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Family Nurse Partnership

Reviews: Foundations for Life, July 2016; January 2021

Note on provider involvement: This provider has agreed to EIF's terms of reference, and the assessment has been conducted and published with the full cooperation of the programme provider.

Family Nurse Partnership (FNP) is a home-visiting programme for young mothers expecting their first child.

The programme is delivered by highly trained and supervised nurses or midwives.

The FNP programme has three goals: 1) to improve pregnancy health and behaviours; 2) to improve child health and development by helping parents provide responsible and competent care; and 3) to improve economic self-sufficiency by helping parents plan for their own and their baby's future.

Mothers enrol in the programme early in their pregnancy and receive visits from a family nurse on a weekly basis before, and for the first six weeks after, the birth of their child. Visits then continue fortnightly until three months before the child's second birthday when visits become monthly in preparation for the programme ending. 64 visits in total are scheduled. During these visits, mothers learn about their young child's health and development, and receive support for their own well-being.

Evidence rating: **4+**

Cost rating: **5**

EIF Programme Assessment

Family Nurse Partnership has **evidence of a long-term positive impact** on child outcomes through multiple rigorous evaluations.

Evidence rating: **4+**

What does the evidence rating mean?

Level 4 indicates **evidence of effectiveness**. This means the programme can be described as evidence-based: it has evidence from at least two rigorously conducted evaluations (RCT/QED) demonstrating positive impacts across populations and environments lasting a year or longer.

What does the plus mean?

The plus rating indicates that a programme's best evidence is level 4 standard, and there is at least one other study at level 4, and at least one of the level 4 studies has been conducted independently of the programme provider.

Note: All of the trials have observed positive outcomes for children, although these outcomes have varied across the trials. Enhanced cognitive skills are seen most consistently, with both the Dutch and UK trials showing significantly improved cognitive functioning at 24 months, and the Memphis trial observing improved receptive language and school achievement at six years. In the UK trial, despite positive findings on cognitive outcomes for children, the short-term findings observed no improvements when it came to rates of maternal smoking, child birth weight, accidental child injuries and subsequent maternal pregnancies. The longer-term findings from this trial identified a consistent educational advantage for FNP children that was maintained five years after programme completion. However, the study also finds that FNP did not reduce rates of child maltreatment.

Cost rating

A rating of 5 indicates that a programme has a high cost to set up and deliver, compared with other interventions reviewed by EIF. This is equivalent to an estimated unit cost of more than £2,000.

Cost rating: **5**

Child outcomes

According to the best available evidence for this programme's impact, it can achieve the following positive outcomes for children:

Preventing obesity and promoting healthy physical development

Reduced accident and emergency visits

Based on study 1

Reduction in number of A&E visits (administrative data)

Immediately after the intervention

Reduced accident and emergency visits for accidents and poisonings

Based on study 1

Reduction in number of A&E visits for accidents and poisonings (administrative data)

Immediately after the intervention

Reduced hospitalisations for injuries and ingestions

Based on study 2

Reduction in proportion of participants with hospitalisations for injuries and ingestions (administrative data)

Immediately after the intervention

Reduced number of health care encounters for injuries and ingestions

Based on study 2

Reduction in proportion of participants with health care encounters for injuries and ingestions (administrative data)

Immediately after the intervention

Reduced preventable-cause child mortality

Based on study 2

1.6-percentage point reduction in preventable-cause child mortality rate (measured using administrative data)

Improvement index: **+40**

This means we would expect the average participant in the comparison group who did not receive the intervention (ie, someone for whom 50% of their peers have better outcomes and 50% have worse outcomes), to improve to the point where they would have better outcomes than 90% and worse outcomes than 10% of their peers, if they had received the intervention.

Long-term 18 years later

Supporting children's mental health and wellbeing

Reduced internalising behaviour problems

Based on study 2

8.8-percentage point reduction in proportion of participants with internalising problems (measured using the Youth Self-Report)

Improvement index: **+11**

This means we would expect the average participant in the comparison group who did not receive the intervention (ie, someone for whom 50% of their peers have better outcomes and 50% have worse outcomes), to improve to the point where they would have better outcomes than 61% and worse outcomes than 39% of their peers, if they had received the intervention.

Long-term 10 years later

Based on study 4

14-percentage point decrease in proportion of participants with internalising behaviour (measured using the Child Behaviour Checklist - mother report)

Improvement index: **+7**

This means we would expect the average participant in the comparison group who did not receive the intervention (ie, someone for whom 50% of their peers have better outcomes and 50% have worse outcomes), to improve to the point where they would have better outcomes than 57% and worse outcomes than 43% of their peers, if they had received the intervention.

