PRACTICE PATTERNS OF PHYSICIANS WITH TWO YEAR RESIDENCY VERSUS ONE YEAR INTERNSHIP TRAINING:

DO BOTH ROADS LEAD TO ROME?

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INTRODUCTION

In Canada, the traditional postgraduate training route for general practitioners has been the hospital-based junior rotating internship. Until the mid 1970's, all provincial licensing authorities had granted unrestricted licenses to practice after one year of prelicensure training,

The College of Family Physicians of Canada was created by the Canadian Medical Association (CMA) in 1954 and was committed to upgrade the quality of medical care in general practice through education. Initially, this was carried out through continuing medical education of practitioners and later with the institution of the 2 year family practice residency. In 1966, the first family practice residency programmes were established and accredited by the College of Family Physicians. At present, all 16 Canadian medical schools offer family practice residency training.

Discussion of the relative merits of one versus two years of prelicensure training date as far back as the early 1930's in North America[1]. In 1969, Millis advocated the integration of internship and residency training for physicians entering into practice in Canada[2]. The Noakes Committee on Postgraduate Medical Education and Licensure, in 1974, recommended that by 1980 "the minimum requirement for independent licensure be 2 years of residency training, one year of which should be a rotating type internship, plus a further year which ... should qualify for credit towards fulfillment of the requirements for a family practice or specialty certification"[3]. Although this recommendation was not supported by the Federation of Provincial Medical Licensing Authorities of Canada (FPMLAC) which had formed the

Noakes Committee, a similar recommendation was put forward independently by the Committee on Goals and Priorities of the National Board of Medical Examiners and supported by the Association of Canadian Medical Colleges[4]. In 1981, the Royal College of Physicians and Surgeons of Canada considered this issue and although an ad hoc committee supported a 2 year prelicensure requirement, the Position Paper on Prelicensure Requirements recommended that "graduates should be able to complete the prelicensure requirements in one year"[5].

Because of the continuing controversy, the CMA in 1983 created the Task Force on the Provision of Primary Care, chaired by Dean L. Wilson, and sometimes referred to as the Wilson Task Force. Its mandate was to review training for general/family practice in Canada. In 1985, this group recommended a 2 year prelicensure requirement similar to what had been required in Alberta since 1975. Subsequent deliberation by the Cox Committee supported this and further recommended that the 2 years be spent in a residency-like experience. Finally, in 1987, the Federation of Provincial Medical Licensing Authorities of Canada (FPMLAC) reversed their earlier position and recommended a 2 year requirement. As of July 1988, Québec became the first province requiring a university-based 2-year family practice residency prior to licensure. Other provinces are expected to follow suit.

The controversy surrounding the 2 year prelicensure requirement and the evolution of its acceptance highlight the need to evaluate these programmes. Moreover, such evaluations must take into account a variety of perspectives. For example, trainees are concerned whether the lengthening of their professional education and the attendant opportunity costs are justified.

Professional bodies and licensing authorities are primarily interested in whether the additional year significantly improves physician competence and quality of care. From the public's perspective, the issue is whether the additional year significantly improves patient satisfaction, quality of care, and accessibility. Finally, governments are oriented toward the manpower and cost implications of the extra training. Some of the variables in the latter equation include the cost of providing all the necessary second year residency positions, the manpower effects of deferring entry into medical practice by one year, and the effects of the additional training on patterns of practice. From each of these perspectives, the essential question is the relative cost versus benefit of the extra year of training.

Although each of these questions can be addressed, it is our feeling that the most reasonable starting point for any evaluation centres on establishing whether or not patterns of practice are influenced by type of training. We believe this is a critical piece of evidence to establish the benefit side of the equation. Indeed, as Corley has noted, "the validation of an education program lies in the professional practices of its graduates"[6].

Although a number of articles have explored the broader issues discussed above[1,7-14], it is surprising how little comprehensive data are available from Canada which explicitly address the question of whether the 2-year family practice residency significantly alters patterns of practice. We could only locate three Canadian studies which objectively compared these two types of training[15-17]. Unfortunately, these suffered from a number of methodologic problems including failure to match physicians on important

confounding variables[15,17], small sample size[16], and lack of formal statistical analysis[17].

