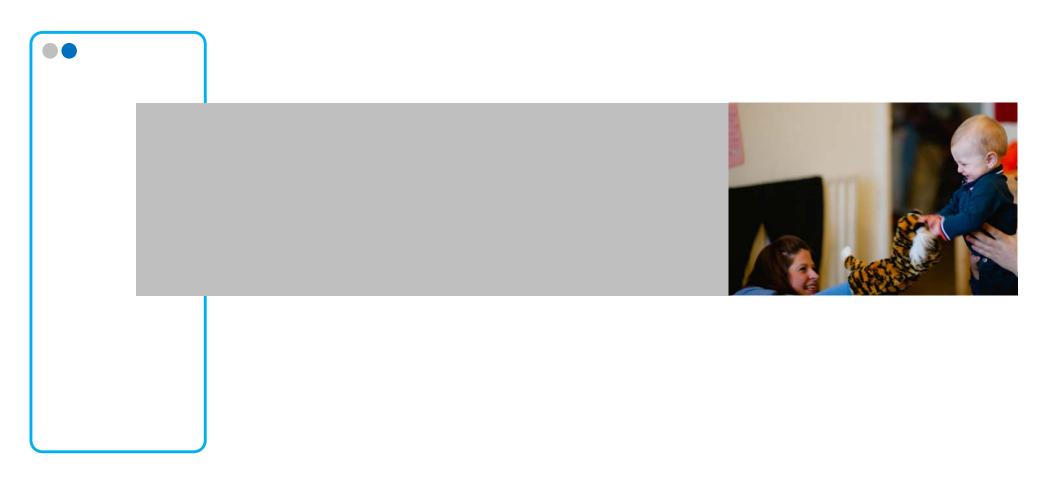
The economic case for the Family Nurse Partnership (FNP) programme

Summary of publicly available information for decision makers in the UK



30 October 2014





Introduction

Answers to key decision maker questions

Technical appendix

About the authors

Most reliable information that may be used as a reference for decision making

The aim of this report is to provide decision makers in the UK, including local commissioners, with information on the economic case for the FNP programme

Caveats and limitations

The Social Research Unit (SRU) at Dartington and Aldaba completed an independent review of the economic case for the FNP programme

- Drawing on international and UK sources with a focus on randomized controlled trials
- Using quality assessments to discard unreliable information
- Tailoring conclusions to the UK context as much as possible

This report summarizes the conclusions of SRU and Aldaba in a way that makes sense to decision makers

- This involves compromises between technical details and plain English
- The appendix provides technical details for specialized audiences

Estimates of returns on investment were last updated in 2013

Updating the estimates with the latest information on costs, outcomes and benefits was out of scope

The information in this report may change as findings from the UK trial become available

- The UK randomized controlled trial includes an economic evaluation
- Findings are expected to become available in 2015

This report is intended to be used as general guidance by decision makers in the UK

- Estimates are not tailored to specific local areas
- Only those with technical expertise may use this report as a basis to produce estimates tailored to local areas

Take away

SRU and Aldaba included in this report the public information they concluded to be most reliable based on quality assessments.

Please do check the results of the UK trial when they become available in 2015.

