What Works *for* Children's Social Care

Cardiff University / Prifysgol Caerdydd

EMMIE SUMMARY

Home visiting programmes for the prevention of child maltreatment

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Dalziel, K. and Segal, L. (2012). Home visiting programmes for the prevention of child maltreatment: cost-effectiveness of 33 programmes. Archives of Disease in Childhood, 97, 787-798

About What Works for Children's Social Care

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What Works for Children's Social Care

Home visiting programmes for the prevention of child maltreatment: cost-effectiveness of 33 programmes

What is the intervention?

Home-visiting programmes are a group of interventions that provide support and guidance to new and pregnant mothers. This systematic review carried out by Dalziel and Segal (2012) focused on the cost-effectiveness of home visiting programmes designed to prevent children from entering care. In this review, home visiting programmes were included that began during pregnancy or within six months of birth, and which considered the impact of the programme on child abuse outcomes. In total, 33 home visiting programmes were considered, but detailed analysis of cost effectiveness was explored using data from 18 studies that carried out evaluations of the following 12 programmes:

- Special Families Care Project[1]
- Health Families[2]
- Home Visiting Programme [3, 4, 5, 6]
- Early Intervention Programme[7]
- Hawaii Healthy Start Programme[8]
- Early Start[9]
- Family Partnership Model[10]
- Nurse Home Visiting[11]
- Paraprofessional Home Visiting[12]
- Children and Youth Programme Module[13]
- Parents as Teachers Programme[14,15,16]
- Nurse Family Partnership[17, 18]

Home visiting programmes varied in terms of programme components, length, intensity, target populations and cost. However, most programmes followed a structured protocol combining information sharing, service provision and case management. To aid brevity, this summary of Dalziel and Segal's systematic review of cost-effectiveness is supplemented with information from Avellar and others' (2013) systematic review, which assessed the effectiveness of home visiting programmes in reducing child abuse and neglect and improving child health.

Which outcomes were studied?

- Reduction of child maltreatment

How strong is the evidence?

The evidence base in relation to the efficacy of home visiting programmes at reducing child abuse outcomes is relatively strong. Dalziel and Segal (2012) focused on studies with control groups, and of the 18 studies considered in their cost effectiveness analysis, 16 were evaluated through a randomised controlled trial. The authors note two main limitations in the data. First, variation in child abuse definitions can lead to differences in the number of cases reported. Second, incidence of child abuse was calculated using injury and hospitalisation figures and formal child abuse reports. In doing so, the authors used published findings on the relationship of child abuse to injury and hospitalisation, to establish a baseline rate for child abuse. This baseline was adjusted upwards for children who had an injury, accident, hospital admission or who presented at an emergency hospital department. Regarding formal child abuse reports, these figures were translated into substantiated child abuse cases based on the figures presented by the Productivity Commission (2010) in Australia.

Effectiveness: How effective is the intervention examined?

Outcome: Reduction in child maltreatment

Effect rating	+
Strength of Evidence rating	3

Eight programmes[1] reported data relating to injury and hospitalisation. This data was translated into substantiated cases of child abuse by applying an odds ratio of 1.49 (which indicates that a child who is hospitalised is 1.49 times more likely to have been maltreated than a child who has not been hospitalised). Eight programmes[2] reported child abuse reports which were translated into substantiated cases of abuse using figures from the Productivity Commission (2010) in Australia which reported a total of 6.2 reports of abuse per substantiation.

The effectiveness of home visiting programmes ranged from 0.03 to 200 cases of child abuse avoided per 1000 families.

Drawing on findings from Avellar and Supplee (2013), one programme, the Nurse Family Partnership, was found to have positive effects on child abuse outcomes, including health care encounters for injuries or ingestions and substantiated abuse, 15 years after programme enrolment.

[1] Armstrong et al (1999, 2000), Fraser et al (2000); Kitzman et al (2000), Olds et al (2004), Olds et al, (2007); Infante-Rivard et al (1989); Larson (1980); Koniak-Griffin et al (2002, 2003); Barlow et al (2007); Wagner and Clayton (1999); Olds et al (1986. 1988, 1994, 1995, 1997), Eckenrode et al (2000, 2001), Izzo et al (2005)

[2] Koniak-Griffin et al (2002, 2003); Barlow et al (2007); Kitzman et al (2000), Olds et al (2004), Olds et al, (2007); Wagner and Clayton (1999); Olds et al (1986. 1988, 1994, 1995, 1997), Eckenrode et al (2000, 2001), Izzo et al (2005); Infante-Rivard et al (1989); Larson (1980)

Mechanisms: How does it work or is it supposed to work?

The review did not consider the causal mechanisms of home visiting programmes.

Moderators: Who does it work for?

The majority of studies were conducted in the USA followed by Australia, Canada and New Zealand. Only one of the 18 studies took place in the UK.

Seven of the 18 studies considered home visiting for women whose circumstances ranged from 'some elevated risk' to 'medium risk', including adolescent mothers, those on low incomes, those who were socially isolated, in unstable housing or who were described as ambivalent towards their pregnancy. The remaining 11 studies included mothers deemed to be at a 'high risk' or 'very high risk' including where there was current or suspected child abuse, domestic violence, drug use or criminal convictions.

