The reasons for, and lessons learned from, the closure of the Canterbury GP After-Hours Service

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Abstract

This paper describes a trial of the Canterbury GP After-Hours Service (CGPAHS), a GP staffed after-hours service within the Canterbury Hospital Emergency Department. It was decided not to continue the service beyond the twelve-month trial phase because the opportunity cost to do this was greater than existing alternative services.

The efficiency of the service might have been improved had greater numbers of patients been referred to it, either from the adjacent emergency department or the local community. Reasons why the trial was not able to realise these efficiencies are explored.

Introduction

This paper describes a trial of the Canterbury GP After-Hours Service (CGPAHS), a GP staffed after-hours service within the Canterbury Hospital Emergency Department. It discusses the reasons why it was decided not to continue the trial into a program, and some of the determinants of this outcome.

The paper begins with a brief description of the CGPAHS. It then provides an analysis of the efficiency of the CGPAHS in terms of the benefits that it offered in improved access, quality and efficiency. It concludes with a discussion of the lessons learned from the trial.

Description of the CGPAHS

The Canterbury Area is one of considerable socio-economic disadvantage, and has one of the highest proportions of people of non-English speaking background (NESB) in Australia. Sixty-five percent of Canterbury residents speak a language other than English at home.

The CGPAHS was a GP-staffed service co-located in the Canterbury Hospital emergency department (ED) and funded as part of the Central Sydney / Broken Hill After Hours Primary Medical Care Trial. This Trial is run by a consortium of Area Health Services, Divisions of General Practice and other health service providers, headed by Central Sydney Area Health Service (CSAHS). The Trial was jointly funded by CSAHS and the Commonwealth Department of Health and Aged Care (DHAC).

The service was established in the outpatients department of the hospital on 5 October 1999 and operated between 6.00pm and 8.00am Monday to Friday, from 6.00pm on Friday night to 8.00am on Saturday, and from 2.00pm on Saturday to 8.00am on Monday morning. It was staffed by one GP and one enrolled nurse.

A number of problems were encountered in locating the CGPAHS in the outpatients department, which is 50m across the hospital car park from the ED. Staff working in this location felt isolated and vulnerable at night - the majority of the after-hours period. Very few patients were referred from the ED to the service, and ancillary services offered by the hospital were unaware that the service existed. In view of these limitations a decision was made to move the CGPAHS to the ambulatory care area of the ED. It was also necessary for senior executives of CSAHS to direct hospital management to provide adequate nursing staff to support the service.

The CGPAHS re-opened within the ED on 6 December 1999. In December 1999, GP rosters were approximately 90% subscribed, but this fell in the holiday period. Because of potentially irregular hours of operation, and at the request of the ED, the CGPAS closed for 10 days between 25 December 1999 and 4 January 2000. ED management was concerned that the irregular hours of operation might attract patients to the service when no service was available.

In early 2000, negotiations with DHAC concluded that the hours and/or period of operation of the CGPAHS would need to be reduced to free up funds to complete other components of the Trial. Analysis of patient numbers and negotiations with CGPAHS employees were conducted to identify the period when the CGPAHS could best close down with minimum reduction to patient services. Analysis of the pattern of attendance found that patient numbers dropped substantially after 2am. Staff of the CGPAHS were polled and a majority agreed to work until this time. From 9 April 2000, the CGPAHS operated between 7pm and 2am weekdays, from 2pm Saturday to 2am Sunday, and from 9am Sunday to 2am Monday.

It should be noted that these changes were accepted, but not supported, by consumer representatives on the Trial Management Advisory Committee. They believed that patient access to services, in the form of service availability, was a major benefit of the Trial.

Concurrently with, but unrelated to the changes in operating hours, there was a change in pay rates for GPs working in the CGPAHS. This was because the rate of pay for GPs was based on that historically set by the Commonwealth Department of Health and Aged Care for GPs undertaking activities outside practice hours, with an above award payment for unattractive periods (nights and weekends). CSAHS auditors required a change to these arrangements because they no longer had an external basis.

Following these changes, the GP roster for the CGPAHS was fully subscribed, including the Easter and Christmas 2000 holiday periods, with approximately 20 GPs working in the service.