Introduction

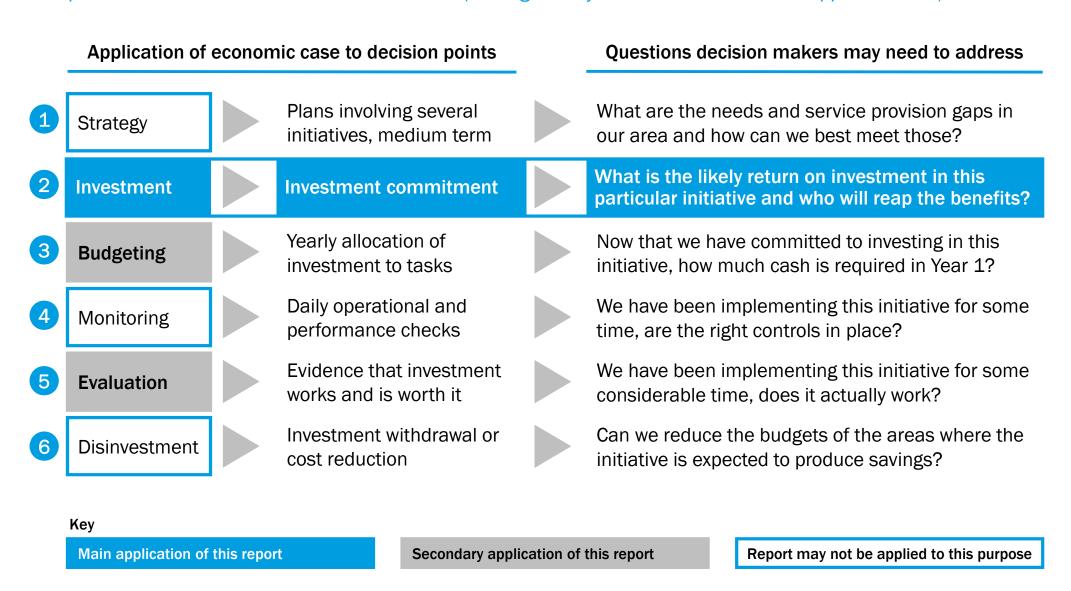
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Why do I need to know about the economic case for FNP?

This report provides information which decision makers may use as a reference as it is presented, or as a basis to produce estimates tailored to their local areas (as long as they have suitable technical support to do so)



How much does it cost?

At 25 cases per nurse, programme costs range between £2,500 and £3,700 per case per year. Considering the programme may support cases for up to 2.5 years, the final unit cost may range between £6,250 and £9,250.

Affordability

Decision makers ask about costs when they need to assess whether the budget they have is enough to pay for an initiative

 Alternatively, they may need to calculate a realistic cost figure to request a new budget

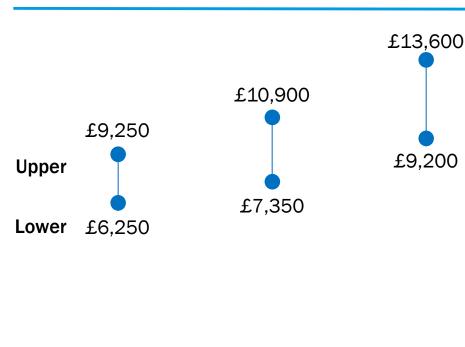
Maximum capacity as set out in the license model for the FNP programme is 25 cases per nurse

- FNP National Unit guidance says that sites implementing the programme should aim for 22 to 23 cases per full-time equivalent nurse
- In addition, programme supervisors are expected to support 2 to 5 cases

The affordability question needs to be supplemented with economic case information

The remainder of this report elaborates on this

If 25 case per nurse capacity is not met...



20 cases

25 cases

15 cases

Important

When budgeting, please note that the unit costs included in this report exclude some additional costs such as licensing, some required training for nurses, some materials, site support on quality improvement and fidelity monitoring.

These additional costs are currently provided by the FNP National Unit and funded by the Department of Health and Public Health England for current NHS England commissioned places. The expectation is that this model of funding will continue for these places.

Any budgeting for future expansion will need to be mindful of the additional National Unit costs, currently paid by the Department of Health, Public Health England. Indications of these additional costs are not available.

What key outcomes may be experienced in the shorter term?

Decision makers may expect improvements in abuse and neglect, emotional development, breastfeeding, domestic violence and early years education within the 2.5 years when child and mum participate in the programme

Child

	Improves breastfeeding
	Commits less domestic violence
	Engages more in early development activities with child
	Is more likely to enroll child in early years education
Experiences less abuse and neglect	Improves quality of home environment
Improves emotional development	Reduces substance misuse
Improves physical, psychomotor and neuro development	Experiences less domestic violence
Improves cognitive and language development	Avoids subsequent pregnancies
Displays less aggressive behaviour	Improves parenting skills
Requires less use of health services	Requires less use of health services

What key outcomes may be experienced mainly in the longer term?

Decision makers may expect reductions in the use of welfare services in the longer term, once child and mum exit the programme

Child	Mum
Greater educational achievement	
Avoids foster care placement	
Improves mental health and emotional wellbeing	
Improved access to special educational need support	Requires less use of welfare system
Requires less use of welfare system	Commits less crime
Reduces substance misuse	Greater educational achievement
Commits less crime	Improves mental health
Is more likely to be employed	Is more likely to be employed

Important

All outcomes are part of a chain that spans over time. For example, cognitive development at age 2 is linked with educational achievement later on in life.

