Queen's University alternative funding plan

Effect on patients, staff, and faculty in the Department of Family Medicine

Marshall Godwin, MSC, MD, CCFP, FCFP Rachelle Seguin, MA Ruth Wilson, MD, CCFP, FCFP

abstract

OBJECTIVE To determine the effect of the Queen's University alternative funding plan (AFP) on the Department of Family Medicine in terms of patient, staff, and faculty satisfaction; patient encounter logistics; clinical volume; and academic activity.

DESIGN Before-after study.

SETTING Department of Family Medicine at Queen's University in Kingston, Ont.

PARTICIPANTS Patients, faculty, and staff of the Department of Family Medicine's Family Medicine Centre.

INTERVENTIONS The AFP of Queen's University.

MAIN OUTCOME MEASURES Patient satisfaction, staff and faculty job satisfaction, patient waiting time, time spent with patients, patient volume, number of publications, and amount of research funding obtained by faculty members. These outcomes were measured before the AFP began (time 0), 1 year post-AFP (time 1), and 2.5 years post-AFP (time 2).

RESULTS In some categories patients' satisfaction decreased at time 1, but in all cases it was either unchanged or improved at time 2. Staff and faculty job satisfaction did not change over time. Patients spent less time in the waiting room at time 2 than at time 0. Patient volume dropped about 10% between time 0 and time 2. Publication rate did not change, but external research funding increased significantly during the study period.

CONCLUSION The AFP has improved academic productivity, decreased patient volume by 10%, and improved patient flow during clinics. No negative effects on patient satisfaction or on job satisfaction of staff or faculty are apparent.

résumé

OBJECTIF Déterminer les répercussions du nouveau mode de financement de Queen's University sur le Département de médecine familiale en ce qui concerne la satisfaction des patients, du personnel et du corps professoral; la logistique des rencontres avec les patients; le volume de cas cliniques; et les activités scientifiques.

CONCEPTION Une étude avant-après.

CONTEXTE Le Département de médecine familiale à Queen's University, à Kingston en Ontario.

PARTICIPANTS Les patients, le corps professoral et le personnel du Centre de médecine familiale du Département de médecine familiale.

INTERVENTION Le nouveau mode de financement de Queen's University.

PRINCIPALES MESURES DES RÉSULTATS La satisfaction des patients, du personnel et du corps professoral, le temps d'attente pour les patients, le temps passé avec les patients, le nombre de publications, et la quantité de subventions à la recherche obtenues par les membres du corps professoral. Ces éléments ont été mesurés avant la mise en œuvre du nouveau régime (stade 0), 1 an après sa mise en œuvre (stade 1) et 2.5 ans après sa mise en œuvre (stade 2).

RÉSULTATS Dans certaines catégories de facteurs, la satisfaction des patients a fléchi au stade 1, mais dans tous les cas au stade 2, elle était soit inchangée ou améliorée. La satisfaction du personnel et du corps professoral est restée la même à tous les stades. Les patients passaient moins de temps en salle d'attente au stade 2 qu'au stade 0. Le volume de patients a baissé d'environ 10% entre le stade 0 et le stade 2. Le nombre de publications n'a pas changé mais les subventions extérieures accordées à la recherche ont augmenté considérablement durant la période étudiée.

CONCLUSION Le nouveau régime a amélioré la productivité scientifique, a fait baisser le volume de patients de 10% et a amélioré la circulation des patients durant les cliniques. Aucun effet négatif n'a été signalé sur la satisfaction des patients ou la satisfaction professionnelle du personnel ou du corps professoral.

This article has been peer reviewed.

Cet article a fait l'objet d'une évaluation externe.

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In July 1994, an alternative funding plan (AFP) was implemented at Queen's University in Kingston, Ont. Remuneration for clinical services by medical faculty was changed from fee-for-service to a system whereby the Faculty of Medicine was given an annual lump sum to distribute to its clinical faculty for providing clinical services, research, and education.

