

Is the Use of a Cost Savings Framework Appropriate to the Evaluation of Preventive Care?

Karen Fisher, Social Policy Research Centre, University of New South Wales¹

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Introduction

This paper discusses the apparent inappropriateness using prospective cost benefit analysis to justify funding preventive human service delivery programs, while expecting evaluations to show that such programs can be sustained through the financial savings they generate. It distinguishes between full benefits from a preventive human service program and sustainable financial savings generated by the program. It aims to illustrate an inappropriate interpretation of economic analysis in public policy decision making and evaluation. Financial and service usage data sets relating to a coordinated care trial, Linked Care, for older persons in Hornsby Ku-ring-gai (1997-99) will be analysed to reveal whether financial savings were experienced. Furthermore, the practical feasibility of mechanisms to accurately quantify these savings and access these will be explored.

The trend toward prevention and early intervention in human service delivery is a significant shift in social policy delivery in Australia and internationally (Plotnick and Deppman, 1999: 383). The commitment of public funds for prevention programs with the promise of future savings offers political and economic attractiveness to policy makers. Cost benefit analysis of human services is vital for policy makers to make informed decisions on maximising return from limited government resources (Shaw, 1995; Hall, 1998). Yet the wave of enthusiasm for such decision making will wane if expectations of budgetary savings are not met and the reason for failure remains unexplained. This paper explains that while it is possible that net benefits from a prevention program might be observed, it is unlikely that financial savings within a program will be evident in agency budgets and evaluations, at least in the short term.

The paper first summarises the research question and discusses the conceptual background to the argument that it is unlikely that government can expect evaluations to identify cost savings to sustain preventive care. It then applies the concepts to the case study of the evaluation of the coordinated care trials and draws conclusions for evaluation methodology.

Background to Cost Savings of Preventive Care

A practice of funding government programs seems to have developed where government providers proposing a preventive care program are sometimes asked to demonstrate that the program can be self-sustaining by covering the cost of the program through savings from the program. These programs must:

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- model expected savings through prospective cost benefit analysis to secure funding for the initial cost of the program;
- evaluate whether savings have been achieved. This might be done using cost benefit analysis or financial accounting applied to the program or government agency budget and expenditure; and
- maintain the program on existing funds after initial seeding or pilot funds on the basis that generated savings can cover costs, or cease operating the program if the funds are not generated.

If government only approves funding for self-funded preventive care, the policy implications of this approach are too restrictive for several reasons. It is very difficult to prove whether savings have been achieved in a service delivery environment because there are so many externalities to the provider agency to which benefits can flow. Further, the assessment the relative merits of alternative service provision are not usually the focus of this type of framework.

Reasons why this practice of preference for allocating initial resources to self-funded preventive care can be traced to the increasingly managerial approach to government policy decisions. It places an emphasis on short-term budget management. It minimises the value of longer-term financial benefits, other non-financial benefits to citizens, community and other parts of government, and government responsibilities other than financial management, particularly benefits that are unmeasured or unmeasurable. This type of public expenditure accountability relies on discrete budget management within a government agency or part of the agency rather than a whole of government approach. It illustrates a difficulty aggravated by the fragmentation of public funding accountability. And finally, the effect of the approach is aggravated by the scarcity of mechanisms for financial integration between levels of government (Commonwealth, State and Local) or corporate or non-government agencies.

However, there are circumstances when might it be appropriate to expect proof of self-funded preventive care. These may be if the program spans identifiable expenditure and savings across a number of government agencies; if the benefits are primarily financial; or if few costs and benefits can be expected to eventuate external to the provider.

Background to this argument is now presented, followed by application to the case study of evaluation of the first round of the coordinated care trials.

Cost benefit methodology

Cost benefit analysis provides clear information about the value added from a program to inform public policy decisions (Garber and Phelps, 1997: 28). The underlying principle of cost benefit analysis is that government should maximize net benefits of a program thereby maximizing allocative efficiency or worth of a program (Schmaedick, 1993; Carter and Harris, 1998: 161).

Cost benefit analysis when applied to government programs can distinguish between three levels of benefits. First, most generally are benefits that accrue to individuals, communities, society and government as a whole. These may or may not be quantifiable and relate to financial and other gains. Second are resource benefits to funders such as different parts of government and particular government departments. Again these may relate to financial or

other resource benefits. Third are specific financial savings accessible to the program that generates them.

Financial savings are therefore only a subset of the benefits of a program, where costs refer to the resources used in the implementation of that program and the benefits relate to both the intended and unintended consequences of the program. Cost benefit analysis usually not only identifies accessible financial savings accessible by a program; it also identifies net benefits to society and government in general.

