
New-Patient No-Shows in an Urban Family Practice Center: Analysis and Intervention

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The new-patient no-show rate reached 55 percent in an urban, university-based family practice center in mid-1981. A prospective descriptive study revealed that the no-show rates varied significantly with hour of appointment, patient age, source of referral, delay in appointment date, and chronicity of illness. Study findings led to alterations in the scheduling system, with a subsequent drop in the new-patient no-show rate to 40 percent.

In the two decades that have elapsed since Alpert's study of broken appointments,¹ the descriptive literature on appointment keeping has raised a number of important issues. Two major social developments in medicine have generated considerable quantities of literature. First, the federal financing of care for low-income patients through Medicaid led to a considerable number of studies about the behavior of this hitherto poorly served population and how they might better be served. Second, the renaissance of family practice in the 1970s led to a consideration of appointment-keeping behavior in patient settings where continuity of care and office efficiency are especially important goals.

Three major reviews of the literature on failed appointments have been published in the last four years.²⁻⁴ In general, the literature focuses on two main areas. First, there is the consideration of patient characteristics that are predictive of failure to keep appointments. Among these, only age has been consistently shown to be a factor in appointment keeping.³ Less-educated patients and those from lower socioeconomic classes appear to be more likely to miss appointments, but the data on these associations are inconsistent.^{4,5} Some families consistently miss appointments, and in one study 14 percent of the patients accounted for 42 percent of failed appointments.⁶

The second major area for analysis has been those characteristics of the health care facility that promote appointment compliance. Numerous studies have found an inverse correlation between how long in advance an appointment is scheduled and the likelihood of keeping the appointment.⁷⁻⁹ Appointment keeping has also been related to the source of referral, with emergency room patients having a much lower show rate than those from other sources.¹⁰ Several studies have demonstrated that patients who perceive themselves

†Dr. Vikander died in May 1982, and his colleagues completed this study. A brief memorial note appears at the end of the paper.

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as having a personal physician have a lower appointment failure rate than those who feel they are receiving impersonal clinic care.^{1,11} No-show rates reported in the literature range from 2 percent in many dental offices to 5 to 15 percent in family practice centers to over 50 percent in one pediatric outpatient clinic setting.^{2,8} Most studies of appointment keeping report data on both new and returning patients. In many settings, the no-show rate for new patients is greater than that for return patients.¹²

In the spring of 1981 it became apparent that the Family Practice Center located in the University Health Center of Wayne State University in downtown Detroit was experiencing a greater than 50 percent no-show rate for new patients. Because of the effect of this rate on patient flow, the decision was made to study it intensively, looking for methods of improving the show rate for new patients. An exploratory, descriptive study was designed to collect three types of data: patient demographics, patient perception of the appointment process, and system data regarding the timing and scheduling of appointments. Mailed appointment reminders and other "system" changes subsequent to the descriptive study facilitated a further evaluation of show rates after these interventions.

SETTING

The Wayne State University Family Practice Center (FPC) is located in the Detroit Medical Center, a complex of five hospitals with a total of 5,000 beds. The FPC is housed in the University Health Center (UHC), a multistory facility handling the majority of all outpatient visits to the medical center.

Living in the geographic areas surrounding the FPC is a large indigent population composed primarily of poor black families and senior citizens. All areas adjacent to the FPC are federally classified as regions underserved by physicians. The patient population in the FPC is 78 percent black, 18 percent white, and 4 percent of other ethnic backgrounds. Of the patients visiting the FPC, 25 percent are covered by Blue Cross or another major private insurer, 30 percent are by Medicaid, 14 percent by Medicare, and 16 percent by general assistance; 15 percent have no medical financial assistance at all. Approximately 1,100 patients are seen each month by 24 residents, 6 faculty physi-

cians, and 2 clinical nurse specialists. The FPC is the sole outpatient care facility used by faculty and residents in the Department of Family Medicine at Wayne State University.

