Zealand, a demonstration program in Queensland, Australia, and a program in the Netherlands for depressed mothers of infants. All have used randomized trials of home-visiting services aimed at improving parenting and preventing child abuse and neglect.[7]

What Is Home Visiting?

Home-visiting programs come in many shapes and sizes. Because home visiting is a method of service delivery and not necessarily a theoretical approach, individual programs can differ dramatically. They vary with respect to the age of the child, the risk status of the family, the range of services offered, the intensity of the home visits, and the content of the curriculum that is used in the program. Furthermore, programs vary in terms of who provides services (typically nurses vs. paraprofessionals), how effectively the program is implemented, and the range of outcomes observed. What all share is the belief that services delivered in the home will have some sort of positive impact on families and that altering parenting practices can have measurable and long-term benefits for children's development.

The results of several meta-analyses suggest that home-visiting programs do have positive effects for participants, though those effects are often modest. Some studies, such as those testing the efficacy of the Nurse-Family Partnership program across several sites, have shown positive outcomes in multiple domains for both mothers and children, with some of these effects continuing into the adolescent years. Other studies, however, such as the Hawaii Healthy Start Program and

similar Healthy Families America programs have had much more limited success. Still others, like Early Head Start, have shown modest effects at the end of the intervention, although follow-up data are not available. The wide variability in programs makes it difficult to draw solid conclusions about the conditions under which home visiting is most effective.

The specific roles that home visitors play also vary quite a bit—and often fall in several different domains. In some cases, the visitor is meant to be a source of social support; in other cases, home-visiting staff act as resource providers, linking families to social supports and providing them with referrals to other resources in the community, such as mental health or domestic violence services. Home visitors also often act as literacy teachers, parenting coaches, role models, and experts on topics related to parent and child health and well-being. Nurse home visitors, particularly, provide information to encourage healthy pregnancy, infant care, and family planning.

Given the different roles that home visitors play across programs and even within programs, analysts have examined many different types of possible program outcomes. Those outcomes fall broadly into two domains—one linked to parenting and one to child well-being. Within the parenting domain, outcomes include reported and substantiated child abuse and neglect; parenting behaviors such as harsh, unresponsive, and detached parenting; and parental mental health. The child well-being domain includes physical health and cognitive development. A few programs have also looked at emotional regulation and behavioral problems in childhood as well as delinquency and crime in adolescence and early adulthood.

The premise underlying most of these programs that purport to influence parenting is that altering parents' behavior will result in a change in children—specifically, that reducing negative aspects of parenting and increasing positive aspects will increase children's well-being. However, not all programs have examined outcomes in both domains, and even those that have generally lack analyses demonstrating that changes in child well-being were influenced by changes in parenting. Most studies linking parenting and child outcomes are not based on data from home-visiting experiments.[8]

Measuring Child Abuse and Neglect

Although home visiting is commonly thought of as a strategy to help prevent child abuse and neglect, few programs actually measure child maltreatment as an outcome and even fewer are able to document significant effects. This shortcoming is largely attributable to the difficulty of identifying substantiated cases of abuse and neglect as well as to questions about whether reported instances of abuse or neglect should be combined with substantiated cases. Furthermore, definitions of abuse and neglect vary by state, so that what is neglectful in one state may not be considered neglectful in another. The result is that national abuse and neglect data look dramatically different by state, further compounding the difficulty of accurately measuring a program's effectiveness in reducing child maltreatment.

Even if abuse and neglect definitions were uniform across the country, it is still likely that the true prevalence rate of abuse and neglect is much higher than what is reported or substantiated by child protective services (CPS) agencies.[9] In addition, researchers are still uncertain about the threshold at which

certain parenting behaviors begin to compromise a child's development. That is to say, behaviors that are not severe enough to be considered abusive or neglectful by legal definitions may nonetheless have detrimental effects on children's development.[10] In this way, improving parenting practices may be an important way to prevent child maltreatment.

Another complication in assessing rates of child maltreatment among families participating in clinical trials is that the frequent contact with home visitors makes it more likely that child abuse or neglect will be identified and reported among families in the intervention group, whereas it may go unnoticed among families in the control group. Indeed, the difference in surveillance between the treatment and control groups probably explains why so few home-visiting programs have measurable effects on rates of abuse and neglect. Because of these concerns, child abuse and neglect may not be the best outcome measure by which to assess the effectiveness of home visiting or similar types of programs. Instead, proxy measures such as child health and safety (for example, well-child and dental visits, number of injuries, and emergency room visits) may provide greater insight into the way that parenting practices directly bear on child well-being. In addition, programs that alter parenting behaviors such as responsivity, sensitivity, and harshness, as well as those that improve the quality of the home environment and maternal mental health, will likely also be associated with positive effects on children's well-being.

Furthermore, from a theoretical standpoint, there is reason to believe that parenting, maternal stress (including maternal depression and anxiety symptoms), poor social support, and family conflict may be linked to child abuse and neglect. Indeed, Jay Belsky incorporated all of these risk factors into his process model of parenting,[11] and data from multiple studies support links to child well-being.[12] In an experiment on the effectiveness of a program for low-birth-weight infants, Lawrence Berger and Jeanne Brooks-Gunn examined the relative effect of both socioeconomic status and parenting on child abuse and neglect (as measured by ratings of health providers who saw children in the treatment and control groups six times over the first three years of life, not by review of administrative data) and found that both factors contributed significantly and uniquely to the likelihood that a family was perceived to engage in some form of child maltreatment.[13] The link between parenting behaviors and child maltreatment suggests that interventions that promote positive parenting behaviors would also contribute to lower rates of child maltreatment among families served. That being the case, most intervention programs attempt to alter parenting, maternal stress, and maternal support. Some also try to reduce conflict in the home. The hypothesis is that so doing reduces child abuse and neglect, though difficulties in measuring the phenomenon preclude thorough testing.

We next review several major home-visiting programs, all of which have been evaluated using randomized controlled trials, and thus represent higher-quality evaluations than those using non-randomized trials. In addition, all programs recruited families either prenatally or around the time of the child's birth, which is important because risk for child abuse and neglect is greatest among infants.[14] We do not include programs beginning in preschool or later. Although our review is not meant to be exhaustive, it does represent the wide variation in types of home-visiting programs.

Review of Home-Visiting Programs

The best known home-visiting program is the Nurse-Family Partnership, developed by David Olds and colleagues in Elmira, New York.[15] Evaluations have been conducted in Elmira, Memphis, and Denver. Another popular home-visiting program is Hawaii Healthy Start,[16] on which other home-visiting programs have been modeled. Most notably, Healthy Families America was originally based on the Hawaii model and offers services to families in many states around the country. Results have been published based on the outcomes of Healthy Families evaluations conducted in San Diego,[17] Alaska,[18] and New York state.[19]

There is reason to believe that parenting, maternal stress (including maternal depression and anxiety symptoms), poor social support, and family conflict may be linked to child abuse and neglect.

We also review three programs in which home visiting is a key component, though not the only method of service delivery. Early Head Start[20] and the Infant Health and Development Program[21] had center-based components, and the Comprehensive Child Development Program included home visiting in addition to case management services.[22] Finally, we review three smaller-scale home-visiting programs from abroad that have used rigorous evaluation methods and provide important insights into home visiting. The three are Early Start in New Zealand,[23] a program for at-risk families in Queensland, Australia,[24] and one for depressed mothers in the Netherlands.[25] Table 1 shows the characteristics of the nine home-visiting programs included in this review.