Immediately after the intervention

Improved infant responsiveness

Based on study 3

1.32-point improvement on mother-infant responsive interaction (coded observation)

Before completion of the intervention (child age 6 months)

Preventing child maltreatment

Reduced child abuse and neglect

Based on study 1

Reduction in number of substantiated reports of child abuse and neglect (administrative data)

Long-term Up to 13 years later

Based on study 4

8-percentage point decrease in proportion of participants with a child protective services report (measured using administrative data)

Improvement index: **+16**

This means we would expect the average participant in the comparison group who did not receive the intervention (ie, someone for whom 50% of their peers have better outcomes and 50% have worse outcomes), to improve to the point where they would have better outcomes than 66% and worse outcomes than 34% of their peers, if they had received the intervention.

Long-term Up to one year later

Enhancing school achievement & employment

Improved intellectual functioning

Based on study 2

2.1-point improvement on the Kaufman Assessment Battery for Children (mental processing composite)

Improvement index: **+7**

This means we would expect the average participant in the comparison group who did not receive the intervention (ie, someone for whom 50% of their peers have better outcomes and 50% have worse outcomes), to improve to the point where they would have better outcomes than 57% and worse outcomes than 43% of their peers, if they had received the intervention.

Long-term 4 years later

Improved child receptive language

Based on study 2

2.19-point improvement on the Peabody Picture Vocabulary Test

Improvement index: **+7**

This means we would expect the average participant in the comparison group who did not receive the intervention (ie, someone for whom 50% of their peers have better outcomes and 50% have worse outcomes), to improve to the point where they would have better outcomes than 57% and worse outcomes than 43% of their peers, if they had received the intervention.

Long-term 4 years later

Reduced developmental concerns

Based on study 5

4.5-percentage point reduction in proportion of children with a reported developmental concern (measured using the Schedule of Growing Skills - mother report)

Improvement index: **+12**

This means we would expect the average participant in the comparison group who did not receive the intervention (ie, someone for whom 50% of their peers have better outcomes and 50% have worse outcomes), to improve to the point where they would have better outcomes than 62% and worse outcomes than 38% of their peers, if they had received the intervention.

Immediately after the intervention

Reduced rate of developmental delay in language

Based on study 5

4.49-point improvement on Early Language Milestone Scale score

Immediately after the intervention

Improved school readiness

Based on study 5

5.8-percentage point difference in proportion of participants achieving a good level of development (Early Years Foundation Stage Profile scores)

Improvement index: **+6**

This means we would expect the average participant in the comparison group who did not receive the intervention (ie, someone for whom 50% of their peers have better outcomes and 50% have worse outcomes), to improve to the point where they would have better outcomes than 56% and worse outcomes than 44% of their peers, if they had received the intervention.

Long-term 3 years later

Improved reading ability

Based on study 5

Reduction in proportion of participants not reaching at least the expected standard of reading (measured using Key Stage 1 scores - reading ability)

Improvement index: **+6**

This means we would expect the average participant in the comparison group who did not receive the intervention (ie, someone for whom 50% of their peers have better outcomes and 50% have worse outcomes), to improve to the point where they would have better outcomes than 56% and worse outcomes than 44% of their peers, if they had received the intervention.

Long-term 5 years later

Preventing crime, violence and antisocial behaviour

Reduced child behavioural problems

Based on study 1

Long-term Up to 4 years later

Based on study 2

3.6-percentage point reduction in proportion of participants with behaviour problems (measured using the Child Behaviour Checklist)

Improvement index: **+25**

This means we would expect the average participant in the comparison group who did not receive the intervention (ie, someone for whom 50% of their peers have better outcomes and 50% have worse outcomes), to improve to the point where they would have better outcomes than 75% and worse outcomes than 25% of their peers, if they had received the intervention.

Long-term 4 years later

Reduced arrests in adolescence

Based on study 1

Reduction in number of arrests (adolescent report)

Long-term Up to 13 years later

Reduced convictions in adolescence

Based on study 1

Reduction in number of convictions (adolescent report)

Long-term Up to 13 years later

Preventing substance abuse

Reduced use of substances

Based on study 2

3.4-percentage point reduction in proportion of participants who have used cigarettes, alcohol, or marijuana in the past 30 days (measured using self-report interview)

Improvement index: **+26**

This means we would expect the average participant in the comparison group who did not receive the intervention (ie, someone for whom 50% of their peers have better outcomes and 50% have worse outcomes), to improve to the point where they would have better outcomes than 76% and worse outcomes than 24% of their peers, if they had received the intervention.

Long-term 10 years later

This programme also has evidence of supporting positive outcomes for couples, parents or families that may be relevant to a commissioning decision. Please see the 'About the evidence' section for more detail.

Key programme characteristics

Who is it for?

The best available evidence for this programme relates to the following age-groups:

- Perinatal

How is it delivered?

The best available evidence for this programme relates to implementation through these delivery models:

- Home visiting

Where is it delivered?