Whether the outcomes may be experienced in the shorter or longer term is just an indication.

Mum

What is the likely return on investment?

Child

1/2

Based only on the outcomes monetized so far in the UK, for each £1 invested in the programme society obtains £1.94 at an annual rate of 6 per cent return on investment

Shorter-term returns on £1 invested

		Increases breastfeeding
		Commits less domestic violence
		Engages more in early development activities with child
		Is more likely to enroll child in early years education
Experiences less abuse and neglect	£0.06	Improves quality of home environment
Improves emotional development		Reduces substance misuse
Improves physical, psychomotor and neuro development		Experiences less domestic violence
Improves cognitive and language development		Avoids subsequent pregnancies
Displays less aggressive behaviour	£0.01	Improves parenting skills
Requires less use of health services		Requires less use of health services

Risk of loss: 29 per cent of the cases are likely to represent a loss, or in other words, to experience none of the returns

What is the likely return on investment?

2/2

Based only on the outcomes monetized so far in the UK, for each £1 invested in the programme society obtains £1.94 at an annual rate of 6 per cent return on investment

Child	Longer-term retur	ns on £1 invested	Mum
Greater educational achievement	£0.45		
Avoids foster care placement			
Improves mental health and emotional wellb	peing		
Improved access to special educational need	d support £0.06	Requires less use of welfare s	ystem
Requires les use of welfare system		Commits less crime	£0.04
Reduces substance misuse		Greater educational achievem	ent £1.36
Commits less crime	£0.08	Improves mental health	
Is more likely to be employed		Is more likely to be employed	

Take away

£1.94 return for each £1 invested suggests that the programme may represent value for money.

But this is over the lifetime of the child, with most returns happening in the longer term.

Each year, the return is equivalent to 6 per cent of the initial investment.

Approximately one in three cases will represent a loss.

The SRU's Investing in Children model will update all these figures once the results of the UK trial become available in 2015.

What are the priorities that make returns on investment more likely?

When using economic case information, decision makers require clarity as to who reaps the benefits and what needs to be prioritized to make estimated returns more likely

Clarifications and priorities

Most outcomes have not been monetized yet

- Decision makers are advised to supplement return on investment estimates with qualitative information
- The unit costs included in this report apply to a team of four nurses, one supervisor and 0.5 FTE admin staff
- Unit costs are lower, £5,300 to £7,800, for a team of eight nurses, one supervisor, and one admin staff
- The greater the actual unit cost, the lower the returns
- The £1.94 estimate in this report is based on a 25 caseload
- If actual caseload is 15, returns may be expected to be as low as £1.08, just above breaking even
- Return on investment estimates represent the value of the outcomes for decision making purposes only
- They do not represent cashable savings, therefore they should not be used as a basis to cut budgets
- Most returns are long term and do not come back to the investing organisation
- Approximately 33 per cent of the total returns on investment included in this report are for the taxpayers as a whole, not necessarily the investing organisation
- Only £0.45 out of the £1.36 associated with the mum's educational achievement come back to the taxpayers
- Education and crime outcomes have important returns but the information on those is less reliable
- Some of the publications we have reviewed found no significant change in these outcomes
- Partly as a result of this, on 29 per cent of the occasions those investing in the programme will experience losses

Take away

Educational and crime related outcomes have the greatest returns, but the information on those is less reliable.

This means that in practice those outcomes may not be experienced to the levels required for the estimates presented in this report to hold.

Therefore, from a value for money perspective, the more decision makers reinforce the aspects of the programme that work towards educational and crime related outcomes, the more likely they will be to facilitate the returns on investment included in this report.