This paper questions the appropriateness of equating net benefits to financial savings as a verifiable rationale for government spending on preventive human service programs. The distinction between financial savings and net benefits is important to avoid policy decisions that result in under-funding human service programs based on an incorrect assumption that the programs can access financial returns from the wider net benefits. If programs are expected to be self-sustainable from generated financial savings, it is only on the basis of the narrow subset of these benefits that program funding decisions should be made. And yet it is likely that far greater benefit to government and society in general could justify recurrent expenditure on preventive care.

Financial savings through preventive care

A number of Commonwealth and State Government prevention and early intervention human service pilot programs, particularly those relating to systems of health and community care, have been implemented in the last decade (Australian Coordinated Care Trials, Leigh et al, 1999; Strengthening Families and Communities, CDFCS, 2000; Veterans' Home Care, CDVA, 2000; NSW Families First, The Cabinet Office, 1999; Mooney and Scotton, 1998: 14). Among other expected positive outcomes, the programs share a rationale that they will save government expenditure in future years and thus recover some of the cost of the program. This may be the case in an economic sense of societal benefits, but it is questionable as to whether such a direct relationship between benefits and program funding can be made. While such prevention initiatives have been shown in some cases to improve individual outcomes and service effectiveness, they appear to be less conclusive in terms of accessible, sustainable financial resources to fund a program, although it may be too soon to tell (CDHAC, 1999).

In relation to preventive human service strategies, expected benefits include reduction in future service usage costs and maintenance or improvement in individual and community outcomes (Hall, 1998). A common justification enunciated for preventive pilot programs or seeding initiatives is that if the government spends now it will save money later (Leigh et al, 1999: 2-4). This argument for budget spending is based on the assumption that there is potential in the human services system that can be realised into monetary savings to be spent more efficiently through alternative program delivery (COAG, 1995). It assumes that sufficient financial savings will be experienced to partially self-fund a sustainable service delivery program. But this appears to illustrate an inappropriate interpretation of economic analysis, where there is a failure to distinguish between first, budgetary benefits to government in general and a program in particular and second, social and economic benefits to society. Although some benefits from prevention programs might be financial savings, others will be improved individual and societal outcomes without a direct financial savings result.

Application of cost benefit analysis to preventive care

Decisions about whether to proceed with a proposed program can be informed by prospective cost benefit analysis which might reveal potential net benefits to individuals, society and government. Some of these benefits might include financial savings through efficiency gains or prevented service use. If funding for a program is incorrectly based on the full realisation of the net benefits in the form of financial savings accessible by the program, the program may be under-funded. In the example of the second round of coordinated care, it is assumed that financial savings from the program will cover ongoing costs after initial seed-funding.

When programs proceed, application of the same method of economic analysis is commonly used to determine whether net benefits, and particularly financial savings, have been experienced. This type of analysis can illustrate why funding on this basis raises the risk of under-funding the program. This is because several steps toward proving accessible and sustainable cost savings must be demonstrated. First, benefits must include short-term changes in resource use; a financial value of that change must be estimated using an appropriate unit cost; and the full financial value must be accessible to the program as opposed to benefiting other providers or programs. Finally, the resource change must be sustainable to maintain the program's infrastructure costs. As a result, it is unlikely that retrospective analysis will reveal sufficient accessible financial savings to cover additional costs of prevention programs.

Case Study of the Coordinated Care Trials 1997 – 99

The coordinated care data set from the Hornsby Ku-ring-gai trial, Linked Care, 1997-99 was analysed to explore whether it was reasonable to expect to prove self-sustaining cost savings. The project was developed to investigate the following research question: does a strategy of preventive service provision have an observable impact on future service expenditure thereby generating accessible financial benefits to the program? It analysed the service usage and financial data from the trial.

Description of the program

Linked Care was an innovative approach to linking health and community care services for people in need of ongoing care in the municipalities of Hornsby and Ku-ring-gai in Sydney's northern suburbs. The trial formed part of a national program of coordinated care trials established in 1996 to test whether it was possible to coordinate the care currently provided by a variety of different health and community care services and practitioners using funds pooled from a number of Commonwealth and State programs (Leigh et al, 1999). This flexible use of funding was to be managed by care coordinators assigned to each client, using an individual care plan to help organise the care they would receive.

The trial was sponsored by the Northern Sydney Area Health Service and managed in conjunction with the Hornsby Ku-ring-gai Division of General Practice (incorporating Ryde), a number of independent non-profit health and community services, most of which were funded through the Home and Community Care Program (HACC) and two private health insurers. The evaluation tested whether this approach could be practically implemented in the local community and, if so, to determine whether this led to a more effective use of existing resources with improved outcomes for clients and caregivers. The evaluators were the UNSW

Evaluation Consortium from the Social Policy Research Centre (SPRC) and the Centre for General Practice Integration Studies. Intervention clients (722 clients) were compared to a geographic control group (423 clients) on demographics, exits and outcomes (health and wellbeing, satisfaction and service usage) (UNSW, 2000).