In order to address the central question of practice patterns, we undertook a study designed to answer the following question: "Are there differences in patterns of practice between actively practicing physicians who have been certified after a two year family practice residency *versus* a matched group without certification who have completed the standard one year internship?"

MATERIALS AND METHODS

Data Sources

All data for this study were obtained from the British Columbia Medical Association (BCMA) billing files prepared by the Medical Services Plan of British Columbia. The initial file used to select the physicians for this study contained data pertaining only to physician characteristics (birth year, medical school and year of graduation, type of training, category of billing, region, and billing status). Type of training is defined as two year training with CCFP certification, one year training (internship) with CCFP certification, or one year training without CCFP certification. Category of billing is defined as solo practice, group practice with individual billing number, or group practice with common billing number. Region refers to one of 12 BCMA geographic areas in the province. In addition, the BCMA defines billing status as 'active' if the physician is billing at least 0.75 of a full time equivalent (FTE). The FTE level for a physician is determined by the mean billings (in dollars) of all comparable physicians in the same region. This FTE does not include sessional payments.

Inclusion Criteria

Physicians were eligible for selection into the study or control group if they were: 1) currently practicing in BC; 2) had either obtained certification from the CCFP after a two year family practice residency (the study group), or had completed a one year internship without certification (the control group);

3) had graduated from a Canadian medical school during 1975-83; and 4) had maintained at least 0.75 FTE billings (active status) for the years 1984-87 inclusive. The requirement of active status for the latter 4 years was meant to ensure that physicians in the study were well established in their practices and that they spent most of their professional time in primary care activities. We specifically excluded the small number of physicians who completed only a 1 year internship but subsequently were allowed to sit the CCFP examination.

Selection of Study and Control Groups

The study group consisted of all eligible physicians who were certified by the CCFP following a 2 year family practice residency. A total of 347 physicians were eligible as controls. To construct the control group, 2 physicians were matched to each study group physician on the following variables: category of billing (as defined above); region of the province (to this end, the 12 BCMA regions were collapsed to 3, i.e. Lower Mainland, Vancouver Island, and other); year of graduation (1975-77, 1978-80, or 1981-83); and medical school. When more than 2 physicians were eligible for matching to a given study group physician, the selection was made randomly. Sex was not used as a matching criterion since it was felt that the main difference between male and female physicians would be in the amount of time worked and this would be adequately controlled for with the active status requirement. It should be noted that the selection of study and control groups was undertaken using only the initial data file and thus without knowledge of physician practice patterns. Once the study and control groups

were chosen, their identification numbers were sent to the BCMA whereupon individual physician's practice variables were abstracted from the billing file.

Study Period and Practice Variables

The two groups of physicians were compared for each of the fiscal years 1984-85, 1985-86, and 1986-87. All available practice variables were compared. It should be noted that most data in the billing file is categorized as 'personal' or 'referred-out'. The former refers to a service performed by the study or control group physician him or herself while the latter refers to any service performed by the first level of consultants arising from direct referrals made by the study or control group physician. Thus, services (and costs) generated as a result of subsequent referrals (that is arising from consultants) would not be included in 'referred-out' calculations. For each study or control group physician, we also computed sex-specific age-adjusted costs per patient by applying the physician's sex and age-specific costs to the age distribution of the pooled patients of all study and control group physicians. In addition, six specific practice services which were thought *a priori* to be influenced by the family practice residency program were compared; these were the number of patients and visits for counselling, house calls, institutional visits, maternity care, and non-minor and minor surgical procedures respectively. For each of these services it was hypothesized that the study group would have a significantly higher number of both patients and visits. Because of changes in coding, these special services were only compared for 1986-87 since comparable codes could not be reliably defined for the previous 2 fiscal years.

Analysis

Statistical analysis utilized Student's t-test and chi-square test. Given the large number of variables examined in this study, we adopted *a priori* the convention concerning p-values that those less than 0.001 were to be considered significant, those greater than 0.05 were to be considered non-significant, and those intermediate to these values were to be considered suggestive and worthy of further study.