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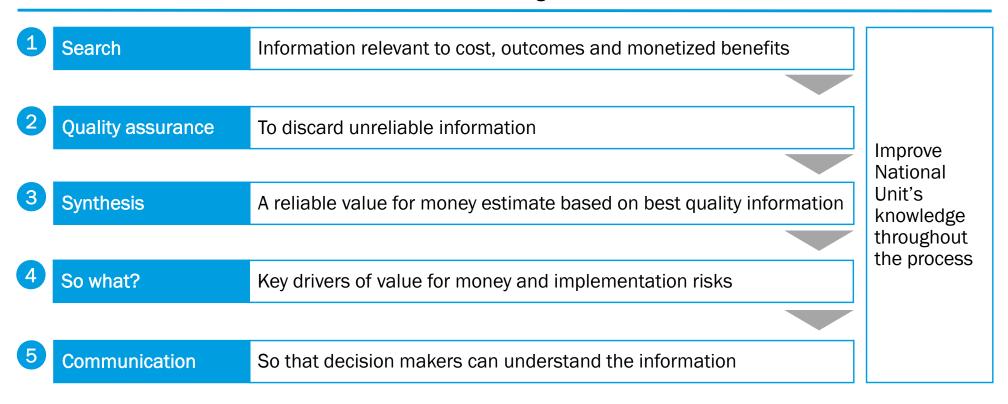
Benefits

About the authors

An independent review to identify most reliable information

The focus of this technical appendix is on Review stage 3

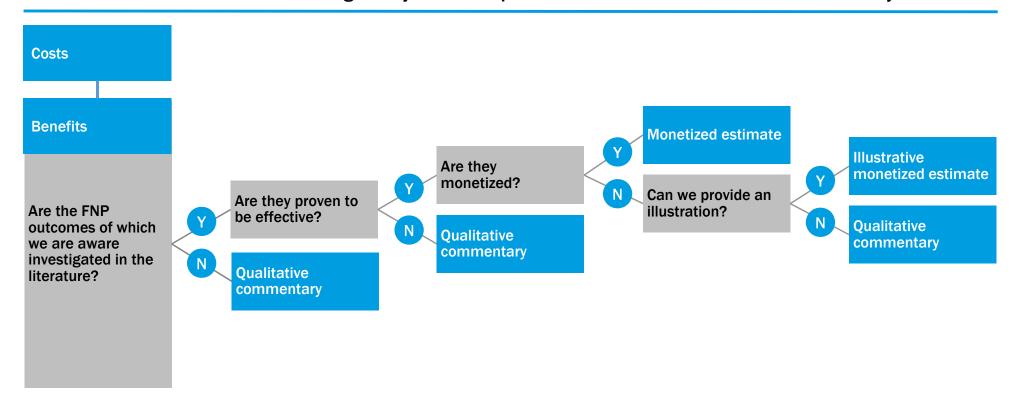
Review stages



Objectives of the review

The review focused on the costs, outcomes and monetized benefits associated with the programme

Breakdown of Review stage 3: Synthesis to produce a reliable estimate of value of money



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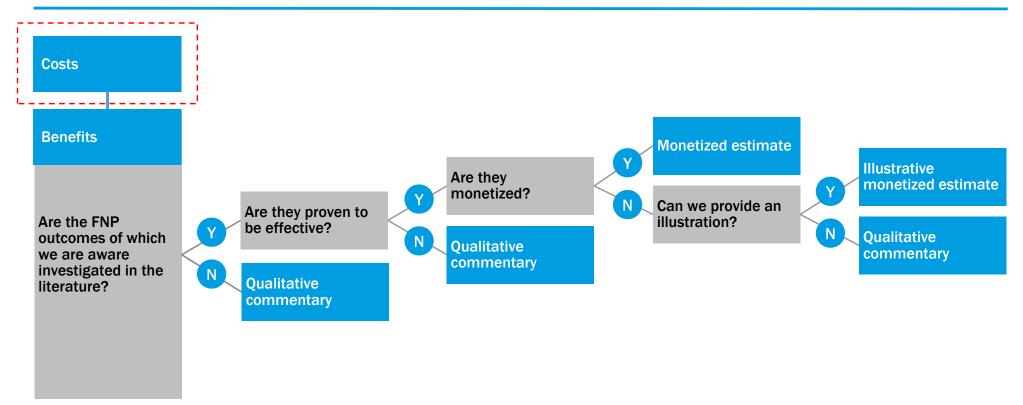
Outcomes