The CGPAHS was closed at the end of 2000 because it was not felt to offer sufficient additional benefit at the margin. The remainder of this essay will provide details of why this is believed to have been the case.

Analysis

In order to establish that the CGPAHS did not represent the best use of scarce healthcare resources, it is necessary to establish that the service was not cost-competitive with alternative services catering to the same group of service users. This requires that:

- alternative services exist which are at least as accessible as the CGPAHS
- these services are not of lower quality than the CGPAHS
- the cost of these services is no greater than the CGPAHS. Cost should be considered from the perspective of all relevant parties.

Access: existence of satisfactory alternatives

The purpose of the CGPAHS was to provide care for patients in the after-hours period when their own GP was not available. The CGPAHS sought to provide care only for general practice patients and patients requiring care for more serious conditions were referred to the adjacent ED.

Of patients seen in the CGPAHS, 56% said they were referred from the ED, 32% said they were self-referred, 8% were referred by the local telephone triage service, 1.4% said their GP recommended that they attend the service if they had a needed to do so, and the small balance were referred from other sources. When asked what

their alternative choice of service would have been, had the CGPAHS not been available, 81% of patients indicated that they would have attended an ED, 15% said that they would have attended a nearby after hours medical centre, 4% that they would have waited until the next day to see their own GP, and 0.3% that they would not have sought care. The high proportion of patients whose alternative choice of care was the ED may indicate that these patients initially attended that service, but elected to see the GP when they realised that one was available, and therefore regard themselves to be self-referred to the CGPAHS.

General practice care is currently available from a 24-hour medical centre less than one kilometre from Canterbury Hospital. It is arguably more accessible to members of the public than the CGPAHS because it is in a large shopping centre close to multiple transport routes, and parking may be easier.

Quality

Aspects of *quality* that need to be considered are the technical quality of care offered in the CGPAHS and patient satisfaction with that service. The technical quality of medical care is notoriously difficult to assess (Mooney, 1992), and while evaluation data are being collected about patient satisfaction with the CGPAHS these data are not yet available. Even if they were available, similar data are lacking about the alternative services. Consequently, this comparison must rely on an assessment that is acknowledged to be subjective.

One would a priori anticipate little difference between the quality of care provided by the CGPAHS and that provided by alternative GP services. Staff of both services are drawn from the same pool of GPs, and indeed are the same people in some cases.

Efficiency

To the end of October 2000, the service had seen an average of 271 patients per month, an average of less than 0.9 patients per hour. The maximum number of patients seen was in August, when 391 patients were seen (an average of 1.4 patients per hour). Demand fell continuously thereafter, with the exception of the Christmas period.

The average staff and consumables cost of treating a patient in the CGPAHS is at least $74.13, compared with the cost in alternative general practice services, typically a level B consultation, the Medicare rebate for which is $22.95. As discussed above, the number of patients primarily seeking to attend the CGPAHS is small, and so the marginal cost of operating the service to meet the needs of these patients is high. Based on an assumption that 56% of CGPAHS patients were referred from the ED, the marginal cost of treating patients other than those referred from the ED is in excess of $168 per patient, but may be as high as $390 per patient if 81% of patients would otherwise have gone to the ED.

The cost of low turnover is not only reflected in cost-efficiency, but also in organisational culture. Low rates of service utilisation are disheartening for service staff and may encourage casual attitudes towards the service.

Analysis of service efficiency alone may be insufficient unless one can be sure that the causes of the inefficiency are irreversible. Because low service utilisation is the cause of the low efficiency, the service would be made more efficient if patient numbers were to increase. If the CGPAHS were to see three patients per hour this would reduce the average cost to $24.71 per patient which is competitive with general practice. This rate of throughput appears manageable in that the Balmain General Practice Casualty sees in excess of this number (Bolton et al. 1997).

There are two possible sources from which patients might be sought for the CGPAHS: the ED and the community.

Capacity to manage patients currently seen in the ED

According to NSW Health ED Performance data, the Canterbury Hospital ED saw 155, 1823, 7462, 9995, and 3564 patients in triage categories 1, 2, 3, 4 and 5 respectively in the twelve months to the end of June 2000, the most recent date for which figures are available. These figures would include patients subsequently triaged to the CGPAHS.

