

# Long-Term Effects of Early Childhood Programs on Social Outcomes and Delinquency

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## Abstract

The search for ways to prevent juvenile crime in the United States has become a matter of national urgency, as the incidence of serious offenses continues to rise. Most prevention initiatives focus on late childhood or adolescence. Such initiatives may be missing an important additional opportunity to intervene earlier in children's lives. This review of literature from criminology, psychology, and education shows that there exist key early childhood factors which are associated with later antisocial or delinquent behavior and that early childhood programs which seek to ameliorate the effects of those factors can prevent later antisocial or delinquent behavior. In particular, the review focuses on programs which have demonstrated long-term effects on antisocial behavior or delinquency. These programs have in common a combination of intensive family support and early education services, and effects on a broad range of child and family risk factors for delinquency. Moreover, there is promising evidence of their cost-effectiveness. As one element in a comprehensive plan to address poverty and other environmental causes of crime, programs combining family support with early education show promise in lessening the current devastating impact of delinquency on America's children and families.

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The call for effective ways to fight juvenile crime echoes across the United States as the incidence of serious offenses continues to rise. The juvenile arrest rate for murder and nonnegligent manslaughter rose 122.7% between 1982 and 1992.<sup>1</sup> Arrests of juveniles between 1984 and 1993 rose 39.6% for robbery, 98.1% for aggravated assault, and 105.7% for motor vehicle theft.<sup>2</sup> Pressures to imprison are great, and efforts to prevent are rare. When crime prevention initiatives are put forward, most target late childhood or adolescence rather than early childhood.<sup>3</sup>

A review of the literature from criminology, psychology, and education suggests that focusing crime prevention efforts on older children or teens may cause policymakers to miss an important opportunity to intervene

earlier in children's lives. The literature reviewed in this article indicates that there exist key early childhood factors which are associated with later criminal or delinquent behavior and that early childhood programs which seek to ameliorate the effects of those factors can prevent later criminal or delinquent behavior.

This article begins with a description and definition of chronic delinquency and then summarizes the early risk factors associated with delinquency. The implications of risk factor research for the design of crime prevention programs are discussed, and the effects of early childhood programs on delinquency and associated risk factors are reviewed to see if programs that are designed as suggested by the research do indeed produce anticipated benefits. The article concludes with a discussion of the implications of these results for policy.

## Juvenile Delinquency and Conduct Disorder

Juvenile delinquency is a legal term whose definition varies from state to state.<sup>4</sup> Generally, however, the term is used to describe minors whose behaviors have been adjudicated as illegal by a juvenile court. Delinquency usually refers to behavior that would be criminal if the child were an adult. The legal system terms behavior that is illegal only if committed by a minor, such as running away, a status offense or unruly behavior.<sup>5</sup>

In the educational and mental health fields, some or all of those behaviors might be called "antisocial behaviors," and children or youths who demonstrate repeated episodes of such behaviors might be diagnosed as suffering from a "conduct disorder." According to the *Diagnostic and Statistical Manual of Mental Disorders*, the standard manual used by psychologists and psychiatrists, a diagnosis of conduct disorder requires the commission of at least three different antisocial acts over a six-month period. Qualifying antisocial behaviors include initiating fights, bullying or physical cruelty to people or animals, the use of weapons, stealing, rape, fire setting, chronic truancy, running away or lying, breaking into someone else's home or car, and destruction of property.<sup>6</sup>

## Chronic Delinquency

No matter which terms are used, research on delinquency shows three key findings: (1) a small group of chronic offenders is responsible for committing the majority of serious juvenile offenses; (2) there are two

groups of youthful offenders, distinguished by when their antisocial behavior begins; and (3) youths whose delinquent careers begin early tend not to specialize in any particular type of antisocial act.

Studies indicate that a few chronic offenders commit the vast majority of offenses. In a study of 411 working-class boys in London, for example, those children rated by teachers and peers as "most troublesome" at ages 8 to 10 represented 22% of the whole sample, but 70% of future chronic offenders.<sup>7</sup> Closer to home, an examination of 13,150 men born in 1958 in Philadelphia demonstrated that, while those with five or more contacts with the justice system comprised only 7.5% of the group, they were responsible for 61% of all recorded offenses (including 61% of homicides, 75% of rapes, and 65% of aggravated assaults).<sup>8</sup>

## History of Antisocial Behavior

Many longitudinal studies show that severe antisocial behaviors in childhood, such as frequent fighting, hitting, stealing, destroying or vandalizing property, or lying, are the strongest predictors of chronic delinquency.<sup>7</sup> Both criminological and psychological research converge on a distinction between two groups of youths: one whose antisocial behavior or delinquent "career" is limited to adolescence and one whose antisocial behavior or delinquent career starts early—often in early childhood—and persists into adulthood.<sup>9</sup>

## Diversity of Delinquent Behaviors

Youths whose antisocial behavior persists into adulthood are more likely to engage in a range of antisocial behavior rather than to

specialize in any particular type of antisocial act. A study of 195 boys 10- to 17-years-old, for example, indicated that the boys who committed different types of crimes were at much higher risk for chronic delinquency than were the boys who specialized in a particular sort of antisocial behavior: half had three or more contacts with the police as compared with fewer than 10% of the boys who specialized.<sup>10</sup>

### Preventing Chronic Delinquency: The Search for Childhood Risk Factors

Together, these findings on the characteristics of chronic delinquency suggest that one important way to decrease overall crime rates among youths is to prevent chronic delinquency, and that early childhood may be an important developmental period to target for its prevention. The remainder of this article explores how and whether chronic delinquency can be prevented. This requires answering three interrelated questions: (1) Are there risk factors in early childhood which increase the probability of later chronic delinquency? (2) Do these factors cause chronic delinquency or are they only associated with it? (3) Can early childhood programs that lessen the impact of these factors prevent chronic delinquency?

Researchers have long sought factors that are regularly associated with chronic delinquency. The strongest factor, as mentioned above, is a history of antisocial behavior in childhood, but many other early risk factors have also been linked to chronic delinquency. These factors, listed in Table 1, include perinatal difficulties, neurological and biological factors, low verbal ability, neighborhoods characterized by social disorganization and violence, parental criminality and substance abuse, inconsistent and/or harsh parenting practices, low socioeconomic status, and exposure to media violence.<sup>11</sup>

The most important of these factors appear to be low socioeconomic status, having parents who have been convicted of crimes, the child's low cognitive ability (especially poor verbal ability), poor parental child rearing, and the child's own history of antisocial behavior, conduct disorder, or troublesomeness.<sup>12</sup> In one study of boys in

London, for example, the 8- to 10-year-olds with four or more of these predictors included 15 of 23 future chronic offenders (the 23 were to be responsible for fully half of the convictions in the cohort of 411 youths).<sup>12</sup>

The following sections explore evidence concerning two of the risks that have been consistently associated with later delinquency and that have most frequently been investigated in outcomes of early childhood programs.

