

The Relationship Between Time and Clinical Management in Family Practice

D. J. G. Bain, MB, MD
Aberdeen, Scotland

An observation study of 709 office visits to 22 family physicians demonstrated the features of family practice with 42 percent of patients being followed-up for long-term problems, and 61 percent of presenting complaints being acute problems of recent onset.

The average face-to-face time with patients was 8.8 minutes. Diseases of ear, nose, and throat were the most common acute complaints, and there was a distinct tendency for shorter visit time for these conditions to lead to higher prescribing rates. Patients' age, number of current chronic problems, and continuing medications had notable effects on visit time, with older patients and patients with ongoing chronic conditions receiving more time from physicians.

The social class of patients was the key to the understanding of physicians' use of time in the clinical management of people with similar problems. Irrespective of diagnosis, the time taken by Florida family physicians with patients from different socioeconomic groups showed marked differences, with longer time being spent with upper social classes than with lower social classes. This brings attention to the importance of recognizing patients' socioeconomic status when attempting to evaluate the content and quality of primary care.

The anatomy of family practice has been outlined in terms of the range of illness encountered by family/general physicians,¹ but much less attention has been paid to the detailed dissection of the private physician's management of patients.

Over 20 years ago, Peterson and his associates² made a study of North Carolina general practitioners, and Clute³ used similar techniques of direct observation to quantify and evaluate the content of general practice in two Canadian provinces. These studies were concerned with the characteristics of physicians, their methods of work-

ing, and measured the quality of their work against predetermined standards. Studies in the United States have observed and recorded the time spent by physicians in their day-to-day activities and have enumerated specific elements of physician/patient interaction.⁴⁻⁶

With the burgeoning interest in the teaching of family practice to students and residents, there is an obvious need for closer scrutiny of the process whereby family physicians make their day-to-day clinical decisions. Reports from Canada,⁷ New Zealand,⁸ and Scotland⁹ have analyzed the daily workload in terms of time spent on the different components of family physicians' management of patients. None of the reported observation studies of North American family practice has related the clinical management of individual

From the Department of Community Health and Family Medicine, University of Florida, J. Hillis Miller Health Center, Gainesville, Florida. Requests for reprints should be addressed to Dr. D.J.G. Bain, Department of General Practice, Aberdeen University Medical Center, Foresterhill, Aberdeen, Scotland, United Kingdom.

**Table 1. Age-Sex Distribution of Patient Visits
N=709 Visits**

Age Group (Years)	Sex		Number	Percent
	M	F		
0-4	18	27	45	6.3
5-14	52	39	91	12.8
15-29	60	83	143	20.2
30-44	59	63	122	17.2
45-59	53	94	147	20.7
60-69	48	62	110	15.5
70+	20	31	51	7.2
Total	310	399	709	100.0

patients to the time factor involved. The purpose of this report was to measure the time spent by physicians in their diagnostic and therapeutic activities, and to determine if there was any relationship between these clinical functions and the time physicians spend with patients.

Methods

The nature of the study required the cooperation of physicians and, in view of this, it was not possible to obtain a strictly random sample of general/family physicians. With the help of the Department of Community Health and Family Medicine at the University of Florida, a sample of physicians in North Central Florida was chosen from which 25 family physicians were selected to cover variables such as age, method of practice (solo/group practice), and site of practice (rural/suburban/urban). Thirteen of these physicians had acted as preceptors for students and residents from the above department.

The investigator visited the practices to explain the aims of the study, but specific details of objectives were not outlined as it was considered that too much advance information might alter physicians' behavior. Studies have shown that direct observation of physicians is possible and does not significantly distort the behavior of patient and physician.⁴⁻⁹ For the purposes of this study the author collected the required information while present in the office/examining room during patient visits to family physicians.

The method of timing the content of physician/patient interaction was that described by Buchan and Richardson⁹ and is by continuous running of a stopwatch. Data cards and stopwatch

were retained in an 8 × 5 inch folder used by the recorder.

The following categories measured in units of time the activity of physicians during face-to-face contact with patients: History taking (H); Examination (E); Advice and instruction (A); Writing (W); Reading (R); Dictation (D); Discussion with nurse (in presence of patient) (N); and Miscellaneous activities (including interruptions, telephone calls, etc) (O).