The best available evidence for this programme relates to its implementation in these settings:

- Home

The programme may also be delivered in these settings:

- Home

How is it targeted?

The best available evidence for this programme relates to its implementation as:

- Targeted selective

Where has it been implemented?

Netherlands, United Kingdom, United States

UK provision

This programme has been implemented in the UK.

UK evaluation

This programme's best evidence includes evaluation conducted in the UK.

Spotlight sets

EIF includes this programme in the following Spotlight sets:

- parenting programmes with violence reduction outcomes

About the programme

What happens during delivery?

How is it delivered?

- Family Nurses Partnership is delivered by a specially-trained family nurse through up to 64 home-based weekly fortnightly or monthly sessions, to first time mothers. Each session lasts 60–90 minutes.
- Teams of up to eight family nurses are led by a supervisor.

What happens during the intervention?

- A series of structured home visits are delivered using a wide range of materials and activities that build self-efficacy, change health behaviour, improve care giving and increase economic self-sufficiency.
- At the heart of the FNP model is the relationship between the client and the nurse. FNP builds on expectant mothers' (and fathers') intrinsic motivation to do the best for their child.
- A therapeutic alliance is built by specially-trained nurses, which supports families to make changes to their health behaviour and emotional development and form a positive relationship with their baby.
- Clients learn parenting skills (eg holiday baby, bathing baby) some using a doll, to demonstrate how to interact and place with the child and the nurse providing feedback as the mother interacts with the baby.

What are the implementation requirements?

Who can deliver it?

- Practitioners should be registered nurses with experience of community nursing and with babies and children eg school nursing, health visiting, midwifery, mental health with a minimum of QCF level 4/5.

What are the training requirements?

- Family nurses and supervisors are provided with a bespoke mixed-method learning programme, including both training events and individual and team-based learning materials. Once completed, this learning provides nurses and supervisors with the range of programme-specific knowledge and skills they require for their role.

How are the practitioners supervised?

- Supervision is core to the FNP model. Practitioners receive one hour per week of individual supervision and two hours per week of team-based supervision with supervisor, who must have minimum of QCF-7/8 and considerable clinical experience in relevant nursing profession.

What are the systems for maintaining fidelity?

- Regular review of programme fidelity data at multiple levels – nurse, site, national – generated from a real-time information system. National Unit regularly reviews site level fidelity data in line with license and offers quality improvement support to sites.

Is there a licensing requirement?

Yes, there is a licence required to run this programme.

How does it work? (Theory of Change)

How does it work?

- The FNP model draws from three scientific theories of human development: self-efficacy theory, ecological theory and attachment theory.
- Self-efficacy theory assumes that people are more likely to engage in activities in which they perceive themselves as successful. FNP therefore helps young mothers set realistic goals and break them down into small, achievable steps. Mothers then gain a sense of accomplishment as they see themselves achieving each goal. This sense of efficacy, in turn, increases mothers' motivation to pursue further goals, including positive lifestyle goals and higher education.
- Ecological theory assumes that the quality of support mothers give their children is influenced by the quality of support they receive from their family and community. FNP therefore helps young parents develop positive links with other family members and community resources.
- Attachment theory assumes that children are more likely to form positive expectations about themselves and others if they are raised in a warm and sensitive family environment. FNP therefore helps first-time mothers respond sensitively to their child and create a warm and predictable environment.
- In the short term, young mothers are more likely to provide their infant with nurturing and sensitive care and make positive health and educational choices for themselves.
- In the longer term, children will be more likely to do well in school, complete their education and be less likely to engage in antisocial behaviour.

Intended outcomes

Supporting children's mental health and wellbeing Preventing child maltreatment Preventing crime, violence and antisocial behaviour Preventing substance abuse Preventing risky sexual behaviour & teen pregnancy

Contact details

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About the evidence

Family Nurse Partnership's (FNP) most rigorous evidence comes from five RCTs which were conducted in the Netherlands, the UK, and the US.

These studies identified statistically significant positive impact on a number of child and parent outcomes.

This programme has evidence from five rigorously conducted RCTs, with at least one study demonstrating long-term impact, and impact on assessment measures independent of study participants (not self-reports). In addition, at least one study has been conducted independently of the programme developer. Consequently, the programme receives a 4+ rating overall.