Nurse-Family Partnership (NFP)

The NFP is the most well developed home-visiting program in the United States. Home visits are conducted by registered nurses who are specially trained to provide the visits to low-income, first-time mothers, beginning prenatally and continuing through the child's second birthday. The NFP curriculum focuses on encouraging healthful behaviors during pregnancy, teaching developmentally appropriate parenting skills, and improving the maternal life course by reducing subsequent births and increasing the interval between pregnancies. During the first month prenatal visits are weekly, then taper to biweekly until the child is born. After the birth, weekly visits resume for the first six weeks, and then biweekly visits continue until the child is approximately twenty months old. The final four visits leading up to the child's second birthday occur monthly.[26]

The program originally developed in Elmira served primarily white, rural adolescent mothers (400 mothers, divided into four different treatment groups) for whom data are available through the child's fifteenth birthday.[27] It was replicated in Memphis with an urban sample of 1,139 predominantly African American adolescent mothers and their children who have been followed through age nine[28] and in Denver with an ethnically diverse sample of 735 low-income mothers and their children who have been followed through age four.[29] Beginning in 1996, NFP programs began expanding to

Table 1. Selected Home-Visiting Programs and Their Characteristics

Program	*Goals*	*Frequency and duration of home visits*	*Population served*	*Background of home visitors*
Nurse-Family Partnership	Improved pregnancy outcomes Parenting skills Maternal life course	Prenatally through 24 months	Low-income, first-time mothers	Public health nurses
Hawaii Healthy Start	Early identification of risks Improved parenting skills Prevent child abuse and neglect	Birth to 3 to 5 years	Families identified as at-risk using a screening tool	Paraprofessionals
Healthy Families America	Early identification of risks Parenting skills Prevent child abuse and neglect	Prenatal or birth to 5 years (or enrollment in Pre-K)	Families identified as at-risk using a screening tool	Paraprofessionals
Comprehensive Child Development Program	Enhance children's development Support parents Assist families with economic self-sufficiency	Biweekly hour-long visits beginning in first year of life until school entry	Low-income families with children	Paraprofessionals
Infant Health and Development Program	Enhance the development of premature, low-birth-weight babies	Weekly until 12 months, then biweekly until 36 months	Low-birth-weight infants and their families	College graduates with home visiting experience; master's-level supervisor
Early Head Start	Enhance children's development Support/strengthen families	Prenatal or birth to 3 years	Low-income families with children	Trained paraprofessionals
Early Start	Improve child health Reduce child abuse Improve parenting skills Support parental health and well-being	Weekly for first month, then varied based on family risk; average duration: 24 months	Families identified as at-risk using a screening tool	"Family support workers" with nursing or social work degrees plus 5 additional weeks of training
Queensland Study	Reduce risk of child abuse/ neglect	Monthly visits for first 18 months of child's life	At-risk mothers	Nurses
Netherlands Study	Improve maternal sensitivity	8 to 10 home visits over 3 to 4 months	Depressed mothers receiving outpatient therapy	Master's-level psychologists with graduate training in prevention or health education

other states using a mix of private, local, and federal funds. Today the Nurse-Family Partnership operates well over one hundred sites in twenty-six states across the country. Four states (Colorado, Louisiana, Oklahoma, and Pennsylvania) have statewide initiatives, with families being served in every county. As of 2006, it was estimated that the NFP serves more than 20,000 families each year. The NFP plans to scale up services around the country to reach as many as 100,000 families by 2017.[30]

Hawaii Healthy Start Program (HSP)

Around the same time that the NFP program was getting under way in Elmira, the Hawaii Healthy Start program began in 1975 in a single site on the island of Oahu with the goal of preventing child abuse through early identification of family risks and the provision of home-based supports by trained paraprofessionals. After gaining support from state funding organizations, it expanded to the other Hawaiian islands during the mid-1980s.[31] Since 2004, it has operated ten sites within Hawaii. Families of newborns are screened for their risk of child abuse and neglect and offered services if they meet eligibility criteria. The home-visiting program is long term and takes place over the first three to five years of the child's life. In-home parent training is provided by paraprofess-

ionals who have received at least five weeks of intensive training in topics such as parenting skills, child development, recognizing the signs of child abuse or neglect, problem solving, and domestic violence. In addition to teaching parents specific skills, home visitors also connect families with additional resources that are available in their communities.[32] Hawaii's Healthy Start Program continues to be a statewide program that provides early identification and home-visiting services to families.

The major evaluation of HSP took place on Oahu, the home of the majority of the state's residents as well as of six HSP sites. In addition to measuring baseline characteristics of families in the treatment and control groups and conducting follow-up assessments at one, two, and three years, evaluators collected data on the implementation of the program. In particular, evaluators assessed the process of home visiting by measuring the dose of service given to each family, such other elements of implementation as staff recruitment and training, and how well home visiting was integrated with other services in the community. In addition, home visitors' notes were evaluated to assess the degree to which they recognized and responded to the needs of individual families.[33]

Healthy Families America (HFA)

Based in large part on the model developed for the Hawaii Healthy Start project, Healthy Families America began as a similar program with similar goals in the continental United States in 1993. With support from Prevent Child Abuse America and the Ronald McDonald Foundation, HFA also provides home-based support for disadvantaged mothers beginning prenatally or just after the child's birth and continuing for three to five years. Healthy Families America uses trained paraprofessionals to provide in-home support for disadvantaged mothers to promote parenting skills, support optimal child development, and improve maternal self-sufficiency. Preventing child abuse and neglect is a specific goal of the program. HFA programs have been implemented in twenty-two states and the District of Columbia, and most have included some sort of evaluation component. Of these, only three have conducted rigorous randomized controlled trials: San Diego, Alaska, and New York.[34]

The Healthy Families San Diego (HFSD) evaluation was conducted from 1999 to 2000 and included 489 families who were randomly assigned either to receive home visiting from Healthy Families staff or to serve as controls. The evaluation consisted of a baseline assessment before enrollment in the program, as well as in-home interviews at twelve, twenty-four, and thirty-six months. Brief phone interviews every four months ensured more frequent contact with program families.[35] In Alaska, the evaluation of Healthy Families took place on a statewide basis from 2000 to 2003. The total sample consisted of 316 families who were eligible for enrollment in one of the state's six program sites. Families were assessed before randomization and again when the child was twenty-four months old. Every eight months, the research staff made contact with the families to maintain current records.[36]

Most recently, the state of New York has undertaken an evaluation of its Healthy Families program. The assessment took place in three of the most developed sites in the state representing diverse communities and included more than 1,000 participants. A unique feature of the HFNY program was its emphasis on recruiting mothers prenatally instead of after the birth of the child.

Prenatal recruitment among first-time mothers ensures that the program offers primary prevention. That is, the program is able to prevent child abuse before it ever happens. Recruiting mothers who have already given birth or those with other children may mean that some families have already engaged in child maltreatment; for these families, the program provides what is called *secondary prevention*.[37]

Comprehensive Child Development Program (CCDP)

During the early 1990s the CCDP was the most prominent early intervention in the country. As a federally funded program aimed to enhance the development of children in low-income families while providing support to parents, it provided services to 4,410 families and children in twenty-two states across the country. Although home visiting was the primary method of service delivery, the CCDP was not conceptualized as a home-visiting program because it provided comprehensive case management services to families while linking them to community resources in addition to delivering home-based parenting skills training. Families received hour-long home visits at least twice a month beginning in the child's first year of life and continuing until school entry. The evaluation of CCDP consisted of annual assessments on the child's second through fifth birthdays and smaller assessments at eighteen and thirty months.[38]

Infant Health and Development Program (IHDP)

The Infant Health and Development Program began in 1985 as a follow-up to the Abecedarian Project that was specifically geared to premature infants with low or very low birth weight. The program recruited 985 families in hospitals and assigned them randomly to the intervention group or controls. In both groups babies received developmental checkups from a physician, but the intervention group received additional services for the first three years of the child's life. Home visits took place weekly during the first year and then biweekly during the second and third years. In the second and third years, children in the treatment group also received high-quality full-day child care, and parents were invited to participate in bimonthly parent group meetings. Although most outcomes were reviewed at program completion to observe the effects of a high-intensity comprehensive treatment program for low-birth-weight infants,[39] certain outcomes were examined after the first year and provide a test of the home-visiting component on its own.[40]

Early Head Start (EHS)

Early Head Start, a federally funded two-generation program that includes parent education and quality early care and education for children, began in 1995 as a precursor to today's national Head Start program for families with children from birth to age three. The national evaluation of EHS was planned from its inception and included randomized controlled trials of different aspects of the program. Although home visiting was a major component of the service delivery model, EHS also used center-based child care or a mix of home- and center-based services (seven of the seventeen sites provided home visiting only).[41] Because EHS sites used either home visits, center-based child care, or a combination of both, an empirical test of the effectiveness of home visiting was built into the evaluation. Families were recruited during pregnancy or within the first year of the child's life and were eligible based on low family income. The evaluation included 3,001 families at seventeen sites

nationwide and consisted of baseline assessments as well as follow-up assessments when children were fourteen, twenty-four, and thirty-six months old.[42]

Early Start

Early Start is a home-based family support program that offers services to 443 families in Christchurch, New Zealand. It is part of a larger network of home-visiting services that are provided in thirty-two sites around the country. Early Start follows the Healthy Families America model of providing home-based supportive services to vulnerable families on the basis of risk screening. Families become eligible for services after being determined to be at an elevated risk for adverse outcomes including child maltreatment. The goals of the program are to assess the strengths and needs of the families served, to develop positive relationships, to improve family problem solving, and to provide support, mentoring, and assistance in helping families connect to their own resource networks. The goals are attained through sustained contact that occurs from shortly after the child is born through the preschool years.[43]

The frequency of home visits depends on a family's level of risk. Those who are considered to be at highest risk are visited up to two and a half hours every three months for up to two years. Home visits are conducted by family support workers who have degrees in either nursing or social work and have received five weeks of additional training specific to the goals and procedures surrounding the Early Start Program. The program has been evaluated with a randomized trial, and outcomes have been examined at six, twelve, twenty-four, and thirty-six months after program entry.[44]

Because these nine programs differed widely in their targets, method of service delivery, intensity, and content, it is not surprising that their outcomes also often differed substantially as well.