RESULTS

According to the BCMA files, there were 146 family practice graduates in 'active status' practice in British Columbia in fiscal 1986-87. Of these, 13 were graduates of foreign medical schools and 5 graduated outside the period 1975-83. Of the remaining 128 physicians, a total of 65 had maintained 'active status' throughout the period 1984-87 and were thus eligible for the study group. Accordingly, 130 physicians were chosen for the control group. The proportions of males in the study and control groups were 75.4% and 83.8% respectively (p=0.22). The median year of graduation for both groups was 1978 and the median age of both groups as of 1987 was 35 years with ranges of 30-46 for the study group and 28-49 for the control group. The geographic distribution of physicians in the study was as follows: 13.3 per cent (Vancouver Island); 49.7 per cent (Lower Mainland including Greater Vancouver); and 36.9 per cent (remainder of BC). The distribution of physicians as to category of billing was: solo practice (41.5 per cent); group practice with individual billing number (17.4 per cent); and group practice with common billing number (41.0 per cent).

Although we examined data for 3 fiscal years, for the sake of brevity we present data only for fiscal 1986-87. Table 1 presents comparisons of selected practice variables between the study and control groups for that year. As can be seen, there were no significant differences with regard to a wide array of practice variables. For example, the study group and control group treated approximately the same number of patients (1888 vs 1842), billed for approximately the same number of personal services (7265 vs 7173), billed for virtually the same number of personal services per patient (3.9 vs 3.9),

received essentially the same amount of funds for personal services ($140,192 vs $140,100), and received approximately the same number of dollars per patient for personal services ($77 vs $79). Although we have discussed services performed 'personally', it can be seen from the table that striking similarities were also present with regard to services 'referred out'. Moreover, when we examined the proportion of each practice referred out during the year, no difference was detected (51 per cent vs 56 per cent; p = 0.37).

TABLE 1: COMPARISON OF SELECTED PRACTICE VARIABLES BETWEEN STUDY AND CONTROL GROUP PHYSICIANS FOR FISCAL 1986-87

Practice Variable	Study Group (mean ± sd)	Control Group (mean ± sd)	p-value
Total patients treated	1888 ± 606	1842 ± 616	0.62
Total number of services paid*	11938 ± 3324	11878 ± 3398	0.91
Total number of personal services paid	7265 ± 2253	7173 ± 2265	0.79
Total number of referred-out services paid	4832 ± 1735	4938 ± 1822	0.69
Number of services per patient*	6.6 ± 1.7	7.0 ± 2.8	0.23
Number of personal services per patient	3.9 ± 0.9	3.9 ± 1.1	0.88
Number of referred-out services per patient	2.7 ± 1.0	3.1 ± 2.5	0.14
Total $ paid*	236371 ± 66134	237839 ± 66347	0.88
Total $ paid for personal services	140192 ± 41878	140100 ± 41337	0.98
Total $ paid for referred-out services	96118 ± 32247	98370 ± 34603	0.66
Total per patient $*	131 ± 33	137 ± 41	0.21
Total per patient $ for personal services	77 ± 18	79 ± 22	0.44
Total per patient $ for referred-out services	103 ± 18	109 ± 28	0.08

* includes services performed by physician (denoted personal) and by first level consultants to whom patients were referred (denoted referred-out)

Turning our attention to other services, we found that the number of laboratory services per patient were similar in the study and control groups (2.4 vs 2.7; p = 0.26) and that the mean cost of laboratory services per patient was also similar ($22.32 vs $25.66; p = 0.11). The number of X-ray services per patient did not differ between the groups (0.25 vs 0.26; p = 0.45) and the mean cost of X-ray services per patient were similar ($7.96 vs $8.27; p=0.57).

