DISSERTATION

MASTERS OF MEDICINE IN COMMUNITY HEALTH

HEALTH SYSTEMS APPRAISAL OF A PRIMARY HEALTH CARE SERVICES APPOINTMENT SYSTEM IN CAPE TOWN

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DATE OF SUBMISSION: 27 AUGUST 1996

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DECLARATION

I, Hassan Mahomed, hereby declare that the work on which this dissertation is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

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THIS STUDY WAS FUNDED BY THE HEALTH SYSTEMS TRUST

ADDENDA:

ABSTRACT

BACKGROUND: Community surveys have indicated that patients are dissatisfied with their waiting times at public health services in Cape Town (3-6). In order to reduce waiting times and improve service efficiency, some community health centres (CHCs) in Cape Town have implemented a booking/appointment system which hitherto has been lacking. As part of an evaluative study at one community health centre in Cape Town, waiting time measurements were performed and attitudes of patients and staff assessed before (September 1993) and after (March 1995) the implementation of the intervention. Participation in the appointment system was voluntary but open to all and patients were booked into one hour periods between eight a.m. and one p.m., at 40 patients per hour. The appointment system had a "fast track" for patients with appointments. On average, 60% of patients turned up for appointments.

METHODS: Waiting times of all patients attending the CHC were measured over a one week period before, and for one week after, implementation of appointments. Comparisons were made between "before" and "after" measurements and, in the followup survey, between those using the appointment system and a control group of those who did not. Focus group and individual interviews were conducted with staff and patients.

RESULTS: The median waiting times were 3 hours and 35 min before and 3 hours and 55 minutes after implementation - a difference of 20 minutes. In the "after" study, those with appointments waited only ten minutes shorter than those without appointments. However, further analysis which involved stratification by day of the week, time of arrival and reason for attendance, revealed confounding by these factors and thus a greater waiting time advantage for patients with appointments which was statistically significant in most instances. Staff interviews revealed that although most staff were sceptical at baseline, at followup, most staff believe the system to be working well and that it does not require much improvement. At baseline, patients were enthusiastic about the idea of an appointment system. At followup, some patients felt that the system was working well, whereas others felt that much improvement could be made to the system. All patients however, felt that it would be worthwhile keeping the system in place. Suggestions for improvements came from both staff and patients.

CONCLUSIONS: Implementation of the booking/appointment system was justified by the baseline findings. The minimal effect on waiting times and the smallness of the advantage to patients with appointments appears to be due in part to the type of appointment system that was implemented. It is acknowledged that other factors such as resource constraints and staff and patient motivation influence waiting times and these factors impacted on the effectiveness of the implementation of the booking/appointment system. There was some divergence between staff and patients regarding waiting time and the appointment system.

RECOMMENDATIONS: Suggested improvements to the system are: Inclusion of the pharmacy in the "fast track" process, preparation of folders of patients with appointments the day before, bringing about an improvement in patient compliance with appointments and the distribution of more patient load to the afternoon. Consideration should be given to why an effective appointment system was not achieved. Joint planning between staff and patients is suggested. Further research and investigation is recommended because of the complex nature of the factors influencing waiting times and it was also thought important to evaluate the impact on consultation times of whatever interventions are considered. Further interventions not necessarily related to an appointment system might be indicated.

INTRODUCTION

The start of the transition period in February 1990 in South Africa heralded the start of a transformation process which would touch all aspects of South African life and society. It signalled a shift from a society and government which regarded people of colour as inferior to an approach which viewed all citizens of the country as having equal status. There was a shift towards greater emphasis on the social well-being of the people. In the health sector, this was reflected in a change from a highly bureaucratised insensitive health care system to one which aspired to being caring and sensitive to the needs of the people it served. This is embodied in the Mission Statement adopted in 1995 by the Health Department of the Provincial Administration of the Western Cape (1), by the following statement: "the health system and services will be provided or co-ordinated in a manner which ensures that they are caring, high quality services at all levels, responsive to the needs, rights and dignity of patients, staff, clients, the community and other provinces." South Africa's Department of Health wants to provide good quality primary care based on the primary health care approach. An indication of this is given in the Committee of Inquiry into a National Health Insurance's report on Restructuring the National Health System for Primary Health Care (2). Waiting time is a component of quality of care. Therefore, it is imperative that unsatisfactory waiting time levels at primary care facilities be addressed within the context of improving all aspects of primary care.

In response to student surveys in which communities indicated their dissatisfaction with long waiting times at public health services (3-5) and individual patient complaints about lengthy waiting times, community health centres (CHCs) in Cape Town (those formerly under the control of the House of Representatives Health and Welfare Department, now under the Provincial Administration of the Western Cape [PAWC]), were given a directive (6) in 1993 to implement booking/appointment systems. As this was an innovation, it was agreed that it would be important to evaluate the systems implemented so as to determine whether it decreases the waiting times of patients and improves patient satisfaction with primary care services. Although studies evaluating health system appointment systems have been performed internationally (7-11), no such research has been done locally. The Department of Community Health at the University of Cape Town was asked to perform the evaluation.

LITERATURE REVIEW

There is an increasing trend towards out-patient care in the cost-containment environment of the 1990s (12). The increasing volumes of patients receiving out-patient/ ambulatory care, usually at primary level, makes it important to ensure that this experience is as comfortable as possible for them. One aspect of this experience is the waiting time experienced by patients at health services.

Views on waiting time

"A ill patient who has to wait feels helpless, isolated and ultimately angry" (12). Several surveys have indicated that long waiting times at health services are a serious source of dissatisfaction amongst patients. A recent national survey of 4000 South African households (13) concludes "waiting times at public health facilities are excessive and consultation times too short to be effective. This is symptomatic of the extent to which the public health service is overburdened and under-staffed." A series of utilisation surveys in a spectrum of suburbs in the Cape Town Metropole (14) indicated that a major dislike that patients from poor socio-economic areas had with respect to public health services was the long waiting times. This has been found in other similar community surveys also done in Cape Town (3-5). Even the local lay press have featured articles on the issue (15-17).

Patient satisfaction is influenced by waiting time. A feature on a waiting time survey in general practice in Australia (18) comments as follows: "keeping patients waiting can be a cause of stress for both patient and doctor. Waiting time is a tangible aspect of your practice that patients will use to judge you [general practitioners], even more than your knowledge and skill". A study done in Panama at a military hospital (12) shows the divergent perspective between health personnel and patients. Patients given the choice between waiting time and quality of care (amongst others) as to the biggest problem in the out-patient clinic, gave waiting time a higher rating whereas for physicians, the reverse was true. Staff and patient estimates of waiting time differed markedly in another study (21). Clearly the issue of waiting time is of great importance to patients with health personnel less aware of the importance of this issue to patients. This leads to the next question.

How long do patients wait?

A number of studies of waiting time have demonstrated the following:

In general practices in the UK and Australia (7,8,18,19), mean waiting times ranged from 5 minutes to 16.3 minutes. All these practices had a form of appointment system in place. At out-patient hospital services and clinics in the UK, mean waiting times ranged from one hour (in 1952, no appointment system)(20) to 31 minutes (9) and 39 minutes (11) more recently (with appointment systems). In a study of 27 primary health care centres in Spain (10), the waiting time was more than 30 minutes at baseline.

Two surveys from Africa both described waiting times at maternal and child health (MCH) services. At an MCH clinic in Lagos, Nigeria (21), the mean waiting time was 2 hours and 16 min (range 3 to 278 min) and in a study of an MCH service in the Solenzo district of Burkina Faso (22), the mean waiting time was 69 minutes. In both these places, there were no appointment systems in place.

These latter waiting times and the lack of appointment systems resemble the South African context more closely.

Closer to home, two recent national surveys depending on patient estimates provide information on waiting times. A national survey of 4000 households (13) in South Africa reported that 70.3% of Africans wait more than one hour with 48.2% waiting greater than two hours and 17.7% waiting four to five hours but with 85% of whites waiting less than one hour. Another national survey of 800 households in South Africa (23) reported that 41% of Africans waited more than one hour at health services but only 20% of whites did so. These latter two surveys also demonstrated the inequity that exists with regard to waiting times in the South African context.