### Parenting and Social Support

Longitudinal evidence from many studies suggests that hostile or rejecting parenting and lack of parental supervision is associated with children's later antisocial behavior and delinquency. In more than two decades of research, Gerald Patterson and his colleagues at the Oregon Social Learning Center have proposed and developed supportive evidence for a model of how parent-

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***One important way to decrease overall crime rates among youths is to prevent chronic delinquency.***

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ing behavior can lead to antisocial behavior in children. They suggest that parents of antisocial children first reinforce commonplace, low level aversive behaviors such as noncompliance, teasing, or tantrums. Then, as the child learns to respond to aversive acts through aversive counterattacks, increasingly severe coercive interchanges occur.<sup>13</sup> Interventions involving parent training to reduce such coercive interactions have decreased antisocial behaviors up to 4.5 years after treatment.<sup>14</sup>

If harsh or poor parenting can lead to antisocial behavior, one would expect that nurturant parenting might protect against the development of such behavior. There is evidence that a good relationship with one parent, marked by warmth and the absence of severe criticism, can have a substantial protective effect against the development of later antisocial behavior.<sup>15</sup>

One might also expect that factors which promote good parenting might indirectly help prevent antisocial behavior. There is

Table 1

<b>Early Childhood Risk Factors for Delinquent and Antisocial Behavior</b>		
<b>Risk Factors</b>	<b>Relationship Between Risk Factor and Delinquency Is Strengthened by Presence of</b>	<b>Relationship Between Risk Factor and Delinquency Is Weakened by Presence of</b>
Perinatal difficulties	Low socioeconomic status Family adversity	—
Neurological and biological factors	—	—
Child's low cognitive ability	—	—
History of antisocial behavior	—	—
Single parenthood <sup>a</sup>	—	—
Insecure attachment of child to parent	Poor parenting Unplanned birth Life stress Low social support	—
Parental criminality	Early family conflict	—
Parental substance abuse	—	—
Poor or harsh parenting	Marital discord	Emotional support Community support
Low socioeconomic status	—	Good parenting Age-appropriate verbal ability
Violent or socially disorganized neighborhoods	—	—
Media violence	—	—

<sup>a</sup>Evidence indicates that single parenthood is associated with antisocial behavior, but the relationship is probably explained by low socioeconomic status or poor supervision, rather than by single parenthood itself.

some evidence that providing social support (emotional, material, or informational assistance) for parents can, in fact, operate in that fashion. Social support, from partners and from community members, helped mothers of newborns in one study respond more positively and attentively to their children.<sup>16</sup> Conversely, low social support appears to be associated with subsequent behavior problems: a longitudinal study of 83 poor inner-city African-American and Puerto Rican teen mothers found that low social support from friends when children were one year of age predicted behavior

problems when children were three years of age.<sup>17</sup>

#### **Verbal/Cognitive Ability**

Low scores on measures of children's cognitive ability such as school achievement, general intelligence quotient (IQ), and verbal ability are associated with delinquency.<sup>7,18</sup> While there is some disagreement, most of the evidence suggests that cognitive deficits lead to antisocial behavior and not vice versa. For example, a longitudinal study of 837 children on the Hawaiian island of Kauai indicated that age-appropriate lan-

guage development at 2 and 10 years protected high-risk children against later delinquency.<sup>19</sup> Another longitudinal study of 1,037 children from New Zealand indicated that IQ deficits tended to precede the development of serious antisocial behavior and that the effects of low IQ on behavior were independent of the effects of factors such as low socioeconomic status, ethnicity, academic attainment, and motivation.<sup>20</sup>

### Are the Risk Factors Causal?

Just because a factor is associated with later chronic delinquency does not mean, of course, that it caused the delinquency. Most human behavior develops through the complex interplay of multiple factors across multiple settings (such as home, school, and neighborhood), and delinquent behavior is no exception. Identifying its cause therefore requires sophisticated analyses designed to disentangle the effects of multiple risk factors. This task is even more difficult than might be supposed because there is considerable research evidence that the risk factors operate differently when multiple risk factors are present. For example, children exposed to multiple risk factors are much more prone to later delinquency than are those exposed to just one or even two of these factors.<sup>21</sup>

Evidence also indicates that the potency of a single risk factor can be increased by the presence of a second risk factor. For example, children whose parents are criminals are more likely to become delinquent themselves, but that association is strengthened still further if children are exposed to early family conflict.

Finally, a risk factor may exert an indirect rather than a direct influence on development of delinquent behavior. For example, children who grow up in single-parent households tend to have higher rates of later delinquency, but this appears to be due to difficulty in providing adequate supervision, not single parenthood per se.<sup>13,22</sup>

Research studies have identified several examples of these sorts of complex interrelationships among early causal factors for chronic delinquency, and some key examples are depicted in Table 1.<sup>11</sup>

If a given factor is causally linked to delinquency, then one would expect that buffer-

ing a child against the effects of that factor would help prevent later delinquent behavior. Research indicates that this is so for at least some risk factors. For example, as mentioned earlier, studies indicate that providing emotional and community social support to the parent is associated with consistent, nurturing child rearing, which in turn is associated with lower levels of antisocial behavior among low-income children. In this instance, social support appears to buffer children and families from the effects of low socioeconomic status.

### Implications for Preventive Programs

Longitudinal evidence on the development of delinquency behavior suggests several promising directions for prevention. First, the evidence suggests that early childhood programs which buffer the effects of a given delinquency risk factor should also be effective in preventing chronic delinquency.

Second, because multiple risk factors appear to have such a pronounced negative effect, early childhood programs that reduce multiple risks may be more successful in preventing chronic delinquency than are those that target only a single risk factor.

Third, the research implies that the content of preventive early childhood programs should be such that they attempt to enhance parents' social support, foster positive parenting and family interactions, facilitate child cognitive development (especially ver-

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bal skills), and reduce family level and community level poverty. In other words, crime prevention programs should seek to reduce or eliminate the risk factors associated with delinquency.

The next section of this article reviews early education and family support programs which have attempted to improve the lives of children and families, to determine if the programs either decreased delinquency or antisocial behavior, or lessened the

impact of the factors that are hypothesized to lead to such behavior.

### Early Education and Family Support Programs

Early education and family support programs provide a range of emotional, informational, instrumental, and/or educational support to families with infants and preschool-age children. Early education programs are usually center based, and their core service is usually to provide an educational curriculum to groups of preschoolers or infants and toddlers, but they can also provide services as varied as basic preventive health care, informational support regarding parenting and child development, and emotional support.

In contrast, most family support programs focus primarily on the parents, not the children, and emphasize providing support of various kinds to parents, often through home visits. Family support programs can help parents in their roles as parents or educators of their children, or support the parents' own educational or

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***Programs that address multiple risk factors and that blend aspects of both family support and early childhood education are the most promising.***

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occupational goals. These types of programs are increasing in popularity, and the 1993 Family Preservation and Support Act provides federal funding for them (see Box 1).

The two models of early intervention are not mutually exclusive. Some family support programs have an educational child care or preschool component, and some predominantly child-focused educational programs also offer supportive services for parents or services to enhance parenting skills. Based on the literature regarding risk factors for delinquency, it is those combination programs that address multiple risk factors and that blend aspects of both family support and early childhood education which are most promising in the prevention of chronic delinquency.