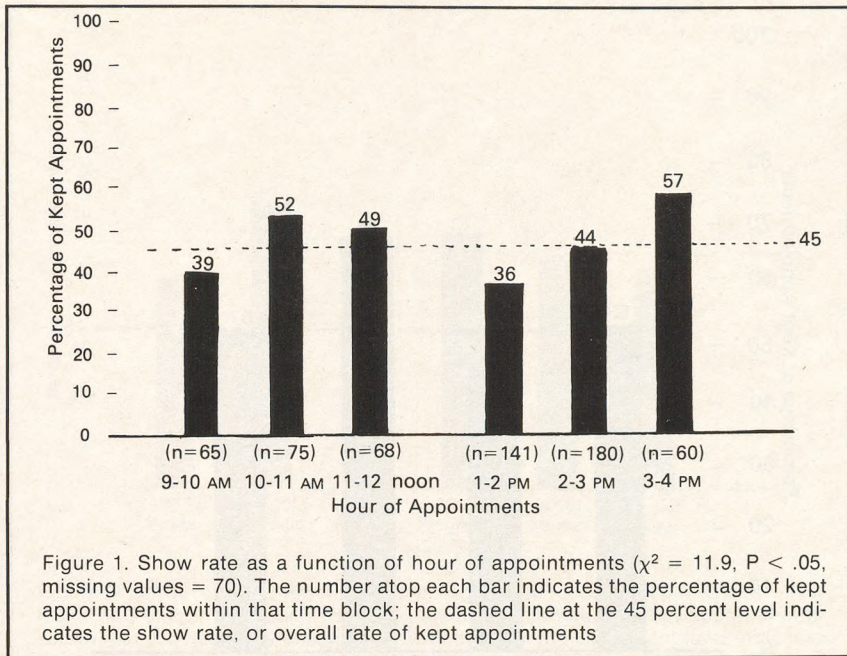
METHODS

During the two-month period May 1 through June 30, 1981, every new-patient appointment to the FPC was identified. Identifying new patients was a standard practice in the FPC office and was done by the scheduling secretary at the time of the appointment call. As each patient arrived on the appointment day, the receptionist further validated the patient's status as a new patient or return patient. The receptionist also marked on each provider's schedule card whether the patient showed, called to cancel or reschedule, or did not show. These cards are kept on file for several years.

Approximately one week after the initial appointment date, a telephone call was made to the patient or, in the case of pediatric patients, a parent or guardian. Two callers were employed for this purpose. Both were trained simultaneously for consistent, nonjudgmental voice attitude and question phrasing in implementing the questionnaires. A minimum of five calls were made to a given patient before that patient was signed off as "noncontactable." Disconnected telephones and unpublished numbers were listed from the outset as noncontactable. Calls were made during the working day as well as between 5 and 10 PM. The callers, who identified themselves as telephoning on behalf of the physician with whom the appointment had been scheduled, asked whether the patient would mind answering questions that would help the physician give better service.

Two structured questionnaires, each composed for this study, were used. One addressed itself to patients who had kept their appointments, the other to patients who had missed their appointments. The following information was obtained: name, appointment date, time, physician, whether the patient had insurance, and if so, what type, education, sex, and race. For patients missing appointments, an open-ended question eliciting the reason for missing was asked.

Information on several of the above questions was also available in the office records—particularly the date on which the appointment



was made, the scheduled appointment date and time, and the patient's assigned or requested physician. For some patients, data were available on the person making the appointment for the patient. For patients keeping appointments, data on presenting complaint and diagnoses were available.

RESULTS

Six hundred forty-seven patients were entered into the study. Two hundred ninety-one (45 percent) kept their initial appointments, and 356 (55 percent) did not. Of those who showed, 240 (83 percent) were contacted, and 239 completed questionnaires were obtained. Of those who did not show, 229 (65 percent) were contacted, and 223 completed questionnaires were obtained. The overall contact rate with completed questionnaires was 462 patients (71 percent).

