The Cost and Funding of Family Practice Graduate Education in the United States

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This paper reports the findings of a national cost survey of 369 nonmilitary family practice graduate education programs in the United States, 1981-82. The purpose of the study was to develop a reliable revenue and cost information data base to enable an understanding of current family practice education costs and funding. The availability of this information will be of assistance in the development of future budgetary plans for family practice graduate education. The results presented are based on 147 programs associated with hospitals using a non-cost center accounting protocol. These programs provided 100 percent complete revenue and cost data (40 percent of the targeted programs). Major sources of income were hospital support (35 percent), patient income (31 percent), and public dollars (28 percent). The mean cost per accredited position was $57,471. Expenses, each at approximately one third of the total, were resident stipends, faculty salaries, and clinic expenses. Statistically significant differences were found only for source of income when program structure, program size, and geographic location were examined. Recommendations for future family practice funding include (1) modification of present reimbursement formulas and other third-party payment mechanisms, (2) increasing hospital support, (3) maintenance of public subsidies, and (4) development of a uniform system of monitoring and evaluating costs of residency programs operated under both cost center and non-cost center accounting protocols.

In these days of increasing budgetary constraints, the cost of graduate medical education is becoming a factor of increasing concern for many institutions. That the true cost of graduate medical education in the United States is essentially an unknown is primarily due to the interrelatedness of training with patient care. It is difficult to separate those elements that are related only to graduate medical education from those that are essential for patient care.

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The direct cost of graduate medical education includes three elements: (1) resident stipends, including fringe benefits, (2) faculty salaries and direct costs of administrative services, and (3) costs for clinic and facility operation, including other costs, such as tests and consultant services, that are utilized for the educational program as opposed to being essential for patient care.[1,2]

The indirect costs present in graduate medical education (ie, depreciation, loan interest, etc) can, in many instances, be identified; however, the formulas used by individual institutions to calculate these indirect costs are not consistent and are frequently developed to meet local "cost shift" needs. This "creative accounting" procedure is one that many institutions have found essential to the maintenance of a broad base of medical services and programs. Despite the difficulties associated with accurately delineating the total costs of graduate education, there is an increasing need for better estimates of these costs. The current competitive environment forces critical examination of cost-benefit ratios in all areas of hospital operation, including medical education.

Traditional Family Practice Structures

The cost of operation of most graduate medical education programs is funded by a combination of cost-based reimbursement and fee for service. The ratio of funding achieved from these two sources varies markedly for different residencies and various disciplines. In many programs, house staff stipends paid by the sponsoring hospital are reimbursed on a cost basis by third-party payers, while faculty may be reimbursed partially or totally by fee-for-service payments.

In family practice the establishment of family practice centers as somewhat autonomous operations has encouraged the use of accounting procedures that do not include the family practice center as a cost center of hospital operation such as one might see for the hospital emergency room or other hospital-based clinics. As a consequence, the majority of family practice residency programs have been established as non-cost centers of hospitals, whereas many of the traditional graduate education programs operate as hospital cost centers. A program that operates as a hospital cost center will have a proportion of total hospital indirect costs allocated to the training program as one of the "cost centers" of hospital operation. The non-cost center characteristics of family practice residency programs make it possible to identify direct operating expenses of their programs much more discreetly than graduate education programs in other disciplines.

Graduate education in family practice has been supported primarily by patient care revenues, either directly through clinic operations or indirectly through hospital support.[1-4] As competition increases and third-party payers escalate their demands that the cost of medical education be removed from the cost of patient care services, alternative funding mechanisms must be examined.

In comparison with the more traditional graduate medical education programs, family practice residency programs have unique characteristics that affect their expenses and income. Family practice is a combination of ambulatory and in-hospital training, but the emphasis is on the ambulatory setting. Historically most postgraduate medical training is hospital centered.