Benefits

Review of costs 1/2

We reviewed the costing exercise undertaken by the National Unit in 2012

Breakdown of Review stage 3: Synthesis to produce a reliable estimate of value of money



The 2012 costing exercise aimed to estimate programme costs, excluding additional costs by the FNP National Unit

Review of costs 2/2

We assessed the extent to which some key cost items were included in the 2012 costing exercise and how important these are for decision makers who are considering whether to invest in the programme

		Included?	Importance
	1 Initial training and technical assistance	•	111
Set-up	2 Curriculum and materials		111
	3 Licensing	0	111
	Ongoing curriculum and materials		//
	5 Staffing		111
Running	6 Ongoing training and technical assistance	•	//
	7 Fidelity monitoring and evaluation	0	11
	8 Ongoing licensing	0	111
Other	9 Value of the time of programme participants		√ √

Costs included in the body of this report exclude licensing, some training and materials, quality improvement and fidelity monitoring

Why is it important to include all the relevant costs in decision making?

Government guidance requires policy and programme evaluations, including cost-benefit analyses, to estimate all the resources involved, or in colloquial terms 'go full cost'

HM Treasury's Green Book

The Green Book provides public sector organisations with guidance on how to conduct evaluations

Cost-benefit analyses quantify in monetary terms as many of the costs and benefits of a programme as feasible

- This includes items for which the market does not provide a measure of economic value
- In the case of FNP, this includes National Unit overheads

In reference to accountancy, the Green Book states:

 'Cashflows and resource costs are important, however, they do not provide the opportunity cost, and therefore cannot be used to understand the wider costs and benefits'

National Institute for Clinical Excellence (NICE)

No standard method has yet been devised to apportion costs when more than one government department, local authority or third-sector organisation are involved.

- This may prove particularly important when one organisation secures the benefits, but another is required to fund it
- A broader 'societal' perspective ensures that all relevant costs are included, regardless of who pays for them
- NICE recommends that the approach chosen is explained and justified

NICE: A broader 'societal' perspective ensures that all relevant costs are included, regardless of who pays for them

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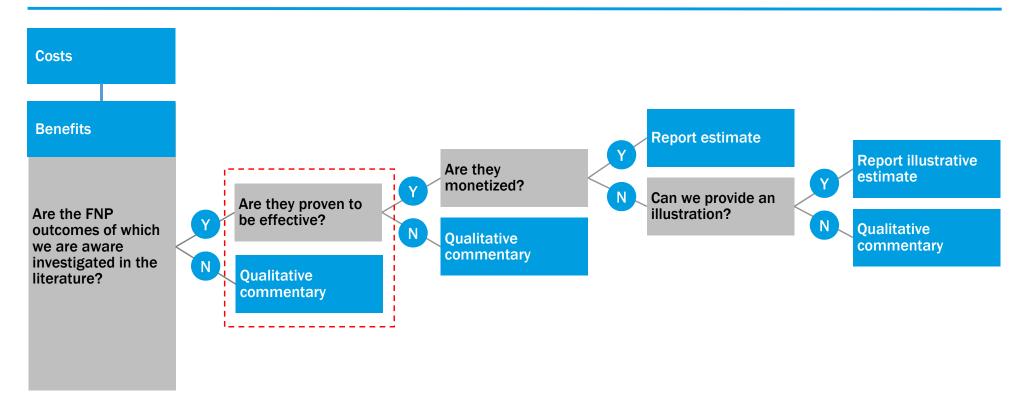
About the authors

Review of outcomes

1/5

The aim of our review was to identify the key outcomes of the programme

Breakdown of Review stage 3: Synthesis to produce a reliable estimate of value of money



Review of outcomes 2/5

We reviewed the latest publications for the three US trials, the Dutch trial and the German trial

Systematic search

We ran systematic searches in Google Scholar

- Key words included 'family nurse partnership', 'evaluation', 'Pro Kind', among others
- First 100 hits for each combination of key words reviewed
- Over 50 publications deemed relevant

For completeness, we checked we had not missed any publication within scope through additional searches

- Information available in the FNP National Unit website
- 'Snowballing' to identify publications by checking the references included in the first publications reviewed
- Other relevant publications based on the expert knowledge held by the FNP National Unit and the SRU staff

