An Analysis of Returning Patients in Family Practice

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Morbidity records from eight practices participating for three years in the Virginia Family Practice Data System are analyzed with respect to two mutually exclusive groups of patients: those who return from one year to the next and those who do not return. Initially, substantial interpractice variation in patient return rates is presented, and age and sex characteristics of these patients are examined. The data indicate that approximately 40 percent of patients visiting the practice in one year return in the next, 25 percent return in each of two subsequent years, and only 12 percent return two years hence. Returning patients are found to be significantly older and more likely to be female than non-returning patients. These two groups of patients are then compared in terms of recorded morbidity and workload rates. Specific categories of problems, such as Diseases of the Circulatory System, are associated with returning patients. This paper thus presents empirical evidence which supports common assumptions concerning patients and problems seen in family practice.

A fundamental component of health services research is the study of patient populations. With an improved knowledge of patients and problems cared for by physicians, the delivery of health care can be more effectively planned to meet specific demands. The literature on the subject, with reference to family practice, is impressive in some areas but incomplete in others. For example, several recent papers have analyzed basic demographic characteristics of patients,[1-3] while additional work has been undertaken to estimate the total number of patients actually cared for by a family practice.[4-6] Also, the morbidity composition or "content" of family practice has been well documented in the United States,[7-9] Canada,[10,11] and Great Britain.[12]

Characteristics of the patient population with particular regard to visits to the practice are more germane to this paper. Appointment keeping (or breaking) behavior within a specific time period has received considerable attention in the literature. Patient perception of illness,[13] demographic and socioeconomic variables,[14,15] appointment systems,[16] and "self care"[17] have all been identified as factors influencing whether or not a patient will comply with a scheduled visit. An equally important issue concerns "continuity of care" or patient visits over different periods of time. That is, what proportion of the patient population returns to the practice from year to year?

	Table 1. Comparison of Patient Return Rates			
Practice	FY75-FY76 Return Rate %	FY76-FY77 Return Rate %	FY75-FY76-FY77 Return Rate %	FY75-FY77 Return Rate %
A	41.3	45.3	25.5	9.6
B	50.6	51.5	35.1	17.8
C	34.5	39.0	18.8	12.4
D	37.9	38.4	23.3	15.4
E	38.9	42.8	24.4	12.9
F	26.9	30.7	15.4	10.6
G	26.2	35.3	18.0	5.7
H	54.2	53.1	37.7	20.7
Total	39.7	43.2	25.3	12.5

And, what types of problems are presented by patients who return to the practice compared to patients who do not return? Substantially different results have been reported in the few studies which address the former question. For example, a 1962 survey in western Pennsylvania discovered that 89 percent of family units interviewed had a regular physician "usually seen" for illness or injury.[18] In contrast, 61 percent of families in a 1974 sample of households in Salt Lake County, Utah, had voluntarily changed physicians "at some time in the past."[19] Further, there has been no research reported in the literature which compares morbidity of different groups of patients in one particular data system.

Predictions of the annual percentage of "returning patients" (and the converse, the percentage of new patients or those who have not visited the practice in *n* years) will enhance practice management. A more complete description of problems presented by each of these types of patients will improve the physician's knowledge of the patient population. This paper presents information concerning demographic and morbidity characteristics of patients who return to the practice from year to year as well as those who do not return. Results from eight family practices over three years are compared. Intra and interpractice variation is noted, and age and sex characteristics of these two patient groups are contrasted. Recorded morbidity is next examined, with differences and similarities between the two categories of patients identified. Explanations for these results are then offered, and tentative implications are discussed.

Definitions

The following definitions were used in the conduct of this study.

Current patient—an individual who has received professional advice or services from the practice *in the past year*

Returning patient—a current patient who *also* receives advice or services from the practice *in a subsequent year*

Non-returning patient—a current patient who does *not* receive advice or services from the practice in a following year

Patient return rate—proportion of current patients in one year who return to the practice in a following year

