CASE STUDIES

Developing a funding model for an after-hours primary medical care service in a rural town

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Abstract

The study described in this paper aimed to determine a funding model for an after-hours primary medical care service in the rural town of Moe, a socioeconomically disadvantaged area of Victoria suffering the rigours of industry restructuring and privatisation. It has 12.5 equivalent full-time general practitioners servicing 21 966 persons.

A break-even analysis of the financial viability compared the expected costs of providing the service with the anticipated income. A mixed funding model is recommended. This would incorporate a general practitioner incentive scheme and State Government underwriting of infrastructure and basic non-medical staffing costs during the business development phase to supplement the income from the Health Insurance Commission.

Introduction

A new privately owned and operated public hospital at Traralgon West in Victoria is being built, with the Latrobe Regional Hospital's Traralgon and Moe campus emergency departments to close. This will create a gap in the provision of primary care services in Moe.

In response to this, the Central West Gippsland Division of General Practice and the Monash University Centre for Rural Health facilitated a study to establish whether an after-hours urgent care centre in Moe and district was feasible. The Latrobe Shire Council, Latrobe Regional Hospital and the Yallourn Medical and Hospital Society funded the study. A steering committee was established consisting of the funders, Monash University Centre for Rural Health, the ambulance service, local general practitioners, and the local State parliamentarian as chair. A project officer, Peter O'Meara, was appointed to undertake research for the study.

The key objective of the study was to develop a suitable service delivery model that would be conceptually and financially sound. The subject of this paper is the development of a recurrent funding model for a primary care centre based on the anticipated demand for such a service.

The study was undertaken in Moe, a rural town which has an estimated 12.5 equivalent full-time (EFT) general practitioners in the district servicing 21 966 persons – a ratio of one to 1757. The accepted ratio of general practitioner to population in the rural major geographic category is 1268 (Australian Medical Workforce Advisory Committee 1996). In the Moe district, this should be discounted by 9% to account for the district's socioeconomic disadvantage, which results in a general practitioner requirement of one for each 1154 persons. Statistically, Moe is the fifth poorest of 196 statistical local areas in Victoria, with a median personal income of $198 per week compared to a median of $290 per week for Victoria as a whole (Australian Bureau of Statistics 1996). The district is already 30% short of general practitioners and can therefore ill afford to lose any more if medical services are to be maintained.

Based on current emergency department throughput, an after-hours primary care service in Moe is anticipated to treat 7735 patients per year, or approximately 2.5 patients per hour, operating from 5.00 pm until 11.00 pm on weeknights and from 9.00 am until 11.00 pm on weekends (O'Meara 1997). These figures indicate that there is sufficient articulated demand on weekends and after hours at the existing facility to consider continuing a service after the closure of the hospital. The proposed after-hours service would provide services to those

patients who are seeking general practitioner-type services rather than hospital services, which will be available at the new Latrobe Regional Hospital.

Subject to a demonstration of the facility's long-term financial sustainability, the Victorian Department of Human Services may provide the infrastructure funding necessary to establish an after-hours primary medical service on the Latrobe Community Health Centre site. The building works would include provision for an office to accommodate the Central West Gippsland Division of General Practice. The ambulance service is also planning to co-locate on the same site.

Methods

The study looked at the three funding models available to a primary care service (Duckett 1997):

1. a case payment model

2. a fixed grant model with no variable payment

3. a mixed funding model incorporating elements of the other two models.

Under a *case payment* model, all funding for the primary medical care service would be based on the number and type of patients treated. This system is similar to that applying to larger emergency departments in private hospitals which receive funding from patients for services provided. It de-emphasises paying for the 'availability' of the service. Infrastructure costs are effectively spread over all presenting patients. The advantage of this model is that it is responsive to patient demand in terms of both the number and casemix of patients. However, this arrangement has difficulty with low throughput situations.

A *fixed grant* model with no variable payment reflects the current situation in most public hospital emergency departments in Australia. A fixed grant is provided for the emergency services according to agreed standards being met. This approach has some validity as the cost structure of a primary medical care service, like emergency departments, is determined by the requirement to have staff available for the most urgent cases, with little variation in staffing as a result of patient demand. A problem with this model is its lack of sensitivity to demand. A fixed grant approach places a high emphasis on the 'availability' of primary care services. The critical element in a fixed grant model is the issue of equitably establishing the fixed grant, as it needs to reflect the size and complexity of a primary medical care service.