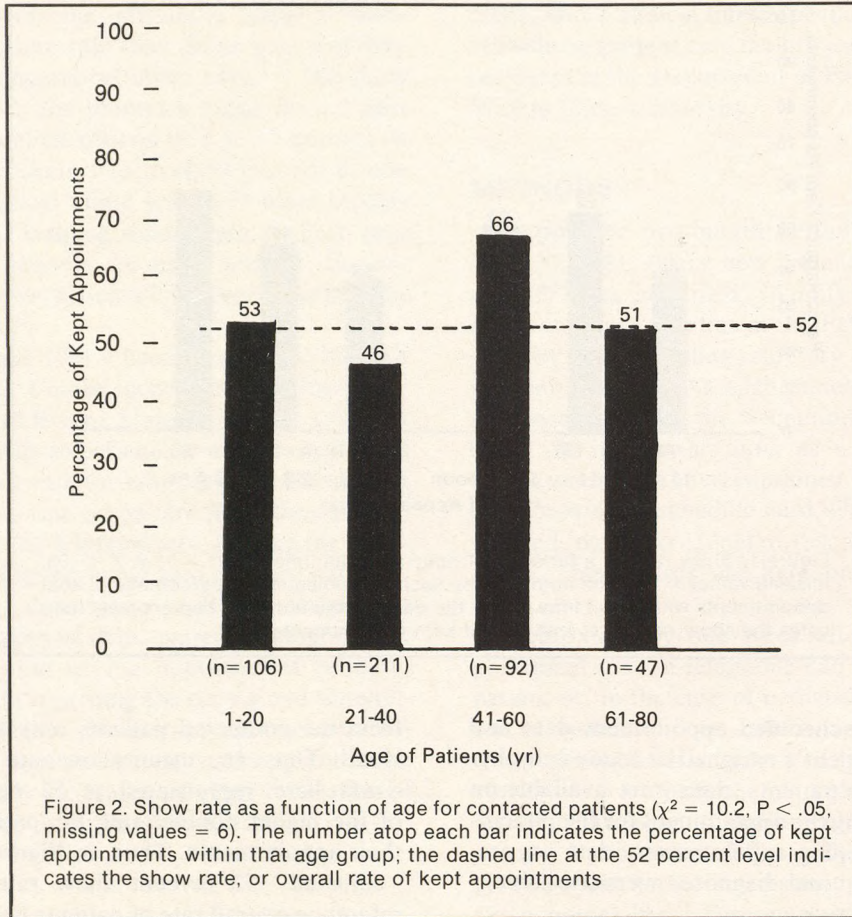
Figure 1 illustrates the show rates as a function of the scheduled hour of appointment. The 45 percent line running through the figures shows the overall rate of kept appointments—the show rate. The show rates are significantly lower ($\chi^2 = 11.9$, $P < .05$) at the start of each half-day.

Figure 2 plots the show rates as a function of patient age, where age has been grouped into 20-year intervals. In this figure (as in Figure 3), data

from the contacted patients only have been analyzed. Thus, the mean show rate for all the patients here represented is 52 percent because of the higher contact rate for patients who kept their appointments. Thus, in Figures 2 and 3, this “adjusted” 52 percent show rate becomes the reference overall rate of patients keeping their first appointments. The show rate of 66 percent for the group aged 41 to 60 years is significantly better than that of other age groups ($P < .05$).

Patients were asked how they found out about the FPC. The largest group of respondents were those who had been referred by a friend or relative, and this group had the highest show rate of all the groups (64 percent). The lowest show rates were observed in patients perceiving themselves as referred by other physicians and by other clinics within the University Health Center.