Study 1

Citation:	Elmira trial
Design:	RCT
Country:	United States
Sample:	400 highly disadvantaged first-time teen mothers (up to 19 years) living in Elmira, New York
Timing:	Post-test; 4-year follow-up; 13-year follow-up

Child outcomes:

- Reduced accident and emergency visits
- Reduced accident and emergency visits for accidents and poisonings
- Reduced child abuse and neglect
- Reduced child behavioural problems
- Reduced arrests in adolescence
- Reduced convictions in adolescence

Other outcomes:

- Reduced smoking (at childbirth) Increased social support during pregnancy and delivery (at childbirth) Increased access to community services (at childbirth) Improved diet (at childbirth) Reduced kidney infections (at childbirth) Improved maternal involvement (child age 2-6) Reduced use of punishment (child age 2-6)

Study rating: 3

Olds, D. L., Henderson, C. R., Tatelbaum, R., & Chamberlin, R. (1986a). Improving the delivery of prenatal care and outcomes of pregnancy: A randomized trial of nurse home visitation. *Pediatrics, 77*, 16-28.
Olds, D. L., Henderson, C. R., Chamberlin, R., & Tatelbaum, R. (1986b). Preventing child abuse and neglect: A randomized trial of nurse home visitation. *Pediatrics, 78*, 65-78.
Olds, D., Henderson Jr, C. R., Cole, R., Eckenrode, J., Kitzman, H., Luckey, D., Pettitt, L., Sidora, K., Morris, P., & Powers, J. (1998). Long-term effects of nurse home visitation on children's criminal and antisocial behaviour: 15-year follow-up of a randomized controlled trial. *Journal of the American Medical Association*, 280, 1238-1244.
Olds, D. L., Eckenrode, J., Henderson, C. R., Kitzman, H., Powers, J., Cole, R., Sidora, K., Morris, P., Pettitt, L.M., & Luckey, D. (1997). Long-term effects of home visitation on maternal life course and child abuse and neglect: Fifteen-year follow-up of a randomized trial. *Journal of the American Medical Association* 278, 637-643.
Eckenrode, J., Campa, M., Luckey, D. W., Henderson, C. R., Cole, R., Kitzman, H., Anson, E., Sidora-Arcoleo, Powe, J., & Olds, D. (2010). Long-term effects of prenatal and infancy nurse home visitation on the life course of youths: 19-year follow-up of a randomized trial. *Archives of Pediatrics & Adolescent Medicine,* 164, 9-15.

Study design and sample

The first study is a rigorously conducted RCT.
This study involved random assignment of highly disadvantaged first-time teen mothers (? 19 years) to one of four treatment conditions: (1) Health and developmental screening when the child was 12 and 24 months; (2) regular prenatal and well-child visits along with free transportation; (3) prenatal FNP only; and (4) pre and postnatal FNP up until the child's second birthday.
This study was conducted in the US, with a sample of 400 highly disadvantaged first-time teen mothers. At enrolment, almost half (47%) were younger than 19 years of age, the majority were unmarried (62%) and came from families of semi-skilled and unskilled labourers (62%).

Measures

Infant health was measured using weighing and measuring (direct assessment) and paediatric and hospital records (expert observation of behaviour). Infant temperament was measured using researcher-led Q-sort procedure (direct assessment). Infant development was assessed using the Bayley scales (direct assessment) and the Cattell scales (direct assessment). Child maltreatment was measured using verified State child abuse and neglect records (administrative data) and Child Protective Services (CPS) records (administrative data). Child exposure to hazards in the home was assessed by the researcher (direct assessment). Child intelligence was measured using the Stanford-Binet Form L-M (direct assessment). Adolescent incorrigible behaviour was measured using adolescent completed interviews (child self-report) and Probation and Family Court Records (expert observation of behaviour). Adolescent externalising and internalising problems were measured using the Achenbach Youth self-report scale (child self-report). Adolescent behavioural problems were measured using the Achenbach scale (parent report).
Qualities of the home environment and parental caregiving were measured using the Caldwell Home Observation (diagnostic interview) (direct assessment). Mother-child interaction was assessed using home observation (direct assessment). Major life events were measured using a life-history calendar (parent report). Maternal alcohol and drug use were measured using questions adapted from the National Comorbidity Survey (parent report). Maternal records of arrests and criminal convictions were abstracted from State Criminal Justice Records (expert observation of behaviour).

Findings

This study identified statistically significant positive impact on a number of child and parent outcomes.
Child outcomes include:

- Reduced accident and emergency visits (immediately after the intervention)
- Reduced accident and emergency visits for accidents and poisonings (Immediately after the intervention).
- Reduced child behavioural problems (up to 4 years after the intervention)
- Reduced arrests in adolescence (up to 13 years after the intervention)
- Reduced convictions in adolescence (up to 13 years after the intervention)
- Reduced child abuse and neglect (up to 13 years after the intervention).