This AFP at Queen's University, is, at least in its scope, unprecedented. Some experiments with AFPs have been conducted at the departmental level in the Department of Family Medicine at the University of Manitoba and the Department of Pediatrics at the Hospital for Sick Children in Toronto, Ont. At the Department of Family Medicine in Manitoba, an AFP has been in place since January 1993. The difference before and after implementation of the block-funding scheme has not been systematically studied, but workload and content are checked periodically. Some observers believe that scholarly activities have increased, including publications, presentations, and travel to scientific meetings, since the block-funding scheme has been in place (personal communication from Dr Peter Kirk, Head of Family Medicine at the University of Manitoba).

Groups of physicians, in both community and academic settings in Ontario, made large-scale changes in their method of remuneration when several of them switched to health service organizations several years ago. There are limited reports on the effects of these changes. Stearns et al[1] in 1992 studied the effect of a change from fee-for-service to a capitation system and found that hospitalizations decreased but length of stay and number of ambulatory care visits increased. In 1990, in Britain, Krasnik and associates[2] evaluated the effect of a change from a full capitation system to mixed fee-for-service and capitation in a group of general practitioners. They compared data collected before the change with data collected after the change and found that the number of visits per 1000 patient population increased significantly but that referrals to consultants and to hospitals decreased. Rubin et al[3] compared patient satisfaction in several practice settings (solo practitioner, multi-specialty group, health maintenance organizations), and in fee-for-service or prepaid systems. Patients rated their satisfaction with solo fee-for-service physicians highest and health maintenance organizations lowest. Quality of care was rated higher in small groups than in large groups of physicians.

For the first time in Canada, and possibly in the world, a faculty of medicine changed the method by which it paid for clinical services from fee-for-service to what, in essence, is a salary system. This change in the method of remuneration of clinical faculty was recommended by Barer and Stoddard in their 1991 report.[4] Queen's University is the first to test this system, and it is likely that other universities are watching and waiting to see the outcome.

Dr Godwin *is an Associate Professor,* **Ms Seguin** *is a Research Associate, and* **Dr Wilson** *is a Professor and Head in the Department of Family Medicine at Queen's University in Kingston, Ont.*

Measuring effects of change

Several departmental and faculty-wide evaluation projects are currently under way. Although, in the end, we will need to know the overall effect on the faculty, we will have to measure much of that effect at the department level. Each department has its own strategy for distributing funds; each department operated differently to a greater or lesser degree, and outcome measures in one department might not be appropriate in another. The Department of Family Medicine is probably least like any of the other departments because it is almost entirely community-based. The AFP was expected to affect teaching, service, and research in the Faculty of Medicine. The move away from fee-for-service medicine was expected to reduce clinical activity slightly. Funding the tripartite mission of teaching, service, and research in a global fashion was expected to lead to a rebalancing of these three activities, in hopes that scholarly work would increase.

This paper reports on changes in patient satisfaction and staff and faculty job satisfaction; in patient flow in our clinics; and in scholarly activities at Queen's University's Family Medicine Centre since implementation of the AFP in July 1994.

Objectives

We intended to measure changes in specific factors within the Department of Family Medicine at Queen's University before and after the AFP was introduced. These factors were:

- patient satisfaction,
- job satisfaction of staff and faculty,
- measures of patient care: patient volume, patient waiting times, and amount of time spent with patients during encounters, and
- number of publications and funded research projects of faculty members.

METHODS

This study used a before-after design to assess the effect of the AFP on predetermined factors. The study population was the patients, staff, and faculty at the Department of Family Medicine of Queen's University.

The Department of Family Medicine has as its mission to educate family physicians for smaller rural communities. Part of the teaching mission is carried out at the Family Medicine Centre, which houses six clinical areas staffed by physicians, nurses, and receptionists with family medicine residents assigned to each teaching practice. Social workers and a nutritionist also staff the centre. The Department of Family Medicine adopted an activity-based compensation model for faculty remuneration under the AFP. Faculty remuneration was adjusted annually based on physicians' global activities: clinical, teaching, administrative, and research. Financial incentives thus encouraged scholarly work as well as maintaining adequate clinical volumes to support an excellent residency teaching program.

