Appendix 2: Summary of evaluated early childhood interventions

Intervention Cluster 1

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[1]**:**

- *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, 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 19 years (p = .025, effect size = 0.43). 71 per cent of intervention group versus 54 per cent of control group completed high school or equivalent by age 27 (p = .055, effect size = 0.35) and the intervention group had higher mean years of schooling (p = .016, 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 25 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).

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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.

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 reductions.

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.

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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 were 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.

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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.

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BOLIVIA INTEGRATED CHILD DEVELOPMENT PROGAM (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.

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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.

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Intervention Cluster 2

ELMIRA PRE-NATAL AND EARLY INFANCY PROJECT (PEIP)

Program location: Elmira, NY, USA (program has also been administered in Memphis, Tennessee and Denver, Colarado – 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 2½ 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, age 4, age 15 (81 per cent of original sample)

Evaluation data: Short and long-term advantages were found for the mothers and children in the treatment group. In 1999, Olds et al. concluded that the program is beneficial for the families in most need, but does not benefit the greater population; therefore home visiting programs should be targeted, not universal. In the short-term, the program resulted in decreased cigarette smoking, improved diet, decrease in pre-term delivery for smokers, increased birth weight if mothers were less than 17 years, increase in use of community services, decrease in the rates of childhood injuries, reduced rates of subsequent pregnancies, improved maternal employment rates. In the long-term, mothers in the program group were less likely to abuse or neglect children, were able to become more economically sufficient and avoid maternal drug use and criminal behaviour. Long term outcomes for children in the program group were decreased criminal activity and substance use and fewer sexual partners. Few program effects were found on children's development or birth outcomes. Most of the positive effects of the program were found in the higher-risk subgroups (low income, unmarried and smokers).

Measured outcomes and findings:

Outcomes were measured using interviews, observations and reviews of official records.

- *Pregnancy and birth:* During pregnancy program mothers smoked less, had better nutrition, attended more classes and had more support.
- *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 19 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:* Measures: 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.

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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.

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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

skills. The activities were structured like detailed lesson plans, making it easy for parents to carry out the activities without assistance.

- Group meetings with parents and paraprofessionals are led by professional program coordinators. At each meeting, the new materials were introduced, problems and concerns were shared, discussions about child rearing occurred and enrichment activities (planned to respond to parent need) were conducted.

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 found 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 kindergarten ($p = .04$, 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.

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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: $2\frac{1}{2}$ 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.

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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.

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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.

Anticipated benefits: Projected outcomes taken from the Evaluative Report 1997-2001.

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.
- Increase 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.

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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 ($p<.02$), confusion ($p<.01$) and fatigue ($p<.01$) among the intervention group as well as significant differences between groups post-treatment ($p<.02$, $p<.01$, $p<.05$, 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.

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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 the 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.

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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.

Society:

- The New Hope program was anticipated to reduce the burden for families living significantly below the poverty line.

Time frame for anticipated benefits: Long-term benefits expected several years after implementation.

Size of program: 745 families (program group n = 366, control n = 379)

Intervention site: Provided wage supplements to employed low-income families in order to increase parents' capacity and propensity to continue working. Provided support for child care. Provided assistance with health insurance.

Intervention strategy: When families were employed for 30 or more hours each week, but their income was 150 per cent below the poverty line, they received: A wage supplement that ensured their net income increased as they earned more; A child care subsidy for children under 13 years, which could be used in day care, kindergarten, or after school care; Subsidised health insurance; and Case management and job seeking support.

Intervention intensity: Participants were assigned project representatives who provided advice and information about employment, child care, and wage supplements. The program model emphasised respect, and helpfulness amongst staff members.

Program costs: The total cost of the New Hope project was $15,799 US per family, or $5270 per year. The largest program costs came from child care subsidies, 37.9 per cent. Savings in terms of government expenditure, decreased welfare expenditure, or improved parent/child psycho-social wellbeing have not been provided.

Evaluation methodology and adequacy:

- The Child and Family Study of the New Hope project drew 745 adults who had one or more children between the ages of 1 year and 10.11 years. Participants in the program needed to meet three criteria: (a) be over 18 years of age, (b) have an income at or below 150 per cent of the poverty line, and (c) be willing to work more than 30 hours per week. Participants volunteered for the program and were randomly assigned to either the program group (n = 366) or the control group (n = 379). Up to two children in each family were chosen as the focal children (n=1140).
- 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.

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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.

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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.

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Intervention Cluster 4

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.

Society:

- Enhance community development in the following areas: child care, community collaboration, integration of services to support families with young children.
- Enhance staff development including professional development and relationships with parents.

Time frame for anticipated benefits: Short-term (during involvement in program) and long-term.

Size of program: Large scale, 708 programs, serving 61,500 children in 2003.

Intervention site: Multiple sites (including home visits and centre based services)

Intervention strategy:

- Multiple strategies are used to provide a wide range of services. Child development services (centre-based, home-based or combination), child care, comprehensive health and mental health services, parenting education, nutrition education, health care and referrals and family support.
- Centre-based programs involve comprehensive child development services at the centre, supplemented by a minimum of two home visits per year. Home-based programs involve weekly home visits and bi-monthly group socialization experiences.
- 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.

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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.

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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 behaviour 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).
- *Behavioural 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 behaviour 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.

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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:

Children:

- 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 safety 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 case conferences 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 (age14/15), 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.

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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 found. In terms of child outcomes, there was a reduction in classroom externalizing and internalizing problems and improved language development.

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.

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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.
- Condition bias evident. The control group did not receive "no treatment" and were reportedly offered similar literacy services within their normal education services.

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.

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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 child care 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.

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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 .021, $p<.001$).

- 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.

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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.

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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-beneficial effects. Evaluation of the program is ongoing.
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.

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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.

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Statham, J., and Eisenstadt, N. (2001), "The Sure Start Program in the United Kingdom", *Family Matters*, vol. 59, pp. 39-41.
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.

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Intervention Cluster 5

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.

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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. Wave 2 – program children performed significantly above national norms on a measure of school related achievement at age 3. Over half of the children originally identified as being developmentally delayed overcame it by age 3. At follow-up, teachers rated intervention children as performing at high levels of proficiency in all assessed areas and 91 per cent were rated by teachers as performing equal to or better than average.
- *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).
Pfannenstiel, J., and Seltzer, D. (1989), "New Parents as Teachers: Evaluation of an early parent education program", *Early Childhood Research Quarterly*, vol. 4, pp, 1-18.
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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