Study 2

Citation: Memphis trial

Design: RCT

Country: United States

Sample: 1,139 first-time teen mothers living in African-American communities in Memphis, Tennessee

Timing: Post-test; 4-year follow-up; 10-year follow-up; 18-year follow-up

Child outcomes:

- Reduced hospitalisations for injuries and ingestions
- Reduced number of health care encounters for injuries and ingestions
- Reduced internalising behaviour problems
- Reduced preventable-cause child mortality
- Improved intellectual functioning
- Improved child receptive language
- Reduced child behavioural problems
- Reduced use of substances

Other outcomes:

- Increased access to community services (at childbirth) Increased attempted breastfeeding (between childbirth and child age two) Improved home environment (child age two) Improved beliefs about abuse and neglect (child age two) Improved self-efficacy (child age two)

Study rating: 3

Kitzman, H., Olds, D. L., Henderson, C. R., Hanks, C., Cole, R. Tatelbaum, R., McConnochie, K. M., Sidora, K., Luckey, D. W., Shaver, D., Englehardt, K., James, D., & Barnard, K. (1997). Effect of prenatal and infancy home visitation by nurses on pregnancy outcomes, childhood injuries, and repeated childbearing. *Journal of the American Medical Association*, *278(8),* 644-652.
Olds, D. L., Kitzman, H., Cole, R., Robinson, J., Sidora, K., Luckey, D. W, Henderson, C. R., Hanks, C., Bondy, J., & Holmberg, J. (2004). Effects of nurse home-visiting on maternal life course and child development: Age-6 follow-up results of a randomized trial. *Pediatrics*, 114(6), 1550-1559.
Olds, D. L., Kitzman, H., Hanks, C., Cole, R., Anson, E., Sidora-Arcoleo, K. Luckey, D. W., Henderson, C. R., Holmberg, J., Tutt, R.A., Stevenson, A.J., & Bondy, J. (2007). Effects of nurse home visiting on maternal and child functioning: age-9 follow-up of a randomized trial. *Pediatrics*, 120 832-845.
Kitzman, H., J., Olds, D, L., Cole, R.E., Hanks, C.A., Anson, E.A., Arcoleo, K.J., Luckey, D.W., Knudtson, M.D., Henderson, C.R., & Holmberg, J.R. (2010). Enduring effects of prenatal and infancy home visiting by nurses on children: follow-up of a randomized trial among children at age 12 years. *Archives of Pediatrics & Adolescent Medicine*, 164(5), 412-418.
Olds, D. L., Kitzman, H. J., Cole, R. E., Hanks, C. A., Arcoleo, K. J., Anson, E. A., Luckey, D.W., Knudston, M.D., Henderson, C.R., Bondy, J., & Stevenson, A.J (2010). Enduring effects of prenatal and infancy home visiting by nurses on maternal life course and government spending: follow-up of a randomized trial among children at age 12 years. *Archives of Pediatrics & Adolescent Medicine*, 164(5), 419-424.
Olds, D. L., Kitzman, H., Knudtson, M. D., Anson, E., Smith, J. A., & Cole, R. (2014). Effect of home visiting by nurses on maternal and child mortality: Results of a 2-decade follow-up of a randomized clinical trial. *JAMA paediatrics*, 168(9), 800-806.

Study design and sample

The second study is a rigorously conducted RCT.
This study involved random assignment of first-time teen mothers. The participants were randomised into one of four conditions: 1) free transportation to prenatal visits; 2) free transportation plus developmental screening and referral services when the children were six, 12 and 24-months of age; 3) transportation, screening and two intensive nurse home visits during pregnancy, one at discharge after the child's birth and one postnatal home visit; and 4) FNP until the child's second birthday.
This study was conducted in the US, with a sample of 1139 first-time teen mothers. The majority of the participants were African American (92%), aged 18 years or younger (64%), and came from households with incomes at or below the federal poverty guidelines (85%).

Measures

Child cognitive development was measured using the Bayley scales (direct assessment).
4 years after the intervention, child behaviour problems were measured using the Achenbach Child Behaviour Checklist (CBCL) (parent report). Child classroom behaviour was measured using the Hightower Teacher-Child Rating Scale (teacher report). Child's representations of dysregulated aggressive behaviour and parental warmth/empathy were measured using the McArthur Story Stem Battery (MSSB) (expert observation of behaviour). Child cognitive and language skills were measured using the Kaufman Assessment Battery for Children (KABC) (achievement test) and the Peabody Picture Vocabulary Test (PPVT-III) (achievement test).
7 years after the intervention, Child's GPA in reading, math, and behaviour were abstracted from school records (teacher report). Child achievement test scores were measured using the Tennessee Comprehensive Assessment Program Achievement Test (achievement test). Child antisocial behaviour was measured using the Computerized Diagnostic Interview Schedule for Children (parent report) (teacher report). Child behaviour in the classroom was measured using items from the Social Competence Scale (teacher report) and the Social Health Profile (teacher report) from the Fast Track trial and the Teacher Observation of Child Adjustment Revised. Child mortality was measured using the National Death Index, administered by the Centers for Disease Control and Prevention (parent report).
10 years after the intervention, child behavioural problems were measured using the Achenbach Youth self-report scale (child self-report). Reading and Math were measured using the Peabody Individual Achievement Test (achievement test) and GPA from school records (teacher report). Conduct was measured using GPA from school records (teacher report). Child achievement test scores were measured using the Tennessee Comprehensive Assessment Program Achievement Test (achievement test). Cognitive development was measured using the Leiter-R Sustained Attention test (achievement test).
18 years after the intervention, child mortality was measured using the National Death Index Records (expert observation of behaviour).
Maternal self-efficacy was assessed using a measure developed for the study (parent report). Breastfeeding practices were measured using interviews (diagnostic interview). Beliefs about physical punishment and maltreatment were measured using interviews (diagnostic interview). Maternal sensitivity and infant responsiveness were measured using the Nursing Child Assessment Satellite Training procedure (expert observation of behaviour). Mother's subsequent pregnancies, educational achievements, and number of months participated in the workforce were measured using interviews (diagnostic interview). Educational and socioemotional properties of the home environment were measured using the Home Observation for Measurement of the Environment (direct assessment). Mother-child interaction was measured using the teaching-interaction procedure (expert observation of behaviour). Maternal life course during the 10-year

