How Significant is Partnership Formation in Area-Based Projects to Increase Parental Attendance at Maternal and Child Health Services?

Margaret Kelaher[1], David Dunt[1,*], Andrea Nolan[2], Bridie Raban[3] and Rae Walker[4]

[1]*Centre for Health Policy, Programs and Economics, School of Population Health, University of Melbourne, Melbourne, Australia*

[2]*Faculty of Education, Deakin University, Melbourne, Australia*

[3]*Early Childhood Consortium, Faculty of Education, University of Melbourne, Melbourne, Australia*

[4]*School of Public Health, La Trobe University, Melbourne, Australia*

Abstract: *Objectives*: In this study, we assess the importance of area-based partnerships in an initiative to improve access to Maternal and Child Health (MCH) services (known as Best Start) in socially disadvantaged communities in Victoria, Australia.

Methods: The study assessed changes in MCH attendance rates, parental attitudes and local partnership formation before and after the introduction of Best Start projects. Partners involved in Best Start projects were surveyed regarding the extent of local partnership formation (before 54; after 84). Data was collected for MCH attendance using routine records for Best Start with MCH projects (before 1,739; after 1437) and the rest of the State (before 45,497; after 45,953). Two cross-sectional surveys of parents of 3-year old children were used to assess changes in parent's knowledge about, and confidence in using relevant services as well as parental confidence more generally (before 1666; after 1838).

Results: Best Start was significantly associated with improving:

- levels of partnership formation (5 of 7 relevant factors)
- attendance at the 3.5 year MCH visit in Best Start Sites with MCH projects between 2001/02-2004/05.
- parent's access to information (partnership effect);
- confidence about attending the 3.5 year MCH visits (partnership effect); and
- overall parental confidence (project effect only).

Conclusion: Best Start improves participation in the MCH attendance. This is related most directly to improving parent's access to information and overall parental confidence either through local partnership or direct project effects.

Keywords: Partnership, health services, Maternal and Child health, program evaluation, community.

INTRODUCTION

Recognition of the importance of the early years in determining health and educational attainment has led to a number of specially designed, community-based initiatives to improve developmental outcomes among socio-economically disadvantaged children [1, 2]. Some initiatives aim to improve health outcomes through the development of community and service provider partnerships as a way of increasing co-ordination between services. These initiatives aim to identify and address important gaps in service provision so as to meet better community needs. In so doing, they reflect a wider shift towards area-based interventions as part of the Health for All (HFA) principles promoted by the World Health Organisation [3].

Initiatives such as Sure Start in the UK and Best Start in Australia focus on innovations and extensions of services across a wide front [1, 4-7]. The evaluation of Sure Start local programs suggested that the program resulted in improved parenting and better social functioning in children among non-teenage mothers but poorer social functioning among the children of teenage mothers and lower verbal ability among children of single parents who did not work [1]. More recent analysis of Sure Start local programs has suggested better social development among children, less negative parenting and a better home-learning environment and use of services. These program effects seem to apply to all subpopulations and areas [6].

*Address correspondence to this author at the Centre for Health Policy, Programs and Economics, Melbourne School of Population and Global Health, Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne Vic 3010, Australia; Tel: 61 3 8344 0645; Fax: 61 3 9348 1174; E-mail: d.dunt@unimelb.edu.au

These positive though somewhat mixed findings have occurred against a backdrop of criticism of area-based partnership approaches (for all ages) particularly emanating from UK initiatives [8-12]. Much of this criticism has focussed on constraints and barriers to effective implementation rather than testing the principles or mechanisms underlying partnership approaches [13]. This is partly because the complexity of HFA initiatives and area-based variation in programs often obscure important aspects of the interventions [14].

Success in forming partnerships would be expected to be a key determinant of the effectiveness of area-based approaches but it is often not assessed in evaluations of HFA [8, 9, 15]. The evaluation of Sure Start concluded that local programs led by health services were more effective than programs led by other types of services in improving health and developmental outcomes [1]. However it is difficult to know what it was about the leadership provided by a particular sector that affected outcomes [16].