A number of local studies in Cape Town (unfortunately available mainly in the form of reports and not as published articles), have looked at the issue of waiting times here. All have studied only public health services at primary level. In a study at a Child Health Clinic in Khayelitsha (24), the waiting time was a mean of 33 minutes (range 11-69 min). A survey of three CHCs in Cape Town using patient estimates (25), the range of mean waiting times was 2.2 to 3.6 hours. In a student survey of a community health centre in Cape Town (26), waiting times ranged from one and a half to six and a half hours. A more in-depth study which is about to be published (27), at a community health centre in Khayelitsha, Cape Town, median waiting times were, at the curative section of the health centre, 4.2 hours and the preventative section 2.7 hours.

It should be noted that different methods were used to obtain these values ranging from patient reports of waiting time (10,13,23,25) to actual measurements by observation (7-11,18-22,24,26,27). Slightly different definitions of waiting time were used as well: one method used was total time spent at health centre (22,26,27) as an indication of waiting time. In another definition, if a patient arrived early, the time before appointment was subtracted as well as the consultation time (18,19) to obtain the waiting time. The most rough method used was based on patient estimates (10,13,23,25).

There is a clear difference in waiting times between developed and developing countries. Most developed countries have appointment systems in place (7-11,18,19) making waiting times the order of minutes rather than hours which is the case in developing countries (21,22,24-27). There are also differences between different health care settings - general practitioners have shorter waiting times than CHCs and hospitals out-patient services (7-9,11,18,19,20), and preventive services seem to have shorter waiting times than curative services (27). South Africa does not rate well in the above comparisons of waiting time even when compared to other African countries although there must be a reporting bias in the articles that are available from other countries.

There appears to be a relationship between waiting time and the patient load of the health service concerned - larger loads increase waiting times. One study of practitioners in the UK (19) demonstrates greater mean waiting times where patients loads were larger. There also seem to be a relationship between long waits and consultation time - there are shorter consultation times with longer waits when there are higher patient loads (19).

Analysing the issue?

Various computer programs and models have been set up to analyse the processes involved which influence waiting time (28,29).

One model used a known distribution of consultation times and by varying the number of patients at the start of a session and the appointment interval, the ideal appointment arrangement between patients and physician was estimated (20). A clear relationship between patient waiting time and physician idle time was demonstrated using this model. An increase in the appointment interval led to a sharp increase in physician idle time.

Another model was based on the following factors (28) : number of servers (e.g physicians), rate of arrival of patients, service time distribution (e.g. consultation time distribution) and waiting capacity (where waiting capacity is limited, one would get balkers - patients turned away or choosing not to join a long queue). Cost factors could be added to the model. A computer program, STORM (acronym not spelt out in the reference) was used to analyse various hypothetical scenarios and how best to minimise waiting time.

A third model is called the Monte Carlo model (29) which takes into account the distribution of unpredictable events (length of consultation and rate of patient arrival) and also considers appointment interval, unscheduled emergencies and other factors. A computer program is then used to determine the optimum feasible patient waiting time.

It is interesting that independently using different methods both the first and the third model (20,29) propose an appointment interval close to the length of the average consultation.

In summary, the most important factors influencing waiting times appear to be the rate of arrival of patients, distribution of consultation times, number of service points and queue discipline (i.e. whether there is an appointment system, capacity of queue [balkers], appointment interval).

What causes long waiting times?

The "first come, first served" system (21) without appointments means that patients who wish to be seen early have to arrive early and this results in queue build-up because inevitably patients start arriving before staff have arrived. This situation is made worse when there is a quota system (6) i.e. a limit on the number of patients who can be seen - this further motivates patients to make sure that they are early. A vicious cycle results in which patients arrive earlier and earlier until some sort of equilibrium is reached but with a resultant huge queue at the start of a session. Physician's (or health worker's) time is seen as more valuable than patient's time (20,29) i.e. patients must be kept waiting but physicians can't be because their time is costly. Some authors (20,29) suggest that this would be an acceptable proposition to most lay people up to a point i.e. most patients will accept some waiting time (fifteen minutes quoted in one study [12]). However, studies indicate that there is a massive over-compensation (20,29) to ensure that physicians are kept busy all the time and that some compromise in which there is a small amount of idle time for physicians, can result in huge reductions in patients' waiting time. It is also argued that patients' time is also valuable and waiting time problems result in huge losses to the economy (20,29). Organisational problems such as appointment intervals, bottlenecks and patient flow all impact on patient waiting time (7-11, 24,27,30). Poor punctuality of staff is another problem (20)- it has been shown that generally patients are early or on time while health staff are generally late - this clearly contributes to queue build-up. Unpredictability of consultation time is an important factor (20,29). The reality of the health sector is such that patients problems vary and this inevitably results in varying lengths of consultation. Consultations that go on for longer than usual can result in huge queues. Nevertheless, there is some pattern to the way consultation times are distributed so this factor does not mean that solutions are not possible (20,29).

What are the possible solutions?

Having an appointment system in place or some form of spreading arrivals throughout the day is one solution suggested by some studies (21,25,27,30). A study which specifically evaluates the effect on waiting time resulting from the implementation of an appointment system was the study of 27 primary care centres in Spain (10). This study clearly shows a reduction in waiting time resulting from the implementation of an appointment system program. An indirect indication of the value of having an appointment system in place can be obtained by looking at the differences between the waiting times of developed and developing countries although appointment systems are probably not be the only reason for these differences.

Changing the appointment interval or appointment system in different ways has been suggested by different studies: One way is for the doctor to decide how much time a patient will need at a future appointment and adapting the schedule to accommodate this (9). Another method is for the patient

to decide how much time he/she will need with the doctor and then accommodating this in the appointment schedule (8). A third way is for adaptations of the appointment system to the type of patient to be seen (11) e.g. longer slots for new patients as opposed to old patients, shorter slots for hypertension patients as opposed to heart disease patients etc. All these interventions have been shown to be of benefit in reducing patient waiting times.

Punctuality of staff can prevent queue build-up at the start of a clinic (20). Reducing bottle necks and improving patient flow e.g. through fast track arrangements (creating simpler paths through a health centre or hospital for appropriate groups of patients i.e. all the patients do not go through the same channels) (21,27,30). Computer programs can assist in planning (28,29) - using data on the rate of patient arrival, average length of consultation and other easily obtainable health service information and feeding this into established computer programs can make it possible to come up with suggested appointment system structures. Making the appointment interval more or less equal to the consultation time has been suggested as a solution (20,29). An accommodation by physicians in that they accept a certain amount of idle time (20,29) is another option. As has been said, this can reduce patient waiting time substantially and it is suggested that this idle time can be used fruitfully to do some administrative work which is inevitably part of a health worker's responsibility.

Increased resources in the form of more personnel clearly will assist in reducing waiting times where this is appropriate. It must be stated though that many of the interventions mentioned above do not require large resource inputs (21,22,27,30). Mere re-organisation through a patient flow analysis can achieve greater efficiency (27,30)- shorter waiting times without any additional resource inputs. Given the constraints on the health budget particularly in the Western Cape (1), interventions which achieve efficiency by improving quality without requiring additional resources are becoming increasingly important.

Problems with implementation

The major problem with implementation relates to staff resistance to change (21)- health services are structured or have developed to suit staff needs. Changes which reduce patient waiting times may makes life a bit more difficult for staff or may appear as if they will. However, there are instances where staff have benefited from the interventions e.g longer consultations times leading to greater clinician satisfaction (11,19).

Another problem relates to when a health service operation has operated in a particular way over a long period. Waiting time becomes institutionalised. This shown by the local Cape Town study in which patients were prepared to wait more than three hours before complaining (25) compared to another study (12) in which waits of more than 15 minutes were regarded as unsatisfactory by

patients. The preferences of patients to come in the morning and to come early (25) show the degree to which patients have adapted to the existing operation of the CHCs. It suggests possibly that patients too may resist beneficial changes because of the degree of adaptation.

Other problems relate to resource constraints where an increase in resources is required and organisational flexibility to accommodate proposed changes.