follow-up was measured using interviews (diagnostic interview) and state administrative records (expert observation of behaviour). Maternal mortality during the 18-year follow-up was measured using the National Index Records (expert observation of behaviour).

Findings

This study identified statistically significant positive impact on a number of child and parent outcomes. Child outcomes include:

- Reduced hospitalisations for injuries and ingestions (immediately after the intervention)
- Reduced number of health care encounters for injuries and ingestions (immediately after the intervention)
- Improved intellectual functioning (4 years after the intervention)
- Improved child receptive language (4 years after the intervention)
- Reduced child behavioural problems (4 years after the intervention)
- Reduced use of substances (10 years after the intervention)
- Reduced internalising behaviour problems (10 years after the intervention)
- Reduced preventable-cause child mortality (18 years after the intervention)

Study 3

Citation:	Denver trial
Design:	RCT
Country:	United States
Sample:	735 single, first-time teenage mothers living in disadvantaged communities in Denver, Colorado
Timing:	Post-test

Child outcomes:

- Improved infant responsiveness

Other outcomes:

- Reduced smoking (at childbirth) Reduced domestic violence (child age 2-6)

Study rating: 3

Olds, D. L., Robinson, J,, O'Brien, R., Luckey, D. W., Pettitt, L. M., Henderson, C. R., Ng, R. K., Sheff, K. L., Korfmacher, J., Hiatt, S., & Talmi, A. (2002). Home visiting by paraprofessionals and by nurses: A randomized, controlled trial. *Pediatrics, 110,* 486-496.
Olds, D. L., Robinson, J., Pettitt, L., Luckey, D. W., Holmberg, J., Ng, R. K., Isacks, K., Sheff, K., & Henderson, C. R. (2004). Effects of home visits by paraprofessionals and by nurses: age-4 follow-up results of a randomized trial. *Pediatrics, 114*, 1560-1568.
Olds, D. L., Holmberg, J. R., Donelan-McCall, N., Luckey, D. W., Knudtson, M. D., & Robinson, J. (2014). Effects of home visits by paraprofessionals and by nurses on children: follow-up of a randomized trial at ages 6 and 9 years. *JAMA pediatrics, 168*, 114-121.

Study design and sample

The third study is a rigorously conducted RCT.
This study involved random assignment of first-time mothers. Mothers were randomly assigned to FNP delivered by trained and registered nurses, FNP delivered by trained paraprofessionals, and treatment as usual.
This study was conducted in the US, with a sample 735 first-time mothers with an average age of 19.8 years during baseline. Almost half (45%) of the participants were Hispanic and the average household income was $13,023.