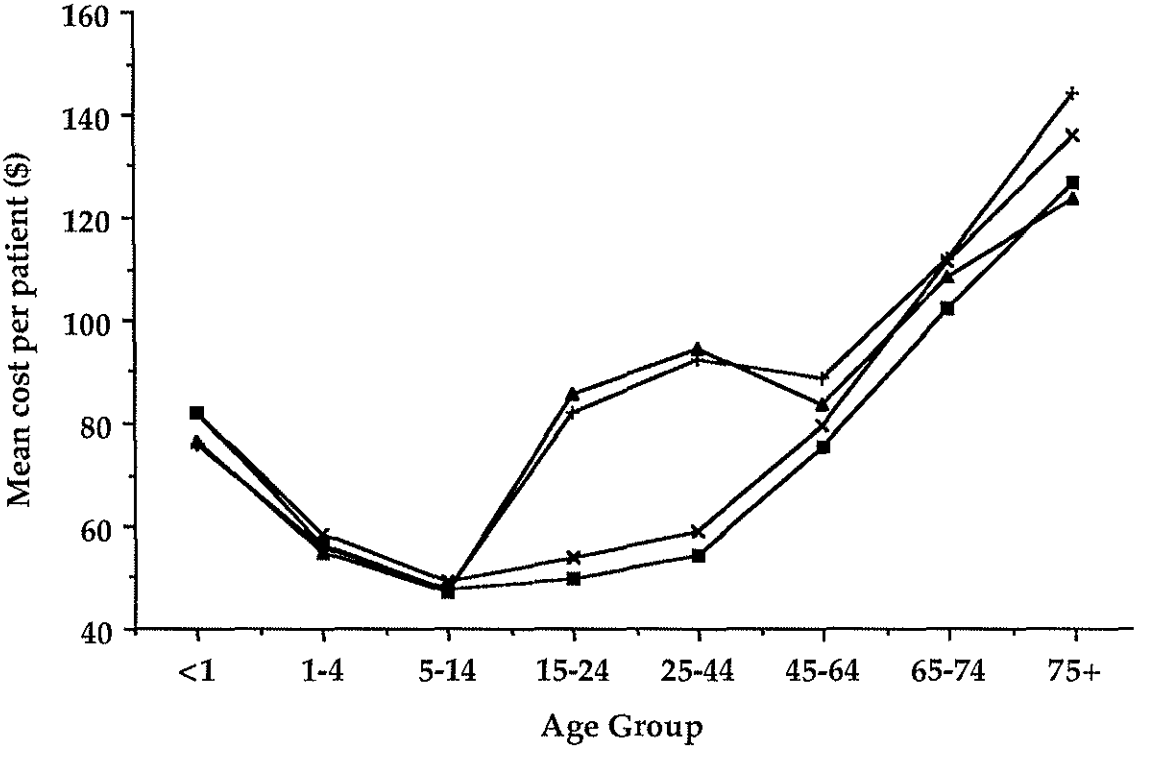
Table 2 provides a further analysis of practice variables by sex of patient. As seen in the table, the total number of male and female patients treated, the total number of services for these patients, the total earnings derived from these patients, and the age-adjusted cost per male and female patient were virtually identical in the study and control groups.

TABLE 2: COMPARISON OF PRACTICE VARIABLES FOR MALES AND FEMALE PATIENTS BETWEEN STUDY AND CONTROL GROUP PHYSICIANS (INCLUDING ONLY PERSONAL SERVICES) FOR FISCAL 1986-87

Practice Variable	Study Group (mean ± sd)	Control Group (mean ± sd)	p-value
Total number of male patients treated	795 ± 333	786 ± 332	0.85
Total number of female patients treated	1028 ± 301	986 ± 315	0.37
Total number of services for male patients	2514 ± 1174	2567 ± 1085	0.76
Total number of services for female patients	4325 ± 1241	4099 ± 1328	0.25
Total earnings for male patients ($)	50137 ± 22769	52255 ± 21265	0.52
Total earnings for female patients ($)	85019 ± 23256	82038 ± 24957	0.42
Age-adjusted cost per male patient ($)	63.32 ± 14.60	67.61 ± 19.10	0.09
Age-adjusted cost per female patient ($)	84.20 ± 19.22	85.27 ± 20.87	0.73

With regard to the age- and sex-specific costs per patient for the study and control physicians, Figure 1 presents these graphically for male and female patients across 8 age groups.

Figure 1. Mean age-specific costs by sex and type of physician



Legend for Figure 1:

■	male patients of study group physicians
×	male patients of control group physicians
Δ	female patients of study group physicians
+	female patients of control group physicians

No significant differences were detected between the physician groups with the exception of the category of patients who were female aged 75 or more for which a difference of intermediate significance was present ($123.80 vs $144.08; $p = 0.022$).

