



## **Primary Options for Acute Care: general practitioners using their skills to manage “avoidable admission” patients in the community**

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### **Abstract**

**Aim** To enrol 600 primary care “avoidable admission” patients in a programme that utilised general practitioners to manage those patients in the community.

**Methods** The Primary Options for Acute Care (POAC) programme ran from 26 February to 31 December 2001. Using networks already established, primary care teams were invited to manage patients using any resources they required, up to a cost of approximately \$266 per patient. If needed, a Service Coordinator was available to arrange investigations, care, or treatment.

**Results** From 26 February to 31 December 2001, 707 patients were enrolled in POAC by 100 GPs. 104 patients (15%) were eventually admitted to hospital. An average of \$200.73 per patient per episode was spent (not including administrative costs). A wide variety of patients and diseases were managed. Patients and general practitioners reported high levels of satisfaction with the programme.

**Conclusion** POAC demonstrated the ability and willingness of primary care providers to successfully manage patients who traditionally would be sent to hospital within a defined budget.

Primary Options for Acute Care (POAC) is a service to GPs, allowing them to access investigations, levels of care, or treatment not usually available or affordable to the patient. By utilising primary care resources, these “avoidable admission” patients could be safely and appropriately managed in the community, under the responsibility of their GP.

South Auckland Health (SAH, also historically known as Middlemore Hospital), the hospital servicing the Counties Manukau area, is experiencing a steady growth in acute demand. Counties Manukau is a large catchment area, with a population of approximately 380 000, made up of many cultures, and socioeconomic classes.

At the beginning of 2000, the Primary Care Organisations of South Auckland were invited to respond to an Operation Plan prepared by South Auckland Health Integrated Care to address acute demand at Middlemore Hospital. The resulting response, ‘A service plan for Counties Manukau – August 2000,’<sup>1</sup> recommended, amongst other options, funding a POAC trial. SAH chose to adopt the POAC trial only.

POAC was launched following a dialogue between SAH, and the three largest independent practitioner associations (IPAs) in the area. The three IPAs, ie. SouthMed, EastHealth, and ProCare South, agreed to fund 50% of the costs of the programme from their own savings, and SAH the other 50%. A joint venture

company, Clinical Assessments Limited (CAL) was used for administration and funding purposes. Agreement to proceed was reached in November 2000, and the full service was launched, with infrastructure and service providers in place, in February 2001.

The concept of allowing primary care providers to spend up to a nominated figure, to obtain investigations or care not normally available in a primary care setting, had already been tried and proven by Pegasus Health (Christchurch, NZ). The sharing of their ideas and experience was invaluable in setting up this programme. An aim at the beginning of the programme was to manage 75% of patients in the community without requiring subsequent admission to SAH. This figure was chosen for several reasons. First, so that primary care providers could manage patients with serious illnesses, knowing that if the patient did deteriorate, they could be admitted to hospital. Second, if a patient was eventually admitted, it was important the GP would not feel that they had "failed" and therefore reject the POAC system in the management of future cases. Finally, aiming for an eventual admission rate of 25% meant that critics couldn't say that the primary care sector was simply taking more money, or doing more investigations, to manage patients who wouldn't have been referred anyway.

The three IPAs represented 167 out of approximately 300 GPs in the area.

## Methods

Primary care providers were informed of the programme using the established networks of the three IPAs, ie, peer or cell groups, continuing medical education lectures, opinion leaders, video and regular newsletters. A Service Coordinator was employed to organise whatever the GP requested. No limit was placed on this service, other than a loose budget of \$266 per patient. The Coordinator had already contacted various providers (for example, rest homes, radiology services, home help services, after hours clinics) to enlist their involvement in the programme.

To enrol a patient, the GP had to fill in a form with relevant details, including the service required and a unique identification number. If the GP wanted the Service Coordinator to organise something, this form was faxed to her, or she was phoned. At the end of the care episode, the GP then invoiced POAC for the services provided.

Patients whose care was related to an accident or pregnancy were not eligible for enrolment. The Coordinator had no gatekeeping role other than to keep the predicted expenses to budget. A GP was employed one tenth as a Clinical Director, to evaluate the appropriateness of the referrals. He had the responsibility of giving feedback to any GPs using the service inappropriately.