Patient satisfaction was measured using the patient satisfaction questionnaire developed and validated by Ware and Synder[5,6] to measure patient satisfaction in four categories: access to care, humaneness, quality and competence, and general satisfaction. In addition to this scale, a series of questions on satisfaction with the clinic nurses and receptionists was administered. Patient satisfaction questionnaires were available in the waiting rooms during June 1994 (time 0: the month before the AFP came into effect), during September 1995 (time 1), and during February 1997 (time 2). Questionnaires were offered to some patients as they presented to receptionists. Receptionists would at times be too busy or would forget. Our goal was to get a representative sample of patients. Approximately 2750 patients are seen each month in the Family Medicine Centre. We determined that with an α of .05 and a β of .05, a sample of 180 patients would provide us with 95% confidence that we were detecting the correct level of satisfaction 95% of the time.

Staff and physician satisfaction were measured using two different questionnaires, which were administered at the same time as patient satisfaction data were collected. The Job Satisfaction Measure for Physicians was developed by Lichtenstein[7] in 1984. It measures satisfaction with one's current job as well as anticipated satisfaction with the best job one could reasonably imagine having. We used it only to measure satisfaction with the current job. The job satisfaction questionnaire for staff was developed from several sources to reflect properly our work environment. It was not formally validated.

Table 1. **Means and 95% confidence intervals of patient waiting times and time spent with patients at times 0, 1, and 2**

	MEAN	
DATA COLLECTION TIME	PATIENT WAITING TIME (MIN) (95% CI)	TIME SPENT WITH PATIENTS (MIN) (95% CI)
Time 0 (pre-AFP)	16.6 (15.1-18.1)	23.8 (22.2-25.3)
Time 1 (1 y post-AFP)	14.2 (12.7-15.7)	25.5 (23.8-27.2)
Time 2 (2.5 y post-AFP)	12.6 (11.1-14.1)*	22.8 (21.2-25.0)

*P $<$ *.001; waiting time at time 2 was significantly shorter than at time 0.*

Clinical data were collected during the same periods patient and job satisfaction data were collected. A research assistant observed the clinics' traffic flow and recorded times when patients arrived, when they were placed in examining rooms, when physicians went into examining rooms, and when physicians were finished with patients. Each physician had at least two clinics observed during each measurement period (before AFP, 1 year post-AFP, and 2.5 years post-AFP).

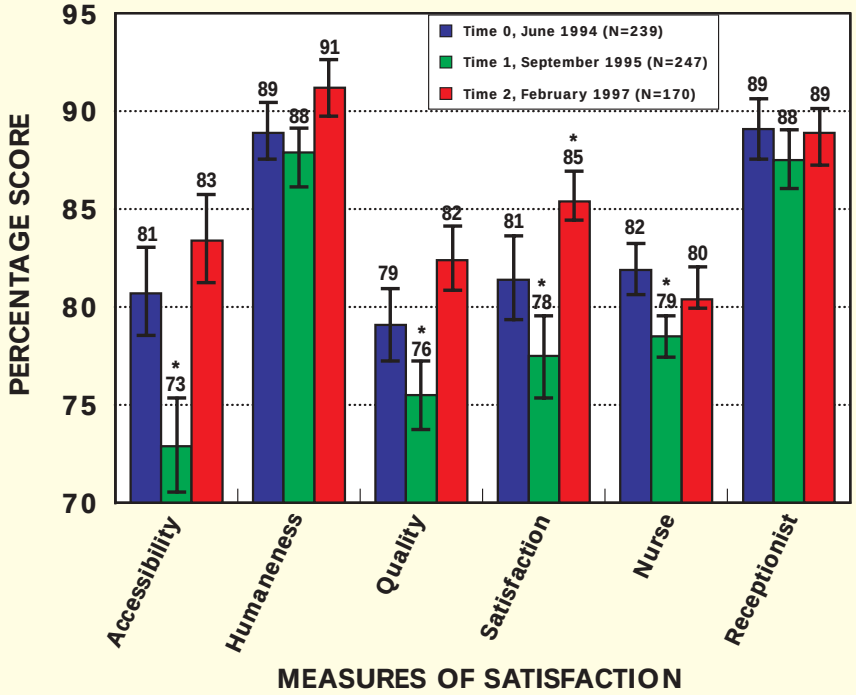
Data on total encounters for the years 1993 through 1996 were available through statistics compiled by the department. Data on publications and funded research projects were collected from physicians' curricula vitae.