### Scope of the Review

A computer and manual search of the literature from the fields of psychology and education identified 40 evaluations of interventions that (1) served populations which displayed the risk factors associated with later delinquent or antisocial behavior (for example, low household income, single parent, low parental educational level, low birth weight and/or preterm birth); (2) provided services between the prenatal period and entry into primary school; (3) assessed possible effects on risk factors for chronic juvenile delinquency and/or possible effects on antisocial behavior or delinquency; (4) were carried out in the United States or Canada; and (5) had adequate research design.<sup>23-61</sup> When a single program was evaluated in both randomized trials and less well-controlled designs, only the results for the randomized trial are reported. When multiple evaluations exist for a single project, only the most recent is cited. (Barnett reviews many of these same programs in his article in this journal issue, and the reader may wish to consult Table 1 in his article.)<sup>62</sup>

These 40 programs and their effects are listed and described briefly in Tables 2-4. Each table describes programs that represent one of three general models of services: Table 2 reviews eight child-focused early education programs,<sup>23-30</sup> Table 3 describes 23 parent-focused family support programs,<sup>31-53</sup> and Table 4 covers 11 programs that provided both kinds of services,<sup>35, 53-61</sup> (Two programs appear in both Table 3 and Table 4).<sup>63</sup>

Most of the 40 evaluations explored the effects of the programs on factors many of which have been discussed earlier as risk factors for chronic delinquency. For this review, these risk factors were grouped into three broad categories: early cognitive ability (including early IQ, school achievement, and language development or verbal ability), early parenting factors (including assessments of mother-child interaction, parenting behavior, attachment, and child welfare indicators), and life-course variables that could be expected to influence family socioeconomic status (maternal education and employment, childbearing, and family economic self-sufficiency). Only four evaluations of programs actually reported or investigated long-term effects on antisocial



## Box 1

## Family Preservation and Support Services Program

### *Purpose*

The purpose of the Family Preservation and Support Services Program is to improve well-being for vulnerable children and their families by providing in-home and community-based services.

### *Brief Description*

The Family Preservation and Support Services Program was enacted as part of the Omnibus Budget Reconciliation Act of 1993 (Public Law 103-66). It provides federal funds to state child welfare agencies for preventive services (family support) and services to families at risk or in crisis (family preservation). The program requires states to develop a comprehensive plan that goes beyond child welfare to include housing, mental health, primary health, education, juvenile justice, and community-based programs for children and families.

### *Definition of Family Support Services*

Family support services are defined as “community-based services to promote the well-being of children and families designed to increase the strength and stability of families (including adoptive, foster, and extended families), to increase parents’ confidence and competence in their parenting abilities, to afford children a stable and supportive family environment, and otherwise to enhance child development.”

Examples of family support services are home visits and parent support groups, respite care, structured activities to strengthen parent-child relationships, drop-in family centers, information and referral services, and early developmental screening of children to assess their need for special services.

### *Definition of Family Preservation Services*

Family preservation services are defined by the law as “services for children and families designed to help families (including adoptive and extended families) at risk or in crisis.”

Family preservation services include programs to help reunify children with their families, aftercare services for children returned home, respite care, and services to improve parenting skills.

### *Funding*

A capped entitlement program, the Family Preservation and Support Service Program provides \$930 million over five years, from 1994 through 1998 as follows:

FY 1994—	\$ 60 million
FY 1995—	\$150 million
FY 1996—	\$225 million
FY 1997—	\$240 million
FY 1998—	\$255 million

### *Use of Funds*

Each state decides on the balance of funds used for family support and family preservation services. A “significant portion” of service funds must be spent for each service. If either allocation is below 25%, the state’s rationale must be especially strong.

### *Administration*

At the federal level, the Family Preservation and Support Services Program is administered by the Administration for Children, Youth, and Families (ACYF) in the Department of Health and Human Services (HHS). In each state, the public child welfare agency responsible for the Child Welfare Services Program (Title IV-B of the Social Security Act) administers the program.

### *Evaluation of Family Support Programs*

Abt Associates, together with Yale University, is conducting a five-year, three-phase national evaluation of family support programs. The evaluation includes a comprehensive review of what is currently known about family support programs and their effects; the design and implementation of a series of new evaluation studies to determine the effectiveness of family support programs for children and families with different characteristics and in different communities; and the integration of results into a comprehensive report.

For further information about the National Evaluation of Family Support Programs, contact:

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Table 2

Early Education Programs—Child-Focused <sup>a</sup>						
Study, Related Endnote Number, <sup>b</sup> Program Name	Age of Child	Intensity	Outcomes			
			Cognitive Ability	Parenting	Maternal Life Course	Antisocial Behavior
Abelson, 1974 <sup>23</sup> <i>New Haven Head Start</i>	4 to 5 years	Half-day preschool	E > C at kindergarten E > C at first grade (boys only)			
Beller, 1983 <sup>24</sup> <i>North Philadelphia</i>	4 to 5 years	Half-day preschool and kindergarten; full-day first grade	E > C at age 10 (grade 4)			Aggression: E > C at kindergarten and first grade
Campbell and Ramey, 1994 <sup>25</sup> <i>Carolina Abecedarian</i>	6 weeks to 3 months at enrollment to 5 years at exit	Full-day educational child care	E > C at age 12  (See also Table 1 in the article by Barnett in this journal issue)	Mother-child interaction: E > C at 36 months, but E = C at 6, 20, and 60 months  Home environment: E = C at 6, 18, 30, and 42 months	At 54 months, teen mothers only: E > C for high school graduation, postsecondary training, percentage self-supporting	Aggression: E > C at school entry only; effect faded later
Deutsch et al., 1983 <sup>26</sup> <i>Institute for Developmental Studies</i>	4 to 9 years	Home visits; part-day preschool; school (grades 1-3)	E > C at grade 4			
Hebbeler, 1985 <sup>27</sup> <i>Maryland Head Start</i>	4 to 5 years	Half-day preschool	E = C, most measures, but E > C, grade 11, but only for one of three cohorts			
Lee et al., 1990 <sup>28</sup> <i>ETS Head Start</i>	4 to 5 years or 5 to 6 years	Half-day preschool	E > C in grade 1			
Miller and Bizzell, 1983 <sup>29</sup> <i>Louisville Head Start</i>	4 to 5 years	Preschool (6.5 hours/day)	E > C, grade 1, for one of two measures  E = C, grade 2			E = C on aggression, kindergarten through grade 2
Reynolds, 1993 <sup>30</sup> <i>Chicago Child Parent Center</i>	3 to 4 years at enrollment to grade 3	Half-day preschool; full-day kindergarten	E > C for school achievement in grade 6			

## Notes

<sup>a</sup> To obtain a more detailed version of the table summarizing each of the 40 programs listed in Tables 2–4, contact the author, Hirokazu Yoshikawa, M.A., Department of Psychology, New York University, 6 Washington Place, 4th Floor, New York, NY 10003.

