THE EFFICACY OF EARLY CHILDHOOD INTERVENTIONS

A report prepared for the Australian Government Department of Family and Community Services

Sarah Wise, Lisa da Silva, Elizabeth Webster and Ann Sanson
The efficacy of early childhood interventions

This report was commissioned by the Australian Government Department of Family and Community Services. It is the product of the collaboration between the Australian Institute of Family Studies and the Melbourne Institute of Applied Economic and Social Research.

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Director’s foreword

I am delighted that the Australian Institute of Family Studies could be involved in the research resulting in this report. Prepared cooperatively with the Melbourne Institute of Applied Economic and Social Research, it represents an important step forward in establishing an evidence base concerning the efficacy of early childhood interventions in the current Australian context.

Although it is widely acknowledged that early childhood provides a unique window of opportunity for optimising children’s capacity for learning, as well as a period where adverse experiences can have serious long-term effects, much less is known about how to transform this knowledge into effective interventions, nor how much investment should be made in these initiatives.

Information about effectiveness of programs currently operating in Australia is especially thin on the ground. One cannot assume that any type of intervention in early childhood will pay long-term dividends. Some interventions are more effective than others but, importantly, some are more cost-effective. It is necessary to scrutinise the evidence about cost effectiveness. As such, the report is especially timely, given the widespread interest in early intervention and prevention, not only across the nation but also internationally.

Cost-effectiveness has not been a particular focus in Australia. Such information is necessary to distinguish those initiatives that are worthy of investment and those that are not.

It is prudent that government is focusing on this issue, and appropriate that the Australian Institute of Family Studies and the Melbourne Institute should be supporting the Australian Government endeavours. The Institute is actively researching across areas such as crime prevention, prevention of drug and alcohol misuse, child abuse prevention, family and relationship support. These are important contributions to the Australian knowledge base. The availability of the Melbourne Institute’s economic expertise has made for a very productive and complementary collaboration.

It is clear that early childhood interventions are generally worthy investments. It is my hope that governments and other stakeholders will accept the guidance contained in this report about how to produce knowledge about the returns on public investment that different programs produce. Children, families, and ultimately society, can all benefit from this knowledge.

I am grateful to the authors of this report, Sarah Wise and Lisa da Silva from the Australian Institute of Family Studies, and Elizabeth Webster from the Melbourne Institute and Ann Sanson now at the University of Melbourne, on their valuable contribution to the literature on early intervention and prevention. I am also grateful to the Family and Children’s Policy Branch of the Australian Government Department of Family and Community Services for its support in commissioning this work.

Professor Alan Hayes
Director
Australian Institute of Family Studies
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Contents

Director’s foreword vi
Acknowledgements vii
About the authors vii
List of tables viii
Executive summary ix

1 Background and purpose of the project 1

2 Terminology and scope of the review 4
   Definition of early childhood interventions 4
   Definition of cost-benefit analyses 4
   Scope of the review 4
   Selection of early childhood interventions 5

3 Classification of interventions 6
   Selected interventions 6
   Intervention clusters 7

4 Adequacy of intervention design and implementation 9
   Dosage of programs 9
   Participation rates 10
   Drop-out rates 11
   Program integrity 11
   Summary 12

5 Adequacy of evaluation design 13
   Evidence rating system 13
   Adequacy of cluster 1 evaluations 14
   Adequacy of cluster 2 evaluations 14
   Adequacy of cluster 3 evaluations 15
   Adequacy of cluster 4 evaluations 16
   Adequacy of cluster 5 evaluations 17
   Relative adequacy of evaluations across clusters 17

6 Effects of early childhood interventions 18
   Assessing program outcomes 18
   Effects of cluster 1 interventions 18
   Effects of cluster 2 interventions 18
   Effects of cluster 3 interventions 19
   Effects of cluster 4 interventions 19
   Effects of cluster 5 interventions 22
   Summary of intervention effects 22

7 Cost-benefit analysis: purposes and principles 23

8 Steps in a cost-benefit analysis 25
   Step 1: Estimating the net impact of the intervention 26
   Step 2: Estimating the social costs and benefits of the intervention in monetary terms 27
   Step 3: Calculating the cost-benefit 29
Interventions in early childhood aimed at improving psychosocial conditions linked to child development have a long history. Evaluations of the impact of early childhood interventions on child and parenting outcomes indicate that they yield positive and substantial short-term effects, but the long-term outcomes have rarely been studied. Studies that have followed children longitudinally have found that cognitive effects tend to diminish over time, but that the interventions have positive long-term effects on crime and delinquency.

Long-term benefits (including cost-savings) of interventions in early childhood continue to be asserted in broad public debates, despite limited empirical support. More extensive examination of the cost effectiveness, or costs and benefits, of early childhood interventions is needed to substantiate claims of effectiveness.

The Australian Government Department of Family and Community Services approached the Australian Institute of Family Studies (Institute or AIFS) and the Melbourne Institute of Applied Economic and Social Research (Melbourne Institute) to conduct the Effectiveness of Early Childhood Interventions (EECI) project. Broadly, the goal was to conduct a review of selected early childhood interventions and provide further information about cost-benefit evaluations in a way that is relevant to Australian policy makers. Although there have been substantive reviews of early childhood intervention (for example, Karoly, Greenwood, Everingham, Hoube, Kilburn, Rydell, Sanders and Chiesa 1998; Mrazek and Brown 2002), there has not been an extensive review of the costs and benefits of early childhood interventions.

For the purpose of the EECI project, early childhood interventions were defined as public programs that attempt to improve child health and development during the period from conception to six years of age. In the current review, 108 national and international interventions with published evaluation data were identified from a systematic search of relevant electronic databases, from which 32 were selected for review.

In selecting these 32 programs, priority was given to programs that were well researched, or where a cost-benefit analysis had been conducted. Large-scale, well-established programs were also given priority, as were programs where the ultimate target population was the child. The 32 selected programs were classified into five clusters according to type of program, foci, location and focal child age.

The adequacy of design and implementation of the programs was reviewed according to four criteria: dosage/intensity, participation, implementation and drop-out rates. These reviews indicated that the adequacy of design and implementation was highly variable.

The adequacy of evaluation design was also reviewed according to a number of criteria. The majority of evaluations were at least adequate and often good or excellent in design.

The effectiveness of interventions was reviewed by an examination of effect sizes. Effect sizes were grouped according to their value into one of four categories; negligible, small, medium and large. Of the interventions that provided effect sizes, many had immediate and short-term, albeit often small, effects. As mentioned previously, very few programs have examined long-term effects. The effect sizes found in interventions that did examine long-term effects indicated that cognitive effects diminished over time, but that interventions had positive effects on some late adolescent and adult outcomes.
While these findings provide some basis for estimating likely future benefits of early intervention programs, missing data on the restricted set of programs included in this review means that it is inappropriate to comment on the utility of early childhood interventions as a general strategy to sustain improvements for children in the long-term.

Moreover, of the 108 interventions that were initially identified, only eight programs included a cost-benefit study. There have been no cost-benefit analyses undertaken of Australian programs.  

A discussion of the purpose of cost-benefit analyses and the process of conducting a cost-benefit analysis follows the evaluation of the effects of early childhood interventions. A critique of the three main formulae or methodologies used in cost-benefit analyses–Net Present Value, Rate of Return and Cost Effectiveness; and discussion of ways of valuing non-market costs and benefits are also provided. Finally, the eight early childhood interventions with a cost-benefit component are critically reviewed according to the three main steps in conducting a cost-benefit analysis: estimating the net impact of the program, estimation of costs and benefits, and calculating net effects.

Overall, this review of early childhood interventions highlights a definite need for more data on early childhood interventions before conclusions regarding cost-benefits are made. It is recommended that evaluations are planned at the same time as programs are designed, to ensure they are set up to enable cost-benefit analyses. This involves random assignment of the target population, as well as collection of data on participant characteristics, program costs and program effects.

1 However, it is worth noting that a cost-effectiveness study has been conducted on the Positive Parenting Program (Triple P: Turner, Mihalopoulos, Murphy-Brennan and Sanders 2004).
Interventions to promote positive early childhood environments and optimal development are not new. Intensive pilot interventions such as the Perry Preschool Project, which ran between 1962 and 1967 (Schweinhart, Barnes and Weikart 1993), and large-scale ongoing interventions such as Head Start (FACES 2003) are explicitly aimed at improving psychosocial conditions linked to child development in the pre-school years. Developmental gains are also expected to carry over into later stages of development, resulting in fewer problems and better functioning into middle childhood, adolescence and beyond.

The advent of a new knowledge base from developmental neuroscience, and growing evidence from longitudinal studies, has strengthened the argument for expenditure on interventions in early childhood.

Early childhood is now understood to be a “sensitive” period for brain development (also sometimes referred to as a “critical period”, but see Bailey (2002) for a critique). There is a proven relationship between the quality of early childhood experiences – that is, the amount of positive stimulation and sensitive, responsive caring by familiar adults – and the developing capabilities of the brain (Shonkoff and Phillips 2000). Negative experiences, such as exposure to a violent home environment, are also linked to sustained, harmful effects on brain function, and, in turn, negative effects on behaviour, cognition and emotional wellbeing (Schorr 1997). Poor environmental circumstances, such as low family income, have particularly negative effects on children’s cognitive development, behaviour and school achievement (Bailey 2002; Brooks-Gunn 2003).

It is generally accepted that experiences in the early years provide a foundation for future development. This of course does not preclude the possibility of change in developmental pathways depending on later experiences (Bailey 2002; Brooks-Gunn 2003; Shonkoff and Phillips 2000). Some commentators have concluded that experiences and circumstances from conception to age six, and particularly in the first three years, affect brain development in a way that “will affect learning, health and behaviour throughout life” (McCain and Mustard 1999:5).

The promise of diminishing the burden of disease and dysfunction across the lifespan has encouraged governments and other agencies to invest more heavily in children before they enter formal schooling. This has involved a specific focus on targeted early childhood interventions to assist children from disadvantaged backgrounds to enter school on a more equal footing with more advantaged children (Brooks-Gunn 2003).

There has also been a diversification of early childhood interventions in step with theoretical shifts in developmental science. The evolution of comprehensive, holistic or “multilevel” interventions, which employ programs, services and benefits that target outcomes across child, parent and community domains, reflect ecologically based models of child development, wherein the child is viewed in the context of the family, the family in the context of the community, and the community in the context of society at large.

The aims of early childhood interventions have also broadened. A new body of literature emphasises the importance of focusing on non-cognitive skills as a critical component of child success. If early childhood interventions can avoid the need for special education services at school, and help children get along better with peers, then they are deemed successful, despite their lack of long-term improvements in cognitive skills (Currie 2003).
Despite a strong theoretical base for establishing a foundation of optimal early childhood experiences, it is clear that without appropriate interventions at other crucial developmental stages, children will not be safeguarded from problems in the years to come (Bacharach 2002; Zigler and Styfco 1996; Brooks-Gunn 2003). Brooks-Gunn (2003: 1) even suggests: “It is magical thinking to expect that if we intervene in the early years, no further help will be needed by children in the elementary school years and beyond”.

A small collection of systematic reviews provides a central source of information about the effectiveness of early childhood interventions. The RAND report, entitled “Investing in Our Children: What We Know and Don’t Know about the Costs and Benefits of Early Childhood Interventions” (Karoly et al.1998), provides an independent, objective review of the state of knowledge on early childhood interventions at the time the report was produced in 1997. Similarly, the “Invest in Kids” project (Russell 2002) provides a summary of the outcomes of a large number of early childhood interventions, categorised according to the strength of the evaluation design and intervention type. Undertakings such as these show that a significant proportion of well designed early childhood interventions yield positive and substantial short-term outcomes, with cognitive effects typically diminishing over time but positive effects on crime rates and employment being evident.

The Perry Preschool Project is one of only a handful of interventions with a longitudinal evaluation component, following children to the age of 27 years. It found that short-term improvements in cognitive outcomes weakened over time. However, the intervention did show a reduction in crime rates and better employment outcomes during late adolescence and early adulthood (Schweinhart, Barnes, and Weikart 1993). Barnett’s (1995: 43) renowned review of the long-term effects of early childhood interventions also concluded that they can produce “sizable persistent effects on achievement, grade retention, special education, high school graduation and socialization” Further, there is considerable research suggesting that the effects of interventions in early childhood can be sustained over time if subsequent schooling is of high quality (for example, Currie and Thomas 2000).

In sum, many early childhood interventions have demonstrated positive, and often quite strong, short-term effects, but further longitudinal research is needed to confirm mid- to long-term effects (Emde 2003; Reynolds 1994). Further, program evaluations are limited mainly to measuring the effects the intervention has had on characteristics of the sample, or outcomes (such as parent employment or child literacy and numeracy), without taking the extra steps associated with cost-benefit analyses.

Despite this, the long-term benefits (including cost-savings) of interventions in early childhood are continually communicated in broad public debates, with the “seven dollar return to every dollar spent” finding of the Perry Preschool Project (Barnett 1993b; Weikart 1996) receiving a regular airing. Just how generalisable the Perry finding is to other interventions in early childhood is actually a matter for debate, as very few interventions have collected the data needed to perform cost-savings estimations.

The Australian Government Department of Family and Community Services approached the Australian Institute of Family Studies (Institute or AIFS) and the Melbourne Institute of Applied Economic and Social Research (Melbourne Institute) to conduct the Effectiveness of Early Childhood Interventions (EECI) project. Broadly, the goal was to conduct a review of select early childhood interventions and provide further information about cost-benefit evaluations. This includes an

2 See also two recent Australian reviews of early childhood interventions. First, Bowes (2000) provides a review of parent education and support programs in the United States. Second, the report titled “A Head Start for Australia: An early years framework” (NSW and QLD Commissions for Children and Young People) provides an examination of the research findings on early intervention programs and their application to the Australian context. Recent commentaries by Brooks-Gunn (2003) and Anderson, Shinn, Fulllove, Scrimshaw, Fielding, Normand, Carande-Kulis and the Task Force on Community Preventive Services (2003) are also relevant.

3 It bears noting that the positive effects of targeted early childhood interventions, while substantial, have not raised outcomes among children from disadvantaged backgrounds to the same level as their more advantaged peers (see Zigler 2003).
attempt to model likely savings from early childhood interventions in a way that is relevant to Australian policy makers.

Specifically, the EECI project aims to report objectively on the cost savings potential of early childhood interventions, and what further information is required to assemble an evidence base on cost-benefits of early childhood interventions in Australia. This should assist future judgements about investments in early childhood interventions in Australia.

The key objectives of the project are to: evaluate methodologies for producing cost-benefit analyses of early childhood interventions; describe the appropriateness of existing evaluation data for conducting cost-benefit analyses of early childhood interventions; and evaluate the extent to which Australian evaluations provide the necessary parameters for cost-benefit analyses.

To meet these goals, national and international early childhood interventions were identified through a systematic search of the available literature. Characteristics of the interventions, including the type of intervention, the intervention received, the subject population, the evaluation methodology, program costs, and anticipated and actual benefits, were documented. Programs meeting predetermined criteria were then selected for a more detailed assessment.

A select subset of the initial sample of interventions was then classified into one of five “clusters” according to key program components. This enabled easy interpretation of the adequacy of the design, implementation and evaluation of interventions included in the review and provided a background for the review of the rigour of cost-benefit studies that follows.

Discussion of the parameters necessary to perform cost-benefit analyses, including ways of quantifying the benefits of interventions that do not have a “price”, such as child behaviours, mother’s social support and parenting, precedes an evaluation of the cost-benefit methodologies undertaken on interventions in this review. Finally, recommendations are made as to the appropriate model to determine the cost-benefits of early childhood interventions in Australia.
Definition of early childhood interventions

For the purpose of the EECI project, early childhood interventions were defined as programs that attempt to improve child health and development during the period from conception to six years of age with the expectation that these improvements will have long-term consequences for child development and wellbeing.

Early childhood interventions include:

- Programs that focus on “health promotion”, or the prevention of onset of mental, social and behavioural problems by encouraging positive development and resiliency. Early childhood health promotion interventions may be universally accessible, targeting the general public or an entire population (also referred to as primary prevention programs), or tailored towards children or families believed to be at high risk of problems developing (also referred to as targeted or selective programs, or secondary prevention programs).

- Programs that focus on preventing the progression of problems that have already surfaced – also known as indicated programs, early childhood early intervention programs, or tertiary prevention programs.

Early childhood interventions may have one or more of the following outcome objectives or foci – parent–child relationships, parental knowledge, parenting skills, social support, the child’s cognitive, language and social development, school performance, and broader community and social conditions (for example, economic circumstances of the family) that interact with parental functioning and the child’s wellbeing.

Definition of cost-benefit analyses

In the current report, cost-benefit “methodologies” are analyses that include three estimations – present value, rate of return, and cost effectiveness. (There are several other common estimations such as the cut-off period and the pay-off period, but as these are mainly used in business where debt financing is used and risk of bankruptcy is an issue, they are not reviewed here.)

Scope of the review

The EECI project did not aim to provide an exhaustive review of early childhood interventions. Rather, its aim was to identify a combination of different types of early childhood intervention programs, where program efficacy had been well researched, or where a cost-benefit analysis had been undertaken. Large scale, well established public programs suggested by respected authorities were given priority. Clinical programs, case identification and treatment programs were beyond the ambit of the review.

Further, the project emphasised programs where the ultimate target population was the child, and, preferably, where the intervention was child-focused or oriented to child outcomes, such as the child’s cognitive, language and social development and school performance. A smaller percentage of the interventions were parent or family oriented. These types of interventions focus on positive changes for the parent (such as parenting knowledge or health and wellbeing) or family (such as economic self-sufficiency), on the assumption that these benefits will have an indirect impact on the child.

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4 Resiliency refers to the ability to recover quickly from and adapt successfully to adversity (www.resiliency.com/htm/whatissresiliency).
The review also focused on interventions based on an “ecological” model of child development, that is, interventions that are multidimensional, or seek to intervene at the level of the child, the parent or family and the community (sometimes referred to as two generation programs in the United States literature), or comprehensive interventions, which seek to promote a range of positive outcomes, such as enhanced health, school readiness and emotional and social wellbeing.

Selection of early childhood interventions

The first stage in selecting early childhood interventions for the current project involved a systematic literature review of early childhood interventions with published evaluation data. The World Wide Web, relevant electronic databases (for example, Psychinfo, ERIC), English language peer reviewed journals, and expert referrals formed the basis for the search.

This process yielded 108 early childhood interventions. A full summary of these programs appears in Appendix 1. These interventions were largely situated in the United States, and included interventions that are no longer running such as the Perry Preschool Project (1962-1967, Ypsilanti, US) and the Elmira Prenatal/Early Infancy Project (1978-1982, Elmira, US), but have followed up participants over a number of years, as well as interventions that are currently operating (such as Head Start and Early Head Start, both operated at multiple sites in the US).

Effort was also made to obtain information about interventions running in non-English-speaking countries. Information was gathered on interventions such as the Wasi Wasi Home Child care program (Peru), the Early Enrichment Project (Turkey), and the Colombia Promesa Program (Colombia). These interventions, most often run in developing countries, differ from interventions in Western countries in a number of ways. First, expenditure per child is lower; second, staff are generally less well trained; and third, nutrition and physical health is of primary focus, as opposed to developmental health more broadly (Behrman, Cheng and Todd 2004).

A number of Australian interventions were also found via the initial search, such as Best Start (DHS Victoria 2001), Good Beginnings (www.goodbeginnings.net.au) and Families First (Fisher, Kemp and Tudball 2002). Some interventions that were developed in other countries and later taken up in Australia were also found, such as the Home Instruction for Parents of Preschool Youngsters (HIPPY) program, developed in Israel.

Of these 108 interventions, many were demonstration or pilot programs that involved only small sample sizes. In addition, very few involved longitudinal follow-up. The majority of interventions were targeted, typically at children and families from disadvantaged backgrounds – for example, low socio-economic status, children at risk for child abuse and neglect, adolescent mothers, children with behavioural problems.

A variety of intervention strategies were represented – for example, home visiting, centre-based services, group meetings and workshops. Some of the interventions were operated at a single location, while others involved coordination of multiple initiatives at multiple sites. Evaluations of the interventions ranged from weak (small, qualitative studies without a comparison sample) to rigorous (large, randomised, longitudinal studies).

The outcomes measured included child outcomes (typically cognitive, behavioural and social), parent outcomes (typically parenting and parental wellbeing) and family outcomes (typically family relationships and economic self-sufficiency). The longitudinal outcomes examined were most often child outcomes and included crime and delinquency, education, employment and income.

The sample of 108 interventions was then reduced to a smaller subset of interventions that met the essential criteria for inclusion; as previously discussed, a strong evaluation component was essential. This process also aimed to identify a range of different programs in order to provide a broad representation of early childhood interventions. All but three of the interventions operating in Australia (the Positive Parenting Program (Triple P), Baby Happiness, Understanding, Giving and Sharing (Baby HUGS) and Support at Home for Early Language and Literacy (SHELLS)) were “screened-out” on this criterion. Interventions that were not appropriately “child focused”, or did not meet the definition of an early childhood intervention outlined above were also eliminated, as well as interventions that were determined to have inadequate evaluations due to very small sample sizes or inappropriate designs.
A total of 32 interventions were determined to meet our criteria for selection. They are listed below, along with the country and year(s) of operation. Interventions with a cost-benefit component are highlighted with an asterisk (*).

### Selected interventions

<table>
<thead>
<tr>
<th>No.</th>
<th>Intervention</th>
<th>Location</th>
<th>Year(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Head Start, multiple sites, US</td>
<td>1965-current</td>
<td></td>
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<tr>
<td>4</td>
<td>Early Head Start, multiple sites, US</td>
<td>1995-current</td>
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<tr>
<td>5</td>
<td>Carolina Abecedarian Project, Carolina, US</td>
<td>1972-1985</td>
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<tr>
<td>6</td>
<td>Infant Health and Development Project, 8 sites</td>
<td>1985-2000</td>
<td></td>
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<tr>
<td>7</td>
<td>Chicago Child-Parent Center, Chicago, US</td>
<td>1967-current</td>
<td></td>
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<tr>
<td>8</td>
<td>Syracuse Family Development Research Program, Syracuse, US</td>
<td>1969-1975</td>
<td></td>
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<tr>
<td>12</td>
<td>Starting Early Starting Smart, 12 sites, US</td>
<td>1997-2001</td>
<td></td>
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<tr>
<td>13</td>
<td>Better Beginnings, Better Futures, Canada</td>
<td>1991-current</td>
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<tr>
<td>14</td>
<td>Sure Start, multiple sites, United Kingdom</td>
<td>1999-current</td>
<td></td>
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<tr>
<td>15</td>
<td>Positive Parenting Program, multiple sites, Australia</td>
<td>Ongoing</td>
<td></td>
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<tr>
<td>16</td>
<td>Support at Home for Early Language and Literacy, NSW, Australia</td>
<td>1997-current</td>
<td></td>
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<tr>
<td>17</td>
<td>Baby Happiness, Understanding, Giving and Sharing Program, Australia</td>
<td>Current</td>
<td></td>
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<td>18</td>
<td>Parents as Teachers, Massachusetts, US</td>
<td>1984-current</td>
<td></td>
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<tr>
<td>19</td>
<td>Home Instruction for Parents of Preschool Youngsters Program, multiple sites</td>
<td>International</td>
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<td></td>
<td></td>
<td>Ongoing</td>
<td></td>
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<tr>
<td>20</td>
<td>New Parent Infant Network, United Kingdom</td>
<td>1980-current</td>
<td></td>
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<tr>
<td>22</td>
<td>Even Start, multiple sites, US</td>
<td>1989-current</td>
<td></td>
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<tr>
<td>23</td>
<td>Comprehensive Child Development Program, multiple sites</td>
<td>1990-1995</td>
<td></td>
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<tr>
<td>26</td>
<td>Teenage Parent Demonstration Program, 3 sites</td>
<td>1986-1998</td>
<td></td>
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<tr>
<td>27</td>
<td>Cuyahoga County Early Childhood Initiative, Ohio</td>
<td>2000-2002</td>
<td></td>
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<tr>
<td>28</td>
<td>Saginaw Prekindergarten Program, Michigan</td>
<td>1960-current</td>
<td></td>
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<tr>
<td>29</td>
<td>Bolivia Integrated Child Development Project, Bolivia</td>
<td>Ongoing</td>
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<tr>
<td>30</td>
<td>Early Enrichment Project, Turkey</td>
<td>1982-1986</td>
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<tr>
<td>31</td>
<td>Incredible Years, US and United Kingdom</td>
<td>1982-current</td>
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</table>

These 32 early childhood interventions selected for further evaluation (referred as the interventions from this point) are more fully documented in Appendix 2. Interventions are documented by name of the intervention, where the program was located (for example, country), target population, sample size, intervention strategy, where the intervention took place (for example, home
visitation, community centre), anticipated outcomes/benefits, time frame for anticipated benefits and details of the intervention evaluation, including findings related to the impact of the intervention on outcomes and whether a cost-benefit analysis had been conducted.

The interventions were grouped to allow for ease of reporting and interpretation. Interventions have been classified in a number of ways in the early intervention/prevention literature (for example, Mrazek and Brown 2002; Brooks-Gunn 2003). They have been classified according to location, target, timing, intensity, extensiveness and curriculum. The EECI project attempted to incorporate some of these approaches, resulting in interventions being classified in terms of four key intervention components:

- **Type of intervention:** universal, targeted or indicated.
- **Foci/benefit:** child outcome, parent/family outcome or child and parent/family/community outcomes (multi-level programs).
- **Intervention location:** home visit, clinic-based or child care centre/preschool.
- **Focal age of children:** prenatal, infancy, toddler, pre-school or early school aged.

**Intervention “clusters”**

The interventions were examined in terms of the four key intervention components described above and determined to fall into one of five intervention types or “clusters”. These groupings are described below.

**Cluster 1: targeted, child focused, centre based, preschool age**

Interventions grouped in “cluster 1” are targeted interventions that aim to improve child development directly – that is, through interventions involving children as participants. The target population is primarily pre-school aged children from low-income or “at-risk” neighbourhoods. These programs are most likely to be delivered in a child care or pre-school facility. The six interventions included in this cluster are:

- Perry Preschool Project (Perry)*
- Head Start
- High/Scope Preschool Curriculum Comparison Study (High/Scope)
- Saginaw Pre-Kindergarten Project (Saginaw)
- Bolivia Integrated Child Development Program (PIDI)*
- Chicago Child-Parent Center (CPC)*

**Cluster 2: targeted, parent focused, home visits, all ages**

Interventions that are grouped in “cluster 2” are targeted interventions usually aimed at improving parent outcomes, such as parenting skills or social support. The target population receiving the interventions are parents with children across the early childhood age range from low-income backgrounds, or parents associated with some other risk factor (for example, depression, parent of a low birth-weight baby). The interventions typically include a strong home-visitation component. The eight interventions included in this cluster are:

- Elmira Pre-natal and Early Infancy Project (PEIP)*
- Houston Parent-Child Development Centre (PCDC)
- Home Instruction for Parents of Pre-school Youngsters (HIPPY)
- Hawaii’s Healthy Start Program (Healthy Start)
- Early Enrichment Project (EEP)
- Support at Home for Early Language and Literacy (SHELLS)
- Baby Happiness, Understanding, Giving and Sharing Program (Baby HUGS)
- Project 12-ways
Cluster 3: targeted, family economic/welfare focused, all ages

Interventions that are grouped in “cluster 3” are targeted interventions aimed at improving familial economic self-sufficiency or parental employment. The target population is parents of children across the early childhood age range from poor backgrounds or welfare recipients. These interventions include case management components, financial aid and additional services. The three interventions included in this cluster are:

- New Hope Child and Family Study (New Hope)
- Florida Family Transition Project (FTP)*
- Teenage Parent Demonstration Project (TPDP)

Cluster 4: targeted, holistic, various locations, all ages

Interventions that are grouped in “cluster 4” are targeted interventions. They are holistic interventions, that is, they aim to improve outcomes for both children across the early childhood age range and their parents. Thus, the intervention is targeted at both parents and children. These programs typically involve parent skills training and a child education component, and are delivered in various locations. The twelve interventions included in this cluster are:

- Early Head Start
- Carolina Abecedarian Project (Abecedarian)*
- Infant Health and Development Project (IHDP)
- Syracuse Family Development Research Program (Syracuse)
- Starting Early Starting Smart (SESS)*
- Even Start
- Comprehensive Child Development Program (CCDP)
- Incredible Years
- Early Childhood Education and Assistance Program (ECEAP)
- Better Beginnings Better Futures (BBBF)
- Sure Start
- New Parent Infant Network (NEWPIN)

Cluster 5: universal, various foci, various locations, all ages

Interventions that are grouped in “cluster 5” are universal interventions. They are focused variously at children only, parents only or children and their parents, and apply to children across the early childhood age range. The intervention strategy and program location vary. The three interventions included in this cluster are:

- Positive Parenting Program (Triple P) *
- Parents as Teachers (PAT)
- Cuyahoga County Early Childhood Initiative (Cuyahoga)
It is important to interpret evaluation findings in the context of the strengths and weaknesses of the intervention design and implementation, as well as the strengths and weaknesses of the evaluation methodology. If an intervention has not been designed well or implemented according to plan, any evaluation of the program will be misrepresentative of the program it purports to be evaluating (Mrazek and Brown 2002).

Dryfoos (1990) suggests that effective programs are “high-dose” and involve a structured curriculum. These issues, as well as participation rates, program integrity (the extent to which the program was delivered as intended) and drop-out rates/attrition are discussed in relation to the five intervention clusters below.

**Dosage of programs**

Dosage refers to the amount of intervention provided. Encompassed within the term dosage are the concepts of intensity and duration. For example, participants may receive the same “dosage” from an intensive intervention implemented over a short duration, and a less intensive intervention over a longer duration.

In early childhood interventions, the evidence supports the notion that “more is better” (Berlin, O’Neal and Brooks-Gunn 1998: 8). Interventions that are high on intensity and duration are thought to be more effective than those that are less intense, and run for a shorter duration. For example, Reynolds (1994) suggests that intervention effects are stronger and more lasting for programs that are of three to four years duration, compared to those of only one year duration. Other researchers have also suggested that programs of short duration have limited effects and that effects are more likely to be sustained for programs that are intensive and continue into the school-age years (Brooks-Gunn 2003; Fonagy 2001). The dosage of programs included in the current report was highly variable.

**Cluster 1: targeted, child focused, centre based, preschool age.** Children in cluster 1 interventions typically received a high dose of intervention, receiving at least part-day child care or education five days a week for the most part of a year. The Perry Preschool Project and the High/Scope preschool curriculum study also included weekly or fortnightly home visits. Interventions were offered for at least one year, with some children receiving the intervention for up to six years.

**Cluster 2: targeted, parent focused, home visits, all ages.** Parents in cluster 2 interventions also received a reasonably high dose of intervention. Contact with parents was at least weekly, although this varied from phase to phase. For example, the Elmira PEIP began with weekly home visits, reduced to fortnightly visits, went back to weekly visits during the six weeks after birth and then gradually became less frequent over time. In terms of duration, programs ranged from weekly sessions over 16 weeks to regular contact over three years.

**Cluster 3: targeted, family economic/welfare focused, all ages.** Interventions in cluster 3 were typically medium-dose. Although the intensity was low (actual person-to-person contact was minimal, and took the form of a meeting with a case manager who provided support and assistance in finding employment), programs ran for approximately two years.

**Cluster 4: targeted, holistic, various locations, all ages.** Participants in cluster 4 typically received a high-dose intervention, although the nature of the intervention (for example, centre based and
home visiting), varied from family to family according to need (for example, Early Head Start, Sure Start and NEWPIN). Services targeted at children were usually the most intensive (often five days a week), while parent services were less intensive (weekly to fortnightly). The programs operated from 22 weeks to five years.

Cluster 5: universal, various foci, various locations, all ages. The intensity of programs in intervention cluster 5 varied widely, even within the same program. For example, the Triple P program ranged from very low dose (parenting information communicated via the media) to weekly parent training sessions over ten weeks, while the PAT program lasted three years.

Participants in clusters 1 and 4 interventions received the highest dose of intervention, suggesting that these interventions may be the most effective (Reynolds 1994; Berlin, O’Neal and Brooks-Gunn 1998).

**Participation rates**

Involvement in early childhood interventions is usually voluntary, thus participation rates (either full or part-participation) can vary dramatically from program to program. Low participation among those expected to benefit the most from an intervention (children from low-income families, for example) will most likely result in negatively skewed effects (that is, effects will not be as positive as expected), whereas higher participation rates are often associated with better outcomes (see Berlin, O’Neal and Brooks-Gunn 1998). Although what constitutes low participation is not made explicit in the literature, low participation of a target group leads to participation threat to the evaluation design (Mrazek and Brown 2002; Berlin, O’Neal and Brooks-Gunn 1998). Participation rates for programs included in the current report are discussed below.

Cluster 1: targeted, child focused, centre based, preschool age. Participation in cluster 1 interventions was not always reported. Among programs reporting this information, participation rates were reasonably high. The Perry Preschool Project reported a 69 per cent full attendance rate and the High/Scope Preschool Curriculum study reported an 80 per cent participation rate in home visits.

Cluster 2: targeted, parent focused, home visits, all ages. Of the interventions in cluster 2 that reported participation rates, participation was quite low. For example, the Elmira PEIP reported that an average of 23 home visits were conducted between birth and two years, with a range of 0 to 59 (59 visits were specified by the program), while Hawaii’s Healthy Start Program reported that very few families were visited weekly, as intended. Other programs, for example HIPPY, had difficulty determining participation rates.

Cluster 3, targeted, family economic/welfare focused, all ages. Given that financial incentives were used to encourage participation, the rates of participation in the programs in cluster 3 were typically near 100 per cent.

Cluster 4, targeted, holistic, various locations, all ages. Participation rates were not often reported for cluster 4. The available information indicated extreme variation in participation rates.

Cluster 5: universal, various foci, various locations, all ages. Participation rates in cluster 5 interventions were not easy to measure (for the media communication strategy of Triple P, for example). However, problems with non-attendance at groups and lack of success in phone contacts were documented. Participation in the Cuyahoga program was very high during the first three months; however no additional information was available. Participation information was not available for PAT.

In all clusters except cluster 3, participation was variable. The higher rates of participation in cluster 3 are most likely due to the low intensity of the interventions and the financial incentives for participation. The evaluations of those interventions with very low participation rates need to be interpreted with caution, as they are based on participants who did not receive the full intervention or did not participate in the intervention at all. In addition, there may be systematic differences between families who participated in the intervention and those that did not that could bias evaluation findings.
Drop-out rates

“Drop-out rates” refer to participants who began, but did not complete the full intervention. High drop-out rates pose an attrition threat to the evaluation design (Mrazek and Brown 2002), and can result in positively skewed findings, as participants who drop out may do so because they have not found the intervention acceptable or useful. However, it is often possible to statistically account for drop-out rates in an evaluation by comparing characteristics of participants who dropped out to the characteristics of participants who continued with the intervention, and controlling for any differences between the two groups. Drop-out rates for the programs reviewed in the current report are outlined below.

Cluster 1: targeted, child focused, centre based, preschool age. Drop-out rates were not reported for interventions in cluster 1.

Cluster 2: targeted, parent focused, home visits, all ages. Of the cluster 2 interventions that reported drop-out rates, the rates were quite high, ranging from 40 per cent to 69 per cent.

Cluster 3: targeted, family economic/welfare focused, all ages. Given the financial incentives, as well as the mandatory nature of some of the programs, drop-out rates in cluster 3 were close to zero.

Cluster 4: targeted, holistic, various locations, all ages. Drop-out rates in the interventions in cluster 4 were high, ranging from 24 per cent to 67 per cent.

Cluster 5: universal, various foci, various locations, all ages. Drop-out rates were not reported for any of the interventions in cluster 5.

In summary, drop-out rates when reported were generally high across all clusters, except for those interventions in cluster 3. This reflects the fact that these interventions were often mandatory, or involved some type of financial incentive for participation.

Program integrity

Program integrity refers to the implementation of the program according to its design (that is, the same content, delivered in the same way). The quality of program implementation is perceived to influence program effectiveness (Shonkoff and Phillips 2000), and poor implementation leads to an implementation threat to the evaluation design (Mrazek and Brown 2002). Staff qualifications, staff to child ratios and staff turnover are aspects of program implementation that can affect program integrity. Schorr (1997), for example, suggests that higher qualified and more experienced staff result in greater program effectiveness (see also Berlin, O’Neal and Brooks-Gunn 1998). Tomison and Wise (1999) suggest that professional staff are particularly necessary when dealing with very vulnerable families, or where there is a risk of child maltreatment.

Although it is far more difficult to evaluate programs that do not follow a strict curriculum (such as programs in cluster 5 which are tailored to family and community needs), flexibility in program delivery may be necessary to meet the specific needs of individuals and families. The integrity of programs under review in this report are discussed below.

Cluster 1: targeted, child focused, centre based, preschool age. Cluster 1 interventions were generally highly standardised and of high quality. Low staff to child ratios (ranging from 1:5 to 1:8 depending upon children’s ages) were employed, and staff were highly qualified. Staff turnover rates, however, could have been improved upon. The Perry Preschool Project reported that ten teachers occupied four positions over five years and the High/Scope Preschool Curriculum study reported that new teachers were appointed in the second year of the study. Three of the six interventions involved set programs. The remaining three, although guided by strict protocols, were not implemented in the same manner from site to site, meaning that there was not one consistent program to evaluate.

Cluster 2: targeted, parent focused, home visits, all ages. In most cases, the staffing of programs in cluster 2 involved paraprofessionals (lay people trained specifically to implement the program), often
from the same community as participants. Three programs were staffed by professionals; the Elmira PEIP, Baby HUGS and Project 12-ways. Although most interventions had some set guidelines, most were not standardised but administered according to individual or community need.

**Cluster 3: targeted, family economic/welfare focused, all ages.** Interventions in cluster 3 were staffed by employees of the relevant social services department, and were typically trained social workers. Program content varied from participant to participant, with some participants attending very few sessions and others attending quite a number. However, implementation was successful in terms of applying the specified financial incentives or disincentives.

**Cluster 4: targeted, holistic, various locations, all ages.** Cluster 4 interventions ranged from highly structured and standardised (for example, Incredible Years) to highly unstructured and non-standardised (for example, Even Start and SESS). Staff to child ratios in child care centres were good to very good; usually about 1:3 for infants and 1:6 for preschool aged children. Professionals or paraprofessionals most often implemented the programs and typically received ongoing training and/or supervision. For example, all staff (including drivers and cooks) of the Syracuse FDRP received two weeks of intensive training each year.

**Cluster 5: universal, various foci, various locations, all ages.** The interventions in cluster 5 were typically administered by professionals, although, with the exception of Triple P, the program content varied from participant to participant (for example, Cuyahoga).

In summary, most interventions were administered by professional or paraprofessional staff, which is likely to enhance intervention effectiveness (Schorr 1997). Most interventions had some form of flexibility in-built, although most followed some form of protocol. The most standardised interventions were found in cluster 1. Evaluations of the interventions that were not standardised need to be interpreted with care, as an implementation threat to the design may be present (Mrazek and Brown 2002).

**Summary**

Overall, very few of the programs reviewed in this report were adequate in all areas of design and implementation. As suggested above, although the adequacy of interventions within clusters was variable, the design and implementation of interventions in cluster 1 appear to be the most adequate across all aspects of design and implementation. Although dosage levels were high, other aspects of design and implementation were quite poor for cluster 2 interventions. Although most aspects of design and implementation were adequate for interventions in cluster 3, intensity levels were low. Given the great variability in cluster 4, it is difficult to draw any conclusions about the adequacy of targeted, holistic interventions. Similarly, it is difficult to draw conclusions about the adequacy of universal interventions in cluster 5 because of the limited information available about their design and implementation.
Ideally, evaluations of interventions should be systematic, comprehensive and use rigorous scientific controls, such as randomised trials and sufficient statistical power, to find meaningful program effects (Sanders 2003). Some existing reviews of program evaluations have developed standards, grades or levels of evidence for early childhood interventions, based on certain criteria. These categories are used as a means of reporting the rigour of the evaluation design (for example, Mrazek and Brown 2002).

**Evidence rating system**

The evidence rating system adopted in this report aims to provide information on a number of fundamental research design elements. The elements included in this review are:

- **Appropriate evaluation design methodology.** Evaluations (including cost-benefits analyses) require an appropriate control or comparison group. This can be achieved either by randomly assigning participants to be in the intervention or control group, or by selecting a group of participants that are matched to the intervention group on a number of characteristics such as gender and age (matched comparison group).

- **Pre-intervention data.** For matching intervention and control groups, and to detect change as a result of implementation, it is necessary to collect baseline information.

- **Intermediate follow-up and long-term follow-up.** To determine whether the intervention has had any short-term and/or long-term effects, outcome data should be regularly collected on the intervention and comparison groups. Ideally, follow-up should continue for a number of years.

- **Representative sample of participants in the evaluation.** To ensure that an evaluation is representative of the intervention it is evaluating, the evaluation sample must be representative of the whole sample that received the intervention.

- **Low attrition at follow-up and non-random attrition.** Attrition in regard to evaluation integrity refers to the number of participants that could not be included in the immediate or long-term follow-up. Attrition is generally deemed to be acceptable if it is no more than 10 per cent per follow-up time point. Therefore, in a sample of 100, no more than ten participants could be lost at each follow-up time point.

- **Adequate statistical power.** To ensure that an evaluation is statistically adequate, the case-to-variable ratio used in an analysis needs to be considered. A minimum of five participants for every one characteristic measured is standard.

- **Reliable measures.** The integrity of an evaluation is enhanced if the tools used to measure outcomes are standardised (that is, have known psychometric properties) and widely used.

- **Appropriate choice of measures.** In making decisions about how outcomes are to be measured, serious consideration must be given to the measures used. A measure that does not adequately assess what evaluators want it to assess will compromise the integrity of the evaluation.

- **Appropriate analytic approach.** This criterion refers to the use of appropriate statistical techniques. This is necessary to ensure that the findings are reliable.

The presence or absence of each design element is recorded in Tables 1-5 below. Full details of the intervention evaluations and outcomes are provided in Appendix 2.
Adequacy of cluster 1 evaluations

All evaluations in cluster 1 included a representative sample of participants. Most used reliable measures, made appropriate choices about measures and used appropriate analytic approaches. Four of the six interventions (Perry, CPC, High/Scope and PIDI) included an appropriate control or comparison group and four (Perry, Head Start, High/Scope, PIDI) collected pre-intervention data. Half of the interventions had follow-up data (Perry, CPC, High/Scope).

The evaluation integrity of three interventions in cluster 1 was very good, with all three interventions containing nine of the ten research design elements (Perry, CPC, High/Scope). The evaluation integrity of one intervention (Saginaw) was very poor, containing only two of the research design elements; while the evaluation integrity of the remaining two interventions (Head Start, PIDI) was moderate (six design elements). These details are illustrated in Table 1.