The third funding arrangement is a *mixed funding* model, which involves a mixture of both the pure case payment and fixed grant approaches. This parallels common funding arrangements for acute inpatients in Australian hospitals. This model recognises the key cost drivers of availability, and the volume and casemix of patients treated. The challenge under this system is to establish which costs are variable and those which are fixed. Under this model, variable costs include consultation establishment costs (such as creating a new patient record) and consumables. Investigations and pharmacy services, although normally viewed as variable costs, would lie outside this model as their provision would form no direct part of a primary medical care service's activities. Staffing costs, rental (if any), utilities and domestic services would form the basis of a service's fixed costs.

These funding models were matched against the nature of the anticipated primary medical care service demand model, the socioeconomic nature of the community, State Government policy, and the preferences of local general practitioners. An earlier stage of the study had established the expected demand for a primary medical care service in Moe. The recurrent salary and wages cost of running a primary medical care service was calculated using award entitlements plus on-costs for nursing staff and the divisional payment rates for general practitioners. Costs for consumables, such as dressing, linen and creation of patient records, were estimated from Commonwealth Government research to be $4.00 per patient encounter (Commonwealth Department of Human Services and Health 1992).

These expenditure figures were then compared to anticipated income from the Health Insurance Commission through a 'break-even' analysis. The income was estimated after examining the experiences of the Bendigo Primary Care Clinic and the Wallsend Primary Care Service, where per patient income estimates are $24 and $38 respectively. After examining the patient profile of the existing accident and emergency department presentations, an expected income of $28 per patient encounter was adopted for the purposes of modelling the proposal.

The initial analysis highlighted the need to consult further with general practitioners and to develop an alternative remuneration for them that was financially viable at lower demand levels. This consultation was carried out through the Central West Gippsland Division of General Practice.

Results

Case payment model

The total recurrent cost of staffing an after-hours primary medical care service at fixed rates of pay was calculated to be $397 894 per year (see Table 1), when the service has a minimalist staffing structure. Staffing would consist of a general practitioner and an experienced registered nurse, with clinical and educational support from the Monash University Centre for Rural Health. In addition, there would also be indirect costs of an estimated $4.00 per patient, incorporating consumables and facility costs (Commonwealth Department of Human Services and Health 1992).

Table 1: Estimated salaries of a primary care service

	Fixed rates
Medical supervision and clinical leadership (0.2 EFT paid at senior lecturer–clinical rates, including on-costs of 16%)	$17 324.60
General practitioners (54 hours per week @ $96.92 per hour)	
Clinical hours – 2808 hours per annum	$272 151.36
Registered nurses – Associated charge (58 hours per week)	
Weekdays – 1560 hours per annum	$47 001.98
Weekends – 1456 hours per annum	$61 415.92
Total recurrent salary costs	**$397 893.86**

Note: Casual rates of pay plus on-costs of 16% are used for nursing staff.

The expected number of patient encounters is insufficient to generate the income required to support the staff costs. At the estimated throughput of 7735 annual patient encounters, the expected income from the Commonwealth Medical Benefits Schedule would be from $185 640 ($24 per patient encounter) to $293 930 ($38 per patient encounter), depending on the level of procedural complexity (O'Meara 1997). Table 2 summarises the financial outcomes when income is assumed to be $28 per patient, which results in a loss of $229 894 per year at a target throughput of 7000 patients. The anticipated income of $28 per encounter was determined after examining the casemix of patients presenting to the Moe Accident and Emergency Department. The 'cut-off' point for a pure case payment system is 16 579 patient encounters per year.

