Comparative Profiles of Residency Training and Family Practice

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A profile of medical problems encountered by a young resident in the Department of Family Practice at the Medical University of South Carolina in Charleston is compared to other surveys in an attempt to ascertain the most common medical problems in family practice. Results are reported of a survey of 32 family practice residency programs representing all major geographic areas of the United States. The question of how the curriculum of residency training can be more precisely defined and correlated with the content of family practice is explored.

In August 1972, shortly before Dr. C. William Wimberly completed his training at the Medical University of South Carolina, the authors had an opportunity to discuss Wimberly's residency experience. It occurred to us that two important objectives might be achieved by organizing data on Wimberly's two-year residency training period: 1. young physicians anticipating residency training in family practice could learn about the kinds of medical problems encountered in that training; 2. the faculty planning the curriculum in a residency training program in family practice could anticipate more precisely the problems a family physician is likely to encounter.

Comparison of One Resident's Training with Profiles of Family Practice

It was with these two objectives in mind that we prepared a profile of Wimberly's residency training program over the two-year period, 1970-72, in order to compare it to other representative samples of family practice both in the United States and in England. Forty-two families constituted the basic population of Wimberly's practice in the Family Practice Center. The families averaged 3.81 members with a range of nine and a standard deviation of 2.18. They constituted a total of 144 persons. Table I defines the patient population by sex and age, and Table II details by sex and age the number of problems that appeared in the interviews. A rank order of the problems by number and percent is shown in Table III. Tables IV and V summarize the number of visits by sex and age, and the rank order of the type of visits by number and percent.

Our third table is comparable to one resulting from a survey conducted by the Research Committee of the Minnesota Academy of Family Physicians which listed 23 categories of disease most frequently encountered among 5,000 patients in Minnesota communities of various sizes.[1] After combining "general" and "immunizations" into a single category, 19 disease categories or "problems" were correlated from both lists. A Spearman-rank order correlation coefficient was calculated (rho = .585) that showed a significant correlation between these 19 items at the .01 level. Therefore, it seems valid to infer that both the quantity and type of problems managed by the family practice resident at the Medical University of South Carolina were comparable to the quantity and type of problems characterizing the practice of the 27 general practitioners in the Minnesota survey.

In further pursuing the "problems" that seem to define the core of family practice, we also compared Wimberly's two-year clinic experience to that reported in studies of general practice in England.[2] Fry reviewed the changing patterns over 21 years of general practice in a middle-class southeast London suburb. He used 13 "clinical groups" in describing the "problems" in his patient population. A Spearman-rank order correlation coefficient was calculated (rho = .648) that showed a significant relation at the .05 level between his 1971 rank-ordered clinical groups and 13 of the "problems" in Table III. Thus, another source confirmed that Wimberly's resident clinical practice was representative of experiences common to family practice.[3]

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TABLE I: Number of Patients by Sex and Age

Male		
Age	0 — 12	= 30
	13 — 35	= 26
	36 and over	= 13
		Total = 69
Female		
Age	0 — 12	= 28
	13 — 35	= 30
	36 and over	= 17
		Total = 75

TABLE II: Number of Problems by Sex and Age Groups

Male		
Age	0 — 12	= 119
	13 — 35	= 93
	36 and over	= 66
		Total = 278
Female		
Age	0 — 12	= 93
	13 — 35	= 159
	36 and over	= 83
		Total = 335
Total Number of Problems		613

TABLE III: Rank Order of Problems by Number and Percent

Problem	Number	Percent
1 Ear, Nose and Throat* +	60	9.8
2 Diseases of the Skin and Subcutaneous Tissue* +	58	9.5
3 Mental and Emotional Disorders, Alcohol and Drug Abuse* +	56	9.1
4 Musculo-Skeletal* +	47	7.7
5 Special Conditions without Sickness (Physicals, Immunizations, etc.)* +	47	7.7
6 Diseases of the Respiratory System (Viral upper respiratory infection)* +	42	6.9
7 Gastrointestinal* +	39	6.4
8 Gynecological* +	31	5.1
9 Diseases of the Respiratory System (All other respiratory diseases)* +	29	4.7
10 Cardiovascular* +	29	4.7
11 Minor Surgery*	29	4.7
12 Diseases of the Urinary System* +	25	4.1
13 Drug Allergy and Drug Toxicity	21	3.4
14 Marital Problems	13	2.1
15 Neurology* +	12	2.0
16 Major Surgery*	12	2.0
17 Endocrine, Nutritional and Metabolic Diseases*	12	2.0
18 Ophthalmology	12	2.0
19 Hematology*	9	1.4
20 Rectal, Prostate and Testes*	8	1.3
21 Accidents, Poisonings and Violence	7	1.1
22 Obstetrics* +	5	.8
23 Venereal Disease	5	.8
24 Perinatal Morbidity and Mortality	3	.5
25 Neoplasms—Benign or Malignant	2	.3