The current reimbursement structure provides marked disincentives for the funding of ambulatory programs.[3] Since most graduate medical education is hospital based, its educational costs have been reimbursed on a cost basis through direct hospital contributions, and costs are usually included in the general operating budget of the hospital.[5] Family practice programs, because of their ambulatory nature, incur considerable expenses outside the hospital setting, and many of these expenses are supported by physician fees generated by the faculty and residents.

Another unique aspect of family practice graduate education relates to the primary care physician reimbursement formula. Third-party payers frequently reimburse primary care physicians at a lower payment rate than other physicians for the same service,[2,3,6] a practice that generally proves disadvantageous to family practice residency programs.[3]

In addition, many primary care services are not reimbursed at all by third-party payers (eg, patient education, counseling), and there are differential payments made to the practice group for services performed by physicians and nonphysicians (eg, nurse practitioners, physicians' assistants).[6]

These unique aspects of cost and income of family practice training that distinguish it from the more traditional hospital-based training programs have been addressed in several reports pertaining to primary and ambulatory care.

The 1978 manpower study conducted by the Institute of Medicine focused approximately one third of its recommendations on reimbursement policies relative to the provision of primary care and the financial dilemmas being faced by programs training individuals to render this type of care.[6] The Association of American Medical Colleges (AAMC) Task Force on Graduate Medical Education, in their final report (1980), recognized that ambulatory-based programs cannot cover their expenses entirely from patient revenues, and that subsidies from the government and other agencies will be necessary to maintain educational objectives and excellence in patient care.[7]

These same issues are reiterated in the Graduate Medical Education National Advisory Committee (GMENAC) final report, which recommended revised reimbursement formulas and continued supplemental funding to programs that emphasize ambulatory care. Also included in their recommendations was the need for additional research on topics related to financial considerations.[5] Currently, the Department of Health and Human Services is undertaking a study of the financing of graduate medical education, which should supply additional data and suggestions to policy makers.[8]

In 1979, Joehnk et al[1] at the University of Wyoming reported results regarding the financial and economical characteristics of 80 family practice residency training programs during 1975-76. They reported patient income and hospital support contributing approximately one third each of the total income and a cost per resident per year of $40,782.

Patient care revenues from clinic operations can cover only a portion of a family practice residency program's expenses.[1-4] As a result, family practice residency programs must stabilize and solidify other funding sources, particularly that support from the hospital sector.[2,9] The emphasis upon ambulatory, as opposed to in-hospital, care and its impact on hospital revenues adversely affect current and proposed support of family practice residency programs from hospital sources. Federal funding, although significant, cannot be relied upon under present legislative authorizations.[3,4]

It is vital that family practice residency programs prepare to address current funding problems. While the 1970s were a time in which support for family practice graduate training frequently went unquestioned, the 1980s require evidence that financial subsidies of any magnitude from public and hospital sectors are essential. It is important that a reliable cost information data base be developed. Without such a data base and an understanding of the manner in which family practice education is currently funded, future budgetary decisions pertaining to graduate education in family practice may necessarily be made on an arbitrary rather than an informed and logical basis.

In addition to understanding the costs and current income sources, family practice graduate education programs must document the value of family practice education to hospitals, to policy makers, and to the public if they anticipate support from these funding sources.

It is against this backdrop that the cost survey of the 369 nonmilitary family practice residency program directors in the United States was initiated. The primary purpose of this survey was the collection of general income and expense data from family practice residency programs. These data were collated to provide some broad-based indicators that can be used by individual family practice residency programs in meeting their current budgetary and long-range planning needs.