Table 2: Break-even point calculation for a primary care service @ $28 per encounter for fixed GP rates

| Patient encounters	Revenue ($)	Fixed cost model ($)	Fixed cost profit/loss ($)	Cost per patient ($)
0	–	397 894	(397 894)	na
5000	140 000	417 894	(277 894)	83.58
7000	196 000	425 894	(229 894)	60.84
10 000	280 000	437 894	(157 894)	43.79
15 000	420 000	457 894	(37 894)	30.53
16 579	464 212	464 210	2	28.00
20 000	560 000	477 894	82 106	23.89
23 025	644 700	489 994	154 706	21.28
25 000	700 000	497 894	202 106	19.92

Fixed grant model

This more traditional model, with no ties to demand or anticipated income generation, would require a fixed grant of $425 894, consisting of $397 894 in wages and an estimated $28 000 in expenses covering consumables and utility costs (see Tables 1 & 2), plus any rental charges for premises. The State Government is unwilling to fund a primary medical care service on this basis.

Mixed funding model

The study report recommended that a mixed model of funding, incorporating a Department of Human Services grant underwriting recurrent expenses and income from the Commonwealth Medical Benefits Schedule, be adopted for a primary medical care service in Moe. A key element of the model would see general practitioners accepting a lower hourly base rate, based on the divisional out-of-hours rate, plus a general practitioner incentive component. Consultations with the general practitioners established that they were unwilling to work for these discounted rates unless there was an incentive scheme incorporated into the remuneration system.

At the anticipated patient throughput of 7000 patients per year, the cost saving under the model would amount to $72 000 each year, lowering the cost per patient from $60.84 to $50.56 per encounter (see Tables 2 and 3).

The general practitioner incentive component would consist of a 30% share of patient income, for example, 30% of $28 per patient. Its impact on general practitioner remuneration as patient throughput changes is illustrated in Figure 1. The general practitioner incentive would be $19 per hour if a patient throughput target of 7000 was met. In the event of the throughput falling to 5000, the incentive would fall to $14 per hour, while at 10 000 patients the incentive would rise to $28 per hour. At the break-even point of 17 121 patient encounters, which is unlikely to be approached, the general practitioner incentive would be $48 per hour, making total remuneration comparable to the divisional clinical rate.
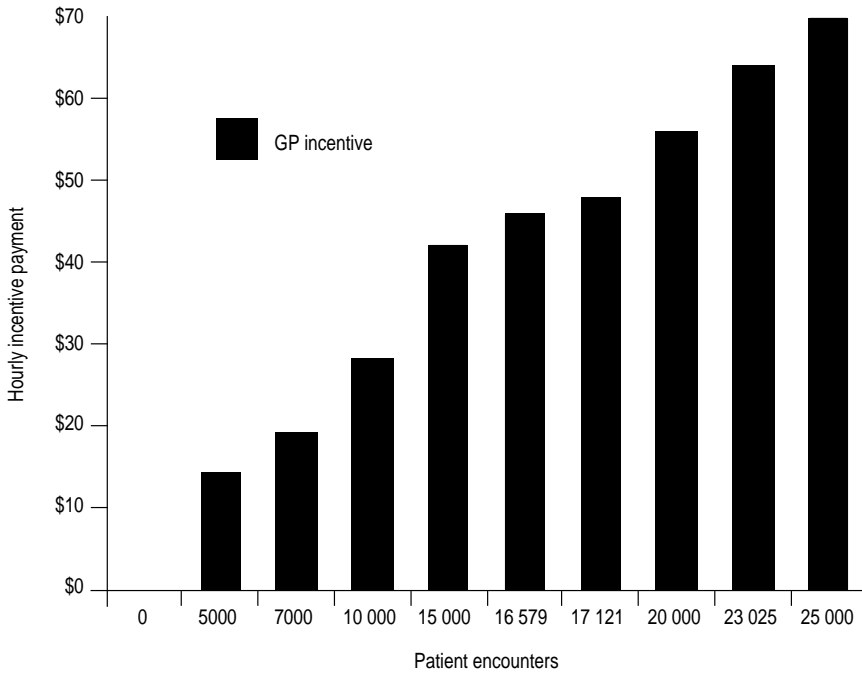
Figure 1: Moe Primary Care Service GP Incentive Model

Table 3 summarises the financial projections for a mixed system incorporating a general practitioner incentive scheme. Success depends on the willingness of local general practitioners to work for discounted rates such as the divisional out-of-hours rate of $50.34 per hour, rather than the $96.92 per hour 'clinical' rate.