★ *Problems correlated with "disease categories" of the Minnesota survey.*[1]

\+ *Problems correlated with "clinical groups" of Fry's 21-year study of general practice.*[2]

Comparative Profiles of Residency Training in the United States

A selected group of family practice residency programs in the United States was surveyed to evaluate the relative educational emphasis placed on various problems.[4-7] This survey made possible an assessment of the extent to which relevant training was being provided for family practice. From a 1972 listing of 101 approved training programs in family practice, 65 were randomly selected. In February 1973, these programs were surveyed by mail. Their directors were asked to ". . . . rank 1-25 the enclosed problem list according to the emphasis you place on each problem for the education of your residents." Forty-six responses were received (71 percent), 32 (49 percent) of which were completed in such a way as to allow statistical comparisons. These 32 responses represented programs in 16 states and all major geographic regions of the country.

The inherent weaknesses in the rating system should be noted, as some program directors suggested in their accompanying notes. In relation to reliability: would a director reproduce these same or similar ratings a week later? Secondly, medical specialties, diseases, and organ systems are all used as categories or "problems"; therefore, the rating scale is not homogeneous, nor are the categories mutually exclusive. Coded classifications of diseases, such as adaptations of the diagnostic code originally developed by the British Royal College of General Practitioners, now provide a

TABLE IV: Number of Visits by Sex and Age Groups

Male		
Age	0 — 12	= 248
	12 — 35	= 164
	36 and over	= 231
		Total = 643
Female		
Age	0 — 12	= 201
	13 — 35	= 399
	36 and over	= 336
		Total = 936
Total number of visits		= 1,579

TABLE V: Rank Order of Types of Visits by Number and Percent

Problem	Number	Percent
1 Mental and Emotional Disorders, Alcohol and Drug Abuse	160	10.1
2 Ear, Nose and Throat	131	8.3
3 Diseases of the Skin and Subcutaneous Tissue	122	7.7
4 Cardiovascular	116	7.3
5 Gastrointestinal	109	6.9
6 Musculo-Skeletal	96	6.1
7 Special Conditions without Sickness	91	5.8
8 Disease of the Urinary System	76	4.8
9 Diseases of the Respiratory System (Viral upper respiratory infection)	67	4.2
10 Gynecological	65	4.1
11 Minor Surgery	62	3.9
12 Diseases of the Respiratory System (All other respiratory diseases)	56	3.5
13 Marital Problems	45	2.8
14 Endocrine, Nutritional and Metabolic Diseases	44	2.8
15 Neurology	36	2.3
16 Hematology	35	2.2
17 Obstetrics	34	2.2
18 Ophthalmology	24	1.5
19 Rectal, Prostate and Testes	22	1.2
20 Venereal Disease	18	1.1
21 Major Surgery	17	1.1
22 Drug Allergy and Drug Toxicity	11	.7
23 Accidents, Poisoning and Violence	7	.4
24 Neoplasms—Benign or Malignant	1	.1
25 Perinatal Morbidity and Mortality	0	0

means for analyzing patient populations in terms of morbidity. At the Medical University of South Carolina and at other family practice residency training programs throughout the country, filing systems such as the E-book are being used in conjunction with a numerically-coded morbidity index and computer search programs in order to enable the resident to audit his practice. At the time this study was undertaken this list of "problems" was in use and provided one very adequate scale for comparative study.[8] A third significant factor concerning the validity of such a rating should be considered. What relation does the rating of the observer bear to the actual learning experiences of the resident? Undoubtedly, the relation of observation to actual learning experiences could be improved by an on-site visitation team. Both time and funds precluded such a study.

The strengths of this form of data surveying should also be noted. First, the reliability of a scale measuring areas of emphasis in resident education is substantially increased by providing categories that all the raters are asked to consider. In addition, relative weighting of one category in relation to others, rather than the imposition of an absolute scale, further improves reliability. The list of 25 problems which the director of a program has to rank certainly elicits discrimination in which personality systems of ideas and systems of value orientation are given primacy. Personality systems of expressive symbols would play no significant part in such a discriminating process. Thus, a system of value orientation primarily would prescribe the choices of the residency director. Such a system tends to be one of the more reliable aspects of personality, i.e., consistent.