As a result of time and scope constraints, we decided to review the five latest publications for the five existing randomized controlled trials

• Three US trials: Elmira, Memphis and Denver; one German trial; one Dutch trial

This resulted in a selection of 19 publications

- Note there are fewer than five publications for some of the trials
- The selection includes all available publications for the Denver, Dutch and German trials
- The selection includes publications that have been made available in 2013-14
- Therefore, our review supplements the meta-analyses conducted by the Washington State Institute for Public Policy which include publications relevant to the FNP programme only up to 2013
- Most recent publications also include information on key outcomes measured in older publications, therefore those key outcomes are also part of our review

Review of outcomes

3/5

These are the 19 publications we selected for detailed outcome mapping and review

Summary citation Full citation Trial

Eckenrode et al 2000
Eckenrode et al 2010
Izzo et al 2005
Jungmann et al 2009
Jungmann et al 2010
Kitzman et al 2000
Kitzman et al 2010
Mejdoubi et al 2013
Mejdoubi et al 2014
Olds et al 1998
Olds et al 2002
Olds et al 2004a
Olds et al 2004b
Olds et al 2007
Olds et al 2010
Olds et al 2014a
Olds et al 2014b
Sandner 2013
Zielinski et al 2009

Eckenrode, J., Ganzel, B., Henderson Jr, C. R., Smit	th, E., Olds, D. L., Powers, J., & Sidora, K. (2000). Preventing child abuse and neglect with
a program of nurse home visitation: the limiting eff	ects of domestic violence.Jama, 284(11), 1385-1391.
Eckenrode, J., Henderson, C. R., Jr., Powers, J., Ca	mpa, M., Lucky, D. W., Olds, D., Sidora-Arcoleo, K. (2010). Long-term effects of prenatal
and infancy nurse home visitation on the life cours	e of youths: 19-year follow-up of a randomized trial. Archives of Pediatrics and Adolescent
Medicine, 164(1), 9-15	
Izzo, C. V., Eckenrode, J., Smith, E. G., Henderson .	Ir, C. R., Cole, R., Kitzman, H., & Olds, D. L. (2005). Reducing the impact of uncontrollable
stressful life events through a program of nurse ho	me visitation for new parents. Prevention Science, 6(4), 269-274
Jungmann T. Ziart V. Kurtz V. 9 Brand T. (2000)	Descenting advance developmental autoemee and early anget conduct problems through
	Preventing adverse developmental outcomes and early onset conduct problems through
prenatal and infancy nome visitation: The German	pilot project "Pro Kind". European Journal of Developmental Science, 3 (3), 292-298
Jungmann, T., Kurtz, V., Brand, T., Sierau, S., & von	Klitzing, K. (2010). Präventionsziel Kindergesundheit im Rahmen des Modellprojektes "Pro
Kind ".Bundesgesundheitsblatt-Gesundheitsforschi	ung-Gesundheitsschutz, 53(11), 1180-1187.
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on maternal life course: a 3-year follow-up of a ran-	domized trial. Jama, 283(15), 1983-1989
Kitzman, H. J., Olds, D. L., Cole, R. E., Hanks, C. A.,	Anson, E. A., Arcoleo, K. J., 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	
Maidaubi I waa daa Haiikaat C O waa laaadaa	E. I. Harmana M. W. Hiraning D. A. Q. Oriinan A. A. (20042). Effect of arrange beauty rights
	F. J., Heymans, M. W., Hirasing, R. A., & Crijnen, A. A. (2013). Effect of nurse home visits
vs. usual care on reducing intimate partner violence	e in young high-risk pregnant women: a randomized controlled trial. PloS one, 8(10), e78185
Mejdoubi, J., van den Heijkant, S. C., van Leerdam	F. J., Crone, M., Crijnen, A., & HiraSing, R. A. (2014). Effects of nurse home visitation on
cigarette smoking, pregnancy outcomes and breast	feeding: A randomized controlled trial. <i>Midwifery</i> , 30 (6), 688-695
Olds, D., Henderson, C. R., Jr., Cole, R., Eckenrode	J., Kitzman, H., Luckey, D., Powers, J. (1998). Long-term effects of nurse home
visitation on children's criminal and antisocial beha-	vior: 15-year follow-up of a randomized controlled trial. JAMA, 280(14), 1238-1244
Olds, D. L., Robinson, J., O'Brien, R., Luckey, D. W.,	Pettitt, L. M., Henderson, C. R., Jr., Talmi, A. (2002). Home visiting by paraprofessionals
and by nurses: A randomized, controlled trial. Pedia	trics, 110(3), 486-496
Olds, D. L., Kitzman, H., Cole, R., Robinson, J., Sido	ra, K., Luckey, D. W., 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., Robinson, J., Pettitt, L., Luckey, D. W., F	lolmberg, J., Ng, R. K., Henderson, C. R., Jr. (2004). Effects of home visits by
paraprofessionals and by nurses: Age 4 follow-up re	esults of a randomized trial. Pediatrics, 114(6), 1560-1568
Olds, D. L., Kitzman, H., Hanks, C., Cole, R., Anson,	E., Sidora-Arcoleo, K., Bondy, J. (2007). Effects of nurse home visiting on maternal and
child functioning: Age-9 follow-up of a randomized t	rial. Pediatrics, 120(4), 832-845
Olds, D. L., Kitzman, H. J., Cole, R. E., Hanks, C. A.,	Arcoleo, K. J., Anson, E. A., Stevenson, A. (2010). Enduring effects of prenatal and
infancy home visiting by nurses on maternal life co-	urse and government spending: Follow-up of a randomized trial among children at age 12
years. Archives of Pediatrics & Adolescent Medicine	e, 164 (5), 419-424
Olds, D. L., Kitzman, H., Knudtson, M. D., and Anso	n, E. (2014). Effect of home visiting by nurses on maternal and child mortality: Results of a
2-decade follow-up of a randomized clinical trial. JA	- · · · · · · · · · · · · · · · · · · ·
-	ckey, D. W., Knudtson, M. D., & Robinson, J. (2014). Effects of Home Visits by
	w-up of a Randomized Trial at Ages 6 and 9 Years. JAMA pediatrics, 168(2), 114-121.
-	rvention on child development and early skill formation: Evidence from a randomized
controlled trail (No. 518). Discussion Paper, Wirtsch	naftswissenschaftliche Fakultät, Leibniz Universität Hannover
Zielinski, D. S., Eckenrode, J., & Olds, D. L. (2009).	Nurse home visitation and the prevention of child maltreatment: Impact on the timing of
official reports. Development and psychopathology,	21(02), 441-453