Queensland Study

The Queensland, Australia, home-visiting program has been evaluated by K. L. Armstrong and colleagues and by J. A. Fraser and colleagues.[45] Its goals were to build trusting relationships among family members, improve parenting self-esteem and parenting efficacy, provide information about child health and development, and link families to other resources in the community. The program was offered to 181 mothers who were considered at risk for poor parenting. Participants were recruited in the hospital after the birth of a child. Those who were randomly assigned to the treatment group received weekly nurse visits for six weeks, biweekly visits for the next three months, and then monthly visits until the child was six months old. Outcomes were assessed at six weeks, at twenty-five weeks, and again at twelve months.[46]

Netherlands Study

Karin van Doesum and colleagues evaluated a home-visiting program in the Netherlands that was aimed at preventing relationship problems between depressed mothers and their infants. All seventy-one mothers in the treatment and control groups were receiving treatment for their depressive symptoms. In addition, the treatment group received eight

to ten home visits lasting sixty to ninety minutes over a period of three to four months. Mothers were visited in their homes by one of fourteen master's-level psychologists or social psychiatrists who had also received additional graduate or postgraduate training in prevention or health education. The evaluation consisted of a baseline assessment and two follow-up assessments—one within two weeks of program completion and another six months later.[47]

Because these nine programs differed widely in their targets, method of service delivery, intensity, and content, it is not surprising that their outcomes also often differed substantially as well. The result is a body of research that is somewhat conflicted regarding essentially every outcome under study. Next we turn to a discussion of the outcomes of home-visiting programs, with a focus on those outcomes that are most relevant to preventing child abuse and neglect.

Relatively few home-visiting studies have collected adequate measures of child abuse and neglect. As a result, additional child and parent measures are necessary to understand fully the effect of home-visiting programs on family and child well-being.

Outcomes of Home-Visiting Programs

Although the focus of this volume of *The Future of Children* is preventing child abuse and neglect, we will review the outcomes of several home-visiting programs in multiple domains. In addition to child abuse and neglect, we will also discuss outcomes related to child health and safety, parenting, maternal mental health, and children's cognitive development. Unfortunately, few studies have documented effects on reducing or preventing child abuse and neglect. However, given the association between certain aspects of parenting and child outcomes (as we discussed earlier), measures of parenting and maternal and family functioning may shed important insights on child well-being.

Child Abuse and Neglect

As noted, assessing the prevalence of child abuse and neglect involves a number of difficulties, such as varying definitions, low reporting rates, and the difficulties of substantiating cases. As a result, research is generally weak in this area. Some programs, however, such as the NFP, HSP, HFA, and Early Start, have specifically examined abuse and neglect as outcomes of the program, and some have shown positive effects in this domain. Perhaps the most widely cited finding from a home-visiting program was based on the Elmira evaluation of the NFP, which documented a 48 percent decline in rates of child abuse and neglect at the time of the fifteen-year follow-up among low-income families who had received the intervention.[48] Other studies that have attempted to examine Child Protective Services reports of abuse and neglect as an outcome measure have also found low prevalence rates in both groups, resulting in low power to detect statistically significant differences. Neither HSP nor any of the randomized HFA evaluations have identified significant reductions in substantiated cases of child abuse or neglect as a result of their programs, though the Alaska evaluation did note a significant reduction in

CPS referrals (from 73 to 42 per thousand over a two-year period).[49] Typically, rates of child abuse and neglect were low across both groups. For example, Healthy Families New York identified that 6 percent of the controls and 8 percent of the treatment group had substantiated reports of abuse or neglect at one year. At two years, the rates were around 5 percent for both groups. Neither the one- or two-year data yielded any significant differences between families in the treatment and control groups.[50] Early Start also examined CPS referrals and substantiated cases and found no differences for either measure between treatment and control families—21 percent of control families had contact with CPS agencies, compared with 20 percent of program families.[51]

Another strategy for gauging the rates of child abuse and neglect—asking parents directly about their own behaviors toward their children—yields more promising results. The evaluation of HFNY found many significant links between program involvement and reductions of abusive or neglectful behaviors, though few were observed at both one and two years. At one year, but not at two years, mothers in the program group engaged less frequently in acts of psychological aggression.[52] In contrast, neglectful behaviors[53] did not differ at one year, but did at two years. Effects were more consistent on physical abuse, however, with mothers in the treatment group reporting fewer instances of very serious physical abuse at one year and fewer instances of serious abuse at two years.[54] In Alaska, the HFA program was associated with less psychological aggression, but it had no effects for neglect or severe abusive behaviors.[55] Similarly, in the San Diego evaluation of HFA, home-visited mothers reported less use of psychological aggression at twenty-four and thirty-six months.[56] Early Start also reported small effects in terms of lowering rates of severe physical abuse.[57]

In contrast, Hawaii Healthy Start showed no overall effects in terms of parent-reported abusive or neglectful behaviors, even though the program was initially designed to prevent child abuse and neglect. Overall, the treatment and control groups differed little with respect to child abuse and neglect. Only two differences emerged: HSP mothers were less likely to use corporal or verbal punishment or engage in neglectful behaviors. In both cases, the effects were isolated within a single site (not the same site for both effects). Overall, the authors concluded that the program did little to prevent child abuse.[58] They also noted that the home visitors rarely expressed concerns about child maltreatment, even among families for whom other measures suggested significant problems.

Relatively few home-visiting studies have collected adequate measures of child abuse and neglect. As noted, those that attempt to assess effects in this domain often yield inconclusive results. The problem, however, may simply be that the low overall prevalence of documented cases of abuse and neglect makes it almost impossible for most clinical trials to detect significant changes in this domain. Furthermore, mothers who are in programs may be more likely to be detected and receive services for suspected abuse or neglect. As a result, additional child and parent measures are necessary to understand fully the effect of home-visiting programs on family and child well-being.

Harsh Parenting Behaviors

Harsh parenting behaviors are those on the milder end of the continuum of abusive behaviors. In contrast to indices of abuse and neglect, harsh parenting is evidenced by

things like spanking, slapping, or pinching the child.[59] The Healthy Families New York evaluation examined a number of harsh parenting behaviors in addition to their measures of abuse and neglect. They found evidence that families in the intervention group exhibited fewer harsh parenting behaviors than families in the control group and that this effect was particularly strong among first-time mothers who had enrolled in the program during pregnancy (62 percent of controls vs. 41 percent of the treatment group). Among the prevention subgroup (first-time mothers recruited prenatally), minor physical aggression was reported in 70 percent of control families and 51 percent of program families.[60] In Healthy Families Alaska, fewer incidents of mild physical abuse were reported among families in the treatment group.[61]

The Nurse-Family Partnership has also shown positive effects in reducing harsh parenting behaviors among adolescent mothers. In the Elmira demonstration, intervention mothers were less likely to punish or physically restrain their children than mothers in the control group.[62] Among home-visited families who participated in Early Start, less punitive parenting was observed, though the effect was modest.[63] Several other programs have identified reductions in the frequency with which mothers spanked their children at thirty-six months, including Healthy Families San Diego,[64] Early Head Start,[65] and IHDP.[66] No effects on harsh parenting were found in the CCDP.[67]

Child Health and Safety

Aspects of children's health and safety such as the number of injuries and hospital admissions, as well as immunizations and doctor and dental visits, can provide important insight into a child's quality of care. Accordingly, a number of home-visiting evaluations have measured outcomes in this domain.