The primary hypothesis of the trials was:

That coordination of care for people with multiple service needs, where care is accessed through individual care plans and funds are pooled from within existing programs, will result in improved individual client health and well-being *within existing resources.*' (CDHFS, 1996) [emphasis added]

This hypothesis tested whether financial savings, irrespective of other net benefits, would be sufficient to cover the costs of the program.

Analysis of a data set from a program that was proposed on this financial basis provided an immediate opportunity to address these questions of availability of financial savings from reduced service costs. Unlike previous research that could not measure actual financial savings, the coordinated care data was a reasonably thorough unit record of service usage and financial data in a prevention program that operated within an isolated fund pool. Most such previous analysis is based on modelling of prospective programs (eg list in Plotnick and Deppman, 1999: 382; Shaw, 1995). If actual data sets are available, they are usually limited in terms of only measuring some of the outcomes or services used, taking a narrow definition of service, not having full cost data or being forced to make assumptions about monetary values of benefits (Carter and Harris, 1998: 168; Barnett, 1993).

In contrast, the coordinated care trials were unique in Australia in that health and community care services provided to the clients were paid for from a fund pool contributed to by multiple service providers. The Linked Care trial was a broad data set because service usage from ten providers was included. Comparison was between government funds spent and saved, which were both clearly quantifiable and comparable and from the same source. A common limitation of cost benefit analysis where costs and benefits must be assigned a monetary value (Carter and Harris, 1998: 161) were not encountered in this project because the units of measure (service usage) had a natural monetary value (service cost).

Initial findings

Linked Care demonstrated that it is possible to use the approach of coordinated care as the basic operational principle of a system of care.

While the evidence showed the approach did not ensure a superior level of outcome for clients, neither was there any evidence of systematic disadvantage. Recipients of the care, family caregivers and health professionals from a range of disciplines rated the care provided positively. Clients reported high satisfaction and a sense of security with having a care coordinator. This was also so for control clients who had case managers from other programs. Service providers reported that Linked Care benefited their clients. No measured improvement in health and well being, either absolute or relative to the control group was observed. Higher admission to residential care was observed in the intervention group. Client outcomes were not examined further in relation to the cost savings project. Although they are an example of the wider benefits of the program to the individuals and society, they are not the subject of the research question regarding financial benefits.

The evaluation of the trial data included a longitudinal analysis of changes in service usage and interrogation of the apparent difference between the service usage analysis and the funds pool financial analysis. It showed that in financial terms, the program was possibly self-funded but in economic terms it probably was not.

Funds were pooled from ten service providers and supplemented with a government infrastructure grant. The financial management of Linked Care generated an apparent surplus of \$714 283 of all costs and funds or \$294 599 of ongoing costs and funds. This could be due to service substitution and financial efficiency in Linked Care. However, the apparent surplus could also be due to a number of limitations with the trial and evaluation. These included inaccuracy of the capitation rates, the incomplete collection of service usage data, questions about the division of administrative costs between establishment and ongoing costs, and the impact of a small number of participants with a high exit rate and no continuous recruitment.

Table 1: Financial Analysis, September 1997 to December 1999

	Full accounts	Ongoing full accounts less grants and start-up, trial-related and wind-up costs
		\$
Fund pool income	11 004 989	11 004 989
Infrastructure grant	3 064 590	
Other income	145 385	145 385
Total income	14 214 964	11 150 374
Service utilisation	-9 590 291	-9 590 291
Infrastructure expenses	-3 910 390	-1 264 736
Total costs	-13 500 681	-10 855 027
Income less costs	714 283	294 599

The administrative costs of the model were relatively high (29.0 per cent of all costs for Linked Care, or 11.7 per cent of ongoing costs), but this could partly be explained by it being a small, temporary trial. The service providers also reported they incurred additional costs supporting the management and operation of Linked Care.²

It could therefore be reasonable to conclude that the Linked Care model would not be self-sustaining without a supplementary infrastructure grant. Otherwise, the cost of care coordination and its accompanying infrastructure would need to be covered by a reduction in funds for services used by clients.

There was potential for service substitution across the range of stakeholder services. While there was evidence of a high level of utilisation of community care services by the intervention group, there was little evidence of significant substitution, changes in service mix or significant shift in the range or type of services used. Further research by the SPRC is extending this preliminary analysis by introducing more sophisticated longitudinal analysis as discussed below.

² One of the reasons for the higher than expected care coordination costs (7.0 per cent of all costs or 6.4 per cent of ongoing) was that the participant category tool was not effective in predicting the degree of care coordination required, perhaps because the tool was based on service use rather than risk, need or participant preference.