Providers of other services (for example radiology, or laboratory) invoiced POAC using the unique identification number the GP had used on the referral form.

The programme aimed to enrol 600 patients by 31 December 2001, with 75% of the patients being successfully and appropriately managed in the community.

One in every three patients, for the first 387 enrolled, was phoned after the episode of care, and surveyed by an independent interviewer regarding satisfaction with their care.

## Results

### Illustrative cases

- 1) A 31-year-old patient came to see the GP complaining of a tender swollen calf. Usually, this patient would have to be referred acutely to the Hospital for an urgent Doppler ultrasound scan of the leg, to confirm or exclude a deep vein thrombosis (DVT). Using POAC, the GP obtained a Doppler scan at the local radiology clinic. Within a few hours, the patient had her scan, a DVT was excluded, and appropriate treatment within the community was continued.

Sixty four patients had this investigation in the community during the programme.

2) A 27-year-old Cook Island patient had redness spreading up his arm for a few days. He came to see his GP, who diagnosed cellulitis of a large enough area to require antibiotics intravenously. Usually this patient would have to go to hospital and be admitted for several days. Using POAC, the GP gave IV antibiotics, arranged for an after hours clinic to administer the second dose, and then reviewed the patient the next day. Because POAC paid for the extra costs, the patient was able to receive the appropriate treatment without going to hospital.

Eighty nine patients with cellulitis were enrolled in POAC during the programme.

3) A 91-year-old patient, who lives alone, developed a urinary tract infection. Because of her age, and lack of support, she would usually be admitted to hospital. The GP phoned the POAC Coordinator, who arranged with a local rest home for the patient to have respite care for 2–3 nights. The GP visited the patient the next day. The rest-home staff and the patient knew that if she got worse overnight, they could request a home visit at any time, at no cost.

Forty patients used this “dinner, bed and breakfast” service during the programme.

**Table 1. Main diagnosis on referral to POAC programme**

Diagnosis	n	%
Abdominal pain	47	6.6
Alcohol-related conditions	2	0.3
Angina	6	0.8
Chest pain – undefined	53	7.5
Cardiac (other)	10	1.4
Cellulitis	89	12.6
Skin infections	22	3.1
CHF	24	3.4
Dental conditions	1	0.1
Diabetes	8	1.1
ENT	16	2.3
Epilepsy	1	0.1
Gastroenteritis	34	4.8
Dehydration	22	3.1
Gynaecological	15	2.1
IHD	3	0.4
Kidney/urinary infection	27	3.8
Lung cancer	1	0.1
Neurological	16	2.3
Stroke	12	1.7
Orthopaedic	15	2.1
Other	42	5.9
Other infections	17	2.4
Asthma	32	4.5
CORD	24	3.4
Respiratory infections – acute bronchitis	8	1.1
Respiratory infections – other	10	1.4
Respiratory infections – pneumonia	62	8.8
Respiratory – other	15	2.1
Urological	9	1.3
Vascular	64	9.1
<b>Total</b>	<b>707</b>	

NB Percentages add to less than 100 due to rounding

## Statistics

In total, 707 patients were referred to POAC by the end of December, 2001. Table 1 shows the diagnostic categories and the number of patients in each category for the period.