In this paper, we examine to what extent success in partnership formation was responsible for one particular impact of one area-based approach - Maternal and Child Health Centre attendance when the child is at 3.5 years, within the Best Start program, an initiative of the Victorian State Government in Australia. This program aimed to improve early childhood development in 11 disadvantaged communities across metropolitan and non-metropolitan Victoria [17]. It did so through forming partnerships in each of these communities. These partnerships had the responsibility through a priority-setting exercise to develop and deliver projects with separate funding provided.

The aim of the study then is to examine to what extent success in forming partnerships and delivering Maternal and Child Health projects (which may or may not be present) had independent effects on levels of Maternal and Child Health Centre attendance at 3.5 years and to compare the magnitude of these effects across all Best Start Sites.

Outline of the Best Start Program

Best Start is an initiative of the Victorian State Government. It aims to improve the early childhood development in 11 disadvantaged communities across Victoria. Partnerships with representatives from State and local government, non-government agencies as well as local community groups and local parents were

formed in each site. Projects, developed and delivered on behalf of the partnerships were largely designed to add value by increasing co-ordination, co-operation and linkages between services existing services rather than introduce new services or expand existing services [18].

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The program, including both government policy direction and implementation by partnerships has been fully described [18, 19]. The major health outcome areas targeted by Best Start Sites and chosen for study were breast-feeding and attendance at MCH assessments. Not all Sites though pursued these two outcome areas [18].

Characteristics of the Partnerships

Partnerships recruited widely within their own communities, with most Sites having the majority of key stakeholders sitting 'around the table'. Membership typically included early childhood service providers, community organisations and government. Parents were less represented. Most Sites reported that membership remained fairly consistent over the three years of the project with changes occurring in personnel rather than the organisations/ agencies that were represented. All Sites had a designated partnership steering group supported by a Best Start Site Facilitator. Most Site steering groups had around 3-4 working groups as well as other advisory groups.

Intervention Strategies Auspiced by Best Start Partnerships

Used by Best Start partnerships included social marketing, cross-service promotion and co-ordination, attendance reminders to parents as well as the development of playgroups. They had a particular focus on targeting vulnerable and underserved groups [18]. An outline of an illustrative MCH project at one Best Start Site provides an illustration of these strategies.

Activity at this Site focused on collaborative planning, action and reflection by the MCH Team. This

led on to a number of service enhancements. These included a play group being established and 'drop-in' attendance encouraged at one MCH Centre in the Site, 'Lunches' sessions, with child care provided were provided for parents to come together for a meal and listen to a guest speaker on a particular topic. In addition, the playgroup facilitator and/or nurse visited new families with Office of Housing representatives and introduced them to local services. Outreach immunisation sessions commenced at the centre. These were undertaken with the overall aim of promoting attendance at the MCH Centre.

Focus on the 3.5 Year Ages and Stages Visit

In this study we focus on attendance at MCH assessments which are evidence-based interventions of proven value in improving child health outcomes by enabling the early diagnosis and treatment of health and developmental problems [20, 21]. The assessment when the child is 3.5 years old is seen as particularly critical because it enables intervention in developmental problems before school. These can in turn reduce the severity and/or adverse effects associated with any delay in future development [22]. This visit is also seen as a key intervention point to encourage preschool participation which can also improve developmental outcomes [23]. Parents are also provided with a range of information about parenting, health issues and services [17].

METHODS

Design

The study sought to establish in which of two ways, Best Start effects were mediated. The first relates to whether Sites were successful in forming partnerships. The effects of these partnerships may operate through the delivery of MCH projects which many but not all Sites offered. Alternatively partnership effects may be independent of these project effects. It is necessary to disaggregate these effects to properly address the study's primary objective. To do this, the study used a quasi-experimental design to assess changes in attendance rates at MCH before and after the introduction of Best Start with MCH projects using all other areas in the State without a Best Start MCH project as a comparator.

The Victorian Department of Human Services (VDHS) selected the Sites before the start of the study precluding, along with cost, a cluster randomised control trial. The Sites were selected because of worse

social characteristics and health outcomes than the rest of the state [19]. Effects of these social characteristics were adjusted for at the data analysis stage. Intention to treat analysis was used for Sites with projects, given that all eligible parents/children were targeted by the project.

