

# A Family Practice Residency Inpatient Service: A Review of 631 Admissions

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This study reports a review of 631 admissions by family practice residents and staff over a 12-month period to an autonomous family practice service in a large US Army medical center. The diagnoses, number and types of consultations requested, types of patients cared for by residents in various levels of training, and other pertinent data are reviewed. The study indicates that an inpatient family practice service can be very successful in terms of physician and patient satisfaction.

Up to now much of the emphasis on education in the rapidly emerging field of family practice has been on outpatient care. This is a reasonable educational concept, as the majority of the family physician's time will be spent in an ambulatory care setting. The experience in the Department of Family Practice at Dwight David Eisenhower Army Medical Center is in keeping with this concept, as shown by the large number of outpatient visits. There are 4,500 patient visits per month among the 3,500 families enrolled in the family practice clinic. There are several studies<sup>1,2</sup> detailing the most common types of outpatient diseases seen by family physicians in practice and in residency programs. One educator has even had the

audacity to suggest that family physicians are "outpatient doctors."<sup>3,4</sup>

In contrast, there are few studies<sup>5</sup> on inpatient services provided in family practice residency programs, though many authors<sup>6-8</sup> have pointed out the need for family physicians to provide inpatient care. Many programs, especially in large centers, are struggling with the idea of forming a family practice inpatient service. One problem is logistical in nature, ie, where should the patient be admitted? Establishing completely separate and autonomous family practice wards would prove very difficult from nursing and supply perspectives because of the varying ages and multiplicity of problems dealt with by family physicians. On the other hand, if a patient is admitted to a specialty ward he/she may have his care assumed by the specialty (thus, losing the benefits of family medicine), or there may be confusion as to who is responsible for the patient. The Millis<sup>9</sup> report states that family practice patients should be "admitted to services not separate from other specialty services."

The purpose of this paper is to outline the op-

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Table 1A. Most Common Diagnoses (Medicine)

| Diagnosis                                          | Number of Cases | Level of Training of Physicians* |             |             |            |
|----------------------------------------------------|-----------------|----------------------------------|-------------|-------------|------------|
|                                                    |                 | Staff                            | R3          | R2          | R1         |
| Chest pain, possible MI                            | 26              | 12                               | 5           | 8           | 1          |
| Arteriosclerotic heart disease, acute MI           | 16              | 6                                | 1           | 6           | 3          |
| Arteriosclerotic heart disease, not specified      | 14              | 4                                | 2           | 7           | 1          |
| Arteriosclerotic heart disease, congestive failure | 13              | 4                                | 2           | 6           | 1          |
| Gastroenteritis                                    | 13              | 8                                | 1           | 2           | 2          |
| Diabetes mellitus                                  | 10              | 4                                | 3           | 1           | 1          |
| Abdominal pain                                     | 9               | 2                                | 6           | 0           | 1          |
| Thrombophlebitis                                   | 8               | 2                                | 1           | 3           | 2          |
| Hypertension                                       | 8               | 5                                | 2           | 0           | 1          |
| Urinary tract infection                            | 8               | 5                                | 2           | 1           | 0          |
| Chronic obstructive pulmonary disease              | 6               | 2                                | 2           | 1           | 1          |
| Bronchitis, acute                                  | 6               | 3                                | 0           | 2           | 1          |
| Pneumonia                                          | 5               | 3                                | 0           | 2           | 0          |
| Asthma                                             | 4               | 4                                | 0           | 0           | 0          |
| Leg pain                                           | 4               | 2                                | 0           | 2           | 0          |
| Cellulitis                                         | 4               | 2                                | 1           | 1           | 0          |
| Supraventricular tachycardia                       | 4               | 3                                | 1           | 0           | 0          |
| Reflux esophagitis                                 | 3               | 3                                | 0           | 0           | 0          |
| Other                                              | 80              | 40                               | 14          | 20          | 6          |
| <b>Total</b>                                       | <b>241</b>      | <b>114</b>                       | <b>43</b>   | <b>63</b>   | <b>21</b>  |
| <b>Percentage</b>                                  | <b>(100)</b>    | <b>(47)</b>                      | <b>(18)</b> | <b>(26)</b> | <b>(9)</b> |

\*R3—3rd year resident, R2—2nd year resident, R1—1st year resident

eration of the family practice inpatient service at the Dwight David Eisenhower Army Medical Center and to review all admissions to this service for a period of one year. The number and types of consultations obtained, most common diagnoses, and levels of training of admitting physicians will be reviewed. This study does not address such commonly audited items as length of hospital stay, infection rates, and other quality control parameters. Family practice care is audited at this hospital by the same criteria applied to other specialties for the problem reviewed.