The NFP examined both injuries and hospital admission in the Elmira and Memphis evaluations. In Elmira, children of low-income, unmarried mothers in the treatment group had fewer emergency room visits than controls.[68] Similarly, in Memphis, fewer accidents and injuries required treatment. In the Memphis site, nurse-visited families also had lower child mortality. One child in the treatment group died, compared with ten in the control group.[69]

Several studies have examined the effects of home visiting on children's completion of immunizations, though few have identified program benefits in this area. Of those that examined immunizations (NFP-Memphis, HFA, HSP, EHS, Queensland, and Early Start), only EHS identified a significant program effect on immunizations, though the size of the effect was quite small and applied to the comparison of the entire treatment group to controls, not specifically to those families who had received home visits.[70] The one-year follow-up of the Queensland program also suggested a trend in favor of the intervention group's having higher levels of vaccinations than the control group.[71]

The Early Start program in New Zealand was one of the few evaluations to identify effects on the frequency of doctor and dental visits. Families in the program group had more general practitioner visits over thirty-six months, a higher proportion were up to date with well-child checks, and they were more likely to have had dentist visits.[72] The Queensland program and Hawaii Healthy Start both examined the number of well-child visits and found no differences across groups. Furthermore, neither HSP nor any of the

three HFA evaluations identified effects in terms of linking program families to a medical home.[73]

Quality of the Home Environment

More programs have observed positive effects in parenting domains than in child outcomes. With regard to the quality of the home environment,[74] several programs have identified positive effects. For example, the Queensland study documented higher-quality home environments for families in the intervention.[75] Likewise, positive effects were observed on measures of the home environment in Alaska.[76] Among multi-component programs, both Early Head Start[77] and the Infant Health and Development Program[78] reported higher-quality home environments in the intervention groups, though effect sizes tended to be small. In contrast, the CCDP did not significantly affect the home environment or any measured aspects of parenting.[79]

A conflicting picture emerged from the results of the Nurse-Family Partnership across the three evaluation sites. In Denver, mothers who received home visits had more sensitive mother-infant interactions and higher HOME scores than mothers who did not.[80] Home visiting, however, had no significant effects on different aspects of the home environment in Elmira or Memphis.[81] One possible explanation for this difference is that the majority of mothers at the Elmira and Memphis sites were adolescents, whereas the Denver mothers were more diverse in age, suggesting stronger effects for older mothers than for younger mothers with respect to the quality of the home environment.

Increased Parenting Responsivity and Sensitivity

As several studies have documented, home-visiting programs are often associated with parental gains in responsivity and sensitivity in their interactions with their children. In the Infant Health and Development program, mothers in the intervention group engaged in higher-quality interactions with their infants, though the effects were small.[82] In New Zealand, Early Start documented higher positive parenting attitudes, a greater prevalence of nonpunitive attitudes, and more favorable overall parenting scores for families in the treatment group.[83] In Queensland, mothers in the intervention group were rated as significantly higher in emotional and verbal responsivity.[84]

Evidence also shows that home-visiting programs can improve maternal parenting sensitivity. The Netherlands program, for example, achieved its primary goal—improving maternal sensitivity. At the end of the study, mothers who had received home visits were more sensitive in their interactions with their infants and more skilled in structuring activities with the child.[85] Other home-visiting programs with broader aims have also identified program effects on maternal sensitivity. Home-visited mothers in the Denver site of the NFP were rated as more sensitive during interactions with their children. The effect was small, but was identified in the whole program group, instead of only in a smaller subgroup.[86] In Memphis, more positive interactions were observed in the subgroup of women who possessed low psychological resources.[87] Likewise, home-visited mothers in Early Head Start were rated as more supportive during play with their children than controls, though the effect was small.[88] Maternal sensitivity was also examined in Hawaii Healthy Start, the Healthy Families evaluations in San Diego and Alaska, and the Comprehensive Child Development Program, though none identified significant effects.

Maternal Depression and Parenting Stress

Some programs have examined depressive symptoms and parenting stress as outcomes of the intervention. One evaluation conducted in Queensland, Australia, reported moderate reductions in depressive symptoms for mothers in the intervention group at the six-week follow-up.[89] A subsequent follow-up, however, suggested that these benefits were not long lasting, as the depression effects had diminished by one year.[90] Similarly, Healthy Families San Diego identified reductions in depression symptoms among program mothers during the first two years, but these effects, too, had diminished by year three.[91] In Healthy Families New York, mothers at one site (that was supervised by a clinical psychologist) had lower rates of depression at one year (23 percent treatment vs. 38 percent controls).[92] The Infant Health and Development program also demonstrated decreases in depressive symptoms after one year of home visiting, as well as at the conclusion of the program at three years.[93] Among Early Head Start families, maternal depressive symptoms remained stable for the program group during the study and immediately after it ended, but decreased just before their children entered kindergarten.[94] No program effects were found for maternal depression in the Nurse-Family Partnership, Hawaii Healthy Start, Healthy Families Alaska, or Early Start programs.

Some effects on parenting stress have also been identified. Most notably, home-visited families participating in Early Head Start reported experiencing significantly less stress in their parenting roles than did control families.[95] The same pattern occurred in Queensland: mothers who received home-visiting services reported less stress in the parenting role than did mothers in the control group.[96] Healthy Families programs in Alaska, San Diego, and Hawaii also examined parenting stress in their evaluations. In Alaska, 22 percent of families who received HFA services reported very high levels of parenting stress (above 90th percentile), as compared with 30 percent of mothers in the control group. In San Diego, a small effect was noted in favor of treatment families' having lower stress, but the relationship was only marginally significant. Hawaii Healthy Start did not yield any effects on parenting stress.[97]

Another interesting approach is to focus on mothers who are clinically depressed as targets for the intervention. In the Netherlands program, all mothers were receiving outpatient psychotherapy for their depression. Accordingly, mothers in both groups showed reductions in depressive symptoms over the course of the study. However, there were no additional benefits for mothers in the treatment group.[98]

Overall, this pattern of results suggests that home-visiting programs may not be designed to handle problems associated with high levels of stress or mental illness, which may be best treated in other settings. Although depressed mothers may gain parenting skills as a result of home intervention programs, they are unlikely to feel less parenting stress or fewer depressive symptoms per se. This important finding shows that the effectiveness of home-visiting programs is limited and that those that have well-defined goals in certain domains are most likely to evidence effects. At the same time, it is worth noting that some programs did identify small effects on stress and depressive symptoms and that others have specifically targeted reducing maternal depressive symptoms and have obtained stronger results.[99]

Table 2. The Effects of Home-Visiting Programs on Child Abuse, Health, Parenting, and Depression

Program	*Substantiated child abuse and neglect*	*Parent-report child abuse and neglect*	*Child health and safety*	*Home environment*	*Parenting responsivity and sensitivity*	*Parenting harshness*	*Depression and parenting stress*	*Child cognition*
NFP–Elmira	Yes		Yes	No	Yes	Yes	No	Mixed
NFP–Memphis			Yes	No	Mixed		No	Mixed
NFP–Denver				Yes	Yes		No	Mixed
Hawaii Healthy Start	No	No	No	No	No		Mixed	No
HFA–San Diego		Yes	No	No	No	Yes	Mixed	Mixed
HFA–Alaska	No	Yes	No	Yes	No	Mixed	Mixed	Yes
HFA–New York	No	Yes	No			Yes	Mixed	
Early Head Start			Yes	Yes	Yes	Yes	Yes	Yes
IHDP				Yes	Yes	Yes	Yes	Yes
CCDP			No	No	No	No	No	Mixed
Early Start	No	Yes	Yes		Yes	Yes	No	
Queensland Program			No	Yes	Yes		Mixed	
Netherlands Program					Yes		No	

Note: "Mixed" indicates that findings were isolated to specific sites or subgroups. Blank boxes indicate that the outcome was not examined for a particular program.