Methods

A 26-item self-reporting questionnaire was developed to accomplish the objectives of this study. Emphasis was placed on direct costs to keep the survey and subsequent analysis from becoming too complex. The financial items in the survey document included hospital support, patient care income, state and federal income, resident stipends, faculty salaries, fringe benefits, clinic expenses, and "other" income and expenses, if applicable. Also, the survey addressed certain structural as well as administrative aspects of family practice residency programs (ie, American Academy of Family Physicians [AAFP] structure,[10] hospital type, cost center status within the

hospital, number of current residents and number of accredited positions) that might influence the financial situation of a family practice residency program. An explanatory letter and a list of definitions (eg, direct cost, indirect cost, salary, and fringe benefits) accompanied the questionnaire to facilitate completion of the document (Appendix).

In March 1982 the survey instruments were pilot tested in 32 nonmilitary programs in the upper midwest area. No major problems were encountered in the pilot study.

During April of the same year, the survey packet was then mailed to the remaining 337 program directors of nonmilitary family practice residency programs in the United States. A follow-up mailing was done in July to increase the response rate. In the final July mailing, a prepaid postcard requested total current residents, cost center status, and reason for prior nonresponse. Follow-up telephone calls to clarify questionable responses from some program directors were made.

Income and expense figures, along with overall costs (total expenses), are reported in dollars per accredited position. Data are presented in a capitated format and can be applied at the individual program level. This method was chosen over reporting total program figures because it was felt to be more useful and meaningful to existing programs and their individual planning processes.

To further facilitate application of the data, analysis has also been done by AAFP program structure, program size (total number of accredited positions for three-year programs), and geographic region.

The data were coded and analyzed. Tests of statistical significance used were series of one-way analyses of variance with Scheffé's a posteriori test. Reports of this study are in summary form with no program identifiers included to maintain confidentiality of the data.

The following points are important to note when reviewing the data from this study:

1. Military residency programs are not included in the study because of their relative inability to delineate direct costs.

2. Cost figures in the results section are for non-cost center operations only.

3. Indirect costs of operating family practice residency programs (eg, depreciation, interest expense) are not included in the results.

4. Data are self-reported.

5. Data requested were for the 1981-82 year; however, not all data are precisely from the same time frame. Some training programs have different fiscal years (ie, academic vs calendar years). Eighty percent of these data are for academic year 1981-82; 15 percent overlapped with either 1981 or 1982. No attempt was made to alter the data to conform to one time frame.

6. Overall income and cost figures are reported with median, mean, and standard deviation because of the wide variation in reported figures.

Results

Of the 369 programs surveyed, 266, or 72 percent, responded. Nonrespondent programs were similar in program size, structure, and region to those programs represented by the results presented. Twenty-two programs were deleted from any further analysis because of insufficient information provided or a period of time in operation too short to provide stable cost information. The remaining 244 responding programs were divided into two groups: (1) 192 non-cost center operations, or 79 percent of the sample, and (2) 52 hospital cost center operations, or 21 percent of the sample.

The results and analysis are based on survey responses that were 100 percent complete and were non-cost center operations. While this decision reduces the size of the data pool to 147, or 40 percent of the original targeted programs, and reduces the potential applicability of results, it removes some of the statistical drawbacks associated with using incomplete data. It does provide information on programs with comparable fiscal operations.

Of the 193 programs not included in the data set reported here, 34 percent were non-cost centers unable to provide complete cost data, 27 percent were cost centers, and 39 percent were unknown relative to their cost center status (ie, the nonrespondents). Further analyses of the total 193 programs showed no significant differences when compared with the 147 included programs for total number of accredited positions, program size categories, structure, and region. However, the cost

Table 1. Income, Expenses and Cost per Year (thousands of dollars) per Accredited Resident Position in 147 Family Practice Graduate Programs (3,197 accredited positions)*

	Income per Accredited Position						Expenses per Accredited Position				
	Hospital	Patient	State	Federal	Other	Total**	Resident	Faculty Salaries	Clinic	Other	Total†
Median	$16.7	$16.6	$6.7	$2.3	$11.7	$54.0	$18.8	$16.7	$14.4	$5.2	$55.1
Mean	20.0	18.0	11.9	4.1	3.2	57.2	18.3	17.6	16.6	5.0	57.5
Standard deviation (±)	14.5	9.7	12.6	4.9	7.1	19.1	5.4	7.8	10.3	7.5	18.8
Range	0-61.8	0.3-55.6	0-63.9	0-22.2	0-45.5	17.2-139.4	0-34.4	3-43.6	0-61.9	0-45.4	26.4-139.4