Adequacy of cluster 2 evaluations

All but one of the evaluations in cluster 2 (SHELLS) contained an appropriate control or comparison group. All of the evaluations included pre-intervention measures. SHELLS and Baby HUGS did not collect follow-up data, while the remaining evaluations included at least intermediate follow-up data. Half of the evaluations did not have adequate statistical power and half did not use reliable measures.

The evaluation integrity of one intervention (Elmira PEIP) was excellent, reflecting all ten of the design elements. One intervention (SHELLS) had very poor evaluation integrity (one design element present) while the evaluation integrity of the remaining six interventions was moderate to good. These details are illustrated in Table 2.

Table 1 Adequacy of cluster 1 evaluations

<table>
<thead>
<tr>
<th></th>
<th>Perry</th>
<th>Head Start</th>
<th>CPC</th>
<th>High/Scope</th>
<th>Saginaw</th>
<th>PIDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Includes appropriately-matched comparison group or randomised control design methodology</td>
<td>✓</td>
<td>x</td>
<td>✓¹</td>
<td>✓</td>
<td>x</td>
<td>x⁴</td>
</tr>
<tr>
<td>Pre-intervention (baseline) data available</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>x</td>
<td>x⁵</td>
</tr>
<tr>
<td>Intermediate follow-up (i.e. collected up to two years after the intervention period)</td>
<td>✓</td>
<td>x</td>
<td>✓²</td>
<td>✓</td>
<td>x</td>
<td>x⁶</td>
</tr>
<tr>
<td>Long-term follow-up (i.e. collected more than 2 years after the intervention period)</td>
<td>✓</td>
<td>x</td>
<td>✓³</td>
<td>✓</td>
<td>x</td>
<td>x⁷</td>
</tr>
<tr>
<td>Representative sample of participants included in the evaluation⁸</td>
<td>✓</td>
<td>✓</td>
<td>✓⁴</td>
<td>✓</td>
<td>✓</td>
<td>✓⁸</td>
</tr>
<tr>
<td>Low attrition at longitudinal follow-up (not more than 10 per cent per data point) and attrition not systematic</td>
<td>✓⁵</td>
<td>NA</td>
<td>✓⁶</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Adequate statistical power for analyses</td>
<td>✓⁷</td>
<td>✓</td>
<td>✓⁸</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reliable measures</td>
<td>✓</td>
<td>✓</td>
<td>✓⁹</td>
<td>✓</td>
<td>x</td>
<td>NR</td>
</tr>
<tr>
<td>Appropriate choice of outcome measures</td>
<td>✓</td>
<td>✓</td>
<td>✓¹⁰</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Appropriate analytic approach</td>
<td>✓</td>
<td>✓</td>
<td>✓¹¹</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Number of evaluation design elements present</td>
<td>9/10</td>
<td>6/10</td>
<td>9/10</td>
<td>9/10</td>
<td>2/10</td>
<td>6/10</td>
</tr>
</tbody>
</table>

✓=design element present
x=design element not present
NA=not applicable (for example, no longitudinal follow-up)
NR=not reported (insufficient information published to determine whether design element present/absent)

1 Numerous evaluations of Head Start have been conducted. Given limited time frames, this review focuses on a large-scale national evaluation, however it must be noted that this is not necessarily representative of all evaluations of Head Start.
2 Evaluations of this program examine whether or not the intervention group has achieved the objectives set out by the program.
3 Although participants in the Chicago CPC were self-selected, the intervention and control groups did not differ on a number of characteristics at the beginning of the intervention.
4 Participants in the program were self-selected.
5 On most measures.
6 However, those receiving the program were often not representative of the general population (i.e., mostly African American children).
7 Numerous analyses were conducted on a small sample, meaning that some findings may be significant due to chance.
8 Numerous analyses were conducted on a small sample.
Adequacy of cluster 3 evaluations

All of the evaluations of interventions in cluster 3 included appropriate control or comparison groups, a representative sample, adequate statistical power, reliable measures and chose appropriate outcome measures.

### Table 2 Adequacy of cluster 2 evaluations

<table>
<thead>
<tr>
<th></th>
<th>PEIP</th>
<th>PCDC</th>
<th>HIPPY*</th>
<th>Healthy Start</th>
<th>EEP</th>
<th>SHELLS</th>
<th>Baby HUGS</th>
<th>Project 12-ways</th>
</tr>
</thead>
<tbody>
<tr>
<td>Includes appropriately-matched comparison group or randomised control design methodology</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>x</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Pre-intervention (baseline) data available</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>x</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Intermediate follow-up (i.e. collected up to two years after the intervention period)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Long-term follow-up (i.e. collected more than 2 years after the intervention period)</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Representative sample of participants included in the evaluation</td>
<td>✓</td>
<td>NR</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Low attrition at longitudinal follow-up (not more than 10 per cent per data point) and attrition not systematic</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>NA</td>
<td>x</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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<tr>
<td>Adequate statistical power for analyses</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reliable measures</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Appropriate choice of outcome measures</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Appropriate analytic approach</td>
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<td>✓</td>
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<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Number of evaluation design elements present</td>
<td>10/10</td>
<td>7/10</td>
<td>7/10</td>
<td>6/10</td>
<td>8/10</td>
<td>1/10</td>
<td>5/10</td>
<td>6/10</td>
</tr>
</tbody>
</table>

The significance level used was 0.10.

### Table 3 Adequacy of cluster 3 evaluations

<table>
<thead>
<tr>
<th></th>
<th>New Hope</th>
<th>FTP</th>
<th>TPDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Includes appropriately-matched comparison group or randomised control design methodology</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Pre-intervention (baseline) data available</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>Intermediate follow-up (i.e. collected up to two years after the intervention period)</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>Long-term follow-up (i.e. collected more than 2 years after the intervention period)</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Representative sample of participants included in the evaluation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Low attrition at longitudinal follow-up (not more than 10 per cent per data point) and attrition not systematic</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Adequate statistical power for analyses</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reliable measures</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Appropriate choice of outcome measures</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Appropriate analytic approach</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>Number of evaluation design elements present</td>
<td>9/10</td>
<td>9/10</td>
<td>7/10</td>
</tr>
</tbody>
</table>

The significance level used was 0.10.
Table 3 shows that the evaluation integrity of two of the interventions was very good, with both evaluations containing nine of the ten design elements (New Hope, FTP). The evaluation integrity of the remaining intervention (TPDP) was good, containing seven design elements.

Adequacy of cluster 4 evaluations

Most of the evaluations in cluster 4 included a representative sample and chose appropriate outcome measures, while two-thirds of the evaluations included an appropriate control or comparison group and two-thirds used reliable measures. For most of the other design elements, approximately half contained each design element. Attrition in the evaluations was acceptable in only four of the evaluations (Abecedarian, IHDP, Incredible Years, ECEAP) and were not applicable in half of the interventions due to the lack of longitudinal follow-up.

The evaluation integrity of three interventions was very good, with all evaluations containing nine of the ten design elements (Abecedarian, IHDP, Incredible Years). Two interventions (Sure Start and NEWPIN) had very poor evaluation integrity, with each intervention containing only one design element. However, more comprehensive evaluations of Sure Start are pending. The evaluation

<table>
<thead>
<tr>
<th>Table 4 Adequacy of cluster 4 evaluations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Head Start</td>
</tr>
<tr>
<td>Includes appropriately-matched comparison group or randomised control design methodology</td>
</tr>
<tr>
<td>Pre-intervention (baseline) data available</td>
</tr>
<tr>
<td>Intermediate follow-up (i.e. collected up to two years after the intervention period)</td>
</tr>
<tr>
<td>Long-term follow-up (i.e. collected more than 2 years after the intervention period)</td>
</tr>
<tr>
<td>Representative sample of participants included in the evaluation</td>
</tr>
<tr>
<td>Low attrition at longitudinal follow-up (not more than 10 per cent per data point) and attrition not systematic</td>
</tr>
<tr>
<td>Adequate statistical power for analyses</td>
</tr>
<tr>
<td>Reliable measures</td>
</tr>
<tr>
<td>Appropriate choice of outcome measures</td>
</tr>
<tr>
<td>Appropriate analytic approach</td>
</tr>
<tr>
<td>Number of evaluation design elements present</td>
</tr>
</tbody>
</table>

16 A comprehensive evaluation is pending.
17 The intervention and comparison groups differed quite dramatically on level of poverty.
18 Minimal baseline data was collected.
19 An intermediate follow-up is planned.
20 Longitudinal analyses are planned.
21 Longitudinal analyses are planned.
22 One evaluation did, however this evaluation focused primarily on service use, rather than outcomes.
23 The measures were not described adequately enough to make a judgement.
24 The planned outcome measures are appropriate.
25 Much of the evaluation focused on comparing groups within the intervention group, rather than comparing the intervention and comparison groups.
integrity of the remaining seven evaluations was moderate to good (five to seven design elements). These details are illustrated in Table 4.

### Adequacy of cluster 5 evaluations

All three of the evaluations in cluster 5 contained an intermediate follow-up and a representative sample, however none of them contained a long-term follow-up. In addition, attrition was high in all but one evaluation (Cuyahoga) and only Triple P included an appropriate control group and used an appropriate analytic approach.

As shown in Table 5, the evaluation integrity of Triple P was good (seven design elements); the evaluation integrity of PAT was poor (four design elements); and the evaluation integrity of Cuyahoga was moderate (five design elements).

### Relative adequacy of evaluations across clusters

It is difficult to make any firm distinctions between clusters, given the great variability in evaluation integrity within clusters. With the exception of cluster 5, each cluster contained evaluations with very good integrity, while all clusters except cluster 3 contained evaluations with very poor to poor integrity.

One design element that warrants further discussion is the use of reliable measures. Regardless of cluster, most of the evaluations included some objective measures, as well as parental reports. Although parent reported measures have their merit, and are usually the most expedient way of data collection, they are subjective by nature. Objective measures are therefore needed to corroborate parental reports.
Assessing program outcomes

The available information on significant effects was examined to assess program outcomes. While non-significant trends may be part of a larger pattern, in and of themselves they cannot be interpreted reliably. Thus, only effects that were significant at .05 level were included. The use of the .05 cut-off is a commonly used cut-off in statistical analyses and was therefore adopted for consistency with scientific reports.

Long-running interventions have often been researched at different time points. Effect sizes are thus reported in terms of the timing of effects – whether the reported outcome effect was: short-term (data collected during or immediately after the intervention); intermediate (data collected up to two years after the intervention period); or long-term (data collected more than two years after the intervention period).5

For ease of reporting and interpretation, the magnitude of effects are grouped into four categories: negligible (Neg) (effect size under 0.20); small (Sm) (effect size 0.20-0.49); medium (Med) (effect size 0.50-0.79); or large (Lg) (effect size 0.80 or greater).

A negative effect size (-) indicates that effects were in the opposite direction to that which was expected. That is, the control group performed better on a measured outcome than the intervention group.

Tables 6-10 summarise the available data on intervention effect sizes. Missing cells indicate that effect sizes were either not calculated, or not reported in the evaluation material reviewed.6 The number of evaluation design elements present for each intervention is also included in these tables for reference.

Effects of cluster 1 interventions

The outcomes measured in the interventions in cluster 1 were all child outcomes and effect sizes were available for three of the six interventions in this cluster. Most of the effects were negligible to small, and very few effects were large. In addition, for the Perry project (that reported short, intermediate and long-term effect sizes), the positive effects on cognitive outcomes tended to diminish.

In terms of specific outcomes, the effects of intervention on child cognitive abilities varied, with the Perry project reporting large short-term gains and PIDI reporting negligible short-term gains. Similarly, children’s academic gains reported by the Perry project were larger than those reported by CPC. (See Table 6.)

Effects of cluster 2 interventions

Effects sizes were available for child and family outcomes for three of the interventions in cluster 2. Again, most of the effects were negligible to small, with some effects diminishing over time and others remaining stable in the intermediate term.

5 This definition of long-term effects was adopted given the paucity of longitudinal follow-up in the early childhood intervention literature. However, our interests are really in effects that last throughout childhood and adolescence into adulthood.

6 Although a comprehensive search was undertaken, it is possible that some effect sizes are available that are not included in this report.
In terms of specific outcomes, the effects on child cognitive and academic outcomes were quite varied between, and even within, interventions. The HIPPY program found positive short and intermediate term effects on children’s cognitive skills and academic skills that ranged from negligible to medium, while the PCDC found mainly negligible long-term effects, although academic effects were medium for boys. (See Table 7.)

### Effects of cluster 3 interventions

Only one of the three evaluations in intervention cluster 3 reported effect sizes. Both child and family outcomes were measured. Outcomes were measured in the intermediate term and most of the effect sizes were small. In terms of specific outcomes, the effects on child behaviour ranged from small to medium, while the effects on parent outcomes (including income, child care use and support) were small. (See Table 8.)

### Effects of cluster 4 interventions

Evaluations in intervention cluster 4 measured child and family outcomes. Effect sizes were available for four of the twelve evaluations; most effect sizes were for short-term outcomes only. Again, most of the effect sizes were negligible to small.
### Table 7  Effects of cluster 2 interventions

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Outcome</th>
<th>Short-term</th>
<th>Intermediate</th>
<th>Long-term</th>
<th>Evaluation design</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEIP</td>
<td>Home safety</td>
<td>Sm</td>
<td>Med</td>
<td>-</td>
<td>10/10 design elements were present in the PEIP evaluation.</td>
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<tr>
<td></td>
<td>Child hospitalisation</td>
<td>-</td>
<td>Sm</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Home environment</td>
<td>Neg</td>
<td>Neg</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maternal education</td>
<td>Lg</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subsequent pregnancies</td>
<td>Neg</td>
<td>Neg</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Child abuse and neglect</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td></td>
<td>Maternal and child drug use</td>
<td>-</td>
<td>-</td>
<td>-</td>
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</tr>
<tr>
<td></td>
<td>Maternal and child crime</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>PCDC</td>
<td>Child - Cognitive</td>
<td>-</td>
<td>-</td>
<td>Neg (-) to Neg</td>
<td>7/10 design elements were present in the PCDC evaluation.</td>
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<tr>
<td></td>
<td>Child - School performance (males and females)</td>
<td>-</td>
<td>-</td>
<td>Neg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Child - School performance (males only)</td>
<td>-</td>
<td>-</td>
<td>Med</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Child-Temperament (males and females)</td>
<td>-</td>
<td>-</td>
<td>Neg</td>
<td></td>
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<tr>
<td></td>
<td>Child-Temperament (males only)</td>
<td>-</td>
<td>-</td>
<td>Sm to Lg</td>
<td></td>
</tr>
<tr>
<td>HIPPY</td>
<td>Cognitive skills</td>
<td>Neg to Med</td>
<td>-</td>
<td>-</td>
<td>7/10 design elements were present in the HIPPY evaluation.</td>
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<tr>
<td></td>
<td>Reading</td>
<td>Neg to Sm</td>
<td>Neg to Med</td>
<td>-</td>
<td></td>
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<tr>
<td></td>
<td>Mathematics</td>
<td>Sm</td>
<td>Neg to Sm</td>
<td>-</td>
<td></td>
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<tr>
<td></td>
<td>Classroom Adaptation</td>
<td>Sm to Med</td>
<td>Neg to Med</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>School readiness</td>
<td>Sm</td>
<td>-</td>
<td>-</td>
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</table>

### Table 8  Effects of cluster 3 interventions

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Outcome</th>
<th>Short-term</th>
<th>Intermediate</th>
<th>Long-term</th>
<th>Evaluation design</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Hope</td>
<td>Child - Social Skill (males only)</td>
<td>-</td>
<td>Sm</td>
<td>-</td>
<td>9/10 design elements were present in the New Hope evaluation.</td>
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<tr>
<td></td>
<td>Child - Improved classroom behaviour (males only)</td>
<td>-</td>
<td>Sm to Med</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Child - Lower externalising behaviour (males only)</td>
<td>-</td>
<td>Sm</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Child - Lower internalising behaviour (males only)</td>
<td>-</td>
<td>Med</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Child - Classroom behaviour (males only)</td>
<td>-</td>
<td>Sm</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Child - Increased educational aspirations (males only)</td>
<td>-</td>
<td>Sm</td>
<td>-</td>
<td></td>
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<tr>
<td></td>
<td>Parent - Higher income</td>
<td>-</td>
<td>Sm</td>
<td>-</td>
<td></td>
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<tr>
<td></td>
<td>Parent - Higher child care use</td>
<td>-</td>
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<td></td>
<td>Parent - Perceived social support</td>
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<td>Sm</td>
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</tbody>
</table>

In terms of specific outcomes, the effects of interventions in cluster 4 on child cognitive outcomes were varied. Early Head Start found negligible effects, while BBBF found effects that ranged from negligible to medium, and IHDP found large effects. Effects on child emotional and behavioural outcomes were generally negligible, although Incredible Years and BBBF found some small to medium effects. Effects on parenting were contrasting, with Early Head Start reporting negligible
Table 9: Effects of cluster 4 interventions

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Outcome</th>
<th>Short-term</th>
<th>Intermediate</th>
<th>Long-term</th>
<th>Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Head Start</td>
<td>Cognitive and language development</td>
<td>Neg</td>
<td>-</td>
<td>-</td>
<td>6/10 design elements were present in the Early Head Start evaluation.</td>
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<tr>
<td></td>
<td>Social-emotional development</td>
<td>Neg to Sm</td>
<td>-</td>
<td>-</td>
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<tr>
<td></td>
<td>Parenting behaviour</td>
<td>Neg</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parent knowledge and discipline strategies</td>
<td>Neg</td>
<td>-</td>
<td>-</td>
<td></td>
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<td>Parent health and family functioning</td>
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<td>-</td>
<td>-</td>
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<td></td>
<td>Parent self-sufficiency</td>
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<td>-</td>
<td>-</td>
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<td>Abecedarian</td>
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<tr>
<td>IHDP</td>
<td>IQ (heavier group)</td>
<td>Lg</td>
<td>-</td>
<td>-</td>
<td>9/10 design elements were present in the IHDP evaluation.</td>
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<tr>
<td></td>
<td>IQ (lighter group)</td>
<td>Sm</td>
<td>-</td>
<td>-</td>
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<tr>
<td></td>
<td>Behaviour</td>
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<td></td>
<td>Morbidity (lighter group)</td>
<td>Sm</td>
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<td></td>
<td>Serious morbidity</td>
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<td>Height</td>
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<td>Body mass (heavier group)</td>
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<td></td>
<td>Body mass (lighter group)</td>
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<td>-</td>
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<td>General health</td>
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<tr>
<td>Incredible Years</td>
<td>Child - Non-compliance</td>
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<td>NS</td>
<td>-</td>
<td>9/10 design elements were present in the Incredible Years evaluation.</td>
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<td>Child - Conduct problems</td>
<td>Neg</td>
<td>NS</td>
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<td>Parent - Harsh parenting</td>
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<td>Neg</td>
<td>-</td>
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<td></td>
<td>Parent - Positive interactions</td>
<td>Neg to Sm</td>
<td>Neg</td>
<td>-</td>
<td></td>
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<tr>
<td></td>
<td>Child - Non-compliance at home</td>
<td>Med</td>
<td>-</td>
<td>-</td>
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<tr>
<td></td>
<td>Child - Behaviour at school</td>
<td>Sm to Med</td>
<td>-</td>
<td>-</td>
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<td></td>
<td>Child - Peer interactions</td>
<td>Sm</td>
<td>-</td>
<td>-</td>
<td></td>
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<tr>
<td></td>
<td>Parent - Parenting skills and interactions</td>
<td>Sm to Med</td>
<td>-</td>
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<td></td>
<td>Language development</td>
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<td>-</td>
<td>-</td>
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<tr>
<td></td>
<td>Motor development</td>
<td>Sm to Med</td>
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<td>Attention and Memory</td>
<td>Neg to Sm</td>
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<td>-</td>
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<tr>
<td></td>
<td>Increase in breastfeeding</td>
<td>Sm (-) to Med (-)</td>
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<td></td>
<td>Child nutrition</td>
<td>Neg to Med</td>
<td>-</td>
<td>-</td>
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<td></td>
<td>Immunisation</td>
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<td>Parent encouragement for bike helmet use</td>
<td>Lg (-)</td>
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<td>-</td>
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<td></td>
<td>Use of child professionals</td>
<td>Neg to Sm</td>
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<td></td>
<td>Health pre and post natal</td>
<td>Sm (-) to Sm</td>
<td>-</td>
<td>-</td>
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<td></td>
<td>Parenting</td>
<td>Med (-) to Lg</td>
<td>-</td>
<td>-</td>
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<tr>
<td></td>
<td>Reduced domestic violence</td>
<td>Sm</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sense of community cohesion</td>
<td>Med(-) to Med</td>
<td>-</td>
<td>-</td>
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</tr>
<tr>
<td>Sure Start</td>
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<tr>
<td>NEWPIN</td>
<td>no data available</td>
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</table>
effects, Incredible Years reporting small to medium effects and BBBF reporting effects that ranged from medium (but in the opposite direction) to large. (See Table 9.)

**Effects of cluster 5 interventions**

Triple P was the only evaluation in intervention cluster 5 that reported effect sizes. This evaluation found three large short-term effects on parent and child outcomes (child behaviour, parenting style and parent conflict over child rearing). Two of these large effects diminished at intermediate follow-up to small (child behaviour) and medium (parenting style). Effects on parent-child relationships were negligible, and small program effects were found on parent mental health, both of which were maintained at the same level at intermediate follow-up. (See Table 10.)

**Summary of intervention effects**

In summary, effect sizes indicated that child cognitive outcomes demonstrated the greatest change in the short-term; however, the size of these effects diminished over time. The more enduring effects were found on acts of delinquency and crime, with lower incidences of crime and delinquency among intervention participants. Most of the available effects on parent and family outcomes were negligible to small. However, it should be noted that few of the evaluations reporting effect sizes measured parent outcomes, and, in contrast to these findings, the Triple P program found large effects on parent outcomes.

Consistent with Benasich, Brooks-Gunn and Clewell (1992) and Brooks-Gunn (2003), who reported that most of the positive effects of interventions on child outcomes are the result of centre-based interventions, as opposed to home-visiting or case management interventions, the largest effects on child outcomes were found for intervention cluster 1 (where all programs were centre-based).

However, it is difficult to make any firm conclusions about the effects of the early intervention programs under review in this report, as many of the evaluations did not provide effect sizes, and the programs included in this review are not intended to be representative. In addition, it is acknowledged that the assignment of the terms “negligible”, “small”, “medium” and “large”, to the size of effects is following standard definitions, but does not equal actual impact or value, and can ignore the inherent worth of particular outcomes and their value to society (see reviews by Boyle and Hertzman in Russell 2002). A focus only on medium or large effect sizes might miss a valuable outcome with a small effect size, when that is all that is needed to “tip the balance” of health of a population (see Russell 2002).

Importantly, Brooks-Gunn (2003) notes that even a small effect size at a primary school aged follow-up is impressive, and an effect at adulthood even more so. The long-term follow-up of the Perry Preschool project reported here was conducted when participants were aged 27 years; approximately 22 years after participants had completed the intervention. To retain an effect, albeit negligible, for such a period of time is extremely impressive.

### Table 10  Effects of cluster 5 interventions

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Outcome</th>
<th>Effect size</th>
<th>Design</th>
</tr>
</thead>
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Cost-benefit analyses are investment decision tools, which set out to resolve whether certain investment projects should be undertaken, and, if resources are limited, the relative ranking of these investments. The aim of a cost-benefit analysis of an early childhood intervention is to assess its social benefits relative to its social costs with a view to replicating the program, in either a similar or in a broader context, and achieving similar outcomes.

Social returns include the benefits to the program recipient and his or her family as well as returns to society more broadly. Social costs include the benefits foregone from not using the resources for some other use.

Most cost-benefit analyses count the loss or gain of satisfaction to the members of society, that is, the welfare and happiness of each and every citizen. Institutions such as the criminal justice system are not human entities and do not enter into the calculation. However, the welfare of the people who work in the justice system and the criminals and victims are counted. A reduction in crime may therefore have an ambiguous impact on society if the losses incurred by the police and criminal lawyers etc. who subsequently lose employment is valued more than the gains for the victims of crime plus the gains from transferring the government money saved to alternative uses. This is an extreme example, but serves to illustrate the point that to avoid double counting, the impacts on final householders (as consumers and workers) are considered only, and not intermediary institutions such as the government or a business.

In some cases, governments are interested in the losses and gains to government budgets from operating a project. In this case, the analysis is much simpler as non-pecuniary costs and benefits (costs and benefits that are not monetary) do not need to be monetised. It is a more straight-forward accounting exercise. In the case of a federal early childhood intervention, only commonwealth payments, such as commonwealth education subsidies, federal court expenditures, social security payments, and income taxes, need be counted. This is not a real cost-benefit analysis, but rather an accounting exercise and this type of metric is excluded from the current discussion.

The underlying premise of cost-benefit decision-making techniques is that all investments entail costs, and that all such costs are benefits foregone by another party. Accordingly, the costs of implementing an early childhood intervention will be the benefits foregone from not using these funds in an alternative way, which, for example, may be extending aged care or improving public safety.

In the case of early childhood interventions, unless the type of people who are required to run the program (social workers, child psychologists, teachers) are unemployed, then running a program will be at the expense of running other types of activities. The essence of a cost-benefit analysis is to recognise this trade-off. Unless there are idle resources – workers as well as equipment and materials – other parts of the welfare economy will be affected. Properly performed, the cost side of the cost-benefit calculation should capture the benefits foregone from not using the workers, equipment and materials in an alternative use. It is misleading to imply that the value of one program can be assessed in isolation from another. If there are no benefits foregone, then there are no costs.

In principle, cost-benefit analyses are concerned with the benefits and benefits foregone (that is, costs) to the whole of society, not just those affecting the directly implicated parties. These analyses take care to consider the hidden, implicit and indirect benefits on secondary parties and also try to include estimates of costs and benefits into the future.

Fundamental to this method is the assumption that benefits from a diverse range of activities, affecting different members of society, can be quantified and compared. In almost every case, this
means monetisation. Most cost-benefit analyses rely on the assumption that the goods and services involved in the investment process are traded and valued in monetary terms “correctly” through the market (that is, the average price consumers are willing to pay varies directly, and in proportion, with their assessment of the benefits from consuming it). Householders will only pay more for costly goods and services if they value them more highly than cheaper goods. Hence, the price of a colour television set is higher than a black and white set since consumers’ valuation of the former is higher than the latter. In addition, in order for the good to appear on the market, its valuation by consumers must be at least as high as the average costs of production. In this way, price may be a reasonable way to quantify relative benefits of goods and services.

This assumption is clearly not strictly valid in many cases, especially those relating to welfare investment projects. In particular, the market price of a good or service may not be a reasonable guide to the societal value of that good or service when:

- There are significant parties, other than the purchaser and supplier of the good or service, who benefit or are disadvantaged by its consumption or production (these effects are called spillovers or externalities). For example, a vaccination program may not only benefit the recipient of the vaccination, but also people who would otherwise be exposed to a disease outbreak. A reduction in the crime rate may primarily benefit potential victims rather than the would-be criminal. Because these “other” parties have no say in the market transaction of the product, there is no market record of their valuation of the activity.
- The good or service is not traditionally traded in the market. A classic example is the consumption of services such as libraries, parks and gardens, crime prevention and social cohesion. While these products can be traded for a price, traditionally they are not commercially traded in Australia.
- The good or service cannot be traded in the market because it is not possible to exclude consumers and thus demand a price. Free-to-air broadcast television is not excludable and we cannot assess how much householders value the service. In addition, the good or service may represent an innovation, and since it does not currently exist, it cannot be objectively valued.
- The good or service is primarily purchased by low-income households. The market valuation of benefits can be weighted towards the preferences of high-income households, if the price is demand sensitive. In other words, the preferences of high income households has greater weight in determining the market price of a product than low income households. Furthermore, products that are only valued by low income consumers may not be produced at all if their willingness-to-pay does not exceed the average cost of production. These are not issues for cost-benefit analysis if the purchasing patterns, or consumption preferences, of householders with respect to the good or service in question does not vary by income (that is, it may be related to the presence of children or location). However, it will matter if preferences vary by income and either prices are demand sensitive or costs of production are prohibitive.

Where these limitations constitute a significant part of the benefits, and benefits foregone, of the potential investment projects, some attempt is usually made to account for them in a way to derive acceptable quantitative estimates. Techniques for dealing with spillovers and non-market transactions are reviewed in Section 10.

Finally, while the valuation of the separate elements of the cost-benefit formulae is not always straightforward, the manner in which they are combined to produce a single investment decision index is also not always clear-cut and objective. In particular, the way in which costs and benefits are weighted between individuals and over time across generations is a considerable source of controversy in the literature.

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7 Strictly, the market price reflects the valuation “at the margin”, or the value to consumers of the last unit of the good consumed. It does not give the total valuation from consuming all units of the good – hence the paradox of water and diamonds. While the value of an extra diamond is higher than the value of an extra litre of water, the sum of the value of all diamonds in the world is considerably less that the sum of the value of all water.

8 The private provision of private estates and compounds in some societies may be regarded as an example of the market provision of reduced crime and social cohesion.

9 That is, when the producer charges a price above the costs of production because he or she has some level of market power.
A cost-benefit analysis of an early childhood intervention involves three steps: (1) an estimation of the net impact of the intervention; (2) an estimation of the social costs and the social benefits of the intervention in monetary terms; and (3) a calculation of the cost-benefit of the intervention.

Data for steps 1 and 2 can be collected from repeat surveys and linkages to administrative records of program participants. It is important that only the net costs and benefits are counted. In the case of costs, this is the costs incurred by society in the program scenario which are over and above the costs of the counterfactual scenario (usually a no program situation). This applies to net benefits as well. For example, if a program leads to the completion of Year 11 at secondary school for participants compared with Year 10 for non-participants, then only the value of the extra year needs to be monetised.

Pecuniary values for non-pecuniary costs and benefits (crime, loss of health, unemployment) are usually derived from secondary literature which has made these estimates. Most intervention costs are pecuniary in nature and include spending by government on resources such as buildings, equipment and facilities, and for the wages of social, health and education workers. Usually the non-pecuniary costs of a program, such as the loss of time incurred by the child and his or her family as a result of participating in the intervention are not counted. This is usually because evaluators either do not believe they are large or believe they are benefits, not costs. For prudential reasons, most evaluations err on the side of understating net benefits, especially when they have a speculative component, and consequently these costs are ignored.

By contrast, many net benefits of early childhood interventions are non-pecuniary. The obvious examples are reductions in the crime rate, but other benefits include the increased satisfaction associated with the schooling years, eventual employment and family functioning. Most evaluations do not seek to monetise changes to life satisfaction but they do enumerate the effects of reduced crime on prospective victims. Again, the dominant reason for ignoring the net changes to satisfaction reside in the conservative nature of cost-benefit analyses on the one hand and the more speculative conversion of some benefits into money equivalents on the other.

Many of the conjectural estimates in a cost-benefit analysis arise from making projections of pecuniary benefits, not from monetising non-pecuniary benefits. With respect to early childhood interventions, this usually involves making projections of, for example, how improvement in school retention will convert into more wages for the participant in adult life. Because the anticipated benefits from these interventions can have very long horizons, policy makers who wish to discern whether an intervention is making a positive social contribution before the full extent of benefits are “known”, have to rely on linking intermediate program net impacts with findings from other studies. In the case of the increment to labour incomes, this can mean linking changes in primary school achievement (however measured), with changes to subsequent educational attainment, occupational attainment and associated wages. Using the law of statistical average, the evaluator can then project from the age of five through to 65 years. However, the longer the projection period the greater the band of errors around the estimate. For example, we may say that a program leads to an increase in the present value of wages of say $5000 ± 10 per cent up to the age of 30, but $30,000 ± 25 per cent up to the age of 65.10

10 Karoly et al. (2001) provide a very good summary of the practical matters to be considered before attempting a cost-benefit analysis.
Step 1: Estimating the net impact of the intervention

The first step in conducting a cost-benefit analysis requires answers to two questions. First, what outcomes have the participants achieved in comparison to what they would have achieved if they had not participated in the intervention (called the net impact of the intervention)? Second, if this intervention is extended to other children, will it have the same net impact?

Tests of significance are a measure of the confidence we have in the size of the estimated net impact. Given a large representative sample, tests of significance will tell you whether another group of children, randomly chosen from the population, are likely to incur the same effects from undertaking the intervention. However, a test of significance is different from the actual size of the net impact. An estimate of a net impact, while significant, may be very small in absolute terms. On the other hand, the net impact may be very large, but insignificant (referred to as effect sizes in the previous sections). In the latter case, this is usually because there was a large variation in the net impacts of individuals in the intervention group, perhaps because relevant co-variables have not been modelled.

To obtain information on the net impact of an intervention requires either the selection of a control group who are similar in every respect except for their inclusion in the intervention; or a large enough sample that allows us to generalise the effects and abstract from random external factors that may have an effect on an individual’s performance.

These issues are discussed in detail below.

Selection of a control group

The difference in outcomes for the intervention and control groups that can be ascribed to the intervention itself is called the net impact.11

The ideal way to avoid the possibility that particular types of parents (for example, the more motivated or persistent parents) enrol for the intervention is to randomly assign children to the intervention and control groups before the intervention commences. This requires the evaluation to be designed as an integral part of the intervention. By using the law of large numbers, random assignment ensures that there is no systematic tendency for either group to have more or less favourable characteristics, either observable or unobservable.

However, random assignment does not totally eliminate systematic differences between the two groups, even if large samples are involved. Because it is not possible to force families to participate in an intervention, some self-selection out of the intervention by families who disapprove or do not see value in the program, or who because of contemporaneous difficulties in their life, are not in a position to offer their time to the program, is expected. Participation rates as a threat to evaluation design has been discussed in detail in Section 4.2. This effect will tend to overstate the net impact of the intervention.

In cases where random assignment is not possible, the evaluator should try to construct a control group from children who match the intervention group on relevant observable characteristics. Usually, this means characteristics such as parents’ socio-economic background, ethnicity, pre-program IQ and so on. If pertinent unobservables, such as parental motivation, could be assessed, then these could be used for matching as well. Choosing which characteristics to match on is usually informed by existing literature. In cases where the intervention is large and pervasive, such as universal maternal and child health or preschool programs, it may be difficult to find a population of children who have not received any intervention services.

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11 It is also possible to control for unobservable characteristics using the difference-in-difference method. However, this method requires measures of outcomes before the intervention. This can be reasonable for adult interventions. For example, in employment programs, measures are taken of the outcome variable, employment status, both before and after the program. It is less likely to be suitable for child-orientated interventions where the main outcomes are not observable before the intervention has begun.
Random assignment and matching methods do not in themselves ensure that, on average, the non-program characteristics of the two groups are the same for any selected sample. If the samples are small, then the chance that any one pair of program and control groups will not be similar is high. Evaluators will often control for other factors in analyses of intervention effects (such as multiple regression), even when random assignment or ex ante matching has been undertaken, to iron out any remaining differences between the two groups.

**Generalisability**

The second question is whether the same net impacts will occur if the intervention is extended to other groups of children. This requires the evaluator to discuss the sub-groups that can potentially benefit from the intervention, and to assess whether the evaluation results can be generalised to these other groups. For example, an evaluation may only consider children from low-income refugee families or mothers, and the same net impact may or may not accrue if the intervention was applied to low income indigenous families or fathers.

**Step 2: Estimating the social costs and benefits of the intervention in monetary terms**

The second step in conducting a cost-benefit analysis involves an estimation of the social costs and social benefits of the intervention in monetary terms.

**Estimating benefits**

There are two philosophical considerations that should be made explicit with regard to estimating benefits of an intervention. The first relates to how extensively the measured benefits of an intervention are defined, or how many people who are indirectly affected by the intervention are counted. The second consideration is whether the outcome is real, or merely an intermediate result which is valued for its potential to affect “real” outcomes.

It is possible to argue that most people in a society can be affected by an intervention, but clearly a line must be drawn, otherwise the evaluator will spend excessive time making calculations of secondary and uncertain detail.

Determining at what point a result, especially an ephemeral one, is a benefit in itself or an indicator of a potential benefit is a rather more difficult question to answer. For example, is higher educational attainment valued in itself, or only as an indicator that the person will go on to find more rewarding and stable employment? Further, if benefits are not sustained over time, are these early benefits “real” or just promises that amounted to nothing? There may be a case for arguing that an intervention that only affects educational outcomes for a few years post-intervention, has zero benefits since the higher attainment in these years may have had no long term effect on the happiness of children, or their families, who participated in the intervention.

Without a clear notion of what defines a benefit for the participant, evaluations are reduced to measuring the effects on broader society. If only higher educational attainment is valued because it leads to a higher paying job, then it is not appropriate to count higher net years of education as a benefit as well as the additional wages. If however, more schooling is considered to have intrinsic value to the child, then some estimate should be made of this additional value at the time that the education was received.

In the cost-benefit evaluations considered later in Section 11 the final chosen outcomes are usually the impact on future wages and crime rates. If this is what the program designers intended, then it is appropriate for the evaluator to concentrate on recording these benefits. However, intermediate milestones, such as educational attainment, are worth measuring if it is intended to project final outcomes before enough time has elapsed to allow the full extent of the final outcomes to be apparent.
These decisions over the scope of the population and the designation of ultimate benefits should be decided before the evaluation is designed. Not only does it determine what sort of benefits to measure, but also the length of time the children should be followed.

The ideal length of time allowed for data collection is determined by the balance between the costs of data collection and the attrition of participants from the evaluation study. In practice, evaluators typically have to work with short- and medium-term data, using projections to complete the cost-benefit analysis. This means drawing on existing studies on the relationship between anticipated benefits such as health and educational attainment, and longer-term outcomes such as earnings. These reduce confidence in the final result, but it is an acceptable method and possibly the only way to conduct a cost-benefit analysis in years immediately following an intervention.

**Scope of included benefits**

It is not necessary to know at the commencement of the intervention all types of potential benefit, as survey items can be decided at a later stage. If however, the intervention expects a change in the families’ status (such as a change to mothers’ education), then this does have to be considered *ex ante*. It is easy for older interventions that have extensive data on adult experiences to estimate final pecuniary benefits from an intervention but considerably harder for interventions that are more recent (for example, Bolivia PIDI) and only have intermediate outcomes, such as cognitive development and need for remedial schooling. Interpreting the results from these newer interventions requires a more flexible and sophisticated approach.

**Scope of potential beneficiaries**

Earlier studies only considered monetising the effects on the child, victims of crime and the taxpayer (for example, savings in remedial education, higher earnings and lowered crime rates). More recent studies have also considered the broader effects on the mother (for example, better health and less substance use). In most cases, a qualitative discussion is made of the effects on people who are likely to be affected. Groups for whom quantitative measures are required generally need to be known *ex ante*.

**Estimating costs**

**Scope of included costs**

Deciding which cost to include is usually the least controversial part of a cost-benefit analysis, and is usually limited to the direct government costs of running the intervention. Recall that all costs are benefits foregone, or rather, represent the money value of benefits society would have otherwise gained had the government spent the money on another program. This may be another type of child related intervention, a welfare program or simply reduced taxes. Theoretically, changes incurred by staff in the counterfactual program should also be considered, but this is generally too much detail for most evaluations.

With respect to early childhood interventions, most of the resources used are the labour services of professional or paraprofessional staff who deliver health, psychological and educational services to young children and their families.

Some evaluations attempt to distinguish between fixed and variable costs, but it is unclear how valuable this information is to the overall study, relative to the cost of collating it, since most fixed costs are only fixed over limited ranges of production. In-kind resources, such as free rent or facilities, should be included as well as budgeted items. Often, no account is taken of the costs to families, as it is often assumed that the time they provide has no opportunity cost. This may or may not be true. The skill in measuring costs is usually to avoid double counting. Karoly, Kilburn, Bigelow, Caulkins, Cannon and Chiesa (2001) provide further details of hazards to watch for when measuring costs.

Fixed costs associated with the establishment of the intervention are only relevant if they will be incurred every time the intervention is extended. Fixed costs associated with the initial design of the intervention that are one-off are not relevant.
Most costs are part of the funding costs and are already monetised. However, in the case where idle resources are used (such as unemployed professionals), the costs of employing the resource will not be true costs and should be excluded. In cases where there are indirect costs, such as a cost of the families’ time and costs to the schools that are not directly funded, then some estimate of these should also be made, but only if it is believed they are significant. If they only represent minor costs, then they should be just referred to in the text.

It is rare for the costs of an intervention to extend beyond the intervention period. If they occur, they will in most cases be revealed as negative benefits and will be monitored through the benefits section.

**Step 3: Calculating the cost-benefit**

Cost-benefit analyses produce a single metric, which is a summary measure of the difference between the costs and benefits of an intervention. In most cases, however, a sensitivity analysis is done, and this can produce a range of figures for one intervention. A sensitivity analysis involves inputting different assumptions about, for example, the value of crime, or the rate of discount, to see how much the overall figure changes.

Net present value (NPV) is the preferred method to calculate the net impact of an intervention (see Section 9 for a full discussion of cost-benefit calculations), although many studies convert this to the ratio of net present benefits to net present costs. Present value (PV) calculations can be calculated at any time after the intervention has ended, although (as noted above) the earlier the evaluation the less clear the results and the more conjectures are needed about how early indicators map into later outcomes. It is advisable to calculate net present values for several rates of discount (rates of interest) to make the sensitivity of the result to variation in the rates apparent.
This section examines the main formulae used for investment decision rules and how they can accommodate the problem of interpersonal comparisons. As mentioned previously, the essence of cost-benefit analysis is to make clear to policy makers that expenditure on one program is always at the expense of expenditure on an alternative program.12

When one person benefits from program A but another person benefits from program B, a value judgement must be made as to which program is preferred. Questions to consider are: Is program A preferred only if the monetary benefit received by beneficiaries is greater than program B? If the beneficiaries of program A are wealthier, or have more promising lifetime prospects than the beneficiaries of program B, is program A still preferred?

Cost-benefit analysis formulae

There are three main formulae used in cost-benefit analysis: net present value, rate of return and cost-effectiveness calculations. This section provides overviews of these methods and the subsequent section deals with the issues of the societal distribution of costs and benefits and the choice of discount rate.

**Net present value**

The net present value (NPV) is an overall measure of the difference between the costs and benefits of an intervention. Intuitively, if the intervention contributes more benefits to members of society than the costs it imposes on society, then there is an argument for implementing the intervention. However, the time period in which the costs and benefits are generated or received can vary, so the costs and benefits need to be reduced to a single comparable time period by some method. For example, if an early childhood intervention promises to produce a benefit of $100,000 in 50 years time through reduced crime, it is debatable whether this is of equal value to society of a benefit of $100,000 in one years time.