RESULTS

Patient satisfaction. **Figure 1** compares mean scores on each measured domain of patient satisfaction. Because each domain has a different possible maximum score, **Figure 1** shows the percentage of the maximum score achieved on each domain during each period. Satisfaction with quality of care, with nurses, and with accessibility to physicians dropped significantly between pre-AFP and 1 year post-AFP but had returned to pre-AFP levels by 1.5 years. Satisfaction with receptionists and with humaneness shown by physicians did not differ throughout the study period. Overall satisfaction decreased between pre-AFP and 1 year post-AFP but then increased beyond pre-AFP levels by 2.5 years post-AFP.

Staff job satisfaction. Forty-seven staff members worked at the Family Medicine Centre during the study period. Of these, 40 completed questionnaires at

Figure 1. **Patient satisfaction by percentage of maximum possible score on domain**



* = $P < .0001$ compared with time 0.

time 0, 36 at time 1, and 41 at time 2. There were no differences between time 0 staff job satisfaction scores and time 2 scores. On two questions, however, satisfaction scores were significantly lower at time 1. The statements "I find real enjoyment in my work" and "Most days I am enthusiastic about my work" both scored significantly lower at time 1 than at time 0 but were not different from time 0 when remeasured at time 2. Responses were based on a Likert scale of 1 to 5 with 1 indicating low satisfaction and 5 indicating high satisfaction. Generally satisfaction was high at all three times with median scores of 4 or 5 on most questions.

Physician job satisfaction. Eighteen faculty members worked at the Family Medicine Centre during all three sampling times. Of these, 13 completed the physician satisfaction questionnaire at time 0, 15 at time 1, and 12 at time 2. No differences in responses to any of the 19 questions appeared between time 0 and time 1 or between time 0 and time 2. On a 7-point Likert scale, with 1 as extremely unsatisfied with their job and 7 as extremely satisfied with their job, 80% of physicians ranked their satisfaction between 5 and 7 at times 0, 1, and 2. Also at each of these times more than 60% said that they would accept the position again were they deciding whether or not to do so, that the position measured up to their expectations, and that they would recommend this type of position to others.

Patient waiting time and encounter times. Data on waiting time and encounter times were collected for 286 patients at time 0, 278 patients at time 1, and 257 patients at time 2. **Table 1** compares these variables at the three data collection times. Waiting at time 2 was significantly shorter than at time 0. Otherwise no significant differences appeared.

Patient volume. The number of patients seen annually dropped steadily during the 2 years before the AFP and the 2 years after AFP initiation. **Figure 2** displays this downward trend. The trend is significant (χ^2 5028, $P < .001$).

Publications and research funding. The number of peer-reviewed publications (**Figure 3**) increased each year after the AFP was initiated. The level of 13 publications reached in 1997, however, is not significantly different from the 10 publications in 1993.

External peer-reviewed research funding (**Figure 4**) increased significantly in 1997-1998. This could be related to the AFP because it would take a few years for the focus on research, made possible by

Figure 2. **Number of patient encounters annually at the Family Medicine Centre between 1992-1993 and 1995-1996**