Elmira
Elmira
Elmira
Germany
Germany
Memphis
Memphis
Netherlands
Netherlands
Elmira
Denver
Memphis
Denver
Memphis
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Denver
Germany
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Review of outcomes

4/5

We reviewed all the outcomes included in our selection of publications with a view to understanding how likely they are to happen, and if they happen, how big a difference they can make in the lives of programme participants

Sources

Outcome mapping

Outcome classification

Age at which outcome is

Synthesis

200+ outcome metrics identified in 19 publications

Participant • Child, mum

measured

how likely?

Synthesis of broad outcomes within categories

Selection of 150 broad outcome metrics

• < 0.05 is significant

Statistical significance:

• If significance or size of outcomes within categories was inconsistent, we erred on the side of caution

Effect size: how big?

• < 0.2 is small

 Note this does not follow the metaanalysis methodology

30 outcome categories

Significant, not small effect

Not significant, not small size

12

outcome

domains

Not significant, small effect

Significant, small effect

19 recent publications relevant to the five randomized controlled trials

Reporting (slides 9 and 10 of this report)

Note: 1. Where outcomes overlapped, we selected the broadest, for example a comprehensive clinically tested questionnaire to assess aggressive behaviour prevails over number of self-reported incidents as a result of aggressive behaviour. 2. Effect size in this slide refers to Cohen's d. 3. Slides 9 and 10 of this report 28 include the 30 outcome categories. 4. Example of 'erring on the side of caution': if one outcome has a significant effect, and another one has a not significant effect, then the relevant outcome category is classified as 'not significant' for the purpose of this review

Important

Key outcomes presented in slides 9 and 10 of this report are a summary of our review for non technical audiences.