There is no systematic mechanism for keeping track of which patients are referred to the FPC by other patients. Certain administrative units that send patients to the FPC do keep records of their referrals, however, thereby allowing for verification of these sources of referral. These administrative units include the hospital Emergency Room, Health Assessment and Triage, and the Urgent Care Center, all housed within the same hospital facility as the FPC. A fourth administrative unit,



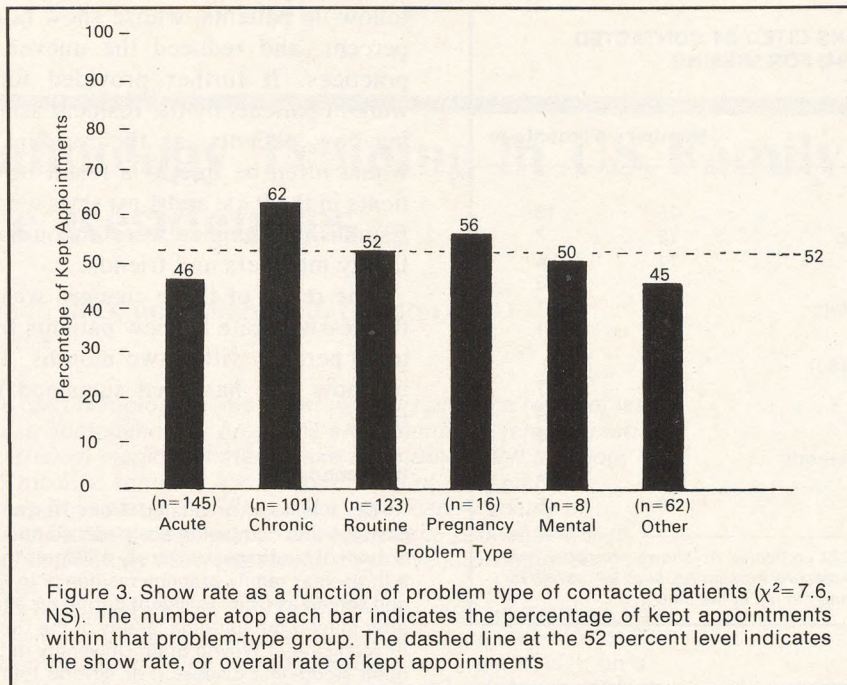
the Michigan Department of Corrections, sends persons on early parole to the FPC for care. Of special interest was whether any of these institutional referral sources were sending patients who were particularly lax or particularly attentive about appointments. All groups hover near the mean, except for the patients referred from the Michigan Department of Corrections. The FPC contracts with the Department of Corrections to see all prisoners who are in transition from state prisons back to society. These patients are living in halfway houses while working or attending school. They are still under court jurisdiction and, therefore, would be expected to have a high show rate (68 percent).

Figure 3 reviews show rates grouped by medical problem category as reported by the patients. A trend was observed for patients with chronic problems to keep their appointments at a higher rate than for patients with all other problems, but this

difference is not statistically significant. Comparing only the two groups of acutely and chronically afflicted patients, significant differences are seen ($\chi^2 = 6.7$, 1 *df*, $P < .01$). As older patients also have chronic problems, it is unclear whether the primary determinant of this trend is the chronicity of the problem, age, or other factors.

Improved show rate was seen among patients scheduled with little delay. The show rate differences between short and longer appointment delays approach significance at the $P < .05$ level (calculated $P = .057$).

Finally, patients' reasons for not keeping appointments are presented in Table 1. Reasons given are subclassified into those either involving or not involving barriers to care. Barriers to care commonly include transportation difficulties and scheduling mishaps originating in the FPC. The most commonly cited reasons labeled nonbarriers were factors the investigators felt to be within the



patients' control, such as time conflict, confusion about the appointment, and receiving health care elsewhere.

DISCUSSION

As a discipline, family practice has put considerable emphasis upon the efficient functioning of the family practice center. Such functioning can also serve as a model for residents' future office practices. The authors of this study have been dismayed to watch office flow sputter, creep, stall, and occasionally overwhelm the physicians working there on a daily basis. Although the FPC is not an independently housed practice serving a predominantly middle-class population, there was a distinct sense among the authors that practice inefficiency related to no-show rates could be improved. This study attempted to define one aspect of a family practice located in a large, multi-hospital medical center where the office is a small component of a university clinics organization and the patient population is chronically poor and underserved.