The study was based not only on MCH attendance record but also a more detailed survey of parents concerning the antecedents of their changes in service use, including parental knowledge and self-efficacy levels. Surveys were conducted both before and after the introduction of Best Start projects using two cross-sectional samples of parents of three year old children. The intervention group for the parental survey consisted of Best Start Sites with MCH projects and the control group consisted of Best Start Sites that had not implemented MCH projects.

The success in forming partnerships in each Best Start Site was measured by a survey of members of the Best Start partnerships in the first year of the project and at the end of the project. There is no equivalent data for the rest of the state so overall comparisons could not be made.

Ethics committees at the Victorian Department of Human Services and the University of Melbourne approved the evaluation.

Instruments and Procedures

MCH Attendance Records

Data for MCH participation is routinely collected from clinics, aggregated at LGA level and provided to VDHS. Local clinic data was used where Best Start Sites did not cover the entire LGA. Denominators for MCH projects were based on the total number of children in each area, in each age group. Data was coded in Australian financial years (July 1 to June 30) and included the period from 2000-2001 to 2004/2005.

Parent's Survey

The parent's survey measured parental access to information and level of parental confidence concerning MCH attendance at 3.5 years. The questions were adapted from a number of well-established early childhood development instruments including home observation for measurement of the environment [24], Parents' Evaluation of Developmental Status (PEDS) [25] and the Early Development Instrument [26].

The questionnaire was translated into the three most common community languages across Best Start

Sites (Turkish, Vietnamese and Cantonese). Translated surveys were then back translated for verification of the precision of the questions in relation to the original survey.

The questionnaire was sent to parents attached to the official form used to enrol a child for kindergarten (preschools) in the following year. Distribution methods varied slightly between Sites. A detailed description of the survey and its implementation is included in the evaluation report [18].

Partnership Survey

The VicHealth Partnership Analysis tool consists of 35 questions (each with a 5-point Likert scale) relating to the success of the partnership [27]. These can be summarised to provide scores for seven factors of five question each (maximum score for each dimension being 25). These factors are:- Shared goals and commitment, Appropriate membership, Functional operations, Planning and decision-making, Collaborative action, Overcoming differences and Achievement and continuity. Partnership scores for the seven factors from Best Start partners at each Best Start Site were aggregated into an area level score for that Site.

SAMPLE

MCH Attendance Records

In 2001/02 there were 1,739 children estimated to be eligible for their 3.5 year Ages and Stages Visit in Best Start Sites and 45, 497 in the rest of Victoria. In 2004/05 the numbers were 1437 and 45, 953 respectively.

Parent's Survey

There were 1666 usable questionnaires returned in the Before Best Start round of data collection (early in evaluation period) and 1838 in the After Best Start round (late in evaluation period). While efforts were made to establish exact tallies of surveys sent/handed to parents by Sites, this was difficult to achieve because of variation between Sites. Response rates therefore are likely to underestimate actual return rates. The estimated response rate in the Before Best Start round of data collection was 37.3% assuming 25% wastage of forms. In the After Best Start round where tally numbers were more accurately estimated, the response rate was estimated to be 34.9% (though this is still likely to be an underestimate).

Table **1** compares the characteristics of parents and their families with the characteristics of the population based on LGA level data. The characteristics of the survey sample and the LGA population were similar in terms of the proportion of parents born overseas (OR 95% CI=0.96, 0.62-1.48, p=0.86), parents born in non-English speaking countries (OR 95% CI=0.98, 0.57-1.69, p = 0.95) and families with indigenous children (0.94, 0.53-1.69, p=0.85). However there was an under-representation of one-parent families (OR 95% CI=0.52, 0.38-0.71, p=0.00) in the survey compared to LGA population.

The socio-demographic characteristics of survey respondents in the two rounds of data collection were compared and were very similar.

Partnership Survey

There were 54 usable responses to the partnership tool completed by members of partnerships in the Before Best Start round of data collection and 84 in the After Best Start round of data. There was no way of ascertaining how representative this group was of partners in general.

Analysis

Partnership Formation

Comparison of levels for factors and items Before and After Best Start were made using t-tests.