Our review does not follow the meta-analysis methodology. Instead, it summarizes the available information systematically, based on an assessment of its quality and erring on the side of caution, for the purpose of communicating the economic case for the FNP programme to decision makers.

The programme has been implemented differently in the US and Europe. Removing from our review the European trials, which are not entirely consistent with the license model, would exclude some of outcomes included in slides 9 and 10, but this would not change the assessment of the rest of the outcomes.

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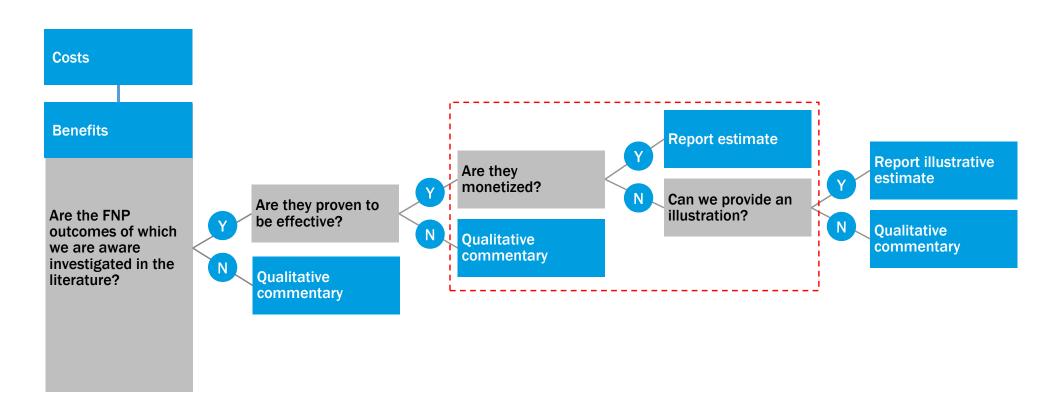
Benefits

About the authors

Identification of returns on investment

We used the estimates produced by the Social Research Unit's Investing in Children model to understand returns on investment

Breakdown of Review stage 3: Synthesis to produce a reliable estimate of value of money



We overlaid our outcome review with the Investing in Children estimates of return on investment – see slides 12 and 13

Investing in Children

This model uses information to place a value on the improvements in outcomes that are expected for each child or family receiving a set of interventions

Methodology behind Investing in Children

The model builds on the approach of the Washington State Institute for Public Policy to investment advice It uses empirical evidence of the impact of the intervention on monetisable outcomes, the most accurate and cautious estimates of rates of future problems, and the costs related to those problems over the long term.

This involves:

- Predicting the rates of outcomes in the target population without the intervention
- Mapping services and related costs
- · Placing values on changes in outcomes
- Using variance to determine the probability of a net benefit or loss

Evidence of the impact of the intervention is synthesized through meta-analysis

The net costs related to future problems are calculated through econometric modelling

The model only includes outcomes that can be monetized

All interventions will have a wider impact on outcomes for children and families than just those we can
monetise, but the model only includes those benefits that we can confidently and cautiously account for using
real evidence and data.

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This report is the result of a collaboration between the Social Research Unit and Aldaba



The Social Research Unit at Dartington is an independent charity that seeks to increase the use of evidence of what works in the design and delivery of services for children and families.

- Strong advocate of prevention and early intervention based approaches
- Over fifty years' experience of researching what works in improving children's outcomes across education, health, social care and criminal justice

The SRU disseminates research on what works to people working at the frontline of services

- This bridges the gap between social science evidence and everyday service delivery
- Significant expertise in the design, delivery and implementation of evidence-based programmes and interventions

Hyperlink to the website:

http://www.dartington.org.uk/



Aldaba is a company that helps organisations when the best way forward is not clear

From the chief executive to the newest intern, we work with the people who do the tasks every organisation needs to keep improving

- Strategies: Where you want to be and how to get there
- Operations: How you work on the day to day
- Evaluations: What you learn from your experience

The organisations we work with have chosen to make people's lives better based on information

- Economic analysis: Whether you get back more than you put it
- Statistics: What is really happening to most people, not just a few
- Qualitative techniques: The human side of things

Hyperlink to the website:

http://www.aldaba.co.uk/