<sup>b</sup> See the related endnotes at the end of this article for complete citation of reports and/or studies in which the outcomes of these programs are described.



behavior and/or delinquency. Tables 2-4 briefly describe each of the 40 programs and its effects on the broad categories of outcomes.

In general, the review of these 40 programs leads to two main conclusions, both of which are consistent with the research findings about risk factors: (1) the programs that demonstrated long-term effects on crime and antisocial behavior tended to be those that combined early childhood education and family support services, in other words, the programs that addressed multiple risk factors; and (2) among the more specialized programs, those designed primarily to serve adults tend to benefit adults more than children, and those designed primarily to serve children tend to benefit children more than adults. Barnett and St. Pierre and colleagues draw similar conclusions in their articles in this journal issue.

The next sections describe the four combination early education/family support programs and their long-term effects on antisocial behavior and delinquency.

### Long-Term Effects on Antisocial Behavior and/or Delinquency

Four evaluations, all focusing on programs that combined early childhood education with family support services, assessed long-term (more than five years postprogram) effects on parent or teacher ratings of antisocial behavior and/or actual delinquency records. These programs offered both home visits and center-based educational child care or preschool. All four demonstrated positive effects.<sup>58-61</sup>

#### High/Scope Perry Preschool Project

In the Perry Preschool Project,<sup>60</sup> conducted from 1962 through 1967, some 123 three- and four-year-old African-American children in Ypsilanti, Michigan, were randomly assigned to a program or to a control group. The intervention consisted of two and one-half hours of preschool experience five days a week for seven and one-half months each year for two years (except for one small group of children who received only one year of services). In addition, teachers visited each mother and child at home for 90 minutes once per week during the school year.

The project decreased rates of self-reported delinquency at age 14, official

chronic delinquency at age 19, and, in the most recent follow-up at age 27, adult criminality.<sup>60,64,65</sup> Generally, results indicated that the program participants committed fewer delinquent or criminal acts, the acts they committed were less severe, and they were less likely to be chronic offenders than were control group members: "As compared with the no-program group, the program group averaged a significantly . . . lower number of lifetime (juvenile and adult) criminal arrests (2.3 vs. 4.6 arrests) and a significantly lower number of adult criminal arrests (1.8 vs. 4.0 arrests). According to police and court records collected when study participants were 27-32 years old, significantly fewer program-group members than no-program-group members were frequent offenders—arrested 5 or more times in their lifetimes (7% vs. 35%) or as adults (7% vs. 31%). As compared with the no-program group, the program group had noticeably fewer arrests for adult felonies, significantly fewer arrests for adult misdemeanors, and noticeably fewer juvenile arrests. As compared with the no-program group, the program group had significantly fewer arrests for drug-making or drug-dealing crimes (7% vs. 25%) . . ." <sup>66</sup>

#### Syracuse University Family Development Research Program

The Syracuse University Family Development Research Program<sup>59</sup> provided educational, nutrition, health and safety, and human service resources to 108 low-income, primarily African-American families, beginning prenatally and continuing until children reached elementary school age. Families received weekly home visits and quality child care (one-half day five days a week for children 6 to 15 months of age, and full-day care five days a week for children 15 to 60 months of age).

Results for the Syracuse program were similar to those obtained by the Perry project: the program decreased the total number, severity, and chronicity of later involvement with the juvenile justice system among participants. At follow-up, when children were 13 to 16 years old, four program group children (of 65 who were identified at follow-up; the original program group included 108) had probation records. Three were status offenders who had been deemed ungovernable, and the fourth was a one-time juvenile delinquent. In contrast, 12

Table 3

Family Support Programs—Parent-Focused <sup>a</sup>						
Study and Related Endnote Number <sup>b</sup>	Age of Child	Intensity	Outcomes			
			Cognitive Ability	Parenting	Maternal Life Course	Antisocial Behavior
Achenbach et al., 1990 <sup>31</sup>	From 0 to 3 months	Seven in-hospital sessions; four home visits	E > C at age 7 years			
Badger, 1981 <sup>32</sup>	From 0 to 12 months	44 classes	E > C at posttest		Maternal employment: E > C at 3 years Pregnancies: E < C at 3 years	
Barrera et al., 1986 <sup>33</sup>	From 0 to 12 months	Home visits weekly for 1 to 4 months, biweekly for 5 to 8 months, monthly for 9 to 12 months; average of 23 visits	E = C at 4 to 16 months	E > C at 16 months		
Barth et al., 1988 <sup>34</sup>	From pregnancy to 6 months, approximately	Two home visits per month for six months		E < C on proxies for abuse (ER visits, removal of child from home/ child cared for by neighbor) E > C on well-baby care		
Field et al., 1982 <sup>35</sup>	From 0 to 6 months	Biweekly home visits	E = C at 1 year, but E > C at 2 years	Mother-child interaction: E > C at 4 months  Home environment E = C at 6 months	Maternal employment, schooling: E > C in first year  Repeat pregnancies: E < C at 2 years	
Gray et al., 1979 <sup>36</sup>	From 0 to 2 years	Weekly home visits; biweekly visits to pediatrician; biweekly calls to pediatrician		Hospitalization for serious injuries: E < C		
Gray and Ruttle, 1980 <sup>37</sup>	Beginning at 17 to 24 months, and continuing for 9 months	Weekly home visits	E = C at end of program and 10 months later. E > C 20 months after end of program	E > C at 10 and 20 months after end of program		
Gutelius et al., 1977 <sup>38</sup>	Seventh month of pregnancy to 3 years	18 home visits in year 1; 12 in year 2; 8 in year 3	E > C at 3 years, but decreasing later	E > C at posttest but only for some measures	Mothers in school: E > C at 3 and 4 years  Fathers' job stability: E > C for first 3 years	E = C on behavior problems at 4 years

## Notes

<sup>a</sup> To obtain a more detailed version of the table summarizing each of the 40 programs listed in Tables 2–4, contact the author, Hirokazu Yoshikawa, M.A., Department of Psychology, New York University, 6 Washington Place, 4th Floor, New York, NY 10003.

<sup>b</sup> See the related endnotes at the end of this article for complete citation of reports and/or studies in which the outcomes of these programs are described.