In general, it is commonly assumed that more distant benefits and costs are of less value than near ones. It is assumed that the value of costs and benefits incurred and received differs according to the time periods, so the costs and benefits are weighted according to the time period in which they fall. Thus, a single overall summary figure can be derived for the intervention. In general, the formula for net present value, discussed below, assumes that each additional year into the future is discounted at a constant rate. However, this need not be the case and the rate of discount can be negative (implying that more distant costs and benefits are valued more that near costs and benefits) or differ for each selected year.

In general terms, given a stream of benefits, \( B_0, B_1, B_2, \ldots \) and costs \( C_0, C_1, C_2, \ldots \), the formula for the net present value (or NPV) is:

\[
NPV = (B_0 - C_0) + \frac{B_1 - C_1}{(1 + r)} + \frac{B_2 - C_2}{(1 + r)^2} + \ldots + \frac{B_n - C_n}{(1 + r)^n}
\]
or, more briefly,
\[ \sum_{t=0}^{\infty} \frac{R_t - C_t}{(1 + r)^t} \]

where \( r \) is the rate of discount and the sub-scripts 0, 1, 2... refer to each time period with 0 representing the start of the intervention. When comparing projects, \( r \) should include a premium for the risk and uncertainty associated with predicted future benefits and costs.

If costs are one-off and concentrated in the initial time period (such that \( C_1 = C_2 = C_\infty = 0 \)) and the stream of benefits \( (B) \) is constant and infinite \( (n = \infty) \), then
\[ NPV = \frac{B}{r} - C_0 \]

Both benefits and costs need to be reduced to a common denominator, usually money. The investment decision rule is either to invest in all interventions that have a net present value greater than zero, or alternatively to rank interventions according to their net present value. However, the net present value is sensitive to the chosen rate of discount. In the example below, intervention A has a higher net present value at low rates of interest while intervention B dominates at higher rates of interest. This will occur because the benefits arising from A are from a more distant time period than B.

Net present value (NPV) can only be used in circumstances where the main costs and benefits of an intervention can be reduced to a common unit of account, usually money. This ensures that the value to the participant and society of higher wages, a more rewarding job, less crime and less social dislocation can be monetised in a meaningful way. If the methods used to monetise these effects are not well accepted by policy makers then this method of deciding between interventions should not be used.

**Rate of return**

The rate of return formula uses many of the same assumptions as the net present value referred to above, but instead of calculating a single measure of net benefits at a given discount rate, it estimates the discount rate that is required to produce a single net benefit measure of zero. The rate of return, \( \lambda \), is derived from the formula:

\[ 0 = (B_0 - C_0) + \frac{B_1 - C_1}{(1 + \lambda)} + \frac{B_2 - C_2}{(1 + \lambda)^2} + ... + \frac{B_n - C_n}{(1 + \lambda)^n} \]
or, more briefly,

\[ 0 = \sum_{t=0}^{\infty} \frac{R_t - C_t}{(1 + \lambda)^t} \]

where \( t \) is the time horizon for the intervention. The investment decision rule is to invest in all interventions with an internal rate of return greater than the societal rate of time preference. The latter is the rate at which the average member of society is prepared to forego benefits in the current period, in order to receive benefits in a later period. If for example, if the average citizen is prepared to forego $100 worth of consumption today, only if he or she is certain they will receive at least $105 next year, then the rate of time preference is 5 per cent. Rates of time preference can be negative. A person may be willing to give up $100 today in order to be certain to receive $95 next year (possibly because their income from other sources is expected to fall), in which case the rate of time preference is -5 per cent.

**Cost effectiveness**

Cost effectiveness approaches are used when it is not considered meaningful to monetise the benefit streams, and the investment criterion is reduced to ranking the costs of achieving the same goals through different interventions. For example, raising the school retention rate for a target population may be achieved by preschool programs, parent education and awareness programs or direct financial incentives to families. In this case, the investment decision criterion would be to minimise the new present value of costs:

\[ NPC = C_0 + \frac{C_1}{(1 + r)} + \frac{C_2}{(1 + r)^2} + \ldots + \frac{C_n}{(1 + r)^n} \]

where NPC is net present costs.

**Which measure is superior?**

The cost effectiveness rule is a superior decision rule only when the benefits are homogeneous and thus quantifiable across alternative interventions. It would be appropriate then to use this rule when comparing two or more interventions to increase school retention or reduce the number of criminal assaults. As soon as interventions have more than one type of benefit, or the benefits vary in quality to such an extent that they cannot be quantified in a meaningful way, then the cost effectiveness approach cannot be used. In this instance, the net present value and rate of return formulae should be used.

In general, these two approaches will give different rankings depending on either the chosen rate of discount or the chosen time period, leading to some ambiguity in the investment decision-making instrument. The calculation of the internal rate of return is, however, sensitive to the chosen time horizon \( t \). Layard (1972: 51-52) argues that there are three main reasons for preferring the net present value as a decision rule:

- The net present value can accommodate variations over time in the discount rate which the rate of return approach cannot.
- The rate of return approach incorrectly ranks interventions of different size or interventions of different time horizons. This is not an issue if the projects are completely divisible and duplicable (maintaining the same stream of costs and benefits pari passu), but in this case the rate of return approach will give the same answer as the net present value. Thus the rate of return metric is equivalent but not superior to the net present value metric.
- The rate of return calculations may not give a unique answer and may give many solutions, as shown in the diagram below. A given project has a unique set of net present value for each rate of discount, but net present value may equal zero at two rates.
In short, the rate of return provides a less general approach than the better defined net present value (or NPV).

Societal distribution of costs and benefits

Cost-benefit analysis aims to produce an index for the net societal benefit from a given investment project to enable decision makers to decide either whether a project should proceed, or how to rank projects by value. It calculates a single figure by simply summing costs and benefits across individuals and is therefore neutral with respect to the types of individuals who will benefit the most from one intervention or the other. However, it may so happen that intervention A may benefit (or disadvantage) community Y the most, while intervention B benefits (or disadvantages) community Z more. It almost always happens that intervention A will affect distinct individuals in a different way from intervention B, whether or not they belong to the same community or group.

In the example of early childhood interventions, there are very clear potential income distributional effects. Many of the proposed benefits from running early childhood interventions are intended to directly affect the participating child in the form of better health, higher wages and a more rewarding labour market experience. As such, society as a whole, through the payment of taxes, has made the investment for the localised benefits of selected groups in society, but see discussion of spillover effects in Section 10. This is a subjective policy decision.

To make this subjective process more transparent, cost-benefit analysts may choose to weigh the benefits and costs according to a set of subjective distributional values (see Weisbrod 1968: 814). In this way, a series of indices, based on different subjective weights, may be calculated, and the decision maker can see how sensitive the project rankings are to the subjective weights. Generally however, distributional differences have no formal place in the cost-benefit formulae, but since they are clearly relevant decision-making criteria for public policy, they are treated discursively in the text that accompanies the evaluation.

Intertemporal discount rate

An investment is by definition, a current outlay made in the expectation of a future return. The decision maker therefore is always comparing values over time and must make some choice about whether to discount, or appreciate, future dollar values relative to today’s dollar. For business, this is straightforward. Since they must borrow money for investment, either from a financial intermediary or their shareholders, the cost of having funds tied up in an investment project is the market rate of interest plus an allowance for the risk and uncertainty of the project.
For public policy makers, the issue is about the cost of deferring today's consumption (this includes consumption of welfare products) until some time in the future. Clearly, if the labour and resources used for an investment are currently unemployed or not used, then there is no deferral of today's consumption and the discount rate is zero.

However, investments that only involve otherwise unemployed resources are rare, and the general case will be when the project(s) involve scarce labour who would otherwise be employed in other welfare enhancing work. The appropriate rate of discount represents how much of today's consumption is foregone in order to consume tomorrow. For example, if 91 cents is foregone today in order to consume $1.00 tomorrow, then the rate of discount is 10 per cent.

While rates can be estimated by surveying people and asking them what they personally would give up today in order to get a specified amount in the future, interpersonal comparisons cannot be estimated this way. In particular, this method cannot be used to estimate inter-generational discount rates. Today's citizens should not be entitled to put a maximum rate on how much of today's consumption they should forego in order to benefit, or not benefit, future unborn generations, or decide if future generation's welfare should be discounted at all, especially when much of today's consumption is derived from the natural endowment. This is not a question of today's parents deciding on how much to invest for their own children. In matters of public policy, it is today's members of society collectively determining the discount rate for the collective population of tomorrow.

With respect to early childhood interventions, the choice of discount rate will affect the ranking and net present value calculation of interventions where the benefits are concentrated in the school age period, early adulthood or late adulthood.

While there is no certain correct answer to the question of the appropriate rate of time preference, positive discount rates are generally used for the simple practical reason that projects with zero or negative discount rates and infinitely lived benefit streams do not converge to a present value.
There are four major reasons why a particular intervention benefit will not be recorded through the market. The first is because it affects a party other than the intervention provider and recipient (that is, someone not directly involved in the transaction for which a price is struck). The second, third and fourth reasons arise because the consumer of the service does not voluntarily purchase the service through the market. In this case, while the transaction may occur because of compulsion or funding from a third party, such as the government, there is no consumer price and hence no way to evaluate how much the consumer values the service.

These three reasons for non-market consumption of the service are: first, because either the purchaser or supplier of the service is myopic and does not appreciate the benefits to be had from engaging in the transaction; second, because the benefits, while statistically significant on average, are too uncertain at the individual level for the individual to have the confidence to invest\(^\text{13}\); and third, because although both parties know of the benefits, the potential purchaser, cannot afford to buy (or borrow money for) the service even though he or she realises that over the longer term there will be a net return.

While there are undoubted potential spillovers or benefits to third parties from investing in early childhood interventions (for example, from reduced crime rates and fewer welfare dependants), there is an implied view in the literature that the reason the target groups, predominantly low income families, are not already investing more intensively in their children’s education and social development is because of the other three factors discussed above. In short, either low income families are not appraised of the benefits of positive early childhood experiences, are not convinced that they will apply to their individual circumstance, or do not have the funds to pay for the extra professional assistance and materials.

The following section discusses the nature of spillovers and why they are not captured by the market. This is followed by consideration of ways that have been devised to monetise major non-pecuniary spillovers and other benefits to consumers that are not transacted through the market because the consumer does not voluntarily purchase them from the market.

**The nature of spillovers (externalities)**

A complete cost-benefit analysis should count the expected costs and benefits of a program to all parties in society, regardless of whether these are transacted through the market, or whether they are directly transacted through contact with another person or another activity.

The first and second party to a transaction are the producer (supplier) and the consumer of the good or service. In the case of a market transaction, the price paid for the good or service is taken to reflect both the producer’s (maximum) cost of production (or benefits foregone) and the consumer’s (minimum) valuation of consuming the product. Because both the producer and consumer are willing parties to a market transaction, it is assumed that the agreed price is above the maximum cost and below the minimum benefit.

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\(^{13}\) While mathematical probabilities can be calculated for a large group of individuals, the importance of other factors dominate outcomes for single individuals.
Spillovers, or externalities, are unintended effects of such a transaction on a third party. Generally, the third party has no power over the absorption of these effects. Examples of spillovers include changes to the environment resulting from a higher level of production and consumption and thus a change in the ability of third parties to derive satisfaction from the environment, or a change in the welfare of a whole community resulting from more education or health programs for a specific sub-group.

Spillovers are always outside the market and are thus not measured through the price mechanism. Taken to the extreme, the number and quantity of spillovers is unlimited, as the actions of one party can have infinite possible effects on the welfare of proximate parties. However, the cost-benefit analyst must, for practical reasons, limit the scope of measured costs and benefits to those that are significant in size and that should reasonably, and ethically, enter a societal welfare function.

**Valuation of non-market costs and benefits**

How far the analyst should go to impute the value of non-marketed costs and benefits depends on the estimated size of these effects, relative to market transactions, and how much information needs to be collected. As a minimum, the analyst should mention and describe the principal spillovers.

Where commercial operations co-exist with public provision, the former may be used to impute values, after adjusting for differences in quality. In Australia, this will include health, educational, aged-care and recreational services. In some cases, there may be no market for the good or service in Australia, for cultural or institutional reasons, but commercial operations may exist overseas (for example, commercial city parks, commercial beaches) from which to draw prices. The difficulty here is finding examples that are close enough with respect to its characteristics that a parallel can be drawn.

Clearly, there are private markets in Australia and other countries for intensive childhood services of the type considered in this report. Parents can buy extra kindergarten services, and extended professional assistance for social and educational needs. The prices of these services can be used as a shadow price for the value to families that are receiving these services free through a government or welfare agency program.

However, there remains the critical issue of how much foresight parents who currently use the private market have, and thus how well the price they are prepared to pay encapsulates the present value of long-term benefits to the child, and second, whether the impact on children who use the private market will be of the same proportion to the impact on children who do not. Children who use the private market are more likely to belong to high income and well educated families than children who do not use the private market. In essence, the impact of the program may depend on selection effects. It is not clear whether these qualifications imply a systematic over- or under-estimate of the “true” value of the benefits of the intervention services to the target group.

If the impact on the target group is higher than for the population currently purchasing the services privately, then the present value of benefits will be higher than the present value of the costs of running the intervention. In addition, if it can be convincingly argued that there are spillover benefits from the intervention, such as reduced crime rate and better social cohesion, then the present value of benefits will be accordingly higher still. The aim of the evaluations is to argue that either or both of these additional sources of benefits are present, and to define, and possibly monetise the size of these benefits.

Two generic rules – the principles of exact compensation and of opportunity costs – are used to quantify non-market transactions.

**Principle of exact compensation**

In theory, the pecuniary measure of the effect of an externality is the amount of income that a person would have to receive, or forego, in order to maintain his or her level of satisfaction (utility) at

14 Usually this is because they are intrinsically non-excludable (for example, air pollution) or not excluded in practice (for example, gardens).
the same pre-effects level. In order to assess this, economists use the principle of revealed preferences. They look at how much people are prepared to pay in order to avoid a negative spillover, or to come in contact with a positive spillover.

**Principle of opportunity cost**

In many cases, explicit or implicit program costs represent transfer payments and are not true societal costs since there is no opportunity cost (foregone benefit) from using the designated resource or labour. The classic example is when a program uses unemployed labour. Even though there is a program cost to employing people who would otherwise not be employed (wages + on-costs + capital costs), the true cost is their loss from their alternative use, which is the loss of leisure. The same reasoning applies to otherwise unused facilities and resources. However, the cost of scarce (or already employed) labour should be counted as a program cost, because outputs from alternative employments are being foregone.

In the remaining sections, divergent approaches to valuing changes to one person’s wellbeing through change to their health or socio-physical environment are considered. Estimates of the number of people affected by type of cost and benefit also have to enter the cost-benefit formula. In addition, if the analyst wants to conduct a sensitivity analysis of the distributional consequences, enumeration of the types of people affected needs also be made.

**Life and health**

One of the common benefits to monetise is a reduction in death and ill health. To the extent that early childhood interventions reduce anti-social behaviour and improved health and thus ill effects on the participants and people they interact with over the course of their life, these factors may be included in an evaluation.

There are four common ways that the literature uses to monetise the value of life and health. Evaluators who require these values for an evaluation will not make these estimates themselves but will draw upon an existing study.

The first method, a simple but rather narrow way to calculate the societal loss from one person’s life, is to equate it to the present value of future earnings (or PVE) $Y$. $PVE = \sum_{t=c}^{d} \frac{Y_t}{(1+r)^{t-c}}$

where $t$ is time, $c$ is the current year, and $d$ is the expected year of retirement.

In some cases, account is also taken of the bereavement of the family and loss of enjoyment by the individual (Mishan 1975: 299). Changes to transfer payments are not measured as these represent a transfer between members of society and not a net loss to society. Transfer payments, such as an orphan’s payment, would only be included (as a gain to the family and a loss to the rest of the community) if the present value calculation included weights for income distribution factors.

This method is not widely accepted, since by extension, it implies that the goal of an economy is to maximise GDP (which by extension is achieved through unlimited immigration) (see Mishan 1975: 301).

The second method, a more advanced version of the PV earnings, is the PV of losses affecting other parties only. This deducts personal expenses, $C$, from gross income, $Y$. This essentially excludes the loss of utility to the dead person.

$PVnetL = \sum_{t=c}^{d} \frac{Y_t - C_t}{(1+r)^{t-c}}$

This method is also not well accepted as it implies that there is no loss associated with a person, such as a low-income recipient who consume their whole income.
The third method is to look at revealed preferences of individuals or the government. Expenditures, such as installing seat belts, improving occupational health and safety or improving medical equipment, that lower the probability of death, can be used to calculate a dollar figure for a reduction of $x$ per cent in the death rate of $y$ people over a given year. For example, a new diagnostic machine in a hospital is reasonably expected, through earlier detection, to reduce the death rate from that disease by 1 per cent. If 1,000 people are treated each year, the machine costs $10 million, and has a life-time of ten years, then the value of saving a life is $100,000.

Similarly, the wages associated with more risky jobs compared with less risky jobs may be used to calculate a person’s pecuniary assessment of the risk differential. If one job earns $100 per week more than other comparable jobs but has a 1 percentage point greater chance of serious injury in any given year, then the value of losses due to injury is equal to $100 \times 52 \times 100 = $520,000.

This method does rely upon the assumption, in the case of government expenditures, that decisions on these matters reflect societal preferences. In addition, it is assumed that individuals make reasonable, informed choices and are not unduly myopic. One disadvantage of this revealed preference method is that as many different estimates as there are examples will be produced. There is likely to be a different trade-off in jobs between the risk of injury and wages for many jobs. An average, or weighted average for certain demographic groups, offers the best solution.

With the fourth method, the amount for which a person is prepared to insure their life may indicate how much he or she believes their life is worth to their beneficiaries. Similar to the second method above, this method assumes that the life has no intrinsic value to the potential loser of life.

In a similar way to the calculation for loss of life, calculation can be made for the loss of limb or health.

**Location effects**

Local amenity – arising from pollution, traffic congestion, crime rates, access to good schools and facilities – can be measured through the analysis of property prices. To estimate the effects of one type of amenity, such as crime rate, the analysis would need to be multi-variate and involve large amounts of data to enable one effect to be separated from the other. This requires obtaining data from locations with a large variation in the effect under consideration and to be able to control for all the other major characteristics that affect housing prices. The argument is that the difference in average rental (or rental imputed from price) between similar houses, but one group located in a high crime area and the other in a low crime area, represents how much people are willing-to-pay to avoid the negative externality of a greater risk of being the victim of crime; or in other words, how much the difference in crime rate is worth to the people.  

**Life satisfaction**

Job, social and family satisfaction are commonly cited benefits from many programs and there is a tradition of measuring changes in satisfaction in questionnaires using ordinal scales such as the Likert scale. While these scales are regarded as acceptable ways to rank, and sometimes compare, levels of satisfaction, they do not easily translate into a pecuniary value.

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15 Due to the psychological and pecuniary cost of relocation, only the rents or housing prices of people recently moving in to a neighbourhood should be included. Someone who values a reduction in the crime rate more than the rent differential between neighbourhoods, will not move if the cost of moving exceeds the present value of the net gain.

16 This implies that the scales are cardinal, not just ordinal.
Evaluations of cost-benefit studies of early childhood interventions

Eight of the 32 early childhood interventions reviewed in this report contained a cost-benefit analysis. These studies are assessed here, in the light of how well they serve as a template for an Australian evaluation of an early childhood intervention. Each evaluation was assessed against ten major criteria that relate to the main steps in conducting a cost-benefit analysis: estimating the net impact if the program; treatment of costs and benefits; and formulae used for calculating net effects.

Perry Preschool Project (Perry)

**General comments**

This is a well-executed and internally coherent cost-benefit analysis. The analysis relies upon estimates of deterministic relationships between variables such as years of education and earnings from secondary sources. These are not critically examined or qualified. It has a sensible treatment of which people to include as beneficiaries and the scope of costs and benefits included. It uses a discursive method to recognise and treat relevant but imprecise costs and benefits.

The main weakness of the analysis is the very small and non-representative sample and thus the very much reduced value for policy makers who wish to generalise about the effects of extending the intervention. This is not a trivial issue since most of the benefits arise from the reduced crime rate for which we are given little information (that is, the number of criminal acts committed by the evaluation sample). There are no considerations of the effects on the family of participants and other members of the community other than in their role as tax-payers.

Nonetheless, it serves as a good template for future cost-benefit analyses.

**Estimating the net impact of the intervention**

*Controlling for selection bias.* Program participation was allocated on the basis of random assignment. There is no discussion of whether there is any selection bias ex post although it is indicated that parents could, and did, opt out of the parental meetings.

*The size of the participation and control groups.* Only 58 participants were included in the intervention group. This is too small to draw many inferences from.

*Tests of statistical significance.* Tests for whether the net impacts are significant are given, but it is not clear whether these have controlled for differences in mental retardation between the two groups.

**Treatment of costs and benefits**

*Scope of included costs.* This is well done and includes all major program and instruction costs.

*Scope of included benefits.* The main benefits are the material enhancement of the participants, the reduced costs to society from less remedial schooling, and the reduced crime rate. A discussion is made of other life satisfaction benefits, but these are not used in the cost-benefit calculation. This seems a valid list.

*Scope of potential beneficiaries.* This is limited to the participants, the counterfactual victims of crime and the taxpayer. This seems appropriate.
Time scale considered. Real data is used to age 27 and estimates are extrapolated to retirement age. This is a valid method.

Method used to monetise non-pecuniary benefits. The only non-pecuniary benefit which has been monetised, and which contributes over half of the net present value of benefits, is the effects on the potential victims of crime. The monetary value of the pain and suffering etc that a victim of crime incurs is cited in a footnote and not discussed or rationalised. This is a weakness of the analysis.

Formula used for calculation

Method employed. The analysis uses the net present value (NPV) method, at a 3 per cent rate of time preference (discounted back to the start of the program).

Use of sensitivity analysis. A reasonable use of sensitivity analysis is made with respect to the rate of time preference and the effects of crime on victims.

Cost-benefit findings

The cost-benefit analysis indicated that the benefits totalled $108,002 per child while costs totalled $12,356 per child. This is equal to a saving of $8.74 for every $1 spent. The cost-benefit analysis also indicated that the net benefits remained large even when any one of the benefits was excluded, or if all benefits were reduced by half.

Bolivia Integrated Child Development Program (PIDI)

General comments

Participants in this intervention, which aims to increase the cognitive and physical development of undernourished children in Bolivia, were self-selected. Most of the analysis is devoted to the treatment of the selection issues based on observable characteristics, as the data do not permit the evaluators to control for unobservables. There is no data on the pre-intervention cognitive and physical condition of the children. It does not appear that the intervention was set up with evaluation in mind and this compromises the robustness of the findings.

The cost-benefit analysis is rather scantily done and some of the assumptions are weak. In particular, the assumption that four years of program provision will have a permanent effect on cognitive and physical development has not been justified. The exposé does not make it clear how many observations are included in each regression used to derive the net impacts.

This is not a good example of a cost-benefit analysis.

Estimating the net impact of the intervention

Controlling for selection bias. The authors use a Heckman-type estimation to control for selection issues, but this can only conditioned on observables.

The size of the participation and control groups. The description of the sample size is confusing and it is not clear which size has been used for each regression.

Tests of statistical significance. Tests of significance are provided.

Treatment of costs and benefits

Scope of included costs. Costs are limited appropriately to the intervention costs for the four years.

Scope of included benefits. Benefits are limited to the net effect on earnings. This is narrow. It is assumed that changes in height affect earnings even though the net impact on height was not significant at the 10 per cent level.
Scope of potential beneficiaries. Only the intervention participants are included – this is narrow.

Time scale considered. The time scale is limited to two rounds of data gathering. It is not clear what the time period was between these measurement points and the commencement or termination of the intervention.

Method used to monetise non-pecuniary benefits. All intervention data give intermediate outcomes (measures of cognitive and physical development) and these are converted into future earnings using the assumption that all changes are permanent and reference to secondary data linking cognition and physic to earnings. This is a reasonable method.

Formula used for calculation

Method employed. NPV.

Use of sensitivity analysis. Different levels of time preference and base level educational attainment are used to calculate the cost-benefit ratios.

Cost-benefit findings

The cost-benefit analysis estimated that the program cost approximately $43 per child per month (per capita annual GDP is $800). Forty per cent of this cost is consumed by providing children with their nutritional needs. Benefit to cost ratios were found to range from 1.7:1 to 3.7:1 (where benefits in terms of future earnings were the focus).

Chicago Child-Parent Center (CPC)

General comments

This analysis follows the format established by Barnett (1993a, 1993b) in the Perry Preschool Project evaluations. The major differences are, on the plus side, a considerably larger sample (989 in the program and 550 in the control group) but, on the negative side, non-randomised selection into the program. This means that the two comparison groups can vary in unobservable ways. In particular, it is expected that more motivated and determined parents will enrol in the program. This will tend to overstate the benefits from the intervention as control and intervention groups are not alike except for their program participation. Similar methods to the Barnett studies are used to measure costs and benefits.

Estimating the net impact of the intervention

Controlling for selection bias. Selection into the intervention is not random and it is not clear whether the determinants are limited to parental interest, other than the normal income and disadvantage requirements. No attempt is made in the regression analysis to adjust for selection bias, as in the cost-benefit analysis for PIDI.

The size of the participation and control groups. Over 1000 cases are included in the evaluation. This is a reasonable sample.

Tests of statistical significance. Tests of significance are reported and the significant results are used in the cost-benefit analysis.

Treatment of costs and benefits

Scope of included costs. Same set of costs as Barnett above are included. This is adequate.

Scope of included benefits. The same set of benefits are included as Barnett, but like Barnett, some discussion is made of the unmeasured benefits. Similar to other studies, seemingly reputable secondary sources are used to convert intermediate outcomes, such as education, into earnings.
Scope of potential beneficiaries. Same set of beneficiaries are included as Barnett.

Time scale considered. Evaluation data appears to extend to the age of 21 years which is a reasonable length.

Method used to monetise non-pecuniary benefits. Only the public expenditure costs associated with criminal activity, policing, judicial and property costs etc, are included in the analysis so there are no monetary values of non-pecuniary benefits. A similar treatment is made of the costs of child abuse – these benefits are limited to public expenditure savings.

Formula used for calculation

Method employed. NPV.

Use of sensitivity analysis. Several different rates of time preference are used.

Cost-benefit findings

The cost-benefit analysis estimated the cost of the program to be US$6,730 (1998 dollars) for 1 and half years, with a return of US$47,759 per child. Overall, $7.10 was returned to society for every dollar spent (benefits to society were $3.83 for every dollar and government savings was $2.88 per dollar).

Carolina Abecedarian Project (Abecedarian)

General comments

A more expensive and intensive intervention than Perry and Head Start, the Abecedarian involved full-time care for children aged up to five years. The number of children involved in the intervention was very small (104) and the analysis thus suffers from the same difficulties as Barnett’s other studies on the Perry Preschool Program. Unlike other studies, this evaluation extends to more speculative benefits such as the effects on future generations and life expectancy of the participants. This is not entirely wrong, but because there is a large variance on the size of the monetised estimates of these benefits, it is good practice to present both conservative as well as the more far-reaching estimates.

Estimating the net impact of the intervention

Controlling for selection bias. Participation was by random assignment, but given the considerable commitment required from parents (relinquishing their child for 40 hours a week from birth), there are likely to be considerable ex post selection issues. This is not discussed.

The size of the participation and control groups. At 104 in both intervention and control groups combined, the numbers are too small for strong generalisations.

Tests of statistical significance. These are presented.

Treatment of costs and benefits

Scope of included costs. Usual program costs are included in addition to the costs of child care for the control group.

Scope of included benefits. These are considerably broader than other studies as they evaluate, using secondary sources, the effects on the education of the next generation and the effects of the significant reduction in smoking on the value of additional years of life to the participant. Estimates are used from the secondary literature to estimate earnings to the age of retirement.

Scope of potential beneficiaries. Unlike other studies, this study includes the effects on the mothers’ educational attainment during the intervention period.
Time scale considered. Survey data and school data has been used up to the age of 21 years. This is a reasonable period.

Method used to monetise non-pecuniary benefits. The main non-pecuniary benefit monetised is the value of life. The analysis refers to value of life literature that make this assessment based on how much people are willing to spend in order to reduced their risk of death by a designated percentage. This is a common, but controversial, method used in economics.

Formula used for calculation

Method employed. NPV, but rates of return are also discussed.

Use of sensitivity analysis. Discount rates from 0 to 7 per cent are used. Net present benefits can be decomposed to exclude benefits affecting future generations and those that arise from reduced smoking.

Cost-benefit findings

The cost-benefit analysis found that the average annual cost was about US$13,900 (2002 dollars) per child. The final cost-benefit findings were that the benefits outweighed the costs by $4 to every $1 spent.

Starting Early Starting Smart (SESS)

General comments

This intervention integrates preschool education with programs to reduce parents’ mental illness and substance abuse. It began in 1997, and the evaluation is still in the early data collection phase. While there has only been partial random assignment, the numbers of children involved in the evaluation is large. The evaluators are intending to collect extensive detail on program costs and cover abroad scope of potential benefits. No outcomes are presented in the article.

Estimating the net impact of the intervention

Controlling for selection bias. Participation was by random assignment in some centres but in others a control group was constructed. A broad range of control characteristics has been collected. These range from parent-child interaction, home environment, child behaviour as well as the more traditional individual and family characteristics.

The size of the participation and control groups. There are 1900 children in the sample, which is large.

Tests of statistical significance. Not applicable.

Treatment of costs and benefits

Scope of included costs. Unusual detail made of program costs, including classifications into fixed and variable, consumable and non-consumable, investment and operating and stakeholder group costs. It is not clear what can be gained from this level of detail.

Scope of included benefits. An extensive set of benefits are proposed to be collected. In addition to the usually educational intermediate outcomes, there will be data on welfare dependence arrests, emergency room visits, family violence and mental illness.

Scope of potential beneficiaries. Unlike other studies, this study includes the effects on the participants’ families.

Time scale considered. Survey data and school data will be collected through to adulthood.

Method used to monetise non-pecuniary benefits. Not stated.


**Formula used for calculation**

Method employed. Not decided yet.

Use of sensitivity analysis. Not decided yet.

**Cost-benefit findings**

The cost-benefit analyses have not yet been conducted.

**Florida Family Transition Project (FTP)**

**General comments**

This family-based intervention delivers health, education, and social services to adults with the aim of reducing welfare dependence and increasing employment income. There is random assignment and a large evaluation sample. Conservative measures are taken on costs and benefits, which are limited to government payments and earnings.

**Estimating the net impact of the intervention**

Controlling for selection bias. Participants allocated through random assignment and participation was deemed compulsory. There was considerable attrition over the evaluation period, but unless there are reasons to believe that there is bias in the attrition, this is not a problem.

The size of the participation and control groups. There were 2800 people in the evaluation, split evenly between the intervention and control group. This is a large number.

Tests of statistical significance. Not performed.

**Treatment of costs and benefits**

Scope of included costs. Limited to government welfare costs, and the cost of delivering the program services.

Scope of included benefits. Limited to earnings and fringe benefit differentials (adjusted for tax payments). Estimated by regression analysis (based on some individual characteristics).

Scope of potential beneficiaries. The participant and the taxpayer.

Time scale considered. Five years post intervention. This is a long time period for an employment program evaluation.

Method used to monetise non-pecuniary benefits. No non-pecuniary benefits are monetised but some are discussed.

**Formula used for calculation**

Method employed. NPV.

Use of sensitivity analysis. Not clear.

**Cost-benefit findings**

The cost-benefit analysis indicated that the program costs were approximately US$12,500 per family member over the five-year period. The net costs, over and above what was spent on the usual welfare program were US$8,000 per family. The cost-benefit analysis found that the FTP produced a net loss to the government of US$6,300 per family.
**Triple-P Positive Parenting Program (Triple P)**

**General comments**

This is a well-conducted and thorough evaluation with a reasonable sized intervention and control groups. Unlike other analyses, it uses a cost effectiveness method but in order to capture some of the wider benefits caused by an intervention it recasts them as cost savings. The short time frame for measuring the benefits of the intervention is a limitation.

**Estimating the net impact of the intervention**

*Controlling for selection bias.* Participants were allocated through referral and there were several levels of intensity of treatment. In most cases the control group was drawn from families on the waiting list for the intervention. However, it was not clear how long the waiting lists were. There would have to be very long waiting lists for good counterfactual data to be collected. There was considerable attrition over the evaluation period, but unless there are reasons to believe that there is bias in the attrition, this is not a problem. Children with additional developmental or health problems were excluded. A comparison of the family background characteristics showed that the intervention and control groups were not significantly different.

*The size of the participation and control groups.* Five separate “randomised” trials were conducted involving 567 children. This is a reasonable number if the random assignment is truly random. No details on refusal rates for parents who did not want to participate, but it is implied that all participants and the control groups are self selected. This may be appropriate for this type of intervention that requires a high level of parental cooperation. Attrition rates are provided.

*Tests of statistical significance.* Provided.

**Treatment of costs and benefits**

*Scope of included costs.* Program costs such as fees for counselling sessions, the prices for workbooks and materials are included but the time and medial costs (can be negative) affecting the family are excluded. Because of the limited scope for including benefits in a cost effectiveness formulae, some benefits are included as cost savings, such as education, health, foster care and crime costs associated with fewer people, up to the age of 28, with conduct disorders. These estimates are derived from secondary literature.

*Scope of included benefits.* Whether the child developed or maintained a conduct disorder was the only benefit. Only one benefit is permitted in costs effectiveness studies but one way around this is to include other benefits in the cost side as cost savings.

*Scope of potential beneficiaries.* The child.

*Time scale considered.* Six months to three year follow-ups undertaken depending on the trial.

*Method used to monetise non-pecuniary benefits.* Not applicable as a cost effectiveness method used.

**Formula used for calculation**

*Method employed.* Cost effectiveness. The benefit of the intervention is the number of child conduct disorders averted. The evaluators considered the number of disorders that need to be prevented in order for the intervention to cover costs. No account taken of reduced mental health problems in parents (considered to be a secondary benefit of the intervention).

*Use of sensitivity analysis.* Conducted.

**Cost-benefit findings**

Triple P costs range from 75c at Level 1 to $422.45 at Level 4 (individual) in Australian 2003 dollars. The cost-effectiveness analysis indicated that the intervention would pay for itself if it averted
less than 1.5 per cent of conduct disorder cases and that an aversion rate of 7 per cent or more would result in a cost saving.

**Elmira Prenatal and Early Infant Project (PEIP)**

**General comments**

The cost-benefit analysis appears to include both costs and benefits affecting the mother and child as well as transfer payment between the family and the government. This appears to include double counting. Ideally, a cost-benefit analysis should be separated from a statement of government accounts.

**Estimating the net impact of the intervention**

*Controlling for selection bias.* It has been described as a randomised trial, but few details are provided.

*The size of the participation and control groups.* Three hundred in combined intervention and control groups.

*Tests of statistical significance.* No.

**Treatment of costs and benefits**

*Scope of included costs.* Program costs and other savings to government are included.

*Scope of included benefits.* Mother behaviours including smoking, attendance at child related classes, nutrition, child abuse and neglect rates, education, substance abuse and criminal activity. Child effects included IQ, and criminal activity.

*Scope of potential beneficiaries.* Includes both mother and child.

*Time scale considered.* Benefits monitored up until the age of 15.

*Method used to monetise non-pecuniary benefits.* Only a subset of the benefits were monetised, including emergency room visits, use of welfare, and use of the criminal justice system.

**Formula used for calculation**

*Method employed.* This is an unusual combination of costs and benefits to the child, mother and family, as well as measures of transfer payments between the family and government (taxes and welfare payments).

*Use of sensitivity analysis.* No.

**Cost-benefit findings**

The cost-benefit analysis estimated that the costs of the program were US$3,300 in 1980 dollars and US$6,700 in 1997 dollars per child for two and a half years of service. The analysis also indicated that investment was recovered before the children turned four years old and the intervention saved US$4 for every US$1 spent. However, the benefits exceeded the costs only for families where the mother was of low income and unmarried.

**Effectiveness of early childhood interventions with a cost-benefit analysis**

Cost-benefit analyses were available for at least one program from each of the five intervention clusters specified in this report. This section summarises the interventions in each of the clusters according to the adequacy of the evaluation design, program efficacy and cost effectiveness.
Cluster 1: targeted, child focused, centre based, preschool age

Three of the interventions in cluster 1 included a cost-benefit analysis in their evaluation. Two of these cost-benefit analyses (for Perry and CPC) were appropriately executed. However, the cost-benefit findings of PIDI need to be interpreted with caution due to a number of issues discussed above.

A saving of US$8.74 was found for every dollar spent on Perry, a saving of US$7.10 for every dollar spent on CPC and cost-benefit ratios ranging from 1.7:1 to 3.7:1 for PIDI. This suggests that interventions in cluster 1 provide a good return on investment. In addition, Perry and CPC were well implemented and the evaluations of both were well-designed. Effect sizes for Perry ranged from large in the short-term to medium in the intermediate term, while effect sizes for CPC ranged from small in the intermediate term to small in the long-term. This suggests that the cost-benefit analyses of Perry and CPC adequately represent the intended interventions.

Cluster 2: targeted, parent focused, home visits, all ages

Cost-benefit analyses were conducted for the Elmira PEIP intervention. This analysis indicated a saving of US$4 for every dollar spent – however, this only applied to low-income and single parent families. In addition, the calculation of the costs and benefits was unconventional. The evaluation design of the PEIP was excellent and effect sizes ranged from large in the short-term to medium in the intermediate term. Although the PEIP demonstrated good return on investment for a select group, it is not possible to generalise this finding to other parent focused, home visitation-type interventions.

Cluster 3: targeted, family economic/welfare focused, all ages

A cost-benefit analysis was conducted on the FTP and found a loss, as opposed to a saving. Although the evaluation of FTP was well designed, effect sizes were not published. It is therefore inappropriate to comment whether the poor return on investment demonstrated by the FTP generalises to other interventions with an economic or welfare focus.

Cluster 4: targeted, holistic, various locations, all ages

A cost-benefit analysis was conducted on the Abecedarian project. A saving of US$4 for every dollar spent was found. Adding further strength to this finding is the adequate cost-benefit techniques, good implementation of the intervention and well-designed evaluation. Again, it is difficult to generalise this finding to a range of targeted, holistic early childhood interventions.

Cluster 5: universal, various foci, various locations, all aged

Triple P was the only intervention in cluster 5 that produced a cost analysis, however this was only a cost-effectiveness analysis, which does not include an extensive calculation of program benefits. Therefore, it is difficult to make any conclusions about return on investment for universal interventions.

Summary

Focusing narrowly on the limited cost-benefit data for early childhood interventions reviewed here, there is some indication that interventions that involve children as participants, or that focus on enhancing parenting efficacy, and that are intensive in nature, have greater cost savings potential than interventions that focus solely on familial economic circumstances. However, reliable conclusions about the relative cost savings of early childhood interventions require additional cost-benefit data on a more representative sample of programs.
New findings from developmental neuroscience, and growing evidence from longitudinal studies have indicated that children’s experiences in early childhood provide an important foundation for subsequent development. There has thus been increased interest in the potential for early childhood interventions to ensure children start life on a positive developmental pathway, particularly those children whose family background might indicate problems in the sensitive formative years.

This report focuses attention on the potential for early childhood interventions to produce returns on public investment in the long run. It reviews selected early childhood interventions to examine the effect of these programs, carefully considering intervention design, implementation and evaluation rigour. It establishes the conceptual framework within which program costs and outcomes can be understood, evaluates cost-benefit methodologies, and reviews published estimates of costs and benefits of applicable early childhood interventions.

This section summarises findings about the efficacy of early childhood interventions for improving outcomes for children and the relative cost-savings potential of different early childhood intervention programs. It concludes with recommendations for conducting cost-benefit analyses of early childhood interventions in Australia.

Are early childhood interventions efficacious?

While this review provides a basis for estimating likely future benefits of early childhood interventions, it is not a comprehensive study. The dearth of evaluation data on interventions generally, and missing data on the restricted and unrepresentative number of interventions in this review, makes it impossible to comment on the usefulness of early childhood interventions as a general strategy to sustain improvements for children in the long-term.

Examination of 108 large-scale, public early childhood interventions from around the world revealed relatively little empirical data on program effectiveness. Indeed, of the 108 interventions identified in the current review, only 32 interventions had a strong evaluation component, including only three interventions developed and currently operating in Australia.

In an attempt to identify the most effective “type” of early childhood intervention, programs were grouped into five clusters according to the availability of the intervention, the intended effects of the intervention, where the intervention took place, and the focal age of children targeted for the intervention.

On balance, the interventions produced a number of important improvements across a wide range of outcome domains. The greatest improvements were observed in respect to children’s cognitive skills, and child outcomes in general, with parent-related outcomes showing the least improvement (studies reporting effect sizes on parent and family outcomes were in the negligible to small range, although the Triple P program was an exception).17

Most of the positive effects on child outcomes were the result of centre-based interventions, as opposed to “home-visiting” or “case management” interventions. These interventions were

17 Evaluation findings need to be interpreted with the consistency and dependability of the measurement in mind. The reliability of evaluation measures is presented in the review of programs in Section 5 of this report.
grouped in cluster 1, which included programs like the Perry Preschool Project and Head Start. This is most likely a testament to the fact that cluster 1 interventions were consistently superior in terms of key elements of design and implementation quality such as dosage, intensity, participation rates, “drop-out” rates and program integrity. By contrast, there was great variability in design and implementation adequacy within cluster 4 (targeted, holistic interventions, such as Sure Start) and very little information was available on interventions in cluster 5 (universally available programs, such as Triple P), which made it difficult to comment definitively on these interventions as a group. It may also be true that more intensive effort is required to achieve substantive change in parent-related outcomes, such as parenting skills and social support, than what was offered by the current interventions.

Although the review of early childhood interventions reviewed here is not representative, it supports the case for well-designed, well-executed and high quality interventions. Differences in benefits observed across the programs reviewed here may in fact relate to differences in program quality and funding.

The measured effects of early childhood interventions were mostly limited to the immediate and short-term. Reductions in acts of delinquency and crime (which are easily measured) were the most enduring intervention effects reported. However, only 13 of the 32 reviewed interventions (40.6 per cent) followed up participants for more than two years, and the Perry Preschool Project stands out as the only intervention to collect comprehensive evaluation data on participants into adulthood. Impressively, the adult follow-up of participants in the Perry Preschool Project, collected after 22 years when participants were aged 27 years, showed positive effects on aspects of intellectual ability as well as income and employment outcomes in adulthood.