In summary, waiting time of patients is a problem internationally but particularly here in South Africa. Various factors influence waiting time and these can be studied and analysed to determine the causes and possible solutions. Simple solutions not necessarily requiring large resource inputs can reduce the waiting time of patients substantially and thereby increase patient satisfaction and the efficiency of the service provided.

In this study, long waiting times was recognised as a problem at community health centres in Cape Town and one solution, an appointment system was implemented to reduce these waiting times. The study evaluated this intervention. One community health centre (CHC) was chosen for study by the authority concerned. It is a large CHC which deals with 500-600 patients per day and has eight full-time primary care doctors in its employ. Its function is mainly curative. Its hours of operation are from 8 a.m. to 5 p.m. Monday to Friday and Saturday 8 a.m. to 12 noon but it also has an after hours emergency service in operation.

AIM

To evaluate the effectiveness of a booking/appointment system implemented at a CHC in Cape Town in reducing patient waiting times and patient dissatisfaction.

PURPOSE

The results would be fed back to the authorities concerned so that improvements, if indicated, may be made.

OBJECTIVES

To establish the following information for the study population
at the CHC under study.

1 To measure the average waiting times of all patients attending the community health centre concerned on all days of a single week before and after the implementation of an appointment/booking system.

2 To measure the average total daily attendance and the distributions of arrival and departure times, and to track patient flow through the health centre.

3 To determine patient attitudes concerning waiting times and their views about the appointment/booking system.

4 To determine the attitudes of staff with regard to the intervention.

5 To evaluate the effectiveness of the intervention by obtaining and analysing the above information both before and after the intervention, and in the second survey, to compare patients participating in the appointment system with a control group not participating.

METHODS

Definition of terms:

Community Health Centre:	In this study, this refers to the curative component of primary care public services in Cape Town formerly known as a day hospital.
Waiting time:	The time it takes for a patient to get from one selected point to another within the CHC or the total time between arrival and departure.
Arrival:	When the patient reaches the entrance door of the health centre, the patient will be described as having arrived.
Reception:	That point where patient folders are retrieved.
Paypoint:	That point where patients have to pay for their attendance at the CHC.
Pharmacy:	When the patient arrives and hands in his/her folder at the door of the pharmacy, the patient is described as having arrived at the pharmacy.
Departure:	The patient is said to have departed when he/she leaves through the entrance door at the end of their visit to the CHC (without any intention or need to return to the health centre on that day).

Study design:

The study had a repeat measures design, with baseline and followup surveys in the intervention health centre.

Study population:

The study population was the patients attending and the staff working at a community health centre in Cape Town where a booking/appointment system was to be implemented.

Both quantitative and qualitative methods were used to achieve the objectives of the study.

Waiting times and patient flows

These variables were measured using operational research techniques and drew on methods used in other studies (21,27). All patients attending the CHC in a chosen week in September 1993 and in March 1995 were assessed. Four persons were employed to stand at key points in the CHC - two at the entrance/exit, one at the paypoint and one at the pharmacy. All patients in the sample were given time slips on arrival at the CHC with the time of arrival being noted on the time slip. Patients were asked for the time slip at each of the key points mentioned and the time was documented on the time slip. Also, at the pharmacy and at departure, patients were asked for the main reason for their attendance and they were classified in the following way:- (a) patients with chronic illnesses who consulted the doctor, (b) patients with chronic illnesses attending solely for the purpose of collecting scripted repeat medication, (c) patients attending for acute illnesses who consulted the doctor and (d) patients attending but not for consultation with the doctor (those seeing the social worker, the physiotherapist or attending for dressings or removal of stitches) These answers were noted on the time slip in a coded manner. The time slips were then collected from the patients when they departed. At the end of each day, all the time slips for that particular day were collected. Each day of the week was coded on the time slip as well. A pilot study was performed to test the logistics of this method. These time slips were used to calculate for each patient total time spent at the CHC, waiting times between arrival and the paypoint, between the paypoint and the pharmacy and between arrival at the pharmacy and departure. Median waiting times were then determined based on these calculations and further analysis by day of the week, by time of arrival and by patient type, and in the after study by whether patients had appointments or not, was performed.

Attitudes and satisfaction

These factors were studied using qualitative social research methods. Focus groups and individuals of a non-random sample of patients and staff were interviewed by the researcher to assess patient and staff attitudes towards waiting times and the booking/ appointment system. The following staff groups were interviewed in the baseline and follow up studies - reception clerks, nurses, doctors and pharmacy staff. In the baseline study, one group each of the aforementioned staff categories was interviewed except that two groups of doctors were interviewed. In the followup study, again, one each of the same categories were interviewed except that the nurses were interviewed differently - the prep room nurses (involved with weighing, glucostix measurements and sorting of folders for the doctors), the appointment room nurse and the sister-in-charge were interviewed. Discussions were held with groups of patients and individual patients, three chronic illness patient groups (initially, only chronic illness patients were to participate in the appointment system) and one individual patient in the baseline study and fifteen individual patients in the followup study. These variations were due to

dependency on whatever could be arranged through the sister-in-charge and whatever would minimise the disruption to the service. All these sessions were tape recorded and hand written notes taken.

ANALYSIS

The data was captured in ASCII format by the University of Cape Town's Data Capture department. The SAS program of statistical analysis was used to analyse the data. Biostatistical methods have been applied to the results with emphasis being placed on estimation rather than hypothesis testing. Chi square tests and odds ratios (with 95% confidence intervals) were used to compare proportions between the baseline and followup components, and the appointment and non-appointment components of the study where appropriate. Because waiting time is not "normally" distributed, the median waiting time was used as the measure of central tendency rather than the mean. Comparisons between appointment and non-appointment median waiting times were made using a non parametric test, the Wilcoxon Sum of Ranks test for the same reason that waiting time is not "normally" distributed.

Formal methods of analysing qualitative data were not used. Although the tapes were not transcribed, selected quotes were chosen and listed. They were divided into those given "before" and those given "after" the intervention and then grouped according to similar themes. These quotes are given as an addendum (Addendum B). The group source of the quote was noted with the quote e.g reception, doctors, patients etc. Based on these quotes, a summary was drawn up which is included as part of the Results section.

ETHICAL AND LEGAL CONSIDERATIONS

Permission from the relevant health authority was obtained for the study. Those patients and staff participating in the study did so voluntarily i.e verbal consent was obtained after an explanation of the study was given. Confidentiality and anonymity was ensured. This project was approved by the UCT Ethics and Research Committee.

REPORTING THE DATA

CHC staff and senior management of the government authority concerned were consulted and involved in the research throughout. A report was formulated which was fed back to the authority and staff of the CHC both after the baseline assessment and the completion of the follow up survey. Two feedback meetings were held at which preliminary findings were presented, one for local CHC staff and another for an RDP forum at which community organisations were represented. A report was also prepared for the Department of Community Health at UCT. Given the importance of this intervention, results were widely disseminated. A final written report was given to the staff of the CHC concerned, the RDP forum at which preliminary findings were presented, the Health Department of the Provincial Administration of the Western Cape (PAWC), the Department of Health nationally and the Health Systems Trust who funded the project. The Health Systems Trust circulated the project report further and included a publication of a summary in their monthly magazine (HST Update). Publication in refereed journals is also envisaged.

IMPLEMENTATION OF THE APPOINTMENT SYSTEM

The directive for the implementation of the appointment system was given in 1993. Once the decision was taken to evaluate the CHC in question, implementation of the appointment system at that CHC was held back until after the baseline assessment in September 1993. After the baseline assessment, discussions were held at the CHC planning the implementation of the new system. The baseline findings were given to the staff at the CHC to assist them in their deliberations. The first problem to be dealt with was the need for another reception window which would deal with patients with appointments. Once this was constructed in mid-1994, the appointment system was implemented. The system was advertised through the local media and an electronic notice board in the waiting room at the reception constantly reminds patients that the system is in place. Initially, there were numerous teething problems relating mainly to the fact that patient bookings for appointments were made at the reception. Further adaptations were made which involved allocating a special room for appointment bookings which was staffed by a nurse. Appointments were made both telephonically and by patients physically going to the "appointment room". The appointment system achieved stability in operation from January 1995.