Table 3 (continued)

Family Support Programs—Parent-Focused <sup>a</sup>						
Study and Related Endnote Number <sup>b</sup>	Age of Child	Intensity	Outcomes			
			Cognitive Ability	Parenting	Maternal Life Course	Antisocial Behavior
Hardy and Streett, 1989 <sup>39</sup>	From 0 to 2 years	10 home visits		Hospital admissions, diaper rash (proxies for abuse): E < C at posttest		
High/Scope Educational Research Foundation, 1974 <sup>40</sup>	From 3 to 5 years	One to two home visits per week	E > C after 7 months of services	Parent-child interaction, parental involvement: E > C after 7 months	E = C in use of AFDC, food stamps, Medicaid, job training programs	E = C on hostility after 7 months
Jacobson and Frye, 1990 <sup>41</sup>	From pregnancy to 1 year	30 home visits		Attachment: E > C at 14 months		
Jester and Guinagh, 1983 <sup>42</sup>	From 3 months to 3 years  Varying lengths of participation; results reported only for children with 2 to 3 years of participation	From 3 months to 2 years: weekly home visits  Age 2 to 3: twice weekly part-day preschool	E > C through grade 5			E = C on classroom behavior problems in grades 2, 3, and 4
Lambie et al., 1974 <sup>43</sup>	From 3, 7, or 11 months to 16 months later	Weekly home visits	Mixed effects at posttest  E = C one year after end of program	E > C at posttest		
Larson, 1980 <sup>44</sup>	E1: Seventh month of pregnancy to 15 months postpartum; E2: 6 weeks to 15 months postpartum	Seven visits from 6 weeks to 6 months; three visits from 6 to 15 months		E1 > E2 = C at 18 months		
Lieberman et al., 1991 <sup>45</sup>	From 1 to 2 years	Weekly home visits		Empathy, mother-child interaction: E > C at posttest		E less avoidant and angry than C at posttest
Lyons-Ruth et al., 1990 <sup>46</sup>	Beginning at 0 to 9 months, ending at 18 months	Approximately weekly home visits	E = C at posttest	Mixed effects at posttest		
Madden et al., 1984 <sup>47</sup>	From 2 to 3 years to 4 to 5 years	Home visits twice each week	E > C, but only for one of three cohorts on one of two measures	E > C at posttest and two-year follow-up		
Olds et al., 1988 <sup>48</sup>	From pregnancy to 24 months	One home visit per week for the first 6 weeks postpartum, gradually slowing to one visit every 6 weeks; average of 31 visits	E = C at 12 months	E > C at 10, 22, and 46 months for poor, unmarried teens	At 48 months—Repeat pregnancies: E < C for poor, unmarried mothers  Participation in work force: E > C	

Notes

<sup>a</sup> To obtain a more detailed version of the table summarizing each of the 40 programs listed in Tables 2–4, contact the author, Hirokazu Yoshikawa, M.A., Department of Psychology, New York University, 6 Washington Place, 4th Floor, New York, NY 10003.

<sup>b</sup> See the related endnotes at the end of this article for complete citation of reports and/or studies in which the outcomes of these programs are described.

Table 3 (continued)

Family Support Programs—Parent-Focused <sup>a</sup>						
Study and Related Endnote Number <sup>b</sup>	Age of Child	Intensity	Outcomes			
			Cognitive Ability	Parenting	Maternal Life Course	Antisocial Behavior
Osofsky et al., 1988 <sup>49</sup>	From 0 to 18 months	21 home visits		E = C at posttest		
Ross, 1984 <sup>50</sup>	From 0 to 12 months	15 home visits	E > C at posttest	E > C at posttest		
Seitz, Rosenbaum, and Apfel, 1991 <sup>51</sup>	Variable, beginning during pregnancy	Daily classes for teen mothers (ages 14 to 19 years); duration ranged from one to four academic quarters			Mothers who attended longer had fewer subsequent pregnancies  For low-achieving mothers; those who attended longer were higher achieving at two years postpartum	
Siegel et al., 1980 <sup>52</sup>	From 0 to 3 months	Three home visits per month for three months after birth, with or without extended contact between mother and infant in hospital		E = C at one year		
Wasik et al., 1990 <sup>53</sup> <i>Project CARE</i> (home visit group only)	From 0 to 5 years	107 home visits	E = C through 54 months	E = C through 54 months		

## Notes

<sup>a</sup> To obtain a more detailed version of the table summarizing each of the 40 programs listed in Tables 2–4, contact the author, Hirokazu Yoshikawa, M.A., Department of Psychology, New York University, 6 Washington Place, 4th Floor, New York, NY 10003.

<sup>b</sup> See the related endnotes at the end of this article for complete citation of reports and/or studies in which the outcomes of these programs are described.

control group youths (of 54 found at follow-up; the original control group included 74) had probation records. Five of the 12 control group youths were chronic offenders. Among the offenses committed by the 12 were robbery, burglary, sexual assault, and physical assault.

#### Yale Child Welfare Project

Between 1968 and 1970, 17 pregnant, low-income, primarily African-American women were recruited to participate in the Yale Child Welfare Project,<sup>61</sup> an intensive program that began during pregnancy and continued until the children reached 30 months of age. Each family received free pediatric care, social work, child care (an average of 13.2 months), and psychological services as needed. Each family interacted

with a four-person team: a pediatrician, a home visitor, a primary child care worker, and a developmental examiner. The team members remained constant over the course of the family's enrollment in the project.

The Yale project decreased boys' antisocial behavior as rated by teachers and increased the number of children with good school adjustment for both boys and girls 10 years after program services ended.<sup>67</sup> Teachers rated boys who had been in the program group as being socially well adjusted. Most of the comparison group boys were described as disobedient or not getting along well with other children, and slightly more than half were also described as having problems with lying or cheating.

### Houston Parent Child Development Center

The Houston Parent Child Development Center (PCDC)<sup>58</sup> was designed to promote social and intellectual competence in children from low-income Mexican-American families. It required approximately 550 hours of participation over a two-year period. Mothers received 25 home visits for one year, beginning when their children were one year of age. Weekend sessions involving the whole family focused on issues such as decision making in the home or family community. During the second year of the program, mothers attended classes to learn about child development, home management, and other family-related topics. Their children attended educational preschool four half days per week.

Results indicated that the Houston PCDC decreased children's antisocial behavior as rated by parents in a one- to four-year follow-up and as rated by teachers in a five- to eight-year follow-up. In the five- to eight-year follow-up, for example, teachers rated control group children as more obstinate, impulsive, disruptive, and involved in fights than program group children. Program group children were rated as more considerate and less hostile. A more recent follow-up did not find significant effects on antisocial behavior,<sup>68</sup> but attrition rates were quite high.

### Magnitude of Effects

In the research literature, a shorthand method of assessing the magnitude of the effects of human service programs involves calculating what is called an *effect size*. This translates results of different studies into a common metric (the standard deviation), which then permits comparisons among studies of the strength of the relationship between an intervention and an outcome. In the studies reviewed in this article, the effect size measures the strength of the relationship between participation in a program and antisocial behavior or delinquency.

Generally, in the social sciences, an effect size of 0.2 standard deviation is defined as small, 0.5 as moderate, and 0.8 or greater as large.<sup>69</sup> Measured by these yardsticks, the four programs described had moderate to large effects on antisocial behavior and delinquency: 0.48 standard deviations for

the Houston PCDC, 0.48 for the Syracuse program, 0.42 for the Perry Preschool Project, and 1.13 for the Yale program.

### Suggestions about Causation

Posttest and short-term follow-up evaluations of the four programs provide some clues as to what led to these differences in later antisocial or delinquent behavior. Positive effects on cognitive and/or verbal ability<sup>58,59,61,64</sup> and parenting<sup>70,71</sup> preceded long-term effects on delinquency and antisocial behavior. This observation is consistent with the view that long-term effects on delinquency occurred through prior effects on early risk factors such as cognitive ability and parenting ability.