Measures

Infant reactivity was measured using video recordings (expert observation of behaviour). At six months, Child emotional development was measured using video recordings (expert observation of behaviour). Child language development at 21 months was tested in their homes (direct assessment). At 24 months, child mental development was tested using the Mental Development Index (direct assessment). Child irritability and behaviour problems were reported by the mothers (parent report).
At 4 years, child externalising behaviour problems were measured using the Child Behaviour Checklist (parent report). Mother-child interaction was observed during a child free-play session (expert observation of behaviour). Child language development was measured using the Preschool Language Scales (direct assessment). Child executive function was measured using the Sustained Attention – Leiter International Performance Scale-Revised (direct assessment). Child inhibitory Control was measured using the tap test (direct assessment), walk a line test (direct assessment), and day-night test (direct assessment).
At 6 years, behavioural problems were measured using the Child Behaviour Checklist (parent report) (teacher report) and the Conners Continuous Performance Test (direct assessment). Child receptive language was measured using the Peabody Picture Vocabulary Test-Revised (achievement test) and the Preschool Language Scale 3 (achievement test). Child intellectual functioning was measured using the Kaufman Assessment Battery for Children (achievement test).
At age 6 and 9 years, child sustained attention was measured using the Leiter-R Sustained Attention Test (direct assessment). Reading and math achievement were measured using the Kaufman Assessment Battery for Children (achievement test) and the Peabody Individual Achievement Test-Revised (achievement test).
At age 9 years, child executive cognitive functioning (visual attention/ task switching) was measured using the Halstead-Reitan Neuropsychological Test Battery (direct assessment). Working memory errors were measured using the Digital Span Task (direct assessment). Child dysregulated aggression and incoherence were measured using the MacArthur Story Stem Battery (direct assessment).
Maternal socioeconomic conditions, mental health, personality characteristics, obstetric histories psychoactive drug use, conflict with partners, conflict with their own mothers, and experiences of domestic violence were measured using interviews (diagnostic interview). Maternal life course was measured using interviews (diagnostic interview). Mother-infant interaction was measured using video recordings (expert observation of behaviour).
During the four-year follow-up, maternal psychologic resources were measured using interviews (diagnostic interview). Standardised assessment of subsequent pregnancies, education, work, use of welfare and food stamps, use of substances, mental health, and sense of mastery were measured using interviews (diagnostic interview). Home environments were measured using the Home Observation for Measurement of the Environment Inventory (direct assessment).

Findings

This study identified statistically significant positive impact on a number of child and parent outcomes.
Child outcomes include:

- Improved infant responsiveness (child age 6 months)

Study 4

Citation: Dutch trial

Design: RCT

Country: Netherlands

Sample: 460 young (up to 25 years), first-time Dutch mothers with low educational attainment and at least one other risk factor

Timing: Post-test; 1-year follow-up

Child outcomes:

- Reduced internalising behaviour problems
- Reduced child abuse and neglect

Other outcomes:

- Reduced domestic violence (at childbirth) Reduced smoking (at childbirth) Increased attempted breastfeeding (between childbirth and child age two) Increased breastfeeding duration (between childbirth and child age two) Improved home environment (child age two)

Study rating: 3

Mejdoubi, J., van den Heijkant, S., van Leerdam, F. J. M., Crone, M., Crijnen, A., & HiraSing, R. A. (2014). Effects of nurse home visitation on cigarette smoking, pregnancy outcomes and breastfeeding: A randomized controlled trial. *Midwifery, 30*, 688 – 695.
Mejdoubi, J., van den Heijkant, S. C. C. M., van Leerdam, F. K. M., Heymans, M. W., Hirasing, R. A., & Crijnen, A. A. M. (2013). Effect of nurse home visits vs. usual care on reducing intimate partner violence in young high-risk pregnant women: A randomized controlled trial. *PLOS One*, DOI: 10.1371/journal.pone.007818.
Mejdoubi, J., van den Heijkant, S. C. C. M., van Leerdam, F. J.M.,Heymans, M. W., Crijnen, A., & Hirasing, R.A. (2015).The effect of VoorZorg, the Dutch Nurse-family Partnership, on child maltreatment and development: A randomized controlled trial. *Plos One*, DOI:10, 1371/journal.pone.0120182.

Study design and sample

The fourth study is a rigorously conducted RCT.
This study involved random assignment of first-time Dutch mothers to an FNP with an enhanced smoking cessation programme or a business-as-usual control group.
This study was conducted in the Netherlands with a sample of 460 young (? 25 years), first-time Dutch mothers who had low educational attainment and at least one other risk factor: no social support, experience of domestic violence, psychosocial symptoms, unwanted and/or unplanned pregnancy, financial problems, housing difficulties, no education and/or employment and alcohol and/or drug use.

Measures

Child development was measured using the Child Behavior Checklist (parent report). Child abuse rates were measured using CPS child abuse reports (expert observation of behaviour).
Prevalence of cigarette smoking during pregnancy and two months post birth were measured by researchers via interview (diagnostic interview) Breastfeeding initiation and duration were measured using interviews (diagnostic interview). Prevalence of interpersonal violence victimisation and perpetration were measured using the Conflict Tactics Scale (parent report). Adverse pregnancy outcomes, birthweight and gestational age were measured using interviews (diagnostic interview). Home environment was measured using the Home Observation for Measurement of the Environment (direct assessment).