## Methods

A retrospective chart audit was made of all patients admitted to the family practice service from

February 1, 1976 to January 31, 1977. Information obtained directly from the charts included primary discharge diagnosis, level of training of primary physician, and number and types of consultations obtained on each patient. "Consultations" included informal notes written by consultants in the progress notes as well as formal consultations written on consultation forms. Only consultations to the other physicians were included, although consultations to such ancillary services as physical therapy, occupational therapy, social work services, and dietetics were numerous and invaluable.

Only primary discharge diagnoses are listed, though many of the patients, especially in the internal medicine category, had multiple complicating problems.

During the time of most of this study, there

Table 1B. Most Common Diagnoses (Pediatrics)

| Diagnosis                        | Number of Cases | Level of Training of Physicians* |      |      |      |
|----------------------------------|-----------------|----------------------------------|------|------|------|
|                                  |                 | Staff                            | R3   | R2   | R1   |
| Newborns (uncomplicated)         | 90              | 22                               | 22   | 32   | 14   |
| Newborns (complicated)**         | 26              | 9                                | 7    | 8    | 2    |
| Asthma                           | 11              | 3                                | 2    | 4    | 2    |
| Pneumonia                        | 7               | 3                                | 1    | 2    | 1    |
| Seizures                         | 4               | 3                                | 0    | 1    | 0    |
| Gastroenteritis                  | 4               | 2                                | 1    | 0    | 1    |
| Croup                            | 4               | 3                                | 0    | 0    | 1    |
| Viral illnesses                  | 4               | 2                                | 0    | 1    | 1    |
| Juvenile onset diabetes mellitus | 3               | 2                                | 0    | 0    | 1    |
| Other                            | 27              | 7                                | 3    | 13   | 4    |
| <b>Total</b>                     | 180             | 56                               | 36   | 61   | 27   |
| <b>Percentage</b>                | (100)           | (32)                             | (20) | (33) | (15) |

\*R3—3rd year resident, R2—2nd year resident, R1—1st year resident  
 \*\*Includes all newborns with jaundice requiring phototherapy, as well as respiratory distress syndrome, congenital defects, and other specific problems.

were 12 first year residents, eight second year residents, five third year residents, and seven board certified or eligible staff family physicians in the program. The physicians were divided into four teams, each team consisting of three first year residents, two second year residents, and one third year resident, and one or two staff physicians. Any patient admitted to the family practice service was seen first by his primary family physician and then by the staff physician heading that team. The patient was followed throughout hospitalization by all the members of the team to which the primary physician belonged. Admissions at night and on weekends were seen and evaluated by the first or third year family practice resident on call immediately following which the family practice attending physician obtained an independent history and physical and discussed the assessment and plan with the house officer. If the patient's primary family physician was available, he was responsible for the evaluation of the patient. Decisions regarding consultations to other services were made jointly by the primary physician and the family practice staff physician heading that team. Patients were housed on the ward appropriate to their problems throughout the 643-bed hospital, including the medical intensive care and

coronary care units, but care was rendered by family practice physicians unless a consultation was requested.

## Results

There were 631 admissions over the 12-month review period. Table 1 outlines the most common discharge diagnoses grouped by specialty categories. Also included in this table is the level of training of the physicians who rendered the primary care for the patients. In the "other" diagnoses in the medicine category were many interesting and complicated patients. Diagnoses here included: psoriatic arthritis, pancreatitis, leukemia, lymphoma, hypersensitivity vasculitis, ulcerative colitis, several types of malignant tumors, and many more.