While not all patients seen at Canterbury ED would have been suitable for management in the CGPAHS, a proportion would have. The National Health Strategy assessed a national sample of ambulatory patients in triage categories 4 and 5 and found that 42.1% were classified as definitely primary care, and 43.1% as able to be managed either in general practice or an ED (National Health Strategy, 1992).

This opportunity had been operationalised from the inception of the CGPAHS. A policy was instituted in the Canterbury ED, based on one successfully used at the Monash Medical Centre, to direct appropriate patients from the ED to the CGPAHS.

To explore the opportunity for the CGPAHS to manage a greater proportion of the patients seen in the Canterbury ED, an audit similar to that conducted by the National Health Strategy described above was conducted. An emergency physician and a GP with experience of emergency medicine were asked to rate 126 ambulatory patients presenting to the ED in triage categories 4 and 5. These raters agreed that 26 patients (20.6%, 95% CI 13.4-27.8%) were suitable for general practice care, while they differed about the optimum management of 46 patients (36.5%, 95% CI 27.9-45.1%). With one exception, the GP felt that all these latter patients could have been managed in general practice. It is noteworthy that this audit found fewer patients who were suitable for general practice care than other published audits (Forero et al. 1994; Harvey, 1996).

If one accepts that 20.6% of patients in triage categories 4 and 5 were suitable for management in the CGPAHS, this would provide at least 2,572 patients per year (214 patients per month) to the CGPAHS. If this were reflected in practice then it implies that 79% of CGPAHS patients were referred from the ED. This accords well with the figure of 81% of patients who said that if the CGPAHS were not available they would have gone to the ED, and exceeds the figure of 56% of patients who said that they were referred by the ED.

If one believes that a greater proportion of patients might safely be referred from the ED to the CGPAHS, as suggested by other audits, the experience at the Maitland GP After-Hours Service (MAGS) as reported by (Dunt et al. 2000), and the assessment of the GP auditor, then an opportunity existed to improve the efficiency of the CGPAHS through increased referral from the ED. If the higher rates suggested by Harvey (1996), the National Health Strategy (1992) and MAGS are accepted, then this mechanism would of itself provide sufficient patients to ensure efficient operation of the CGPAHS. Unfortunately, it was not possible to further explore this opportunity in the Canterbury service because the locally conducted audit reflected the views of the emergency physicians there about the capacity of the GP service.

Impact on the operation of the Canterbury ED

In addition to the possibility of creating efficiencies from increased throughput, the CGPAHS may have created savings if it treated patients (who would otherwise have gone to the ED) more efficiently than the ED.

To explore whether the opening of the CGPAHS was associated with a change in the number of patients in triage categories 4 and 5 seen in the ED, a Poisson regression analysis was conducted on the number of such patients seen in the Canterbury Hospital ED between 1 July 1999 and 27 June 2000, with an indicator variable for the existence of the CGPAHS. This showed a small but significant reduction in the number of patients in triage categories 4 and 5 treated in the ED ($p<0.0005$). Such an association must be interpreted with care because it does not demonstrate causality and might be due to other factors, particularly seasonality.

Given that the CGPAHS has been associated with a small reduction in the number of patients seen in the ED, it is relevant to ask whether it was also associated with a change in the waiting times of patients in the ED. To test this, a logistic regression analysis was conducted comparing waiting times in the ED for patients in triage categories 4 and 5 prior to, and during, the operation of the CGPAHS - controlling for age and sex. This showed a difference in waiting times ($p=0.002$). For the six months prior to the opening of the CGPAHS, the mean waiting time in the ED for these patients was 50 minutes with a median wait of 30 minutes. After the CGPAHS opened, the mean waiting time was reduced to 39 minutes with a median wait of 20 minutes when the CGPAHS was open. A similar caveat exists on the interpretation of this finding to that of reduced patient numbers.

We know that 56% of CGPAHS patients were referred from the ED, and perhaps as many as 81% of CGPAHS patients would have gone to the ED had the CGPAHS not been available. This means that the CGPAHS saw an average of between 152 and 220 patients per month who would otherwise have been treated in the Canterbury ED.