It is also possible that interventions produce different effects at different developmental stages. Effects that disappear after a few short years may in fact re-emerge at a later developmental stage, showing what is known as a “sleeper effect” (for example, initial gains in cognitive and language performance following experience in centre-based child care may “fade-out”, only to re-appear at entry to school, for example). Interventions that do not conduct lengthy follow-ups could in fact be underestimating intervention effects, or incorrectly reporting diminishing effects over time.

Although it is natural to consider benefits in terms of outcomes that an intervention was designed to produce, gains from early childhood intervention may also occur beyond the domains measured in an evaluation. It is instructive that when Head Start began, for example, it was primarily concerned with enhancing cognitive performance. Later evaluations have seen this intervention as also contributing to positive early moral developmental and language regulation (Emde 2003: 8). Moreover, program effectiveness is often determined in terms of outcomes that are easily measured, such as acts of crime. Less tangible effects – the capacity to sustain functional relationships, as one example – may fall off an evaluator’s radar simply because of the complexity (and potentially cost) of measurement.

The need for longitudinal study after an early childhood intervention is clear. This is important to understand what is needed to sustain and enhance intervention effects, how long programs should last, and to appreciate possible influences of program participation on later stages of development.

Do early childhood interventions have long-term payoffs?

Very few sound cost-benefit and cost-savings analyses of early childhood intervention programs with long-term follow-ups have been conducted. Of the 108 interventions that were initially identified, only eight interventions included a cost-benefit study. With the exception of a cost-effectiveness study of Triple P, there have been no cost-benefit analyses undertaken of Australian interventions, making it difficult for government to decide objectively on how much funding to allocate to these interventions vis-à-vis other social and economic expenditures.

There is evidence, however, that early childhood interventions can produce potential returns in public investment. Although it is not possible to generalise these findings, among the early
childhood interventions with a cost-benefit analysis reviewed here, programs that involved children as program participants, or that focused on improving parenting skills or levels of parenting support, produced a greater return on investment than interventions that focused on family economic circumstances.

Planning a cost-benefit analysis of an Australian early childhood intervention

Clearly, much more Australian data is needed on interventions in early childhood to determine their effects and benefits in this context. The review of cost-benefit studies provided in section 11, combined with information about the process for undertaking a cost-benefit analysis and estimating program costs and benefits is instructive in this regard. What follows is a summary of the important steps in planning a cost-benefit analysis of an Australian early childhood intervention.

There are a number of general principles that may be used by decision-makers considering cost-benefit analysis of an early childhood intervention program, which may need to be tailored to the specific circumstances of a given intervention and its evaluation design.

Ideally, an evaluation should be planned at the same time as the intervention is designed to enable random assignment and the cheapest form of data collection. There are four parts to a cost-benefit analysis that are to some extent conducted separately:

- estimating the net impact;
- measuring the benefits – pecuniary and non-pecuniary;
- measuring the costs – pecuniary and non-pecuniary; and
- combining costs and benefits into a present value (PV) calculation.

Before the evaluation is designed three things need to be established: first, the intended benefits of the intervention (for example, educational, crime related, employment, social engagement); second, the target population; and third, additional factors that may affect outcomes other than the characteristics of the target population (for example, if the target population is children from low income households, then other correlated but intrinsically different factors may be the parents’ refugee status, parents’ history of substance abuse, age of parents, relationship status of parents, parents’ criminal record, peer group etc.).

Data can be collected from repeat surveys and administrative records on participants. Pecuniary values for non-pecuniary costs and benefits (crime, loss of health, unemployment) are usually derived from secondary literature, which has made these estimates.

Selecting the intervention and comparison groups

Setting up the evaluation ideally requires the inclusion of a comparison group that is similar to the program group demographically and/or on relevant pre-tests. There are many ways to build a comparison group, with random assignment\(^{18}\) of the target population (children from low-income households, parents with substance abuse, parents with long term unemployment etc.) typically viewed as the best way of ensuring that intervention and comparison groups are equivalent initially.

In the case of child participants, parental consent is required for both participation in the intervention and for ethics approval for the collection of administrative data (such as school and government records). This requirement for approval will introduce a bias in the selection of children into the intervention which ideally should be accounted for though the regression analysis.

After random assignment, including parental consent, children and parents should be surveyed to ascertain: first, the background characteristics of the family with respect to different types of

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18 Random assignment and matching methods do not in themselves ensure that families in the intervention and comparison groups do not differ from one-another in unmeasured ways.
disadvantage that may impact on the child’s social, educational and psychological development; and second, depending on the age of the child, any developmental assessments of the child before the intervention has begun.

Rather than defining comparison groups through random assignment or some other means, researchers can attempt to estimate the effects of participation in an early childhood intervention through the use of random surveys. Ideally, specific information about program participation should be collected. In the absence of specific program participation information, random surveys can be used to compare how well program participants fared compared to a population group.

**Collecting data on intervention costs**

Usually only the running costs need to be recorded. Fixed costs associated with the establishment of the intervention are only relevant if they will be incurred every time the intervention is extended. Fixed costs associated with the design of the intervention that are one-off are not relevant.

It is rare for the costs of the intervention to extend beyond the intervention period. If they occur, they will in most cases be revealed as negative benefits and will be monitored through the benefits section.

**Collecting data on intervention benefits**

Benefits should be measured over time through surveys and the collection of administrative data. Relevant survey measures include educational achievement records, school retention, employment history, incidence of criminal record, social and health problems (substance abuse, social dysfunction). Administrative records can supplement survey data (for example, school achievement records, social security records, and so on).

The frequency of the surveys and administrative data collection depends on funding for the evaluation and the occurrence of critical milestones in the child’s development. The latter may include the start of primary, secondary and tertiary education, age 18 or age 21 years.

**Conducting PV calculations**

Present value calculations can be calculated at anytime after the intervention has ended although the earlier the evaluation the less clear the results and the more we are required to rely upon conjectures about how early lifecycle indicators map into later outcomes.

It is advisable to calculate present value for several rates of discount to make the sensitivity of the result to variation in the rates apparent.

**Conclusion**

Most of the evaluations summarised in this report are of good quality, although weaknesses were noted across a number of aspects of program design and implementation (notably attrition from the program), thus some interpretation of evaluation findings is required. Nevertheless, evaluation findings suggest that early childhood interventions can produce improvements across a wide range of outcome domains. There is also some limited evidence that early childhood interventions can produce potential returns in public investment.

Unfortunately, however, no evaluation can demonstrate that a program that worked well in one setting will have similar positive results when adopted in a new location. Thus, evaluations that are conducted in the Australian context are essential to understand the potential benefits of early childhood interventions undertaken here. Ideally, an evaluation should be planned at the same time as the intervention is designed to ensure methodologically strong evaluations that will support cost-benefit analyses and other evaluative endeavours.
References


DHS Victoria (2001), The “Best Start” indicators project, Department of Human Services, Victoria, Australia.


FACES (2003), Head Start FACES 2000: A whole-child perspective on program performance, US Department of Health and Human Services, USA.


# Appendix 1: Early childhood interventions identified via a search of the literature

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Location</th>
<th>Target group (age of entry to intervention)</th>
<th>Main aim</th>
<th>Brief description</th>
<th>Methodology</th>
<th>Universal or targeted</th>
<th>Length and size (initial sample sizes)</th>
<th>Measured outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perry preschool project 1962-1967</td>
<td>Ypsilanti, MI, USA</td>
<td>3 to 4 years Low SES and low IQ</td>
<td>To improve child health and development. To increase IQ and promote school readiness.</td>
<td>Home visits School year, part-day preschool program Parenting skills</td>
<td>Random trials Experimental design, follow-up period and less than 50 per cent attrition at follow-up.</td>
<td>Targeted</td>
<td>58 intervention 65 controls Follow-up to 27 years Cost-benefit analyses have been conducted</td>
<td>IQ Academic achievement Criminal activity Employment and income Teen pregnancy</td>
</tr>
<tr>
<td>Elmira/Prenatal/Early Infancy project 1978-1982</td>
<td>Elmira, NY, USA</td>
<td>Up to 30th week gestation. First time young, single or low SES mothers</td>
<td>To improve child health and development Preventill-health and child abuse/neglect</td>
<td>Home visits by trained nurses Parenting skills Formal and informal support</td>
<td>Random trials Experimental design, follow-up period and less than 50 per cent attrition at follow-up.</td>
<td>Targeted</td>
<td>116 intervention 184 controls Follow-up to 15 years Cost benefit analyses have been conducted</td>
<td>IQ Criminal activity ER and hospital visits Home environment Reports of child abuse and neglect Maternal education Maternal employment and welfare use Maternal criminal activity Subsequent pregnancies Maternal substance use impairments</td>
</tr>
<tr>
<td>Head Start 1965 - present</td>
<td>Multiple sites, USA</td>
<td>3 to 5 years Low SES</td>
<td>To improve child health and development Prepare children for formal schooling</td>
<td>Preschool program (part or full day) Home visits Can be home or centre based</td>
<td>Experimental design, follow-up period and less than 50 per cent attrition at follow-up.</td>
<td>Targeted</td>
<td>Large scale on multiple sites National Head Start Impact Study - 5,000 to 6,000 children</td>
<td>National Head Start Impact Study - cognitive development, social and emotional development, motor skills, communication skills, health, academic skills, family outcomes,</td>
</tr>
<tr>
<td>Early Head Start 1995 - current</td>
<td>Multiple sites, USA</td>
<td>Under 3 years and pre-natal Low SES</td>
<td>To enhance child development and improve family functioning. Also staff development and community development</td>
<td>Programs must provide services of pre-natal care, early education, home visits, parent education, parent-child activities, health services, child care services, parent job training and material aid.</td>
<td>Random trials Experimental design, follow-up period and less than 50 per cent attrition at follow-up.</td>
<td>Targeted</td>
<td>Large scale on multiple sites (650 programs in 2001) Intervention is for approx. 3 years Research and Evaluation Project - approx 3,000 children randomly assigned to intervention or comparison</td>
<td>Early Head Start Research and Evaluation Project - service utilisation, family and relationship outcomes, community outcomes, child outcomes</td>
</tr>
<tr>
<td>Carolina Abecedarian project 1972-1985</td>
<td>Carolina, USA</td>
<td>6 weeks to 3 months High risk Low SES</td>
<td>To improve child health and development</td>
<td>Full day child care to age 5</td>
<td>Random trials Experimental design, follow-up period and less than 50 per cent attrition at follow-up.</td>
<td>Targeted</td>
<td>57 intervention 54 controls Follow-up to 21 years</td>
<td>IQ Academic achievement Home environment Maternal education Maternal occupation and employment Child employment, college attendance, offspring</td>
</tr>
<tr>
<td>ID</td>
<td>Targeted</td>
<td>Randomized</td>
<td>Sample size</td>
<td>Follow-up period</td>
<td>IQ</td>
<td>Academic achievement</td>
<td>Behaviour problems</td>
<td>General child health</td>
</tr>
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</tr>
<tr>
<td>1</td>
<td>Infant Health and Development project 1985-2000</td>
<td>8 sites, USA</td>
<td>20 intervention controls</td>
<td>16/17 years</td>
<td>100 intervention</td>
<td>100 controls</td>
<td>100 intervention</td>
<td>100 controls</td>
</tr>
<tr>
<td>2</td>
<td>Early Training project 1962-1979</td>
<td>4 to 5 years</td>
<td>43 intervention (2 types)</td>
<td>20 years</td>
<td>389 intervention</td>
<td>389 controls</td>
<td>389 intervention</td>
<td>389 controls</td>
</tr>
<tr>
<td>3</td>
<td>Chicago Child-Parent Center 1967-present</td>
<td>3 to 4 years</td>
<td>1150 intervention</td>
<td>14 years</td>
<td>389 intervention</td>
<td>389 controls</td>
<td>389 intervention</td>
<td>389 controls</td>
</tr>
<tr>
<td>4</td>
<td>Mailman Center Program</td>
<td>Birth</td>
<td>31 intervention</td>
<td>6 years</td>
<td>30 intervention</td>
<td>30 controls</td>
<td>30 intervention</td>
<td>30 controls</td>
</tr>
<tr>
<td>5</td>
<td>Houston Parent-child Development Center</td>
<td>1 year for home visit 2 years for center</td>
<td>90 intervention</td>
<td>15 years</td>
<td>20 intervention</td>
<td>20 controls</td>
<td>20 intervention</td>
<td>20 controls</td>
</tr>
<tr>
<td>6</td>
<td>Milwaukee project (1966-1978)</td>
<td>Milwaukee, USA</td>
<td>4 to 5 years</td>
<td>14 years</td>
<td>4 to 5 years</td>
<td>4 to 5 years</td>
<td>4 to 5 years</td>
<td>4 to 5 years</td>
</tr>
<tr>
<td>7</td>
<td>Early Training project 1962-1979</td>
<td>Muffeeksbo, TN, USA</td>
<td>4 to 5 years</td>
<td>14 years</td>
<td>4 to 5 years</td>
<td>4 to 5 years</td>
<td>4 to 5 years</td>
<td>4 to 5 years</td>
</tr>
<tr>
<td>8</td>
<td>Institute for Developmental Studies</td>
<td>312 intervention</td>
<td>312 controls</td>
<td>4 years</td>
<td>312 intervention</td>
<td>312 controls</td>
<td>312 intervention</td>
<td>312 controls</td>
</tr>
<tr>
<td>9</td>
<td>Yale Child Welfare Research Project</td>
<td>Prenatal</td>
<td>18 intervention</td>
<td>6 years</td>
<td>18 intervention</td>
<td>18 controls</td>
<td>18 intervention</td>
<td>18 controls</td>
</tr>
<tr>
<td>10</td>
<td>Mailman Center Program</td>
<td>Birth</td>
<td>31 intervention</td>
<td>6 years</td>
<td>31 intervention</td>
<td>31 controls</td>
<td>31 intervention</td>
<td>31 controls</td>
</tr>
</tbody>
</table>

**Notes:**
- **IQ:** Intelligence Quotient
- **Academic achievement:** Includes measures such as grades, test scores, and educational attainment.
- **Behaviour problems:** Refers to various types of conduct problems, including aggression, hyperactivity, and impulsivity.
- **General child health:** Includes physical health indicators and disease prevalence.
- **Mother-child interaction:** Measures include dyadic interactions and parent-child relationship quality.
- **Home environment:** Assessments of home conditions, family structure, and household characteristics.
- **Maternal employment:** Data on employment status and mobility.
- **Maternal education:** Educational attainment and literacy.
- **Maternal subsequent pregnancy:** Information on subsequent pregnancies and family planning.
- **Parenting skills:** Parenting behavior, discipline, and emotional support.
- **Prevalence of child abuse and neglect:** Incidence of child abuse and neglect.
- **Parenting skills:** Parenting behavior, discipline, and emotional support.
- **Day care:** Use of day care services.
- **Parenting skills:** Parenting behavior, discipline, and emotional support.
<table>
<thead>
<tr>
<th>Intervention</th>
<th>Location</th>
<th>Target group (age of entry to intervention)</th>
<th>Main aim</th>
<th>Brief description</th>
<th>Methodology</th>
<th>Universal or targeted</th>
<th>Length and size (initial sample sizes)</th>
<th>Measured outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>High/Scope preschool curriculum study</td>
<td>Ypsilanti, Michigan, USA</td>
<td>3 to 4 years Low SES At risk for school failure (low IQ)</td>
<td>To compare the effects of 3 diverse preschool curriculum models on young children living in poverty</td>
<td>Half day, full week preschool program using High/Scope model Biweekly home visits</td>
<td>Three cohorts - each cohort was randomly assigned to 3 groups, then reassigned to match on race, gender and IQ. Then 3 groups were randomly assigned to preschool programs.</td>
<td>Targeted</td>
<td>22 intervention 46 controls (in two other models of preschool) Follow-up to age 23</td>
<td>IQ Academic skills Parenting skills Delinquent behaviour Community involvement Income and employment Education status</td>
</tr>
<tr>
<td>Smart Start (early childhood initiative)</td>
<td>North Carolina, all 100 counties</td>
<td>Under school-age</td>
<td>To increase children’s access to quality child care, health care and other critical services</td>
<td>Funds administered through “local partnerships”</td>
<td></td>
<td>Universal</td>
<td>Each county runs programs according to need: Smart Start funds programs. 82 local partnerships</td>
<td></td>
</tr>
<tr>
<td>Success by Six</td>
<td>Vermont</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Reports of child abuse/neglect</td>
</tr>
<tr>
<td>Healthy Families Indiana</td>
<td>Indiana, USA Healthy Families America operates on multiple sites</td>
<td>Families are identified before or immediately after birth At risk families 0-5 years</td>
<td>To promote healthy child development and healthy families by reducing child abuse and neglect, child health problems and juvenile delinquency</td>
<td>Voluntary, intensive home visitation program Parent education classes Access to health care</td>
<td></td>
<td>Targeted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project CARE (Carolina Approach to Responsive Education)</td>
<td>Carolina, USA</td>
<td>4 weeks for home visit 6 weeks to 3 months for center High risk</td>
<td>To improve child health and development</td>
<td>Home visits Full day child care (int. gp 1) Home visits (int. gp. 2)</td>
<td>Random trials. Experimental design, follow-up period and less than 50 percent attrition at follow-up.</td>
<td>Targeted</td>
<td>17 intervention group 1 25 intervention group 2 23 controls Follow-up to 4+ years</td>
<td>IQ Childrearing attitudes Home environment</td>
</tr>
<tr>
<td>Project Name</td>
<td>Location</td>
<td>Duration</td>
<td>Intervention Type</td>
<td>Randomisation</td>
<td>Participants</td>
<td>Outcomes</td>
<td></td>
<td></td>
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<td>---------------------------------</td>
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<tr>
<td>Florida Parent Education Project</td>
<td>Florida, USA</td>
<td>3 to 24 months</td>
<td>Home visits. Part-day child care twice a week (2-3 years)</td>
<td>Not randomised</td>
<td>288 intervention 109 controls</td>
<td>IQ Academic achievement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curriculum Comparison study</td>
<td></td>
<td>4 years</td>
<td>Part-day preschool</td>
<td>Not randomised. Post-hoc comparison group</td>
<td>244 intervention 68 controls</td>
<td>Academic achievement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harlem Training Project 1966-1967</td>
<td></td>
<td>2 to 3 years</td>
<td>One-to-one tutoring or child-directed play</td>
<td>Not randomised. Comparison group recruited later</td>
<td>244 intervention 68 controls</td>
<td>IQ Academic achievement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Howard University Project 1964-1966</td>
<td></td>
<td>3 years</td>
<td>Preschool program</td>
<td>Not randomised</td>
<td>38 intervention 69 controls</td>
<td>Academic achievement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philadelphia Project 1963-1964</td>
<td></td>
<td>4 years</td>
<td>Home visits Part-day preschool project</td>
<td>Not randomised. Matched comparison group</td>
<td>60 intervention 53 controls</td>
<td>IQ Academic achievement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal Interaction Project 1967-1972</td>
<td></td>
<td>2 to 3 years</td>
<td>Home visits</td>
<td>Matched comparison groups Not randomised</td>
<td>111 intervention 51 controls</td>
<td>IQ Academic achievement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Hope Project 1994-1998</td>
<td>Milwaukee, USA</td>
<td>To indirectly improve child outcomes by addressing parental unemployment</td>
<td>Job search assistance Assistance with child care Employment assistance</td>
<td>Controlled experiment</td>
<td>1357 low income individuals - not yet clear how many had children 678 program 679 controls Cost benefit analyses conducted</td>
<td>Parent education Parent employment Family and relationship outcomes Income security Adult outcomes Emotional wellbeing Child social, emotional, behavioural outcomes Child cognitive outcomes Child academic outcomes Child overall development Child health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Best Start project</td>
<td>Victoria, Australia</td>
<td>Pre-natal to 8 years Socially disadvantaged Aboriginal</td>
<td>To improve the social, emotional and physical wellbeing of children, improve capacity and competency of parents/carers and assist communities to become more child friendly</td>
<td>Universal</td>
<td>(proposed) Social and emotional development Physical and mental health Academic achievement Strengthened community Quality of services</td>
<td>1098 intervention 109 controls</td>
<td></td>
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<tr>
<td>Intervention</td>
<td>Location</td>
<td>Target group (age of entry to intervention)</td>
<td>Main aim</td>
<td>Brief description</td>
<td>Methodology</td>
<td>Universal or targeted</td>
<td>Length and size (initial sample sizes)</td>
<td>Measured outcomes</td>
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<tr>
<td>Ohio Early Childhood Intervention Project</td>
<td></td>
<td></td>
<td>To build the capacity of professionals for intervention design</td>
<td>To foster better relationships between children and parents</td>
<td>Parenting skills Multi dimensional treatment - practical parenting experiences, group discussions, education, home management training, material aid, activities for children and mother-child play session with feedback.</td>
<td>Targeted</td>
<td>28 children</td>
<td>IQ Academic achievement Mother-child interactions Child negative behaviour</td>
</tr>
<tr>
<td>Hampton Healthy Start program</td>
<td>Multiple sites, USA Evaluations have been conducted in Birmingham, Houston, New Orleans</td>
<td>2 months to 3 years Low SES</td>
<td></td>
<td></td>
<td></td>
<td>Targeted</td>
<td>Each site has an intervention and a comparison group</td>
<td>Access to and use of service Child social, emotional and cognitive outcomes Parent-child interaction Family functioning</td>
</tr>
<tr>
<td>Parent-Child Development Center programs</td>
<td>12 sites, USA</td>
<td>Under pre-school age</td>
<td>To improve child health and development</td>
<td>Targeted culturally relevant interventions.</td>
<td>Plans for a longitudinal extension</td>
<td>Targeted</td>
<td>Each site has an intervention and a comparison group</td>
<td>Access to and use of service Child social, emotional and cognitive outcomes Parent-child interaction Family functioning</td>
</tr>
<tr>
<td>Starting Early Starting Smart (knowledge development initiative)</td>
<td>5 communities in Ontario, Canada</td>
<td>0-4 years Low SES (also another part targeting 4-8 years)</td>
<td>To improve child development, prevent poor developmental outcomes.</td>
<td>Each of the communities was funded to develop a local prevention project to address specific child, family and community goals.</td>
<td>Longitudinal prevention policy research demonstration project</td>
<td>Targeted</td>
<td>Over 3,000 children</td>
<td></td>
</tr>
<tr>
<td>Better Beginnings Better Futures 1991-</td>
<td>Multiple sites in Wales, Scotland and North Ireland, UK</td>
<td>Under 4 years Low SES</td>
<td>To improve the health and wellbeing of families and children, before and from birth, so children are ready to flourish when they go to school.</td>
<td>Locally led and developed, with parent involvement Reshapes and adds values to existing local services and develops new services Are some core services that need to be provided.</td>
<td>Locally led and developed, with parent involvement Reshapes and adds values to existing local services and develops new services Are some core services that need to be provided.</td>
<td>Targeted</td>
<td>Aims to reach 500 areas by 2004</td>
<td></td>
</tr>
<tr>
<td>Sure Start 1999-current</td>
<td></td>
<td>0-6 years</td>
<td>Builds on existing partnerships, programs and services</td>
<td></td>
<td></td>
<td>Targeted</td>
<td>Aims to reach 500 areas by 2004</td>
<td></td>
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<tr>
<td>Early Years study</td>
<td></td>
<td>0-6 years</td>
<td></td>
<td></td>
<td></td>
<td>Targeted</td>
<td>Aims to reach 500 areas by 2004</td>
<td></td>
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<tr>
<td>Program Name</td>
<td>Location</td>
<td>Target Group</td>
<td>Outcomes</td>
<td></td>
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<tr>
<td>Good Beginnings Australia</td>
<td>Multiple sites, Australia</td>
<td>Families who are isolated, PND, have difficulties, wish to improve parenting</td>
<td>Home visits</td>
<td>Targeted</td>
<td></td>
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<tr>
<td>Positive Parenting Program (Triple P)</td>
<td>Multiple sites, Australia</td>
<td>Birth to 12 years</td>
<td>To prevent child behavioural, emotional and developmental problems by enhancing protective factors and reducing risk factors.</td>
<td>Enhancing parenting skills through a number of contexts and levels - mass media, tip sheets, parent groups; self-directed, one-to-one.</td>
<td>Program developed through 20+ years of clinical research trials Randomised, large clinical trial</td>
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<tr>
<td>Families First (a pilot program of Intensive Family Preservation Services) 1991-1992</td>
<td>Victoria, Australia</td>
<td>Children at risk of being placed away from home</td>
<td>To preserve and reunify families of children on the verge of state care</td>
<td>Follows the model of Homebuilders in the US. Connecting parents to formal and informal supports Brief, intensive home based, flexible service</td>
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<tr>
<td>Families First NSW</td>
<td>Multiple sites, NSW, Australia</td>
<td>0-8 years</td>
<td>To strengthen connections between families and communities and support and assist families To improve child outcomes</td>
<td>Funds community family projects Universal services Targeted services Community outreach</td>
<td></td>
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<tr>
<td>WA Start right Eat right</td>
<td>WA, Australia</td>
<td>To improve children's health</td>
<td>Targeted</td>
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<tr>
<td>Early Intervention Parenting Project</td>
<td>Multiple sites, Australia</td>
<td>Children under 5. Some pre-natal. Families in rural and remote areas, Indigenous, CALD</td>
<td>Prevent child abuse, improve parenting and strengthen families</td>
<td>Parent education Home visits Supported playgroups Outreach services Family support services Community development</td>
<td></td>
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<tr>
<td>Active for Life</td>
<td>Adelaide, Australia</td>
<td>4 years</td>
<td>To increase the quality, quantity and disposition of children...to physical activity</td>
<td>Through early childhood centres</td>
<td></td>
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<tr>
<td>Pilot Early Intervention Reading project</td>
<td>UK</td>
<td>Improve literacy</td>
<td>Targeted</td>
<td></td>
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<tr>
<td>Intervention</td>
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<tr>
<td>Craigmiller project</td>
<td>UK</td>
<td></td>
<td>Improve literacy</td>
<td></td>
<td></td>
<td>Targeted</td>
<td></td>
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<tr>
<td>Wester Hailes project</td>
<td>UK</td>
<td></td>
<td>Improve literacy</td>
<td></td>
<td></td>
<td>Targeted</td>
<td></td>
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<tr>
<td>Support at home for early language and literacy (SHELLS) 1997-current</td>
<td>NSW, Australia</td>
<td>Birth to 3 years Indigenous and non-Indigenous families in regional and rural areas</td>
<td>Support children's literacy growth</td>
<td>Empowers parents and carers in their role as child's first literacy teacher</td>
<td></td>
<td>Targeted</td>
<td></td>
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<tr>
<td>Early Childhood Intervention Services</td>
<td>Australia</td>
<td>Children with disabilities and developmental delay</td>
<td></td>
<td></td>
<td></td>
<td>Targeted</td>
<td></td>
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<tr>
<td>Baby Happiness, Understanding, Giving and Sharing program (HUGS)</td>
<td>Australia</td>
<td>Infancy Mothers who have difficulty interacting with their infant</td>
<td>To promote positive interaction between infants and mothers</td>
<td>Mother groups, weekly 1 to 1.5 hours, 6 phases</td>
<td>Has and is being evaluated</td>
<td>Targeted</td>
<td></td>
<td></td>
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<tr>
<td>Parents as Teachers (PAT)</td>
<td>Massachusetts, USA</td>
<td>Ante-natal, infancy and toddlerhood</td>
<td>Enhance child development and parent-child relationships</td>
<td>Home visits Parent groups Child screenings Referrals</td>
<td>Universal</td>
<td></td>
<td>Academic achievement Child health Parent knowledge Home environment Parenting Maternal wellbeing</td>
<td></td>
</tr>
<tr>
<td>Step by Step child care</td>
<td>Ontario, Canada</td>
<td>Birth to 3 years Parent intellectual disability</td>
<td>To improve outcomes of children with intellectually disabled parents</td>
<td>Weekly home visits Parenting skills Program individualised</td>
<td></td>
<td>Targeted</td>
<td>Child care skills Parent-child interactions Child health Language development</td>
<td></td>
</tr>
<tr>
<td>The Parents and Children Series</td>
<td>USA</td>
<td>2-8 years Behavioural problems</td>
<td>To improve long-term outcomes of children with behavioural difficulties</td>
<td>Videotape based. Self administered or group program Parenting skills</td>
<td>Extensively evaluated using control group comparisons and reliable and valid outcome measures.</td>
<td>Targeted</td>
<td>More than 17 years of evaluation Parenting behaviour Child behaviour - positive and negative</td>
<td></td>
</tr>
<tr>
<td>Chicago Longitudinal Study</td>
<td>Chicago, IL, USA</td>
<td>3 to 4 years Low SES</td>
<td>To investigate long-term effects of different levels of participation, beginning at different ages</td>
<td>Chicago child-parent centers</td>
<td>Quasi-experimental with non-equivalent control groups. Longitudinal, prospective</td>
<td>Targeted</td>
<td>1150 intervention (across 20 CPCs) 389 comparison group</td>
<td>Family and relationship outcomes Child outcomes</td>
</tr>
<tr>
<td>Program Name</td>
<td>Country</td>
<td>Age Group</td>
<td>Focus</td>
<td>Interventions</td>
<td>Targeted</td>
<td>Evaluation</td>
<td></td>
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<tr>
<td>HIPPY</td>
<td>Israel, NZ, USA and Australia (developed in Israel)</td>
<td>Preschool aged (4 and 5 years) Low SES Parents have limited formal education</td>
<td>Greater readiness for and success at school.</td>
<td>Two year program. Parent training to assist with learning Set lesson plans Group meetings Intervention is run through parents, no specific contact with children</td>
<td>NY - randomised experimental study with intervention and control groups. Arkansas - quasi experimental with matched controls</td>
<td>Targeted</td>
<td></td>
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<tr>
<td>New Parent Infant Network (NEWPIN)</td>
<td>UK</td>
<td>0-5 year olds Families in distress</td>
<td>Permanent and positive changes in family life Prevent child abuse</td>
<td>Centre based parent education and support</td>
<td>Targeted</td>
<td></td>
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<tr>
<td>Building Bridges</td>
<td>Tasmania, Australia</td>
<td></td>
<td></td>
<td>Coordination of services</td>
<td>Targeted</td>
<td>Child abuse</td>
<td></td>
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<tr>
<td>Home Start 1989-current</td>
<td>Multiple sites, Vic and NSW, Australia (Programs in NSW are funded by Families First Strategy)</td>
<td>Under 5 years Vulnerable families or experiencing difficulties</td>
<td></td>
<td>Voluntary home visiting service providing practical support and friendships Short or long term basis Visits occur once a week or fortnightly</td>
<td>Targeted</td>
<td>Doesn’t appear to be any research or evaluations</td>
<td></td>
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</tr>
<tr>
<td>Parent Link Volunteer Home Visiting Service</td>
<td>Multiple sites, WA, Australia</td>
<td>Families with at least one child under 5 years</td>
<td>Create positive and supportive family environments</td>
<td>Home visits by volunteers who are parents themselves and supervised by a professional Develop activities to build on parenting skills and provide links to other supports</td>
<td>Targeted</td>
<td></td>
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<tr>
<td>Under Tens Preventive Family Support Service</td>
<td>WA, Australia</td>
<td>Under 10 years displaying anti-social behaviour</td>
<td></td>
<td>Assist in communication between family and gov. agencies. Monitor progress</td>
<td>Targeted</td>
<td></td>
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<tr>
<td>WA Strong Families Program</td>
<td>WA, Australia</td>
<td>Families experiencing difficulties</td>
<td>To prevent crime</td>
<td>Agencies working together to develop action plans</td>
<td>Targeted</td>
<td></td>
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<tr>
<td>Intervention</td>
<td>Location</td>
<td>Target group (age of entry to intervention)</td>
<td>Main aim</td>
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<td>Length and size (initial sample sizes)</td>
<td>Measured outcomes</td>
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<tr>
<td>Early Education Services</td>
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<tr>
<td>Illawarra Extended Families Temporary Family Care Program</td>
<td>Illawarra, Australia Run by Barnados South Coast</td>
<td>0-12 years, but particular emphasis on 0-5 years Marginalised and vulnerable</td>
<td>Short-term crisis and respite foster program, Integrated children's welfare and health service</td>
<td></td>
<td>Targeted</td>
<td>No other information available of website</td>
<td></td>
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<tr>
<td>First Five Years Program</td>
<td>Run by Benevolent Society, Australia</td>
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<tr>
<td>First 3 years project</td>
<td>Introduced by Brotherhood of St Laurence, Australia</td>
<td>Appears to be in reviewing phase still, no programs up and running</td>
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<tr>
<td>Early Years project</td>
<td>Brotherhood of St Laurence, Australia,</td>
<td>Appears to be in reviewing phase still, no programs up and running</td>
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<tr>
<td>Building Blocks and Best Beginnings Service</td>
<td>Australia</td>
<td>Birth</td>
<td>Support mothers, improve parent-child relationships</td>
<td>Home visits providing support and parent education</td>
<td>Targeted</td>
<td></td>
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</tr>
<tr>
<td>Parents as First Teachers (PAFT) 1991-current Often run in conjunction with Family Start</td>
<td>NZ Based on Parents as Teachers</td>
<td>Birth to 3 years</td>
<td>To assist parents to participate more effectively in their children's early development and learning</td>
<td>Personal home visits, group meetings, child checkups Introduce parents to information, activities, ideas and child development knowledge</td>
<td>Universal</td>
<td></td>
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<tr>
<td>Stronger Families and Communities Strategy 2004-2008 (Aust. Government initiative)</td>
<td>Australia</td>
<td></td>
<td>Early childhood programs Parenting skills programs Relationship skills programs Mentoring and leadership programs Community building programs Volunteering programs</td>
<td></td>
<td></td>
<td>Over 660 local projects</td>
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<tr>
<td>Project 12-ways</td>
<td>Southern Illinois, USA</td>
<td>Infancy up Low SES, high risk</td>
<td>To treat and prevent child abuse and neglect</td>
<td>&quot;In situ&quot; treatment focusing on parent-child interaction, stress reduction, assertiveness, self-control, money management, health, relationships, problem solving, parenting. Individually tailored. Sections of program can be also be used individually.</td>
<td>Single case studies.</td>
<td>Targeted</td>
<td>Child abuse</td>
<td></td>
</tr>
<tr>
<td>Defiant children</td>
<td>Massachusetts, USA</td>
<td>Infancy up Severe behavioural problems</td>
<td>To improve parental management skills and competence, knowledge and child compliance</td>
<td>Parenting skills in group or individual format (10 x 2 ½ hour sessions</td>
<td>Targeted</td>
<td>Some studies evaluating the program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Even Start</td>
<td>USA</td>
<td>0-7 years Low SES At least one parent in need of educational services</td>
<td>To prevent literacy difficulties and enhance parent competence and confidence</td>
<td>Home visits Centre based Social outings Adult education Parenting skills</td>
<td>Evaluated using pre and post test but no control group</td>
<td>Targeted</td>
<td>School readiness Adult education success/ academic skills Cognitive and emotional support for children Child language development</td>
<td></td>
</tr>
<tr>
<td>Preschool Immunization Project 1994-1999</td>
<td>Georgia, USA</td>
<td>0-6 years Recipients of AFDC (welfare)</td>
<td>To ensure children are immunised</td>
<td>Parents required to provide proof of up-to-date immunisation or AFDC benefits are withheld</td>
<td>Controlled experiment</td>
<td>Universal</td>
<td>Benefits terminated Use of services Child mental and physical health outcomes Immunisation rates</td>
<td></td>
</tr>
<tr>
<td>Comprehensive Child Development Program 1990-1995</td>
<td>Multiple sites, USA</td>
<td>0 to school age Low SES</td>
<td>To enhance child development and help families achieve economic self-sufficiency</td>
<td>Coordinate delivery of services inc. employment and educational activities for parents, social and support services (child care, home visits, counselling etc)</td>
<td>Randomised Longitudinal, prospective</td>
<td>Targeted</td>
<td>Education Employment Family relationships Parenting Income security Adult wellbeing (physical and emotional) Child social, behavioural and emotional outcomes Child cognitive and academic outcomes Child health</td>
<td></td>
</tr>
<tr>
<td>Hawaii Healthy Start program</td>
<td>Hawaii, USA</td>
<td>Families of newborns High risk</td>
<td>To prevent child abuse and neglect, promote child health and development, promote positive parenting, enhance parent-child interactions</td>
<td>Home visits Referrals for material aid</td>
<td>Randomised trial study design Experimental</td>
<td>Targeted</td>
<td>IQ Home environment Mother-child interactions Child development Child abuse Maternal wellbeing Parenting practices Access to and use of supports</td>
<td></td>
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<tr>
<td>Intervention</td>
<td>Location</td>
<td>Target group (age of entry to intervention)</td>
<td>Main aim</td>
<td>Brief description</td>
<td>Methodology</td>
<td>Universal or targeted</td>
<td>Length and size (initial sample sizes)</td>
<td>Measured outcomes</td>
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<td>Florida Family Transition Program 1994-2000</td>
<td>Florida, USA</td>
<td>1-6 years Welfare recipients</td>
<td>To help recipients find and hold jobs</td>
<td>Intensive case management Time-limited welfare program Evaluation investigated the impacts of the program on children</td>
<td>Randomised</td>
<td>Targeted</td>
<td>5430 randomly assigned to program or control Mandatory participation Cost benefit analyses conducted</td>
<td>Family and relationship outcomes Adult education and employment Income and welfare use Adult health and wellbeing Child social, emotional and behavioural outcomes Child cognitive skills Child academic achievement Child health</td>
</tr>
<tr>
<td>Family Employment Program - Two Parent Program 2002-2003</td>
<td>Utah, USA</td>
<td>Third trimester or child Unemployed or underemployed two parent household</td>
<td>To increase parental employment and education</td>
<td>Short term assistance program</td>
<td>Randomised</td>
<td>Targeted</td>
<td>91 families in the program - “snapshot” evaluation of the program</td>
<td>Adult employment and education Child outcomes</td>
</tr>
<tr>
<td>Minority Female Single Parent (demonstration) 1984-1993</td>
<td>Funded by Rockefeller Foundation, USA</td>
<td>Minority, female single parents</td>
<td>To improve employment and education</td>
<td>Employment training programs. Services included education, job skill training, child care, counselling</td>
<td>Random assignment</td>
<td>Targeted</td>
<td>Run through 4 orgs. Approx 4,000 (2,300 intervention) Follow-ups 12 and 30 months later Cost-benefit analyses conducted</td>
<td>Adult employment and education Child outcomes</td>
</tr>
<tr>
<td>Building Strong Families (not in the field yet)</td>
<td>USA</td>
<td>Birth Low SES, unwed couples</td>
<td>Strengthen relationships and families To enhance child and family wellbeing</td>
<td>Instruction and support to improve relationship skills (appears to be a focus on marriage) Other services as needed - child care, health, employment</td>
<td>Random assignment</td>
<td>Targeted</td>
<td>Follow-ups 18, 36 and 60 months later Multiple sites</td>
<td>Will assess family and relationship outcomes, adult outcomes, child outcomes</td>
</tr>
<tr>
<td>Teenage Parent Demonstration Program 1986-1998</td>
<td>Chicago, Camden and Newark, USA</td>
<td>Pregnant or parenting teens Low SES First-time parents</td>
<td>To assist teen parents to be self-sufficient</td>
<td>Case management Mandatory education, training or employment Mandatory workshops</td>
<td>Random assignment</td>
<td>Targeted</td>
<td>Mandatory for first time teen parents receiving AFDC 2650 intervention 2647 control 6-7 year follow-up period</td>
<td>Parent education and employment Family and relationship outcomes Income and welfare use Child social, emotional and behavioural outcomes Child cognitive skills Child health</td>
</tr>
<tr>
<td>New Mexico Works (TANF Program) 1999-2003</td>
<td>New Mexico, USA</td>
<td>Families Low SES</td>
<td>To improve quality of life for parents and children and increase family income</td>
<td>60-month time limit Employment activities Support services</td>
<td>Not random</td>
<td>Targeted</td>
<td>Numerous studies - cohort of 33,000 tracked with admin data; 2,500 families phone follow-up interviews</td>
<td>Adult education and employment Income and welfare use Income security Adult wellbeing Child social, emotional and behavioural outcomes Child health Academic achievement</td>
</tr>
<tr>
<td>Program</td>
<td>Location</td>
<td>Age Group</td>
<td>Purpose</td>
<td>Interventions</td>
<td>Participants</td>
<td>Outcome Measures</td>
<td></td>
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<tr>
<td>Cuyahoga County Early Childhood Initiative 2000-2002 (encompasses Welcome Home and Early Start programs)</td>
<td>Cuyahoga County, Ohio, USA</td>
<td>Birth to 5 years</td>
<td>To promote and improve early intervention and supportive services to all children</td>
<td>Involved number of services: Welcome Home (home visits after birth); Early Start (intensive home visit program) Improving child care, expanded health insurance, public education campaign</td>
<td>Universal</td>
<td>Numerous evaluations of different aspects. Approx 800 families Adult social functioning Child mental and physical health outcomes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Support Program</td>
<td>Barnados South Coast, NSW</td>
<td>Pre-natal to 3 years</td>
<td>2 key services: Professional home visiting service (for women with chronic substance abuse problems) and Early Years Home Support Service (home visits for families with low to moderate needs)</td>
<td></td>
<td>Targeted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Neighbours</td>
<td>Run by Barnados Australia</td>
<td>Prenatal up to 3 years</td>
<td>To assist families to provide adequate care for the children and avert the risk of abuse</td>
<td>Home visits for up to 5 hours per week. Workers offer support, advice, referral, advocacy and access to resources, with a focus on childrearing.</td>
<td>Targeted</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Pittsburgh’s Early Childhood Initiative</td>
<td>Pittsburgh, USA</td>
<td>Children in high risk neighbourhoods</td>
<td>High quality early care and education provided to children</td>
<td></td>
<td>Targeted</td>
<td></td>
<td></td>
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<tr>
<td>Parent Services Project</td>
<td>New York, USA</td>
<td></td>
<td></td>
<td></td>
<td>Targeted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saginaw Prekindergarten Program 1999-2000</td>
<td></td>
<td>4 years</td>
<td>To develop skills needed for school success and prepare for entry into kindergarten</td>
<td>Evaluation of 1999-2000 involved 309 intervention Cognitive skills Psychomotor skills Parental participation</td>
<td>Targeted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Childhood Intervention Project</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Targeted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wawa Wasi home child care program</td>
<td>Peru</td>
<td>0-3 years</td>
<td>Working mothers</td>
<td>Works in conjunction with National Food Aid program Children are cared for by nominated woman in village who is trained. Meals are provided.</td>
<td>Targeted</td>
<td>Approximately 5,500 child care homes have been established</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Columbia Community Child Care and Nutrition Project (Hogares Comunitarios de Bienestar) 1987-1994</td>
<td>Multiple sites, Columbia</td>
<td></td>
<td></td>
<td>Monitors child health Provides food and nutritional supplements Full-day child care, including preschool education</td>
<td>Targeted</td>
<td>55,000 sites Costs US$140 per child per year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td>Location</td>
<td>Target group</td>
<td>Main aim</td>
<td>Brief description</td>
<td>Methodology</td>
<td>Universal or targeted</td>
<td>Length and size (initial sample sizes)</td>
<td>Measured outcomes</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
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<tr>
<td>Bolivia Integrated Child Development project</td>
<td>Bolivia</td>
<td>6 mths to 6 years Poor households in urban areas</td>
<td></td>
<td>Day care centres providing informal, home-based, integrated child development services.</td>
<td>Targeted</td>
<td></td>
<td></td>
<td>Plans to compare participants and non-participants via household surveys</td>
</tr>
<tr>
<td>Home Visiting Program</td>
<td>Jamaica</td>
<td></td>
<td></td>
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<tr>
<td>Cali project</td>
<td>Colombia</td>
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<tr>
<td>Programa No Formal de Educacion Inicial (Non-formal program of initial education)</td>
<td>Peru</td>
<td>3-5 years</td>
<td>To positively affect children’s development by educating parents</td>
<td>Home-based Provides food and physical, mental, Social activities for children Preschool education Courses for mothers</td>
<td>Random assignment</td>
<td>Targeted</td>
<td>60,000 children Costs US$68 per child per year</td>
<td></td>
</tr>
<tr>
<td>Early Enrichment Project</td>
<td>Turkey</td>
<td>3-5 years</td>
<td>To examine the effects of different child care services</td>
<td>Mothers trained in early child development techniques and supplied with educational materials</td>
<td></td>
<td></td>
<td></td>
<td>School achievement Social skills Personal autonomy Family relations Parenting</td>
</tr>
<tr>
<td>Colombia Promesa program</td>
<td>Colombia</td>
<td></td>
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<td></td>
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<tr>
<td>Harayana project</td>
<td>India</td>
<td></td>
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<tr>
<td>Integrated Child Development Project 1975-1994</td>
<td>Multiple sites, India</td>
<td>Prenatal to 6 years Low income Disadvantaged tribes, scheduled castes</td>
<td></td>
<td>Preschool education Child health and nutrition Maternal health and nutrition</td>
<td>Targeted</td>
<td></td>
<td>205,000 sites Frequently evaluated Costs US$100 per child per year</td>
<td></td>
</tr>
<tr>
<td>Initial Education Program</td>
<td>Mexico</td>
<td>Under 3 years Poor children</td>
<td>To improve child care techniques of parents</td>
<td>Training and education in child rearing Home visits and group sessions</td>
<td></td>
<td>Targeted</td>
<td>200 communities</td>
<td>Childrearing attitudes</td>
</tr>
<tr>
<td>Parent and child program</td>
<td>Multiple sites, Chile</td>
<td>4-6 years</td>
<td></td>
<td>Training and education in child rearing via 12 radio programs. Families listen in groups and discuss</td>
<td></td>
<td></td>
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<tr>
<td>Early Child Education Program</td>
<td>Kenya</td>
<td>3 to 6 years</td>
<td></td>
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<tr>
<td>EPZ Labor Welfare Fund</td>
<td>Mauritius</td>
<td>3 months to 3 years Children of export processing zones (EPZ) employees</td>
<td></td>
<td>Child care centres</td>
<td>Targeted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program Name</td>
<td>Country</td>
<td>Age</td>
<td>Objectives</td>
<td>Intervention Details</td>
<td>Impact Measures</td>
<td>Targeted</td>
<td>Achievements</td>
<td></td>
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<tr>
<td>Home Activities for Toddlers and their families (HATAF)</td>
<td>Israel (extension of HIPPY)</td>
<td>0-3 years</td>
<td>To enrich language skills, develop maternal sensitivity and improve parenting skills</td>
<td>Home visits, group meetings to discuss parenting, periodic mother-child workshops</td>
<td>Maternal knowledge of child development, Parenting</td>
<td>Targeted</td>
<td>2,000 families approx through 25 centres</td>
<td></td>
</tr>
<tr>
<td>Social Development Project</td>
<td>Venezuela</td>
<td>Prenatal to 6 years</td>
<td>To improve health and nutrition, preschool services</td>
<td>Preschool programs, preventive health care, provides milk</td>
<td></td>
<td>Multiple sites</td>
<td>Expect to reach over 2 million pregnant women and children</td>
<td></td>
</tr>
<tr>
<td>Roving Caregivers Program</td>
<td>Jamaica</td>
<td>Birth to 3 years Low SES</td>
<td>To ensure development and expansion of delivery of effective, low cost services</td>
<td>Access to prenatal care, universal birth registration, early childhood education (inc day care and preschool)</td>
<td></td>
<td>Targeted</td>
<td></td>
<td>3,500 children</td>
</tr>
<tr>
<td>Malnourished Children’s Program</td>
<td>Jamaica</td>
<td>3 months to 3 years</td>
<td>Improve child outcomes and parenting</td>
<td>Parent education, group sessions, toy library</td>
<td>Longitudinal studies</td>
<td>Targeted</td>
<td>Sample sizes from 99 to 634.</td>
<td>Non-compliance, Problem behaviour, Deviance and aggression</td>
</tr>
<tr>
<td>Incredible Years</td>
<td>US and UK</td>
<td>High risk families</td>
<td>Improve child outcomes and parenting</td>
<td>Several versions, depending on age and needs of child, and location. The core program is the basic behaviourally oriented parenting training program.</td>
<td>Randomised designs, several evaluations. Two year follow-up.</td>
<td>Targeted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Childhood Education and Assistance program</td>
<td>Washington, USA</td>
<td>3 and 4 years Low SES</td>
<td>To improve child and family outcomes</td>
<td>Comprehensive family-centred, community-based pre-kindergarten program. Includes four interactive components: education, health and nutrition, parent involvement, and family support.</td>
<td>Quasi-experimental longitudinal study. Comparison group recruited post hoc.</td>
<td>Targeted</td>
<td>1358 intervention, 322 control</td>
<td>Academic achievement, Cognitive development, Physical development, Behaviour, Family relationships, Income and welfare use</td>
</tr>
</tbody>
</table>
### HIGH/SCOPE PERRY PRESCHOOL PROJECT (PERRY)