*University of Minnesota, Department of Family Practice and Community Health, 1982 National Family Practice Graduate Education Program Cost Survey
**Income total does not equal overall cost. Data included in this study are as reported by respondents
†Cost per accredited position per program = total expenses of program ÷ number of accredited positions for program

centers differed somewhat in that they were more concentrated in the Northeast and Pacific Southwest and tended to be more of the AAFP type I medical-school–unaffiliated community hospital and less of the type III medical-school–administered community hospital structure.

For the purpose of this study, the United States has been divided into nine major areas, similar to, but not exactly conforming with, the AAFP regional divisions. The proportion of accredited family practice residency positions by region for the 147 respondents is similar to the national distribution by region for the total US accredited positions and US population. There is some excess representation from the North Central area in the respondent group, probably occasioned by the use of this area as the pilot region for the larger study. Each of these programs was telephoned to ascertain willingness to participate.

The type of program responding in this study closely approximates the distribution of nonmilitary programs within the country with slightly greater representation of programs of type II community hospital, medical school affiliated programs. Most respondent programs (144, or 98 percent) were located in urban areas.

Table 1 presents a summary of the income and cost per year per accredited position for 147 noncost center programs. The overall mean income per accredited position is $57,203 with a median figure of $54,004. The overall mean cost per accredited position is $57,471 with a median figure of $55,132.

The mean figures for each variable, taken as a percentage of the overall cost per accredited position, are shown in Figure 1. Hospital support, patient income, and public dollars each account for one third of the total income, with other sources (eg, private monies, research) contributing the smallest portion. It is interesting to note that of the 147 respondents, 7 percent received no hospital support, 21 percent received no state monies, and 44 percent received no federal dollars. On the expense side, resident stipends, faculty salaries, and clinic expenses are distributed fairly evenly at approximately one third each, which is similar to figures reported by Colwill and Glenn in Missouri in 1978-79.[2]

Program Structure

Cost data were analyzed based on program structure (AAFP), program size (number of accredited positions for all three years), and regional

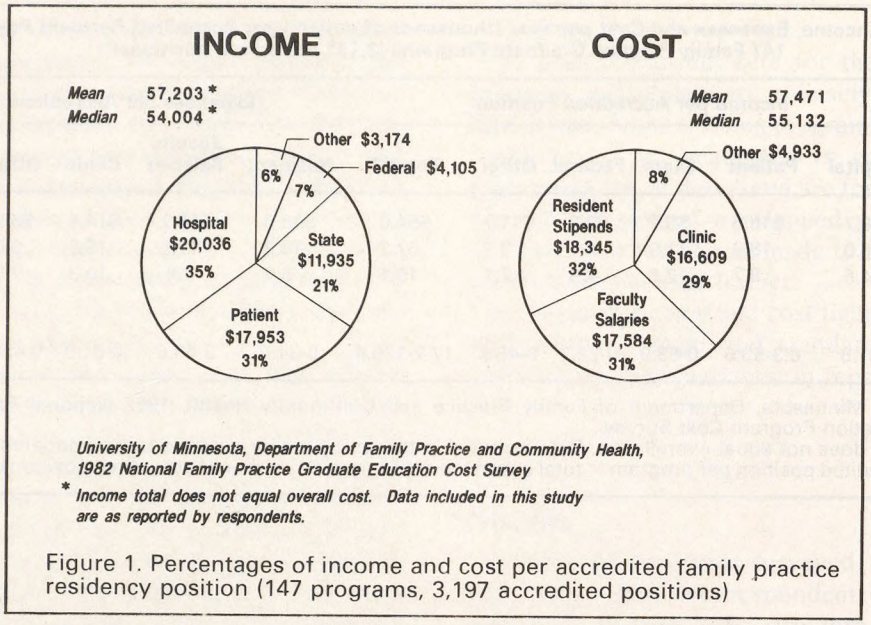

Figure 1. Percentages of income and cost per accredited family practice residency position (147 programs, 3,197 accredited positions)

location, so that other patterns and trends regarding income and expenses could be identified.