The National Health Strategy suggested that the average cost of treatment of ambulatory patients in EDs was $42.75 per patient based on 1990-91 costs (National Health Strategy, 1992). Adjusting this figure for the increase in the consumer price index for health and personal care between 1990-91 and 2000-01, we estimate average costs for EDs of $65.67 (ABS, 1998). It is unclear how much of this cost is reflected at the margin, and it should be noted that Hunter Area Health Service had difficulty realising the savings generated by the ED in the MAGS Trial [Mark Foster, personal communication].

Use of media to attract patients to the CGPAHS

An alternative mechanism to increase the number of patients managed by the CGPAHS is to attract them using a media campaign. To the extent that such a campaign is successful it raises two issues. One is that such a campaign may induce unnecessary demand. The other is that the CGPAHS may attract patients away from their regular GP. It was a philosophy of the CGPAHS that it should complement the care provided by GPs and encourage patients to have and continue to use their own GP. This aspect of the service was one concern expressed by local GPs about the service, and may account for the limited uptake of media directed through local GPs.

A number of media strategies were adopted to promote the CGPAHS. These are listed below, with a discussion of their limited success in attracting patients to the CGPAHS.

First, there was serial promotion of the CGPAHS through local GPs by way of direct mail out of posters and leaflets and the division newsletter. This strategy is similar to that used to successfully promote the Balmain Hospital General Practice Casualty to GPs in that area (Bolton, 1999). The limited success of this strategy is reflected in the tiny proportion of patients who say that the service was recommended to them by their GP. An audit of the after-hours telephone advice given by Canterbury GPs showed that only one GP of 137 surveyed recommended the CGPAHS to their patients. This compares with the Balmain GPC, which has been actively promoted by all of the 10 practices in the immediately adjacent suburbs (Bolton, 1999).

Second, there was serial promotion of the service through the local press. The impact of this initiative is difficult to assess because of other intercurrent factors that might have affected service levels.

Third, there was provision of a leaflet promoting the CGPAHS to the letterboxes of all households in the Canterbury Hospital catchment area. This again is a strategy which has been statistically associated with increased service utilisation at the Balmain GPC (Bolton, 1999).The CGPAHS leaflet included basic information about the service in a number of the most common community languages, in recognition that the majority of Canterbury residents speak a language other than English at home.

The generalised estimating equation (GEE) model was used to analyse longitudinal consultation data to compare attendance at the CGPAHS before and after this letterbox drop. The model assumed a Poisson distribution for the number of encounters and an autoregressive (AR1) correlation structure due to the time series nature of the dependent variable. This showed no difference ($p=0.204$). In comparison to the experience in Balmain, this finding suggests that there are factors operating in Canterbury which diminish the efficacy of a letterbox drop. These might suggest a community perception that the CGPAHS is not preferable to existing after-hours services. There is evidence that some people of NESB prefer ED care to general practice (National Health Strategy, 1992) and this may be the case here.

Promotional strategies that have been used with success in another community were not successful in promoting the CGPAHS to either the community or GPs. It may be that a longer trial would have been required in order for the CGPAHS to become better known in the local community. While it would be possible to persist with other promotional strategies of unproven benefit, this would come at the cost of continuing to operate an inefficient service - which there is little evidence that either the community or local GPs support.

Synthesis

The CGPAHS was not competitive on cost because it saw too few patients. It was also unnecessary because equally accessible general practice services exist nearby. Recognising these facts, the Trial Management Advisory Committee accepted the necessity of closing the service.

In this context, it is noteworthy that the CGPAHS experience is consistent with the local and international literature cited earlier (Dale et al. 1995b; Dale et al. 1995a; Murphy et al. 1996) which suggests that there are efficiencies to be made if GPs see less seriously unwell patients in EDs. From the foregoing it appears that the economies of scale may exist at Canterbury for GPs to address this need. The following section describes why the CGPAHS failed to realise this vision.

Lessons learned

Lessons have been learned in setting up and running the CGPAHS in two domains: that of stakeholder engagement, and that of service provision. These are discussed in turn.