**Program location:** Ypsilanti, MI, USA  
**Date program was run:** 1962-1967 (recruitment was in five waves, one wave each year from 1962 to 1965)  
**Population receiving the intervention:** 3 to 4 year old children and their families from low SES backgrounds and with low IQs (between 70 to 85 on the Stanford-Binet). Sample was drawn from a predominantly African-American area of Michigan.

### Anticipated benefits:

- **Children:**
  - To escape the cycle of poverty and become economically self-sufficient and socially responsible through: Enhanced cognitive/intellectual abilities and educational performance (i.e. decreased school failure and higher rates of high school completion).
  - Increased chance of employment with a decent wage and therefore a decrease in welfare use.
  - Decreased delinquency and criminal activity, including decreased substance abuse.
  - Reduction in single parent families.

- **Families:** Not applicable

- **Society:**
  - A decrease in the use of welfare, increased participation in the workforce and a decrease in criminal activity.

### Time frame for anticipated benefits:

Benefits were expected to be short term (i.e. cognitive and academic) and long-term (i.e. employment and criminal activity).

### Size of program:

58 children were assigned to receive the intervention, 65 children in the control group. Total sample size was 123 children. They were recruited in 5 waves from one area of Michigan - Ypsilanti.

### Intervention site:

Predominantly preschool program, also home visiting.

### Intervention strategy:

- The preschool program involved daily 2-hour classes in the morning, from October to May each year (30 weeks). 45 children entered at age 3 and attended for 2 years and 13 children entered at age 4 years and attended for 1 year. There was a teacher-student ratio of 1 to 6. Teachers were qualified to teach in public schools and were trained in child development. The preschool program emphasised active learning with children, focusing on problem solving, choice and decision making, taking responsibility and maintaining consistent daily routines. The program continued to evolve over the five years it was run.

- Home visits were weekly and involved the teacher visiting the home for 90 minutes in the afternoon, also from October to May each year. The home visiting component was so that parents could also conduct the curriculum at home.

- Group meetings of mothers and of fathers also occurred.

- The program is one of the longest assessments of the effects of an early childhood intervention, with a follow-up at 27 years of age. Staff ratios, and staff training, and qualifications were higher than they are in Head Start.

### Intervention intensity:

Daily 2½ hour classes and weekly 90 minute home visits between October and May (30 weeks). 3-year-olds participated in the program for 2 years, 4 year olds for 1 year.

### Program costs:

In 1960s dollars, the program cost $1,510 per child per year (equivalent to $7,252 in 1992 dollars). This cost includes everything, even admin and overheads. Barnett (1993) conducted cost-benefit analyses for the program up to age 27/28 years. He found that benefits totalled $108,002 while costs totalled $12,356 per child. He adjusted for the present value. Barnett also indicated that the net benefits remained large even when any one of the benefits was excluded, or if all benefits were reduced by half. Weikart (1996) conducted a cost benefit analysis up to 27 years, adjusting for present value. He found that benefits totalled $88,433 and costs totalled $12,356 (1:7.16).

### Evaluation methodology and adequacy:

- Children were randomly assigned to the preschool program or the control group. Data was collected by interviews, school records and reviews of public records.

- Low attrition, with 117 involved in the 27 year follow-up (2 children had died before the 27 year follow-up). This was approximately 9 per cent attrition and did not differ significantly between intervention and control groups.

- **Limitations:** Small sample size. Average attendance at the preschool program was 69 per cent in the first year and appointments for home visits were not always kept. There was some turnover rate for teachers (10 teachers occupied the four positions over five years). Some children attended the preschool program for 2 years and others for only 1 year, however, evaluations combine all children. Generalisability given that sample was African-American.

### Follow-ups:

Annually from 3 to 11 years, then 14 years, 15 years, 19 years and 27 years (27 was modal age; interviews ranged from 26 to 33 years)
**Evaluation data:** A number of cost-benefit analyses have been conducted. More than half of the intervention sample had better life outcomes (higher employment and earnings and less crime) as adults compared with a control group.

**Measured outcomes and findings:**

- **IQ** (Stanford Binet measured from age 3 to age 9; WISC at age 14): At the end of the intervention, children who attended the preschool program had IQ scores more than 11 points higher than children in the control group. This declined on entry to school and disappeared by age 8.

- **Academic achievement** (Adapted Leiter International Performance Scale at age 3 to 9; Illinois Test of Psycholinguistic Abilities at age 3, and ages 5 to 9; Peabody Picture Vocabulary Test at ages 3 to 9; California Achievement Tests at ages 7 to 11 and age 14; Adult APL Survey at ages 19 and 27; School records at ages 15, 19 and 27): Achievement test scores for the children who attended the preschool program were higher than those of children in the control group at the age of 14 years \( p = .001, \text{effect size} = 0.68 \). These differences were not significant at earlier ages, but sometimes noticeable. Literacy scores continued to be higher among the intervention group to the age of intervention group versus 54 per cent of control group completed high school or equivalent by age 27 \( p = .055, \text{effect size} = 0.35 \) and the intervention group had higher mean years of schooling \( p = .016, \text{effect size} = 0.43 \).

- **Criminal activity and delinquency** (Pupil Behavior Inventory from age 6 to 9; interview and official police and court records): 7 per cent of intervention group versus 35 per cent of control group had been arrested 5+ times and 7 per cent versus 7 per cent were ever arrested for drug dealing by age 27.

- **Employment and income** (job and pay histories from interview at 19 and 28 years): 29 per cent of intervention group versus 7 per cent of control group earned $2,000 or more per month, 36 vs. 13 per cent owned their house and 30 vs. 13 per cent owned a second car at age 27.

- **Welfare participation** (histories obtained by interview and social services records at 19 and 28 years): 59 per cent of intervention group versus 80 per cent of control group received welfare assistance during adulthood.

- **Teen pregnancy** (Occurrence of pregnancy to the age of 19): A significant difference was found, with a pregnancy/birth rate of 68 per 100 for the preschool group and 117 per 100 for the control group. Rate of fathering among male participants was not significantly different.

- **Personal development** (Ypsilanti Rating Scale from ages 6 to 9 assessing school potential and social maturity).

**References**


**HEAD START**

**Program location:** Multiple sites, USA

**Date program was run:** 1965 to current

**Population receiving the intervention:** Children aged 3 to 5 years from families at or below the poverty line or receiving public assistance. Programs are also required to have at least 10 per cent of their places reserved for children with disabilities.

**Anticipated benefits:**

**Children:**

- Enhancement of healthy growth and development, as well as school readiness.
- Provision of educational, health and nutrition services, resulting in improvement of health and physical abilities.
- Linked to community services as required.
- Improved social competence.
- Encouragement of self-confidence, spontaneity, curiosity and self-discipline.
- Enhanced mental processes.
- Established patterns of success and expectations of success.
- Enhanced sense of dignity and self-worth.

**Families:**

- Strengthened role as primary caregivers.
- Linked to community services as required.

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1 Findings presented in the “measured outcomes and findings” sections of the reviews are all significant at the .05 level and specific significance levels are presented when available.
- Improved family relationships.
- Improved attitudes toward health care.
- Enhanced sense of dignity and self-worth.

**Society:**
- Well-managed early intervention programs.
- Established links with schools.
- Greater parental involvement in the community.

**Time frame for anticipated benefits:** Short (e.g. healthy growth) and long term (e.g. dignity and self worth).

**Size of program:** National early education program that is operated at multiple sites (almost 19,000) and has served over 20 million children.

**Intervention site:** Centre based and home visits.

**Intervention strategy:**
- Adopts a “whole child” view of school readiness. The program involves four components: social services, health care, education and parent involvement.
- Provides a full range of pre-literacy and literacy experiences. The Head Start programs are required to meet performance standards that guide teaching and ensure that children develop skills needed for readiness to begin formal schooling (literacy, vocabulary and numeracy skills); however, they can use a curriculum of their choice. Head Start programs also provide child health services (nutrition, dental, mental health, immunisations and hot meals); social services (material aid for families, community outreach, referrals, emergency services and crisis interventions) and parent involvement (engaging parents in the classroom and at home, parent reps on policy councils, job training, literacy, language classes and other services to assist in achieving income stability).

**Intervention intensity:** Typically part day school year that operates during the school year, however, some 42 per cent of children receive full day, full year child care either directly through a Head Start program or through collaboration between Head Start and other child care providers.

**Program costs:** $7,000 per child per year.

**General comments:** Head Start programs have been examined by numerous researchers at numerous program sites, although a review by the General Accounting Office (1997) stated that the body of Head Start research was insufficient to make any conclusions about the impact of Head Start, while a meta analysis by McKey et al (1985) concluded that Head Start resulted in cognitive, socioemotional and health gains but that these reduced over time. This review focuses on recent National Evaluations of Head Start: Head Start Family and Child Experiences Survey in 2000 (FACES 2000) and National Head Start Impact Study-findings not yet available.

**Evaluation methodology and adequacy:**
- **National Head Start Impact Study:** Longitudinal study, 4750 children (2829 program, 1921 control) from 378 randomly selected centres. Children were randomly assigned to Head Start or control group, data collection began in 2002 and will follow children to first grade (2006). Measurement procedures include parent interviews, child assessments, surveys, observations and teacher ratings. Final report expected in Dec 2006. Sample was largely representative of the total Head Start population, except that there were more Hispanic (and consequently more Spanish speaking) children in the Impact Study, and a greater percentage of centres that served over 497 children.
- **Head Start Family and Child Experiences Survey (FACES 2000):** 2,800 children and their families from 43 programs across the US. No control group, however, assessments are conducted using measures with national norms. Programs were stratified by region, urbanicity and percentage of minority children in the program. Child knowledge and skills were assessed on entry to Head Start (baseline), during Head Start year and during first year of formal schooling.

**Follow-ups:** FACES 2000 includes 4 data waves, with follow-up to half way through kinder.

**Evaluation data:** FACES 2000: Head Start reduces the gap in vocabulary and writing skills between disadvantaged children and non-disadvantaged children. Children are ready to learn after involvement in Head Start, making great progress in vocabulary, letter recognition, math skills and writing skills in kindergarten (relative to national averages). Children with the lowest scores in cognitive development demonstrate the greatest improvements. However, children still enter preschool substantially below national averages on measures of school readiness. In terms of social and emotional development, Head Start children demonstrated growth in social skills and there was a reduction in hyperactive behaviour, with children in the top quarter of shy, aggressive or hyperactive behaviour demonstrating the most significant and

**Measured outcomes and findings:**
- **FACES 2000**
  - Measures: school readiness (Peabody Picture Vocabulary Test (PPVT-III); Woodcock-Johnson – revised; Draw-a-Design; Story and Print Concepts task; Color Naming Task; Leiter International Performance Scale; observations of approaches to learning). Social skills and problem behaviour (teacher report of cooperative classroom behaviour (including social skills) and problem behaviour, parent report of problem behaviour, parent report of social skills and positive approaches to learning, observations of problem behaviours)
  - Outcomes were assessed via direct child assessments, parent interviews, teacher and staff interviews and classroom observations.
  - Baseline measures of cognitive skills indicated that most Head Start children are well below national norms (with considerable diversity). Children entered the program knowing an average of 4 letters and left knowing an average of 9.
Most dramatic gains were found for children with lower baseline levels. Children’s cognitive skills (vocabulary, writing skills, slight gains in math skills) were found to improve during the Head Start year. Greater improvement was found for children who had lower initial skills.

- There was a growth in social skills and a reduction in hyperactive behaviour during the Head Start year. Children demonstrated more cooperative behaviour in the classroom. Again, children with lower skill levels on entry showed the most significant gains. Small gains in hyperactive behaviour were reported by teachers, but no gains in overall, aggressive or withdrawn behaviour overall, although children who entered with high levels of problem behaviour did show improvement. Parents reported improvements in all aspects of behaviour, with the children displaying high levels of problematic behaviour again making the greatest improvements.

- Several specific aspects of the Head Start program were found to be related to more positive outcomes – higher teacher salaries, integrated curriculum, teacher education, longer day at the program and encouragement of parents to involve child in educational activities at home. The study also found relationships between some family and parental characteristics and child outcomes (i.e. parental depression, SES risk factors, criminal activity), however, preliminary findings suggest that Head Start can moderate these relationships.

References


FACES 2000: A whole-child perspective on program performance, U.S. Department of Health and Human Services, USA.

GAO (1997), Head Start. Research provides little information on impact of current program, Report to the Chairman, Committee on the Budget, House of Representatives, United States General Accounting Office.


HIGH/SCOPE PRESCHOOL CURRICULUM COMPARISON STUDY (HIGH/SCOPE)

Program location: Ypsilanti, Michigan, USA

Date program was run: 1967 - 1970

Population receiving the intervention: 3 and 4 year olds with low IQ scores on the Stanford-Binet and from low SES families.

Anticipated benefits:

Children:
- Enhanced cognitive skills.
- Improved academic achievement.
- Increased education and employment.
- Decreased delinquency.

Families: Not applicable

Society:
- Decrease in criminal activity.
- Increase in employment and subsequent decrease in welfare use.

Time frame for anticipated benefits: Short term (e.g. cognitive gains) and long term (e.g. employment)

Size of program: Single site, 68 children (54 per cent female).

Intervention site: Centre based preschool and home visits.

Intervention strategy:
- Children received preschool education following one of three curriculum models: High/Scope, Direct Instruction and traditional. The programs only differed in terms of the curriculum model used (i.e. hours, ratios etc were the same). Transport was provided.
- The High/Scope curriculum involved teachers and children initiating developmentally appropriate activities. The classroom and daily routine was arranged so that children could plan, do and review their own activities. Teachers supported children as they engaged in their key learning experiences.
- The Direct Instruction program involved teacher initiated activities, to which children responded. A script of academic objectives was adhered to.
- The traditional model involved activities initiated by children, to which teachers responded. Structure was minimal.
- Home visits were educational in nature and were conducted for all three groups. The visits focused on the preschool curriculum the child experienced at the centre.
- All programs had 2 teachers with a maximum of 16 children.
**Intervention intensity:** Preschool was for 2½ hours, 5 days a week during the school year. Home visits were 1½ hours on a fortnightly basis. 4-year-old children received the program for one year, 3-year-old children for 2 years.

**Program cost:** Published information about cost could not be found, however, it was assumed that the cost for the High/Scope curriculum was the same as, or at least similar to, the cost for the Perry Preschool Project. That is, it was assumed that the cost was $1,510 per child per year in the 1960s (equivalent to $7,252 in 1992 dollars). This cost includes everything, even admin and overheads.

**Evaluation methodology and adequacy:**
- Stratified random assignment. The study involved 3 cohorts. Each cohort was randomly assigned to 3 groups, and then reassigned to match on race, gender and IQ. The 3 groups were then randomly assigned to preschool programs. 9 children were reassigned to receive the same program as their older sibling. 19 of the children were also part of the Perry Preschool Project.
- The groups were comparable on most background characteristics at program assignment and continued to be comparable at follow-ups. The total sample was 65 per cent African-American and 35 per cent Anglo.

**Follow-ups:** Annually from ages 3 to 8, age 10, age 15, age 23

**Evaluation data:** The general conclusions from age 10 and 15 follow-ups were that all three programs were effective in improving school performance, although the Direct Instruction group had a temporary significant difference compared to the traditional program and that the High/Scope model was significantly better at preventing delinquency than the Direct Instruction group. For all programs there was an initial improvement in IQ, followed by a slow decrease. At age 23, the general conclusion was that the High/Scope and/or traditional groups had significant advantages over the Direct Instruction group on most outcome measures at age 23 (which largely related to delinquency, personal attributes and education/employment).

**Measured outcomes and findings:**
- **IQ** (Stanford-Binet, WISC). IQ significantly increased for all three groups at age 4, which then diminished but remained higher than baseline at age 10. At age 5, the Direct Instruction group had significantly higher IQ scores than the traditional group; however, this difference was not maintained. No other differences were found.
- **Cognitive skills** (Peabody Picture Vocabulary Test; Arthur Adaptation of the Leiter International Performance Scale; Illinois Test of Psycholinguistic Abilities) There were some significant differences on the subtests of the Illinois Test, with the Direct Instruction group performing better. However, these differences were inconsistent and not maintained. No differences.
- **Academic achievement** (California Achievement Tests; Metropolitan Achievement Tests; Adult APL Survey; school records). No differences on achievement tests. The High/Scope group was more likely to have received compensatory education than the traditional group. The Direct Instruction group received more special education for emotional impairment or disturbances, as compared to the other two groups. No differences in drop out rates, however, High/Scope drop outs were more likely to return to school.
- **Delinquency** (self-report, public arrest records). At age 15, the Direct Instruction group reported significantly more (2½ times more) delinquent acts than the High/Scope group. At age 23 there was less reported delinquency in the High/Scope group compared to the traditional group. Differences on arrests were nearly significant, with the Direct Instruction group experiencing more than twice as many arrests as both other groups and had significantly more felony arrests related to property and assault with a dangerous weapon.
- **Education** (self-report). No differences in high school graduation or further education at age 23. However, there were differences in “on time” high school completion, with the Direct Instruction group least likely to finish on time and the traditional group most likely to finish on time.
- **Employment and attitudes toward employment and welfare use** (Adult APL Survey, self-report). At age 15 the Direct Instruction group had significantly less occupational knowledge than the High/Scope group. At age 23, the High/Scope group had lower incomes in the past year than the traditional group. No differences in welfare use over the past 10 years.
- **Behaviour** (Pupil Observation Checklist; Classroom Behavior Checklist). The traditional group was rated as more independent than the Direct Instruction group in grade two. 47 per cent of the Direct Instruction group had some kind of emotional disturbance compared to 6 per cent in the other two groups. No other significant differences.
- **Personal attributes and community involvement.** At age 15 the Direct Instruction group was less likely to be appointed to a school job or class office compared to the traditional group, was not as well thought of by family members as the other two groups and was less engaged in sports than the other two groups. At age 23 the High/Scope group was more likely to have voted at the last election and the High/Scope and traditional groups engaged in more volunteer work than the Direct Instruction group.

**References**

**SAGINAW PREKINDERGARTEN PROGRAM (SAGINAW)**

**Program location:** 13 sites in Saginaw, Michigan, USA

**Date program was run:** The program has been run for approximately the past 35 years.
**Population receiving the intervention:** 4 year old children with a score of 17 or less on the Prekindergarten Readiness Screening Device (PRSD).

**Anticipated benefits:**

*Children:*
- The development of skills need for school success.
- At the end of the program, it is anticipated that children are at least on par with other children entering kinder.
- Enhanced academic achievement.

*Families:*
- Greater parental involvement in the child’s education.

*Society: Not applicable*

**Time frame for anticipated benefits:** Short term (better skills) and long term (greater success at school)

**Size of program:** 13 sites with morning and afternoon sessions. In the 1999-2000 school year the program served approximately 309 children.

**Intervention site:** Centre based.

**Intervention strategy:**
- Class size was no greater than 18 children. The classroom environment is designed to enable children to develop the skills necessary for future success at school. The program focuses on the attainment of objectives in cognitive and psychomotor domains in children, as well as objectives for parent participation.
- The areas of cognitive development that the program focuses on are physical knowledge, social knowledge, logical-mathematical knowledge, spatial knowledge and language. The psychomotor domains focused on are fine motor skills and gross motor skills.
- Parents are provided with the skills they need to become involved in their child’s education.

**Intervention intensity:** Half-day sessions, 5 days per week during the school year.

**Program cost:** Information on program cost was not found.

**General comments:** The program is evaluated annually. This review focused on the most recent evaluation according to our searches – the evaluation for the 1999-2000 school year.

**Evaluation methodology and adequacy:**
- The 1999-2000 evaluation included assessment of child outcomes for 303 children in the program. No comparison group was obtained, rather the evaluation is based on children achieving to the standards (or objectives) set out by the program, as well as the achievement of parent involvement objectives. The objectives required that certain percentages of children and parents, respectively, attained a specified level.

**Follow-ups:** none found

**Evaluation data:** In the 1999-2000 evaluation, the program achieved 15 of its 16 objectives. Children achieved all of the cognitive objectives and 3 of 4 psychomotor objectives. All objectives related to parental involvement in their child’s education were met. When compared to the evaluation of the 1998-1999 school year, five of the cognitive and psychomotor objectives were achieved at a higher level, one remained the same and seven showed minor decreases.

**Measured outcomes and findings:**
- **Psychomotor (fine and gross) and cognitive skills** (Prekindergarten Saginaw Objective Reference Test (PK-SORT)): Between 83.8 and 98.7 per cent of children achieved all nine cognitive objectives (most of these were well above the percentages set out in the objectives). Three of the four psychomotor objectives were achieved (the “representation at the symbol level: specific shapes” was not achieved (59.1 per cent)). Of the objectives achieved, between 70.6 and 93.1 per cent of children attained the skill level set out in the objectives.
- **Parent participation** (teacher report on Parents as Partners Sheet): The objectives for parent participation were related to participation in field trips, parent meetings and completing home activities with the child. Between 83.6 and 95.4 per cent of parents achieved the three objectives, all well above the percentages set out in the objectives.

**References**

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**BOLIVIA INTEGRATED CHILD DEVELOPMENT PROGRAM (PIDI)**

**Program location:** Bolivia

**Date program was run:** current, evaluation was in 1997/1998

**Population receiving the intervention:** Children aged 6 months to 6 years from poor, predominantly urban areas. To be eligible, the child’s home environment must receive at least six points from a series of 10 criteria such as no running water, more than 4 children, single parent. Six criteria receive one point and two receive two points.

**Anticipated benefits:**

*Children:*
- Increased post school productivity through an easier transition to elementary school, improved progression through elementary grades and improved school performance.
- Better health outcomes.
Improved readiness to succeed at school and in the long term by facilitating physical, social, emotional and cognitive development.

Families: Not applicable

Society:

- Enhanced status of women by increasing employment opportunities (through becoming a care provider) and expanding their knowledge of health, education and nutrition.
- Increased community and private sector participation in the social development process.

**Time frame for anticipated benefits:** short term (better health, development etc) and long term (school success and life success)

**Size of program:** Multiple sites, large scale

**Intervention site:** Home based educational child care.

**Intervention strategy:**

- The program provides child care, nutrition and education (cognitive development) services. Children in the program receive better nutrition, adult supervision and a stimulating environment.
- Women are chosen by the community to be caregivers who run informal, home based day care centres that provide child development services including play, nutrition, growth screening and health referrals. The chosen women then receive training in child care (but are usually not highly trained) and loans or grants of up to $500 to improve the facilities in their home.
- Children are cared for in groups of up to 15, with 2 to 3 caregivers, or a ratio of approximately 1 to 5. Additional staff are provided if a group has a large number of infants. 70 per cent of the child’s nutritional needs are supplied (2 meals and a snack) and their health and nutrition is monitored. Staff also ensure that the children are fully immunized. Children also participate in educational activity programs while at the centre.

**Intervention intensity:** Full day child care.

**Program cost:** The program was estimated to cost approximately $43 per child per month (per capita annual GDP is $800). Forty percent of this cost is consumed by providing children with their nutritional needs. Benefit to cost ratios were found to range from 1.7:1 to 3.7:1 (where benefits in terms of earnings were focused on).

**Evaluation methodology and adequacy:**

- Children accessing the program is nonrandom and self-selected, although participants must meet eligibility criteria. An intervention group was randomly selected from children in the program (n = 364). Two control groups were selected – a non-participant sample were selected from a stratified random sample of households near a centre but with no children attending (n = 247) and a comparison group were selected from a stratified random sample of households in areas where centre had not yet been established (n = 415). The selection design for the control groups aimed to increase comparability between the two groups through the use of matching methods that imposed the program eligibility criteria on the selection of controls.
- The intervention group is compared to both control groups. In addition, to examine the impact of program duration, children who received the intervention for 2 or more months were compared with those who received the intervention for 1 month or less.

**Follow-ups:** none

**Evaluation data:** Positive effects were found for children who received intervention for at least 7 months and impacts were almost always positive if children had attended the centre for 13 months or more. Program impacts were somewhat larger for children from families with higher incomes. The findings suggest that the program has cumulative effects, with the benefits increasing as attendance at the program increases.

**Measured outcomes:**

- **Cognitive development:** The intervention group on average, performed better on cognitive tests. An increase in test scores by about 5 per cent was found for program children aged 37 to 54 months. No differences were found for younger children. These impacts increased with program duration.

- **Motor skills:** An increase of about 5 per cent on test scores was found for program children aged 37 to 54 months.

- **Child health** (height for age and weight for age): Children older than 12 months in the intervention group were short for their age. No differences in weight for age. However, no significant advantages or disadvantages of the program were found. As a baseline measure of child health was not available, it is not possible to know if the program group had worse health than the control groups before intervention (which is possible given the intervention group were lower on parent education and income). If this is the case, the program may have a positive effect. Mortality in the program is extremely low (1 per cent), compared to the mortality rate of the target population (approx. 20 per cent).

- **Psychosocial development:** At the beginning of the program, 40 per cent of children demonstrated stunted psychosocial development. After one year of the program this reduced to 20 per cent and after two years it was reduced to 5 per cent.

- **School enrollment:** Nearly all children in the program enrolled in primary school at age 6, compared to 20 per cent of the target population not received the program.

**References**


CHICAGO CHILD-PARENT CENTRE (CPC)

Program location: Chicago, IL, USA
Date program was run: Founded in 1967. In 1978, an expansion program was added to provide services to primary school aged children; however, the expansion program is not reviewed here.
Population receiving the intervention: Economically disadvantaged 3 to 4-year-old children and their parents.

Anticipated benefits:
Children:
- Enhanced reading, math and communication skills.
- Increased school readiness.
- Decreased risk of school failure and a subsequent increase in employability.

Families:
- Enhanced involvement in children's academic life.

Society:
- Increase in education and employment and subsequent reduction in welfare use and crime.

Time frame for anticipated benefits: Short (school readiness and cognitive gains) and long term (cognitive gains and employment, education achievements).

Size of program: Large scale – 23 sites operated by Chicago Public Schools. Over 100,000 children have been served by the centres.

Intervention site: Centre-based.

Intervention strategy:
- Program is managed by the Chicago Public Schools. The program emphasises a child centred, individualised approach to social and cognitive development. There is a focus on reading and language development and affective development. There is not a set curricula; each centre develops a program according to need. The kindergarten component (age 5) also promotes reading readiness and affective development.
- The program requires parental participation of at least 1 half day per week (or 2 days per month) for children to participate. Parent involvement ranged from being an aide in the classroom to performing clerical duties. Average teacher to child is 1 to 8 for the preschool program and 1 to 12 for the kinder program. Breakfast and lunch are provided to children. Free child health screenings are also provided. Each centre includes a staffed parent resource room, school-community outreach activities and health services. Staff received in-service training on child development.
- A number of parenting activities are also provided – parenting classes, providing clerical assistance, developing resources for other participating parents, coordinating school projects, work training, literacy programs and various other activities. Outreach services are also offered, including home visits upon enrollment and as needed and the provision of referrals.
- There was also an expansion program for up to grade 3.

Intervention intensity: The preschool program is a half-day program, 5 days a week during the school year (9 months). The kindergarten program runs for 6 hours a day, 5 days a week during the school year. Children can be involved in the program for up to 6 years (including the expansion program to grade 3).

Program cost: Reynolds (1994) reported that annual cost per child for the preschool program was US$3,800 and for the kinder program was $3,300 (1992 dollars). Reynolds et al (2000) estimated the cost at US$4,989 per child, per year. They estimated that there would be an average government saving of $22,897 per child, compared to a cost of $11,387 per child for six years (converted to 2002 dollars). Reynolds et al (2001) conducted cost-benefit analyses on 1,286 of the original sample. They estimated the cost of the program to be US$6,730 (1998 dollars) for 1 and half years, with a return of US$47,759 per child. Overall, $7.10 was returned to society for every dollar spent (benefits to society were $3.83 for every dollar and government saving was $2.88 per dollar).

Evaluation methodology and adequacy:
- Externally reviewed, quasi-experimental design. Non-random trials. Evaluations of the CPCs use information from the Chicago Longitudinal Study, which involves 1,539 participants (95 per cent African-American, 5 per cent Hispanic). This sample included the entire group of children (n = 1150) who were involved in CPC preschool (1983-1985) and/or kinder (1985-1986) services. Most of these children also received some services through the expansion program; however, analyses have examined the influence of just the preschool and kinder programs. The other 389 children were involved in other full day kindergarten programs and were used as a control group.
- The intervention and control groups were found to be similar on nearly all characteristics at the beginning of the program.
- Attrition: Loss of approximately 19 per cent at fifth grade, and 25 per cent at age 14. At age 20, 84.6 per cent of the intervention group and 80.7 per cent of the control group were available.
Follow-ups: third grade, fifth grade, eighth grade (14 years), age 20 (15 year follow-up)

Evaluation data: The study found, on entry into kinder, the intervention group scored higher on tests of cognitive readiness. At the grade 8 follow-up, it was found that the program group had higher reading and math scores and a 4-month gain in reading and math (age 15), 40 per cent lower grade retention at age 15 and 37 per cent lower rate of arrests by age 18. Parents of program children participated more frequently in school, expected children to go further with school and were more satisfied with the education their children received. Most analyses controlled for child, family and school characteristics. It is important to note that despite positive program effects, the children still performed at below the national average. (As an aside, the expansion program was found to have an influence over and above the preschool/kinder components.)

Measured outcomes and findings:

- **Academic achievement** (school records, teacher ratings of school adjustment; Iowa Tests of Basic Skills (ITBS)): At entry into kinder, the intervention group scored higher on the ITBS tests of cognitive school readiness. At the end of grade 8, the intervention group scored higher on ITBS tests of reading and math. The intervention group was also less likely to have repeated a grade (24 per cent vs. 31.8 per cent) and had spent less time in special education (0.51 years vs. 0.87 years).
- **Education**: At age 20, the intervention group had a greater percentage of high school completion (49.7 vs. 38.5 per cent) and was less likely to have received special education by age 18 (14.4 vs. 24.6 per cent).
- **Crime and delinquency** (juvenile court records): At age 20, the intervention group had a lower percentage of overall arrests (16.9 vs. 25.1 per cent) and a lower percentage of violent arrests (9 per cent vs. 15.3 per cent).
- **Child abuse**: At age 20, it was found that the intervention group was 52 per cent less likely to have been subject to child maltreatment.

References


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**ELMIRA PRE-NATAL AND EARLY INFANCY PROJECT (PEIP)**

**Program location**: Elmira, NY, USA (program has also been administered in Memphis, Tennessee and Denver, Colorado – this review focuses on Elmira project)

**Date program was run**: 1978 to 1982

**Population receiving the intervention**: Prenatal (prior to 25 weeks gestation) to 2 years. Low-income, first time mothers and their children.

**Anticipated benefits:**

**Children**:  
- Improved birth outcomes.  
- Decrease in the risk of child abuse or neglect.  
- More focused parent nurture and guidance due to decrease in subsequent pregnancies.

**Families**:  
- Improved pregnancy and birth outcomes through decreased substance use and improved nutrition.  
- Greater social support.  
- Improvement in economic self-sufficiency through increase in employment and decrease in welfare use.  
- Improved caregiving skills and a reduction in dysfunctional care for current and future children.  
- Better planning of subsequent pregnancies.

**Society**:  
- Decrease in child abuse/neglect and subsequently child behavioural problems, including crime.

**Time frame for anticipated benefits**: Short term (e.g. decrease in child abuse) and long term advantages were expected.

**Size of program**: One site, USA – 500 women were invited to participate, 400 were enrolled in the project.

**Intervention site**: Home visits by nurses.

**Intervention strategy**:  
- Home visits by nurses focused on providing parent education, enhancing social support from family and friends and linking the family with outside support services. Mothers were educated about health issues such as substance use and management of pregnancy complications. Nurses also helped mothers improve birth outcomes (by seeking to reduce substance use, improve nutrition and better access to obstetric care), learn competent parenting skills (including the promotion of sensitive, responsive and engaged parenting) and assist with reaching educational goals and finding work.  
- A large focus of the program was to reduce the risk of child abuse and neglect. This was done using strategies aimed at improving household conditions, improving family relationships and increasing the level of support available.  
- During the visits, nurses attempted to involve other family members, including fathers, and to link families to health...
and human services as needed. Nurses also sought to develop trusting and empathic relationships with mothers and other family members.

**Intervention intensity:** Visits were weekly during the first month of enrollment (typically toward the end of the second trimester-18 weeks) with the aim of developing a good relationship. Visits were then fortnightly until birth, when the visits were again weekly for the first six weeks of the baby's life. Between the child ages of 2 to 21 months, visits were twice a month and between ages 21 to 24 months, visits were once a month. Home visits lasted between 75 and 90 minutes.

**Program cost:** US$4 saved for every US$1 spent. Cost of the program was estimated to be $3300 in 1980 US dollars and $6700 in 1997 US dollars per child for 21 years of service. Investment was recovered before the children turned 4 years old. However, the benefits exceeded the costs only for families where the mother was of low income and unmarried.

**Evaluation methodology and adequacy:**
- Women were stratified by marital status, race and 7 geographic regions and then randomly assigned to one of four conditions – (1) sensory and developmental screening for child at 12 and 24 months, referrals provided if needed (n=94); (2) screenings and free transport to pre-natal and child health care to age 2 (n=90); (3) screening and transportation plus nurse visits during pregnancy (n=100) and (4) screening, transport and nurse visits prenatally to 2 years (n=116).
- As there were no difference between groups 1 and 2 on use of prenatal and child health care, these two groups were combined to form a single comparison group.
- Analyses generally focus on treatment group 4 and the combined control group.
- **Limitations:** An average of 9 visits were completed during pregnancy (range of 0 to 16) and average of 23 visits between birth and 2 years (range of 0 to 59). Generalisability of results is questionable.

**Follow-ups:**
- Age 2 year follow-up: Mothers in the program showed an increase in the number of months employed, a reduction in subsequent pregnancies during the four years after birth, improved diet, reduced smoking, less restriction and punishment, 32 per cent fewer presentations for emergency medical care for child to age 2, increased social support and use of community services. Child abuse among program group was 4 per cent compared to 9 per cent for control group, up to age 2.
- Age 4 years follow-up: Through age 4, program group had fewer safety hazards at home, more development promoting materials, less hospital admissions. No differences in IQ (however, differences in IQ were found for children of mothers who smoked during pregnancy, with program group having higher IQs than control group), maternal education, child abuse/neglect or home environment. From birth to age 4 there were reduced rates of subsequent pregnancy, increased maternal participation in the workforce and reduced welfare use for the program group.
- Age 15 years follow-up: Maternal report of number of months welfare was used, number of arrests or convictions, questions adapted from National Comorbidity Survey regarding impact of alcohol and other drug use from child's birth to age 15. State criminal records for mother and child, state records of child abuse/neglect and child protection. Findings: At a 15 year follow-up, there was a 79 per cent reduction in child abuse/neglect (this difference grew between child age of 4 to age 15), 44 per cent reduction in maternal problems due to substance use, 69 per cent fewer maternal arrests, 54 per cent fewer arrests and 69 per cent fewer convictions for adolescents, 59 per cent fewer sexual partners for adolescents, 28 per cent fewer smoking and 51 per cent fewer days drinking for adolescents (the findings related to adolescents were for the higher risk subgroup only – poor unmarried women). There were no differences in subsequent pregnancies or births, number of months between first and second born, months of maternal employment or other child behavioural problems.

**References**

**PARENT-CHILD DEVELOPMENT CENTERS (PCDC)**

**Program location:** Three US sites (Birmingham, Houston and New Orleans)

**Date program was run:** 1972 - 1974

**Population receiving the intervention:** Families with economic disadvantage, predominantly from Mexican-American (Houston sample) or African-American cultures (Birmingham and New Orleans samples).

**Anticipated benefits:**

- **Children:** The PCDC was intended to prevent educational difficulties in children from economically disadvantaged families.
- **Families:** Intended to improve maternal functioning and interaction with child.
- **Provide a comprehensive intervention for economic and social problems, including medical care, social services, connecting with community resources, nutrition, budgeting, peer support, self-esteem, and community political issues.
- **Society:** Prevention of child educational and behavioural problems to reduce the social burden that can accompany more severe levels of dysfunction.

**Time frame for anticipated benefits:** Long-term benefits shown several years after program delivery

**Size of program:**

- **Birmingham -** Treatment n =71, Control n =65;
- **Houston -** Treatment group n = 44, Control n= 58;
- **New Orleans treatment n = 32, control n = 46.**

**Intervention site:** Provide early preventative psychological interventions at three sites: in the home, centre-based, and intensive workshops.