The appointment system functions as follows: 40 patients are permitted to be booked per hour from 8 a.m. to 3 p.m, although in practice most patients appointments are from 8 a.m. to 1 p.m.. Patients with appointments have to arrive one hour before their appointments to enable their folders to be retrieved. They then go to the special window at reception allocated to patients with appointments. After their folders are retrieved, they are then processed for payment at the paypoint. After that they

are allocated amongst the doctors. The doctors then give priority to patients with appointments. Subsequent to these consultations, they join the ordinary queue at the pharmacy. Appointment patients do not receive priority at the pharmacy. In practice, between 25% and 45% of patients on any one day used the appointment system (Figure 1) [Please note that all figures are attached as addenda] in the first three months of 1995. Between 50% and 70% of patients who made bookings actually turned up for their appointments over the same period (Figure 2) with a mean of 59.8%.

The following two analyses (also over the period January to March 1995) describe appointment system functioning in more detail:

Table 1 shows that a slightly higher proportion of patients kept appointments on Tuesday, Wednesday and Thursday as opposed to Monday and Friday.

TABLE 1: PERCENTAGE KEEPING APPOINTMENTS BY DAY OF THE WEEK (FIGURE 3).

	JAN - MARCH 95	STUDY (MARCH 1995)
MON	55.3%	50.8%
TUES	61.4%	66.3%
WED	61.1%	62.3%
THURS	63.4%	68.3%
FRI	57.7%	59.9%

The trend in Table 2 is that the later the appointment, the greater the proportion who keep appointments.

TABLE 2: PERCENTAGE KEEPING APPOINTMENTS BY TIME OF APPOINTMENT (FIGURE 4).

8 a.m.	58.8%
9 a.m.	56.9%
10 a.m.	58.9%
11 a.m.	60.2%
12 a.m.	64.7%
1 p.m.	68.7%

RESULTS

The response rate in the "before" study was 84.8% and in the "after" study was 76.4% (Table 3).

TABLE 3: RESPONSE RATE AND NUMBERS INVOLVED

	BEFORE SEPT 93	AFTER MARCH 95
NUMBER OF PATIENTS ON WHOM DATA WAS OBTAINED	2520	2400
CHC RECORDS OF ATTENDANCE	2973	3143
RESPONSE RATE	84.8%	76.4%

Table 4 shows the following: most days of the study had response rates greater than 70% (10 of the 12 days and all the days of the "before" study). The Wednesday of the "after" study is only slightly less than this figure at 66.2% and the other day on which there is a low response rate (41.2%) is a Saturday for which the numbers are small. The 109.8% response rate for the Wednesday of the "before" part of the study suggests inaccurate health service data.

TABLE 4: ATTENDANCE BY DAY OF THE WEEK

	BEFORE			AFTER		
	CHC RECORDS	STUDY	% STUDY/ RECORDS	CHC RECORDS	STUDY	% STUDY/ RECORDS
MON	647	474	73.3%	591	479	81.0%
TUES	520	494	95.0%	604	444	73.5%
WED	430	472	109.8%	633	419	66.2%
THU	701	511	72.9%	669	552	82.5%
FRI	587	499	85.0%	527	457	86.7%
SAT	88	70	79.5%	119	49	41.2%
TOT	2973	2520	84.8%	3143	2400	76.4%

In the "before" study, the mean weekly attendance over the preceding two months was 2837. In the "after" study, the mean weekly attendance over the preceding 10 weeks was 3137. Thus, the volume of attendance during the weeks of study did not differ substantially from the immediately preceding weeks. However. it should be noted that there was a trend of increasing patient attendances from one year to the next.

From table 5, the following can be seen: the proportions making appointments in the study week were comparable to the overall trend of between 25% and 45% of patients in the preceding three months, making appointments (Figure 1). Saturday's percentage is the exception (6.3%) but this is not unexpected as appointments are not generally given for a Saturday. The discrepancy between the sum of those making appointments and those not making appointments, as compared to the overall numbers (a difference of 196) is due to the fact that not all slips indicated whether an appointment had been made or not.

TABLE 5 NUMBERS ATTENDING WITH AND WITHOUT APPOINTMENTS IN THE "AFTER" STUDY BY DAY OF THE WEEK
(Percentages to be read horizontally)

	OVERALL	APPOINTMENTS	NO APPOINTMENTS
MON	479	152 (34.8%)	285 (65.2%)
TUES	444	153 (41.2%)	218 (58.8%)
WED	419	176 (47.1%)	198 (52.9%)
THURS	552	200 (38.2%)	324 (61.8%)
FRI	457	173 (40.0%)	260 (60.0%)
SAT	49	3 (6.3%)	45 (93.7%)
TOTAL	2400	866 (39.3%)	1338 (61.7%)

The greatest proportion of patients arrived between 6 and 9 a.m. (table 6). There is virtually no difference in patterns of arrival between the "before" and the "after" parts of the study with the exception of a slight shift of patients towards arriving at later times (the chi square test comparing arrivals before and after 8 a.m. in the "before" and "after" studies, is not statistically significant, chi = 1.02, $p = 0.31$). Patients with appointments were more likely to arrive after 8 a.m. and this was statistically significant on chi square testing (chi = 78.56, $p < 0.000$).

TABLE 6: NUMBERS ATTENDING BY TIME OF ARRIVAL

(Percentages to be read vertically)

	BEFORE	AFTER	APPOINTMENT	NO APPOINTMENT
< 6 A.M.	148 (6.2%)	139 (5.9%)	30 (3.5%)	96 (7.2%)
6 - 7 A.M.	529 (22.0%)	524 (22.1%)	149 (17.4%)	327 (24.6%)
7 - 8 A.M.	743 (31.0%)	704 (29.7%)	215 (25.1%)	443 (33.3%)
8 - 9 A.M.	478 (19.9%)	524 (22.1%)	215 (25.1%)	255 (19.2%)
9 -10 A.M.	207 (8.6%)	230 (9.7%)	101 (11.8%)	118 (8.9%)
10 -11 A.M.	116 (4.8%)	125 (5.3%)	83 (9.7%)	47 (3.5%)
>11 A.M.	179 (7.5%)	122 (5.2%)	73 (8.5%)	43 (3.2%)
TOTAL	2400 (100.0%)	2368 (100.0%)	857(100.0%)	1329 (100%)

From table 7, one can see that there is a difference in patient profile between the before and after parts of the study. The after study has a greater proportion and number of patients attending for acute illnesses (comparing acute versus non-acute illness patients for the baseline and followup components of the study, the Odds Ratio = 2.14, 95%CI 1.91 -2.41), a smaller proportion and number attending for non-doctor type reasons and for chronic illnesses but about the same proportion and number for repeat of medication. Patients with chronic illnesses were much more likely to make appointments than were other patients (Comparing chronic and non-chronic patients for appointment making in the follow up study, the Odds Ratio = 4.76, 95%CI 3.56 - 6.37). A small proportion of patients attending for repeat of medication made appointments (6.2%). The group "other " were patients whose classification was not recorded on the time slip. There were no "other" in the followup study i.e. all the patients had a classification on their time slip.

TABLE 7: PATIENT PROFILE (Figure 5)

BY NUMBERS (Percentages to be read horizontally)

	BEFORE	AFTER	APPOINTMENT	NO APPOINTMENT
ACUTE	1007	1393	596 (43.5%)	773 (56.5%)
NON-DOCTOR	311	167	51 (34.2%)	98 (65.8%)
REPEAT MEDS	501	526	26 (6.2%)	391 (93.8%)
CHRONIC	578	282	193 (72.9%)	76 (27.1%)
OTHER	121	0		
TOTAL	2518	2368	866 (39.3%)	1338 (60.7%)

BY PERCENTAGES (Percentages to be read vertically)

	BEFORE	AFTER	APPOINTMENT	NO APPOINTMENT
ACUTE	40%	59%	69%	58%
NON-DOCTOR	12%	7%	6%	7%
REPEAT MEDS	20%	22%	3%	29%
CHRONIC	23%	12%	22%	6%
OTHER	5%	0%		
	100%	100%	100%	100%

There are some differences between the relative proportions of the various subgroups of chronic illness between the before and after sections of the study (table 8). In the after study, the proportions of hypertensives and diabetics are less while the proportions of asthmatic and chronic other (e.g. heart disease, epilepsy) are more. Comparing those with appointments to those without appointments, the proportion making appointments was between 70% and 78% amongst all sub-groups with the exception of asthmatics (56.3%) who were less likely to make appointments (Comparing asthmatics versus other chronic illness patients for appointment-making, the Odds Ratio = 2.35, 95%CI 1.17 - 4.70).