Stakeholder engagement

It is possible with hindsight to suggest that stakeholder commitment to the CGPAHS was suboptimal, perhaps in part because the aim of the service was unclear.

The stated objective of the Trial is to improve consumer access to after-hours care. It appears that this objective may have been interpreted differently by different stakeholders. The evidence provided above demonstrates that neither consumers nor GPs believe that the CGPAHS model, as it was operationalised, represented an improvement in access to after-hours care.

An alternative objective for the CGPAHS, suggested by the literature, was to the develop a service model in which after-hours care provided in an ED to patients with less serious problems was provided by experienced GPs rather than junior medical staff. It is apparent from the first section of this case study that patient referrals from the ED were insufficient for this second objective to have been adequately evaluated. This may either have been because there were insufficient patients who were appropriate for referral, or because only a proportion of the total possible number of patients were referred.

Comparison of the Canterbury experience with that at Balmain and Maitland suggests that the latter may be the case. In both of these other two services, only a small proportion of patients need referral to an ED (Bolton et al. 1997; Dunt et al. 2000). This meant that it was impossible to test the hypothesis suggested by the majority of the Australian literature cited earlier - ie, that appropriately equipped GPs can manage a large proportion of patients in triage categories 4 and 5. This is unfortunate because the proximity of the ED to the CGPAHS provided the backup necessary to ensure the safety of such an experiment.

The policy on referral of patients from triage to the CGPAHS is indicative of the cultural differences between emergency physicians and GPs. The policy was written by the director of the Canterbury Hospital ED and imposed a number of restrictions on referral, including patients who might require x-ray, parenteral narcotics, those with a range of common childhood problems, and all children under three. These restrictions exclude a large number of conditions commonly managed in general practice. The conclusion of the policy emphasised that "... if there is any doubt (triage staff should not) mention the availability of another service", contrary to current notions about consumer choice. Given that waiting times in the CGPAHS were generally much shorter than those in the ED, it may also lead to adverse health outcomes because of the delay that it creates in the provision of care. If a patient were to have a condition better managed in the ED, the GP might be expected to recognise this and thus expedite referral to that service. These differences in assessment of GP capacity may also account for the low proportion of patients consensually identified as appropriate for GP care in the audit described above.

The difference in expectations about the service was not restricted to the ED - it was shared by hospital management. Initially the CGPAHS was set up with a GP director and nurse unit manager. Both of these staff left after four months, citing bureaucratic resistance to the service as a central factor in their departure, illustrated by the early problems encountered by the service described above.

It is likely that Canterbury Hospital management and ED staff were inadequately consulted about establishment of the service, and that consequently mechanisms to support the integration of the CGPAHS into the hospital were inadequately established. Senior GPs involved in developing the proposal were anxious that the director of the ED might be hostile to the idea of the CGPAHS. Consequently they relied on driving change through with the support of senior Area Health Service management, without adequate local consultation. This highlights an open question about the role and expectations of key individuals - or individuals in key positions - in determining the success or failure of service innovations of this kind.

In summary, the CGPAHS was unsupported by many of the GPs in Canterbury. Local GPs did not inform their patients of the existence of the service, failing to mention it in their after-hours telephone messages. Thus it fell to the ED staff to refer patients to sustain the service.

Service issues

Despite its location within the Canterbury ED, the CGPAHS was a relatively isolated service. On the one hand, it was not well integrated with the ED. On the other hand, its small size and after-hours nature made it difficult for the service to develop its own identity.

GPs from the CGPAHS were not permitted to see patients in the ED, despite requests by the CGPAHS that this be permitted. This was seen to be desirable for a number of reasons. It potentially made better use of the resource that the GPs represented to improve patient care than having them do nothing in the CGPAHS. It provided GPs with an opportunity to improve their skills in emergency management. It also provided ED staff with an opportunity to benefit from GPs' experience in holistic and community management.

GPs who previously worked in the CGPAHS have been employed to work in the ED since the closure of the CGPAHS, and there is ample precedent for medical officers from outside the ED to see and manage patients in the ED. In contrast to the GPs, during the time that the CGPAHS operated, the enrolled nurses employed to work there were often asked to work in the ED or other parts of the hospital when the CGPAHS was quiet. This situation meant that the CGPAHS staff, and particularly the GPs, were sitting on their own in an annex to the ED with little work to do.