Problem-contact—a patient/provider transaction in regard to one problem
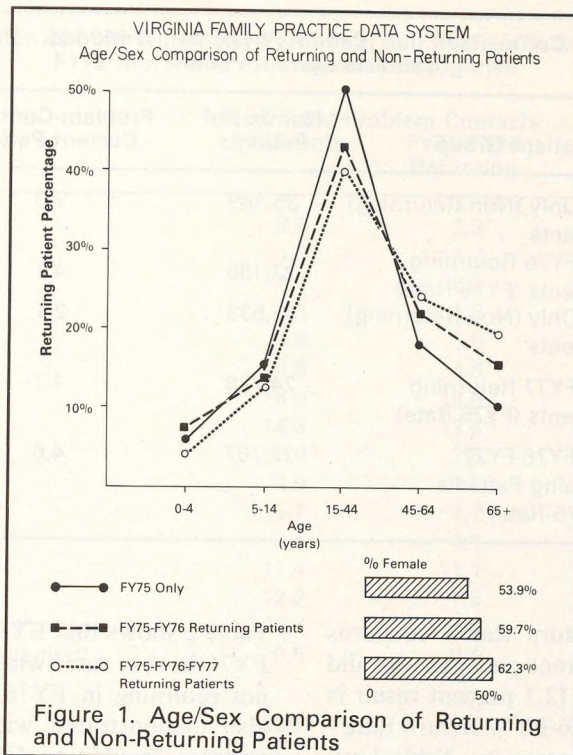
Problem—a provider-determined assessment of anything that concerns the patient, provider, or both

Encounter–any professional interchange between a patient and one or more members of the health care team

Methods

The Virginia Family Practice Data System, containing daily morbidity recording experiences of participating physicians, is used in this analysis. Described more completely elsewhere,[20,21] this system reflects longitudinal records of over 90,000 patients annually from 5 teaching and 13 community family practices. Only the eight practices which have recorded in Fiscal Year 1975 (FY75: July 1, 1974 to June 30, 1975), Fiscal Year 1976

VIRGINIA FAMILY PRACTICE DATA SYSTEM
Age/Sex Comparison of Returning and Non-Returning Patients

Figure 1. Age/Sex Comparison of Returning and Non-Returning Patients

(FY76: July 1, 1975 to June 30, 1976), and Fiscal Year 1977 (FY77: July 1, 1976 to June 30, 1977) are examined.

In this system, patients are identified with a modified Hogben Code: the first three letters of the last name, first letter of the first name, and six digit numeric equivalent of date of birth. Thus, Roger C. McKay, born July 17, 1940 is designated as follows:

MCKR071740

Using this identifier, separate files for each period are "matched" by practice. An earlier paper[22] revealed a 9.7 percent error rate in Hogben Code identifications used at practices participating in a special validation study, implying that roughly ten percent of "patients" contained in the data are nonexistent. Therefore, reported return rates may be lower than the actual situation in practice.

The FY75 and FY76 data have been converted from the US version of the Royal College of General Practitioners coding system[23] to the International Classification of Health Problems in Primary Care (ICHPPC),[24] employing the method developed by Schneeweiss et al.[25] For brevity, only the FY75 and FY76 morbidity data are examined: patients who visited one of the eight practices in FY75 only (non-returning patients) are compared with those who visited in both years (returning patients). The 18 disease categories of the ICHPPC form the basis for comparison.

Results

Table 1 presents a summary of all patient return rates. The short-term facet of continuity of care is represented in the first two columns by rates over two successive years. Thus, 40 percent of patients who visited these family practices in FY75 returned in FY76, while 43 percent of FY76 current patients also visited in FY77. Interpractice variation is noteworthy, particularly the difference between Practices G and H.

In the third column, "FY75-FY76-FY77 Return Rate," the returning patient concept is extended to three years. As shown, 25 percent of FY75 current patients visited in FY76 and FY77, reflecting extremes of 15.4 percent and 37.7 percent; this is considerably lower than the two-year figure. Fi-

Table 2. Comparison of Patient/Physician Workload: Problem-Contacts/Current Patient		
Patient Group	Number of Patients	Problem-Contacts/ Current Patient
FY75 Only (Non-Returning) Patients	35,149	2.0
FY75-FY76 Returning Patients (FY75 Rate)	23,136	4.1
FY76 Only (Non-Returning) Patients	32,533	2.1
FY76-FY77 Returning Patients (FY76 Rate)	24,728	4.1
FY75-FY76-FY77 Returning Patients (FY75 Rate)	14,767	4.6

nally, the "FY75-FY77 Return Rate" concerns the proportion of FY75 current patients who did not return until FY77. The 12.5 percent result is roughly half the "FY75-FY76-FY77 Return Rate" and may indicate a loss of continuity. Table 1 explicitly portrays the consistency within and variability among the eight practices.