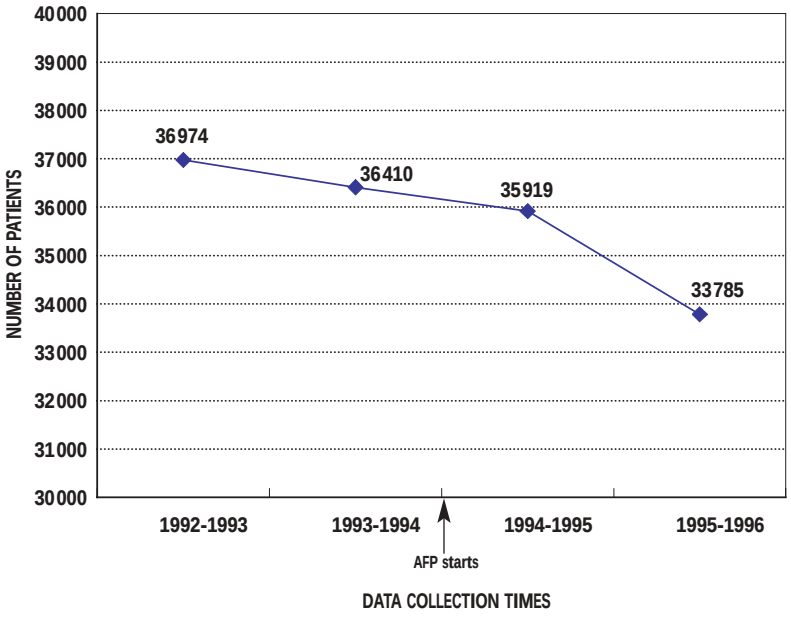


Figure 3. **Publications by faculty members**

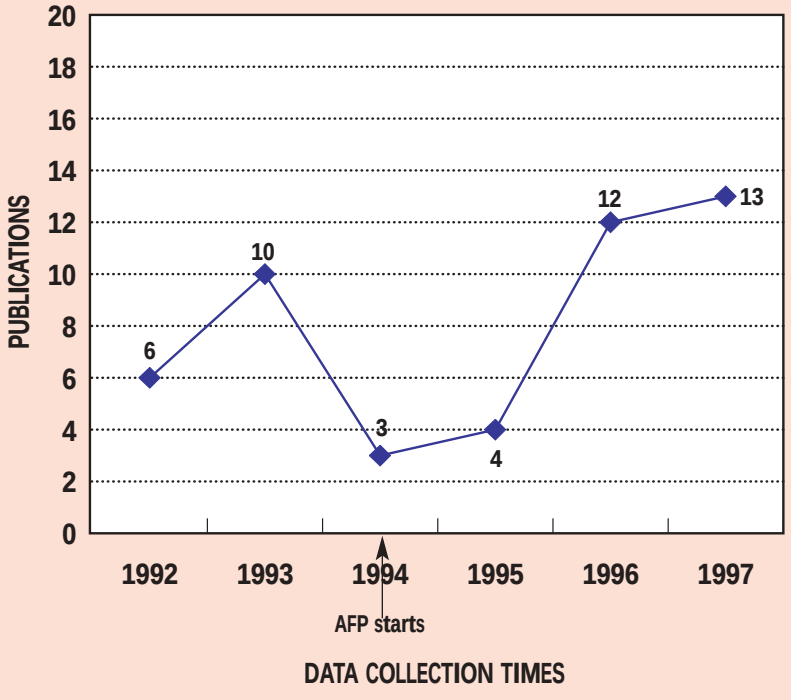
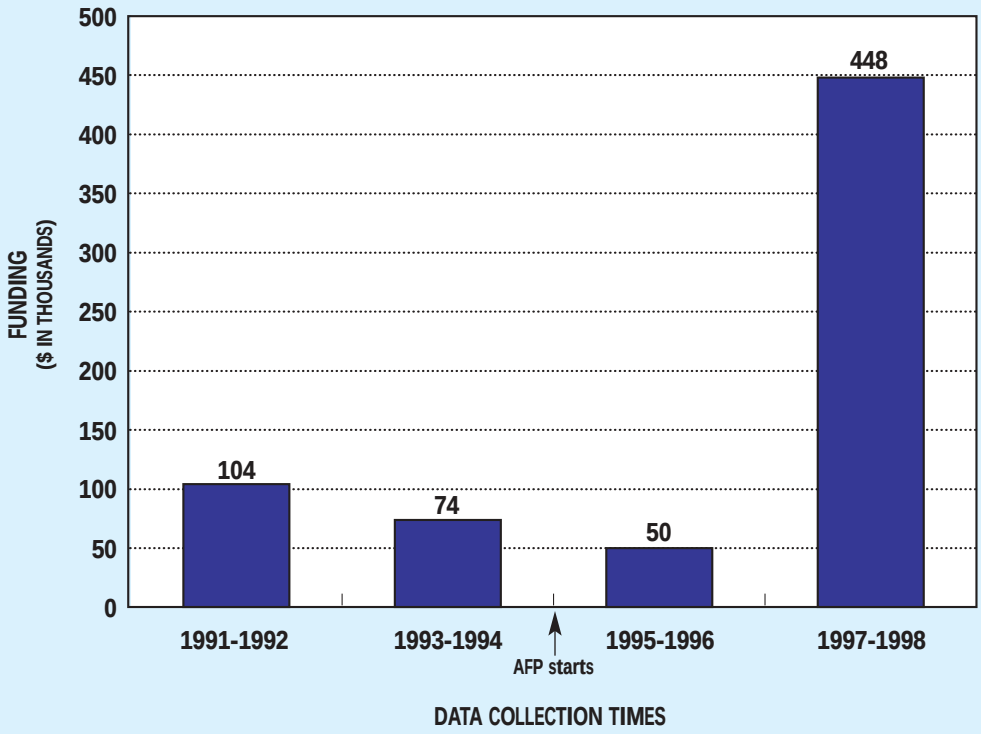