Children's Cognitive Development

Effects on children's cognitive development have been more difficult to identify in home-visiting programs, largely because the programs rarely provide services directly to children. Because effects on parenting are modest, it follows that effects on children would be even smaller. Even so, there is some evidence that changes in children's outcomes are mediated by changes in parenting attitudes and behaviors.[100]

In Hawaii Healthy Start and the CCDP, no cognitive benefits were observed for children. However, in Healthy Families Alaska, program children had higher Bayley scores at age two than controls, with 58 percent of intervention children and 48 percent of controls scoring in the normal range.[101] In the Nurse-Family Partnership evaluations, some effects were observed within each of the three evaluations, but most effects were concentrated within specific subgroups of families. In Denver, low-resource families who received home visiting showed modest benefits in children's language and cognitive development.[102] In Elmira, only the intervention children whose mothers smoked cigarettes before the experiment experienced cognitive benefits.[103] In Memphis, children of mothers with low psychological resources[104] in the intervention group had higher grades and achievement test scores at age nine than their counterparts in the control group.[105] Early Head Start also identified small, positive effects on children's cognitive abilities, though the change was for the program as a whole and not specific to home-visited families.[106] Similarly, IHDP identified large cognitive effects at twenty-four and thirty-

six months, but not at twelve months, so the effects cannot be attributed solely to home-visiting services.[107]

Summary of Outcomes

Table 2 summarizes the results of the home-visiting programs just described. In general, a review of the literature reveals a mixed picture regarding the efficacy of home-visiting programs. In each domain, some studies have documented effects whereas others have not. Furthermore, many effects are isolated within specific subgroups of families or within individual sites, so that findings cannot be generalized to the entire population served. In an attempt to reconcile these disparate and often contradictory findings, several researchers have undertaken meta-analyses to estimate effects across a number of programs. Often, these meta-analytic reviews include both experimental evaluations (randomized controlled trials) and quasi-experimental evaluations, whereas we feel that conclusions should be based primarily —if not entirely—on experimental evaluations. Even so, the results of meta-analyses can be instructive.

Monica Sweet and Mark Appelbaum published a meta-analysis that included sixty home-visiting programs (including both quasi and true experiments). They found evidence that home visiting is associated with benefits in parenting attitudes and behavior, as well as in children's cognitive development. However, for both child abuse and parent stress, the average effect sizes were not different from zero, suggesting a lack of evidence for effects in these areas.[108] Earlier meta-analytic reviews have also noted the lack of sizable effects in preventing child maltreatment—again citing the different intensity of surveillance of families in the treatment versus control groups as an explanation (though the authors did report that home visiting was associated with an approximately 25 percent reduction in the rate of childhood injuries).[109] Another review focusing on the quality of the home environment also found evidence for a significant overall effect of home-visiting programs.[110] More recently, Harriet MacMillan and colleagues published a review of interventions to prevent child maltreatment, and identified the Nurse-Family Partnership and Early Start programs as the most effective with regard to preventing maltreatment and childhood injuries. The authors note that many other programs lack strong evidence of such effects.[111]

Taken together, these findings suggest that home-visiting programs offer little evidence that they directly prevent child abuse and neglect. The evidence, however, is stronger with respect to parenting and the quality of the home environment. Study findings show that home visits can impart positive benefits to families by way of influencing maternal parenting practices, the quality of the child's home environment, and children's development. And because other studies have linked parenting quality with child maltreatment, improved parenting skills would likely be associated with improved child well-being and corresponding decreases in maltreatment, even if these effects remain difficult to document.

Cost-Benefit Analysis

Another tool for considering the effectiveness of intervention programs is cost-benefit analysis. Although few such analyses have been conducted with home-visiting programs, some interesting findings have nevertheless emerged. The Elmira site of the Nurse-Family Partnership has been evaluated on two separate occasions, originally by Lynn

Karoly and colleagues at RAND and again by Steve Aos at the Washington State Institute for Public Policy.[112] In both analyses, benefits tended to outweigh costs. Savings were primarily in four areas: increased tax revenues associated with maternal employment, lower use of public welfare assistance, reduced spending for health and other services, and decreased criminal justice system involvement. For the higher-risk group in Elmira, each dollar invested yielded $5.70 in savings. For the lower-risk group, the saving was $1.26 per dollar invested.[113] For the full sample, Aos calculated an overall benefit-cost ratio of $2.88. The Aos evaluation also assessed the costs and benefits as reported in a meta-analysis of home-visiting programs and found an average of $2.24 saved for each dollar invested in home-visiting programs. A cost-benefit analysis of Healthy Families America, however, showed a net loss of 4.8 cents for each dollar invested in the program, and Early Head Start showed a net loss of 7.7 cents per dollar invested. Cost benefits would, of course, increase if longer-term follow-ups continued to show benefits of these programs.

Program Dimensions Linked to Effectiveness

To make more sense of the often disparate findings, we move toward identifying the core features of effective programs. In a 2003 paper in the *American Psychologist*, Maury Nation and colleagues identified a set of characteristics that were associated with the most effective prevention programs in the areas of substance abuse, risky sexual behavior, delinquency and violence, and school failure.[114] John Borkowski, Leann Smith, and Carol Akai subsequently summarized the key themes of the Nation paper and identified a set of ten principles of effective prevention programs. In terms of treatment content, effective programs were theoretically based, comprehensive in their programming, used varied teaching methods, and fostered positive relationships. In terms of procedure, the dosage of the treatment was appropriate given the nature of the problem, the treatment was appropriately timed for prevention, and staff were well trained and culturally sensitive to the needs of participants. Finally, effective programs utilized rigorous evaluation methods and examined meaningful outcomes.[115] In the field of home visiting, many programs lack one or more of these critical elements, a shortcoming that can be useful for understanding why some programs failed to show positive effects.

Home Visitor Credentials

One of the more controversial questions within the home-visiting field involves whether the visitors should be nurses and social workers or, instead, trained paraprofessionals and volunteers. According to the Olds model of home visiting, the expertise of the nurse visitor is critical. Indeed, Hawaii Healthy Start and the Comprehensive Child Development Program used paraprofessional home visitors instead of nurses and failed to produce change in any domain that they studied. However, the Healthy Families New York program also used paraprofessional home visitors, only about one-third of whom had college degrees. Even so, the program had significant benefits in decreasing child abuse and neglect and harsh parenting behaviors.[116]

In Denver, Olds and colleagues addressed this question empirically by randomly assigning families to three groups: a nurse-visited group, a group visited by paraprofessionals, and a control group. They reported that the effects associated with paraprofessional visitors were approximately half those of nurse visitors—though in most domains,

the differences were not statistically significant. Nurses did seem to perform better in reducing maternal smoking and encouraging children's language development.[117]

Although the consensus in the research literature suggests a benefit for using professional staff as home visitors, debate continues about whether health professionals or social professionals are more effective in bringing about positive change for families. The answer to this question may depend in large part on the overall goals of the program. For example, in the Nurse-Family Partnership, one of the goals is to improve pregnancy outcomes and promote child health. In that case, the choice of public health nurses as home visitors is ideal. Indeed, one of the largest effects of the NFP is a delay in the timing of second births among teenagers, which in and of itself can have ripple effects on the child and on the mother's life course. In contrast, the program tested by van Doesum and colleagues was focused on improving parenting sensitivity and fostering attachment security in the mother-infant relationship. Accordingly, the home visitors were master's level psychologists with additional training in prevention or health education, and the results suggested that they were successful in promoting parenting sensitivity.

Targets of Intervention

It is difficult to say whether home visiting confers more benefits on disadvantaged families than on more advantaged families. The vast majority of programs offer services only for mothers deemed at risk either because of their youth, low educational attainment or socioeconomic status, or poor mental health. However, within these categories of risk, it is possible to examine which mothers benefit the most. In fact, the findings of programs targeting adolescent mothers tended to differ from those of programs that enrolled mothers from a wider variety of backgrounds. For example, the Elmira and Memphis demonstrations of the Nurse-Family Partnership enrolled primarily adolescent mothers, whereas the Denver program enrolled a more diverse group. The greatest effects were found among low-income, first-time adolescent mothers. Furthermore, within the Elmira and Memphis evaluations, those families at the highest risk (because of poverty or lack of psychological resources) tended to gain the greatest benefits from the program.

It is significant that home-visiting programs are particularly effective in preventing child abuse and neglect among first-time adolescent mothers, because these women provide the truest test of a primary prevention program.