Logistic regression was used to analyse changes in both service usage and cost according to the basic service groups.³ This showed that increased use of medical practitioner and specialist services was more likely to be found (by a factor of 1.2) among Intervention participants than a decrease in use. This was also found for cost, although to a lesser degree. No significant differences between Intervention and Control groups were found regarding total cost of services.

Although the fund pool analysis showed some changes in total service use, this is not immediately evident in the service data analysis, apart from medical practitioner and specialist services. The results presented here, however, should be interpreted with some caution. First, the analysis only examines changes in cost and usage at two points in time (three-month averages for June 1998 and August 1999). Strictly speaking, the results only refer to changes between the means calculated for these two months. It should also be noted that the direction and strength of results is sensitive to and partly determined by which particular time periods are analysed, for example they may include winter seasonal effects in the end of trial month. Future research into the data, therefore, would utilise more sophisticated longitudinal techniques.

In conclusion, given an inconsistency between the findings of the service usage analysis and the financial analysis, it is difficult for the evaluation to conclusively state whether or not care was paid for from existing resources.

Participants and care coordinators reported that the model provided better monitoring, and that when combined with the financial flexibility of the fund pool, the model potentially increased access to, and use of, services. It is therefore not surprising that in the absence in a shift in service use, a possible increase in use was observed for some service types.

This analysis of the apparent financial savings through reduction in service costs, a subset of the program's net benefits, revealed only limited actual service substitution. The findings showed little or no financial savings to sustain the program. This illustrates the distinction between possibly justifying the funding for the coordinated care program in terms of health and integration benefits to clients, services and government, but not in terms of direct financial savings that could sustain the program beyond the life of the funded trial.

Further Research

This paper is part of an ongoing program of research at the SPRC. As noted above, there is little empirical research on accessible financial savings to sustain a preventive human service program. Sufficiently longitudinal studies have not been conducted to investigate whether, over time, actual service use and cost services have an impact on available financial savings.

³ Two sets of variables were created. The first represented baseline usage for the month of June 1998 calculated as a three-month average (May, June, July). A second set was created to capture change over time, that is, end of trial (August 1999 – average of July, August, September) minus baseline (June 1998). The comparison of different months risks seasonal effects, minimised through the use of a three-month average. This was repeated for cost of service use. The approach controlled for baseline differences (largely demographic, Section 4.2b) that had the potential to influence outcomes. This allowed for changes in the amount and cost of service use to be analysed in terms of the Intervention alone. The regression predicts that with a given outcome (eg. cost of service), and controlling for background differences, the participant is or is not from the Intervention group.

Further analysis of the financial savings is currently being undertaken by the SPRC in two parts: longitudinal analysis of intervention and control group service usage and cost; and comparison to financial data by modelling a fund pool based on baseline service usage and actual client exit rates. These will each test whether there were financial savings within the program due to changes in service use, a subset of net benefits. The first tests changes in use by comparing changes over time and between the intervention and control clients. The second tests changes in actual intervention clients service costs, compared to predicted financial costs and savings.

The results of the cost savings analysis will be examined in relation to the evaluation findings about other benefits experienced in the program to discuss the funding implications of the distinction between financial cost savings accessible to the program and full net benefits.

Conclusion

Even in a thoroughly evaluated trial, it was not possible to prove whether care coordination could be self-funded. It might have been because of:

- the conditions of the trials: they operated less than 2 years, the costs were managed in circumstances of an available grant, there were small and reducing numbers of clients, and the fund pool was made up of negotiated rather than verifiable financial contributions; and
- only some of any of the possible financial savings were accessible to the sponsor, the remainder were external financial benefits (private and other services not contributing to the fund pool and out of area services) or only likely to be realised beyond the life of the short trial.

As a result, discussion of the other benefits to clients, service providers and the health and community care system appear to have been subsumed by the financial ambiguity of the results. Relative merits of alternative service provision were not assessed within the framework of the evaluation hypothesis. The trial sponsor in Linked Care did not attempt to continue the program without additional funding.⁴ This was despite useful outcomes in relation to other aspects of the program.

Part of the rationale for the coordinated care trials was that the intervention, that is, the use of a fund pool, care coordinator and care plan, would generate sufficient financial savings from improved service use to be self-funding. The result of this local evaluation was that, at least in an economic sense, those financial savings were not evident in the fund pool.

There were other benefits from coordinated care but it was not clear that they included sustainable financial savings. That result in itself is not sufficient reason to dispense with the program. The application of narrow cost benefit analysis measuring financial savings should remain only one part of public policy decision making rather than the critical set of evaluation results.

⁴ Other first round trials were in the same position as far as is known.

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