Secondly, our survey was sent to directors of residency programs, the people responsible for initiating and administering as well as modifying and molding the resident training program. Therefore, it is reasonable to assume that the directors' rank ordering of educational emphasis on various "problems" accurately reflects the educational experience of the resident whether immediately or in the near future. The director's value orientation and his perception of the resident educational process will be brought into increasing alignment. Thus, the director's rank ordering of educationally-emphasized problems is a reasonable indicator of present practice and an excellent indication of future trends for graduate education in family practice programs.

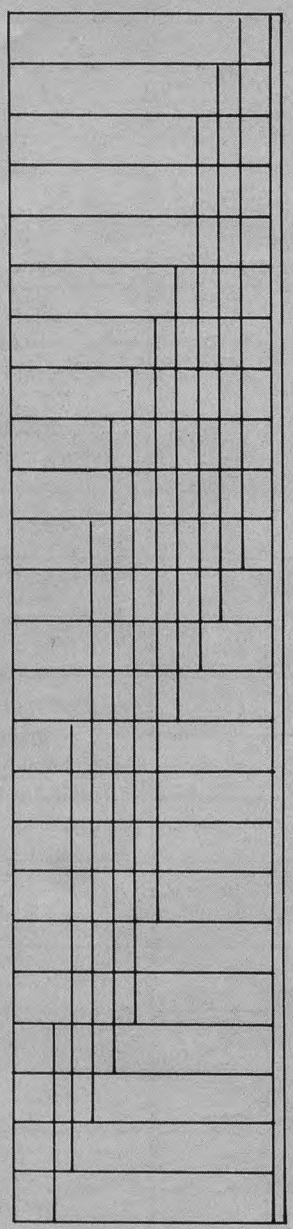
The average rank of the 32 family practice residency program directors for each of the 25 problem categories is listed in column C of Table VI. The rank ordering of these averages is indicated in column F of Table VI. Such a ranking allows one to infer the relative emphasis on medical problems in the curricula of residency programs and not just the educational orientation of individual programs. However, such an inference may not be justified when a very large range and standard deviation for any one problem was noted. These measures of variability appear in columns D (range) and F (standard deviation) respectively. We were left with the question as to whether there was any significant difference in the rank ordering of medical problems. A Friedman two-way analysis of variance by ranks was performed ($\alpha r^2 = .318$) and was found to be significant at the .001 level. Thus we can safely conclude that the survey data indicates that there is agreement as to the relative significance of medical problems to be emphasized in the resident's education.

With so many problem categories involved in the comparison, it was difficult to know where various rankings differed significantly, or how to group various rankings more appropriately. A multiple comparison procedure was fol-

TABLE VI: Comparative Rank Ordering of Problems in 32 Family Practice Residencies in United States

(A)	(B) Sum of Ranks	(C) Average Ranks	(D) Range of Ranks	(E) Standard Deviation of Ranks	(F) Rank Order of Problems
1. Ear, Nose and Throat	343.5	10.7	25	6.3	9.5
2. Diseases of the Skin and Subcutaneous Tissue	384	12.2	20.5	5.5	12
3. Mental and Emotional Disorders, Alcohol and Drug Abuse	177	5.5	22	5.2	2
4. Musculo-Skeletal	343.5	10.7	23	5.8	9.5
5. Special conditions without Sickness (Physicals, Immunizations, etc.)	321	10.0	25	8.1	7
6. Diseases of the Respiratory System (Viral upper respiratory infection	211	6.6	25	6.7	3
7. Gastrointestinal	247	7.7	23	4.9	5
8. Gynecological	235	7.3	21	4.2	4
9. Diseases of the Respiratory System (All other respiratory infection)	272.5	8.5	22	5.9	6
10. Cardiovascular	170	5.3	17	4.6	1
11. Minor Surgery	463	14.5	22	6.2	15
12. Diseases of the Urinary System	342	10.7	19	5.6	8
13. Drug Allergy and Drug Toxicity	521	16.3	22	5.5	17
14. Marital Problems	392	12.3	23	6.7	13
15. Neurology	548	17.1	17	4.8	21
16. Major Surgery	755	23.6	10	2.3	25
17. Endocrine, Nutritional and Metabolic Diseases	393	12.3	21	5.7	14
18. Ophthalmology	642	20.1	14	3.8	24
19. Hematology	532.5	16.6	20	4.9	18
20. Rectal, Prostate and Testes	558	17.4	18	4.8	22
21. Accidents, Poisonings and Violence	536	16.8	24.5	5.8	19
22. Obstetrics	371	11.6	24	6.0	11
23. Venereal Disease	507.5	15.9	23	6.3	16
24. Perinatal Morbidity and Mortality	536.5	16.8	20	5.4	20
25. Neoplasms—Benign or Malignant	580.5	18.1	19	5.5	23