Next, the hypothesis that there is *no* difference, in terms of age and sex characteristics, between non-returning and returning patients is tested. Comparing patients who visited in FY75 only with FY75-FY76 returning patients, much larger proportions of patients over 45 years are noted for the latter group. Dissimilarities in mean age (34.4 vs 38.1 years) and percentage female (53.9 vs 59.7) between non-returning and returning patients are important. Hotelling's T^2 statistic,[26] a multivariate generalization of Student's t test, confirms highly significant differences (P<.0001). These are graphically depicted in Figure 1, showing that returning patients (particularly FY75-FY76-FY77 returning patients) are clearly older and more likely to be female.

Turning to recorded morbidity of these two groups of patients, one summary measure of "physician workload" is the number of problem-contacts per current patient. This measure is discussed in detail for the Virginia data,[27] where year-to-year consistency within practices and interpractice variation of the measure are examined. Applying this to the returning patient concept,

Table 2 shows that FY75 patients who returned in FY76 have a rate twice as high as those patients not returning in FY76. Temporal consistency is also demonstrated with respect to FY76-FY77 patients. In addition, FY75 current patients returning for two more years have yet a higher rate. The hypothesis that these returning patients might be chronically ill patients is now investigated.

First, the overall FY75 morbidity in this system should be discussed. Over 60 percent of all problem-contacts are contained in only five categories: Circulatory (VII), Respiratory (VIII), Ill-Defined Conditions (XVI), Accidents (XVII), and the Supplementary Classification. Categories XI, XIV, and XV all have extremely low frequencies and consequently have been collapsed into one grouping.

The FY75 morbidity is generated by two groups of patients: those who returned in FY76 and those who did not. By definition, returning patients have recorded morbidity in two years: the primary category in both is Diseases of the Circulatory System. The five categories mentioned above contain about 60 percent of the workload in FY75 and FY76, indicating that morbidity of returning patients is very similar in both years.

In Table 3, FY75 morbidity of returning patients is compared with that of patients who did not return to the practice the following year. Except for the categories discussed below, the rankings in the two years are similar. For both groups of patients,

Table 3. Comparison of FY75 Only (Non-Returning) and FY75-FY76 Returning Patients
FY75 Morbidity: 16 Diagnostic Categories

Diagnostic Category		% of Total Problem Contacts		Ranks	
		FY75 Only	FY75-FY76 Returning	FY75 Only	FY75-FY76 Returning
I	Infective	3.5	2.9	11	12
II	Neoplasms	1.3	1.2	14	15
III	Endocrine	4.1	6.5	10	6
IV	Blood	1.1	1.3	15	14
V	Mental	4.8	5.5	8	7
VI	Nervous	4.8	4.8	9	8
VII	Circulatory	8.6	14.8	5	1
VIII	Respiratory	14.3	13.8	2	2
IX	Digestive	2.9	2.8	13	13
X	Genitourinary	4.9	4.7	7	9
XII	Skin	5.7	4.7	6	10
XIII	Musculoskeletal	3.4	4.1	12	11
XVI	Ill Defined	11.4	11.1	4	4
XVII	Accidents	12.2	7.8	3	5
	Supplementary Preventive	16.7	13.6	1	3
XI/XIV/XV	Pregnancy/Congenital/ Perinatal	0.5	0.4	16	16
Totals		100	100		
Total Problem Contacts		70,924	95,694		
Total Current Patients		35,149	23,136		

five categories (VII, VIII, XVI, XVII, and Supplementary) again contain over 60 percent of the problem-contacts, but the distribution among these five is different between the groups. Category XVI, a "catch-all" category, represents a virtually constant portion of the workload, while Category VIII also has a similar portion in both groups. This is somewhat surprising since this latter category contains such a wide range of diagnoses. The three most commonly coded problems in this category, "upper respiratory tract infection," "tonsillitis," and "acute bronchitis," have similar percentages of the total workload in both returning and non-returning patients.

Large differences between these two groups can be seen in Categories VII, XVII, and the Supplementary classification as well as, to a lesser degree, Category III. Category XII, Diseases of the Skin, exhibits a difference of four in rank, but only differs by one percentage point. The two most commonly coded problems in this category, "boil/carbuncle" and "contact dermatitis," are slightly more prevalent in the non-returning patients.