Physicians often do more than one thing at once, and the observer decided what was the primary activity occupying the physician at any particular time. Prior to observing the management of individual patients, the following items about the patients were obtained from participating physicians: (1) patient's age and occupation;¹⁰ (2) presence of chronic problems (conditions present for over three months); (3) current short-term problems (mostly follow-up common conditions); (4) current long-term medication (drugs taken for more than three months or anticipated to be taken for over three months); and (5) current short-term medications.

At the completion of patient visits the observer recorded the diagnosis or diagnoses which the physicians made, using the International Classification of Health Problems in Primary Care for coding purposes.¹¹ Physicians indicated cases in which a precise diagnosis could not be established from presenting symptoms. A record was made of drugs which were prescribed and dispensed.* Information recorded on the data cards

*Dispensed drugs refers to drugs for which there was no written prescription but which were issued from physicians' own office supplies.

	Number	Nonspecific Diagnosis	Nonspecific Percent
New Acute Problems	601	183	30.4
New Chronic Problems	201	5	75.0
Recheck Acute Problems	156	33	21.2
Recheck Chronic Problems	215	13	6.0
Total	992	234	23.6

Number of Medications Being Taken	Number of Patients	Percent of Patients
0	339	47.8
1	142	20.0
2	80	11.3
3	65	9.2
4	46	6.5
5	18	2.5
6	11	1.6
7	5	0.7
8	3	0.4
Total	709	100.0

used at observation sessions was transferred to 80-column punch cards for subsequent computer processing.

A short pilot study indicated that a minimum of two separate observation sessions per physician would be necessary. The study was performed over a period of 12 months with 12 physicians being observed on two occasions and 10 on three occasions. It did not prove practical to study 3 physicians on more than one occasion, and they were not included in the results described. Physicians who acted as preceptors did not have medical students or residents present during observation sessions.

Results

Physicians and Patients

Of the 22 physicians included in the final results there were four aged less than 35 years, seven

aged 35 to 45 years, eight aged 45 to 55 years, and three aged over 55 years. During the period of study, details of 709 patient visits to these physicians' offices were observed. The average number of observed visits per physician was 32. The age/sex distribution of patients is shown in Table 1. Of the 709 visits, 70 percent were for patients who received regular care from the physicians being studied.

Presenting Illness

Of the 709 patients in the study, 296 (42 percent) had a total of 528 chronic problems requiring regular follow-up. Two hundred fifty-seven of these patients were on regular medication. One hundred sixty-six patients (23 percent) had short-term problems which were still under supervision.

Degenerative diseases of the cardiovascular system (36 percent) and musculoskeletal system (13 percent) accounted for almost half the long-term chronic illness. Among the short-term problems being followed up, the most common were genitourinary complaints (13 percent), ill-defined symptoms and signs (11 percent), and emotional disorders (9 percent).

Nine hundred ninety-two patient problems were dealt with at 709 visits with 61 percent being new acute complaints of recent onset. The latter were mainly related to the respiratory system (18 percent), the circulatory system (13 percent), ill-defined conditions (11 percent), and minor psychiatric disorders (5 percent).

At 49 percent of visits, only one problem/diagnosis was dealt with, at 32 percent, two problems/diagnoses, and at 19 percent, three or more problems. Table 2 shows that at 24 percent of all presenting illness, the physicians could not advance their diagnoses beyond the symptomatic level. In new acute problems, the proportion was almost one third.

Drug Prescribing

Long-term and short-term medications which had been previously prescribed by the physicians totalled 803, with 621 of these prescriptions being for long-term use.

The extent of long-term and short-term drugs previously administered by the patients' physicians is shown in Table 3, with 148 patients (21 percent) currently on three or more drugs. The therapeutic class of long-term drugs reflected the chronic morbidity under follow-up, with cardiovascular agents and analgesics/anti-inflammatory agents accounting for nearly 50 percent of long-term medication. Psychotherapeutic agents accounted for 11 percent of long-term medication and 16 percent of short-term medication, second only to antibiotics (18 percent) for drugs being taken on a short-term basis.