Table 1: Characteristics of the Parent's Survey Sample Compared to the Population

	Parent's Survey		Population	
	n	% yes	n	% yes
People born overseas	3309	22.0	1105001	21.4
People born overseas in countries where the language spoken is not English	3309	15.3	1105001	15.5
Families with indigenous children	3009	1.4	91990	1.5
Families with one-parent	3009	10.6	91990	18.5

MCH Attendance Records

Multiple logistic regression analysis was used to examine the impact of Best Start on MCH attendance records data, specifically level of participation in a 3.5 year Ages and Stages visit (as the dependent variable). The independent variables were status of Site having a Best Start MCH project or not and time of data collection. The latter was determined as follows. Best Start Sites commenced in January or July 2003. The years compared were the 2001/2002 financial year and the 2004/2005 financial year.

The interaction between Site status of Site and time of data collection was tested in order to assess the intervention (best Start) effect. The analyses controlled for socioeconomic and demographic differences between areas and took into account clustering by Site – see legend Table **4**.

Parents and Partnership Surveys

Multiple logistic regression was again used. There were two models tested.

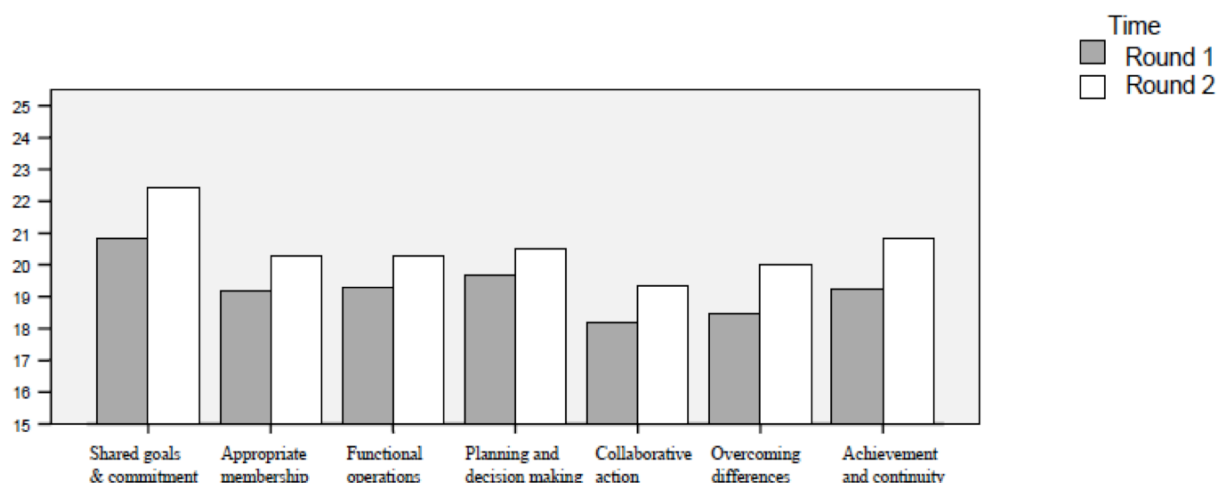**Table 2a: VicHealth Partnership Tool Results Summary**

Table 2b: Individual Questions (& their Factor) in VicHealth Partnership Tool Showing Significant Improvements Across the Evaluation Period

Question	Significance level
The Partners are willing to share some of their ideas, resources, influence and power to fulfil the goal. (Shared goals and commitment)	P<0.001
There is a high degree of trust between Partners (Appropriate membership)	P=0.01
Past barriers to forming partnerships have been addressed (Appropriate membership)	P=0.03
Partners have the necessary skills for collaborative action. (Functional operations)	P=0.02
The roles, responsibilities and expectations of Partners are clearly defined and understood by all other Partners. (Functional operations)	P<0.01
The lines of communication, roles and expectations of Partners are clear. (Planning and decision-making)	P=0.046
There is a participatory decision-making system that is accountable, responsive and inclusive. (Planning and decision-making)	P=0.003
There are regular opportunities for informal and voluntary contact between staff from the different agencies and other members of the partnership. (Collaborative action)	P=0.03
Differences in organisational priorities, goals and tasks have been addressed. (Overcoming differences)	P=0.04
There are informal ways of achieving this. (Overcoming differences)	P=0.005
There are strategies to ensure alternative views are expressed within the partnership (Overcoming differences)	P=0.01
There are resources available from either internal or external sources to continue the partnership. (Achievement and continuity)	P=0.01