TABLE VII: Multiple Comparison for Ranked Data in Table VI



Cardiovascular

Mental & Emotional Disorders, Alcohol and Drug Abuse

Diseases of Respiratory System (Viral upper respiratory infection)

Gynecological

Gastrointestinal

Diseases of the Respiratory System (All other respiratory diseases)

Special Conditions without Sickness (Physicals, Immunizations, etc.)

Diseases of Urinary System

Ear, Nose and Throat

Musculo-Skeletal

Obstetrics

Diseases of the Skin and Subcutaneous Tissue

Marital Problems

Endocrine, Nutritional and Metabolic Diseases

Minor Surgery

Venereal Disease

Drug Allergy and Drug Toxicity

Hematology

Accidents, Poisonings and Violence

Perinatal Morbidity and Mortality

Neurology

Rectal, Prostate and Testes

Neoplasms—Benign or Malignant

Ophthalmology

Major Surgery

lowed as shown in Table VII. The rank order of problem categories appears along the side of Table VII from the problem that should be given most emphasis in resident education at the top to the problem that should be given the least emphasis at the bottom. All those problems whose ranking did not differ significantly at the .05 level are connected by a continuous line. The reader is shown in graphic form those medical problem categories given comparable ranking by the directors of 32 family practice programs. This multiple comparison procedure allows one to analyze the relative educational emphasis given to the 25 problem categories. However, it is important to note that this is an average or composite rating and not the characteristic of any one problem.

Finally, we attempted to answer the question as to the extent of correlation between the curriculum of family practice residency programs and the problems that characterize family practice. The average ranking by the 32 residency programs of the educationally-emphasized problems (Table VI, column F) was correlated with the list of problems in Wimberly's representative practice (Table V). A Spearman rank-order correlation coefficient was calculated between these two variables (rho = .717) and found to be significant at the .001 level. This indicated a significant relation between the curriculum of residency training and the problems characterizing family practice.

Discussion

The profile of Wimberly's family practice residency at Medical University of South Carolina provided a valid and representative selection of family practice as it might be experienced in the field. The "problems" that characterized his residency might be considered in evaluating the content of residency programs and in determining curriculum modifications necessary for more relevant learning experiences. For example, the rank-order of visits during Wimberly's training for "mental and emotional disorders, alcohol and drug abuse" and "marital problems" ranked first and thirteenth (Table V). Both exceeded in rank "obstetrics" and "major surgery," ranked 17th and 21st respectively. Wimberly was seeing about five "emotional disorders" for every "obstetric" visit and over nine "emotional disorders" for every "major surgery" visit. Therefore, it would seem necessary and desirable to include basic counseling skills in residency training along with instruction in the psychological and sociological dynamics of small social systems, i.e., the family.[9] This study supports and further confirms Welcher's survey of 70 general practitioners in Ventura County, California.[10] According to Welcher, "Since family physicians spend more time counseling patients than a number of other clinical activities, including obstetrics and surgery, residency training in this area should be strengthened. . . ."

The problem categories used in this study, while helpful in reflecting on the initial stages of family practice and the curriculum in residency programs, are only partially relevant to future studies for several reasons. First, these categories do not allow one to assess health care delivery to the family as a unit. Second, when allied health personnel extend the family physician's services, how will the profile of his practice change? How will these changes appropriately be anticipated in the curriculum of the residency program, and what skills are necessary to facilitate the functioning of the health care team? Third, the problem categories used here focus heavily on the doctor's treatment of problems and little on his management of the present life situation or his role in anticipatory care and health education. Further studies must assess the patient visits devoted to planning for the future. The future preparation of a family physician's curriculum cannot be dictated solely on the basis of resolving yesterday's problems.

There is still considerable lack of agreement as to the relative importance of items in the curricula of family practice residency programs. For the future growth and well-being of family practice, it is advisable that faculty involved in family practice resident education give increasing thought to reviewing the problems that characterize family practice and making the necessary curriculum adjustments to establish the residency as "the ultimate educational experience of the physician."

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