Figure 4. **Research funding obtained by Family Medicine Centre faculty members**



the AFP, to result in grants. A general trend within the department to stimulate and encourage research, however, must also be considered.

DISCUSSION

Organizers envisioned that the AFP at Queen's University Faculty of Health Sciences would result in changes in the work profiles of faculty members. The volume of clinical work was anticipated to decrease somewhat, and the time freed up by this decrease in clinical work could be channeled into teaching and research, resulting in an increase in scholarly work. Has this happened in the Department of Family Medicine? The volume of clinical work has decreased by approximately 10%. This decrease has not reduced patients' satisfaction with quality of care, accessibility to care, or their satisfaction with health care staff at the Family Medicine Centre. In fact, satisfaction in some areas has improved. Physicians are spending the same amount of time with patients, and patients are not waiting as long in waiting rooms.

Scholarly activity, at least that which can be measured by volume of publications and research grants, has either increased or been maintained. We recognize that other factors, such as health care restructuring and government cutbacks on the negative side, and department initiatives to increase scholarly activity on the positive side, could have affected the results of our study. It is probably accurate to state, however, that the effect of the AFP on the Department of Family Medicine has been somewhere between neutral and positive. It has certainly not been negative.

Our study has some limitations. We do not have an accurate denominator for the patient satisfaction questionnaires, so we do not know how many patients were offered the questionnaire but refused to complete it. If this number was high and if patients who refused differed significantly from those who completed questionnaires, we could have overestimated satisfaction. Physician and staff satisfaction numbers were low. We have enough power to detect only very large shifts in satisfaction. Smaller changes would not be detected as statistically significant differences. We can say only that large changes in satisfaction have not

occurred. Since introduction of the AFP, Ontario, including Kingston, has gone through hospital closures, staff layoffs, and the whole saga of the Health Care Restructuring Commission's Report recommending larger scale changes in the structure and function of health care delivery. It is impossible to know what effect, positive or negative, this had on the outcomes we measured.

CONCLUSION

The AFP has improved research and publication productivity, reduced patient volume by 10%, and improved patient flow during clinics. There have been no negative effects on patient satisfaction or on job satisfaction of staff or faculty. We did not measure other academic activities, such as teaching, nor quality of patient care. A study is assessing the difference in quality of care before and after the AFP using the Practice Assessment Program of the College of Family Physicians of Canada.

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Correspondence to: *Dr Marshall Godwin, Family Medicine Centre, 220 Bagot St, Kingston, ON K7L 5E9; telephone (613) 549-4480; fax (613) 544-9899; e-mail* godwinm@post.queensu.ca

Key points

- In 1994, Queen's University implemented an alternative funding plan, which replaced fee-for-service with an annual lump sum for all clinical services, research, and education.
- After 2 years, patient satisfaction was unchanged or improved; faculty and staff satisfaction was the same. Patient volume dropped by 10%, and patients spent less time in the waiting room. Research funding increased significantly.

Points de repère

- En 1994, Queen's University implantait un nouveau mode de financement qui remplaçait la rémunération à l'acte par une somme forfaitaire annuelle pour tous les services cliniques, la recherche et l'enseignement.
- Après deux ans, la satisfaction des patients était restée la même ou s'était améliorée; la satisfaction du personnel et du corps professoral est demeurée inchangée. Le volume de patients a baissé de 10% et les patients devaient passer moins de temps en salle d'attente. Les subventions à la recherche ont augmenté considérablement.

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