TABLE 8: CHRONIC ILLNESS PROFILE

(Percentages in brackets to be read horizontally and other percentages to be read vertically)

	BEFORE	AFTER	APPOINTMENT	NO APPOINTMENT
HYPERTENSIVES	236	94	70 (76.9%)	21 (23.1%)
	40.8%	33.3%	36.3%	27.6%
DIABETIC	157	59	45 (77.6%)	13 (22.4%)
	27.2%	20.9%	23.3%	17.1%
ASTHMATIC	90	53	27 (56.3%)	21 (43.7%)
	15.6%	18.8%	14.0%	27.6%
OTHER	95	76	51 (70.8%)	21 (29.2%)
	16.4%	30.0%	26.4%	27.6%
TOTAL	578	282	193 (71.7%)	76 (28.3%)
	100.0%	100.0%	100.0%	100.0%

WAITING TIMES AND PATIENT FLOWS

With reference to table 9, these figures suggest that most patients are processed in the morning and early afternoon. "Before" and "after" data are similar with "after" a bit later than "before". Appointment patients have later times than non appointment patients. These figures suggest a predominantly morning and early afternoon service which the appointment system has not influenced substantially.

The change in numbers from arrival to paypoint to pharmacy to departure is explained as follows: In the "before" study, patients attending for repeat of medication did not have to go to the paypoint but went straight from the reception to the pharmacy. In the "after" study, due to the introduction of the "free to under sixes and pregnant women" service, the numbers not needing to go to the paypoint increased. Not all patients seen for various services within the CHC after the paypoint needed to go to the pharmacy, so this explains why there is a difference between the number who arrive and those who reach the pharmacy. The difference between arrival and departure numbers is due to patients being "missed" on arrival and handed a time slip only when they reached a later point such as the paypoint or pharmacy. Also, on a few occasions, the research assistants forgot to record departure time on the time slip which would reduce the numbers of departure times in the data set relative to the arrival times.

TABLE 9 MEDIAN TIME OF THE DAY OF REACHING THE SELECTED POINTS WITHIN THE CHC (Figure 6))

BEFORE

	MEDIAN	5-95% RANGE	IQR	NUMBERS
ARRIVE	7h41	5h50 - 11h54	6h54 - 8h44	2414
PAYPOINT	9h15	7h21 - 12h45	8h21 - 10h07	2149
PHARMACY	10h36	7h58 - 14h36	9h19 - 12h23	1915
DEPART	11h33	8h43 - 14h37	10h01 - 13h16	2503

AFTER

	MEDIAN	5-95% RANGE	IQR	NUMBERS
ARRIVE	7h45	5h50 - 11h00	6h54 - 8h40	2398
PAYPOINT	9h08	7h16 - 12h15	8h19 - 10h12	1805
PHARMACY	10h33	8h02 - 14h50	9h13 - 12h30	1930
DEPART	11h46	8h47 - 15h29	10h03 - 13h45	2371

APPOINTMENTS

	MEDIAN	5-95% RANGE	IQR	NUMBERS
ARRIVE	8h05	6h14 - 11h30	7h10 - 9h15	868
PAYPOINT	9h20	7h18 - 12h23	8h17 - 10h45	707
PHARMACY	11h05	8h27 - 14h54	9h25 - 12h53	710
DEPART	12h07	9h09 - 15h40	10h18 - 14h23	858

NO APPOINTMENTS

	MEDIAN	5-95% RANGE	IQR	NUMBERS
ARRIVE	7h30	5h45 - 10h25	6h43 - 8h20	1345
PAYPOINT	9h06	7h10 - 12h03	8h19 - 9h58	970
PHARMACY	10h25	7h51 - 14h50	9h09 - 12h10	1076
DEPART	11h41	8h45 - 15h25	9h57 - 13h25	1332

Distribution of patient arrival and departure times showed the following (table 10): patients start arriving by 4:15 am, 80% of patients have arrived by 9h00 in both the before and after studies and 90% of patients have left by 14h30 in the before study and by 15h00 in the after study. This again shows a maldistribution of patient load at this centre with a majority of patients being dealt with in the morning.

TABLE 10: ARRIVAL AND DEPARTURE TIMES OF SELECTED CUMULATIVE PERCENTAGES (Figure 7)

	BEFORE		AFTER	
	ARRIVE	DEPART	ARRIVE	DEPART
0	4H30	7H20	4H15	7H45
70%	8H24	12H55	8H22	13H14
80%	9H04	13H21	8H59	14H18
90%	10H30	14H36	9H59	15H01
100%	16H00	16H20	14H40	21H00

Table 11 demonstrates the following: in September 1993, the overall median waiting time was 3 and a half hours with a 5th to 95th percentile range of 51 minutes to 6 hours and 11 min. In March 1995, the overall median waiting time was 3 hours and 55 minutes with a 5th to 95th percentile range of one hour and fifteen minutes to seven hours and five minutes. Those who had appointments had a median waiting time of three hours 55 minutes as well and those without appointments had a median waiting time of four hours and seven minutes, a difference of 12 minutes which was not statistically significant (Wilcoxon rank sum test, p = 0.1378 comparing appointment and non appointment patients). Taking the 5th to 95th percentile ranges, ninety five percent of patients waited longer than 50 minutes at the CHC in the baseline assessment, and ninety five percent waited longer than one hour and fifteen minutes in the follow-up study. Those with appointments have a narrower range of waiting times than those without appointments.

TABLE 11 OVERALL WAITING TIMES (Figure 8))
(Given as hours and minutes)

	MEDIAN	5-95% RANGE	IQR	NUMBERS
BEFORE	3 33	0 51 - 6 11	2 34 - 4 37	2400
AFTER	3 55	1 15 - 7 05	2 43 - 5 17	2368
APPOINTMENT	3 55	1 43 - 6 33	2 55 - 5 00	857
NO APPOINTMENT	4 07	1 05 - 7 21	2 39 - 5 33	1330

Table 12 shows that waiting times are slightly longer "after" than "before" both overall and for the various phases of waiting (except the paypoint-pharmacy phase where the two waiting times are similar). Comparing appointment and non-appointment patients, those with appointments have a median 32 minute advantage over those without appointments for the arrival-paypoint phase whereas those without appointments have a 19 minute advantage over those with appointments for the paypoint-pharmacy phase. Median waiting times at the pharmacy are virtually identical.

TABLE 12 MEDIAN WAITING TIMES OVERALL AND FOR VARIOUS PHASES OF WAITING TIME (Figures 9 and 10)

	BEFORE	AFTER	APPOINT-MENT	NO APPOINT-MENT
ALL				
Minutes	213	235	235	247
Hours and minutes	3 33	3 55	3 55	4 07
ARRIVAL-PAYPOINT				
Minutes	94	100	78	110
Hours and minutes	1 34	1 40	1 18	1 50
PAYPOINT-PHARMACY				
Minutes	86	85	97	78
Hours and minutes	1 26	1 25	1 37	1 18
PHARMACY-DEPARTURE				
Minutes	55	65	65	66
Hours and minutes	0 55	1 05	1 05	1 06

Stratifying by day of the week (table 13), shows an advantage to patients with appointments over those without appointments varying from 15 minutes to 70 minutes. However, there is a reversal on Thursday i.e. patients with appointments waited more than an hour longer than those without appointments. Using the Wilcoxon sum rank test, the differences between appointment and non appointment groups was statistically significant on Monday, Wednesday, Thursday and Friday. On all days except Monday (where the difference is a small 11 minutes), patients waited longer in the "after" than in the "before" part of the study.