**Table 2. Services provided in the community and associated costs (all patients, n = 707)**

Service	Total cost (\$)	Visits/ contacts per service	Patients seen per service	Average visits per patient	Average cost per patient (\$)
After hours A&M	266.67	7	5	1.4	53.33
AHS doctor home visit	377.78	5	5	1	75.56
AHS nurse home visit	40.00	3	3	1	13.33
Blood test	0.00	215	118	1.8	0.00
Child care	153.42	3	1	3	153.42
Commode	77.06	2	2	1	38.52
CT scan	374.00	2	2	1	187.00
Day care	26.67	2	2	1	13.33
Dinner, bed and breakfast	8,628.01	108 (days)	40	2.7	215.70
ECG	1,053.33	47	42	1.1	25.08
Equipment service/hire	746.25	45	31	1.5	24.07
GP administrative time	9,614.00	721	663	1.1	14.50
GP home visit	9,203.03	181	92	2.0	100.04
GP nurse visit	1,052.90	34	25	1.4	42.12
GP surgery visit	23,588.91	665	332	2.0	71.05
Home help	1,345.21	25	13	1.9	103.48
IVU	584.00	2	2	1	292.00
Meals on wheels	49.78	7	2	3.5	24.89
Observation in AHS	100.00	1	1	1	100.00
Personal care	94.04	5	2	2.5	47.02
Physiotherapy	2,690.85	45	19	2.4	141.63
Practice nurse admin time	297.78	13	8	1.6	37.23
Practice observation room	49,434.89	659	353	1.9	140.04
Prescription	2,409.80	175	124	1.4	19.43
Registered Nurse	1,586.07	73	29	2.5	\$54.69
Sitters/sleepovers/nurse aide	1,476.78	14	7	2	210.97
Transport	2,269.40	113	84	1.3	27.01
Ultrasound scan	15,744.44	89	85	1.0	185.23
X-Ray	8,637.19	140	127	1.1	68.01
<b>Total</b>	<b>\$141,922.26</b>	<b>3,401.00</b>	<b>2,219</b>	<b>1.53</b>	<b>63.96</b>

A&M=Accident and Medical; AHS=After Hours Service

Services provided in the community are shown in Table 2. The average cost per patient care episode was **\$200.73**. Administration costs were not included, as these were mostly fixed.

**Table 3. Eventual outcomes of referrals to POAC programme**

<b>Outcome</b>	<b>n</b>	<b>%</b>
Deceased*	4	0.6
Eventually admitted	104	14.7
Managed without admission	586	82.9
Unknown/yet to be advised	13	1.8
<b>Total</b>	<b>707</b>	

\*These cases were reviewed independently. The deaths were not unexpected, nor due to failure to refer the patient to hospital.

Table 3 shows the eventual outcomes of treatment. The cut-off time for “Eventually admitted” was one week after the patient was referred to POAC. Table 4 shows the ethnicity of the patients enrolled.

**Table 4. Ethnicity of patients enrolled in POAC programme**

<b>Ethnicity</b>	<b>n</b>	<b>%</b>
Asian	12	1.7
Chinese	35	5.0
Indian	16	2.3
NZ European	321	45.4
Other European	66	9.3
European – not defined	50	7.1
Pacific	84	11.9
Maori	86	12.2
Not stated	33	4.7
Other	4	0.6
<b>Total</b>	<b>707</b>	

NB Percentages add to greater than 100 due to rounding

### **Evaluation of satisfaction**

A qualitative evaluation of the programme, conducted as part of an independent evaluation commissioned by Counties Manukau District Health Board (CMDHB) from Auckland Uniservices,<sup>2</sup> reported a very high level of patient and GP satisfaction with the programme, including clinical management.

Comments from patients included the following:

“I feel that we saved the Hospital for others and that’s good. I had no wish to go to hospital. We depend on each other [referring to his wife].”

“The care was excellent at the surgery. I felt safe with all the nurses around and I was happy to come back home. Who likes hospital?”

“I think that the care was far better – you end up sat around a corridor somewhere – I had the test results that day and an outpatient appointment.”

“We could have called the surgery or an ambulance at any time. You are quite secure, they know what they are doing.”

A focus group comprising Maori POAC patients was summarised in the following way:

“The features of the alternative [POAC] service that appealed to the participants were the accessibility and the likelihood of having their health problems addressed in a timely manner, contrary to their past experience of hospitals. Each person who took part in the alternative primary care option, rather than hospital treatment, substantially benefited from the peace of mind (Te Whare Tapa Wha) that their health problem was going to be attended to.”

Interviews with Samoan POAC patients also confirmed their satisfaction with the programme:

“The consumers were more than satisfied with the programme. The advantages of being treated outside the hospitals prevented their fear of being in the hospital arena. This programme not only satisfied their health needs but also provided them with full control over their social life and wellbeing.”