The Healthy Families New York evaluation made specific efforts to replicate the type of participants served in the NFP, which has consistently demonstrated much more positive outcomes than Healthy Start. In addition to overall comparisons between families in the treatment and control groups, Kimberly Dumont and colleagues also identified a "prevention subgroup" of adolescents who were first-time mothers and who were enrolled in the program prenatally. They also identified a "psychologically vulnerable

group" who were rated as being both high in depressive symptoms and low in self-mastery. Consistent with findings in Elmira and Memphis, these groups benefited most from the intervention. Within the prevention subgroup, mothers in the intervention showed significantly less physical aggression and harsh parenting toward their children. The psychologically vulnerable mothers in the intervention displayed significantly less serious abuse and neglect than psychologically vulnerable control group mothers.[118]

It is significant that home-visiting programs are particularly effective in preventing child abuse and neglect among first-time adolescent mothers, because these women provide the truest test of a primary prevention program. In other words, a home-visiting program may be able to prevent first-time mothers, who have never engaged in poor parenting or child abuse and neglect, from ever doing so in the first place. In contrast, mothers who already have children or who were enrolled postnatally may already be acting on ingrained patterns of poor parenting that place their children at risk. In such cases, the goal of the program is not simply to prevent a behavior from occurring, but to intervene and change a pattern of behaviors to prevent recurrence. Previous research has suggested that it is much more difficult to prevent recurrence of child abuse than to prevent it from happening in the first place.[119]

Service Delivery

Analyses investigating whether the effectiveness of programs is more closely linked to the number of planned visits or to the number of visits that take place have shown that programs with more planned visits tend to be most effective. Not surprisingly, families who benefit the most are those who receive the highest dosage of the intervention. One very likely reason for limited effects found in home-visiting evaluations is the fairly high percentage of families in the treatment group who receive little (or in some cases, no) treatment. Selecting home visitors who are well trained and culturally sensitive to the families they serve will likely encourage mothers to accept more home-visiting services.

It is also important to ensure that the program staff are highly trained and familiar with the goals of the program and that the program is being administered with fidelity to its model. One reason cited for the effectiveness of the Abecedarian project was that program goals were clearly stated and well understood by those who were administering services as well as those who were designing and conducting program assessments. And one critical failing found in the assessment of the Hawaii Healthy Start program was that the home visitors rarely referred families to additional services in the community, even for serious problems such as suspected child abuse or domestic violence, even though linking families to community resources was a primary goal of the program.[120] That finding suggests that the program was not carried out as originally planned, resulting in an inadequate test of the HSP model of home visiting.

Finally, using a theoretically based curriculum is crucial to ensure that programs produce optimal results. Home-visiting programs have often been criticized for their high degree of flexibility and corresponding lack of specific curriculum, making it difficult to replicate programs or results. For many programs, including Early Head Start and Healthy Families America, home-visiting services center on meeting the needs of individual families, and therefore the content of visits varies dramatically from family to family. This

variation across (and even within) sites likely contributes to the inconsistent patterns of findings. Initially, the Nurse-Family Partnership (originally known as the Nurse Home Visiting program) had a curriculum with less formal structure, but as the program has been replicated in other cities and has begun extending to sites around the nation, program content has become more specific and replicable, likely contributing to its success.

Conclusions

Although findings are at best mixed with respect to the effectiveness of home-visiting programs in preventing child neglect, evidence is mounting that these programs can positively alter parenting practices and, to a lesser extent, children's cognitive development.[121] Given the many measurement problems associated with accurately tracking substantiated cases of abuse and neglect, what is needed is not more evaluations of CPS reports attempting to show reductions in child abuse and neglect, but rather the development of new measures by which researchers can make sensitive and accurate assessments of child maltreatment. Experts know that cases of abuse or neglect that are substantiated by a child protective agency represent only a small fraction of children who are maltreated.[122] That being the case, it would be far more useful to gain a better understanding of child maltreatment so that it can be prevented (and strategies to prevent it can be assessed) before it becomes necessary for the state to intervene.

Researchers have learned much about home-visiting programs since they were first reviewed in *The Future of Children* in 1993. At that time, programs such as the Nurse-Family Partnership were still fairly new, and analysts were evaluating most such programs using quasi-experimental designs. By 1999, evaluations were becoming more sophisticated, and new programs had been developed. The consensus at that time was that more research was needed to demonstrate clearly the benefits of these programs for families and children. After nearly another decade of research, many concerns remain, but the evidence base suggests much more strongly the important benefits of home-visiting programs for parents and children. Meanwhile home-visiting programs are rapidly being adopted as a way to provide services to at-risk families not only throughout the country, but around the world. Despite questions about the short- and long-term benefits of home visiting, theorists and policy makers alike believe strongly that it can be a beneficial and cost-effective strategy for providing services to families and children. Still, it is important to recognize the limits of home visiting and to encourage service providers to be vigilant in following the guidelines and protocols mandated by the respective programs. Developing more precise measures for assessing child maltreatment, using professional staff whose credentials are consistent with program goals, intervening prenatally with at-risk populations, and carrying out the programs with fidelity to their theoretical models will make it possible to evaluate home-visiting programs more adequately so that their promise can be fully realized.

Endnotes

1. Jeanne Brooks-Gunn, Lisa J. Berlin, and Allison Sidle Fuligni, "Early Childhood Intervention Programs: What about the Family?" in *Handbook on Early Childhood Intervention,* 2nd edition, edited by Shonkoff and Meisels (Cambridge University Press, 2000), pp. 549–88.

2. Home visiting was first addressed in 1993. See Deanna S. Gomby and others, "Home Visiting: Analysis and Recommendations," *Future of Children* 3 (1993): 6–22. It was addressed again in 1999. See Deanna S. Gomby, Patti L. Culross, and Richard E. Behrman, "Home Visiting: Recent Program Evaluations—Analysis and Recommendations," *Future of Children* 9 (1999): 4–26.

3. Jeanne Brooks-Gunn and Lisa B. Markman, "The Contribution of Parenting to Ethnic and Racial Gaps in School Readiness," *Future of Children* 15 (2005): 139–68; Hirokazu Yoshikawa, "Long-Term Effects of Early Childhood Programs on Social Outcomes and Delinquency," *Future of Children* 5 (1995): 51–75.

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5. The two omitted programs are Parents as Teachers (PAT) and Home Instruction for Parents of Preschool Youngsters (HIPPY). PAT was excluded because families could enroll anytime up to age three and most of the research evidence is based on quasi-experiments. HIPPY was excluded because it is geared toward families of older children (three to five years).

6. U.S. Department of Health and Human Services, "Child Fatalities by Age and Sex Using Population-Based Rate, 2003" (www.acf.hhs.gov/programs/cb/pubs/cm03/table4_3.htm [accessed February 1, 2009]).

7. A number of other notable early intervention programs are not reviewed here. For example, the Abecedarian Project and Project CARE were precursors of the Infant Health and Development Program, offering high-quality full-day child care to children from birth to five years. See Craig T. Ramey and Sharon Landesman Ramey, "Prevention of Intellectual Disabilities: Early Interventions to Improve Cognitive Development," *Preventive Medicine* 27 (1998): 224–32. Boston's Healthy Start is another early intervention program that is not home-based, but rather provides services through health clinics. See Alonzo Plough and Freya Olafson, "Implementing the Boston Healthy Start Initiative: A Case Study of Community Empowerment and Public Health," *Health Education and Behavior* 21, no. 2 (1994): 221–34. Other recent programs such as Sure Start in the United Kingdom are not included because they lack an experimental design. See Edward Melhuish and others, "Effects of Fully-Established Sure Start Local Programmes on 3-Year-Old Children and Their Families Living in England: A Quasi-Experimental Observational Study," *Lancet* 372 (2008): 1641–47.

8. Miriam R. Linver, Allison Sidle Fuligni, and Jeanne Brooks-Gunn, "How Do Parents Matter? Income, Interactions, and Interventions during Early Childhood," in *After the Bell: Family Background, Public Policy, and Educational Success,* edited by Conley and Albright (New York: Routledge, 2004), pp. 25–50. Mediated effects have also been examined using data from IHDP: Miriam R. Linver, Jeanne Brooks-Gunn, and Dafna E. Kohen, "Family Processes as Pathways from Income to Young Children's Development," *Developmental Psychology* 38 (2001): 719–34.

9. S. Tyler, K. Allison, and A. Winsler, "Child Neglect: Developmental Consequences, Intervention, and Policy Implications," *Child and Youth Care Forum* 35 (2006): 1–20.

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11. Jay Belsky, "The Determinants of Parenting: A Process Model," *Child Development* 55 (1984): 83–96.

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14. U.S. Department of Health and Human Services, "Child Fatalities by Age and Sex" (see note 6).

15. Harriet Kitzman and others, "Impact of Prenatal and Infancy Home Visitation by Nurses on Pregnancy Outcomes, Childhood Injuries, and Repeated Childbearing," *Journal of the American Medical Association* 278 (1997): 644–32; David L. Olds and others, "Preventing Child Abuse and Neglect: A Randomized Trial of Nurse Home Visitation," *Pediatrics* 78 (1986): 65–78; David L. Olds and others, "Home Visiting by Paraprofessionals and by Nurses: A Randomized, Controlled Trial," *Pediatrics* 110 (2002): 486–96.