Table 2 lists the number of patients admitted in each specialty category and the number of patients seen in consultation by other specialists. Some patients were seen by more than one consultant as reflected by the total number of consultations. Of the 631 admissions, 38.1 percent had medical problems, 28.5 percent were admitted to the pediatrics ward, 21.5 percent to obstetrics-gynecology wards, and 12 percent to other wards. Two

**Table 1C. Most Common Diagnoses  
(Obstetrics-Gynecology)**

| Diagnosis                                 | Number of Cases | Level of Training of Physicians* |      |      |      |
|-------------------------------------------|-----------------|----------------------------------|------|------|------|
|                                           |                 | Staff                            | R3   | R2   | R1   |
| Intrauterine pregnancy<br>(uncomplicated) | 96              | 30                               | 22   | 32   | 12   |
| Intrauterine pregnancy<br>(complicated)   | 13              | 8                                | 2    | 2    | 1    |
| Pelvic inflammatory disease—              |                 |                                  |      |      |      |
| Tubo-ovarian abscess                      | 6               | 0                                | 2    | 3    | 1    |
| Spontaneous abortion                      | 4               | 0                                | 0    | 2    | 2    |
| Excessive weight gain                     | 2               | 0                                | 1    | 0    | 1    |
| Pyelonephritis                            | 2               | 0                                | 0    | 1    | 1    |
| Other                                     | 12              | 4                                | 2    | 3    | 3    |
| <b>Total</b>                              | 135             | 42                               | 29   | 43   | 21   |
| <b>Percentage</b>                         | (100)           | (31)                             | (21) | (32) | (16) |

\*R3—3rd year resident, R2—2nd year resident, R1—1st year resident

hundred and ten patients or 33.3 percent of the total were seen by consultants. The types of consultations obtained are listed in Table 3.

The groups of patients admitted to specialty wards other than medicine, pediatrics, and obstetrics-gynecology received the most consultations, 57.9 percent. The reasons for this are primarily the large number of patients with possible or actual herniated nucleus pulposus who were evaluated by neurosurgery for possible myelograms; the patients seen by psychiatry after overdoses; and the patients with trauma seen in consultation by orthopedics, neurosurgery, or general surgery.

Of the patients admitted to the medical wards, 46.5 percent were seen in consultation. A large part of this percentage was accounted for by cardiology consults, usually involving patients admitted to Intensive Care-Coronary Care Units (ICU-CCU) with myocardial infarctions, congestive heart failure, or other problems related to arteriosclerotic heart disease. Pulmonary and gastroenterology specialists were often consulted to perform bronchoscopies, esophagogastrosopies, and other endoscopic procedures.

Only 16.1 percent of pediatric patients were seen in consultation, ten percent being seen by

pediatricians and 6.1 percent by other subspecialists. In addition to many common pediatric diagnoses listed, children were hospitalized for Crohn disease, systemic lupus erythematosus, congestive heart disease with failure to thrive, Rocky Mountain spotted fever, and duodenal ulcer. Of the obstetrics-gynecology patients, 18.5 percent were seen in consultation. These primarily involved complicated deliveries and cesarean sections, but other patients requiring consultation had diagnoses such as pelvic vein thrombophlebitis, tubo-ovarian abscess, and premature labor.

As can be seen in Table 1, residents at all levels of training were admitting patients with varying problems. It should be reemphasized that all residents' patients were also seen on admission by a family practice staff physician. Also, when a staff physician admitted a patient, that patient was followed by a team consisting of six residents along with the primary staff physician, so that residents were learning about the inpatient care of patients other than their own. Most first year residents had few admissions because of the small number of families (25) in their panels. These residents, however, were receiving a great deal of inpatient training while rotating through inpatient specialty services. Residents at all levels rotated through vari-

**Table 1D. Most Common Diagnoses  
(Other Categories)**

| Diagnosis                                              | Number of Cases | Level of Training of Physicians* |      |      |      |
|--------------------------------------------------------|-----------------|----------------------------------|------|------|------|
|                                                        |                 | Staff                            | R3   | R2   | R1   |
| Low back pain other than<br>herniated nucleus pulposes | 13              | 4                                | 2    | 5    | 2    |
| Drug overdoses                                         | 11              | 6                                | 3    | 2    | 0    |
| Concussion                                             | 10              | 4                                | 3    | 1    | 2    |
| Soft tissue trauma                                     | 10              | 2                                | 5    | 3    | 0    |
| Herniated nucleus pulposus                             | 7               | 4                                | 2    | 1    | 0    |
| Bony trauma                                            | 6               | 3                                | 1    | 1    | 1    |
| Depression                                             | 3               | 1                                | 1    | 1    | 0    |
| Ureteral colic                                         | 3               | 1                                | 1    | 1    | 0    |
| Conversion reaction                                    | 2               | 1                                | 0    | 1    | 0    |
| Situational stress reaction                            | 2               | 1                                | 0    | 1    | 0    |
| Epididymitis                                           | 2               | 0                                | 1    | 0    | 1    |
| Other                                                  | 7               | 2                                | 1    | 2    | 2    |
| <b>Total</b>                                           | 76              | 29                               | 20   | 19   | 8    |
| <b>Percentage</b>                                      | (100)           | (38)                             | (26) | (25) | (11) |

\*R3—3rd year resident, R2—2nd year resident, R1—1st year resident

ous specialty services throughout their training, with first year residents spending one half-day per week, second year residents three half-days per week, and third year residents five half-days per week in the family practice clinic.