**Intervention strategy:**

- For the Houston cohort the program involved approximately 550 hours of family involvement, with the mean hours of family involvement at 400 hours. This included 25 home visits by paraprofessional educators, who provided parental education on infant social, emotional, behavioural, and health care issues. To include the fathers, the program included weekend workshops for the entire family. During the second year of the program mothers attended centre based classes for four mornings each week. They were instructed on child management, health and safety in the home, child cognitive and language development, and other child rearing topics. Mothers were also offered English language classes, and fathers were offered monthly evening meetings on general family matters.

- The New Orleans and Birmingham cohorts had some minor programming variations to the Houston cohort, however, the content and structure were essentially the same.

**Intervention intensity:** Very intensive, averaging 400 contact hours per family. During the first year: 25 to 30 weekly home visits of 60 to 90 minutes duration, 4 weekend workshops for entire family, weekly English language classes. During the second year: centre based 3-hour sessions four times per week for 8 months, evening meetings twice per month for both parents.

**Program cost:** No information is provided on costs. The high cost and intensity of the family contact (550 hours contact time) make this program impractical from both practitioners and family perspectives.

**Evaluation methodology and adequacy:**

- Possible sample selection threat due to insufficient information on response rates. Several methods of recruiting participants were used, including door to door canvassing of low-income neighbourhoods, referrals from community agencies, screening of hospital birth records, and self-referral. Mothers and children with “severe” disabilities were excluded. Mothers were excluded if their work commitments restricted participation in the program.

- Participants from all cohorts were randomly assigned to either the treatment or control groups. There was one exception, the Birmingham group included an unspecified number of Anglo-American participants in the treatment group only, but no Anglo-American participants were included in the control group due to concerns that racial comparisons could be made.

- High attrition threat makes outcomes from this program questionable. The overall attrition rates range from 38 per cent to 47 per cent, but for the treatment groups two of the cohorts had attrition rates over 50 per cent. Drop out comparisons revealed significantly younger mothers dropped out (New Orleans), significantly more infants with low Bayley scale scores dropped out (Birmingham), and drop outs tended to have higher mobility (Houston).

- Possible implementation threat is evident as the program was not delivered consistently and did not have strict protocols for program delivery.

**Follow-ups:** Long-term follow-ups were conducted 5 to 8 years post-treatment, when children were in later primary school.

**Evaluation data:** The program was evaluated by the authors. The evaluation authors claimed that the program was successful in reducing educational problems amongst some disadvantaged groups of children, and in reducing the occupational problems for parents.
Measured outcomes and findings:

- **Intellectual:** For the Houston group, outcomes for the children were mixed. Improvement shown in scores for the treatment group on the Bayley Mental Scale of Infant Development ($p < .01$) at 24 months of age, however, the control group improved also, with higher scores on the verbal scales of the maternal interaction measure. Outcomes for the Birmingham group on standardised tests also revealed an intervention effect for the treatment group on the Bayley Mental Scale of Infant Development ($p < .001$), and a significant positive effect was found for the treatment group on the Stanford-Binet ($p < .001$). The New Orleans group showed no differences in the Bayley scales at 24 months of age. The treatment group scores were marginally significant on the Stanford-Binet ($p < .05$), and the Pacific Test series ($p = .03$).

- **Educational:** Follow-ups completed at 5 to 8 years after the program for the Houston cohort showed higher scores on the Iowa Test of Basic Skills in Reading, Language, Vocabulary, and Composite scores. Long-term outcomes in the Houston cohort revealed significant positive effects in school performance for males as assessed by the AML (effect size 0.55). Significant positive effects were seen in measures of child behaviour and temperament (effect sizes 0.42 to 1.05).

- **Behavioural/Social/Emotional:** Follow-ups were completed 1 to 4 years after the program. Data from mother self-report scales showed that treatment boys and girls, and control group girls had fewer behavioural problems than control group boys. A further follow-up was conducted 5 to 8 years after program completion. Teacher reports showed significantly reduced behaviour problems in treatment groups when compared with control groups.

References


HOME INSTRUCTION FOR PARENTS OF PRESCHOOL YOUNGSTERS (HIPPY)

**Program location:** Developed in Israel; run at multiple sites across countries (over 120 sites in the US alone). An organization called HIPPY International has been developed.

**Date program was run:** Developed in 1969 to current

**Population receiving the intervention:** 3 to 5 year old children whose parents have limited formal education.

**Anticipated benefits:**

- **Children:**
  - Children will be prepared for school through enhanced home literacy environment, increased quality of parent-child verbal interactions and parental ability to assist children in learning.
  - Enhanced cognitive skills.

- **Families:**
  - Parents will have increased abilities to assist with their child’s learning.
  - Enhanced home learning environment, resulting in greater continuity between home and school.

- **Society:** not applicable

**Time frame for anticipated benefits:** Short term (readiness for formal schooling) and long-term success beyond school.

**Size of program:** Large scale, operated on multiple sites across countries.

**Intervention site:** Home based and group meetings

**Intervention strategy:**

- The program was developed in Israel to address the issue of low educational achievement among immigrant children. HIPPY is now run in a number of countries including the US, Australia, Chile, Turkey, Germany, Mexico, South Africa and NZ. Each country makes its own adaptations. HIPPY provides support to families while recognising family needs and values and respecting cultural diversity. The program uses a structured approach, with set lesson plans.

- A large part of the program is home-based. Home visitors are paraprofessionals who live in the same neighbourhood as the families they are visiting. Parents learnt how to use the HIPPY materials through “role-plays” where the paraprofessional took the role of the parent and the parent took the role of the child. Parents then taught their children by using these materials and engaging the child in educational activities for 15 minutes each day. Home visitors did not work directly with the child (often the child was not home).

- HIPPY materials were provided to parents. They included a series of books and activity packets. Parents were expected to read one of the books to their child and work on one set of activities every day. Materials were designed to assist in developing age-appropriate language, sensory and perceptual discrimination, visual motor skills and problem solving.
Measured outcomes and findings:

- Intervention intensity: Home visits were bimonthly for the school year and lasted 30 to 60 minutes. Group meetings occurred during alternate weeks. Hence, there was about 30 weeks of activities. Parents worked with children 5 days a week for 15 to 20 minutes. Families are involved in the program for two years (recently extended to 3 years in the US).

- Program costs: Costs vary according to program size and location; however, US data has estimated that the program costs between US$500 and $1,600 per child per year. This cost was based on an average program size of 60 families in the first year and 120 in the second year, with a full-time coordinator and one paraprofessional per 12 families. In 1999-2000, the cost of HIPPY in the US was US$1,267 per child. This cost took into account staff salaries, training and technical assistance fees, license and affiliation, program development, curriculum material costs, travel, conference attendance, supplies and miscellaneous direct costs. Prior to 2001 the program was called the Home Instruction Program for Preschool Youngsters.

General comments: A number of evaluations of HIPPY have been undertaken. A comprehensive book containing 17 evaluations across countries has been published in the US, but did not arrive in time for review. However, the introduction was available online and contains a brief summary of the evaluations. Therefore, these brief summaries are reviewed, as is an article that examines evaluations at two sites (New York and Arkansas) in the US.

Evaluation methodology and adequacy:

- Evaluations contained in the book: Of the evaluations, 5 used quasi-experimental designs, 2 used randomized trials, 7 were qualitative and 2 used non-experimental designs. Sample sizes ranged from 3 to 516 intervention families and 516 comparison families. The evaluations measured a range of outcomes including academic achievement, reading ability, school readiness, cognitive development, classroom behaviour, self-esteem, parent involvement and parent-child relationships. Attrition rates, strength of the evaluations and follow-up information were not available from the brief summaries.

- New York: Two cohorts were randomly assigned to treatment or control. All children were participating in high-quality full-day preschool programs for the first year and kindergarten for the second year. The final sample for the first cohort was 37 intervention families and 32 control families and the final sample for the second cohort was 47 intervention and 66 control. The complete study therefore includes 182 families (84 intervention, 98 controls). However, differences in age at baseline data collection meant that the cohorts were analyses separately. Two thirds of the families were from ethnic minorities. Follow-ups were at the end of kinder (program completion) and the start of first grade and the start of second grade (essentially a one-year follow-up). The analytic procedure used was ANCOVA.

- Arkansas: A quasi-experimental study where HIPPY families were compared with a matched comparison sample. 121 intervention children and 105 control children. Children did not participate in any preschool programs during the first year, 92 per cent attended kinder in the second year. Two cohorts: cohort 1 had 58 intervention and 55 control and cohort 2 had 63 intervention and 50 control. Pre-existing differences on cognitive skills were found in cohort 2, in favour of the intervention group.

Follow-ups: see previous section.

Evaluation data: (1) In general, evaluations contained in the book found positive effects of the program on child academic and cognitive outcomes, as well as positive effects on parent outcomes such as involvement in the child's education and reports of improved interactions with their child. However, not all findings were significant. (2) Cohort 1 (NY) found that intervention children outperformed control children on cognitive skills at the end of kinder, classroom adaptation at first and second grade and a standardized test of reading at first grade. Effect sizes ranged from 0.56 to 0.76. Cohort 2 (NY) found no differences between groups. Analyses that differences between the two cohorts could not explain the differences in findings. (3) The Arkansas study (cohort 1) replicated some of the achievement findings of cohort 1 (NY), but did not replicate the cognitive skills findings, while cohort 2 of Arkansas found that the control group performed better than the intervention group on school readiness and standardized tests of achievement at the end of kinder. Subsequent analyses could not account for differences in findings between cohorts.

Measured outcomes and findings:

- Cognitive skills (Cooperative Preschool Inventory): Evaluations contained in the book generally found that children who received the intervention had better cognitive skills than children in comparison groups. In cohort 1 (NY) intervention children outperformed control children at the end of kindergarden (p = .04, effect size = .63). Not replicated on cohort 2 (NY). No differences were found in either cohort of the Arkansas study.

- Academic achievement (school records on the Metropolitan Readiness Test and the Metropolitan Achievement Test; teacher ratings on the Child Classroom Adaptation Index; Stanford Early School Achievement Test and timely movement through grades (the latter 2 were in Arkansas)): Evaluations contained in the book generally found that intervention children were rated higher on school readiness, had higher grades, reduction in school absenteeism, were better adjusted to school and had better classroom behaviour than comparison children. Some findings were significant and others were trends. In cohort 1 (NY) intervention children outperformed control children on classroom adaptation at first (p = .04, effect size = .69) and second grade (p = .02, effect size = .68) and on a standardized test of reading at grade one (p = .03, effect size = .75). Not replicated in cohort 2. In cohort 1 of the Arkansas study there was a trend for intervention children to be rated as better adapted at first grade (p = .08, effect size = .42) – this was significant by second grade.
(p = .02, effect size of 0.59). Control children were more likely to have repeated kinder. No differences on standardized achievement tests. In cohort 2 of Arkansas the control group did better than the intervention group on measures of school readiness (p = .06 effect size = .47) and standardized achievement at the end of kinder (p = .01 effect size = .63).

**Parent involvement in child’s education:** Evaluations contained in the book generally found that intervention parents were more involved in their child’s education.

**Other outcomes:** No effects were found for self-esteem. One study found that children were rated more positively on a play behaviour scale. One study also found that parents perceived improved interactions with their child.

**References**


**HAWAII’S HEALTHY START PROGRAM (HEALTHY START)**

**Program location:** Originated in Hawaii, has been adapted to Healthy Families America

**Date program was run:** Piloted from 1985 to 1988.

**Population receiving the intervention:** Low-income families at risk of poor child outcomes with children 0-5 years

**Anticipated benefits:**

- **Children:**
  - Health
  - Development

- **Families:**
  - Improve home environment
  - Child abuse prevention
  - Reduce neglectful parenting behaviours
  - Promote positive parenting practices

- **Society:** not applicable

**Time frame for anticipated benefits:** Excepted outcomes in two years, from infancy to pre-school years

**Size of program:** Evaluation based on 373 families in program group and 270 in control group.

**Intervention site:** The program had two components, an early identification component (EID), and a home visiting by trained paraprofessionals component.

**Intervention strategy:**

- The Hawaii Healthy Start Program is a program of home visits, providing non-judgemental, empathic parenting assistance. The program was developed from Henry Kempe’s lay therapy program. The program helps families identify their strengths to improve family functioning. Home visitors role model problem-solving skills, and help link families with community services. Home visiting paraprofessionals also provide parenting education.

- The home visiting component of the pilot program includes weekly home visits, gradually decreasing to quarterly visits over the three years. The evaluation material reviewed does not provide clear and detailed information on how the program was delivered, however, according to the authors full details are provided in the program manual.

**Program costs:** not found

**Evaluation methodology and adequacy:**

- Participants were randomly assigned to either the program group or the control group. The evaluation office conducted the group assignment, independently of the project staff. There were 684 participants eligible, and of these 76 per cent agreed to participate in the evaluation. Characteristics of the participants who declined to participate are provided.

- Demographic characteristics of the program and control group were comparable.

- Participation threat due to low participation rate, and attrition threat due to high drop-outs. By 12 months, 51 per cent of the program participants were considered inactive, of these 31 per cent refused ongoing services. The evaluation follow-up at two-years includes data on 88 per cent of families from the original recruitment process.

- Implementation threat due to programs having high variability, and the program not being delivered rigorously.

- Evaluation data was collected through parent interviews, developmental testing, in-home observations, health records, and child protection records. Independent trained staff conducted the evaluation and the interviewers were blind to the treatment status of the families.

**Follow-ups:** 2½ years after commencement in program.

**Evaluation data:** According to the evaluation report, after two years of service the HSP was successful in linking families with paediatric care, improving maternal parenting efficacy, decreasing maternal stress, and promoting non-violent discipline. No overall positive program effects were seen in terms of well-child health care, maternal life skills, mental health, social support, substance use, child development, child’s learning environment, or parent-child interactions. There were some agency-specific positive outcomes in terms of parent-child interactions, child development, and parenting confidence.

**Measured outcomes and findings:**

- No child outcomes measured.
Measured parent outcomes included home environment, parenting skills, use of health care, and maternal behaviours. Few statistically significant effects were evident, and no positive clinical effect is evident.

References

EARLY ENRICHMENT PROJECT (EEP)

Program location: Five low-income shantytown areas in Istanbul, Turkey
Date program was run: 1982 to 1986 (The project, with some alterations, has now become a national program known as the Mother-Child Education Programme.)
Population receiving the intervention: Mothers and their children (aged 3 to 5) who were from urban socio-economically disadvantaged families.
Anticipated benefits:
Children:
- Improved cognitive development.
- Improved social and personality development.
Families:
- Increased sensitivity to child social and emotional needs.
- Improved cognitive stimulation.
Society: not applicable
Time frame for anticipated benefits: not found
Size of program: not found
Intervention site: Home based.
Intervention strategy:
The project provided early childhood enrichment and mother training. The centre-based care was educational preschool that the child was already attending.
The home-based intervention was called the Mother Training Programme and had two components. The first component was designed to foster the child’s social and personality development and the second component was designed to foster the child’s cognitive development.
The first component involved group discussions on topics that were designed to increase maternal sensitivity to the social and emotional needs of the child, as well as helping mothers to foster child social and personality growth. Discussions in the first year focused on health, nutrition and creative play activities, while discussion in the second year focused on mother-child interactions.
The second component was a Turkish adaptation of the HIPPY program and involved home visits focusing on language, sensory and perceptual discrimination skills and problem solving. Materials were provided for educational activities in each area.
Intervention intensity: The intervention lasted for 2 years, with fortnightly home visits and group meetings on alternate weeks.
Program cost: not found
Evaluation methodology and adequacy:
The evaluation was conducted in five low income, urban areas of Istanbul. From these 5 areas, 6 child care centres that catered for children from low SES backgrounds were chosen.
The total sample included 255 children who fell into three relatively equal groups: those enrolled in educational nursery schools, those in custodial care centres and those in home care without preschool education. Children were randomly selected from these three groups to receive the Mother Training Programme.
The project ran for four years – baseline measures were collected during the first year, the intervention was run in the second and third years and follow-up assessments were conducted in the fourth year.
Attrition: At the seven year follow-up, 225 mothers were found and 217 mothers and their children participated (approx. 85 per cent of the sample).
Follow-ups: One year post intervention (fourth year of the project), seven years post intervention (or six years after project completion).
Evaluation data: The project resulted in positive effects for child cognitive development, academic achievement, social and personality development, parenting and other maternal outcomes. Many of these positive effects were maintained at a long term follow-up.
Measured outcomes and findings:
Cognitive skills (WISC): Significant differences, favouring the intervention group, were found for IQ scores, as well as subtests of the WISC. The most gains were found for the children in custodial or home care, rather than the children also attending an educational preschool. At follow-up the intervention group performed significantly better on the vocabulary test of the WISC.
Academic achievement (standardized tests; school reports): The intervention group scored significantly higher on standardized tests of academic achievement and had significantly higher school grades. Again, greater gains were found for children in custodial or home care. At follow-up, 86 per cent of intervention children were still in school as compared to 67 per cent of the control group (p = .002). The intervention group also performed better during primary school and had more positive attitudes relating to school.

Social and personality development: Children in the intervention group displayed less dependency, less aggressiveness, better self-concept and better school adjustment. At follow-up, children in the intervention continued to have better self-concept and more positive attitudes toward school. Intervention children had more positive memories of their mother during childhood and demonstrated better social integration and autonomy. In addition, more children in the intervention group believed they were prepared for school at the beginning.

Parenting: Mothers who had received the intervention were more verbal, less punitive and more responsive. They also had more interactions with their children. Intervention mothers valued autonomy in their children more and were more cognitively stimulating. At follow-up, mothers in the intervention group reported having better relationships with their children including understanding their child, talking over problems and less physical punishment. They also had higher educational expectations for their children.

Marital and family relationships: Mothers in the intervention group were more likely to share decision making with their husbands, reported a greater degree of communication and a greater degree of role sharing. At follow-up, mothers in the intervention group reported better family relations. The positive effect on role sharing was maintained at follow-up.

Maternal personal attributes: At follow-up, intervention mothers read magazines and newspapers more, employed contraceptive methods more and were more knowledgeable about family planning. These mothers also appeared to use available services more and evaluated their economic situation better.

Support at home for early language and literacy (SHELLS)

Program location: Currently only two sites in rural and regional areas of New South Wales, Aus (the program was initially called HELP, but changed to SHELLS in 2001).

Date program was run: 1998 to current.

Population receiving the intervention: The program is available to all children from birth to age 3 (although parents must join by the time the child is aged 2), from Indigenous and non-Indigenous families, who are living in rural and regional areas.


Children:
- Enhanced potential for successful literacy.
- Long term reduction in the use of welfare through successful literacy outcomes.

Families:
- Increased parental confidence in their ability to support and contribute to their child's literacy development.
- Positive changes in family literacy experiences and interactions.

Society:
- Increased early literacy resources.
- Increased knowledge regarding literacy foundations and sharing knowledge with others.
- Development of a collaborative model for early literacy partnerships between parents and researchers.
- Reduction in social welfare and remediation costs.

Time frame for anticipated benefits: not found

Size of program: Currently operating in only two sites, there are plans for expansion. 144 families had participated between 1997 and 2001.

Intervention site: Varied

Intervention strategy:
- The SHELLS program was developed primarily as an educational initiative. The content of the program is based on individual interests of families, the current knowledge about children's literacy learning in the early years and the growing acceptance of the importance of learning during the early years. The program was designed to respond to varying contexts and differs from site to site depending on community interests, needs and traditions. Families are empowered and provided with resources in order to assist them in becoming effective literacy teachers.
- The program has a core group of key topics such as talking with children, choosing toys, books and games for children of different ages, playing with sounds and drawing, as well as optional topics such as television, bilingual development and technology. New topics are also added where appropriate.
Contact can occur in a variety of ways, including group meetings, home visits, phone calls, newsletters and community radio. Parents are able to choose the type of contact they think will be most beneficial and this is regularly reviewed. (Although parents must attend either a group meeting or receive a home visit.) Child care is provided during the group meetings. The program is based on everyday activities and experiences, including discussion with children, reading, singing, drawing and involving them in activities such as shopping, making phone calls and reading emails.

Facilitators of the program are part of the community and, where possible, have a qualification in early childhood. They also receive training, ongoing staff development and supervision. Parents, facilitators and researchers are all recognized as having expert knowledge and collaborate together to share knowledge and discuss the program. The program is monitored formally (i.e. through baseline and follow-up data, observations) and informally (i.e. informal chats, meetings).

**Intervention intensity:** Contact each week for 40 weeks per year, lasting for up to 3 years (parents must leave the program once their child has turned 3, unless they have another child under 3).

**Program cost:** The program costs approximately $26,000 per year for a group of 30 to 40 participants.

**General comments:** Evaluation of the SHELLS program has currently been based on one site (two groups) and is fairly limited – focusing largely on parent outcomes and successful implementation. Assessment of child outcomes was planned for 2002 – however, results could not be found as yet.

**Evaluation methodology and adequacy:**
- The evaluation of SHELLS includes two groups who participated in the program. Group 1 had 39 participants and group 2 had 42 participants. All but one of the parents was the child’s mother. No control or comparison group was recruited; rather the evaluation is based on baseline and post intervention data.
- Attrition: 61.53 per cent of group 1 participants completed the program and 30.9 per cent of group 2 participants remained in the program at the beginning of its third year.
- **Follow-ups:** Only to the end of the program, funding is being sought for longitudinal follow-up.
- **Evaluation data:** Parents reported a high level of satisfaction with the program and felt that their literacy teaching skills had grown. They also reported that the program had impacted other family members, as well as their own practices. Parents reported behavioural and attitudinal changes in their parenting and also reported greater confidence in their abilities as literacy teachers.

**Measured outcomes and findings:**
- **Family literacy experiences and interactions** (baseline and follow-up interviews): A high level of satisfaction with the program was reported. During the program, parent reports changed from perceptions of learning to perceptions of reinforcement indicating that parents felt that their role as literacy teachers was supported. Parents reported growth over time in their early literacy learning and that their involvement in the program positively affected other family members, particularly fathers. They reported greater confidence, capability and knowledge and increased levels of communication from their children.
- **Literacy resources:** Lending libraries have been established and parents have produced two resources. 34 newsletters have been produced.
- **Behavioural and attitudinal changes** (parents were asked to report situations in which they had acted differently because of program involvement): Parents reported changes in behaviour in many areas, including involving children in everyday literacy experiences, reading frequency, support for early writing, justifying home literacy practices, extending vocabulary, playing with sounds and helping children learn to listen.
- **Parent confidence** (parent interview and Confidence Survey): In the interviews, 92 of 97 (both groups) parents said that their confidence had increased. In group 1 responses to the survey, 67 per cent reported feeling very confident in giving their child a good literacy start, while 33 per cent reported not feeling confident; 100 per cent reported feeling more confident in helping their child learn to read, select books and interact in literacy experiences; 66 per cent were more confident in helping their child learn to write; 67 per cent were more confident in knowing how schools teach reading and writing, in TV and literacy and in library use; 33 per cent were confident in their understanding of computers and literacy; 33 per cent were confident in relation to terminology and 66 per cent were more confident in relation to gender and literacy. In group 2, 85 per cent felt confident or very confident in being able to give their child a good start, 69 per cent in helping child learn to read; 60 per cent in selecting books; 78 per cent in interacting in literacy experiences; 53 per cent in helping their child learn to write; 15 per cent in their knowledge of school teaching; 53 per cent in relation to TV and literacy; 51 per cent in library use, 29 per cent in relation to computers and literacy; 25 per cent in terminology and 32 per cent in relation to gender and literacy.
- **Increase knowledge regarding literacy foundations** (Literacy Wall): This section of the evaluation did not actually evaluate the effectiveness of the program but simply asked parents to rate their child’s skills, providing a small knowledge base for researchers on the literacy skills of different aged groups.

**References**
BABY HAPPINESS, UNDERSTANDING, GIVING AND SHARING PROGRAM (BABY HUGS)

**Program location:** Initially run at one inpatient unit in Melbourne, Australia. The program has been extended to other settings including psychiatric hospitals and out-patient infant clinics.

**Date program was run:** Ongoing

**Population receiving the intervention:** Women who have postpartum depression, who are “at risk” for developing difficulties for reasons such as poor parenting models or who have difficulty interacting with their infant.

**Anticipated benefits:**
- **Children:**
  - Improved interactions with parents.
- **Families:**
  - Improved parent-child interactions through better communication, observation and responsive skills
  - Positive changes in parent attitudes, beliefs and cognitions.
  - Some resolution of family of origin issues.
  - Increased understanding of infant temperament and ways of responding to infants with different temperaments.
  - Improved partner relationships.
  - Enhanced social networks.
- **Society:** not applicable

**Time frame for anticipated benefits:** Short term effects on maternal wellbeing and long term effects on maternal and infant mental health outcomes.

**Size of program:** Small scale, run on a few sites in Melbourne.

**Intervention site:** Centre based groups.

**Intervention strategy:**
- The program was based on the HUGS program developed by the Alys Keys Family Care centre; a parent-toddler group aimed at facilitating positive parent-child interactions. This concept was developed and extended for work with parent-infant dyads and called the Baby HUGS program.
- The program’s major focus is on mother-infant interactions and views the quality of parent-infant interactions to be of central importance for optimal infant development. The program also focuses on parental beliefs, infant temperament, past relationships in family of origin and social support (including relationship with partner). If possible, fathers are encouraged to participate.
- The program involves six phases. Phase 1 is “setting the tone” and aims to develop trust within the group. Maternal needs are emphasized, as is the importance of social support and goal planning. Phase 2 focuses on “play and physical contact” and involves baby massage, discussion of feelings related to physical contact and age appropriate play. Phase 3 focuses on “observing and interpreting infant cues”. This phase involves structured exercises that encourage mothers to observe infant verbal and nonverbal cues and appreciate their infant’s skills. Phase 4 looks at “parental responses to infant cues”, focusing on how mothers feel when communicating with their infant. The influence of past experiences and relationships with parents is often raised during this phase. Phase 5 examines “attribution of personality and individual differences”, where mothers describe their infant’s personality and are encouraged to focus on positive rather than negative attributes. Finally, phase 6 focuses on “the partnership/marriage” and explores ways to strengthen relationships.
- The program is flexible and adaptive to different locations, contexts and circumstances and can be provided at an intervention or prevention level (i.e. running the program as part of antenatal education). The program can be run by nurses, psychologists (or allied health professionals) and psychiatrists who are knowledgeable in infant psychological and motor development. Many groups have been successfully run using a co-therapy model (i.e. a nurse and a psychologist).

**Intervention intensity:** Sessions are typically between 1 and 1.5 hours on a weekly or more frequent basis. Each phase usually contains between 1 and 3 sessions, although this is determined by the group.

**Program cost:** Not available.

**Evaluation methodology and adequacy:**
- Mothers were randomly assigned to receive the program (n = 10) or to be part of a wait-list control group (n = 10). Mothers were interviewed pre-treatment (before group allocation) and post-treatment. There were no differences between groups on mean infant age, use of medication, pre-treatment BDI scores or occupation. All women had developed their depression within 6 months of birth and were moderately to severely depressed. The mean age of infants was 10.6 months.
- ANOVA analyses were used to determine group differences.
- Attrition: Of the 10 women in the treatment group, only six completed the program. Of the wait-list control group, only six were available at the post-treatment follow-up. Women in the wait-list control group were offered treatment after the treatment group had completed their program; only three women completed the program.

**Follow-ups:** On program completion, no long term follow-ups.

**Evaluation data:** Reductions in depression were found among women in the intervention group. There were also significant group differences in depression post treatment, with the intervention group demonstrating a reduction in depression and levels of depression in the control group remaining the same. However, women in the intervention group remained moderately depressed. There were also significant reduction in tension, fatigue and confusion among the intervention group, as well as significant group differences. Trends toward improvement in the intervention group and
deterioration in the control group were found on marital relationships, self-esteem and social support. No differences were found on overall parenting stress, but the control group demonstrated a significant deterioration in stress related to the child domain.

**Measured outcomes and findings:**

- **Maternal depression** (Edinburgh Post-Natal Depression Scale (EPND); Beck Depression Inventory (BDI); Profile of Mood States (POMS)): At the post-treatment follow-up there was a significant reduction in depression on all measures within the treatment group (i.e. depression had reduced from pre to post intervention). Significance levels were less than 0.05 for the BDI, less than 0.02 on the EPND and less than 0.01 on the POMS. Levels of depression among the control group did not change pre to post treatment. There was also a significant group difference in depression at the post-treatment follow-up, with the intervention group being significantly less depressed than the control group. Between group significance levels were less than 0.01 for the BDI, less than 0.05 for the EPND and less than 0.02 for the POMS. However, it should be noted that women in the intervention group were still moderately depressed. Of the three women in the wait-list control group who went on to complete the program, two showed marked improvement on depression measures.

- **Parenting stress** (Parenting Stress Index (PSI)): No significant within or between group differences were found on the total PSI score. In the child domain, the wait-list control group showed significant deterioration (p < .05). No other domain differences were found.

- **Marital Relationship** (Dyadic Adjustment Scale (DAS)): No significant within or between group differences were found, although there was a trend toward improvement among the intervention group and a trend toward deterioration in the control group.

- **Maternal self-esteem** (Stanley Coopersmith Self-esteem Inventory): No significant within or between group differences were found, although there was a trend toward improvement among the intervention group and a trend toward deterioration in the control group.

- **Maternal mental state (aside from depression)** (Profile of Mood States (POMS)): There were significant reductions in tension (p < 0.02), confusion (p < 0.01) and fatigue (p < 0.01) among the intervention group as well as significant differences between groups post-treatment (p < 0.02, p < 0.01, p < 0.05, respectively).

- **Social support** (Social Provisions Scale): No significant within or between group differences were found, although there was a trend toward improvement among the intervention group and a trend toward deterioration in the control group.

**References**


**PROJECT 12 WAYS**

**Program location:** five areas in Southern Illinois, USA

**Date program was run:** 1979 to 1985. The program continues to run under different leadership.

**Population receiving the intervention:** High risk families who have active protective services status or low SES status. Children are not necessarily under 6 years of age (infancy and up).

**Anticipated benefits:**

**Children:**

- Decrease in child abuse and neglect.
- Decrease in the occurrence of out of home placement.

**Families:**

- Decrease in child abuse, neglect and out of home placement.
- Better parenting and coping strategies.

**Society:**

- Decrease in child abuse and neglect and out of home placements, and the costs associated with this.

**Time frame for anticipated benefits:** Short term and long term decreases in the incidence of child abuse and neglect.

**Size of program:** The program was available to families from five areas in Southern Illinois.

**Intervention site:** “In situ” treatment; a more therapy based intervention with one behaviour analysis therapy student for each family.

**Intervention strategy:**

- The majority of families fit the profile of single parent, with poor parenting skills, several children to raise and living in a deprived physical, cultural and social environment. Families were registered with the Illinois Department of Children and Family Services and had case workers from the department. The services received by each family were individually tailored. A number of services were offered including parent-child training, basic skills training, social support, health and nutrition services, home safety, problem solving, stress reduction, money management, leisure time counseling, job finding, self-control training, referral for treatment of alcohol abuse, couple relationships, single-parent services, multiple setting behaviour management and assertiveness training.

- Staff members are graduate students in the Behaviour Analysis Therapy Program at Southern Illinois University of Carbondale and are supervised by master’s level clinicians. Staff are trained in the services offered by the project and work closely with case workers and other agencies.
Although the program was largely an intervention program, it was also offered as a primary prevention program for single, pregnant teenagers.

**Intervention intensity**: Varied.

**Program costs**: not found

**Evaluation methodology and adequacy**:

- All participants (566 families) in the project between July 1980 and December 1985 were considered for inclusion in the evaluation. Families were not included if they were not from the 5 primary areas served by the project, received services as part of a prevention program or consisted of a foster or adoptive family. These exclusion criteria resulted in a sample of 232 families who had received Project 12-Ways services as an intervention.
- A comparison group was selected from the Illinois Department of Children and Family Services database using a table of random numbers. This generated 625 families from the 5 primary areas served by the project. Families were excluded from the comparison group if they met the exclusion criteria for the intervention group, or met any of three additional exclusion criteria. These additional exclusion criteria were if the department was only providing subsidized child care, families had been involved in Project 12-ways and the proportion of comparison families in each of the 5 areas was matched to the proportions in the intervention group. This resulted in a comparison sample of 232 families.
- Pre-treatment, treatment and post-treatment information was collected on families from department and Project 12-ways files. There were significant pre-existing group differences between groups on when families were first served by the department, on the reasons that they had been first served by the department, occurrence of men leaving the household and being replaced by other men and age of children (children were more likely to have turned 18 during the evaluation in the comparison group). As a general rule, intervention families were more chronic or more difficult cases. At the time of the evaluation, the average child age was between 7 and 8 years.
- In reporting on files, 65 files were reported on by a second observer, with an inter-rater reliability maintained at 85 per cent or above. Analytic procedures used were repeated measures MANOVAs.

**Follow-ups**: Data on families was collected at three time points – pre-treatment, treatment and post-treatment (it is not clearly stated how long after treatment, probably one to two years).

**Evaluation data**: The occurrence of child abuse, neglect and out of home placement was found to decrease during the treatment period among both groups and increase post-treatment (although not to the same level as pre-treatment). No group differences in this pattern were found, although the intervention group did evidence a significantly larger decrease in occurrences between pre-treatment and treatment assessments.

**Measured outcomes and findings**:

- **Child abuse and neglect** (incidences reported in department files): While the pattern of total number of occurrences of child abuse, neglect and child placement changed significantly across treatment points for both groups (p = 0.001), there were no group differences in pattern (p = 0.635). However, when the data was analysed according to the percentage of families in each group who had reported cases of child abuse, neglect or child placement, the difference between groups was significant (p = .01). The pattern was similar, with a decrease in occurrence during treatment and an increase post-treatment; however, the drop during the treatment phase was much greater for intervention families (43 percentage point drops for intervention and drop of 17 percentage points for comparison). It should be noted that the intervention group had a higher percentage of reports than the comparison group pre-treatment (56 per cent vs. 42 per cent).
- **Out of home child placement** (reports in department files): See findings outline above.

**References**


### Intervention Cluster 3

**NEW HOPE, CHILD AND FAMILY STUDY (NEW HOPE)**

**Program location**: US - Milwaukee, Wisconsin

**Date program was run**: 1994 - 1998

**Population receiving the intervention**: Families with incomes at or below 150 per cent of the poverty line.

**Anticipated benefits**:

- **Children**: It was anticipated that change in employment and income of parents would affect children’s home environment and their interactions with parents. Subsidy and assistance with child care was expected to affect the experience of child care, particularly after school care. Changes in environment were also expected to affect change in intellectual skills, psychosocial wellbeing, social skills, and health.

- **Families**: Increased employment was expected to improve adult material wellbeing and psychosocial functioning. An increase in income and reduction in poverty was also anticipated.
Measured outcomes and findings:

- Higher occupational aspirations, and displayed more positive social behaviour and fewer behavioural problems.

Compared with the control group, boys in the program group showed improved academic progress, better classroom behaviour, and aspiration measures, but no significant effects seen for girls on these measures. The Social Skills Rating System showed significant gender differences seen in outcomes, with greater impact seen for boys on educational and aspiration measures, but no significant effects seen for girls on these measures. The Social Skills Rating System Academic subscale showed a positive improvement, with an effect size of .33 (p <.05) for boys in the program group, when compared with boys in the control group. Boys in the program group showed improvement in their classroom behaviour, as reported by teachers (effect size .38, p <.05) New Hope boys were more likely to expect that they would attend college (effect size .49, p <.05), more likely to expect to finish college (effect size .46, p <.05), and were more likely to have higher lifetime aspirations (effect size .29, p <.05).

The demographic characteristics of the program and control groups were similar. The majority of parent participants were sole parents (89.5 per cent), over half (55.1 per cent) were of African American ethnicity, and over one quarter (29.2 per cent) were Hispanic.

History threat may influence results. The program was conducted during a period of low unemployment and strong economic growth.

Teachers completed the measures of academic performance, classroom behaviour, and social behaviour. Teachers were given no information about children’s participation in the New Hope program, and were unaware of the program/control group status of the children.

Follow-ups: 2-year outcome data reported

Evaluation data: The New Hope program had significant positive effects for boys, but inexplicably not for girls. When compared with the control group, boys in the program group showed improved academic progress, better classroom behaviour, higher occupational aspirations, and displayed more positive social behaviour and fewer behavioural problems.

Measured outcomes and findings: Two year outcome data revealed the following outcomes for children in the program group:

- Intellectual/educational: Significant gender differences seen in outcomes, with greater impact seen for boys on educational and aspiration measures, but no significant effects seen for girls on these measures. The Social Skills Rating System Academic subscale showed a positive improvement, with an effect size of .33 (p <.05) for boys in the program group, when compared with boys in the control group. Boys in the program group showed improvement in their classroom behaviour, as reported by teachers (effect size .38, p <.05) New Hope boys were more likely to expect that they would attend college (effect size .49, p <.05), more likely to expect to finish college (effect size .46, p <.05), and were more likely to have higher lifetime aspirations (effect size .29, p <.05).

- Social/Behavioural: Again, the effects of this program were seen in boys, but not in girls. Teacher reports of boy’s behaviour revealed that the program group were significantly more likely to show improvement in positive behaviour (effect size .50, p <.01), and this was supported by parental reports of boy’s behaviour (effect size .22, p <.05). Teacher reports show boys in the program group had lower externalising problem behaviours (effect size .48, p <.01), lower internalising behaviours (effect size .51, p <.01), reduced hyperactivity (effect size .39, p <.05), and reduced disciplinary actions (effect size .30, p <.05). There were no significant effects found on measures of child time use in leisure or after school activities.

- Parents: Parents in the New Hope program group were more likely to have higher incomes (effect size .16, p <.01). Parents were more likely to have their children in formal care (effect size .31, p <.01). Significant improvement was seen in parent self-reported levels of social support (effect size .28, p <.01). No significant difference was seen in measures of parent’s self-esteem, depressive symptoms, financial worry, or external locus of control.

References


**FLORIDA FAMILY TRANSITION PROGRAM (FTP)**

**Program location:** Florida, USA  
**Date program was run:** 1994 - 1999  
**Population receiving the intervention:** Potentially long-term welfare recipients  
**Anticipated benefits:**
- **Children:**  
  - Child social, emotional and behavioural.  
  - Improved child academic and cognitive outcomes  
  - Improved physical health and wellbeing  
- **Families:**  
  - Family and relationship outcomes, including family interaction, family formation, and family stability.  
  - Increased job attainment, increased employment, employment security, and reductions in welfare dependency.  
- **Society:**  
  - Reduced welfare dependency. Although the program was nominally designed to reduce welfare costs, this goal was not emphasised, rather the program was considered a radically new model for welfare to provide families with independence and improved self-worth.  

**Time frame for anticipated benefits:** Four years post introduction of the program  
**Size of program:** 2583 families, randomly assigned to either FTP policy group or usual welfare policy group (control)  
**Intervention site:** Provide 24-month time limited welfare payments, whilst also providing financial incentives and additional services to encourage paid employment.  
**Intervention strategy:** The FTP limited families to 24-months of welfare benefits. The program also provided families with services, supports, and financial incentives to assist them in finding paid employment.  
**Intervention intensity:**
- **FTP policy group:**  
  - Time limited welfare restrictions were imposed. Families were restricted to 24-months of welfare payments in any 60-month period, or 36-months for those least job-ready. Some exceptions were made.  
  - Initial income was disregarded when calculating welfare entitlements. This amounted to the first $200, plus 50 per cent of remaining earnings.  
  - Child care assistance was provided for two years.  
  - Some parental responsibilities were mandated. This included ensuring that children attended school regularly, that parents had contact with teachers at least once per school term, and that children had begun immunization programs.  
  - Participants received intensive case management, a range of social and health services, and enhanced employment-related services.  
- **Usual welfare policy group (control):**  
  - No time limitations on welfare.  
  - Income disregarded amounted initially to $120, plus 33 per cent of earnings for first 4-months, changing to $90 disregarded after 12-months.  
  - Child care assistance for one year.  
  - No mandated responsibilities for parental care.  
  - Participants served by usual welfare-to-work program.  

**Program costs:** The program costs were approximately $12,500 US per family member over the five-year period. The net costs, over and above what was spent on the usual welfare program were $8,000 per family. FTP produced a net loss to the government of $6,300 per family.  
**Evaluation methodology and adequacy:**
- Staff were provided with recruitment criteria and participants were randomly assigned at the time of applying for benefits, before the benefits had been approved. Demographic data analysis showed the two groups were statistically similar in ethnicity, education, and family characteristics. The majority of welfare recipients were females (97.2 per cent), and most were single parents (98.4 per cent). Client self-reported barriers to employment were related to unavailability of child care (48.9 per cent), no transportation (42.8 per cent), health problems in self or family (23.1 per cent), or many family problems (23.6 per cent).  
- Evaluation data included: Two year telephone administered survey with a sub sample from each group (n = 600). Interviews with participants four years after each participant’s date of random assignment. The participants reported on employment, household income, material wellbeing, and other issues. Participants with children also provided information on child care, the home environment, parent and child wellbeing. Participants (n = 237) in the FTP group who reached their time limit on benefits were also interviewed at 6, 12 and 18 months later. Case histories on employment were also gathered.  
- There is an attrition threat and the implications of the high participant attrition rates have not been identified. Evaluation data is provided on only 61.3 per cent (n = 1,729) of participants at the four-year follow-up. Evaluators report two reasons for the reduced sample. First, only data gathered from participants assigned to the project between August 1994 and February 1995 was collected; and second, the survey firm was unable to locate 20 per cent of the remaining sample.
Results are influenced by an historical threat, and must be interpreted cautiously. During the time the FTP was implemented Florida experienced an unusually high employment rate, and an unprecedented 70 per cent decline in Florida's welfare cases.

**Follow-ups:** Four years after inclusion into the program

**Evaluation data:** Over the four-year period, FTP increased employment and earnings, reduced welfare receipt, and modestly increased participants' incomes. FTP had few effects on young children, but there were some negative outcomes on school measures for primary aged children and adolescents.

**Measured outcomes and findings:**

- **Social/emotional/behavioural:** FTP increased use of child care at the time of the four-year interview. FTP increased the stability of child care for primary school aged children, but had no impact on the quality of care. Child care subsidies were more likely to be provided for children in the FTP group. Children in the FTP group had greater contact and care from their biological father.

- **Intellectual/school:** Children in the FTP group showed decreased academic achievement, and increased school suspensions. Children in the FTP group had reduced parental supervision. Children in the FTP group had increased behavioural problems. Adolescents in the FTP group showed slightly higher rates of involvement with police. Adolescents from the FTP group were more likely to be performing poorly at school and were more likely to be suspended. Adolescents showed no differences in academic achievement between the two groups.