As summarized in Table 4, significant between-group differences in Categories III, VII, XVII, and Supplementary can be explained by a code or codes within the category. In Category III, "diabetes mellitus" accounts almost entirely for this discrepancy, while "benign hypertension" ("uncomplicated hypertension" plus "hypertension not otherwise specified") is the factor in Category VII. Thus, both diabetes and hypertension represent an increased portion of the returning patients' recorded morbidity. This situation is reversed for Category XVII and the Supplementary Category, with "lacerations and open wounds" and "medical examination with no disease detected" effectively explaining these respective differences.

Discussion

As previously mentioned, empirical documentation of patients who return to the practice over a

Table 4. Comparative Examples of Morbidity Differences Between Returning and Non-Returning Patients			
ICHPPC Code	Problem	% of Total Problem Contacts	
		FY75 Only (Non-Ret)	FY75-FY76 (Returning)
250-	Diabetes Mellitus	1.6	3.2
401-, 4012	Benign Hypertension	3.6	7.9
889-	Lacerations, Open Wound	5.3	3.1
100-	Medical Examination, No Disease Detected	12.6	10.0
Total Problem Contact		70,924	95,694

number of years is nonexistent. The few published studies which allude to this subject vary tremendously. Thus, a 1950-1954 survey in New York identified 64 percent of 514 households interviewed as having *one* family physician.[28] Fully 89 percent of 575 western Pennsylvania family units in 1962 similarly acknowledged a "regular doctor" usually seen for illness or injury.[18] Finally, in a different health care delivery system, 86 percent of 600 families queried in Hamilton, Ontario, stated that all immediate family members attended the same family physician.[29]

More recent results are remarkably different. A random sample of Utah families indicated that 61 percent chose to change physicians during an unspecified period of time in the past. In response to another question, 52 percent of this same sample were apparently "forced" to find a different source of health care either because their physician had retired, moved, or died, or because the family had moved.[19] A 1976 sample survey discovered that only 21.7 percent of patients who had not received services from their family practice center in two years still considered themselves members of the practice population: in other words, over 78 percent had evidently changed sources of health care in this period.[6] Results of this study are similar. Roughly 40 percent of patients visiting the family practice in one year return in the next, 25 percent of current patients in a one-year period visit in each of the subsequent two years, while 13 percent of patients in the base period return only two years hence.

Returning patients have a relative abundance of chronic or long-term care problems, while non-returning patients show a greater prepond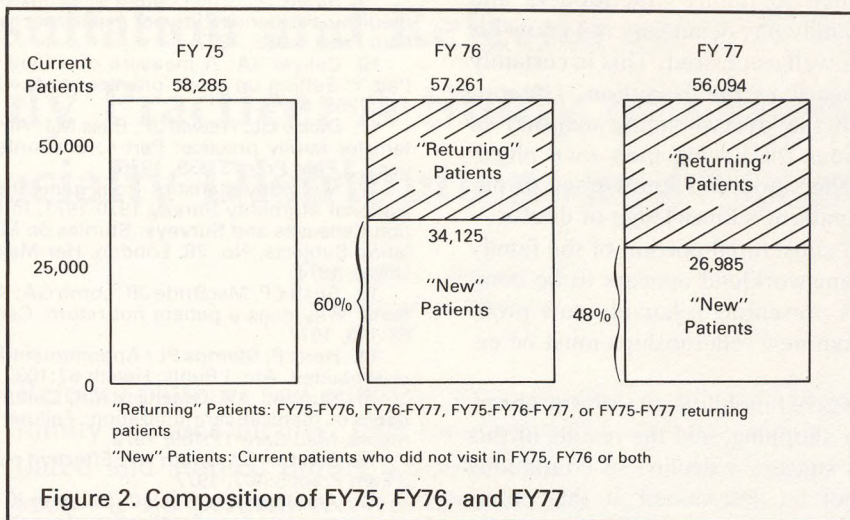erance for acute health care problems. This is consistent with a recent paper on continuity of care which states that "patients with chronic illnesses are more desirous of continuity than those with acute health problems."[30] Further, these returning patients are significantly older than non-returning patients.

The prevalence of chronic diseases in returning patients partially explains the increased rate of problem-contacts. In the examples of diabetes and hypertension (Table 4), the workload of returning patients is twice that of non-returning patients. Such problems require periodic and long-term surveillance. It must be emphasized that returning patients are not necessarily less likely to have an accident or a medical examination. Relative to their individual morbidity experience, however, these problems occupy a smaller portion of the total.