In addition, it is important to note that three of these four programs (Yale, Houston, and Perry) assessed effects in two separate domains of risk and found some positive effects in both domains (the cognitive effects were mixed for the Yale and

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### *Positive effects on cognitive and/or verbal ability and parenting preceded long-term effects on delinquency and antisocial behavior.*

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Houston programs). These findings bolster the notion that risk factors for delinquency can have a cumulative effect such that children who are buffered from multiple risks are less likely to engage in later delinquency than children buffered from just one risk.

These four studies are relatively atypical in the literature. As mentioned above, most of the 40 studies included in this literature review did not investigate program effects on long-term delinquent or antisocial behavior. Instead, most focused on effects on outcomes found to be risk factors for long-term delinquent or antisocial behavior (as reviewed earlier in this article).

### Effects on Risk Factors for Delinquency

The results of the 40 studies are summarized in Tables 2–4. Although only the four studies previously reviewed investigated program effects on long-term delinquent or antisocial behavior, many of the 40 investigated effects

Table 4

Combination Programs with Both Family Support and Early Education Elements <sup>a</sup>						
Study, Related Endnote Number, <sup>b</sup> Program Name	Age of Child	Intensity	Outcomes			
			Cognitive Ability	Parenting	Maternal Life Course	Antisocial Behavior
Andrews et al., 1983 <sup>54</sup> <i>Birmingham PCDC</i>	From 3 to 5 months to 3 years	Year 1: three to four half days per week with mothers and infants together in center; 15 to 36 months: four half days per week, mothers as understudies to teachers; fifth day in classes	E > C at 36 and 48 months	Mother-child interaction: E > C at 36 and 48 months	Likelihood to return to school: E > C at posttest  E > C on problem solving at 36 months	
Andrews et al., 1983 <sup>54</sup> <i>New Orleans PCDC</i>	From 2 months to 3 years	Two half days per week in center; child care and parenting groups	E > C at 36 and 48 months	E > C at 36 and 48 months		
Brooks-Gunn et al., 1994 <sup>55</sup> <i>Infant Health and Development Program</i>	From hospital discharge to 3 years	Home visits weekly in year 1, biweekly in years 2 and 3  At least five half days of preschool per week in second and third years  Bimonthly parent group meetings in second and third years	E > C at 3 years	E > C at 3 years on home environment	Maternal employment: E > C at 3 years	
Field et al., 1982 <sup>35</sup> <i>Teenage Pregnancy Intervention Program (E2 group only)</i>	From 0 to 6 months	Five half days per week with mothers and children together at preschool; mothers employed as teachers' aides	E > C at 2 years	Home environment E = C at end of program  Interaction: E > C at 4 months	Repeat pregnancies: E > C at 1 and 2 years  Return to work/school: E > C	
Garber, 1988 <sup>56</sup> <i>Milwaukee Project</i>	From 0 to 5 years	Full-day child care, five days per week  Job counseling and training for parents	E > C at age 10	E > C at posttest		
Gray et al., 1983 <sup>57</sup> <i>Early Training Project</i>	From 4 to 5 years at enrollment to 6 years at exit	Summer part-day preschool; weekly to two-times per month home visits during the rest of the year	E > C at first and third grades  E = C at age 17			

## Notes

<sup>a</sup> To obtain a more detailed version of the table summarizing each of the 40 programs listed in Tables 2–4, contact the author, Hirokazu Yoshikawa, M.A., Department of Psychology, New York University, 6 Washington Place, 4th Floor, New York, NY 10003.

<sup>b</sup> See the related endnotes at the end of this article for complete citation of the reports and/or studies in which the outcomes of these programs are described.



Table 4 (continued)

Combination Programs with Both Family Support and Early Education Elements <sup>a</sup>						
Study, Related Endnote Number, <sup>b</sup> Program Name	Age of Child	Intensity	Outcomes			
			Cognitive Ability	Parenting	Maternal Life Course	Antisocial Behavior
Johnson and Walker, 1987 <sup>58</sup> <i>Houston PCDC</i>	From 1 to 3 years at enrollment to 3 to 5 years at exit	Year 1: 25 home visits Year 2: four half days per week of educational child care plus classes for parents	E > C at 36 months  E = C, most measures, at grade 5	E > C at posttest		Aggressive behavior: E < C at 1 to 8 years postprogram; E = C at 8 to 11 years postprogram (but high attrition)
Lally et al., 1988 <sup>59</sup> <i>Syracuse FDRP</i>	From 0 to 5 years	Weekly home visits; full-day child care from 6 months to 5 years	E > C at 3 years			Aggressive behavior: E > C in grade 1  E < C in number and severity of juvenile offenses at 10 years postprogram (ages 13 to 16 years)
Schweinhart et al., 1993 <sup>60</sup> <i>High/Scope Perry Preschool</i>	From 3 to 4 years at enrollment to 5 years	Weekly home visits; preschool: 2.5 hours per day, five days per week	E > C on either IQ, school achievement, grades through high school; E < C on special education or grade retention through high school	Child rearing attitudes: E > C at age 4 to 5		Delinquent behaviors: E < C at age 14  Arrests (number and severity of offenses): E < C at ages 19 and 27
Seitz & Apfel, 1994 <sup>61</sup> <i>Yale Child Welfare Project</i>	From pregnancy to 30 months	Average of 28 home visits; optional educational child care; well-baby exams	E > C at posttest  10-year follow-up: School attendance: E > C IQ: E = C Remedial services: E boys < C boys  Siblings: E < C grade retention, special education at 10- to 12-year follow-up		At 10-year follow-up: Family size: E < C On AFDC: E < C Maternal education: E > C Delay to next pregnancy: E > C	Aggression: E < C at 10-year follow-up (boys only)
Wasik et al., 1990 <sup>53</sup> <i>Project CARE (E1 group only)</i>	From 0 to 5 years	E1: 110 home visits and full-day child care five days per week  (E2 only received home visits; see Table 3)	E1 > C at 12 to 30 months  E1 = C > E2 at 31 to 54 months	E = C through 54 months		

Notes

<sup>a</sup> To obtain a more detailed version of the table summarizing each of the 40 programs listed in Tables 2–4, contact the author, Hirokazu Yoshikawa, M.A., Department of Psychology, New York University, 6 Washington Place, 4th Floor, New York, NY 10003.

<sup>b</sup> See the related endnotes at the end of this article for complete citation of the reports and/or studies in which the outcomes of these programs are described.