Table 3: Break-even point calculation for primary care service – mixed model

Patients	Revenue projections ($)	Fixed costs (model) ($)	Variable costs (model) ($)	Total costs (model) ($)	Profit/loss (model) ($)	Cost per patient ($)
0	–	267 097	–	267 097	(267 097)	na
5000	140 000	267 097	62 000	329 097	(189 097)	65.82
7000	196 000	267 097	86 800	353 897	(157 897)	50.56
10 000	280 000	267 097	124 000	391 097	(111 097)	39.11
15 000	420 000	267 097	186 000	453 097	(33 097)	30.21
16 579	464 212	267 097	205 580	472 677	(8 465)	28.51
17 121	479 416	267 097	212 300	479 397	(9)	28.00
20 000	560 000	267 097	248 000	515 097	44 903	25.75
25 000	700 000	267 097	310 000	577 097	122 903	23.08

Discussion

The expected level of activity is insufficient to independently support the recurrent costs of a primary care service if market and award rates for the employment of suitably qualified and experienced staff are used. At best, the income generated from standard consultations and procedural rebates would meet the salaries of the general practitioners.

A case payment model would work well if the volume of expected patient encounters was greater than 17 000 patients and payment was made at full average cost-based prices, or if imposition of $60 per visit payment was practical. Neither of these seems to be an option in Moe where the population is falling rather than growing and the community is arguably becoming poorer. In addition, the transaction costs of implementing a co-payment may minimise the benefits. Despite the apparently high cost, this model is still more economical than Victoria's public outpatient departments, which average $86 per patient encounter. This relatively high cost is the result of a combination of factors, including relatively high staffing ratios and a high non-attendance rate of patients at outpatient clinics (Jackson 1997).

The State Government Department of Human Services is prepared, in principle, to support the establishment of the after-hours primary medical care service through the provision of capital works monies. However, government support for recurrent funding shortfall is limited to the establishment phase during the first one to three years, after which the service is expected to be self-sustaining. This requirement may minimise the possibility of the model being used to justify additional primary medical care services in other towns without hospitals. It was on this basis of limited recurrent financial support that a funding model was conceived that provides some certainty for the State Government, the providers and the community. The preferred funding model should encourage providers to deliver health care services in the most efficient and cost-effective manner possible. It is clear that a fixed grant model, with its inherent inflexibility, is not an option for a Moe primary medical care service in the current economic and political environment.

The mixed funding model was favoured as it provides a basic availability of services. It also reflects the operational reality of the need for a minimum level of staffing for a service of this type. The expected annual operating costs amount to between $330 000 and $390 000 for a mixed funding model (Table 3), in contrast to the fixed grant model which would have operating costs of between $420 000 and $440 000. Significantly, at 7000 annual patient encounters, the cost per patient is anticipated to fall from $60.84 to $50.56 (see Table 2). The advantage is even greater at lower throughput levels.

General practitioner incentive scheme

A challenge for a primary medical care service is how best to fund its operations in a financially responsible way. Establishing a mixed funding model would facilitate this through minimising fixed costs while providing an incentive for local general practitioners to offer their services to the facility. From the perspective of the primary medical care service, the general practitioner incentive scheme is vital. It minimises the fixed cost structure, resulting in an anticipated annual shortfall of approximately $158 000, plus utilities and some infrastructure costs of an estimated $20 000 per year if the target throughput level was met, rather than a total figure closer to $250 000. The key point of this approach is that it spreads the economic risk between the general practitioners and the underwriting authorities. At the target throughput level, the benefit to the service would be $71 997 per year, while at 5000 patients the difference would grow to $88 797. With the relatively small catchment population and the low throughput expected, there is little incentive for general practitioners to abuse the system through over-servicing.

