

Adult Medicine Inpatient Experience: A Comparison of Family Practice and Internal Medicine Residency Services

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The charts of 1,272 hospitalized adult medicine patients were reviewed to compare the amount of inpatient management experienced by family practice and internal medicine resident services during a 12-month period. In a random sample of 251 patients, the diagnostic categories, age and sex distribution, race, length of hospitalization, and numbers of patients managed by both services were reviewed and analyzed. Family practice residents with an autonomous inpatient medicine service were found to have an adult inpatient experience similar to that of internal medicine residents in the same multi-specialty teaching hospital.

Since the inception of family practice training programs for residents, outpatient care has been emphasized. The need for adequate inpatient adult medicine experience also is important to the concept of continuity of patient care. Many medical educators have noted the importance of having family physicians provide inpatient care and the need to include adequate inpatient adult medicine experience in family practice training programs.^{1,2} Others have suggested that family physicians are "outpatient doctors."^{3,4} Yet the majority of family practice residents and educators view the family physician's role as offering complete care to both outpatients and inpatients. Thus, the rapid growth of family practice residency programs has led to various questions: Should family practice services be autonomous? Who should teach or attend on

family practice services? Can family physicians provide inpatient medical care?⁵

Several studies have detailed the most common outpatient diseases seen by family physicians in practice and in training programs.^{6,7} Yet few studies have documented the inpatient experience of family practice training programs.⁸ Compared here is the inpatient adult medicine experience of residents in a family practice program having an autonomous medical service with that of internal medicine residents at the same facility.

Program Description

The Kaiser Foundation Hospital in Los Angeles is a multispecialty teaching hospital that provides tertiary service for 310,000 health plan members in southern California. The hospital has a house staff of more than 100 in the departments of internal medicine, pediatrics, surgery, obstetrics and gynecology, pathology, radiology, and family practice.

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Table 1. Postgraduate Level 1: Two-Month Rotations through Medical Services Kaiser-Permanente Medical Center, Los Angeles, 1979	
Family Practice	Internal Medicine
Surgery	Coronary care unit/cardiology
Pediatrics	Intensive care unit
Obstetrics-gynecology	Emergency area
Elective	Elective
Family practice	Internal medicine
Adult medicine resident service*	Resident service (2 rotations)**
(2 rotations)**	
*Family practice department has <i>autonomous</i> adult medicine resident service	
**Two rotations=4 months	

The family practice program, established in 1971 as a fully independent department, currently trains six residents per year.

For the period of time covered by this study, both family practice and internal medicine residency programs had 18 residents each (six in each of the three residency years). The family practice program had eight board certified family practice staff. The family practice inpatient adult medicine service is divided into four services, each of which has one attending family practice staff member. In addition, a team of one first year resident and one second year resident covers each of the two services.

The first-year rotations for both residency programs are compared in Table 1. Family practice residents spend two periods of two months each rotating through the resident family practice adult medicine service and the remaining eight months on other rotations. The first year internal medicine residents spend two two-month rotations on internal medicine resident services and the remaining eight months on medicine subspecialty rotations.

While rotating through the family practice adult medicine service, the first year family practice residents are responsible for diagnostic studies preceding hospital admissions and for the primary management of hospitalized patients. Moreover, they have the identical on-call responsibility as the

residents in the medicine training program. In addition to fulfilling their inpatient responsibilities, each week the first year family practice residents spend a half day in pediatric continuity clinic and a half day in family practice continuity clinic. The second and third year residents spend three half-days each week in family practice continuity clinic in addition to fulfilling inpatient responsibilities.

Methods

During the study, all patients admitted to the family practice service were first seen and evaluated by the first year resident with assistance from the second year resident. Patients requiring admission to the intensive care or cardiac care units were directly admitted and managed by the family practice residents. All patients were managed by the residents and monitored by the attending staff throughout hospitalization. Admissions at night or on weekends were evaluated and admitted by either the on-call first year family practice resident

or the on-call first year internal medicine resident; patients were then managed by the appropriate family practice service. All patients were housed in a 600-bed hospital including intensive care and cardiac care units. However, management was rendered by family practice residents unless consultation was requested.