Eleven studies targeted women during pregnancy and the remainder targeted mothers within six months of birth. Most programmes were delivered by paraprofessionals or nurses and midwives. Five programmes aimed at women in high to very high-risk circumstances (Post-natal Home Visiting, Early Start, Home Visiting, Parents as Teachers Programme and Parents as Teachers Programme with a Teen Component and Pre and Post Natal Home Visiting) were delivered by professionals including social workers, psychologists or early childhood tutors. The Special Families Care Project programme (Christensen et al 1984; Velasquez et al, 1984) was delivered by a multi-disciplinary team which included mental health, psychology and substance misuse services.

Programme duration, number of visits and the measurements of reporting in individual studies varied. Some reported total number of visits, hours per week, or number of times per month, whilst others offered visits tailored to individual family needs. However, a number of conclusions could be drawn from the most and least cost-effective programmes. The seven most cost effective programmes ranged from 6 to 30 months in length, with an average of 19.5 months. The number of visits ranged from 6 to 22, although where families had six visits, these visits could last up to four hours in duration. In comparison, the eight least cost-effective programmes ran for 12 months or less and only two delivered more than 20 sessions with three using less than ten visits. These conclusions tentatively point towards the efficacy of more intensive, longer duration programme.

Implementation: How do you do it?

While Avellar and others (2013) note that there are a wide range of home visiting programmes, most adopt a structured protocol and include a combination of information sharing, service provision and case management. Most programmes focus on parenting, such as expanding parent knowledge and emphasising sensitive parenting approaches. Parents are also taught about child health and development including vaccinations, childcare and education.

Home visiting programmes may also include access to other services. Of the 18 studies, nine included home visiting alongside other services such as phone contacts, clinic visits and transportation. Eight studies included a 'whatever it takes approach' (Dalziel and Segal, 2012). This could include social work intervention, housing assistance, parenting groups and other appropriate services and support. Findings indicated that programmes which included service provision alongside home visits were more effective.

Economics: What are the costs and benefits?

How is cost-effectiveness determined?

Cost-effectiveness is determined by estimating the additional cost per case of abuse avoided with the introduction of home visiting programmes compared to the control. This additional cost is described as the incremental cost-effectiveness ratio (ICER) and is calculated as per the equation below.

$$\textbf{ICER} = \frac{\textbf{Home visiting cost} - \textbf{Control cost}}{\textbf{Home visiting outcome} - \textbf{Control outcome}}$$

How were costs measured?

From each study, information on the programme components were extracted, including details of who delivered the programme, administration, training and supervision, travel, equipment and other relevant costs. A total per-family cost was estimated for the home visiting programme and for the control group. However, it is not clear if all programme components were reported in each study, and thus if the total cost estimated included sufficient detail to accurately reflect the true cost of the programme. All costs were reported in Australian dollars at 2010 prices.

How cost-effective is the intervention?

An ICER was estimated for each study, these ranged from A$21,000 (home visiting increases costs by A$1,743 per family and reduces the number of cases of abuse by 0.083) to A$447,000,000 (home visiting increases costs by A$16,420 and reduces the number of cases of child abuse by 0.0004).

Home visiting can be considered cost-effective if the ICER falls below the monetary value given by decision-makers to a case of child abuse avoided, however this value is unknown and controversial to estimate. Dalziel and Segal (2012) thus compare the ICER from each study to the lifetime cost of maltreatment. In an Australian context, the life time costs vary from A$50,366 to A$318,760 with a mean of A$110,253 per child (Taylor et al., 2008). Two studies report ICERs that fall below the mean lifetime cost of maltreatment and an additional five studies report ICERs that fall below the upper estimate of lifetime costs of maltreatment. The seven programmes were noted to be delivered by professional

home visitors, to target women experiencing high levels of risk and to use home visiting as part of a comprehensive programme of activities designed to meet the needs of the target population.

What are the strengths and limitations of the review?

This is a robust review which assessed study bias against the Cochrane Handbook (Higgins and Green, 2009), the Centre for Reviews and Dissemination guidelines (2009) and Edgeworth and Carr's (2000) criteria for child abuse research.

The quality of the economic evaluation was assessed against the Consolidated Health Economic Evaluation Reporting Standards (Husereau et al., 2013), a 24-item checklist providing a list of recommendations for reporting economic evaluations. Three checklist items were not relevant to this review, but the review scored positively on fifteen of the remaining 21 items checklist items, indicating issues with the methods of cost estimation.

The authors report that this is the first economic evaluation of home visiting programmes. However, the costing of the intervention and the analytical methods adopted to estimate the ICERs were limited, reducing the reliability of the cost-effectiveness results reported.

Summary of key points

- The effectiveness of home visiting programmes ranged from 0.03 to 200 cases of abuse prevented per 1000 children.
- This is the first economic evaluation of home visiting programmes. However, cost-effectiveness calculations are limited by the information reported in individual studies relating to the cost of programme components.
- Home visiting programmes for families at medium to high risk of child abuse appear to be most cost-effective where they include service provision alongside home visiting, employ professional visitors and are tailored to the needs of the family.
- Home visiting is an expensive intervention and as such, more robust economic analyses are needed to determine theoretical underpinnings, programme objectives, target populations and longitudinal child outcomes.

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