Table 2 shows the income and cost figures when grouped by the AAFP program structures. Overall, there was no significant difference based on administrative structure in cost per accredited position or for any of the individual expense items. However, one trend exhibited by these data was the apparent inverse relationship between state and hospital income for type I and II programs as compared with type III and IV programs. There is a statistically significant relationship between program structure and amounts of hospital income ($F = 7.826$, df 3,143, $P < .0001$) and state income ($F = 19.503$, df 3,143, $P < .0001$). The residency programs that were based in community hospitals, medical school unaffiliated (I) and medical school affiliated (II), received considerably more dollar support from the hospital than medical-school–administered (III) or medical school based (IV) residency programs. At the same time, state subsidies were much lower for programs with AAFP structure types I and II than for those with type III and IV designations. It can be postulated that this relationship might occur as a result of state funds being more readily available to public institutions such as universities and less available to private institutions.

Program Size

Overall, the average number of accredited positions per program in this study is 22, and the average number of current residents is 20. For the 369 nonmilitary family practice graduate programs in the United States, the mean number of accredited positions is 20. Table 3 presents the data tabulated by program size. Again, there was no statistically significant difference based on program size in overall cost per accredited position or for any individual expense items. However, there was a significant relationship between number of accredited positions and amount of patient income ($F = 3.828$, df 2,1441, $P < .024$). A smaller contribution from patient income (26 percent of total) was found in larger programs. Whether this rela-

Table 2. Income and Cost per Year (thousands of dollars) per Accredited Resident Position by AAFP Structure*,**

Structure Type	Number of Programs (%)	Number of Positions (%)	Mean Income per Accredited Position						Cost per Accredited Position		
			Hospital† $ (%)	Patient $ (%)	State† $ (%)	Federal $ (%)	Other $ (%)	Total $ (%)	Median $	Mean $	Standard Deviation (±) $
I Community Hospital Medical School Unaffiliated	11 (7)	233 (7)	24.2 (47)	19.1 (37)	5.6 (11)	2.7 (5)	0.3 (<1)	59.1 (100)	55.1	55.2	11.4
II Community Hospital Medical School Affiliated	94 (64)	1,866 (58)	23.4 (41)	19.1 (33)	7.9 (14)	3.9 (7)	3.0 (5)	57.3 (100)	54.2	56.8	18.1
III Community Hospital Medical School Administrated	23 (16)	591 (19)	10.8 (20)	15.5 (28)	22.9 (42)	3.4 (6)	2.3 (4)	54.9 (100)	56.6	56.0	13.5
IV Medical School Based	19 (13)	507 (16)	12.3 (20)	14.8 (24)	22.3 (36)	6.5 (10)	6.6 (10)	62.5 (100)	56.8	63.7	28.8
Total	147 (100)	3,197 (100)	20.0 (35)	18.0 (31)	11.9 (21)	4.1 (7)	3.2 (6)	57.2 (100)	55.1	57.5	18.8

*University of Minnesota, Department of Family Practice and Community Health, 1982 National Family Practice Graduate Education Cost Survey
**American Academy of Family Physicians, Reprint 135B, October 1982
†Statistically significant: Hospital, P = .0001, State, P < .001

tionship occurs as a result of fewer patients being available in the program with university relationships (these programs tend to have larger number of accredited positions) or is due to some other factor is unknown.