16. Anne Duggan and others, "Randomized Trial of a Statewide Home Visiting Program: Impact in Preventing Child Abuse and Neglect," *Child Abuse and Neglect* 28 (2004): 597–622; Anne Duggan and others, "Randomized Trial of a Statewide Home Visiting Program to Prevent Child Abuse: Impact in Reducing Parental Risk Factors," *Child Abuse and Neglect* 28 (2004): 623–43.

17. J. Landsverk and others, *Healthy Families San Diego Clinical Trial: Technical Report* (San Diego: Child and Adolescent Services Research Center and San Diego Children's Hospital and Health Center, 2002).

18. Anne Duggan and others, *Evaluation of the Healthy Families Alaska Program: Final Report* (Anchorage: Alaska Department of Health and Social Services, 2005).

19. Kimberly DuMont and others, "Healthy Families New York (HFNY) Randomized Trial: Effects on Early Child Abuse and Neglect," *Child Abuse and Neglect* 32 (2008): 295–315.

20. John M. Love and others, "The Effectiveness of Early Head Start for 3-Year-Old Children and Their Parents: Lessons for Policy and Programs," *Developmental Psychology* 41 (2005): 885–901.

21. Infant Health and Development Program, "Enhancing the Outcomes of Low-Birth-Weight, Premature Infants: A Multisite, Randomized Trial," *Journal of the American Medical Association* 263 (1990): 3035–42.

22. Robert G. St. Pierre and Jean I. Layzer, "Using Home Visits for Multiple Purposes: The Comprehensive Child Development Program," *Future of Children* 9 (1999): 134–50; Robert G. St. Pierre and others,

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23. David M. Fergusson and others, "Randomized Trial of the Early Start Program of Home Visitation: Parent and Family Outcomes," *Pediatrics* 117 (2006): 781–86.

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25. Karin T. M. van Doesum and others, "A Randomized Controlled Trial of Home-Visiting Intervention Aimed at Preventing Relationship Problems in Depressed Mothers and Their Infants," *Child Development* 79 (2008): 547–61.

26. Nurse-Family Partnership website (www.nursefamilypartnership.org [accessed September 7, 2008]).

27. David L. Olds and others, "Long-Term Effects of Home Visitation on Maternal Life Course and Child Abuse and Neglect. Fifteen-Year Follow-Up of a Randomized Trial," *Journal of the American Medical Association* 278 (1997): 637–43.

28. Kitzman and others, "Impact of Prenatal and Infancy Home Visitation by Nurses on Pregnancy Outcomes, Childhood Injuries, and Repeated Childbearing" (see note 15).

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36. Duggan and others, *Evaluation of the Healthy Families Alaska Program* (see note 18).

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38. St. Pierre and Layzer, "Using Home Visits for Multiple Purposes: The Comprehensive Child Development Program" (see note 22).

39. Infant Health and Development Program, "Enhancing the Outcomes of Low-Birth-Weight, Premature Infants: A Multisite, Randomized Trial," *Journal of the American Medical Association* 263 (1990): 3035–42.

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42. Ibid. See also Administration for Children and Families, *Making a Difference in the Lives of Infants and Toddlers and Their Families: The Impacts of Early Head Start* (Washington: U.S. Department of Health and Human Services, 2002).

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44. Ibid. See also David M. Fergusson and others, "Randomized Trial of the Early Start Program of Home Visitation," *Pediatrics* 116 (2005): 803–09.

45. Armstrong and others, "A Randomized, Controlled Trial of Nurse Home Visiting to Vulnerable Families with Newborns" (see note 24). See also J. A. Fraser and others, "Home Visiting Interventions for Vulnerable Families with Newborns: Follow-Up Results of a Randomized Controlled Trial," *Child Abuse and Neglect* 24 (2000): 1399–1429.

46. Ibid.

47. Van Doesum and others, "A Randomized Controlled Trial of Home-Visiting Intervention Aimed at Preventing Relationship Problems in Depressed Mothers and Their Infants" (see note 25).

48. Olds and others, "Long-Term Effects of Home Visitation on Maternal Life Course and Child Abuse and Neglect. Fifteen-Year Follow-Up of a Randomized Trial" (see note 27).

49. Brad Gessner, "The Effect of Healthy Families Alaska on Trends in Child Abuse and Neglect," in *State of Alaska Epidemiology Bulletin,* edited by Jay C. Butler and Joe McLaughlin (Anchorage: 2006).

50. DuMont and others, "Healthy Families New York" (see note 19).

51. Fergusson and others, "Randomized Trial of the Early Start Program of Home Visitation" (see note 44).

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53. Ibid. Neglectful behaviors included leaving the child alone and unsupervised and not providing adequate care (food, doctor visits, emotional support).

54. Ibid. Serious acts of physical abuse included punching, beating, choking, burning, or threatening with a weapon. Very serious physical abuse would be indicated by endorsing more than one of these items.

55. Duggan and others, *Evaluation of the Healthy Families Alaska Program* (see note 18).

56. Landsverk and others, *Healthy Families San Diego* (see note 17).

57. Fergusson and others, "Randomized Trial of the Early Start Program of Home Visiting" (see note 44). The effect size for severe physical abuse was .26.

58. Duggan and others, "Randomized Trial of a Statewide Home Visiting Program: Impact in Preventing Child Abuse and Neglect" (see note 16).

59. Straus and others, "Identification of Child Maltreatment" (see note 52).

60. DuMont and others, "Healthy Families New York" (see note 19).

61. Duggan and others, *Evaluation of the Healthy Families Alaska Program* (see note 18).

62. Olds and others, "Preventing Child Abuse and Neglect: A Randomized Trial of Nurse Home Visitation" (see note 15).

63. Fergusson and others, "Randomized Trial of the Early Start Program of Home Visitation" (see note 44). The effect size for punitive parenting was .22.

64. Landsverk and others, *Healthy Families San Diego* (see note 17).

65. Love and others, "The Effectiveness of Early Head Start for 3-Year-Old Children and Their Parents: Lessons for Policy and Programs" (see note 20).

66. Smith and Brooks-Gunn, "Correlates and Consequences of Harsh Discipline for Children" (see note 40).

67. St. Pierre and Layzer, "Using Home Visits for Multiple Purposes: The Comprehensive Child Development Program" (see note 22).

68. Kitzman and others, "Impact of Prenatal and Infancy Home Visitation by Nurses on Pregnancy Outcomes, Childhood Injuries, and Repeated Childbearing" (see note 15).

69. David L. Olds and others, "Effects of Nurse Home Visiting on Maternal and Child Functioning: Age 9 Follow-Up of a Randomized Trial," *Pediatrics* 120 (2007): e832–45.

70. Love and others, "The Effectiveness of Early Head Start for 3-Year-Old Children and Their Parents: Lessons for Policy and Programs" (see note 20). The effect size for immunizations was .09.

71. Fraser and others, "Home Visiting Interventions for Vulnerable Families with Newborns: Follow-Up Results of a Randomized Controlled Trial" (see note 45). The effect size for immunizations was .15.

72. Fergusson and others, "Randomized Trial of the Early Start Program of Home Visitation" (see note 44).

73. Harding and others, "Healthy Families America Effectiveness: A Comprehensive Review of Outcomes" (see note 34); Fraser and others, "Home Visiting Interventions for Vulnerable Families with Newborns: Follow-Up Results of a Randomized Controlled Trial" (see note 45).

74. The most common instrument used to measure the quality of the home environment is the Home Observation for the Measurement of the Environment (also known as the HOME scale). See Betty Caldwell and Robert Bradley, *Administration Manual: Home Observation for the Measurement of the Environment* (University of Arkansas at Little Rock, 2003).

75. Armstrong and others, "A Randomized, Controlled Trial of Nurse Home Visiting to Vulnerable Families with Newborns" (see note 24). The effect size on HOME scores was .77.

76. Duggan and others, *Evaluation of the Healthy Families Alaska Program* (see note 18).

77. Love and others, "The Effectiveness of Early Head Start for 3-Year-Old Children and Their Parents: Lessons for Policy and Programs" (see note 20).

78. Bradley and others, "Impact of the Infant Health and Development (IHDP) on the Home Environments of Infants Born Prematurely and with Low Birthweight" (see note 40).

79. St. Pierre and Layzer, "Using Home Visits for Multiple Purposes: The Comprehensive Child Development Program" (see note 22).