This scheme is essentially a subsidy from the general practitioners to the community. At the cut-off number of patient encounters, the general practitioners' risk diminishes and is transferred to the underwriting authorities. The low general practitioner to patient ratio is a significant factor in the genesis of a distinctive service delivery and funding model in Moe. Its establishment has the potential to relieve the expected increased demands on local general practitioners after the closure of the Moe Hospital campus. The attraction of the model to general practitioners is the prospect of a collaborative management framework and sufficient numbers of general practitioners sharing the burden so that their involvement does not unreasonably affect their personal lives or private practices, and the understanding that outside defined hours, when demand is very low, patients would access services at their nearest public hospital. To achieve this outcome on a sustained basis, there must be a high level of trust and commitment between all stakeholders.

Consultation through the Central West Gippsland Division of General Practice indicated that there is sufficient support from local general practitioners for the general practitioner incentive scheme to be viable. Their support depends on the majority of local general practitioners being involved, commitment from the State Government to underwrite the service during the establishment phase, and
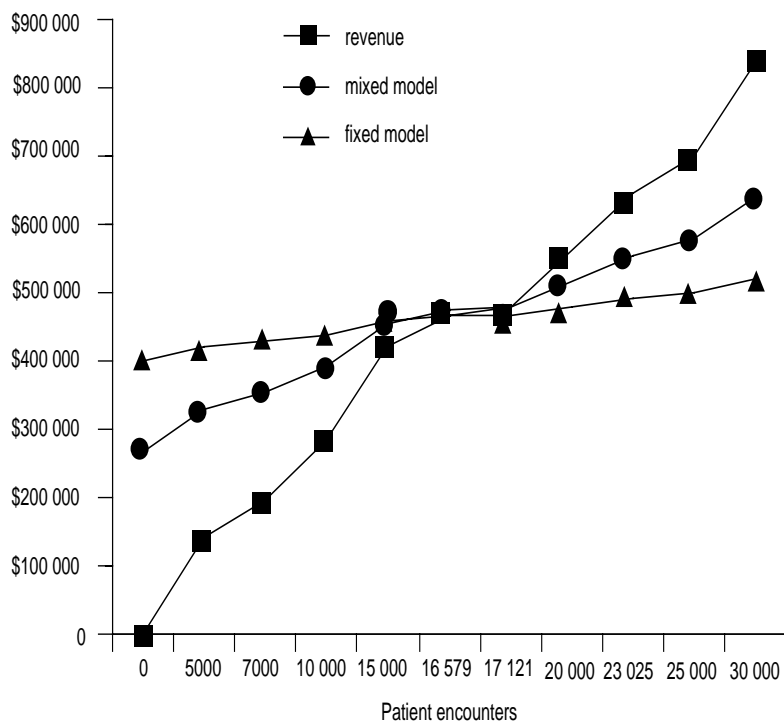

Figure 2: Comparative break-even analysis of Moe primary care service

the establishment of a supportive organisational environment in which to work. General practitioner support for this approach is based on the expectation that it will save their limited energies for their daytime practices by further sharing the after-hours burden and also provide a valuable primary medical care service to Moe and district.

With nominal rental costs already agreed to, financial support from the Department of Human Services while other income streams are developed through co-location and the attraction of other services during business hours to the facility would ensure the viability of a primary medical care service in Moe. It would effectively underwrite the nursing and infrastructure costs of the service, with general practitioner fixed costs and incentive scheme being offset through income from the Health Insurance Commission. In order to build community and provider confidence and trust, this interim funding arrangement needs to be guaranteed for a period of at least three years, with annual evaluation of the service and its financial viability. Figure 2 provides a comparison of the fixed and mixed funding systems, highlighting the advantage of the mixed model at low throughput levels.

The distinctions between the Moe context and those of Bendigo and Wallsend are the relatively low patient throughput and the incapacity of the community to bear the cost of a pure case payment system. It is therefore vital that the State Government, through the Department of Human Services, makes a medium to long-term commitment to underwrite the recurrent expenditure of the primary medical care service.

Successful adoption and implementation of this mixed funding system for a primary medical care service, with its incorporation of a general practitioner incentive scheme, has the potential to provide a viable financial framework for communities with similar challenges to those of Moe. It is feasible that the model could be applied to other medium-sized rural towns without hospitals, where the pressures on general practitioners are leading to stress, departure of health professionals, and a diminution of health service delivery to the community.

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