Geographic Region

The cost information by geographic regions is displayed in Table 4. No significant differences between regions were found for total cost or for any expense items.

Statistically significant differences were found when a region was analyzed for the three major sources of income—hospital, patient, and state (hospital: $F = 5.759$, df 8,138, $P < .0001$; patient: $F = 2.613$, df 8,138, $P < .011$; state: $F = 12.102$, df 8,138, $P < .0001$).

Hospital income is the largest funding source in the Northeast (50 percent) and the smallest in the Atlantic Southeast (18 percent). Patient income is the highest in the Pacific Northwest (47 percent) and the lowest in the Central Southeast (27 percent). State funds are the largest in the Southeast (41 percent) and the smallest in the Atlantic Northeast (2 percent).

Table 3. Income and Cost per Year (thousands of dollars) per Accredited Resident Position by Program Size*

Program Size	Number of Programs (%)	Number of Positions (%)	Mean Income per Accredited Position: Hospital $ (%)	Patient** $ (%)	State $ (%)	Federal $ (%)	Other $ (%)	Total $ (%)	Cost per Accredited Position: Median $	Mean $	Standard Deviation (±) $
≤12 positions	37 (25)	435 (14)	17.1 (30)	20.3 (35)	11.1 (19)	4.4 (8)	4.4 (8)	57.3 (100)	57.6	58.9	22.0
13-29 positions†	82 (56)	1,639 (51)	22.6 (39)	18.3 (31)	11.8 (20)	3.4 (6)	2.5 (4)	58.6 (100)	55.3	58.2	18.5
≥30 positions	28 (19)	1,123 (35)	16.4 (31)	13.8 (26)	13.3 (25)	5.9 (11)	3.6 (7)	53.0 (100)	50.7	53.4	14.6
Total	147 (100)	3,197 (100)	20.0 (35)	18.0 (31)	11.9 (21)	4.1 (7)	3.2 (6)	57.2 (100)	55.1	57.5	18.8

*University of Minnesota, Department of Family Practice and Community Health, 1982 National Family Practice Graduate Education Cost Survey
**Statistically significant: Patient P = .024
†Mean number accredited positions = 22

For the Northeast area (regions 1 and 2), there is an inverse relationship between hospital and state sources of income (Table 4). There is significantly greater funding from hospital sources than from state funds in this area. Also, when AAFP structure was analyzed (Table 2), significantly more revenue was derived from hospital sources than state sources for AAFP types I and II. Since nearly 90 percent of the programs in the Northeast are AAFP types I and II, the structure type is the most likely explanation of the differences found in the Northeast.

The opposite picture is present for the Southeast (regions 3 and 4), ie, considerably fewer funds are derived from hospital sources than from state funds. This relationship most likely is a function of both structure type and size and does not appear to be explained by either alone.

Discussion

This article has presented the major findings of a 1981-82 cost survey of nonmilitary family practice residency programs in the United States. The results include only non-cost centers because they were better able to provide discrete income and expense information. The cost center operations were, for the most part, unable to give complete direct cost information, probably as a result of the manner in which hospitals cost account their expenses and income, thus making it very difficult to clearly separate training program income and expenses from other hospital operations in the manner the survey form requested. Thus, the data were not able to take into active consideration residency programs that are an integral part of a hospital's financial structure (estimated to be about 20 percent nationwide).