Table 3 presents data for the 6 pre-specified services. Although no differences were seen for counselling, home visits, institutional visits, and minor and non-minor surgery, we did detect a non-significant difference in the mean number of female patients receiving maternity care (62 vs 50; p = 0.05) and a marginally significant difference in the number of maternity services billed (341 vs 249; p = 0.001).

TABLE 3: COMPARISON OF SPECIFIC SERVICES BETWEEN STUDY AND CONTROL GROUP PHYSICIANS (ONLY PERSONAL SERVICES) FOR FISCAL 1986-87

Specific Service	Study Group (mean ± sd)	Control Group (mean ± sd)	p-value
Counselling-number of patients served	125 ± 103	129 ± 94	0.79
Counselling-number of services billed	164 ± 156	172 ± 142	0.74
Home visits-number of patients served	14 ± 16	18 ± 22	0.17
Home visits-number of services billed	31 ± 47	40 ± 67	0.33
Institutional visits-number of patients served	120 ± 48	114 ± 55	0.44
Institutional visits-number of services billed	542 ± 294	629 ± 421	0.10
Maternity care-number of women served	62 ± 32	50 ± 47	0.05
Maternity care-number of services billed	341 ± 186	249 ± 164	0.001
Surgery (non-minor)-number of patients served	48 ± 29	55 ± 36	0.20
Surgery (non-minor)-number of services billed	68 ± 43	76± 55	0.31
Surgery (minor)-number of patients served	92 ± 56	92 ± 82	0.97
Surgery (minor)-number of services billed	133 ± 95	134 ± 117	0.98

As noted above, similar analyses were carried out for the two fiscal years 1984-85 and 1985-86. The data are presented in Appendices A and B. It is clear that for the variables studied, no differences between the groups were detected.

DISCUSSION

Supporters of 2-year residency training can cite the findings of Brennan and Stewart[15] who compared trainees from both types of programmes at the University of Western Ontario and found that family practice graduates were more satisfied with practice, placed greater importance on emotional factors in illness, conducted more psychotherapy, spent more time with patients, and provided more non-institutional care. Unfortunately, these groups were not matched on several important potential confounding variables making interpretation of the data difficult. On the other hand, supporters of the 1 year internship can cite the results of Curry[16] who conducted a similar comparison of trainees from Dalhousie University and found no differences in the proportion of medical services billed in each of 15 service classes. While the latter investigation did match the study groups on the basis of practice location, age, and gender, it unfortunately suffered from very small sample sizes (main study groups of 11 and 23 physicians) making acceptance of its negative results tenuous.

The ideal study to compare these educational interventions is a randomized controlled trial with medical graduates randomly assigned to either of the 2 types of programmes. This would remove the confounding arising from the self-selection of individuals into one type of program or the other. Given the fact that such a trial is not feasible, we conducted an observational study comparing graduates of 2-year family practice residencies with 1-year internship trainees. In order to make the comparisons as valid as possible, we took care to match on what we considered to be critical potential

confounders including year and school of graduation, category of billing, and region.

Given the various perspectives from which these two types of training could be compared, we felt an assessment of patterns of practice to be the most reasonable starting point for several reasons. First, data with which to make these comparisons were readily available. More important, it seems plausible that if the two year programme produces measurable improvements in quality of care, these should at least be reflected in practice pattern differences. We therefore undertook a study comparing patterns of practice of trainees of both types of programmes. In assessing our results, one cannot help but be surprised at the striking similarity of two groups of physicians with clearly divergent training experiences. We detected no differences whatsoever with regard to a wide range of practice parameters; indeed, only one measurement, services for maternity care, approached a statistically significant difference. Such an observation is entirely within the realm of chance given the number of comparisons made.

There are several alternative explanations which are worthy of discussion. In any negative study, one must always consider the possibility of type II error, that is that a true difference was missed due to sampling error. This, however, was unlikely given the size of our study. For example, there was 80% power to detect a $10.00 (or 15%) reduction in the mean age-adjusted cost per male patient even with a stringent confidence level of alpha=0.001. Moreover, one would have to postulate the simultaneous occurrence of several type II errors to explain our data and this is extremely unlikely.