- **Family functioning, income and employment:** Over the four years FTP produced a modest increase in income ($1,167). The impact of the FTP program was concentrated in the second and third years. FTP produced the largest impact on employment, earnings, and income among participants with the least risk of long-term welfare dependency. The program produced a slight reduction in hardships associated with housing and neighbourhood conditions. Seventeen per cent of the FTP group reached the benefit time limit, and most of these participants had their benefits cancelled. The effects on these families are discussed separately in the evaluation.

**References**


**TEENAGE PARENT DEMONSTRATION PROGRAM (TPDP)**

**Program location:** Illinois (one site) and New Jersey (two sites), US

**Date program was run:** 1987 to 1991

**Population receiving the intervention:** First time teenage mothers receiving welfare, regardless of child age (although most children were less than 1 year of age). The program was mandatory.

**Anticipated benefits:**

- **Children:** Not applicable
- **Families:** Economic self-sufficiency among mothers.
- **Society:** Reduction in welfare use.

**Time frame for anticipated benefits:** Long term (increase in economic self-sufficiency)

**Size of program:** All first time teenage parents (or in Illinois also in the third trimester) who were receiving welfare (nearly 90 per cent were enrolled). This equated to approximately 3,500 teenage parents.

**Intervention site:** Mainly centre-based.

**Intervention strategy:**

- Teenage mothers on welfare for the first time with a child were required to participate in the program in order to receive the maximum amount of welfare. Support services such as case management, child care assistance and transport assistance were provided. The program was called Project Advance in Illinois and Teen Progress in New Jersey.

- The program had a number of components: case management, workshops, education, training and employment related services and support services.

- Case management occurred throughout the program and involved case managers working with teenage mothers to develop a service plan to achieve self-sufficiency. Case managers also provided teenage parents with ongoing support and counseling.

- Workshops were run in-house by program staff. The workshops focused on a number of topics including how to enhance personal skills, parenting, contraception, and preparing teenage mothers for later education, personal skills, employment and training activities.

- The program required mothers to engage in education, training or employment, or a combination of these. Case managers were required to assist mothers in addressing barriers to participation.

- Support services such as the provision of child care and transportation assistance were available.

**Intervention intensity:** Employment, education or training was 30 hours per week. Workshops varied across sites, ranging from 9 to 97 hours across the life of the program.

**Program costs:** In 1989 the program cost between US$3,000 and $5,400 per participant per year.
Evaluation methodology and adequacy:

- Almost 6000 teenage parents joined the welfare rolls and almost 90 per cent of these were enrolled in the program (n = 5297). Through random assignment half of the mothers participated in the intervention (n = 2650) and the other half formed the control group (n = 2647). Most mothers were between 17 and 19, of ethnic minority backgrounds, never married and had a child under the age of 1. In addition, most of the mothers had educational deficits and weak basic skills.
- Phase 2 involved both New Jersey samples and a random subsample from Illinois. Of these, 85 per cent completed parent interviews and 78 per cent completed child assessments.
- Analytic methods used included mean comparisons, regression analyses and multivariate models. The significance level used was less than 0.10.
- Attrition: The six year follow-up involved 1,769 mothers in the program group and 1,730 mothers in the control group (66.7 per cent and 65.4 per cent, respectively).

Follow-ups: Two phases: at the end of intervention (2 year follow-up) and approx 6 years post intervention.

Evaluation data: The program had positive effects on participation in education employment and training as well as positive effects on welfare use during the intervention; however, these effects faded when the program ended. The program did not have any significant effects on maternal personal circumstances (i.e. living arrangements and subsequent pregnancies) or child development (including cognitive skills and behaviour). The authors also point out that no adverse effects of attendance at child care as a result of the program were found.

Measured outcomes and findings:

- Maternal participation in employment education and training: At phase 1, overall levels of participation were substantially higher in the intervention group (79 per cent vs. 66 per cent). For those who were employed, a subsequent increase in earnings and decrease in dependence on welfare was found. The intervention group also remained significantly longer in school, job training or employment (35.2 per cent vs. 27.5 per cent). Intervention mothers had higher monthly earnings than control mothers (average of US$23 more), but this difference was significant at one site only. However, the majority in both groups were still in living poverty. At phase 2, 70 per cent of mothers in both groups were still receiving welfare and over three quarters lived in households with incomes below the poverty line. The program effects on employment, education and training evident at phase 1 had faded by phase 2.
- Maternal cognitive skills (Test of Adult Basic Skills): At phase 1, mothers in the intervention group had significantly higher math scores. Although the program increased school enrollment, no gains were made in reading or math skills. One site increased high school graduation.
- Personal circumstances: Few differences were found on personal circumstances such as marriage, living arrangements, fertility or child support at phase 1. At phase 2 there were no differences in fertility.
- Cognitive skills (Peabody Picture Vocabulary Test): At phase 2, children received substantially lower scores than the national norm (although the difference was not significant). In general there were no significant differences between groups, however, some small, not very meaningful differences were found at one site, in favour of the control group (lower scores for the intervention group on 2 of 4 measures of achievement).
- Child behaviour: At phase 2, program children received slightly higher scores on a measure of behaviour problems that children nationally. At one site children in the intervention were rated by mothers as less prosocial than control children (differences were small and not very meaningful). There were no significant differences in effort in school or academic behaviour.
- Parenting and home environment: No differences were found in parenting and the quality of the home environment, except small, not very meaningful differences at one site, in favour of the control group.

References

EARLY HEAD START

Program location: Multiple sites, USA
Date program was run: 1995 to current
Population receiving the intervention: Prenatal to 3 years. Children from low-income families.
Anticipated benefits:

Children:
- Enhance children’s development in the following areas: health, resilience, social competence, emotional development, cognitive development and language development.

Families:
- Enhance family development in the following areas: parenting, parent-child relationships, home environment, family functioning, family health, parent involvement and economic self-sufficiency.
General comments:

- Families can be involved in as much or as little of the program as they like. However, complete involvement is intensive and continues for just over three years.

- There is not a single program model; each program is required to select service delivery options that will best meet community needs. However, programs must fulfill four program requirements – (1) child development (support physical, social, emotional, cognitive and language). Must provide directly or through referral early education services, home visits, parent education, parent-child activities, comprehensive health and mental health services, high quality child care (2) family development (develop individualized family development plans that focus on child’s developmental needs and family’s social and economic needs). Must provide directly or through referral child development information, comprehensive health and mental health services, adult education, literacy training, job skills training, safe housing, employment assistance, emergency cash and transportation to program services (3) community building (assess community resources to enable the building of a comprehensive network of services and supports) (4) staff development including ongoing training, supervision and mentoring.

- Intervention intensity: Families can be involved in as much or as little of the program as they like. However, complete involvement is intensive and continues for just over three years.

Program costs:

- Average cost per child is US$10,544 (2002 dollars).

General comments:

- As with Head Start, there have been a number of evaluations at different sites and by different researchers. This review focuses on The National Early Head Start Research and Evaluation Project.

Evaluation methodology and adequacy:

- National Evaluation Project was a 26 month study conducted on 17 sites selected as being representative. 3,001 families were randomly assigned: 1,513 families in the treatment group and 1,488 families in the control group. Key outcomes were measured at age 3.

- The 17 sites in the National Evaluation were not randomly selected, but determined to be generally representative of all programs. At the 17 sites, 3001 families were randomly assigned to treatment or control group (control group had access to other services not provided by EHS). Randomised experimental design with 2 year follow-up.

Follow-ups: Children were followed to the end of the program (2 years). A follow-up study is planned for when children enter kinder (planned completion - 2004).

Evaluation data: Better outcomes for program children were found on a number of dimensions, including child, parent and home environment. Effect sizes ranged between 10 and 20 percent, although effect sizes for some subgroups did reach 50 per cent. Positive impacts on cognitive development was evident at age 2, on language development from ages 2 to 3 and on social-emotional development at age 3. Impacts did vary according to the type of service – centre based programs had consistent effects on cognitive and social-emotional development and several parenting outcomes, but limited influence of parent self-sufficiency; home based programs had some influence on language development at age 2 but not age 3, positive impact on parent-child interactions and resulted in less parenting stress; mixed approach programs were consistent in their influence on language and social-emotional development, parenting and parent self-sufficiency. Mixed programs had the most effects. The most impact was found for African-American families.

Measured outcomes and findings:

- Cognitive outcomes (Bayley Mental Development Index (MDI), Peabody Picture Vocabulary Test (PPVT)): At age 2 there was a significant difference on the MDI with a mean of 91.4 for program group and mean of 89.9 for control. Also, less children in the program group scored in the at risk range (27.3 per cent vs. 32 per cent). At age 3 there was a significant difference on the PPVT (83.3 for program and 81.1 for control), as well as fewer program children receiving scores in the at risk range (51.1 per cent vs. 57.1 per cent). Note: although program children scored significantly higher than control children, they still remained below the national average.

- Social-emotional development (Observation during semi-structured play with parents, emotional regulation measured using Bayley Behavior Rating Scale (BRS), aggressive behavior with the Achenbach Child Behavior Checklist-CBCL): At age 3 program observations found that program children engaged parents more, were less negative with parents and were more attentive to objects. Parents rated program children as less aggressive.

- Parenting and home environment (parent report, observations; Home Observation for Measurement of the Environment (HOME)): Observations found that program parents were more emotionally supportive, were more likely to read to their child, less likely to demonstrate negative parenting behaviours, less detached, less likely to spank and had a greater...
range of discipline strategies (including less punitive strategies). Program homes had significantly higher scores on the HOME and provided more support for language and learning. Fathering: Program fathers were less likely to report spanking (25.4 per cent vs. 35.6 per cent). Observations also found that program fathers were less intrusive and program children engaged more and were more attentive with fathers. Program fathers were also more likely to engage in program activities.

- **Parent employment and education:** More program parents had participated in the job training (60 vs. 51.4 per cent) and more program parents were employed at some time during first 26 months of the study (86.8 vs. 83.4 per cent). Significant improvements were not found on income.

- **Subsequent pregnancies:** Program mothers were less likely to have another child during the first 2 years of the program (22.9 vs. 27.1 per cent).

- **Child safety:** Program did not increase consistent and proper use of car seats at age 3.

- **Parent health and mental health** (parent report; Parenting Stress Index (PSI); CIDI-Depression): No significant impacts.

**References**


**CAROLINA ABECEDARIAN PROJECT (ABECEDARIAN)**

**Program location:** single site, Chapel Hill area, North Carolina, USA

**Date program was run:** 1972-1985, 4 waves of approximately 28 children.

**Population receiving the intervention:** 6 weeks to 3 months old. Low-income families with high risk factors. Predominantly African-American.

**Anticipated benefits:**

- **Children:**
  - Improved cognitive and academic abilities.
  - Decreased risk of mild mental retardation.
  - Improved school performance (i.e. decrease in the risk of school failure).
  - Improved health.
  - Enhanced ability to adapt to the school environment via specific improvement in relevant skills.

- **Families:**
  - Improved access to social support services.

- **Society:** Not applicable

**Time frame for anticipated benefits:** Short and long term.

**Size of program:** Single site. 57 infants received program, 54 were in non-treated control group. 59 (53 per cent) females. The 111 children were from 109 families.

**Intervention site:** Centre based - high quality child care.

**Intervention strategy:**

- The project involved a supportive early education program that began in early infancy. The program was a full-time educational intervention in high-quality child care setting. Each child had an individualized program of educational activities that addressed social, emotional, perceptual-motor and cognitive development, with a particular emphasis on language and pre-literacy skills. Teachers actively participate with and talk to infants. The program also encourages independence and self-help. Teacher-child ratios were 1 to 3 during infancy, increasing to 1 to 6 in the last year. Staff were professionals or paraprofessionals with extensive experience. Children also received nutritional supplements, disposable diapers, paediatric care and supportive social work services. Free transport to the centre was also available. Staff development was seen as very important and was an ongoing process.

- Parent group sessions were run on topics related to parenting and family development and social workers were available to provide parents with assistance. Parents also served on the advisory board and social events were run for families of the intervention children.

- The project also involved a school-aged intervention from kindergarten through the first three years of school, but this is not reviewed here.

**Intervention intensity:** Full day (6-8 hours) child care, 5 days per week, year round (50 weeks) to the age of 5 years. Support provided to parents approximately every two weeks.

**Program costs:** Masse and Barnett (2002). Average annual cost was about US$13,900 (2002 dollars) per child. Concluded that benefits outweighed costs by $4 to every $1 spent. Campbell and Ramey (1994) – “Certainly providing 5-8 years of intervention was costly, but so is the lifelong loss of productivity associated with academic failure and hopelessness. The present results imply that treatment during the preschool years was more beneficial” (page 695).

**Evaluation methodology and adequacy:**

- Carefully controlled study with random assignment and longitudinal follow-up. Children and families were selected on the basis of High Risk Index scores. They were then matched in High Risk Index and maternal IQ and pair members were randomized to intervention or control. These two groups were then further randomized – with half of the intervention group allocated to receive school age intervention as well and half of the control group allocated to receive school age
intervention only. Therefore the four groups were: intervention to age 5; intervention to age 8; intervention from age 5 to 8; no intervention. To examine the influence of preschool intervention (the focus of this review) the two intervention groups were combined (n = 57) and the two control groups were combined (n = 54). The intervention and control groups were compared on a number of outcomes.

- **Low attrition**, with 53 intervention and 51 controls assessed at age 21. Although attrition varied at different measurement points (18.9 per cent attrition at age 8, with IQ data available for 90 children and academic test scores available for 88, similar attrition rate at age 12 – no differences on demographics were found between those who were lost and those who continued).

- **Limitations**: Generalisability given majority of sample were African-American, 83 per cent of intervention group were from female-headed families and 49.2 per cent of the mothers were teenagers. The project took place in a reasonably affluent area, where social services and supports were very accessible and well funded.

**Follow-ups**: Assessments at 6, 12, 18, 24, 30, 36, 42, 48 and 54 months, end of preschool treatment assessment at age 5 years, end of treatment assessment at age 8, follow-up at age 12, age 15, age 18, age 21.

**Evaluation data**: At the end of the preschool intervention (age 5), there was a 7-point difference in IQ. IQ scores continued to be significantly higher at age 8 and age 12, but were no longer significant at age 15. At age 8, program children scored significantly higher on tests of math and reading achievement. These significantly higher scores on tests of academic achievement were still present at age 15, as was less grade repetition and less special education placement (although special education placement was still quite high). At age 21, results were similar to those found at age 15 – no significant gains in IQ, but significant gains in academic achievement. In addition, program children at age 21 were more likely to have completed four years of college (program – 36 per cent, control – 13 per cent). No significant differences were found between groups on crime. Of the teenage mothers in the sample, program teenage mothers were more likely to have completed high school, participated in post-secondary training, be self-supportive, more likely to be employed and have jobs that were skilled or semi-skilled, and were less likely to have had subsequent children. (As an aside, the preschool program was found to be more effective than only the school age program and the school program did not have any independent influences on outcomes.)

**Measured outcomes and findings:**

- **Infant mental and motor tests** (Bayley Scale Mental Development Index, Bayley Scale Motor Development Index, Wechsler Preschool and Primary Scale of Intelligence (WPPSI) McCarthy Scales of Children’s abilities, Stanford-Binet Intelligence Scale): From the age of 18 months to 54 months, children in the program had significantly higher scores on mental tests, but not motor skills.

- **IQ** (Wechsler Intelligence Scale for Children (WISC-R): Wechsler Adult Intelligence Scale (WAIS-R)): At age 8, the intervention group had higher IQ scores than the control group. At age 12, the intervention group had significantly higher IQ and this difference was slightly greater than it was at age 8. Differences in IQ were again found at age 15 or age 21; however, the difference between groups had lessened (4.6 points at age 15, not significant).

- **Academic abilities** (Peabody Individual Achievement Test (PIAT), Woodcock-Johnson tests, official school records; teacher report on the Classroom Behavior Inventory): Children in the intervention group scored significantly higher on reading and math tests from primary school age (age 8) to mid-adolescence (age 15). Reading achievement scores were consistently higher for intervention group from primary school to age 21, as were math achievement scores. Children in the intervention group were less likely to repeat a grade in the first three years of school, however, there was no difference in the need for special education or related services during the first three years of school. Treatment effects remained even when maternal IQ was controlled for. Slight trend for teachers to rate children in the intervention group as having higher verbal intelligence than children in the control group. At age 15, intervention group were less likely to have repeated a grade (31.2 per cent vs. 54.5 per cent) and less likely to have received special education (64 per cent to 81 per cent).

- **Delinquency** (number of convictions, jail or probation time): At age 18, no differences.

- **Drug use** (self-report): At age 21, there was less marijuana use among the intervention group (18 per cent vs. 39 per cent) and fewer regular smokers (39 vs. 55 per cent). There were no differences in use of other illegal drugs or alcohol use.

- **Education levels**: At age 21, the intervention group on average had completed more years of schooling. In addition, 40 per cent of the intervention group was still receiving some form of education, compared to 20 per cent of the control group. In addition, 35 per cent of the intervention group had graduated from, or were currently completing a 4 year college course, compared to 14 per cent of the control group.

- **Employment**: At age 21, employment rates were higher for the intervention group (65 per cent vs. 50 per cent).

- **Teen pregnancy**: At age 21, it was found that the intervention group was, on average, 2 years older (age 19 vs. age 17) at the time their first child was born. However, the age of the individuals who were the youngest in each group at the time of birth of first child was similar.

**References**


**INFANT HEALTH AND DEVELOPMENT PROJECT (IHDP)**

**Program location:** 8 sites in the US

**Date program was run:** 1985-1988

**Population receiving the intervention:** low birth weight (<2500gm), pre-term children on discharge from hospital.

**Anticipated benefits:**

*Children:*
- Improved cognitive and behavioural development.
- Decrease in the risk of cognitive deficits.
- Reduction of developmental, behavioural and health problems.

*Families:*
- Improved parenting skills and increased parent knowledge.
- Enhanced parent-child relationships.
- Better coping skills.
- Increased maternal employment and education through the provision of child care.
- Reduction in welfare use.
- Increased access to and use of services.

*Society:*
- Increase in employment and subsequent decrease in welfare use.

**Time frame for anticipated benefits:** Short and long term. Positive impacts on cognitive development and behavioural competence were expected by age 3.

**Size of program:** Multi-site (8), 985 infants (377 intervention, 608 controls)

**Intervention site:** centre-based and home visits.

**Intervention strategy:**
- Intervention and control groups received paediatric follow-up including medical, development and social assessments and referral as needed.
- Home visits were conducted by college graduates with home visiting experience and involved providing health and developmental information, emotional, social and practical support and implementation of two curricula: a program of games and activities that encouraged cognitive, language and social development (for parents to use with child) and systematic approach to helping parents manage self-identified problems (problem solving).
- Child care was centre based (at child development centres), beginning at age 1. The same learning activities used by the home visitors were implemented at child care. Programs were individualised according to child need and developmental level. Teacher to child ratios were 1:3 for ages 12 to 23 months (class size was 6) and 1:4 for ages 24 to 36 months (class size was 8). Transport to the centres was available and used by between 80 to 100 per cent of children.
- Parent groups began at 1 year and provided information on raising children, health and safety, other parenting concerns and also provided some level of social support. Meals were also often provided, transportation was available for those who needed it, as was child care during the meeting.

**Intervention intensity:** Program began after discharge from hospital and continued to age 36 months (corrected). Weekly home visits in first year, then fortnightly. Full day, 5 days per week, year round attendance at child development centres from 12 months. Parent group meetings every second month in 2nd and 3rd years of intervention.

**Program costs:** The program was provided at a cost of US$15,146 per child (1996/97 dollars).

**Evaluation methodology and adequacy:**
- Eight sites were selected through a national competitive review and served diverse populations in different geographic locations. The program was a randomised clinical trial. 4551 low birth weight infants were screened and 3249 were excluded for geographic reasons or study criteria reasons, 61 infants were excluded due to severe health difficulties, 274 refused consent (all prior to randomization) and 43 withdrew before the beginning of the program. 985 infants remained. Infants were stratified by site and birth weight: heavier (over 2000gm) and lighter (<2000gm): then randomly assigned to treatment group or control group. For heavier sample n = 362 (142 intervention, 220 controls) and for lighter sample n = 623 (235 intervention, 388 control). Two thirds of the sample was disadvantaged (low maternal education and income).
- Attrition: 913 children (93 per cent) available for follow-up at 3 years, 874 children (90 per cent) available for age 8 follow-up.

**Follow-ups:** (at corrected ages) age 3, age 5, age 8, age 16/17 (findings not yet published for 16/17 follow-up)

**Evaluation data:** Results are reported separately for heavier low birth weight (greater than 2000 grams) and lighter low birth weight babies (less than 2000 grams). Program children achieved higher scores on receptive language, cognitive development, visual-motor skills and spatial skills at the end of the program (age 3). These differences were most significant for infants from
high-risk families. At the end of intervention, the total program group had significantly higher IQ scores – greatest difference for heavier babies. Program group also had higher vocabulary test scores and lower scores on maternal report of behavior problems. Differences had largely diminished by age 8, although differences on some cognitive assessments remained significant for the heavier group. No differences remained for the lighter babies.

**Measured outcomes and findings:**

- **IQ** (Stanford-Binet at 36 months; WPPSI at age 5; WISC-III at age 8; Wechsler Abbreviated Scale of Intelligence at age 16/17): At 3 years (corrected) the program group had significantly higher IQ scores (mean difference of 13.2 for heavier group and 6.6 for lighter group). At 5 years, significant differences in IQ were found for heavier birth weight group only, however, the mean difference reduced to 4.2 points. At age 8, significant differences in IQ were again found only for heavier birth weight group (mean difference of 4.4 points).
- **Behavioral competence** (CBCL at age 3, 5, 8 and 16/17; Behavior Rating Profile; Psychological Examination Behavior Profile at age 8): At age 3, children in the intervention group (primarily heavier birth weight) had significantly less behavior problems and were less likely to fall within clinically significant levels. This difference was not significant for infants with mothers who had a college education. No differences at age 5.
- **Health status** (Overall Morbidity Measure; Morbidity Index; Serious Morbidity Index; Maternal perception of child health status, Functional Status II(R) Scale): At age 3, the lighter birth weight children in the intervention had slightly higher morbidity scores than lighter birth weight children in the control group (this finding was totally accounted for by non-serious, acute illnesses). No differences at age 5. Less favourable physical functioning at age 8 was found in the intervention group.
- **Academic achievement** (PPVT-R at ages 3, 5 and 8 and 16/17; Developmental Test of Visual-Motor Integration; Ray-Osterrieth Complex Figure; Matrices and Wide Range Assessment of Memory and Learning (WRAML); parent report of school performance at age 8; Woodcock-Johnson Tests of Achievement-Revised at age 8 and 16/17): The intervention group scored significantly higher on the PPVT at age 3, however, the difference was not significant at age 5 for the total sample but was for the heavier birth weight group. At age 8, the heavier birth weight intervention group had significantly higher scores on math achievement and receptive vocabulary (mean differences of 4.8 and 6.7, respectively).
- **Mother child interactions**: Marginally better in program group at age 30 months.
- **Maternal employment** (months employed): Program group mothers employed for significantly more months and returned to work earlier. However, this was only in the lighter birth weight group and for mothers with a high school degree or less (months of employment) or with a higher education (returning to work earlier).
- **Welfare use** (months receiving assistance): No differences.
- **Maternal education** (months in schooling): No differences.
- **Subsequent pregnancies**: No differences.
- **Receipt of public medical insurance**: No differences.

**References**


**SYRACUSE FAMILY DEVELOPMENT RESEARCH PROGRAM (FDRP)**

**Program location:** Syracuse, NY, USA

**Date program was run:** 1969 to 1975

**Population receiving the intervention:** Young, African-American, single parent, low income families in the early stages of last trimester of their first or second pregnancy.

**Anticipated benefits:**

- Improved cognitive and emotional functioning.
- Positive outlook among children.
- Decrease in juvenile delinquency.
**Families:**
- Better parenting.
- Improved home environment.
- Improved parent autonomy and self-sufficiency.

**Society:**
- Decrease in rates of crime.

**Time frame for anticipated benefits:** Short term impacts on the child, family and home, leading to long term enhancement of child development through parent strategies learnt in the program.

**Size of program:** single site, 108 children started the program, however, only 82 completed the full 5-year program, 74 controls remained at the end of the program.

**Intervention site:** Home visits, full-day child care, parent training.

**Intervention strategy:**
- The program was run in conjunction with Syracuse University Children’s Centre preschool program. The program provides a full range of education, nutrition, health and safety and human services resources.
- Home visits were seen as the key component of the intervention. They were conducted by paraprofessionals beginning prenatally and the mothers were the focus. These visits focused on increasing family interaction, cohesiveness and nurturing. Parents were taught ways to nurture child development and play games during daily routines. Visitors also offered positive support to mothers, assisted families in solving problems and offered assistance with other support services. A toy and book library was also available to families.
- Child care was based at the Syracuse University Children’s Center. From 6 to 15 months, infants received half-day child care with a staff-child ratio of 1 to 4. Carers provided a number of experiences including responsive, loving attention, motor activities, cognitive activities and sensory stimulation.
- From 15 to 18 months children attended full day child care in a transition group that encouraged self feeding, autonomy and choice of materials, as well as providing comfort and emotional support.
- Infants aged 18 to 60 months attended full day child care that emphasised the development of cognitive and social skills through unstructured learning environment, as well as developing motor skills. Freedom of choice and responsibility were fostered, as were expectations of success, fairness and internal motivation. Children were in multi age groupings and had free access to four areas – large muscle area, small muscle area, sense-perception area and creative expression and snack area.
- Parents were provided with information about their child’s day at care via “Memo to Mommy” – a note safely pinned to each child outlining new skills, friendships and other positives. Transport to the centre was provided.
- Parents participated through a formal parent organization that met monthly. Weekly conference calls were also held between staff and parents. Occasional social nights were held, and the centre had an annual Open House.
- All staff (including aides, drivers and cooks) received two weeks of intensive training each year. This training focused on children development, observation skills and encouraged staff motivation. Weekly staff meetings and short daily learning sessions were also conducted.

**Intervention intensity:** Services began in the third trimester and continued to age 5. Home visits were weekly for the entirety of the program. Centre based care was for five half days per week when infants were 6 to 15 months and full day, 5 days a week for 15 to 60 months. The centres operated for 50 weeks of the year.

**Program cost:** The cost per participant was US$18,037 in 1997 dollars. Aos et al (1998) calculated that the total benefits were US$7795 (although this included benefits of deceased criminal activity only) resulting in a total net cost of US$10,242 to taxpayers. Lally, Mangione and Honig collected cost data for juvenile delinquency via interviews with fiscal officers from various agencies. They found that the total costs for the intervention group was $12,111 compared to $107,192 for the control group. They also state that, given the age of the participants at the last follow-up, the criminal costs of the control group compared to the intervention group will continue to rise.

**Evaluation methodology and adequacy:**
- Longitudinal study with a matched comparison group selected at 36 months. The control group was matched on age, sex, race, birth order, family marital status, maternal age, maternal education and SES at the time of birth. 108 children began the intervention, 82 completed it. 74 control children were available at completion of the program. Results have been examined separately for males and females.
- Attrition: Nine years after program completion (age 14/15), 79 per cent of the intervention group and 73 per cent of the control group supplied consent. Data was able to be collected from 49 program children and 39 controls (although parent data was collected for 51 program and 42 controls). The follow-up sample did not differ from the original sample on a series of observed indicators – child IQ at age 4, maternal education at age 5, maternal age at birth, presence of father figure and annual income at age 5.
- **Limitations:** Non random attrition and delayed matched control design.

**Follow-ups:** age 3, age 5, age 14/15

**Evaluation data:** At kindergarten age, program children demonstrated higher social emotional functioning and significantly more program children achieved an IQ score greater than 89. In first grade, program children continued to be more positive with peers, but were both more positive and more negative toward teachers. Program children also made less aggressive threats and expressed less criticism. At age 14/15 significant program benefits for girls in academic achievement...
and significantly less delinquency among program participants. No program benefits for school functioning or academic achievement were found for boys.

**Measured outcomes (including measures employed):**
- **IQ** (Stanford-Binet): Significantly higher IQs among program group at ages 3 and 4, however, no difference between groups at age 5. At kinder age, more children in the intervention group achieved an IQ score of above 89.
- **Cognitive skills** (Illinois Test of Psycholinguistic Ability): Intervention group scored significantly higher on the Illinois at age 4 and age 5, however, no differences remained at age 6.
- **Academic achievement and school functioning** (school records, teacher ratings): Program effects on school functioning were not evident until entry into junior high. At age 15, the program group was rated higher on achievement by teachers, had higher grades (76 per cent vs. 47 per cent of girls achieved grades of C or greater) and greater attendance than controls. However, these findings applied to girls only. At age 15, more of the intervention group said that they could see themselves in school in 5 years time, while more of the control group said that the worst thing about school was the trouble one could get into. No differences were found in grade repetition or receipt of special education services.
- **Delinquency** (court records, Probation Department records): At age 15, there were significantly lower rates of delinquency among program group and of those involved in crime or delinquency, the crimes of the control group were much more severe (no violent crimes in intervention group), fewer probation records – 6 per cent vs. 22 per cent and lower criminal justice system costs per child - $186 vs. $1985.
- **Socio-emotional outcomes** (Emmerich Observer Ratings of Personal-Social Behaviors): The social emotional functioning among program group was superior at age 3 and age 5 (more relaxed, affectionate, social and less passive, destructive and unhappy). During the first year of school, the social emotional functioning of the program group changed; they were both more negative and more positive toward adults than the control group. The intervention group was less likely to criticize or make aggressive threats toward other children in first grade, but also smiled and laughed less and made more negative bids to teachers.
- **Maternal education** (high school completion during intervention period): More program mothers completed high school.
- **Personal qualities** (teen interviews, teacher report): More of the intervention group reported liking their physical (significant) and personal (trend) attributes and more of the intervention group said that there was nothing about themselves that they disliked. Teachers reported that program girls had more positive attitudes toward self and others and were better able to control their impulses.
- **Family situation**: The program had no impact on family impact or parent career advancement. Families still lived in poverty and in what they perceived to be as dangerous neighbourhoods.

**References**

**STARTING EARLY, STARTING SMART (SESS)**

**Program location**: Multiple sites, USA

**Date program was run**: 1997-2001

**Population receiving the intervention**: Children aged 0 to 5 at high risk of delayed social-emotional, cognitive and physical development due to family risk factors such as parental substance use, poverty and immigrant background and their families.

**Anticipated benefits**: 
- **Children**: Improved social-emotional development. Improved language development.
- **Families**: Improved parent behavioural health. Improved family functioning. Improved access to, and use of, services.
- **Society**: Improved primary child health and early childhood centres.

**Time frame for anticipated benefits**: not found

**Size of program**: 12 projects were funded. A total of 2,907 children participated in an SESS program, almost half were African-American. The remaining 54.9 per cent of participants were from a range of backgrounds including Anglo, Hispanic, Asian and Native American.
Intervention site: Combination: centre based, some home visiting.

Intervention strategy:
- SESS is a national public-private partnership and a knowledge development initiative. The SESS programs were run in primary health care centres (n = 5, children were predominantly under 2 years) or early childhood settings (n = 7, 5 were Head Start settings, children were predominantly aged between 3 and 5). Each program was adapted to suit the local context, but provided common components: parent, family and child services to support positive child development. The programs involved families in identifying needs and developing solutions. SESS aimed to blend their services into the existing service setting and make the existing setting more responsive and sensitive. There were four main components in the SESS service package – behavioural health services for children (e.g. learning stimulation, opportunities to promote social-emotional and cognitive development); behavioural health services for parents (e.g. substance use treatment, parenting skills); behavioural health services for families (e.g. positive interaction skills, conflict and stress reduction, family therapy) and family support, advocacy and care coordination.
- The programs aimed to develop close ties with families and support parents in developing the necessary skills and confidence in advocating for their children. Each family had a care coordinator, who was a paraprofessional who maintained frequent contact with the family either by telephone or in person. The care coordinator identified needs and arranged for direct service provision by SESS staff or assisted in accessing outside resources.
- A large part of the program involved assisting the primary health care and early childhood centres to strengthen their capacity to be caring, respectful and non-stigmatising services for families. Centres were seen as an ongoing resource (including ongoing assessment, service and support) that was sensitive to family need and emphasized the importance of child social-emotional development. Therefore, SESS programs formed interactive partnerships with the centres in which they were based and provided training for centre staff. The SESS programs also worked to develop strong links between families and the centre.

Intervention intensity: Varied according to individual need.

Program costs: The project has met with cost and outcome analysis experts, but no analyses have been conducted yet. An overview and application document has been published by Karoly et al. No cost data was collected during phase one, but will be collected during phase two.

Evaluation methodology and adequacy:
- The evaluation involved 1,598 families participating in an SESS program and 1,309 families in control groups. The program involves 12 sites – 6 have random assignment intervention and control groups and 6 have quasi-experimental intervention and comparison groups. Each site had a comparison sample who were receiving the standard service.
- An evaluation was conducted of all 12 sites and involved a repeated measures design, with at least 3 repeated outcome measures and 5 repeated service use measures. The evaluation was designed and overseen by the SESS steering committee, funding representatives, the Data Coordinating Centre and family representatives.
- Attrition: 71.6 per cent of families were retained at the final follow-up.
- Analytic procedures – repeated measures MANCOVA analyses were conducted generally. SEM, hierarchical linear modeling and growth curve techniques were applied as appropriate. Significance levels were not reported.

Follow-ups: Three or four follow-ups on family and child outcomes were conducted over an 18 month period. Follow-ups of service utilization was more frequent.

Evaluation data: The SESS programs successfully increased access to, and continued use of, services. There was a decrease in drug use among parents who exhibited problematic use, a reduction in parent verbal aggression and a decrease in parental stress for parents with high stress levels. An increase in positive interactions between parents and children was also noted in the intervention group at 6 and 12-month follow-ups (feeding interactions at 6 months and free play interactions at 12 months). The improvements in free play interactions were sustained to 18 months for the two programs that worked most closely with infants and parents.

Measured outcomes:
- Parental substance use (Addiction Severity Index): The program resulted in a sustained decline in drug addiction among SESS parents, as compared with those in need of treatment – however, this finding applied to primary health care sites only. No difference was found in alcohol addiction.
- Access to and use of services: There was a delayed, but significant, increase in access to, and use of, adult mental health services, although the difference in practical terms was small. The program families consistently accessed more parenting services. Families accessed child mental health services more at the 1st follow-up, but the control group caught up by the 3rd follow-up.
- Parent mental health: No differences.
- Family functioning (The Conflict Tactics Scale): There was a decrease in verbal aggression used by intervention parents, as well as an increase in verbal aggression by control parents.
- Parent stress (Parental Stress Index – Difficult Child Scale): Of the families that demonstrated clinically high levels of stress at baseline, the intervention parents were less likely to rate their child as difficult.
- Parent-child interactions (Assessed infants and parents only, using videotaped scenarios were assessed using The Nursing Child Assessment Satellite Training instrument to rate parent positive responsiveness during feeding and teaching and the NICHD scales to rate parent responsiveness during free play): Improvements in parent-infant interactions were noted in the intervention group at 6 and 12-month follow-ups (feeding interactions at 6 months and free play interactions at 12 months). The improvements in free play interactions were sustained to 18 months for the two programs that worked most closely with infants and parents.
Parenting and home environment (Parental Discipline Methods Index; HOME): The use of appropriate discipline methods and positive reinforcement increased for the program group between baseline and the 1st follow-up, however, effects were not sustained after leaving the program. There was an increase in learning stimulation in the home environment at the 1st follow-up, but this effect was not sustained.

Social emotional child development (Age 3 and over – Preschool and Kindergarten Behavioral Scales rated by parents and teachers): Teachers rated intervention children as demonstrating a sustained decrease in externalizing and internalizing classroom behaviours. No difference in parent report.

Cognitive development (For preschoolers only – Clinical Evaluation of Language Fundamentals for Preschoolers (CELF-P)): Statistically significant difference in gains in language. Although the language of both groups improved, the language of children in the intervention group improved at a steeper rate.

References
Springer, J. et al. (2003), Starting Early Starting Smart final report: Summary of finding, Casey Family Programs and the Department of Health and Human Services, US.
Casey Family Programs and the U.S. Department of Health and Human Services (2001) The Starting Early Starting Smart story, Casey Family Programs and the U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Washington D.C., US.

EVEN START

Program location: Over 1,000 sites in all states of US
Date program was run: 1989 - ongoing
Population receiving the intervention: Low-income families, with educationally disadvantaged parents, and with children aged 0-7 years
Anticipated benefits:
Children:
- Improved literacy and education experience
Families:
- Break cycle of poverty and illiteracy
Society: Not applicable
Time frame for anticipated benefits: Expect improved literacy outcomes during and immediately following program completion, and literacy levels closer to normative scores in primary school.
Size of program: Serving 32,000 families.
Intervention site: various

Intervention strategy:
- The underlying premise of the program is that families need four core instructional components; (1) early childhood education, (2) parenting education, (3) adult education, and (4) parent-child joint literacy activities. These four core services are provided in a unified program.
  This includes:
  - Interactive literacy activities between parents and children (parent-child activities).
  - Training for parents regarding how to be the primary teacher for their children and full partners in the education of their children (parent education).
  - Parent literacy training that leads to economic self sufficiency (adult education).
  - An age appropriate education to prepare children for success in school and life experiences (early childhood education).

Intervention intensity:
Adult education
- Majority is centre based, where adults attend classes at the same time as children attend Even Start classes. Varies in intensity from 2 to 4 days per week, and 2 to 3 hours duration.
  One site (from the 18 evaluated in the experimental evaluation) offered home based education, where an adult educator worked individually in the home weekly or biweekly.

Parent education and parent-child activities
- Multiple service delivery modes depending on the site or family needs.
  - Group parenting classes, or, individualised parent education conducted in the home.
  - PACT time (Parent and Children Together) as part of early childhood education classes.

Early childhood education
- Multiple service delivery types depending on site.
  - Early childhood education classes for preschool children run at Even Start site, or, attendance at other community programs such as Head Start or Early Head Start, or district preschool.
  - Minimum 2 hours per day, up to 3 or 4 hours, and some offered all day.
  - Four or five days per week.

Program cost: Comprehensive costing is available in the third evaluation. The Even Start project began as a demonstration project in 1989 with funding of 14.8 million US. In 2000-2001, $150 million was distributed to all 50 states, and 32,000
families participated. Funding rose to $250 million in 2001-2002. Annual expenditure per family has changed each year. Highest in 1989 at $6204 per family, to lowest in mid 1990s of $2,965. This occurred due to increasing numbers of families served each year. In 2000-2001, expenditure per family was $4,708. There are variations in expenditure across states.

**Evaluation methodology and adequacy:**
- Three large-scale evaluations conducted. The third evaluation included an experimental design study of 18 Even Start projects. In addition to the outcomes for families, the evaluation examined the method of delivery of Even Start at the 18 sites, including the way projects were organised and offered to families.
- The evaluation was conducted on 463 randomly assigned families. The control group (n = 154) could not participate in Even Start for one year. Program and control groups were equivalent in demographic characteristics.
- Statistical power threat. The small sample size reduced the power to detect smaller effects, and it is questionable whether large literacy effects would be evident in the short time frame.
- Attrition threat due to high drop-outs. Attrition rates at follow-up were quite high with measures available for approximately 75 per cent of families.
- Participation threat due to low program adherences. Less than 60 per cent of families remained in the program after 7 months.
- Implementation threat due to high variability and non-standardised programs, making the program’s effectiveness impossible to ascertain.

**Follow-ups:** The experimental study research design that was used was pre-test, post-test, and 1-year follow-up. However, follow-up data was collected for 11 sites only, and the evaluation provides outcomes on the pre-test, post-test data only, with no follow-up outcomes reported.

**Evaluation data:** Three large-scale evaluations completed, the experimental design study (third evaluation) is reported on here. Key Findings:
- Even Start children and parents improved in literacy assessments and other measures, but did not gain more than children and parents in the control group, about one-third of whom also received early childhood or adult education services.
- Even Start have serviced their targeted group, being severely disadvantaged families, with almost half of parents having less than a 9th grade education.
- Even Start children and parents made gains on literacy measures, but scored low compared to national norms when they left the program.
- Even Start children made similar gains on the Peabody Picture Vocabulary Test as the control group children.
- Families do not take full part in all the services offered by Even Start, even through their needs are high. For example in 2000-01 only 30 per cent of the adult education component offered was utilised, only 24 per cent of parent education, 25 per cent of the parent-child education, and 30 to 62 per cent of the child education (depending on child's age).
- The classroom experiences did not place sufficient emphasis on language acquisition and reasoning to achieve higher impacts than the early childhood education received by the control groups.
- Teacher in centre-based classrooms attended by Even Start and control children reported similar literacy activities.

**Measured outcomes and findings:**

**Educational and Literacy Outcomes:**
- No significant program over control group gains were found in the pre-test post-test comparisons using the following measures: (Peabody Picture Vocabulary Test; Woodcock-Johnson Psycho-educational Battery (Revised); Story and Print Concepts; Vineland Adaptive Behavior Scale – Communication Domain; Parent Report of Child Literacy).

**Parent Outcomes:**
- No significant parent outcomes using various measures of parent literacy, parent literacy at home, parent-child reading, and literacy resource in the home.

**References**

**COMPREHENSIVE CHILD DEVELOPMENT PROGRAM (CCDP)**

**Program location:** 24 sites throughout the US. Evaluated in 21 sites, 13 urban and 8 rural.

**Date program was run:** 1990 - 1995

**Population receiving the intervention:** Families at or below the US federal poverty line. The family must include a pregnant woman or child less than 1 year of age, and must be willing to participate in the project for five years

**Anticipated benefits:**
Children:
- Improvements in child’s social, emotional, and behavioural domains
- Improvements in child’s health and wellbeing
- Improved cognitive capacity and academic outcomes

Families:
- Improved employment opportunities and security.
- Improved parenting skills, parent-child interactions, and family processes
- Improvements in adult psycho-social wellbeing.

Society:
- Reduction in social burden that arises from family dysfunction and disadvantage
- Increased utilization of community services
- Better housing and reduced homelessness
- Reductions in welfare

Time frame for anticipated benefits: Five years

Size of program: 4410 families, randomly assigned to program and control groups.

Intervention site: The CCDP consisted of the delivery of a core set of services to all families by CCDP staff, and case management conducted via home visiting.

Intervention strategy:
- Relied on indirect pathways through services delivered by CCDP staff during home visits: Relied heavily on family case managers. Some services were delivered directly by some case managers, or, families were referred to outside community services, or, case managers brokered family services. Case Managers also provided crisis intervention.

Intervention intensity:
- Case managers conducted biweekly 30 to 90 minutes home visits for each family. These sessions included assessment, service planning, counselling, and referral to community services. A family needs assessment was conducted within three months, and subsequently every six months thereafter.