Model 1

The first examined MCH project effects alone. The independent variables were the rounds of data collection (at the start or end of Best Start). The dependent variables were the survey questions - Seen information about 3.5 year Ages and Stages visit, Confident child will attend 3.5 year Ages and Stages visit and Confident a good parent. The first two variables were chosen as they were most directly relevant to influencing MCH attendance. The last was chosen as it could only have an indirect rather than direct effect on MCH attendance and could therefore provide additional insight how the presence of MCH project and partnership levels impacted on MCH attendance. The analyses again were conducted taking into account socioeconomic and demographic differences between respondents – see legend of Table **6**.

Model 2

The second model tested both partnership effects and MCH project effects. The partnership measure was based on total scores on the VicHealth partnership tool for each Best Start Site. Both analyses took into account clustering by Site.

RESULTS

Success of Partnership

Summary scores for the seven factors of the VicHealth Partnership Tool are presented in Table **2a**.

In five of the seven factors being, the scores rose significantly between their measurement in the first year and towards the end of the project. These factors were: Shared goals and commitment, Appropriate membership, Collaborative action, Overcoming differences and Achievement and continuity. Functional operations and Planning and decision-making also improved but not significantly so. It should be noted that across all the dimensions, respondents rated their partnerships highly. Twelve (of the 35) questions overall showed significant improvements between the first year and towards the end of the project - see Table **2b**.

MCH Participation (Attendance) Levels

There was a significant independent Best Start effect on attendance at the 3.5 year Ages and Stages visit in Best Start Sites with MCH projects compared to the rest of the state, in 2004/05 compared with 2001/02 (see Tables **2** and Table **3** for univariate and multivariate analysis respectively) (considering location and time effects together).

Location and time effects separately reveal that overall rates of attendance at the 3.5 year Ages and Stages visit did not differ in Best Start Sites that had MCH projects compared to the rest of the state (location effect only). There was a significant increase in attendance at the 3.5 year Ages and Stages visit in 2004/05 compared to 2001/02 in all areas across the State (time effect only) (see Tables **3** and **4**).

Table 3: MCH Attendance in Best Start Sites with MCH Projects and Rest of the State, 2001/02-2004/05

Predictors		3.5 year Ages and Stages visit	
		Before Best Start	**After Best Start**
Best Start with MCH project	n	1,739	1,437
	%	37.2%	57.5%
Rest of the state	n	45,497	45,953
	%	49.3%	56.8%

Table 4: MCH Attendance - Effect of Best Start Sites with MCH Projects on Attendance at MCH Home Consultation and 3.5 Year Ages and Stages Visit

Predictors	3.5 year Ages and Stages visit
	Adjusted Odds Ratio (95%CI)
Time (All Sites)	1.35 (1.19-1.54)*
Best Start with MCH project	0.65 (0.39-1.08)
Best Start with MCH project*Year	1.69 (1.12-2.55)*

*$p<0.05$, #Adjusted Odds ratio – Odds Ratio for attend/not attend compared to rest of state attend/not attend controlling for area, indigenous status, education, country of birth and proficiency reading English.

Parental Perceptions - Project and Partnership Effects

Seen Information about 3.5 Year Ages and Stages Visits

Model 1

The first Model (project effects only) demonstrates that levels of *Seen information* increased slightly at Sites with MCH projects but declined at Sites without MCH projects between the start and end of Best Start in univariate analysis. Parents were significantly more likely to have *seen information* about MCH attendance at Best Start Sites with, rather than without MCH projects at the end compared to the start of the evaluation period in multivariate analysis (see Tables **5** and **6**).

Model 2

The second Model (project and partnership effects considered together) demonstrated that these MCH project effects no longer existed when partnership was entered into the analysis. It suggests that Best Start effects in Sites with MCH projects on *Seen information* may be mediated through improvements in the extent of partnership formation between the start and end of Best Start (see Tables **4** and **5**).