A second possibility is that by matching on year of graduation and type and location of practice, we artifactually created similar groups with regard to practice patterns. This phenomenon is known as 'over-matching'. To address this, it is important to separate the effects of training on two types of decisions. The first set of decisions pertains to the type of practice (ie solo vs group) and location (ie urban vs rural) which a physician chooses. The second set relates to clinical decision-making within the context of patient care such as whether or not a physician chooses to make a particular referral or order a given laboratory test. Since both type of practice and location may influence the available options within clinical decision-making and thus indirectly affect patterns of care, any analysis of these patterns must take these variables into account; we chose to do this by matching our groups. It is possible, however, that the effects of the 2 year residency are mediated solely through influencing the first set of decisions regarding practice type and location. Indeed, when the 2 year graduates were compared to all 1 year trainees rather than just to the matched group, several trends were apparent. First, the residency graduates were younger as expected since the residency is a recent phenomenon. In addition, the residency graduates were somewhat more likely to be in a group practice and to practice in rural areas but these effects were inconsistent across age groups. This suggests that temporal factors such as recent practice saturation of the urban areas and the recent trend toward group practices were equally if not more influential than any intrinsic preference of the physicians themselves. Indeed, despite the lack of matching, Brennan and Stewart's prediction that family practice graduates would more likely choose group practice was not borne out in their data[15]. Simply put, it would appear that the 1 year graduates having entered practice

earlier, had greater flexibility in their decisions regarding practice type and locale.

At any rate, proponents of the 2 year programme have generally not argued that its main benefits are on extrinsic decisions regarding practice type and location but rather on clinical decision making and hence on practice patterns[11]. Our data suggest that all other things being equal in terms of age, practice type and practice location, this argument does not appear to be substantiated.

Several advantages of our study over previous Canadian reports include the use of a provincial rather than a programme focus thus sampling graduates of both types of programmes from all across the country rather than from a single institution. Thus, these results may be more generalizable than studies derived from a single university. It is noteworthy that we studied only 65 out of 146 residency trained physicians currently practicing in British Columbia. While at first glance, this might suggest the possibility of selection effect, it should be recalled that this was due mostly to our restriction to physicians defined to be in active practice over the entire study period based on the prespecified B.C.M.A. criterion. This was an explicit decision because we believe it is most appropriate to make these comparisons once full time practice is established when the data are more likely to reflect longer term practice patterns rather than in the first one or two years of practice when early but transient effects are more likely to be observed.

An important caveat with regard to the interpretation of this study is that the issue of quality of care could not be addressed. Indeed, it is possible

that there are significant differences in quality of care between these groups in terms of appropriateness, patient satisfaction, and physician satisfaction that we were unable to measure within the context of this study.

How can one explain the striking similarity we observed between these two groups in the face of the differences in their training. The most plausible explanation, we would speculate, is that the primary determinants of a physician's patterns of practice are environmental including patient expectation and demand, epidemiological parameters, institutional requirements, economic factors, medicolegal issues, and the patterns of practice of peer practitioners in the same community. If there are different effects arising from different training routes, we speculate these are likely to be transient; any differences are likely to be rapidly overwhelmed by environmental factors as the physician is assimilated into the local practice community.

Having demonstrated that there are no differences in practice patterns, it is now critical to address the issue of quality of care. However, whether or not the graduates of the programmes under study differ in terms of the quality of care, it is unlikely, based on the present data, that these differences will be reflected in cost savings or in decreased utilization of health care resources.

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Appendix A

TABLE 1A- COMPARISON OF SELECTED PRACTICE VARIABLES BETWEEN STUDY AND CONTROL GROUP PHYSICIANS FOR FISCAL 1984-85

Practice Variable	Study Group (mean ± sd)	Control Group (mean ± sd)	p-value
Total patients treated	1816 ± 556	1845 ± 613	0.76
Total number of services paid*	10736 ± 3619	11010 ± 3326	0.60
Total number of personal services paid	6403 ± 1973	6572 ± 2112	0.59
Total number of referred-out services paid	4334 ± 2011	4438 ± 1931	0.73
Number of services per patient*	6.2 ± 2.2	6.4 ± 2.2	0.61
Number of personal services per patient	3.7± 1.1	3.7 ± 1.1	0.81
Number of referred-out services per patient	2.5 ± 1.3	2.7 ± 1.5	0.53
Total $ paid*	199402 ± 64633	208581 ± 62508	0.34
Total $ paid for personal services	121933 ± 36556	126965 ± 36869	0.37
Total $ paid for referred-out services	77468 ± 32692	81616 ± 35725	0.43
Total per patient $*	115 ± 39	121 ± 42	0.33
Total per patient $ for personal services	70 ± 20	72 ± 20	0.39
Total per patient $ for referred-out services	94 ± 22	101 ± 28	0.05