“The consumers also talked about the difference in the time frame for treatment at the hospital compared to being under the Primary Care Options Programme. One consumer provided the following comment: ‘It was great to sit there only a few minutes and the nurse came and took me to the doctor’s clinic room. I was only there for 20 minutes and left.’ ”

Primary care providers that used the POAC programme enjoyed the continuity of care that it reinforced. They had many positive comments to make, two of which are included below:

“Put that sticker on and the results are back in a few hours. It is superb – you do feel confident in keeping the patient rather than sending them to wait at the hospital.”

“This service can encourage empowerment of its patients in care and involve families in support.”

### **Evaluation of referrals to POAC**

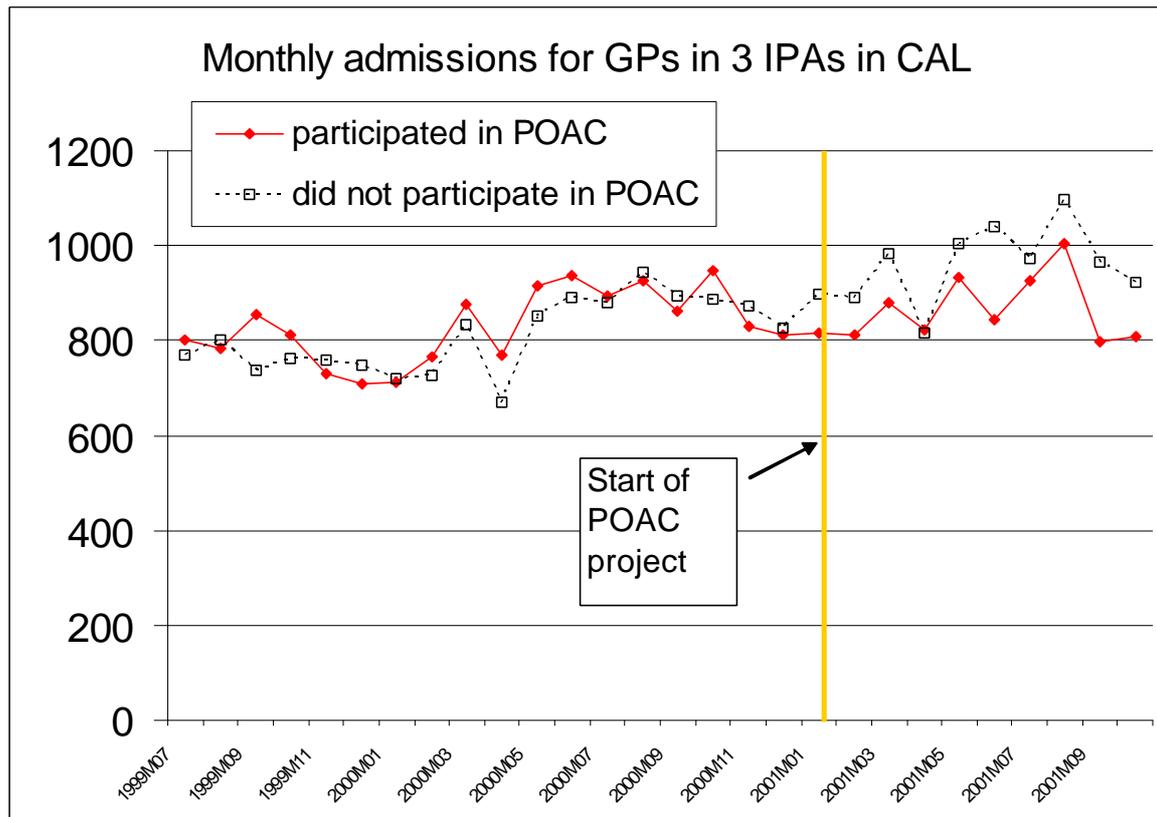
As part of the evaluation, a group of four doctors (3 GPs and one emergency department physician) evaluated all of the referrals to that point in the programme.<sup>2</sup> They found that over 90% of all referrals were truly “avoided admissions” (Table 5). None of reviewers were part of the IPAs involved; therefore none had used POAC. Due to time constraints, no reviewer evaluated all referrals, but all referrals were evaluated by more than one reviewer.