TABLE 13: MEDIAN WAITING TIME BY DAY OF THE WEEK (Figures 11 and 12)
(Given in hours and minutes)

	BEFORE	AFTER	APPOINTMENT	NO APPOINTMENT	WILCOXON RANK SUM TEST
Mon	4 11	4 00	3 46	4 18	p = 0.0256
Tues	3 19	4 02	4 02	4 18	p = 0.1360
Wed	3 32	3 51	3 40	4 47	p = 0.0001
Thurs	3 28	3 54	4 32	3 21	p = 0.0003
Fri	3 40	4 00	3 43	4 26	p = 0.0494
Sat	1 55	2 02			

Waiting time when stratified by time of arrival (table 14) shows an advantage to patients arriving for early appointments (statistically significant by Wilcoxon sum rank test in the six to seven and seven to eight a.m. arrival ranges) and a disadvantage for patients with later appointments (statistically significant in the ten to eleven and after eleven arrival time ranges). Again, in general, patients in the "after" part of the study waited longer than those in the "before" part when stratified by time of arrival.

TABLE 14 MEDIAN WAITING TIME BY TIME OF ARRIVAL (Figures 13 and 14)
(Given in hours and minutes)

	BEFORE	AFTER	APPOINTMENT	NO APPOINT-MENT	WILCOXON RANK SUM TEST
< 6 A.M.	3 40	3 50	4 10	3 50	p = 0.3062
6 - 7 A.M.	3 27	3 57	3 21	4 35	p = 0.0001
7 - 8 A.M.	3 53	3 58	3 35	4 26	p = 0.0153
8 - 9 A.M.	4 12	4 07	4 18	4 10	p = 0.9332
9 -10 A.M.	3 34	3 55	4 15	3 31	p = 0.1893
10 -11 A.M.	3 02	4 05	4 36	2 42	p = 0.0001
>11 A.M.	1 34	3 06	3 31	1 40	p = 0.0001

As the purpose of patients' visits influenced their waiting times, a stratified analysis was necessary to eliminate confounding by service mix (table 15). Assessing the median waiting times of different categories of patients shows that acute illness attenders (statistically significant), chronic illness attenders (statistically significant) and non-doctor attenders (not statistically significant) all benefit by between 15 minutes and an hour if they have appointments compared to those without appointments. There is no advantage to patients attending just for a repeat of medication. All groups except those attending for repeat medication also had longer waiting times in the "after" than in the "before" study.

TABLE 15 MEDIAN WAITING TIME BY PATIENT TYPE (Figures 15 and 16)
(Given in hours and minutes)

	BEFORE	AFTER	APPOINTMENT	NO APPOINTMENT	WILCOXON RANK SUM TEST
Acute	4 07	4 40	4 00	5 03	p = 0.0001
Non-Doctor	1 51	2 00	1 36	2 05	p = 0.3377
Repeat Meds	2 55	2 43	2 55	2 42	p = 0.3583
Chronic	4 07	4 15	4 09	4 47	p = 0.0008

PATIENT AND STAFF ATTITUDES SUMMARISED FROM THE INTERVIEWS (Detailed quotes are given in Addendum B)

The focus group discussions revealed the following: In September 1993, most patients were unhappy with the length of time that they wait at the health centre and were keen to have an appointment system put in place. Although staff agreed that patients do wait long, most felt that an appointment system would not work because patients would not stick to appointments. Some staff felt that patients preferred to come early and didn't mind waiting and thus would not accept the appointment system.

In March 1995, the views of patients (those with and without appointments) were as follows: all agreed that the intervention was worthwhile and should be retained. Some were satisfied with its current status and said that their waiting times were very much reduced when they used the appointment system. Other patients felt that the system did not work well at all and had not made any difference or in fact resulted in longer waiting times for those with appointments. This latter group felt that much improvement could be made. One suggestion was that the reception staff should get folders of patients with appointments ready on the day prior to their appointment. Another suggestion was that patients with appointments should get preference at the pharmacy as well.

Staff felt generally that the system was working well at the time of the followup study after initial teething problems. A few (mainly the doctors) felt that improvements could be made such as upgrading the telephone exchange, including the pharmacy in the system, preparing folders the day before and correct labelling of patient folders. Some doctors felt that the appointment system had improved patient care especially for chronic care patients. These doctors said that the discipline of an appointment system had enabled patients to be more disciplined about compliance with medication.

DISCUSSION

The study showed little improvement in overall waiting times at the health centre with the introduction of the appointment system. There were however, benefits. Stratification by day of the week, time of arrival and reason for attendance showed a moderate reduction in waiting times for patients with appointments compared to those without appointments. Staff initial misgivings were not realised, and it clearly was feasible to implement the system. Doctors indicated that the appointment system had improved patient discipline as far as compliance with treatment was concerned. The study also demonstrates the difficulties of a quasi-experimental evaluation of an appointment system, when patient numbers and case mix vary.

WAITING TIME

Patients do wait long periods (three and a half to four hours median waiting time) and their dissatisfaction as indicated by community surveys is thus justified. The waiting time length in this study compares with other developing countries (21,22) and other local studies (13,23,25-27) where waiting is in the order of hours rather than minutes.

There is virtually no improvement in waiting times when one compares overall waiting times before and after the intervention (Table 11) even if waiting times are stratified by day of the week, time of arrival or patient type (Tables 13, 14 and 15). In fact, the situation has deteriorated. However, when one compares patients with and without appointments by the stratifications mentioned above (Tables 13,14 and 15), a different pictures emerges. Although, overall, patients with appointments only have slightly shorter waiting times than those without appointments (table 11), stratifying by day of the week (table 13), time of arrival (table 14) and patient type (table 15) shows a median waiting time advantage for patients with appointments of up to an hour and fifteen minutes over patients without appointments (although this advantage was not always statistically significant). What appears to have happened is that the appointment system has made patients with appointments wait slightly shorter and those without appointments wait longer than was the case before the intervention was implemented. Thus, the overall waiting time did not change with the new system. However, confounding factors were also at play and could also explain why there was no change.

Stratifying by day of the week (table 13) shows that on the Thursday in the after study, patients with appointments waited a median of one hour and ten minutes longer than those without appointments. The largest number of patients attended on that day (669 compared to a mean of 588 for the other days), the highest number of patients with appointments (174 compared to a mean of 120 for the other days) and the greatest proportion of patients attending for chronic illness compared to the other

days of the week. All these factors could have contributed to disrupting the effective functioning of the appointment system. Also, patients with late morning appointments tended to have longer waiting times than those without appointments. Because of the greater number of patients with appointments attending on the Thursday, a greater proportion of patients would have constituted the late morning appointments compared to the other days. Removing Thursday from the analysis increases the gap between patients with and without appointments from 12 minutes to 27 minutes. Overall figures are not substantially affected but with the stratifications mentioned above, removing Thursday's data does improve the difference between patients with and without appointments. However, these improvements are not dramatic.

The fact that the advantage in waiting time for patients with appointments attending on the Tuesday is not statistically significant is due in part to the advantage being small (fifteen minutes) and possibly the smaller numbers involved compared to the other days although Wednesday had the lowest numbers of all the days and Tuesday, second lowest.

Arriving earlier, does not ensure a shorter wait (table 14). In fact the later one arrives, the shorter the wait if arriving after the peak of 8-9 a.m. However, there is an increased risk of being turned away once the quota for the day has been reached. Although officially no quota system is allowed (6), the reality of variations in staff attendances mean that some type of quota system is applied in practice to enable effective management of the community health centre.

Stratifying by time of arrival (table 14) shows that patients with appointments arriving early have shorter waiting times than those without appointments but those arriving later having longer waiting times than those without appointments (statistically significant in both instances). A good example of effect modification by time of arrival! This is explained by the fact that most patients arrive early and that there is less flexibility with the arrangements for patients with appointments. Patients without appointments arriving late would have a quick passage through the system because of the low volume of patients at that time. The appointment patients still have to arrive their mandatory hour earlier and this has to be added to their waiting time. It is ironic that patients with appointments later rather than earlier are more likely to keep them but that their waiting times are actually longer than those without appointments suggesting that patients would be ill-advised to make afternoon appointments. There is some justification here to motivate for afternoon appointments (because in theory more patients would keep their appointments) for which staff prepare the folders in advance so that patients do not have to wait the mandatory additional hour (otherwise, patients without appointments will have shorter waiting times than those who make appointments making nonsense of the value of the appointment system).