Parental Confidence that their Child would Attend their 3.5 Year Visit

Model 1

Levels of parental confidence about MCH attendance remained stable between the start and end of Best Start at Sites with MCH projects but increased slightly at other Sites in univariate analysis. After adjusting for confounders, parental confidence about MCH attendance was significantly lower at Best Start Sites with rather than without MCH projects at the end compared to the start of the evaluation period (see Tables **4** and **5**).

Model 2

This effect persisted after partnership was entered into the analysis in Model two. Partnership was positively associated with improved parental confidence about attendance between the start and end of Best Start (see Tables **5** and **6**).

Confident in Being a Good Parent

Model 1

Levels of parental confidence increased slightly at Sites with MCH projects and declined slightly at other Sites between the start and end of Best Start (univariate analysis). After adjusting for potential confounders (multivariate analysis), parental confidence was significantly higher at Best Start Sites with MCH projects.

Model 2

This effect persisted even after partnership was entered into the analysis in Model two. Extent of partnership formation had no effect on changes in parental confidence between the start and end of Best Start (see Tables **5** and **6**).

DISCUSSION

Best Start aimed to improve child health outcomes in some of the most socially disadvantaged communities in Victoria through local partnerships and

Table 5: Survey Data - Changes in MCH Indicators at Start and End of Best Start Period

Maternal and Child Health			Before Best Start	After Best Start
Seen information about 3.5 year Ages and Stages Visit	No MCH projects	N	382	336
		%	42.2%	32.7%
	MCH project	n	956	1186
		%	49.2%	51.0%
Confident child will attend 3.5 year Ages and Stages Visit	No MCH projects	n	386	333
		%	83.2%	85.6%
	MCH project	n	956	1184
		%	79.6%	79.2%
Confident a good parent	No MCH projects	n	405	337
		%	95.8%	94.4%
	MCH project	n	1234	1480
		%	94.7%	97.0%

Table 6:   Survey Data - the Effect of Best Start MCH Projects and Partnership Scores on MCH Indicators at Start and End of Best Start Period

Maternal and Child Health			
	Seen information about 3.5 year Ages and Stages Visit	Confident child will attend 3.5 year Ages and Stages Visit	Confident in being a good parent
Model 1	Adjusted Odds Ratio	Adjusted Odds Ratio	Adjusted Odds Ratio
	n=2679	n=2676	n=3224
Time	0.65, 0.54-0.78	1.38, 1.1-1.75	0.78, 0.56-1.09
MCH projects	1.13, 0.8-1.59	0.89, 0.54-1.47	1.01, 0.79-1.29
MCH*Time	1.76, 1.2-2.57*	0.73, 0.58-0.92*	1.94, 1.16-3.24*
Model 2	AOR	AOR	AOR
	n=2493	n=2489	n=3025
Time	0, 0-0.07	0, 0-0.05	0.14, 0-6.24
MCH projects	0.94, 0.52-1.69	0.79, 0.52-1.22	0.9, 0.67-1.19
MCH*Time	1.51, 0.85-2.69	0.67, 0.52-0.85*	2.04, 1.23-3.39*
Partnership score	0.98, 0.90-1.06	0.97, 0.92-1.03	0.98, 0.94-1.01
Partnership*Time	1.17, 1.03-1.34*	1.14, 1.04-1.26*	1.02, 0.97-1.07

Adjusted Odds Ratio - Odds ratio for strongly agree/agree compared to reference neither/disagree strongly disagree adjusted for having a health care card, indigenous status, education, country of birth and proficiency reading English.
*p<0.05.

service characteristics as previously described. In the three years of the program it was effective in improving the uptake of the MCH 3.5 year Ages and Stages visit through social marketing, cross service promotion and co-ordination and reminders. This was independently confirmed in a performance audit undertaken by the Victorian state government [28]. The findings support previous research demonstrating the effectiveness of reminders in increasing childhood immunisation [29]. The results also suggest that local partnerships can improve the use of MCH services without necessarily funding new services.

In assessing the effects of complex intervention, it is important that mechanisms through which the program causes change are identified [30]. The results from Model 2 analysis suggest that Best Start may have improved participation in the MCH 3.5 year Ages and Stages visit by improving both parent's access to information (partnership effect), confidence about attending the 3.5 year Ages and Stages visit (partnership effect) and overall parental confidence (project effect only). Counterintuitively, the project effect was not just absent but negatively associated with confidence about attending the 3.5 year Ages and Stages visit.