The most striking feature of this study is that there is not a single identified group of new patients who will show up for a first appointment at an excellent rate. The highest show rate identified

is 68 percent for patients in transition from prison to society. Closely following are the rates of 66 percent and 64 percent for patients aged 41 to 60 years and patients perceiving themselves as referred by a friend or relative already attending the FPC. These are relatively good rates, but they are low enough that to ensure a full session of patients for residents, some provision must be made to fill the 35 percent of "empty" time that occurs when patients do not show.

The poorest show rates are those of 39 percent for patients scheduled at 9 AM, 36 percent for patients scheduled at 1 PM, 38 percent for patients referred by other physicians, and 26 percent for patients referred by other specialty services within the university clinics building. These figures raise a number of issues with regard to timing of visits and acceptance of referrals from other clinics.

An original intent of this study was to identify groups of compliant and noncompliant appointment keepers. Overbooking the latter group would theoretically ensure more efficient office patient flow. The philosophy of the Department of Family Medicine, the University Health Center, and the FPC dictates that care will not be refused to anyone, but practical considerations dictate that patients with expected no-show rates of 30 to 40

TABLE 1. REASONS CITED BY CONTACTED PERSONS (n = 194) FOR MISSING APPOINTMENTS*

	Number	Percentage
Barriers (n = 61)		
Transportation	25	13
Schedule mishap	13	7
Expense	11	6
FPC error	6	3
Telephone problem	3	1
Location	3	1
Nonbarriers (n = 133)		
Time conflict	54	27
Forgot	28	14
Confusion	17	9
Health care elsewhere	14	7
Felt better	11	6
Illness	9	5

*Thirty-five of the 229 contacted no-shows not listed here gave miscellaneous reasons for missing, such as "caring for sick friend's kids" and "in jail at the time"

percent must be overbooked. The data from this study helped in determining how much to overbook and when.

Of particular importance for FPC office flow was the finding that patients scheduled early were less likely to keep their appointments than patients scheduled later in either morning or afternoon. This confirmed a suspicion that the office was always "slow to start" and helped explain why the lunch hour was usually spent finishing up with morning patients. Previous to the study it was suspected that the slow start was due to inefficiency of office staff.

Reasons given for missed appointments reflected the life circumstances of the population served, which is poor, over 50 percent unemployed, with a high proportion of single-parent families. Economic and transportation barriers are frustrating to both patients and providers, but are not presently amenable to intervention. Some of the "nonbarrier" reasons given for not showing, however, seemed potentially responsive to mail or telephone reminders. These included "forgetting," "confusion," and "schedule mishaps."

Changes were initiated in the office late in summer of 1981. Mail or telephone reminders were sent to all new patients. A single resident was assigned each day to see all new patients. This freed other residents to concentrate their schedules on

follow-up patients, whose show rate was 75 to 80 percent, and reduced the uneven flow in their practices. It further provided for coverage of walk-in patients by the resident scheduled for seeing new patients, as the resident's actual time would often be free as a result of no-shows. Patients in the 9 AM and 1 PM slots were overbooked. Established families were encouraged to bring in family members and friends.

The result of these changes was a decrease in the no-show rate for new patients from 55 percent to 40 percent within two months. That decreased no-show rate has been sustained to the present time.

In Memoriam

Dr. Vikander graduated from North Park College in Chicago and completed his medical education at Rockford School of Medicine, University of Illinois in 1977, completed a three-year family practice residency in Rockford, Illinois, and served as Chief Resident during his senior year. Shortly after joining the full-time faculty of the Department of Family Medicine at Wayne State University in Detroit, he developed Hodgkin's disease. For several months, therapy appeared successful, but in May 1982, Dr. Vikander succumbed to viral pneumonia. It is in his memory that his colleagues have completed this study.

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