Early Childhood Education
- The CCDP projects were mandated to ensure all children received developmentally appropriate early childhood education.
- Some services were provided through home visits by an early childhood educator, others were provided through childcare centres. The early childhood workers typically focused on teaching parents.

Parenting Education Classes
- Families also received parenting education from supplementary methods including classes and workshops.
- All CCDP projects offered child care and transportation costs to assist parents in attending workshops.

Developmental Screening
- Screening was mandated for all children under school age.
- More comprehensive testing was available to those children exhibiting signs of developmental delay.

Referred Services
- Case managers referred or brokered services. These included adult literacy, vocational, employment counselling, job placement and training, language classes, substance abuse, and health care services.

Program cost: The initial funding authorized was $25 million per year for five years, an additional $50 million was provided to fund one more year of services and provide quality improvements to the CCDP.

Evaluation methodology and adequacy:
- The evaluation was based on studies conducted in 21 of the 24 project sites. Families were randomly assigned to either the program group or control group.
- Potential assignment threat is evident. The random assignment was conducted independently by each site, but 18 of these sites used their own system for randomisation. This is a major flaw in the design.
- Condition bias evident. The control group was not a no-services group; they were free to avail themselves of any community services, but not CCDP case management.
- Attrition and participation threats are problematic in this program. CCDP families were expected to participate for five years. Only 33 per cent of the original participants remained in the program after five years, 15 per cent stayed for four years, 34 per cent for one to three years, and 18 per cent for less than one year. Thus, the families who remained in the program for the five years were most likely to be highly motivated. As an incentive to remain in the evaluation, families in the control group were paid $100 per year for their participation in the child assessments and interviews. Program families were not paid for their participation. Overall, 74 per cent of program families and 78 per cent of control group families were evaluated. Statistical tests suggested there were no important demographic differences between the program and control families who remained in the study.
- Assessments were conducted by trained assessors, who were blind to the families’ group status. Child outcomes were assessed through direct assessment and in-person interviews. Parent outcomes were assessed primarily through self-report.
- Implementation threat was evident as the program was not delivered rigorously or consistently and program delivery was not standardised.

Follow-ups: Five-year outcome data
Evaluation data: The evaluation of the CCDP on 21 sites, with 4410 families found no statistically significant effects on CCDP families, when compared with control group families, in either child outcomes or parent outcomes. The results of this study suggest that case management, delivered via home visits, is not an effective means of improving outcomes for families. This failure to achieve a positive effect was contributed to by shortcomings in the program design and delivery, and should not be attributed to ineffectiveness in early intervention.

Measured outcomes and findings:

Child Outcomes - Cognitive and Intellectual
- No significant differences between program and control groups in measures of cognition and intelligence.
- On the Peabody Picture Vocabulary Test both the program and control groups scored below norms, and had the same rate of development over the five years.
- On the Kaufman Assessment Battery for Children, both program and control groups scored between half and one standard deviation below the norm, and there was no program effect over time.

Child Outcomes - Social and Emotional
- No effect for program group.
- On the Child Behavior Check List program and control groups scored higher than the norm at 2 years of age. At age five, both groups had shown similar levels of improvement, and the mean was within the range of normative scores.
- The Adaptive Behavior Inventory showed no significant difference between the program and control groups.

Child Outcomes - Developmental and Health
- The Developmental checklist revealed a statistically significant effect, favouring the program children, but the size of the effect was only 0.06 of one standard deviation, suggesting that there is no clinical significance.
- No differences were seen in use of preventative health care or dental care.

Parenting Outcomes
- Adolescent-Adult Parenting Inventory showed no difference between the program and control groups at five years.
- The two measures of home observations of parent-child interactions revealed no significant differences between the groups.

References

INCREDIBLE YEARS

Program location: US origins, now also in UK
Date program was run: Commenced 1982 - ongoing
Population receiving the intervention: Families at high risk. Used as prevention in school, through to clinic-based treatment for children displaying conduct problems.

Anticipated benefits:
Children:
- Decrease problems behaviours including aggression, non-compliance, and disruptive classroom behaviour
- Improve children’s social skills, conflict management skills, and decrease negative attributions.
- Increase children’s academic engagements, school readiness, and cooperation with teachers
Families:
- The parent training aims to strengthen parenting competencies in behaviour management and parenting skills
- The program also fosters involvement with children and improved parent-child interaction
Society:
- Prevent delinquency, drug abuse, and violence

Time frame for anticipated benefits: Benefits evident at post-treatment and maintained through to follow-ups several years later

Size of program: There are several peer reviewed evaluations. For example:
- 2003 study based on 159 children with oppositional defiant disorder; 2001 study based on 634 families, across 23 Head Start centres; and 2001 study based on 272 families.
**Intervention site:** Several modes, either clinic, pre-school, or school.

**Intervention strategy:**
- There are several versions of the Incredible Years program, depending on the age and needs of the child, and the location of treatment. The core program is the basic behavioural parent-training program, which aims to teach parents effective parenting strategies. It includes instruction in discipline, effective parenting, strategies for coping with stress, and ways to strengthen children’s social skills.
- The Incredible Years Dinosaur Social Skills and Problem Solving Curriculum is a child training program, which aims to address the social skills of children who have conduct problems, an area not traditionally covered in standard parent training programs.
- The Incredible Years Teacher-training curriculum focuses on teaching behaviour management strategies for use in the classroom, including discipline strategies, and positive management.

**Intervention intensity:**

*Basic Incredible Years Parenting Program*
- The program has strict delivery guidelines and trainers follow a manual.
- Facilitators receive regular supervision to ensure the integrity of the program is maintained, and are trained in social work, psychology, or human services.
- The program runs for 12 weeks, and consists of weekly parent group meetings.
- Group meetings include video taped modelling, group discussions, problem solving, and family management.
- The program is run when children are approximately 4 years old.
- Four booster sessions are offered in the kindergarten year.

*Incredible Years Dinosaur Social Skills and Problem Solving Curriculum*
- A child training intervention, which aims to address interpersonal difficulties encountered by children who have conduct problems.
- Children attend clinic based sessions in small groups for 18-22 sessions.
- The program has strict delivery guidelines to ensure integrity and a treatment manual is followed.
- The program is delivered by trained therapists and supervised by leaders with a doctoral or masters qualification.
- Regular supervision is provided to therapists to maintain integrity of the program.

*Teacher Training*
- Teachers are instructed on the prevention of peer rejection by helping children learn effective problems solving strategies.
- Videotaped modelling is used to train teachers in classroom behaviour management, followed by discussion groups.

**Program costs:** Training costs for facilitators are provided on the Incredibly Years website ($400 US per trainer), plus program material costs (video, manual, etc).

**Evaluation methodology and adequacy:**
- Several studies have shown the outcomes of the Incredible Years interventions. They use quasi-experimental design, with participants randomly assigned to either the treatment or control groups.
- The peer reviewed studies that have published outcomes of these program show the program was delivered with a high degree of integrity. Trained therapists follow strict program guidelines and the programs are delivered in the same manner across participants, with reliability checks. Trainers receive supervision to ensure content of program and techniques in the intervention manual are adhered to.
- Standardised measures used throughout the evaluations.

**Follow-ups:** Up to 2-years

**Evaluation data:** Several peer-reviewed studies have shown that the Incredible Years program is effective in reducing behaviour problems in children, and improves parent interactions with their children. For example:
- A 2-year outcome study of 159 children with oppositional-defiant disorder showed that 75 per cent of the children were functioning within the normal range.
- A one-year follow-up study with 634 low-income families showed that mothers were more positive, less critical, and more consistent in their parenting than control group mothers; and their children exhibited fewer behaviour problems than the control group children at post-treatment.
- A study of 99 children using the Incredible Years Dinosaur Social Skills and Problem Solving Program found significant improvement in aggression and non-compliant behaviour, with a 1-year follow-up showing that most of these changes had been maintained.
- The program has been replicated by independent investigators, with results showing reduced problem behaviours and improved positive behaviours.
- The Incredible Years has been selected as a model program by the US National Registry of Effective Prevention Programs (NREPP). The program has also been selected as a blueprint program for dissemination by the US Office of Juvenile Justice and Delinquency.

**Measured outcomes and findings:** Results from a study of 634 low-income families:

*Child Outcomes at post-treatment*
- Reductions in child deviance, non-compliance, and oppositional behaviour as measured through home observations by trained observers using the Dyadic Parent-Child Interactive Coding System (effect size $0.02$, $p<0.001$).
Reductions in child conduct problems as measured by the Coder Impression Inventory (effect size .017, \( p < .01 \)).

At one year follow-up these changes were not maintained, it is argued that this is likely an outcome of using clinical measures on children who were not in the clinical range, a difficulty commonly experienced in prevention science.

At 1-year follow-up significant reductions were seen in parental harsh discipline as measured by the Parent Practices Interview (effect size .042, \( p < .001 \)); changes were also seen in parental management although the effect sizes were small (positive interactions (effect size .019, \( p < .01 \)); parental commands, effect size .012, \( p < .05 \), parent critical, effect size .012, \( p < .05 \)).

Results of the Incredible Years Dinosaur Social Skills and Problem Solving Curriculum:

At one year follow-up, 70.5 per cent of children showed clinically significant improvement

80 per cent of the children classified as ADHD at baseline became classified as non-ADHD at follow-up

Child conduct problems had improved significantly (\( p < .001 \)) as measured by the WALLY test of child social problem-solving skills.

Results of a 2-year outcome study of 159 children with oppositional-defiant disorder:

75 per cent of the children were functioning in the normal range according to both parent and teacher reports

There was statistically significant change in the behaviour measure for parents and children at the 2-year follow-up, with moderate to large effect sizes (.46 to .77).

Clinically significant change was shown in 36.4 per cent to 53.3 per cent of children, at 2-years follow-up.

Teacher training added significantly to the long-term outcomes.

References

EARLY CHILDHOOD EDUCATION AND ASSISTANCE PROGRAM (ECEAP)

Program location: Washington, USA
Date program was run: 1985 to current
Population receiving the intervention: 3 and 4 year old children (not enrolled in kinder) and their families who have been living in poverty for the last 12 months. Priority is given to 4 year-olds. Ten percent of positions are available for children who do not live in poverty but are at risk for school failure due to some other reason such as developmental delay.

Anticipated benefits:
Children:
- Establish high expectations for success, resulting in positive self-image for present and future learning.
- Enhanced cognitive skills.
- Positive development of social and emotional wellbeing.
- Enhanced physical and mental health.
- Enhanced sense of dignity and self-worth.

Families:
- Increase in self-sufficiency.
- Increased knowledge of health and nutrition.
- Enhanced family communication and community participation.
- Empowered to improve parenting, literacy and job skills, as well as knowledge of and access to resources.

Society: Not applicable

Time frame for anticipated benefits: short term and long term
Size of program: 260 sites; over 90,000 children have attended the program since it began.
Intervention site: Centre based, home based or locally designed.

Intervention strategy:
- ECEAP is a comprehensive, family-centred, community-based pre-kinder program. The program includes four interactive components: education, health and nutrition, parent involvement and family support.
- Education: Centre based learning environment that fosters intellectual, social, physical and emotional growth. Problems that may interfere with learning and school success are identified and intervened in early. This part of the program also
aims to make the transition to kindergarten easier for children and foster success in primary school. Children also receive at least one meal a day.

- **Health and nutrition:** Health screenings (medical, dental, mental and nutritional) are provided within 90 days of enrollment. Needs are evaluated and if health problems are found, an appropriate referral is made. Immunisations, fluoride treatments and nutrition information are also available.
- **Parent involvement:** Parents are encouraged to volunteer in the classroom and participate in decision making through the parent run policy councils. Parent skills training and support groups are provided according to need.
- **Family support:** Needs are assessed and families are assisted in identifying appropriate community resources. Skill development training in parenting, leadership and self-sufficiency is also available.

**Intervention intensity:** The education component is offered part year (minimum of 3 weeks) for half-days; however, it is often integrated into full day child care. Children typically receive the intervention for one year.

**Program costs:** The average cost was US$3,716 per child in 1996-97.

**Evaluation methodology and adequacy:**

- The program has been externally evaluated with a quasi-experimental longitudinal study that ran from 1988 to 2000 (12 years). 1,358 four year old children receiving ECEAP were randomly recruited to the study through one of three cohorts. A comparison group of 322 children eligible for ECEAP, but who did not participate, was recruited in 1991. The comparison children were recruited from schools attended by ECEAP children. The groups were matched on age, gender, ethnicity and primary language; however, the groups differed significantly on poverty rates, with higher poverty rates in the intervention group.

- Attrition was over 50 per cent. Not all cohorts were measured at all follow-ups (e.g. only Cohort 3 was assessed at the 10 year follow-up).

**Follow-ups:** 11 years post intervention (results only available to 10 years).

**Evaluation data:** This review focuses on the year 8 and year 9/10 follow-up which focus largely on economic wellbeing. The decrease in the number of families living at or below the poverty line was greater for the intervention group than the control group. A greater percentage of families in the intervention group earned wages in years 9 and 10 and fewer received public assistance. However, poverty rates were still higher among the intervention group than the comparison group and in general, the economic condition of families continued to be adverse more than 10 years post intervention.

**Measured outcomes and findings:** All outcomes were measured through one of more of the following: Parent Interview Form (PIF), Adolescent Self-Report Survey (ASRS), Family Participation in School Activities (FPSA), Student Information Form (SIF), Student Behavior Inventory (SBI) and School Archival Record Search (SARS). The latter three were gathered from teachers. This review focuses on the year 8 and year 9/10 follow-ups which focused largely on economic wellbeing.

- **School outcomes** (adjustment to school, attendance, progress, special education, child perceptions of school): At the 8 year follow-up the intervention group demonstrated a steady increase in academic progress compared to the comparison group.
- **Cognitive development:** not found
- **Physical development:** not found
- **Family relationships:** not found
- **Behaviour:** Intervention children consistently scored higher on positive classroom behaviours.
- **Family wellbeing:** not found
- **Parent support of child and participation in their education:** Intervention parents were significantly more involved in their child’s outside school activities.
- **Income and welfare use:** At the nine year follow-up, 52 per cent fewer intervention families were at or below the poverty line compared to 21 per cent fewer comparison families. This pattern continued at the 10 year follow-up (cohort 3 only). However, more intervention families than comparison families continued to be at or below the poverty line (an artifact of pre-existing group differences). There was an increase in families who earned wages at years 9 and 10 and a decrease in receipt of public assistance.

**References**

Northwest Regional Educational Laboratory (1999), *An investment in children and families. Year 8 longitudinal study report*, Northwest Regional Educational Laboratory, Child and Family Program, Oregon, US.

Northwest Regional Educational Laboratory (1999), *An investment in children and families. Years 9 and 10 longitudinal study report*, Northwest Regional Educational Laboratory, Child and Family Program, Oregon, US.


**BETTER BEGINNING, BETTER FUTURES (BBBF)**

**Program location:** 5 communities (Guelph, North Kingston, Southeast Ottawa, Toronto and Walpole Island), Ontario, Canada

**Date program was run:** 1991 to 1998 (program was given permanent funding and thus continued, however, this review focuses on the demonstration program)
Population receiving the intervention: Prenatal to 4 years, low income, neighbourhoods at high risk for poor development (also run programs at 3 different sites for 4-8 years, this review focuses on 0-4 years)

Anticipated benefits:
Children:
- Reduced emotional and behavioural problems.
- Enhanced social, emotional, behavioural, physical and educational development.

Families:
- Strengthened abilities of parents and families to respond effectively to children’s needs.

Society:
- Development of high quality programs for children and families that respond effectively to the local needs of the neighbourhood.
- Participation of neighbourhood parents and citizens as equal partners in all aspects of the programs (design, implementation, conducting).
- Partnerships established with existing and new service providers and program activities coordinated.

Time frame for anticipated benefits: not found

Size of program: 25-year longitudinal prevention policy research demonstration project. Run in 8 communities. There are approximately 3785 children in these 5 communities; the program is available to all.

Intervention site: Varies from site to site – home visits, groups for children and adults.

Intervention strategy:
- Five dimensions to each program: Focused programming, creating partnerships, empowering resident participation, community development and building a project organization. The five programs differed in the emphasis placed on each dimension.
- Guelph program involves family visiting, programs for preschoolers and parents (including playgroups, drop-ins, Books for Birthdays, Kindergarten readiness, a toy library and parent workshops), direct support for community development, recruitment and training of community leadership. They also have an independent resident’s association that influences program development.
- North Kingston program involves family visitor program that provides information on all phases of healthy child and infant development; perinatal and postnatal support that includes weekly prenatal sessions, infant groups, parenting workshops and dissemination of information; child care provision including child care during meetings and program participation, parent relief and assistance for existing preschool programs; good food box; hot meal program; playground equipment fundraising committee; food buying club; low income needs coalition; Christmas referrals; and special events.
- Southeast Ottawa program involves a family visitor program that emphasizes provision of support and information, linking parents with resources, crisis intervention and practical assistance and advocacy; playgroups (4 days per week); community nurse who runs two groups that provided child health-related education; mobile toy lending library; subsidized child care; parents workshops and respite for parents. Other community activities: clothing exchange, sewing crafts group, women’s group and food buying club.
- Toronto program involves community visitor program that involves one-to-one visits with expectant mothers, and families of young children – visitors provide support and prenatal/child development information, make referrals and advocate for families; education and support for parents including prenatal nutrition and support groups; parenting groups and workshops; parent relief; playgroups; play and learn resource centre; family drop-in. Community activities include special events, community clean up and BBQ; womens’ group, outreach, advocacy.
- Walpole Island involves community development and community healing programming including native language instruction; child and family focused programming including home visits to provide support and resources, parent/child support program, children’s centre; family resource drop-in centre providing playgroups, monthly parent workshops and information sessions; outdoor playgroup and monthly food box draw.

Intervention intensity: Home visits provided from birth to 3 years. Preschool programs provided for ages 3 and 4; however, families did not always receive seamless services for 5 years.

Program costs: Cost of approximately $1400 (1997 Canadian dollars) per family per year (ranges from $882 to $1947 across sites). Cost-benefits analyses are planned but not yet conducted.

Evaluation methodology and adequacy: Several quasi-experimental designs: (1) baseline-focal design, (2) longitudinal comparison site (non-random control group design) and (3) geographical comparison design.
- Baseline focal design: Baseline measures (children, families and communities) collected on 350 four-year-old children in 1992/3. Five years later the same measures were collected from children born in 1994 (focal group). The baseline and focal groups were then compared on measures to determine what changes had occurred.
- Longitudinal comparison site: Data was collected on 700 children born in 1994, from each of the 5 program sites and 3 non-program sites. Outcome measures were collected at 3, 18, 33 and 48 months of age. Longitudinal analyses examine changes over time in program children compared to non-program children.
- Geographical comparison design: Outcome data measured at the project site are compared with outcomes measured at another geographical site. This part of the evaluation has not yet been conducted.
Follow-ups: see section above

Evaluation data: The evaluation indicated that there were some positive effects of the program, as well as some non-ben-

Measured outcomes and findings: The findings presented are for all 5 sites combined. Findings are available for individual sites.

Child outcomes: Beneficial program effects – decreased emotional problems as rated by teachers, improved auditory attention and memory, more timely 18 month immunizations. Non beneficial program effects – less parental encouragement to use bike helmets.

Parent and family outcomes: Beneficial program effects – increased accessibility to professionals when needed, more frequent exercise during pregnancy, reduction in reported domestic violence. Non beneficial program effects – less frequent exercise after pregnancy, lower initiation rates of breastfeeding, less frequent breast examinations, less frequent contact with friends.

Neighbourhood outcomes: Beneficial program effects – increased safety walking at night. Other outcomes were measured, but no effects were found.

References

SURE START
Program location: England, Wales, Scotland and Northern Ireland, United Kingdom.
Date program was run: Announced in July 1998, introduced in April 1999.
Population receiving the intervention: Families with children under the age of 4, living in areas with high levels of social and economic hardship.

Anticipated benefits:
Children:
- Reduction in child poverty and social exclusion.
- Enhanced ability to reach full potential.
- Increased availability of child care.
- Improved health, education and emotional development.

Families:
- Reduction in unemployment in families with children.

Society:
- Reduction in poverty.

Time frame for anticipated benefits: short term and long term
Size of program: Large scale, began with 60 “trailblazer” areas in 1999, building to 500 by 2004.
Intervention site: Multiple, including parenting classes, home visits and centre based activities.
Intervention strategy:
- The program is being implemented alongside a number of other UK government initiatives. Catchment areas are first identified (typically high need areas with between 400 and 800 children under 4 years), and then meetings are held with the local community to discuss the implementation of the program. A key principle of Sure Start is that it is locally led and delivered.
- Sure Start works with existing services to reshape and add value, as well as developing new services, with the intention that service providers work in more coordinated fashion. The program offers services to parents and children.
- A number of core services are involved, including outreach and home visiting, support for families and parents, support for good quality play, child care and child learning experiences, primary and community health care and support for children and parents with special needs. Each area is also able to include additional services that respond to local needs.

Intervention intensity: Varied, according to family need.
Program costs: not found
Follow-ups: none to date
Evaluation methodology and adequacy:
- The methodology for evaluations of cost-effectiveness is available; however, no actual evaluations of cost-effectiveness have been conducted to date. The methodology for large scale evaluations is also available, but again, these evaluations have not yet been conducted. Sure Start has a strong focus on evaluation and monitoring at local and national levels.
- A small qualitative study has been conducted after one year of operation. This study involved focus groups of 6 to 16 parents in 8 of the 60 “trailblazer” areas. A short questionnaire was also administered after the focus groups. 59 parents completed questionnaires.

Evaluation data: In the qualitative study, parents reported a high use of, and high level of satisfaction with, the program. Parent reported that their own confidence had increased through involvement in Sure Start, as had their children’s
confidence in interacting with peers. Parents also saw benefits to the community and thought that their children would be better off in the long term, particularly in relation to school readiness.

**Measured outcomes and findings:**

- **Use of and satisfaction with services:** In the qualitative study, 9 in 10 parents felt that services had improved significantly and attributed this to Sure Start, 88 per cent of parents were very satisfied and none were dissatisfied. Parents identified one of the main benefits as being the provision of high quality play and learning experiences and the provision of more and better quality child care facilities. Almost 75 per cent of parents were using parent-toddler groups.
- **Parental confidence:** In the qualitative study, parents reported being more confident in playing with and teaching their children, as well as dealing with the day to day activities of raising a child.
- **Child confidence:** In the qualitative study, parents reported that their children were more confident in socialising with their peers.
- **Community life:** In the qualitative study, parents reported an increased level of “community spirit” and identified parental involvement in Sure Start as a key component of the program’s success.
- **Longer term child outcomes:** In the qualitative study, most parents felt that their children would benefit from Sure Start in the long term, particularly in relation to school readiness.

**References**

A number of methodological reports can be found at www.surestart.gov.uk

**NEW PARENT INFANT NETWORK (NEWPIN)**

**Program location:** England and Northern Ireland, UK. The program has recently been introduced in Australia and most recently in Geelong by the Victorian government.

**Date program was run:** 1980 to current

**Population receiving the intervention:** Vulnerable families, particularly distressed mothers, with young children (under 5 years).

**Anticipated benefits:**

- **Children:**
  - Prevent child abuse.
- **Families:**
  - Break the cycle of destructive family behaviour.
  - Increase parental self-esteem.
  - Inspire parents to recognize the value of consistent, positive parenting practices.
  - Negative life patterns are changed to positive ones.
  - Development of better communication skills.
  - Improved family relationships.

**Society:** Not applicable

**Time frame for anticipated benefits:** Short and long term.

**Size of program:** Large scale in the UK, several sites now operating in Australia.

**Intervention site:** Centre based (with limited home visiting).

**Intervention strategy:**

- The program is voluntary and parents are referred. A home visit by a centre coordinator is conducted initially to describe the program and then determine the appropriateness of the program, if the mother is interested. Parents are then attached to a centre by being matched with “volunteer befriender”, someone who has been involved in the program for sometime and has received training in this role. The befriender’s role is to get to know the mother and then introduce her to others.
- Four core values are embedded throughout the program: support, equality, empathy and respect. The program emphasizes the value of providing services based on a non-hierarchical model of support and has a large focus on the value of peer support. Self-empowerment is seen to be key in the program’s effectiveness. The focus of the program has recently shifted from the mother to the mother-child relationship.
- The centres provide a drop-in and child care, and parents are encouraged to participate in training programs, including a personal development program. The centres provide a safe, stable and warm environment that parents and children can visit at any time.
- At each of the centres, the lounge room is adjacent to the playroom, meaning that children can explore and make friends while still in view of their mother. In the playroom, a trained early childhood play facilitator encourages children in developing positive social skills.
- Weekly group meetings are held for approximately 90 minutes. These groups explore relevant issues and look at the impact of family of origin and relationships on parenting.
- The personal development program has four modules – our skills as parents (10 sessions), family play program (8 sessions), SEERS program (befriender training – 10 sessions) and learning for life (looking beyond NEWPIN).
There is also a 24-hour network of support, as each parent is given a list of staff and parent phone numbers and is encouraged to call someone if needed. There are plans for fathers groups to be added to each of the centres when they are established.

**Intervention intensity:** Varied, services are available from 9am to 5pm, five days a week. However, mothers must make a commitment to attend the centre at least two days a week.

**Program cost:** Less than 1000 pounds per family, per year.

**Evaluation methodology and adequacy:**
- A report from the Department of Health and Aged Care in Australia contains a chapter about NEWPIN. This chapter briefly summarises some of the evaluations of NEWPIN and is reviewed here.
- Evaluation 1 was funded by the Department of Health. No other methodological information was available.
- Evaluation 2 involved 12 befrienders and 11 matched referrals. Participants were interviewed 6 to 12 months after becoming involved in the program by interviewers blind to their group membership. Responses were compared to initial interview data.
- Evaluation 3 involved 40 program families with 24 matched control families. Mothers and children were assessed at two time points, six months apart. Maternal interviews, observations of mother-child interactions and a standardized developmental assessment were used.
- Evaluation 4 (whole report available) focused on service use rather than effects of the service. It involved parents referred to 4 centres. 214 referrals were identified (1 male parent, 213 female) and questionnaires were sent out. 93 questionnaires were returned, with women from less disadvantaged backgrounds and those who actually used the service being more likely to return them.

**Follow-ups:** see section above

**Evaluation data:**
- Evaluation 1 found that the program improved the mental health of parents and resulted in a reduction in child abuse (the whole report was not obtained in time for review).
- Evaluation 2 found that almost all mothers reported self improvements, particularly in self-esteem and perception of others.
- Evaluation 3 found that there were significant improvements in maternal ability to anticipate child needs in the intervention group. There were no other statistically significant changes in mother-child interactions or child behaviour.
- Evaluation 4 found that less than half of the women actually used the service and a large proportion did not become regular users of the service. There were also differences in characteristics of users vs. non-users. Although the evaluation agreed on the positive benefits for high involvement mothers, the authors asserted that cost effectiveness analyses need to consider uptake of services, not just positive effects of program participation.

**Measured outcomes and findings:**
- **Rates of child abuse:** Reduced rates in child abuse were found among intervention families.
- **Mother-child interactions:** Intervention mothers were found to anticipate child needs more. No other differences were found.
- **Maternal mental health:** Improvements in self-esteem, general mental health and perception of others were found.

**References**

**POSITIVE PARENTING PROGRAM (TRIPLE P)**

**Program location:** Australia and international (developed in Australia)

**Date program was run:** ongoing

**Population receiving the intervention:** All children birth to age 12 (the program has recently been extended to include parents of children up to the age of 16)

**Anticipated benefits:**

**Children:**
- Enhanced child development, growth, health and social competencies.
- Reduced incidences of child abuse, child mental illness, behavioural problems, delinquency and homelessness.

**Families:**
- Improved family independence and health through enhance parent knowledge skills and confidence.
- Safe, nurturing, non-violent family environments.
- Enhance protective factors and reduce risk factors.
**Society:**
- Decreased child abuse, mental illness, crime and homelessness, all resulting in savings for the community.

**Time frame for anticipated benefits:** Short (e.g. improved parenting) and long term (e.g. maintenance of decreased behaviour problems)

**Size of program:** Multi-site - Australia and international. Large scale

**Intervention site:** Varied – can be home based or centre based depending on the level

**Intervention strategy:**
- A parenting and family support strategy that is prevention oriented, multi-disciplinary and has five levels. The program has been developed through over 20 years of clinical trials. Five different developmental periods are targeted at each level – infants, toddlers, preschoolers, primary school aged and teenagers. The program aims to promote parental competence and enable parents to become independent problem solvers. Five key principles of parenting – safe, engaging environment; positive learning environment; assertive discipline; reasonable expectations and taking care of self as parent.
- Level 1 – provides universal access to parenting information through print and electronic media. This level aims to increase community awareness of parenting resources, encourage parent participation in Triple P and create a sense of optimism.
- Level 2 – One or two primary health care sessions that provides “anticipatory developmental guidance” to parents who have children with mild behaviour problems. Parenting tip sheets and videotapes are commonly used at this level.
- Level 3 – Four primary care intervention sessions for parents of children with mild to moderate behaviour problems. The sessions provide active skills training for parents.
- Level 4 – Intensive program of eight to ten sessions that are either individual sessions, group based or self-directed. This level is for parents of children with more severe behaviour problems.
- Level 5 – An enhanced behavioural family intervention program for parents whose difficulties are complicated by other issues such as relationship conflict and parental depression. This level therefore targets not only parenting skills but also distressing parental emotional reactions (including depression, anger and stress) via cognitive behavioural techniques.

**Intervention intensity:** The intensity of the program ranges from parenting information via the media to intensive parent training.

**Program costs:** The multi level nature of the program aims to ensure that costs are contained, waste and over servicing is avoided and efficiency is maximized. Cost effectiveness analyses have recently been conducted, as was a limited cost-benefit study. Triple P costs range from 75c at Level 1 to $422.45 at Level 4 (individual) – Australian 2003 dollars.

**General comments:** Research began in 1977. A number of evaluations have been conducted focusing on different levels of the program. Evaluations have been independent as well as being conducted by program developers. The review is based on a Parenting Research and Practice Monograph published in 2003 and the most recent evaluation by Zubrick et al (obtained by personal correspondence with Professor Sanders).

**Evaluation methodology and adequacy:**
- The 2003 review of Triple P reviewed 24 evaluations – 21 of them were randomized trials with sample sizes ranging from 16 to 423. Four of these trials did not include children in the age range of interest. The other three evaluations were a group design with crossed factors (n = 24), non-random matched sample design (n = 67) and non-random two group concurrent observation design (n = 1615). Some of the trials compared intervention to no intervention (usually wait list controls) while others compared levels with each other. Attrition for all trials ranged from none to 60 per cent
- The Zubrick evaluation was a quasi-experimental two group longitudinal design. Parents in the intervention group (n = 806) were recruited from the Eastern Metropolitan Health Region in WA, Australia, if they had a child within between the age of 3 and 4 years. The comparison group (n = 806) were recruited from the South Metropolitan Health Region. Intervention parents participated in four, weekly 2-hour training sessions and four, weekly, 15 minute phone support sessions. Parents were also provided with books and a video resource. The intervention met the criteria for Level 4 of Triple P. Data collection occurred pre and post treatment, then at 12 and 24 month follow-ups. Linear mixed modeling was used to analyse data. Some demographic and outcome differences were found between groups pre treatment. Attrition: Of the intervention group, 86 per cent had post treatment data, 80.8 per cent had 12 month data and 73 per cent had 24 month data. Of the comparison group, 96 per cent had post treatment data, 94 per cent had 12 month data and 85.7 per cent had 24 month data.

**Follow-ups:** Follow-ups were between 3 and 24 months post-treatment.

**Evaluation data:** In general, the trials demonstrated that Triple P was effective in decreasing child behaviour problems and improvements in parental adjustment. Many of the trials also found improvements in parenting as compared to control groups. All levels of Triple P have been found to be effective as compared to waitlist controls; however, trials that have compared different levels of the program tend to conclude that the more intensive level has greater effects.

**Measured outcomes and findings:** The outcomes measured by the trials included child outcomes (disruptive behaviour, emotional wellbeing), parent-child interactions, parent relationship satisfaction, parenting (adjustment, conflict, confidence, style) and a few other miscellaneous outcomes (e.g. child health, parents’ social support).
- Child behaviour (observation, monitoring and parent report; Zubrick used Eyberg Child Behaviour Inventory (ECBI)): The program has been found to reduce the intensity and number of behaviour problems as well as reduce percent of children in the clinical range. These effects are typically maintained at follow-up. Thumb sucking has been reduced.
No differences in decreases in anxiety and increases in self-esteem. Some trials have found that effects vary according to the intensity of the program, with stronger effects for more intensive levels. However, even Level 1 has found significant improvements in child behaviour compared to control groups. Zubrick found improvements in child behaviour at post, 12 and 24 month follow-ups, with effect sizes of .83, .41 and .47 respectively.

**Parenting** (self-report; Zubrick used Parenting Scale (PS)): Intervention mothers have reported an increased sense of competence and satisfaction in parenting. Increase in the use of positive parenting strategies and a reduction in self-reported dysfunctional parenting strategies. Parents in the intervention report greater parenting competence, self-efficacy, satisfaction and confidence. Zubrick found improvements in parenting style at post, 12 and 24 month follow-ups (effect sizes were 1.08, .59 and .56, respectively).

**Parent-child interactions**: Program has resulted in significant reductions in aversive maternal behaviour

**Parent relationship satisfaction** (Zubrick used Parent Problem Checklist (PPC) and the Abbreviated Dyadic Adjustment Scale (ADAS)): The program was found to increase marital satisfaction; however, this effect was not maintained if partner support training was not received. Significant reductions in parental conflict, although these finding are not consistent. Zubrick found decreases in parental conflict over child rearing at all follow-ups, with estimated effect sizes of .95 at post, .62 at 12 months and .89 at 24 months. They also found improved dyadic adjustment at post, 12 and 24 months (effect sizes were .19, .14 and .14, respectively).

**Parent emotional status** (Zubrick used Depression Anxiety Stress Scales (DASS)): Decreases have been found in parental depression, anxiety and stress. Zubrick found small, but significant improvements in parent mental health at all follow-ups (effect sizes were .38 at post, .29 at 12 months and .23 at 24 months).

**Other child outcomes**: Significant improvement on observed and home mealtime behaviour.

**References**


**PARENTS AS TEACHERS (PAT)**

**Program location**: Over 2,000 sites in the US and internationally.

**Date program was run**: 1984 to current

**Population receiving the intervention**: All families involving child from third trimester through to age 3 (with limited services available to age 5).

**Anticipated benefits:**

**Children:**
- Enhanced child development.
- Enhanced school achievement.
- Solid foundation for school and life success.
- Prevention of child abuse and neglect.
- Early detection of developmental problems.

**Families:**
- Increase parent knowledge of child development, ways to stimulate intellectual, social, physical and language development.
- Increased confidence and sense of competence.
- Enhanced parent-child and family relationships.
- Empowerment of parents to give their children the best possible start in life.

**Society:**
- Strong partnerships between parents and schools.

**Time frame for anticipated benefits**: Short term gains in cognitive skills and parenting, assumed to lead to long term gains.

**Size of program**: Large scale – implemented in a number of sites.

**Intervention site**: Home visits and group sessions.

**Intervention strategy:**
- The program was created in Missouri as New Parents as Teachers in 1981, then expanded and renamed Parents as Teachers in 1984. The program is not limited to low SES backgrounds or other characteristics. The program has two components – parent education and child screenings.
- Parent education occurs in two settings – home visits and group sessions. Parent education involves providing age-appropriate child development information and aims to improve and increase parenting skills. The program encourages
parents to promote and foster their child’s intellectual and social development. The services must be offered for a minimum of eight months and must include 4 home visits and 4 groups.

- Child developmental screenings were periodic between ages one and four and screened for behavioural status, health status and growth. They also detected developmental delay or advanced ability.
- Services after age three were less intense and were required to include a minimum of two contacts (either home visit or group).

**Intervention intensity:** Intensive, targeted services from the third trimester to age 3. Limited services are available to age 5. Home visits are a minimum of four per year and group sessions occur four times each year. However, intensity varies according to site and family.

**Program costs:** Average program cost was US$646 (1999 dollars) per child each year (range of $450 to $860 depending on location and availability of in-kind contributions).

**Evaluation methodology and adequacy:**

- There have been two main waves of evaluations of PAT (there was also an evaluation of a replication study; however, this is not reviewed here).
- The first wave evaluation involved a matched comparison group and assessed various outcomes at age 3. 75 families were randomly selected from four representative sites. A further 18 families were randomly selected from “high risk” families. One child (the first born) was receiving the program in all families. The families were not initially randomly assigned to PAT, but were recruited or sought out the program. 69 matched comparison children were selected from a randomly selected sample of first borns in each of the four areas during a certain time period. Despite matching, the two samples differed on socio-demographic variables including parental age and education. Outcomes were assessed at age 3, with no baseline. There was a follow-up at first grade, where attrition was 10 per cent for the intervention group and 30 per cent for the control group. Analytic procedure – difference of means and LISREL multiple group covariance structure analysis for cognitive and language skills.
- The second wave evaluation included 400 randomly selected families involved in PAT. No comparison group. Follow-up at first and second grades.

**Follow-ups:** Age 3, first grade (also second grade for wave two)

**Evaluation data:** In general PAT has been found to improve child cognitive and language abilities and social development. The program has also been found to increase parental knowledge about child development, appropriate parenting techniques and appropriate ways to stimulate children. Program parents were also found to be more involved with their child’s education. These effects were found to be maintained at medium to long term follow-up. The program also found a significantly lower rate of child abuse and neglect as compared to the state average.

**Measured outcomes and findings:**

- **Cognitive skills and school achievement** (Kaufman Assessment Battery for Children; teacher report; parent report): At age 3 the intervention group scored significantly higher on simultaneous processing (difference of 8.2 points, p < .001), mental processing composite (difference of 6.7 p < .003) and achievement (differences of 10.9 p < .001) measures of Kaufman. There were no differences on sequential processing. These differences remained when SES was taken into account in the LISREL analyses. At the first grade follow-up the intervention group scored significantly higher on standardized math and reading (83rd percentile vs. 75th percentile and 81st percentile vs. 77th percentile, respectively). Both groups scored significantly higher than the national norm. No differences in teacher or parent reports of achievement.

- **Language** (Zimmerman Preschool Language Scale): At age 3 the intervention group scored significantly higher on three subtests of the Zimmerman – auditory comprehension (difference 3.1 p < .001), verbal ability (difference 3.1 p < .001) and language ability score (difference 6.2 p <.001). These differences remained when SES was taken into account in the LISREL analyses.

- **Social development** (parent observations largely based on the personal-social domain of the Battelle Developmental Inventory): No differences on psychometric tests were found at age 3. On parent ratings at age 3, the intervention group was rated as slightly higher on 13 of 44 items and the control group was rated on higher on 1 item. In terms of scales – the intervention group were rated higher on four of six scales – ability to distinguish a self-identity, positive adult relationships, coping capabilities and engagement in social play. No differences in expression of feelings and peer relations. The effect sizes were small.

- **Parent knowledge** (Parent Knowledge Survey Instrument – self administered questionnaire developed by evaluators): Parents in the intervention demonstrated significantly more knowledge on four of six scales - the importance of physical stimuli, appropriate discipline and child development for 3-year-olds and for children younger than 3. No differences were found between in knowledge of intellectual development, hearing-motor development. At the first grade follow-up teachers reported that 63 per cent of intervention parents initiated parent-teacher interview versus 37 per cent of control parents. Control parents were also twice as likely to report never being involved in school activities. Wave 2 – parents were again reported to be highly involved at school and support their child’s learning at home.
Child abuse (documented cases): Wave 2 – only 2 cases were found to age 3; significantly fewer than the state average.

References
Parents as Teachers national center, inc., Parents as Teachers evaluations, Online at www.patnc.org (accessed May 2004).
Promising Practices Network, Summary of Parents as Teachers, Online at www.promisingpractices.net

Cuyahoga County Early Childhood Initiative (Cuyahoga)

Program location: Cuyahoga County, US
Date program was run: 2000 - 2002
Population receiving the intervention: All infants born in Cuyahoga County in the year 2000
Anticipated benefits:
Children:
- Improved child mental and physical development
- Improve quality of child care
Families:
- Social functioning
- Improved parenting
Society: Not applicable
Time frame for anticipated benefits: Short term and long term
Size of program: Program has provided services to 83,000 children. This present evaluation completed on 289 Welcome Home participants and 518 Early Start participants
Intervention site: Provide all families with one home visit, leading to more intensive interventions for children facing developmental or environmental risk.
Intervention strategy: Encompasses five interrelated programs: (1) Welcome Home – a one-time home visit by a nurse for all first-time or teen mothers and their newborns; (2) Early Start – intensive home visits with families whose children up to age 3 have been identified as facing developmental challenges due to family and environment characteristics; (3) expansions and quality improvement of certified home-based child care; (4) training of child care providers to service children with special needs; and (5) outreach and expansions of government subsidised health insurance coverage for children of low-income families.
Intervention intensity:
Welcome home:
- Offers a single in-home visit by a nurse to all first-time and teen parents.
- The visit includes a medical examination of mother and infant, provision of general infant care information, and an assessment of family capacity to care for the infant.
Early Start:
- Offers extended home visits to families identified as being at risk for child maltreatment, or child developmental delays.
- Services are offered weekly for 3 to 6 months.
- Home visits are offered bi-weekly, monthly, or bi-monthly depending on family need.
- Individualised family service plans are constructed, with services tailored to each family.
- Programs include parenting education, child care education, nutrition, health-carte, and self-sufficiency.
Program cost: $40 million US in funding during first three years for the full Cuyahoga County Early Childhood Initiative, which includes child care programs in addition to the early intervention programs.
Evaluation methodology and adequacy:
- This evaluation is very limited. There was no control or “no treatment” group making all findings difficult to interpret.
- The evaluation documented the experiences and characteristics of 289 Welcome Home participants and 518 Early Start participants. Participants were recruited through two sources, the Welcome Home nurses, and the Early Start Specialists.
Follow-ups: 3 months and 11 months post-partum
Evaluation data: Three-months after the Welcome Home visit participants were able to remember the information on infant care that was provided by the nurse. Participants were less likely to find the home visits useful in addressing their own health needs or connecting them with new parents. Early Start referrals who presented as high risk were more than twice as likely to have received a home visit. The majority of participants (94 per cent) remained engaged in the Early Start program for at least three-months. Early Start services have limited ability to predict participants reduced risk or increased competence
Measured outcomes and findings:
- Only parental outcomes measured, no child outcomes. Without control or “no treatment” groups findings cannot be effectively interpreted.
References
Coulton, C. and colleagues (2003), Cuyahoga County Early Childhood Initiative evaluation: Phase I final report, Case Western Reserve University, Center on Urban Poverty and Social Change, Mandel School of Applied Social Sciences, Cleveland, OH