Consistent then with theoretical models, partnership formation can be regarded as being important in mediating Best Start effects primarily through improving services principally by making available improved information about services with flow-on effects such

that the parent is more confident in attending these services [15]. It is also consistent with the program logic underlying Best Start and HFA initiatives generally.

It is interesting to consider which part of partnership formation is likely to be most important. Collaboration between partner services allows complex problems, that are beyond the capacity of any single service to solve, to be addressed using the combined capacities of multiple organisations [31]. Collaboration is achieved when organisations 'develop mechanisms – structures, processes and skills – for bridging organisational and interpersonal differences' in order to achieve outcomes that are valued by the partners [32]. The ability of partnerships to solve problems emerges over a period of time as the member services develop a shared understanding of the problem, work out agreements about solving the problem and the mechanisms for action [33].

Partnerships also organize relations between a numbers of organisations. The purposes of partnerships, and the characteristics of their membership, vary greatly. It has been argued that a partnership can be located at the intersection of two continua, one axis is the continuum of relationship depth and complexity (for example, ranging from simple information sharing to complex and durable collaboration to achieve joint outcomes) [34]. The other axis is the continuum representing diversity in partnership membership.

To appropriately address this complexity, 'evaluations must take into consideration the characteristics of the partnership that they are addressing and the goals which they are pursuing, and balance a wide range of values' [34]. For others, the issues of complexity can be encapsulated in a partnership evaluation model that pays particular attention to 'inputs, processes, outcomes and impacts as key analytical components' of the evaluation's conceptual framework' [35]. The term partnership outcome, as it is used here, refers to the consequences of collaboration such as shared values and common ways of working, that underlie the capacity of the partnership to program goals. Partnership outcomes are different from program outcomes, the latter being the consequences of the program.

In addition, a number of authors have sought to systematize the major elements required for effective partnership work [27, 31, 36]. From these, the authors have developed a variety of tools for assessing partnership capacity as follows. They are similar in their emphasis on relationships and processes but differ in regard to the issues on which they focus.

Mattessich *et al.* as part of their work program to support community-based organisations in North America undertook an extensive literature review to identify the factors influencing the success of partnerships [31]. They identified 19 factors that they organized into six clusters of factors related to the partnership: *Environment* (3 factors), *Membership characteristics* (4 factors), *Process/structure* (5 factors), *Communication* (2 factors), *Purpose* (3 factors), and *Resources* (2 factors).

Hardy et al. identified six principles each incorporating six constituent elements: Recognize and accept the need for partnership, Develop clarity and realism of purpose, Ensure commitment and ownership, Develop and maintain trust, Create clear and robust partnership arrangements, and, Monitor, measure and learn [36].

The factors, clusters of factors and principles nominated by these authors are very similar to those captured in the VicHealth Partnerships Assessment Tool [27].

In considering all of the various factors and principles described by these authors, it can be seen that success in building Best Start Partnerships was broadly based across using the VicHealth Partnership Tool factors. Best Start Partnership success included in collaborating and problem solving, in sharing common values and goals as well as embracing the diversity and complexity represented by the groups from which Partners were chosen.

The study had some limitations. The study did not assess health outcomes but rather focuses on service use [37]. MCH attendance though is known to have evidence-based benefits. The study also attributes exposure to interventions at an area-level. This is consistent with previous research [1]. While this approach may be criticised for perpetuating the ecological fallacy, alternative approaches to analysing the results of area-based interventions have been criticised for being overly atomistic [38].

CONCLUSIONS

Best Start improved access to MCH services with both partnership and direct project effects being important. Partnership formation was associated with changes in improvements in provision of information which in turn would be expected to play an important role in improving MCH attendance with its known evidence-based benefits. While there has been criticism of the lack of institutional support for area-based partnership approaches to improving health and these certainly apply in the Australian context, these results suggest that there may be considerable value in community-based initiatives and partnership approaches [8, 9]. These can be established with minimal additional resources. If a policy environment that is more conducive to partnership is provided, these approaches may further improve their effectiveness.

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