80. Olds and others, "Home Visiting by Paraprofessionals and by Nurses: A Randomized, Controlled Trial" (see note 15). The effect size on HOME scores was .37.

81. Elmira: Kitzman and others, "Impact of Prenatal and Infancy Home Visitation by Nurses on Pregnancy Outcomes, Childhood Injuries, and Repeated Childbearing" (see note 15); David L. Olds, Charles R. Henderson, Jr., and Harriet Kitzman, "Does Prenatal and Infancy Nurse Home Visitation Have Enduring Effects on Qualities of Parental Caregiving and Child Health at 25–50 Months of Life?" *Pediatrics* 93 (Jan. 1994): 89–97.

82. Donna Spiker, J. Ferguson, and Jeanne Brooks-Gunn, "Enhancing Maternal Interactive Behavior and Child Social Competence in Low Birth Weight, Premature Infants," *Child Development* 64 (1993): 754–68.

83. Fergusson and others, "Randomized Trial of the Early Start Program of Home Visitation" (see note 44).

84. Armstrong and others, "A Randomized, Controlled Trial of Nurse Home Visiting to Vulnerable Families with Newborns" (see note 24). The effect size for parent responsivity was .53.

85. Van Doesum and others, "A Randomized Controlled Trial of Home-Visiting Intervention Aimed at Preventing Relationship Problems in Depressed Mothers and Their Infants" (see note 25).

86. David L Olds and others, "Effects of Home Visits by Paraprofessionals and by Nurses: Age 4 Follow-Up," *Pediatrics* 114 (2004): 1560–68. The effect size for maternal sensitivity was .18.

87. David L. Olds and others, "Effects of Nurse Home-Visiting on Maternal Life Course and Child Development: Age 6 Follow-Up Results of a Randomized Trial," *Pediatrics* 114 (2004): 1550–59.

88. Love and others, "The Effectiveness of Early Head Start for 3-Year-Old Children and Their Parents: Lessons for Policy and Programs" (see note 20). The effect size for supportiveness during play was .16.

89. Armstrong and others, "A Randomized, Controlled Trial of Nurse Home Visiting to Vulnerable Families with Newborns" (see note 24). The effect size for depressive symptoms was -.44.

90. Fraser and others, "Home Visiting Interventions for Vulnerable Families with Newborns: Follow-Up Results of a Randomized Controlled Trial" (see note 45).

91. Harding and others, "Healthy Families America Effectiveness: A Comprehensive Review of Outcomes" (see note 34); Fraser and others, "Home Visiting Interventions for Vulnerable Families with Newborns: Follow-Up Results of a Randomized Controlled Trial" (see note 45).

92. Ibid.

93. Klebanov and others, "Maternal Coping Strategies and Emotional Distress: Results of an Early Intervention Program for Low Birth Weight Young Children" (see note 40). The effect size for depression was -.18 at one year and -.15 at three years.

94. Rachel Chazen-Cohen and others, "It Takes Time: Impacts of Early Head Start That Lead to Reductions in Maternal Depression Two Years Later," *Infant Mental Health Journal* 28 (2007): 151–70. The effect size for maternal depression was -.10 at the pre-kindergarten assessment.

95. Administration for Children and Families, *Making a Difference in the Lives of Infants and Toddlers and Their Families: The Impacts of Early Head Start* (Washington: U.S. Department of Health and Human Services, 2002). The effect size for parenting stress was -.14.

96. Armstrong and others, "A Randomized, Controlled Trial of Nurse Home Visiting to Vulnerable Families with Newborns" (see note 24).

97. Harding and others, "Healthy Families America Effectiveness: A Comprehensive Review of Outcomes" (see note 34).

98. Van Doesum and others, "A Randomized Controlled Trial of Home-Visiting Intervention Aimed at Preventing Relationship Problems in Depressed Mothers and Their Infants" (see note 25).

99. K. Barnard and others, "Prevention of Parenting Alterations for Women with Low Social Support," *Psychiatry* 51 (1988): 248–53. M. F. Erickson, Jon Korfmacher, and B. R. Egeland, "Attachments Past and Present: Implications for Therapeutic Intervention with Mother-Infant Dyads," *Development and Psychopathology* 4 (1992): 495–507.

100. Miriam R. Linver, Jeanne Brooks-Gunn, and Dafna E Kohen, "Family Processes as Pathways from Income to Young Children's Development," *Developmental Psychology* 38 (2001): 719–34; Administration for Children and Families, *Making a Difference in the Lives of Infants and Toddlers and Their Families: The Impacts of Early Head Start* (see note 95).

101. Duggan and others, *Evaluation of the Healthy Families Alaska Program* (see note 18).

102. Olds and others, "Home Visiting by Paraprofessionals and by Nurses: A Randomized, Controlled Trial" (see note 15). The effect size for cognitive development was .31.

103. David L. Olds, Charles R. Henderson, and Robert Tatelbaum, "Prevention of Intellectual Impairment in Children of Women Who Smoke Cigarettes during Pregnancy," *Pediatrics* 93 (1994): 228–33.

104. "Low psychological resources" was defined as a combination of poor mental health, low intelligence, and restricted feelings of control over their lives.

105. Olds and others, "Effects of Nurse Home Visiting on Maternal and Child Functioning: Age 9 Follow-Up of a Randomized Trial" (see note 69). The effect size was .22 for GPA and .33 for achievement test scores.

106. Love and others, "The Effectiveness of Early Head Start for 3-Year-Old Children and Their Parents: Lessons for Policy and Programs" (see note 20). The effect size for cognitive abilities was .12.

107. IHDP, "Enhancing the Outcomes of Low-Birth-Weight, Premature Infants: A Multisite, Randomized Trial" (see note 39); Jeanne Brooks-Gunn and others, "Enhancing the Development of Low-Birthweight,

Premature Infants: Changes in Cognition and Behavior over the First Three Years," *Child Development* 64 (1993): 736–53.

108. Monica A. Sweet and Mark I. Appelbaum, "Is Home Visiting an Effective Strategy? A Meta-Analytic Review of Home Visiting Programs for Families with Young Children," *Child Development* 75 (2004): 1435–56.

109. Ian Roberts, Michael S. Kramer, and Samy Suissa, "Does Home Visiting Prevent Childhood Injury? A Systematic Review of Randomized Controlled Trials," *British Medical Journal* 312 (1996): 29–34.

110. Denise Kendrick and others, "Does Home Visiting Improve Parenting and the Quality of the Home Environment?" *Archives of Disease in Childhood* 82 (2000): 443–51.

111. Harriet L. MacMillan and others, "Interventions to Prevent Child Maltreatment and Associated Impairment," *Lancet* 373 (2009): 250–66.

112. Lynn A. Karoly and others, *Investing in Our Children: What We Know and Don't Know about the Costs and Benefits of Early Childhood Interventions* (Santa Monica, Calif.: RAND Corporation, 1998); Steve Aos and others, *Benefits and Costs of Prevention and Early Intervention Programs for Youth* (Olympia, Wash.: Washington State Institute for Public Policy, 2004).

113. The higher-risk sample consisted of poor, single mothers. The lower-risk sample included all remaining participants, most of whom were either poor or single, but not both.

114. Maury Nation and others, "What Works in Prevention: Principles of Effective Prevention Programs," *American Psychologist* 58, no. 6–7 (2003): 449–56.

115. John G. Borkowski, Leann E. Smith, and Carol E. Akai, "Designing Effective Prevention Programs: How Good Science Makes Good Art," *Infants and Young Children* 20 (2007): 229–41.

116. DuMont and others, "Healthy Families New York" (see note 19).

117. Olds and others, "Home Visiting by Paraprofessionals and by Nurses: A Randomized, Controlled Trial" (see note 15).

118. DuMont and others, "Healthy Families New York" (see note 19).

119. H. L. MacMillan and others, "Effectiveness of Home Visitation by Public-Health Nurses in Prevention of the Recurrence of Child Physical Abuse and Neglect: A Randomized Controlled Trial," *Lancet* 365 (2005): 1786–93.

120. Duggan and others, "Randomized Trial of a Statewide Home Visiting Program to Prevent Child Abuse: Impact in Reducing Parental Risk Factors" (see note 16).

121. Julia Isaacs, *Impacts of Early Childhood Programs. Research Brief #5: Nurse Home Visiting* (Washington: Brookings Institution Press, 2008).

122. Tyler and others, "Child Neglect: Developmental Consequences, Intervention, and Policy Implications" (see note 9).