Interpractice variation in return rates is inevitable and quite substantial in these data. In Table 1, the consistently high rates of Practice H are offset by those of Practice G: most conspicuous is the nearly fourfold difference in the FY75-FY77 rate. The former is a three-physician family practice in rural central Virginia with an extremely stable patient population, some of whom have been patients of a particular physician since birth. Practice G is a partnership family practice located in rural southwest Virginia: a 20 percent decrease in current patients from FY76 to FY77 has obviously affected its low return rates. Additional factors are involved, however, and are discussed below.

One phenomenon which undoubtedly accounts for a portion of these reported rates is the increased mobility of the population. The US Bureau of the Census reports that, between March

"Returning" Patients: FY75-FY76, FY76-FY77, FY75-FY76-FY77, or FY75-FY77 returning patients

"New" Patients: Current patients who did not visit in FY75, FY76 or both

Figure 2. Composition of FY75, FY76, and FY77

1975 and March 1976, 18 percent of persons sampled did not live in the same residence at the later date.[31] Placing the Virginia results in perspective, 20 percent of persons in the South were "movers."

Not surprisingly, movers and non-movers are likely to resemble non-returning and returning patients, respectively, in terms of age and sex characteristics. From the Census Bureau data, persons 45 years and over, for example, show less mobility than those 15 to 44 years of age. This can be compared with FY75-FY76 returning patients: higher rates for patients over 45 years of age, particularly females 65 years and over, are contrasted with the lower rate of the 15 to 44 year cohort. Proportionately more females than males are non-movers/returning patients, and the difference in the Virginia Family Practice Data System has been shown to be significant.

Changes in patient behavior also may have influenced these return rates. That is, patients have numerous reasons for not initially visiting or returning to the physician. In the study of self care, non-users of health services identified "Previous consultation unsatisfactory" and "Didn't think doctor could help" as chief factors in their decision.[17] "Doctor-shoppers" cited similar problems with satisfaction as well as access; others implied distrust or a demand for a second opinion.[19]

It must be stressed that the data analyzed herein reflect only eight family practices *for only three years*. In view of these limitations, what are the connotations of these findings for practicing family physicians? One obvious application of these results is in practice management. With specific reference to chart organization, what is a realistic definition of an "active patient"? That only 21.7 percent of patients who had not visited their family practice in two years still identified themselves as patients of this practice is significant.[6] This finding and the return rates reported above indicate that retention of files in an active status for more than two years may not be practical.

In any given year, a patient population is composed of "returning patients" as well as those patients who either have not visited the practice in the past one, two, three, or n years, or are new patients. As presented in Figure 2, these data indicate that nearly half (48 percent) of the FY77 patient population is comprised of patients who have not visited the practice in the past two years or are in fact new patients.* Figure 2 represents a

*The eight continuing practices included 56,094 current patients in FY77. From this total, returning patients of all categories were subtracted. Thus, 4,381 FY75-FY77 returning patients and 24,728 FY76-FY77 returning patients (FY75-FY76-FY77 returning patients are comprised therein) were deducted from the 56,094 figure, resulting in 26,985 patients—as designated by unique Hogben Codes—who have not visited these practices in either of the previous two years or are actually new patients. Proportionately, 26,985/56,094 = 48 percent.

particular challenge to family practitioners and implies that the family physician may not know his or her patients as well as desired. This is certainly germane with regard to the Hamilton, Ontario, study,[29] in which the overwhelming majority of patient explanations for having their own physician concerned the "doctor's knowledge of patient" and the "patient's knowledge of doctor." In spite of this, a substantial portion of the family physician's current workload appears to be composed of patients presenting relatively new problems or with whom new relationships must be established.

Given the increased mobility, the recent observations of doctor shopping, and the results of this paper, does this suggest a decline in continuous care? This cannot be determined at this point. Continuity of care is extremely difficult to measure: in fact, research in this area has recently been termed "embryonic."[32] In an excellent essay on this subject, continuity was perceived as "more a question of attitude than duration of relationship."[33] In any event, hypotheses generated from this baseline study will be more critically tested with the receipt of the fourth and fifth years of data from the Virginia Family Practice Data System.

Acknowledgement

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