**Table 5. Independent review of first 387 referrals to the POAC programme**

<b>Reviewer</b>	<b>Number of cases reviewed</b>	<b>% of cases that were “avoided admissions”</b>
GP 1	209	91.9
GP 2	232	97.4
GP 3	218	90.4
ED specialist	232	97.0

While the programme was not designed to evaluate a difference in referral rates between the GPs, Figure 1 shows a difference between the admission rates of GPs utilising/participating in POAC and those of non-participating GPs. When more data is available, we will be able to establish if this clear trend of fewer admissions from POAC participants is statistically significant.

**Figure 1. Pattern of admissions for participating versus non-participating doctors (CAL = Clinical Assessments Ltd)**



## Discussion

First, it is clear that the primary care sector is willing and able to extend the level of care it provides to its patients. Also, patients on the whole are grateful that they don't have to be admitted to hospital. There was, in addition, a high degree of patient satisfaction with the programme itself. Even though the management of their care was often quite different from what they had expected, the continued relationship with their familiar primary care team appears to have reassured patients through this change.

Another phenomenon that emerged in the evaluation focus groups, was the shift in expectations of both GPs and patients; serious illness no longer implied admission to hospital, and other solutions could be found.

Several services mentioned in Table 2 perhaps need further explanation. Practice observation room costs are those associated with keeping the patient observed in a room of the clinic. They include the cost of materials (eg, intravenous fluids, intravenous cannulae). A lot of treatments require time to evaluate the patient's response, or even observation of the patient's improvement or deterioration with time. Patient observation was a valuable tool used by all doctors. GP surgery visit costs are those of a patient returning to see the doctor. By removing financial barriers, patients are more willing to see the GP a second or third time. Although GPs can make home visits, the real cost (incorporating lost income during absence from the clinic) is quite a barrier to patients, particularly in the Counties Manukau region.

Also of note is the availability of resources within the community. The Coordinator reported that she was always able to find a rest-home bed, albeit occasionally the patient had to travel a significant distance. Likewise, investigations were almost always available on the same day as requested. For management of acute demand, this level of service availability is imperative. It would be interesting to compare the Hospital's ability to offer these investigations in such a timely fashion.

Of interest is that, on average, GPs under-spent the budget. This programme has been unique, in that primary care providers were trusted to charge for their services appropriately. It is heartening to confirm that the primary care sector is responsible with spending health money. Freedom from bureaucratic resource constraints has allowed it to deliver better care, cost effectively.

Both the number of GPs using POAC, and the number of patients enrolled, has increased steadily. It is likely that the initial slow uptake has been due to several reasons: 1) the time it takes to change GPs' behaviour; 2) the fear of litigation or scorn from colleagues if something new is tried and fails; 3) the time it takes to investigate and manage in more depth complicated problems, when there may be a lot of other patients waiting to be seen; 4) a lack of GP confidence to manage more complicated problems; 5) a lack of GP knowledge of the full spectrum of community resources available; 6) in some areas most patients have private health insurance, which allows access to expensive or resource-limited investigations.

South Auckland Health is resource-constrained and operating at full capacity. While the absolute numbers of patients who have utilised POAC is not large, if a department or system is at capacity, even a small increase in admissions or investigations required can result in a paralysis or loss of efficiency in the affected area. For example, the Radiology Department in South Auckland Health now refuses community referrals for ultrasound investigations (of which Doppler scans are a subset). Approximately 64 Doppler scans were carried out in the community, during the POAC programme. This equates to 64 fewer referrals to the Radiology Department, which in turn allows other inpatients quicker access to this limited service. The flow-on effects are thus very significant.

There is a marked difference in the number of GPs using this programme across the different IPAs. No analysis into the reasons behind this phenomenon has been undertaken. Possible reasons include how well paid the GPs are in the different areas, the number of patients they usually refer to hospital, the culture of the IPAs, and the different use of peer/cell groups and continuing medical education.

In summary, primary care providers as represented by the three IPAs acknowledged the problem of “avoidable admissions”, and were able to provide a solution. Eight two per cent of patients in the POAC programme, who would have otherwise been admitted, were safely managed in the community. Most of them preferred and appreciated this care. If the pilot programme is expanded, more rigorous statistical analysis of the observed trends in avoiding admissions will be possible.

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