Table 5

<b>Number of Studies Reporting Positive Findings Across Outcomes, Categorized by Program Type</b>			
<b>Outcome</b>	<b>Type of Program</b>		
	<b>Early Education</b>	<b>Family Support</b>	<b>Early Education and Family Support</b>
Early Cognitive Ability <i>(IQ, school achievement, language development, or verbal ability)</i>	Of 8 measured: 5 positive 3 mixed	Of 14 measured: 5 positive 5 mixed 4 no difference	Of 11 measured: 8 positive 3 mixed
Parenting <i>(mother-child interaction, parenting behavior, attachment, child welfare)</i>	Of 1 measured: 1 mixed	Of 19 measured: 13 positive 3 mixed 3 no difference	Of 8 measured: 6 positive 1 mixed 1 no difference
Maternal Life Course <i>(maternal education and employment, childbearing, family economic self-sufficiency)</i>	Of 1 measured: 1 positive	Of 6 measured: 5 positive 1 no difference	Of 4 measured: 4 positive
Antisocial/Delinquent Behavior <i>(parent/teacher ratings, official delinquency, or criminal reports)</i>	Of 3 measured: 2 negative 1 no difference (Short-term effects)	Of 4 measured: 1 positive 3 no difference (Short-term effects)	Of 4 measured: 4 positive (Long-term effects)

This table summarizes the information contained in Tables 2–4 for 8 early education programs, 23 family support programs, and 11 programs that delivered both early education and family support services. Numbers in the cells in the table indicate (1) the number of studies that demonstrated statistically significant benefits of the program group over the control or comparison group on that particular group of outcomes ("positive"), (2) the number of studies that demonstrated mixed results ("mixed"—some positive or some negative and some not statistically significant—either at different points in time or for different groups of participants), (3) the number of studies in which the comparison group outperformed the intervention group ("negative"), (4) the number of studies for which there were no statistically significant differences measured between the program and comparison group ("no difference"), and (5) the number of studies that actually measured that particular set of outcomes.

on outcomes that roughly reflect the risk categories of early cognitive ability, parenting behavior, maternal life course, and short-term antisocial behavior. Table 5 collapses the information contained in Tables 2–4 to summarize the results of these studies by program type (that is, by early education, family support, and combination early education and family support programs).

The data in Table 5 illustrate the following points:

1. In contrast to the programs that combined early education and family support elements, relatively few of the single-focus early childhood education or family support programs actually assessed effects on antisocial behavior. Only 3 of 8 early education programs and 4 of 23 family support programs assessed the

effects of the programs on antisocial behavior.

2. Instead, most early education programs assessed effects on children's early cognitive ability, and most family support programs assessed effects on parenting or maternal life course.

3. All 8 of the early education programs reviewed measured program effects on variables such as IQ, school achievement, or children's language development. Most were effective in promoting children's early cognitive ability. Early education programs appeared to demonstrate positive results more consistently in the early cognitive ability domain than in parenting, maternal life course, or antisocial/delinquent behavior domains.



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4. Family support programs measured outcomes for both children and parents but were most effective in affecting parental outcomes such as parenting behaviors or maternal life course, rather than outcomes associated with the children.

5. Only combination early education/family support programs affected a broad range of outcomes for both children and parents. All of the 11 combination programs identified benefits for children's cognitive ability (8 consistently, 3 only at certain follow-up points). Six of 8 combination programs which sought to measure parenting benefits found positive effects, and all 4 of those which sought to measure maternal life course outcomes found benefits.

6. It is primarily combination programs that produced long-term declines in antisocial behavior and delinquency.

In sum, the literature review indicates that the most effective programs with respect to preventing antisocial behavior and delinquency were also the programs which combined early education and family support services and had the broadest range of positive effects on children and their parents.

### Characteristics of Effective Programs

The four programs (Yale, Houston PCDC, Syracuse, and Perry) that demonstrated

long-term effects on delinquent or antisocial behavior shared some common features that may help explain their success.

### Scope and Intensity

The programs provided quality educational child care and/or preschool as well as support to adults in peer group and family settings. They assessed and achieved long-term results affecting both children and parents.

Each of the individual components was also intensive. Visits were made to the homes of the families weekly to monthly, depending on the program, and ranged from a total of 25 to 60. By comparison, only 12 of the 23 family-support-only programs offered 25 or more home visits. The early childhood educational component ranged from half-day summer sessions to full-day sessions, usually four or five days a week.

The combination of early educational and family support models of intervention may have been crucial to obtaining effects on multiple risks for chronic delinquency. Although an adequate test of the effects of early-education-only programs on both parenting and child cognitive ability has yet to be carried out, Table 5 suggests that family-support-only programs appear to be less likely than combination programs to affect risks in both cognitive and parenting domains.

Of course, it is possible that multiple components are not necessary for long-term effects on chronic delinquency and that some of the single-component programs reviewed have had or will have long-term effects on children and families (none has yet carried out a long-term follow-up). There is evidence, however, from the evaluation of a two-component intervention to reduce antisocial behavior in middle childhood that both child- and parent-focused components were necessary for clinically significant effects.<sup>72</sup>

### Quality

The four programs with long-term effects on antisocial behavior and/or delinquency were quality programs. They had strong theoretical bases for their center-based and home visiting curricula; most curricula

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***The programs with long-term effects on antisocial behavior and/or delinquency were quality programs. Most curricula emphasized the initiation and planning of activities by the child rather than the teacher.***

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emphasized the initiation and planning of activities by the child rather than the teacher (Houston, Syracuse, and Perry programs); home visitor-to-family ratios were generally 1 to 10 or better for full-time home visitors; staff-child ratios in infant/toddler educational child care were in the range of one adult to three or four children, and 1 to 6 in preschool programs; preservice and in-service training was extensive; and supervision was ongoing. (See the article by Frede in this journal issue for further discussion of quality and curricula.)

### Population Served

Although none of the four programs had the prevention of antisocial behavior and crime as their stated purpose, the areas that, in fact, have highest crime rates—urban low-income communities<sup>73</sup>—were targeted in all four programs with long-term effects. These areas and participants were not selected based on risk for delinquency, but rather on the more general principle that disadvantaged families have fewer resources to spend on quality early childhood care and education than do middle- or upper-class families.<sup>74,75</sup>

### Duration and Timing

In general, duration did not appear to be related to the likelihood or magnitude of long-term effects on antisocial behavior and delinquency: none of the programs with long-term effects was shorter than two years, but length of intervention ranged from two to five years. With respect to timing, the four programs were all implemented during the child's first five years. Two of the programs began at or before birth,<sup>59,61</sup> one began at age one,<sup>58</sup> and the other at age three.<sup>60</sup> Most family support interventions reviewed here have been implemented during the prenatal or early infancy periods. This is a time of heightened stress for parents, when they may be particularly open to outside support.<sup>75</sup> Single or adolescent parents, parents of low birth weight infants, and parents with already low levels of social support may benefit particularly from support during the perinatal period.<sup>48,55</sup> Beginning a program before birth would increase utilization of prenatal care in this high-risk population, which may help reduce the incidence of perinatal risk factors for chronic delinquency.

This does not mean that a parent-focused intervention begun later in childhood could not also decrease children's early antisocial behavior.<sup>76</sup> However, it may be that the magnitude of the benefits may be enhanced with earlier services.

While family support may be particularly important during the first few years of life, results of the early education studies reviewed here and in the article by Barnett in this journal issue are mixed as to when is the best time to deliver early education services.