Table 4 summarizes prescribing and dispensing for 727 medications at 709 patient visits. Two

hundred one of the patients (28 percent) received one drug; 152 (21 percent), two drugs; 67 (9 percent), three or more drugs; and of the 289 patients who received no drugs, 165 were already on one or more medications.

Time Taken for Patient Management

The average time for a patient visit was 8.8 minutes, with 23 percent of visits taking 0 to 5 minutes; 48 percent taking 5 to 10 minutes; 20 percent taking 10 to 15 minutes; and 8 percent taking longer than 15 minutes. Table 5 summarizes the distribution of physicians' activities during face-to-face time with patients, with over 60 percent of time concerned with history taking and examination, and 25 percent related to giving advice to patients. Writing, dictation, and miscellaneous activities contributed a very small proportion of face-to-face time with patients.

The breakdown of average time for components of the medical interview for different age groups is shown in Table 6. Time spent increases with patient age, but the percentages of time spent on the constituent parts of physician/patient interaction varied little between age groups. Patients' sex had no effect on average face-to-face time with physicians.

The nature of presenting illness showed similar patterns in all social groups. Table 7 shows the face-to-face times spent with patients from different socioeconomic classes. The average time spent by physicians with social class I and II patients was 10.9 minutes; with social class III patients, 8.7 minutes; and with social class IV and V patients, 7.1 minutes. Similar contrasts were found for the time spent on specific items of

Table 4. Drug Prescribing N=709 Patient Visits

	Prescribed Drugs	Dispensed Drugs	Total Drugs
New Drugs			
Short-term	465	135	600
Long-term	3	0	3
Refill Drugs			
Short-term	32	2	34
Long-term	82	8	90
Total	582 (80.1%)	145 (19.9%)	727

Table 5. Distribution of Physicians' Activities During Face-To-Face Time with Patients

Activity	Range (minutes)	Average Time (minutes)	Percent
History	0.3-25.2	2.5	28.7
Examination	0.0-25.0	2.9	33.3
Advice	0.2-14.1	2.9	25.3
Writing	0.0- 8.0	0.7	6.9
Reading and Dictation	0.3- 3.5	0.1	1.1
Other Activities	0.0-10.3	0.4	4.6
All Activities	1.2-34.8	8.8	100.0

Table 6. Average Time in Minutes of Components of Patient Visits

Age (years)	(N)	History	Examination	Advice	Reading, Writing, and Dictation	Other Activities	Average Time
0-4	(45)	1.4	2.1	1.7	0.5	0.3	6.0
5-14	(91)	1.6	2.3	1.9	0.6	0.1	6.5
15-29	(143)	2.0	3.0	2.2	0.6	0.4	8.1
30-44	(122)	2.8	3.3	2.4	0.6	0.4	9.5
45-59	(147)	3.1	2.9	2.8	0.6	0.5	9.9
60+	(161)	2.7	2.5	2.7	0.8	0.5	9.2
All Ages	(709)	2.5	2.9	2.2	0.7	0.4	8.8

Table 7. Visit Time and Patients' Socioeconomic Class

Socioeconomic Class ¹⁰	Number of Patients	Range in Minutes	Average Visit Time (Minutes)
I and II	128	4.7-34.8	10.9
III	359	1.2-29.0	8.7
IV and V	222	1.2-30.7	7.1

patient visits, such as history taking, examination, and advice. These differences between social classes are highly significant ($P < 0.001$) in terms of management of different groups of people with similar ailments. There were no differences in age or sex of patients within social groups to explain the above findings.

Physician Characteristics and Visit Time

Figure 1 shows the range of time and mean time for individual physicians. Figure 2 shows the contrast in frequency distribution for visits to physicians who acted as preceptors for medical students and residents (Group 1) and for visits to physicians who did not act as preceptors (Group 2). (Physicians who acted as preceptors did not have medical students or residents present during the observed visits.)

The preceptor group had a mean time of 10.2 minutes per patient, the nonpreceptor group, 6.9 minutes per patient, which is a highly significant difference ($P < 0.001$) in use of time. This result was despite the fact that both groups of physicians saw a similar range of presenting illness. Although

the nonpreceptor group spent less time with patients, the percentage distribution of the varying components of their medical interviews was similar to the preceptor groups. Further scrutiny of the data resulted in the finding that the percentage of visits by social class IV and V patients was 28 percent in the preceptor group and 35 percent in the nonpreceptor group.