Although the mean and median cost figures have some aggregate importance, a high degree of variability exists and must be considered carefully when generalizing these results to any individual program. While the mean overall cost per accredited position or the individual expense items were not statistically significant when program structure, program size, and geographic location were

Table 4. Income and Cost per Year per Accredited Resident Position by Geographic Region (147 programs; 3,197 accredited positions)*

Region	Mean Income per Accredited Position (thousands of dollars)						Cost per Accredited Position (thousands of dollars)		
	Hospital** $ (%)	Patient** $ (%)	State** $ (%)	Federal $ (%)	Other $ (%)	Total $ (%)	Median $	Mean $	Standard Deviation ± $
1. Atlantic Northeast: Connecticut, Maine, Massachusetts, New Jersey, New York, Pennsylvania, Rhode Island, Vermont	$27.5 (50)	$18.7 (34)	$ 2.0 (4)	$4.1 (7)	$2.7 (5)	$55.1 (100)	$55.2	$55.3	$16.2
2. Central Northeast: Illinois, Indiana, Michigan, Ohio	28.2 (50)	16.2 (28)	6.7 (12)	3.4 (6)	2.1 (4)	56.6 (100)	52.2	55.9	22.3
3. Atlantic Southeast: Delaware, Florida, Georgia, Maryland, North Carolina, Puerto Rico, South Carolina, Virginia, Washington DC, West Virginia	9.8 (18)	15.3 (28)	22.9 (41)	4.4 (8)	2.7 (5)	55.2 (100)	54.2	52.7	12.1
4. Central Southeast: Alabama, Kentucky, Louisiana, Mississippi, Tennessee	12.2 (23)	14.2 (27)	21.6 (41)	4.1 (8)	0.8 (1)	52.8 (100)	48.2	55.3	24.9
5. North Central: Iowa, Minnesota, Nebraska, North Dakota, South Dakota, Wisconsin	17.1 (29)	17.0 (29)	15.5 (27)	5.7 (10)	2.7 (5)	58.0 (100)	58.3	58.1	11.7
6. Western Mountain: Arizona, Colorado, Montana, New Mexico, Utah, Wyoming	15.1 (25)	16.9 (28)	21.0 (34)	5.5 (9)	2.2 (4)	60.8 (100)	59.1	60.6	14.7
7. South Central: Arkansas, Kansas, Missouri, Oklahoma, Texas	12.8 (22)	17.5 (29)	18.8 (31)	3.1 (5)	7.7 (13)	59.9 (100)	58.9	61.2	17.5
8. Pacific Northwest: Alaska, Idaho, Oregon, Washington	18.4 (31)	27.9 (47)	7.3 (12)	4.2 (7)	2.0 (3)	59.9 (100)	57.2	62.0	11.2
9. Pacific Southwest: California, Hawaii, Nevada	24.1 (39)	25.2 (41)	3.8 (6)	3.9 (6)	5.2 (8)	62.2 (100)	55.6	64.5	26.4
Total	20.0 (35)	18.0 (31)	11.9 (21)	4.1 (7)	3.4 (6)	57.2 (100)	55.1	57.5	18.8

*University of Minnesota, Department of Family Practice and Community Health, 1982 National Family Practice Graduate Education Cost Survey.
**Statistically significant: Hospital, $P < .0001$, Patient, $P = .011$, State, $P < .0001$

examined, the variability in the reported figures should be kept in mind. A high degree of variability was found for reported clinic expenses in this study.

While the final data analysis represents only 40 percent of the total programs, it may represent a larger proportion of the total than 40 percent when considering non-cost centers alone (nearly 80 percent of those that responded were non-cost centers).

Based on these findings, the mean cost per accredited position per year in 1981-82 was in excess of $57,000. This figure is undoubtedly conservative, as no indirect costs were included. In addition, the large standard deviation in both costs and income undoubtedly reflects the variability of sources of income and perhaps the variability in accounting procedures.

This figure of $57,000 is higher than the $40,000+ figure reported by Joehnk et al, 1975-76, in Wyoming,[1] and the nearly $49,000 reported from Missouri by Colwill and Glenn in 1978-79.[2] Considering inflation over the years since Joehnk's study, one would anticipate a cost in excess of $57,000 for the 1981-82 year.[2]

The results indicate that hospital support, patient revenue, and state funds are the major contributions to the total income (35 percent, 31 percent, and 21 percent, respectively). These findings are consistent with sources of income identified in past studies.[1,2,4] However, statistical differences were found in this study when sources of income were examined by program structure, size, and region.