### Conclusions

This review shows that a family practice residency program can provide a great deal of inpatient experience for its residents while at the same time maintaining a busy outpatient service. It also demonstrates that family practitioners can manage most of their patients' in-hospital care. Two thirds of the total patients, over half of the medical patients, and over 80 percent of pediatric and obstetrics-gynecology inpatients were managed without consultation. When consultations were obtained, they were done appropriately with the consultant lending his/her expertise to the care of the patient, but with the family practitioner maintaining his role as primary physician.

This study also shows that family practice attending physicians and residents in residency programs can care for large numbers of patients of all ages with a variety of major health problems. Physicians at all levels of postgraduate training

were involved in the inpatient care of their patients, with appropriate back-up by staff physicians and consultants.

### Comment

The opportunity for inpatient care may be somewhat unique at the Dwight David Eisenhower Army Medical Center because there is a very large family practice patient population enrolled and (other than a psychiatry residency) there are no other residency programs in this large medical center. There is no reason, however, why this same degree of inpatient responsibility could not apply either to other military residencies or to civilian programs in university medical centers or community hospitals where other specialty residents undergo training. The strategic location of the family practice clinic on the seventh floor of the medical center facilitates the ease with which inpatient care can be accomplished, but with the disadvantages of having to share the medical records department and x-ray and laboratory facilities with the other services in the hospital. Many family practice ambulatory care centers are located more distant from their inpatient services. Nevertheless, there is no reason why this slight

**Table 2. Category of Admissions and Percentage of Consultations**

| Category                                                                | Medicine  | Pediatrics | Obstetrics-Gynecology | Other   | Total     |
|-------------------------------------------------------------------------|-----------|------------|-----------------------|---------|-----------|
| Number of admissions                                                    | 241       | 180        | 135                   | 76      | 631       |
| Percentage of admissions                                                | 38.2      | 28.5       | 21.4                  | 12      | 100       |
| Number of patients seen in consultation (total number of consultations) | 112 (131) | 29 (35)    | 25 (26)               | 44 (51) | 210 (241) |
| Percentage of patients seen in consultation                             | 46.5      | 16.1       | 18.5                  | 57.9    | 33.3      |

increase in distance from the inpatient services should significantly hinder the inpatient services offered by clinic physicians.

Patient satisfaction seems to be at a maximum in this system as evidenced by the large numbers of patients applying to the program and the very low drop-out rate for enrolled families. Part of the reason for this patient satisfaction may be that the patient and family already are acquainted with the resident or staff physician who admits and cares for them during hospitalization and after discharge. Physician satisfaction is also great.

The family practice attending physicians and residents maintain their skills in inpatient medicine and do not lose contact with their hospitalized patients. The other specialists have an opportunity to teach the family practice residents, to act truly as consultants rather than as primary physicians, and to be continually stimulated by the residents.

The "team" concept for following inpatients seems particularly appealing because the entire team of family practice physicians becomes familiar with the patients and vice versa, providing a smooth transition and familiar faces when a patient must be hospitalized in the occasional absence of the patient's primary family physician. This same concept extends to outpatient services, since the teams operate in the family practice outpatient clinic also, in some ways simulating a group practice.

In short, the opportunity and demonstrated ability of the family practice physician to care for his own patient allow him to maintain continuity of care while providing the best possible inpatient management, including appropriate specialty consultation, while heightening patient and physician satisfaction.

**Table 3. Number of Consultations by Subspecialty**

|                  |    |
|------------------|----|
| Cardiology       | 49 |
| General surgery  | 22 |
| Obstetrics       | 20 |
| Neurosurgery     | 19 |
| Neurology        | 18 |
| Pediatrics       | 18 |
| Psychiatry       | 14 |
| Urology          | 13 |
| Orthopedics      | 12 |
| Pulmonary        | 10 |
| Gastroenterology | 10 |
| Otolaryngology   | 7  |
| Vascular surgery | 6  |
| Gynecology       | 5  |
| Other            | 19 |

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