Stratifying by patient type (table 15) shows acute illness, chronic illness and non-doctor patients benefiting from having an appointment whereas those attending for repeat of medication did not show any difference. This makes sense as the latter group were not given appointments in terms of the new system but were given appointments to come on certain days rather than at certain times. As these patients merely collected medication at the pharmacy and the pharmacy was not participating in the appointment system in that appointment patients did not receive priority there, there could be no advantage in waiting time for patients attending only for repeat of medication. The fact that non-doctor patients do not have a statistically significant advantage in waiting times could be because the advantage is small and the numbers involved are small as well.

PHASES OF WAITING (TABLE 12)

The phase between arrival and reaching the paypoint reflects waiting time at reception - the patient arrives, places card in a box at the reception counter, their folder is sought or a new one made out, they are assessed for payment and they are then sent to the paypoint. All these activities amount to what one can call an administrative waiting time. Of note is that patients start arriving well before the reception opens (7 a.m.) so that a queue develops rapidly and this also contributes to the waiting time. The paypoint to pharmacy phase reflects the services that patients receive at the CHC and includes weighing, temperature measurement, glucostix assessment, seeing the doctor, having a dressing done, seeing the social worker or physiotherapist and other services. Again patients arrive at these points before staff are available in some instances and this contributes to queue build-up. Queue formation is also caused by the large volumes involved. The pharmacy to departure phase measures the time from arrival at the pharmacy to when the patient receives their medication and leaves the CHC (in essence, it reflects waiting time at the pharmacy). The large numbers involved as well as the system of dealing with patients in batches contribute to queue build-up and waiting time.

There is again no difference or the situation is worse "after", when one compares "before" and "after". Waiting time at the pharmacy shows no difference between appointment and no appointment patients - given what has been said, this makes sense. A benefit for patients with appointments at the reception makes sense because a special window is allocated to them and they are given priority although they have to arrive an hour in advance. Again, this could be improved further if patients did not have to arrive one hour in advance for their folders to be drawn and if their folders could be prepared the day before. However, the number of patients who do not turn up for appointments may be a disincentive for staff to do this. However, as indicated earlier, patients with later appointments are more likely to keep them. The greater length of the paypoint-pharmacy phase for appointment patients could be explained by the different profile of patients with appointments i.e a higher

proportion of chronic illness patients. Diabetic and asthma patients have additional sideroom laboratory tests done routinely (e.g. glucostix, peak flow) which are not normally done on other patients.

CUMULATIVE PERCENTAGES AND TIME OF ARRIVAL AT VARIOUS POINTS (TABLE 10)

These figures clearly show that the appointment system has not changed the nature of the CHC as a predominantly morning service with spill-over into the early afternoon.

PATIENT AND STAFF ATTITUDES

It was powerfully evident from the patient interviews that they were very unhappy with the waiting times at the CHC. Staff resistance to the idea of the appointment system came through in the baseline assessment. The difference between staff and some patients' attitudes regarding the effectiveness of the appointment system on the one hand, and the quantitative evidence on the other is quite striking. The appointment system has not improved waiting times overall and the advantage in waiting time to patients with appointments is not large at all. Nevertheless, most staff and some patients are happy with the way the system is working currently. The problem with evaluating satisfaction in this way is that it is subjective. Patients may be too scared to voice their honest feelings when interviewed in the health service environment or alternatively patients could be responding to the fact that attention is being paid to their needs i.e the Hawthorne Effect. However, patient attitudes seem to be closer to what the quantitative results show than staff attitudes in that at least some of them recognise that the system needs to be improved although a few staff members also acknowledged that the system could be improved. It should also be said that the results of the study show that it is quite possible for patients to have very different experiences of the appointment system. Staff satisfaction after the implementation could be explained by the fact that the appointment system has not changed the manner in which the CHC has been operating in any fundamental way. Very practical suggestions on improving the system came from both patients and staff, notably preparing patient folders in advance and including the pharmacy in the appointment system. The comment from the doctors that patient compliance with treatment had improved with the appointment system is interesting and should be explored further.

THE STUDY HAD SOME INHERENT BIASES WHICH WERE EXPLORED IN THE ANALYSIS.

REPRESENTIVITY

Response rates of 84% and 76% (table 3) can be said to be satisfactory. The finding of a >100% response rate (table 4) on a particular day in the "before" study suggests the possibility of inaccurate records. It is highly unlikely that this could have been caused by double counting by the research assistants given the logistics of how the study was conducted. However, the records of weekly attendance of the CHC for the weeks studied and the preceding weeks are not inconsistent with what is known about attendance volumes at the CHC. Non-responses were due in small part to patients refusing to participate in the study but mainly due to patients "slipping through" the points at which the research assistants were sited. This happened particularly at peak volume flows. Thus, if any bias is present, it would be due to the absence of "average" patients. For all the reasons mentioned, the results are thought to be reasonably representative of patients attending the CHC concerned.

PATIENT PROFILE

The difference in profile of patients attending before and after the intervention (table 7) which is statistically significant for acute versus non-acute patient attenders, could be explained by a number of factors. The under six free service was introduced in the period between the two phases of the study. By all accounts, this resulted in an increase in attendances of this particular group of patients who would attend for mainly acute illnesses rather than for chronic illnesses which has an older age profile. Seasonal variation in attendances could also explain the difference in patient profile since the "before" part was conducted in September and the "after" part in March. However, since one would expect the number of patients attending for chronic illnesses to remain fairly constant, these two scenarios should then lead to an increase in the total volume of patients seen but this has not happened in any substantial way. The question of whether the increased volumes of patients resulting from the free under six service acted as a deterrent to chronic illness patients thus decreasing their attendance cannot be answered by this study but can provide another possible explanation for the results. Another possible explanation is that another service has opened in the area which draws mainly chronic illness patients. Another CHC has opened nearby but it is not known whether it focuses on chronically ill patients. This in combination with the introduction of the free under six service may well explain the difference in patient profile. The research assistants employed for the study did not have a health sector background so it is quite possible that misclassification of patients occurred. Only one research assistant from the first study participated in the follow up study. However, misclassification is not expected to be substantial because the

classification system used was simple and quite easily understandable. The research assistants' classification was checked in the pilot study before the baseline assessment and after the first day of the follow up survey. Patients attending for different purposes were analysed separately to evaluate the effect of these difference (Table 15) - some differences in effect were found, but in all cases (except those attending for repeat of medication) there were reductions in waiting times when comparing appointment and non-appointment patients.

In the first part of the study, about 60% of patients could easily be given appointments because they had chronic illnesses and were thus frequent attenders. This proportion reduced to 40% in the "after" study which is still substantial. The "after" study shows that the majority of patients making appointments were attending for acute illnesses (69%) and that 44% of all patients attending for acute illnesses made appointments. Thus, given these facts, the proportion of patients who could be amenable to making use of the appointment system is potentially quite high.

The lower proportion of patients with asthma making appointments compared to other chronic illnesses (statistically significant)(table 8) makes sense because asthmatics are more likely to present acutely than patients with other chronic illnesses.

OVERALL ASSESSMENT

The appointment system has not change the overall median waiting times of patients at this CHC. It is obvious that numerous confounding factors could have influenced the comparison of before and after the intervention. Nevertheless, the fact of a predominantly morning service at least theoretically suggests that an appointment system which shifts patient load to the afternoon will be able to reduce patient waiting times overall, whether they have an appointment or not. A feasibility study performed by fourth year medical students revealed that more than fifty percent of patients sampled, any time of the day for an appointment would be convenient for them (31). This study did not show that the implementation of an appointment system per se in the context of the CHC studied was not of value. The particular type of appointment system that was implemented was imperfect in many ways. However, it is quite reasonable to accept that other factors influence waiting time as well. Operations research at another CHC in Cape Town (27) and a clinic in the Middle East (30), shows that examining patient flow and CHC operation can lead to improvements which substantially reduce waiting times. Staff numbers, facility numbers, computerisation, staff commitment and motivation and patient attitudes are all factors which impact on waiting time. It is acknowledged that this study did not examine nor control for all of these other factors. Nevertheless, it is still argued that the focus on waiting time and rescheduling patient attendances in this study provides a useful contribution towards improving efficiency at community health centres and other health institutions.