Six physicians who employed physician's assistants in their practices averaged 10.3 minutes in face-to-face time with their patients. (Physician's assistants were not present during these transactions.)

Overall, physician age and the type or site of practice had no notable effect on average time spent with patients.

Presenting Problems, Drug Prescribing, and Visit Time

There was a distinct relationship between the number of patients' current problems and the visit time. In patients with two or more ongoing problems, 7 percent had visit times of less than 5 minutes, 22 percent had visit times of between 5 and

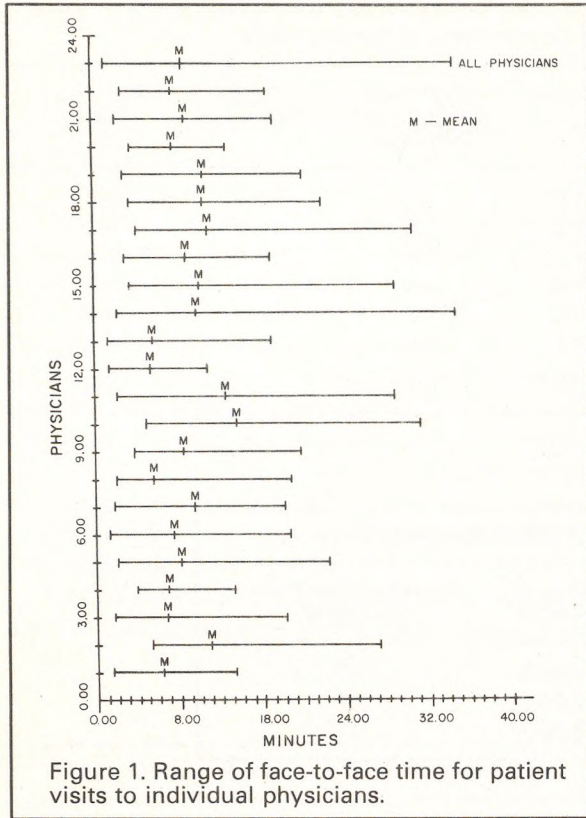


Figure 1. Range of face-to-face time for patient visits to individual physicians.

10 minutes, 33 percent between 10 and 15 minutes, and 38 percent had visits lasting over 15 minutes.

With 50 percent of patient visits providing more than one problem/diagnosis for the physician to deal with, it was not possible to measure accurately the time taken for individual diagnoses. Where the predominant complaint fell into the "psychiatric" or "ill-defined conditions" category, the average face-to-face times were 10.4 and 10.1 minutes, respectively. In patients with a single reason for presentation, the longest time was spent on routine/annual examinations where the average time was 16.6 minutes. These special examinations accounted for only 32 patient visits and represented 4.5 percent of 709 visits, and 3.2 percent of the 992 conditions dealt with at these visits. Visits lasting less than five minutes were largely concerned with acute infections of the respiratory, gastrointestinal, and genitourinary systems, with children contributing 32 percent of these problems.

In drug prescribing the number of long-term medications being taken by patients had an effect on time taken with patients. Where patients were on three or more long-term medications, the percentage distribution of visit time was as follows: 0 to 5 minutes, 9 percent; 5 to 10 minutes, 42 percent; 10 to 15 minutes, 36 percent; and over 15 minutes, 12 percent.

In acute problems of recent onset, the most common presenting complaints were related to ear, nose, and throat problems. One hundred forty-three visits were identified where these problems were the primary reason for patient visits, and Table 8 shows the relationship between time taken by physicians and drug prescribing at these visits. There was a significant correlation ($P < 0.05$) between time taken and the number of drugs issued, with the trend being for patients receiving more time to receive fewer drugs. The majority of visits lasting less than five minutes were accounted for by three physicians, thus the prescribing habits of a few physicians were largely responsible for the results described.