From the daily hospital census for January 1, 1979, through December 31, 1979, the following information from 1,272 admissions by both resident teaching services was obtained: patient name, file number, admission date, age, and admission diagnosis. Each admission was assigned one of six diagnostic categories: cardiovascular, gastrointestinal, respiratory, neurologic, endocrine, or miscellaneous (Table 2). A sample of 251 patients (20 percent of all residents' admissions) was randomly selected on the basis of patient file numbers. All charts from the random sample were audited and the following data obtained: patient sex, race, length of hospitalization, and discharge diagnosis. The data were tabulated and statistically analyzed using the Student *t* and chi-square tests where appropriate. Factors compared were patient population by diagnostic categories, mean age, sex ratio, race distribution, and length of hospitalization.

Results

Analysis by diagnostic category of all admissions included in this study showed that the family practice residents managed more patients and a greater percentage of cardiovascular patients ($P < 0.001$) than did the internal medicine residents (Table 3). Internal medicine residents managed a greater percentage of gastrointestinal patients ($P < 0.05$) and endocrine patients ($P < 0.05$). However, the total numbers of patients in the two groups were equivalent, and the percentages of neurologic, respiratory, and miscellaneous patients were not significantly different. Comparison of patient age distribution indicated a statistically significant difference in mean patient age, with internal medicine managing younger populations (57 vs 52; $P < 0.001$). Comparison of length of hospitalization

demonstrated no significant difference in number of patients hospitalized by either service for greater than the median length of hospitalization for each diagnostic category. Comparison of sex distribution indicated that family practice residents admitted 56.2 percent male patients, whereas internal medicine residents admitted 54.3 percent male patients. Comparison of race distribution indicated that family practice residents managed more Hispanic patients (25 percent vs 15 percent; $P < 0.05$) than did internal medicine residents.

Discussion

This study attempted to shed light on the question of the qualifications of family practice physicians as primary care inpatient adult medicine physicians. Although a training program is not the only measure of a physician's ability, training is an extremely important contributing factor. If one looks at the variety of experiences based on the diagnostic category encountered by residents in both programs, the experiences are qualitatively similar, despite some quantitative differences. The majority of patients seen by each residency service fall into either the cardiovascular or gastrointestinal category. The next most frequent category is miscellaneous, followed by respiratory and neurologic. The least frequent category seen by both services was endocrine. The similarity in the variety of diagnostic categories encountered implies a similarity in the qualifications of either the family physician or internal medicine physicians to act as primary care inpatient adult physicians. It is not suggested, for example, that the family physician is more qualified than the internal medicine physician to treat cardiovascular patients just because as a resident he actually sees more cardiovascular patients than his counterpart in internal medicine. Rather it is suggested that because of the variety of patients encountered during the residency training program, the family physician, making use of appropriate consulting services, is well equipped to treat most any inpatient. The similarity in distribution by diagnostic category