Findings

This study identified statistically significant positive impact on a number of child and parent outcomes.
Child outcomes include:

- Reduced internalising behaviour problems (immediately after the intervention)
- Reduced child abuse and neglect (up to 1 year after the intervention)

Study 5

Citation: UK trial

Design: RCT

Country: United Kingdom

Sample: 1,645 first-time teen mothers (up to 19 years) living in disadvantaged communities throughout England

Timing: Post-test; 3-year follow-up; 5-year follow-up

Child outcomes:

- Reduced developmental concerns
- Reduced rate of developmental delay in language
- Improved school readiness
- Improved reading ability

Other outcomes:

- Improved self-efficacy (child aged two)

Study rating: 3

Robling, M., Bekkers, M., Bell, K., Butler, C. Cannings-John, R., Channon, S., Corbacho Martin, B., Gregory, J., Hood, K., Kemp, A., Kenkre, J., Montgomery, A.A., Moody, G., Owen-Jones, E., Prof Pickett, K., Richardson, G., Roberts, Z.E.S., Ronaldson, S., Sanders, J., Stamuli, E., & Torgerson, D. (2015). Effectiveness of a nurse-led intensive home-visitation programme for first-time teenage mothers (Building Blocks): A pragmatic randomised controlled trial. *The Lancet*, http://dx.doi.org/10.1016/S0140-6736(15)00392-X.

Study design and sample

The fifth study is a rigorously conducted RCT.
This study involved random assignment of first-time teen mothers to an FNP treatment group and usual care group.
This study was conducted in the UK, with a sample of 1645 first-time teen mothers (? 19) living in disadvantaged communities throughout England.

Measures

During and immediately after the intervention, child cognitive development was measured using items from the Schedule of Growing Skills (parent report). Child language development was measured using the Early Language Milestone (parent report).
At 34 – 36 weeks gestation, maternal health and wellbeing were measured using maternal report (parent report) and data from Health and Social Care Information Centre (HSCIC) (expert observation of behaviour). Smoking rates were measured using maternal report (parent report) and urine samples (expert observation of behaviour). Smoking cessation method was measured using maternal report (parent report). Relationship quality was measured using the Golombok Rust Inventory of Marital State (parent report). Primary care or secondary care attendance/admission were measured using maternal report (parent report) and from the HSCIC (expert observation of behaviour). Parenting beliefs, behaviours, and experience were measured using maternal report (parent report).
At birth, data on pregnancy, birth, and neonatal outcomes and use of services were measured using maternal report (parent report) and from the HSCIC (expert observation of behaviour).
During and immediately after the intervention, data on maternal socioeconomic status (NEET status, hours in formal education, paid employment, type of employment, homelessness), health and wellbeing (general health status, depression, post-natal depression, self-efficacy), health behaviour (smoking rates, smoking cessation method, contraceptive use and method), subsequent pregnancies, social support (social support and networks, family resources, relationship quality), use of services (primary or secondary care attendance/admission, additional non-health services, foster care), and use of health services (childcare, immunisations, emergency attendance and admissions, primary care consultation, medically attended injuries and ingestions) were measured using maternal report (parent report) data from HSCIC (expert observation of behaviour), primary care centres (parent report), the Abortions Statistics Manager at the Department of Health (expert observation of behaviour), and the Coverage of Vaccination Evaluated Rapidly (COVER) (expert observation of behaviour). Parenting beliefs, behaviours, and experience were measured using maternal report (parent report). Breastfeeding practices were measured using maternal report (parent report).

Findings

This study identified statistically significant positive impact on a number of child and parent outcomes.
Child outcomes include:

- Reduced developmental concerns (immediately after the intervention)
- Reduced rate of developmental delay in language (immediately after the intervention)
- Improved school readiness (3 years after the intervention)
- Improved reading ability (5 years after the intervention)

Guidebook

The EIF Guidebook provides information about early intervention programmes that have at least preliminary evidence of achieving positive outcomes for children. It provides information based on EIF's assessment of the strength of evidence for a programme's effectiveness, and on detail about programmes shared with us by those who design, run and deliver them.

The Guidebook serves an important starting point for commissioners to find out more about effective early interventions, and for programme providers to find out more about what good evidence of impact looks like and how it can be captured. As just one of our key resources for commissioners and practitioners, the Guidebook is an essential part of EIF's work to support the development of and investment in effective early intervention programmes.

Our assessment of the evidence for a programme's effectiveness can inform and support certain parts of a commissioning decision, but it is not a substitute for professional judgment. Evidence about what has worked in the past offers no guarantee that an approach will work in all circumstances. Crucially, the Guidebook is not a market comparison website: ratings and other information should not be interpreted as a specific recommendation, kite mark or endorsement for any programme.

How to read the Guidebook

EIF evidence standards

About the EIF Guidebook

EIF

The Early Intervention Foundation (EIF) is an independent charity and a member of the What Works network. We support the use of effective early intervention for children, young people and their families: identifying signals of risk, and responding with effective interventions to improve outcomes, reduce hardship and save the public money in the long term.

We work by generating evidence and knowledge of what works in our field, putting this information in the hands of commissioners, practitioners and policymakers, and supporting the adoption of the evidence in local areas and relevant sectors.

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