* includes services performed by physician (denoted personal) and by first level consultants to whom patients were referred (denoted referred-out)

TABLE 2A- COMPARISON OF PRACTICE VARIABLES FOR MALES AND FEMALE PATIENTS BETWEEN STUDY AND CONTROL GROUP PHYSICIANS (INCLUDING ONLY PERSONAL SERVICES) FOR FISCAL 1984-85

Practice Variable	Study Group (mean ± sd)	Control Group (mean ± sd)	p-value
Total number of male patients treated	736 ± 289	762 ± 316	0.58
Total number of female patients treated	961 ± 279	955 ± 306	0.89
Total number of services for male patients	2160 ± 814	2330 ± 934	0.21
Total number of services for female patients	3760 ± 1306	3713 ± 1280	0.81
Total earnings for male patients ($)	41104 ± 15667	45177 ± 16898	0.11
Total earnings for female patients ($)	71507 ± 24097	71377 ± 22826	0.97
Age-adjusted cost per male patient ($)	60.05 ± 15.80	64.73 ± 17.55	0.08
Age-adjusted cost per female patient ($)	76.02 ± 20.94	78.17 ± 21.70	0.51

Appendix B

TABLE 1B- COMPARISON OF SELECTED PRACTICE VARIABLES BETWEEN STUDY AND CONTROL GROUP PHYSICIANS FOR FISCAL 1985-86

Practice Variable	Study Group (mean ± sd)	Control Group (mean ± sd)	p-value
Total patients treated	1882 ± 603	1862 ± 601	0.83
Total number of services paid*	11334 ± 3211	11314 ± 3145	0.97
Total number of personal services paid	7100 ± 2129	7043 ± 2276	0.88
Total number of referred-out services paid	4234 ± 1570	4271 ± 1864	0.90
Number of services per patient*	6.3 ± 1.7	6.5± 2.1	0.57
Number of personal services per patient	3.9± 1.0	3.9 ± 1.0	0.95
Number of referred-out services per patient	2.4 ± 1.0	2.6 ± 1.4	0.36
Total $ paid*	218028 ± 60111	221942 ± 59720	0.67
Total $ paid for personal services	135082 ± 38876	135547 ± 38487	0.94
Total $ paid for referred-out services	82946 ± 29188	86395 ± 33963	0.47
Total per patient $*	122 ± 33	127 ± 40	0.33
Total per patient $ for personal services	75 ± 18	76 ± 20	0.57
Total per patient $ for referred-out services	98 ± 18	105 ± 26	0.03

* includes services performed by physician (denoted personal) and by first level consultants to whom patients were referred (denoted referred-out)

TABLE 2B- COMPARISON OF PRACTICE VARIABLES FOR MALES AND FEMALE PATIENTS BETWEEN STUDY AND CONTROL GROUP PHYSICIANS (INCLUDING ONLY PERSONAL SERVICES) FOR FISCAL 1985-86

Practice Variable	Study Group (mean ± sd)	Control Group (mean ± sd)	p-value
Total number of male patients treated	774 ± 320	778 ± 316	0.93
Total number of female patients treated	1008 ± 303	976 ± 307	0.50
Total number of services for male patients	2430 ± 1094	2539 ± 1073	0.51
Total number of services for female patients	4236 ± 1260	4013 ± 1340	0.27
Total earnings for male patients ($)	46069 ± 20085	49194± 19631	0.30
Total earnings for female patients ($)	80521 ± 23277	76757 ± 22793	0.28
Age-adjusted cost per male patient ($)	63.90 ± 15.97	68.21 ± 19.64	0.14
Age-adjusted cost per female patient ($)	82.09 ± 20.04	81.97 ± 20.74	0.97