Table 2. Discharge Diagnoses in Random Sample of 251 Patients*

Cardiovascular	Respiratory	Musculoskeletal/Collagen-Vascular
Myocardial infarction (12)	Asthma (8)	Low back pain (5)
Chest wall syndrome (3)	Chronic obstructive pulmonary disease (5)	Thrombophlebitis (7)
Unstable angina (26)	Pneumonia (3)	Septic arthritis (1)
Cardiac arrhythmias (11)	Pulmonary embolism (3)	Gout (2)
Congestive heart failure (18)	Lung cancer (2)	Temporal arteritis (1)
Pericarditis (1)	Tuberculosis (2)	Systemic lupus erythematosus (2)
Malignant hypertension (2)	Pleural effusion (2)	Reiter syndrome (1)
Subacute bacterial endocarditis (1)	Pickwickian syndrome (1)	
Digitalis toxicity (3)	Endocrine	Renal
Pacemaker failure (2)	Diabetes (5)	Pyelonephritis (2)
Gastrointestinal	Diabetic ketoacidosis (2)	Renal failure (3)
Upper gastrointestinal bleeding (12)	Hyperthyroidism (1)	Nephrotic syndrome (1)
Lower gastrointestinal bleeding (12)	Hypothyroidism (1)	Renal cancer (1)
Esophageal cancer (1)	Cushing's syndrome (1)	Hematology
Duodenal ulcer (8)	Parathyroid adenoma (1)	Sickle cell disease (2)
Gastroenteritis (1)	Neurology	Lymphoma (1)
Hepatitis (6)	Cerebrovascular accident (13)	Hodgkin's disease (1)
Alcoholic liver disease (3)	Transient ischemic attack (4)	Leukemia (1)
Hepatic encephalopathy (1)	Seizure disorder (6)	Infectious Disease
Pancreatitis (8)	Meningitis (2)	Cellulitis (3)
Pancreatic cancer (1)	Brain tumor (2)	Fever of undetermined origin (1)
Ulcerative colitis (3)	Parkinsonism (1)	Osteomyelitis (1)
Diverticulitis (2)	Multiple sclerosis (1)	Gram-negative sepsis (1)
Colon cancer (2)	Guillain-Barré syndrome (1)	Miscellaneous
Amebiasis (1)		Alcohol withdrawal (3)
		Sarcoidosis (1)
		Drug overdose (2)
		Suicide attempt (1)

*Number in parentheses represents frequency of discharge diagnosis

Table 3. Resident Management of 1,272 Patients During Training Period

Disease Category	Family Practice Patients (%)	Internal Medicine Patients (%)	Statistical Significance*
Cardiovascular	284 (41.0)	166 (28.6)	P<0.001
Gastrointestinal	125 (18.1)	137 (23.6)	P<0.05
Respiratory	66 (9.5)	67 (11.5)	NS
Neurology	82 (11.8)	64 (11.0)	NS
Endocrine	23 (3.3)	34 (5.9)	P<0.05
Miscellaneous	112 (16.2)	112 (19.3)	NS
Total	692	580	

*Chi-square test for significant differences between the proportion of patients in a disease category for each training program

Table 4. Comparison of Adult Medicine Inpatient Management in Two Family Practice Residency Programs

Disease Category	Present Study Patients No. (%)	Medley and Halstead Study ^a Patients No. (%)
Cardiovascular	284 (41.0)	81 (34.1)
Gastrointestinal	125 (18.1)	25 (10.6)
Respiratory	66 (9.5)	21 (8.9)
Neurology	82 (11.8)	10 (4.2)
Endocrine	23 (3.3)	10 (4.2)
Miscellaneous	112 (16.2)	90 (38.0)
Total	692	237

between patients encountered in the two residency services is also seen in distributions based on age, race, sex, and duration of hospitalization. For the reasons mentioned above, these similarities also suggest that the family physician is qualified as an inpatient physician.

Although variety of experience is not the only factor in determining the quality of a residency training program, it is an important factor and one of those most easily quantified. It is, therefore, appropriate to use it for comparing residency training programs. Furthermore, it is instructive to compare by diagnostic category the residency training program for family practice at Kaiser with that of a training program at another facility. Table 4 makes such a comparison with the training program for family practice residents at Dwight David Eisenhower Army Medical Center. This data, based on a study by Medley and Halstead,⁸ again demonstrates the variety of experience in diagnostic types encountered by family practice residents. It suggests that the inpatient experience encountered by the residents in Kaiser's training program is not unique but similar to that encountered by family practice residents in other training programs in which the training program has access to an autonomous inpatient adult medicine service within the family practice department.

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