### Summary

In sum, this review demonstrates that, first, there are early risk and protective factors for chronic delinquency. Second, research on possible causal mechanisms for chronic delinquency suggests that providing support for early nurturing, parenting, and verbal ability, as well as ameliorating both family and community level poverty and their correlates, are promising prevention strategies. Third, family support programs are quite likely to reduce risks by improving maternal life course and parenting, but are less likely to improve early child cognitive ability. Fourth, early education programs, conversely, are quite likely to increase early child cog-

nitive ability but seem less likely to affect the maternal life course and parenting. Fifth, combination programs of sufficient intensity and quality are more likely to reduce risks in both areas. Several of these programs, targeting urban, low-income families, have produced long-term decreases in antisocial behavior or chronic delinquency.

## Conclusions

The findings reviewed above provide some compelling suggestions about where efforts should be concentrated in the future.

## Research Implications

Although the research strongly suggests that combination early childhood and family support programs can prevent delinquency, there still remain many questions about how best to design a preventive intervention. Further research is required to identify the specific program characteristics that contribute to the effectiveness of preventive interventions. Planned variation studies, in which different combinations of services at different levels of intensity are compared, are particularly needed. Effects on other outcomes which share risk factors with chronic delinquency, such as early substance abuse, teenage childbearing, and depression, should be investigated. Finally, research on diverse populations, especially those neglected thus far in early childhood care and education research, should be encouraged to determine if effectiveness of services varies across different communities. Most research to date has focused on white or African-American low-income families.

## Program and Policy Implications

The economic rationale for government programs for low-income families has been described as governmental investment in human capital for those families with fewer resources available to invest in their children.<sup>74,77</sup> The costs to government of providing quality early childhood programs, in this view, are balanced against the value to society of increased productivity and decreased social problems. Providing child care resources enables poor parents to work and to increase their education and job skills. Providing poor children with better parenting and better education yields more productive workers in a market which increasingly values highly skilled workers.<sup>74</sup> Early childhood programs that prevent delin-

quency and crime represent at least two potential sources of savings to society: (1) reductions in crime and in justice system costs, and (2) gains in work force participation when youths who are less delinquent than their peers participate more in the legitimate economy.<sup>78</sup>

## Economic Analyses

Three of the four programs that produced long-term effects on crime and delinquency have also reported information about costs and benefits. Two (the Perry Preschool Project and the Syracuse study) report costs or benefits associated with crime or delinquency. The third, the Yale study, primarily focused on costs and benefits associated with educational outcomes, and it will therefore not be reviewed here.<sup>61,67</sup>

The Perry Preschool Project's analysis is the most sophisticated of any of the three (see also the article by Barnett in this journal issue). Monetary values were estimated for the program costs, as well as for benefits in areas such as elementary and secondary education, adult secondary education, postsecondary education, employment-related compensation, public welfare assistance,

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***The costs to government of providing quality early childhood programs are balanced against the value to society of increased productivity and decreased social problems.***

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and delinquency and crime. Results indicated that the program, which cost about \$12,356 per family, yielded benefits totaling \$108,002 per family. The net present value of the program's benefits was \$95,646 (all amounts in 1992 dollars, adjusted for inflation, and calculated with a 3% discount rate). Of the benefits, \$12,796 was due to savings in the justice system, and \$57,585 was due to savings for crime victims.<sup>60</sup> (For additional details, see Table 3 in the article by Barnett in this journal issue.)

In reports concerning the Syracuse program, researchers estimated the costs incurred by control group and program group participants due to court processing, probation supervision, placement in foster

care, nonsecure detention, and secure detention. The four youthful offenders in the program group were judged to have incurred costs from these sources of \$12,111 as compared with costs from these sources of \$107,192 for the 12 offenders in the control group.<sup>59</sup> These data are difficult to interpret, however, without information on the cost of the program and the timing of costs and benefits.

In summary, although only a few studies have calculated the costs and benefits of these programs, it is interesting to note that in one of the best economic assessments conducted to date, the largest percentage of the total economic benefits was associated with decreases in crime and delinquency.

#### **Relevance for Public Policy Today**

The studies reviewed in this article represent years of accumulated experience and clearly suggest that programs combining early childhood education and family support services have helped to prevent delinquency and antisocial behavior. It is less clear, however, that similar programs launched today would generate the same results. The four programs with long-term effects were car-

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*As one element in a comprehensive plan, early education may lessen the current devastating impact of chronic delinquency on America's children and families.*

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ried out in the early to late 1970s; numerous demographic, social, and economic changes have occurred since then which might affect the outcomes of early intervention. For instance, increases in the rate of employment among women, including low-income women, have resulted in greater need for full-time, quality child care, rather than the half-day services provided in most of these programs. Frequent home visiting may now be less attractive to employed parents with already busy schedules. In addition, the surge in youth involvement with the drug trade and with handguns suggests that family-focused interventions alone, without broader efforts to attack these neighborhood level causal factors, may not have their intended impact.

Given the limited number of studies that demonstrated changes in delinquent, criminal, or antisocial behavior, it may be too early to bring combined early education and family support initiatives to national scale based solely on their promise to prevent delinquency. However, there are other compelling rationales to combine early education and family support. These include the multiple needs of many of today's families and children and the recognition that services for children are too often fragmented and uncoordinated.<sup>79</sup> The resultant calls for centralizing and integrating child-focused and family-focused services parallel the approach of programs found promising here in the prevention of delinquency.

New Head Start initiatives and the implementation of two-generation programs such as those reviewed by St. Pierre and colleagues in this journal issue exemplify the sorts of programs that are suggested by this review. Head Start, for example, is seeking to strengthen its family support component. Since its inception in 1965, the program has sought to combine comprehensive family support services with a quality preschool education program,<sup>80</sup> but the family support components of the program are in need of improvement. More than one-third of programs in 1993 had social service worker case-loads of more than 250; in response, the 1993 Advisory Committee on Head Start Quality and Expansion called for a 1 to 35 ratio for all staff who work with families.<sup>81</sup> Proposed improvements in the mental health component<sup>82</sup> and the parent involvement component<sup>83</sup> may contribute to the program's potential as a comprehensive family support program, as well. Efforts to establish a national Head Start for infants and toddlers may also help improve the program's likelihood of decreasing early risks for chronic delinquency.

Two-generation programs combine the goals of economic self-sufficiency with those of family support and preschool education. They provide a mix of child care, family support, parental educational and job training, and preschool education, and have been distinguished from family support programs with less emphasis on job training and parental education. As the article by St. Pierre and colleagues in this journal issue



points out, these are in reality three-component programs, providing adult-focused, parent-focused, and child-focused services, in contrast to the primarily two-component programs reviewed in this article. Two-generation programs of sufficient quality and intensity may address risk factors for delinquency in three important areas: family socioeconomic status, parenting, and child cognitive development.

Combining quality early education and family support services holds great promise for preventing delinquency, both on theoretical grounds, based on what is known

about risk factors for antisocial behavior, and on empirical grounds, based on the results of the program evaluation studies reviewed here. However, even if such combined programs are widely implemented, they will not eliminate juvenile crime, and the early intervention community should not overstate their potential effect in that domain. Nevertheless, as one element in a comprehensive plan to address poverty, drugs, guns, and other environmental causes of crime, early education and family support programs may lessen the current devastating impact of chronic delinquency on America's children and families.

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