This isolation may not have been simply physical. There are examples of behaviour of ED staff which at best indicate indifference to service provision by the CGPAHS. Some of this indifference may have been fostered by the behaviour of some of the GPs working in the CGPAHS. There is some evidence to suggest that a surprisingly large proportion of the GPs employed in the CGPAHS were either unable or unwilling to perform at a reasonable standard. The proximity of the ED provided an excellent opportunity for GPs to acquire skills that they lacked.

The perception by ED staff that some of the GPs working in the CGPAHS provided poor care may partially explain some of the barriers between the ED and the CGPAHS, particularly with respect to patient referral between the two services. Consistent with this is the fact that the policy for referral of patients from the ED to the CGPAHS was variably applied. There are a number of cases where it has been informally reported that patients who had been waiting to be seen in the ED were redirected to the CGPAHS, either because they were agitating to be seen after a long wait, or with the arrival of the night shift of nursing staff. Night shift staffing in the ED is at a level which often means that less seriously unwell patients face very long waits to be seen. It may be that night staff were prepared to be more liberal in referring patients to the CGPAHS in anticipation of this.

There is also statistical evidence that the referral policy varied depending on the sex of the GP. Poisson regression was used to compare the average number of patients seen by male and female GPs in the CGPAHS in the period to 30 June 2000. This showed a difference ($p<0.0005$). Male GPs saw an average of 3.8 patients per shift, and female GPs an average of 6.1. Since patients presenting to the CGPAHS were not aware of the gender of the treating doctor, this difference must have arisen as a result of differences in the rate of triage, and correspondingly the relationship between the GP and the triage nurse.

These data and the specific cases relating to GP behaviour in the CGPAHS suggest that there were significant quality and cultural issues operating in the service. The structure and isolation of the service made it difficult to manage these issues. The after-hours nature and small size of the service meant that the peer and clinical management scrutiny common to most hospital based services was lacking.

Similarly, the CGPAHS nursing staff were relatively junior, not strongly affiliated with other nursing staff in the hospital, and frequently absent from the CGPAHS, removing another avenue for scrutiny and normalisation of GP behaviour. Together these factors made it difficult to create a strong culture or identity among staff of the CGPAHS. In the same way, lack of observation and feedback limited the opportunity to quality assure aspects of the service. It is not possible to address quality issues unless they are formally reported, but, to the extent that this was a problem, ED staff clearly felt that, in general, this lay beyond the scope of their duties.

The CGPAHS may have been unfortunate in that it attracted a disproportionate number of poor quality GPs. Certainly the experience at the Balmain GPC was that the close scrutiny afforded by services of this kind revealed a number of GPs whose work practices might be regarded as suboptimal (Bolton, 1999). The low workload and relative isolation of the Canterbury service may also have fostered indifference in some of the GPs working in the service. Limitations in the quality of the service offered by the CGPAHS may have added to the

indifference of the ED to the service, further compounding the barriers between the two services. This in turn led to reduced referrals and fewer opportunities for CGPAHS staff to benefit from exposure to the ED.

Generalising from the CGPAHS experience

The CGPAHS was unable to demonstrate cost-competitiveness against existing GP after-hours services accessible to the same target population. Where such services are inadequate, the community may be prepared to pay a premium for GP after-hours services, and the CGPAHS model may be useful in these settings.

The CGPAHS experience is consistent with the growing literature which suggests that GPs have the potential to manage less seriously unwell patients in EDs substantially more effectively and efficiently than can junior medical staff. The capacity of this kind of service to realise these benefits was inadequately tested in the Canterbury environment. Adequate testing was not possible for a variety of structural reasons relating to the structure and isolation of the service and its relationship with the ED.

While there are a range of successful alternative structural approaches, such as those successfully operating at Maitland and Balmain, the obvious structural solution to this problem lies in better integration of GP-staffed services with EDs. The principal barrier to this at Canterbury and elsewhere (Ieraci et al. 2000) appears to be inter-professional communication issues between GPs and emergency physicians. The challenge is to find ways to realise the demonstrated benefits of general practice to patient care in EDs.

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