Colwill and Glenn studied issues related to future funding of family practice residency programs and concluded that patient care income will most likely be able to fund only one third of a program's expenses.[2,4] Programs planned with expectations of a higher proportion of income from patient care could seriously compromise the educational quality of the family practice residency program. The inadequacy of patient care revenue again is further compounded by (1) the increasing level of economic competition among physicians and hospitals with a resultant decrease in patient population in family practice residencies,[2] and (2) the reduction of government monies for support of graduate education.[4]

The amount of support from the various sources of income assumes increasing importance as subsidies from the federal and state government become more scarce. It is likely that more pressure will be placed on the hospital sector to increase its dollar support to individual residency programs.[4] Whether hospitals will be able to justify increasing support for residency programs in family practice will be dependent upon the programs' ability to document, quantitatively, the benefits to the hospital, as a result of having on-site training programs in family practice.[4,7]

Patient population permitting, the family practice clinic may be compelled to increase the patient service component to compensate for revenue losses from other sources. As funding for family practice education becomes more severely constricted, it is possible that some family practice residency programs will be forced to reduce the number of positions or close.

Despite the limitations noted, this study of family practice residency programs' income and expense should provide data useful for program planning and evaluation.

Conclusions

As a result of review of the data presented, several recommendations seem to be in order concerning family practice residency funding. First, current data suggest that patient care provides approximately 30 percent of the funding for family practice residency programs. If family practice residency programs are going to be more dependent on patient care, then reimbursement formulas and other third-party payment mechanisms should be modified to provide a higher rate of payment for family practice services provided by an educational program.

Second, all services provided, such as counseling and patient education, should be reimbursed.

Third, for most programs dollar support by hospitals will need to be provided at a minimum level of 35 percent of direct program cost and should be significantly higher for programs that do not have public dollars support.

Fourth, some ongoing level of public subsidy

for family practice residency programs should be maintained at approximately the 35 percent level of direct program costs, an estimated $20,000 per position.

A word of caution! Although the above recommendations are suggested by the aggregate data, individual programs have frequently demonstrated great variability in the manner in which their funding needs are met. Such individualization will undoubtedly continue and should be encouraged.

Finally, there should be an ongoing and uniform system for monitoring and evaluating costs for both non-cost center and cost center residency programs. It is vital that family practice residency programs be able to clearly identify their income and expenses. Such data will enable programs to better evaluate the financial situation of their educational programs and implement specific strategies. Acquisition of these comparative data may be crucial to the survival and growth of the specialty over the next ten years. Without a solid information base, the ability to plan for adequate funding may severely compromise a continued ability to train family physicians.

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Appendix: Cost Definitions

Direct Costs: Actual dollar outlays expended to accomplish the goals of the residency program

- Resident Stipends: The average amount of stipend for each resident for each of three years (G1, G2, G3). Include fringe benefits
- Faculty Salaries: Include fringe benefits
- Clinic Operating Expenses: Rent, staff salaries, supplies, utilities, etc

Indirect Costs: Indirect costs are frequently derived as a cost-accounting procedure. For example: some proportionate amount of another program's or department's expenses may be allocated to a program (ie, depreciation and interest expenses)

Direct Income: Actual dollar receipts or their equivalent in resource support (excludes allocated indirect costs)

- Hospital Contribution: The amount of resources, such as dollars, personnel, and space, received by the family practice residency program and paid directly by the hospital(s)
- Patient Care Income: Fees billed and collected for professional services rendered in the clinic, hospital, or elsewhere in the program by residents and/or faculty
- State and Federal Support: Direct dollar support from state and/or federal legislative funding

Direct Cost per Accredited Resident Position per Year: Total expenses (direct costs) of the family practice residency program per year divided by the number of accredited positions