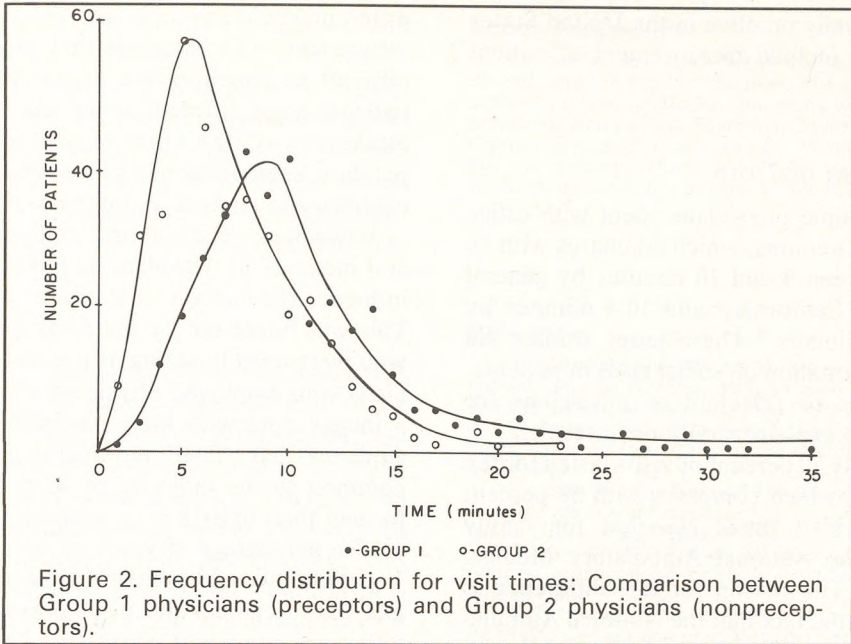
With relatively small numbers of acute cases in other specific disease categories, it was not possible to identify any further relationships between visit time and the number of drugs prescribed.

Discussion

Presenting Illness

The results emphasized the features of family practice; namely, that 42 percent of patients were followed-up for long-term problems and 61 percent of presenting complaints were acute problems of recent onset. Fifty percent of visits were concerned with patients where more than one diagnostic entity was managed by the physicians, a finding comparable to that arrived at in a study of general practice in Massachusetts.¹²

In 30 percent of acute problems, physicians could not translate patient symptoms into specific diagnoses, highlighting the undifferentiated illness seen in family practice. It would be a mistake to conclude that family physicians do not make specific diagnoses, but lack of traditional diagnostic precision should be appreciated as the nature of much of the family physician's work. When illnesses do not conform to accounts of exact clinical syndromes, the resultant therapeutic dilemmas are



Numbers of Drugs Issued To Patients	Visit Time in Minutes		
	0-5 minutes (N=42) %	5-10 minutes N=(65) %	>10 minutes N=(36) %
0	26.2	35.4	41.7
1	28.6	32.3	33.3
2	31.0	23.1	16.7
3 and over	14.3	9.2	8.3

evident, and McWhinney¹³ has suggested the need to classify problems presented by patients in behavioral and social terms as well as in purely pathological terms.

Drug Prescribing

The family physician's drug prescribing habits are naturally related to morbidity encountered, and the results reflected the management of long-term and short-term problems. The finding that dispensed drugs (see footnote under Methods) accounted for one fifth of drugs issued at patient visits was revealing, and indicates an area of hidden prescribing worthy of further study.

The reasons behind the physician's decision to prescribe or not to prescribe are complex ones. Physicians' estimates of patients' expectations may frequently be inaccurate. In a review of studies of patient expectations, Stimson¹⁴ drew attention to the fact that 80 percent of general practitioners in England and Wales estimated that at 80 percent of patient visits the patients expected a prescription. However, surveys of patient attitudes in Great Britain have shown that patients expect drugs to be prescribed at something between 43 and 52 percent of office visits.^{14,15} Perhaps the majority of physicians wrongly interpret patient expectations. Future studies of drug

prescribing in family practice in the United States should certainly include measurement of patient expectation.

Physicians' Use of Time

The average time physicians spent with office patients was 8.8 minutes, which compares with an average of between 9 and 10 minutes by general practitioners in California,⁵ and 10.4 minutes by Missouri practitioners.⁴ These latter studies did not provide information on social class of patients, and the process of selection of physicians for study could also explain variations in results.

Approximately 70 percent of visits lasted for ten minutes or less, which compares with 58 percent for equivalent visit times reported for family physicians in the National Ambulatory Medical Care Survey.¹⁶ The reason for this difference is probably due to the fact that the National Ambulatory Medical Care Survey was dependent on physicians completing their own estimates of time spent with patients, and Zabarenko⁵ has provided evidence that physicians frequently believe that they spend more time with patients than they actually do. The comparatively small number of special medical examinations in the present study may be another factor affecting average time.

Despite contrasting results, one of the interesting aspects of the present study, and previous studies, is that the majority of office patients are seen within a relatively short time range. In the Florida study this finding can be partly explained by the fact that the majority of the patients were well known to the physicians.

British studies have shown that the average time for office visits is between five and six minutes.^{9,17,18} The longer average time in the United States can be explained largely by the greater emphasis by American physicians on physical examination.¹⁹ The number of patients from varying socioeconomic groups has also to be considered if meaningful international comparisons are to be made. The average face-to-face time in Buchan and Richardson's study⁹ of Scottish general practitioners was 5.0 minutes, with 42 percent of patient visits for social class IV and V patients, whereas the Florida study had 31 percent of patient visits in these categories.

Irrespective of diagnosis, the time taken by Florida family physicians with patients from

different socioeconomic groups showed marked differences. This suggests that physicians find it difficult to communicate at the same level with patients from different social classes, and brings attention to the importance of recognizing patients' socioeconomic status when attempting to evaluate the content and quality of primary care.

Physicians' clinical and educational interests and methods of organization have been shown to influence the management of individual patients.²⁰ This was borne out by the finding that physicians who were used to acting as preceptors, and physicians who employed physician's assistants, spent a longer time with their patients. There was no evidence that "fast" physicians omitted features common to the majority of visits; they just performed their activities at a more rapid pace.

The percentage of visits by social class IV and V patients was 28 percent in the preceptor group and 35 percent in the nonpreceptor group. This difference in patient population has to be considered as a major influence on the time that the above groups of physicians spent with patients. Overall, the findings in this study of family practice indicated that the social class of patients is the main key to the understanding of physicians' use of time in the clinical management of people with similar problems.

Time, Presenting Complaints, and Drug Prescribing

With 50 percent of visits concerned with more than one problem, it was difficult to ascertain the effect of specific diagnoses on time spent with patients. Visits which were primarily concerned with psychiatric illness and ill-defined conditions lasted longer as the process of decision making did not follow straightforward pathways, and shortcuts were less apparent.

As expected, the results showed that the extent of patients' chronic problems was an important factor in time spent with patients. Similarly, where more complex medical regimens were under review more time was spent with patients.

In patients who presented with ear, nose, and throat problems, there was a distinct relationship between time taken by physicians and drug prescribing habits. The shorter the time, the greater the likelihood was that patients would receive more drugs. This finding was largely due to

the prescribing habits of only three doctors, and caution should be observed when interpreting group findings in studies of drug prescribing. Before speculating on the possible relationship between shorter visit times and higher prescribing rates for common conditions, it would be necessary to analyze the management of a much larger range of patients and standardize for patient age, sex, and social class.

Conclusions

The overriding impression from this study was that the family physicians observed had to be skilled at responding rapidly to numerous and varying problems. Without exception the physicians had heavy workloads and the use of time was a crucial defense mechanism where the constant enemy was the fleeting hour. McWhinney²¹ has stated that: "The best path to the solution of a clinical problem is the shortest which will solve it without avoidable risk. If the patient's problem has been solved in this way, then the diagnostic pathway was not a shortcut, but the optimum path." This is a reasonable statement but before giving it unqualified support, more objective measurements of outcome in primary care are required.

A number of questions about the physicians studied remain unanswered:

If more time were available, would the family physician see fewer patients and thus spend more time with each patient?

If family physicians spent longer time with patients, would this result in some groups of patients finding difficulty in obtaining medical care?

If family physicians increased visit times for patients, would this ultimately save time by reducing the total number of visits for disease episodes?

To what extent is the use of time for patients related to a physician's desire to make a satisfactory income?

Is there an optimum number of patients which can be seen in any one day? If so, is a point reached when the constraints of time interfere with standards of primary care?

The answers to these questions are not easily obtained but they are posed as a challenge to the specialty of family practice as it seeks priorities in residency training, and strives to equate provision of services with quality of care.

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