CONCLUSIONS AND RECOMMENDATIONS

The assessment of this study is that the implementation of the booking/appointment system has been a worthwhile exercise but that there is much room for improvement. It has been worthwhile in that the practical problems of implementation were made apparent and this could inform future plans to implement appointment systems in other settings. Also, patients and staff at the CHC have found value in the system from a subjective point of view.

The implementation of an appointment system was supported by the baseline study findings. Patients spent long hours waiting and were quite discontented about this. There was a maldistribution of patient load through the day and an appointment system would spread the load more evenly. Evaluation of the appointment system, the "after" study revealed the following: overall, there did not seem to be much improvement in waiting times for patients with appointments. However, more in-depth analysis does reveal some benefit for patients with appointments. A majority of patients appear to be amenable to an appointment system. Also, both patients and staff support the continuation of the system.

The system can be improved further: inclusion of the pharmacy in the "fast track" process, preparation of folders of patients with appointments the day before, improvement in patient attendances for appointments, distribution of patient load to the afternoon and computerisation of the administrative work of the centre are all ideas that should be considered. The feasibility of these suggestions should be further evaluated by qualitative research. Why, although indicated by the baseline part of the study, were appointments only given in the morning and not the afternoon would be an important area to assess.

A co-operative effort between staff and patients is needed (given the differences in views which exist between them) to address the problems of waiting time and the appointment system, and to bring about improvements. The appointment system is a gain for patients which should not be lost.

The many factors influencing waiting time and the success or failure of an appointment system requires more research given the dearth of such research in a South African setting. The effect on consultation time is also important as discussed in the literature review as it is ultimately the overall improvement in quality that is important. This was not looked at in this study and would be an important area for future research. Evaluation of this sort can aid the process of quality improvement in primary care which is continuing despite scarce resources.

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ACKNOWLEDGEMENTS

Our gratitude goes to the staff and patients at the CHC concerned, to the authority in charge of these CHCs in the Cape Metropole and to the research assistants for their diligence during the duration of the project. Also, to the UCT data capture department for their assistance. And last but not least to the Health Systems Trust for funding the project.
Also to Dr Leslie London and Professor Margaret Hoffman for useful comments on the draft of this report.

DISSEMINATION

Copies of this report have been distributed to the following:

Mitchells Plain Community Health Centre
Mitchells Plain RDP Forum
Provincial Administration of the Western Cape Health Department
Provincial Administration of the Western Cape Community Health Services Organisation
Department of Health, Pretoria
Department of Community Health, University of Cape Town
Groote Schuur Hospital, Out-patients Department
Dr Tint, Centre for Health Policy, Wits University
Health Systems Trust

ADDENDUM A

EXPLANATORY NOTES ON THE FIGURES

Figures 1-4 reflect various aspects of the appointment system.

The following abbreviations should be interpreted as follows:

In figures 5, 15 and 16,

Acute	Those patients attending for acute illnesses who consult a doctor.
Non-doct	Those patients attending for consultations not with a doctor i.e for physiotherapy, for dressings, for removal of stitches, for x-rays, to see the social worker etc.
Rep Meds	Patients suffering from chronic illnesses attending merely for a repeat of medication and not for a consultation with the doctor.
Chronic	Patients suffering from chronic illnesses e.g. hypertension, asthma, diabetes attending for the purpose of consulting a doctor.

In figure 5,

Appts	Patients attending who have been given an appointment
No Appts	Patients attending who have not been given an appointment

In figure 8,

Appoint	Patients attending who have been given an appointment
No Appoint	Patients attending who have not been given an appointment

In figures 9, 11, 13, 15,

Before	Before the implementation of the appointment system
After	After the implementation of the appointment system

In figures 9 and 10,

Arrive-payp	The phase between arrival and the paypoint.
Payp-pharm	The phase between the paypoint and the pharmacy.
Pharm-depart	The phase between the pharmacy and departure.

FIGURE 1

% MAKING APPOINTMENTS (JAN-MARCH 1995)

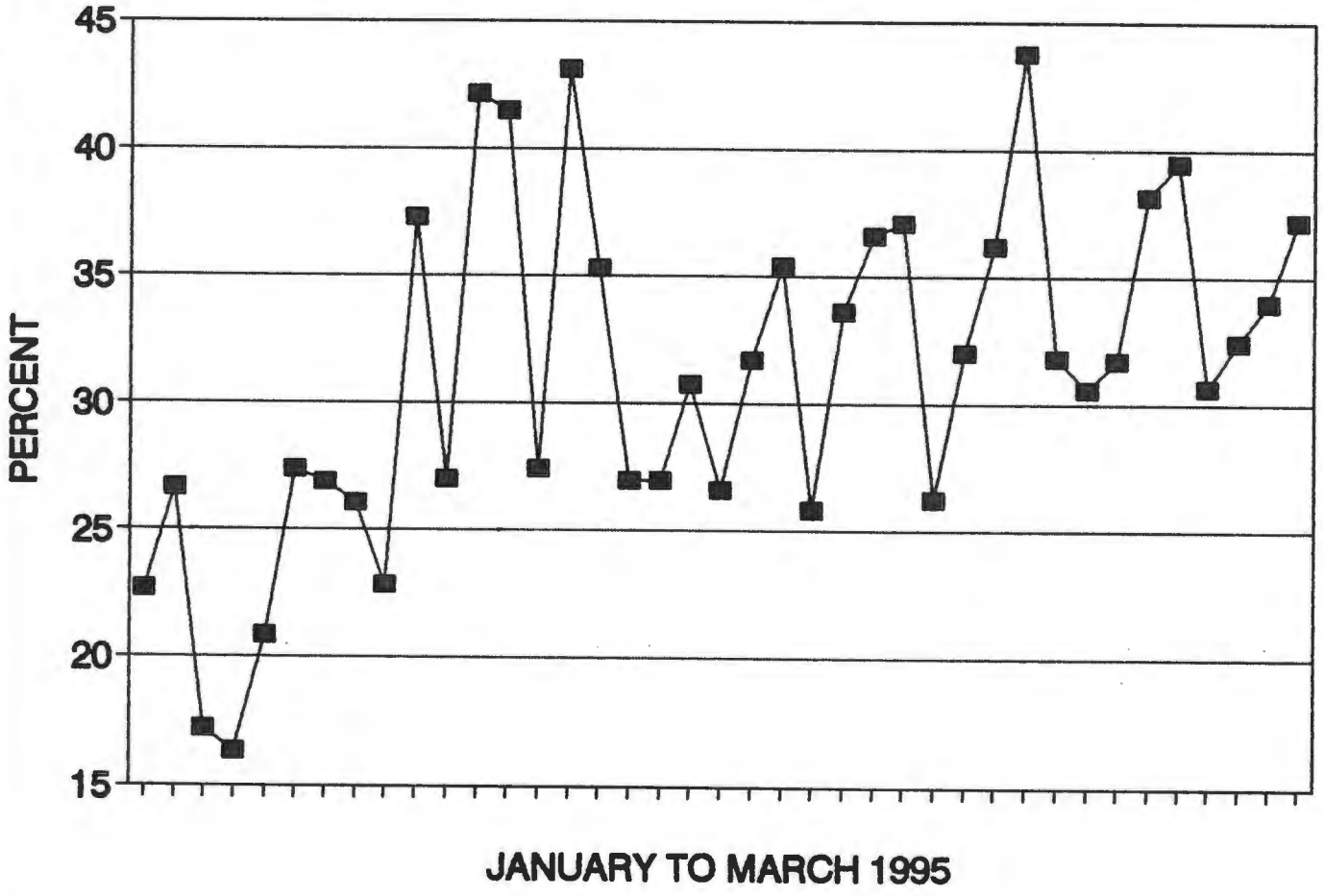
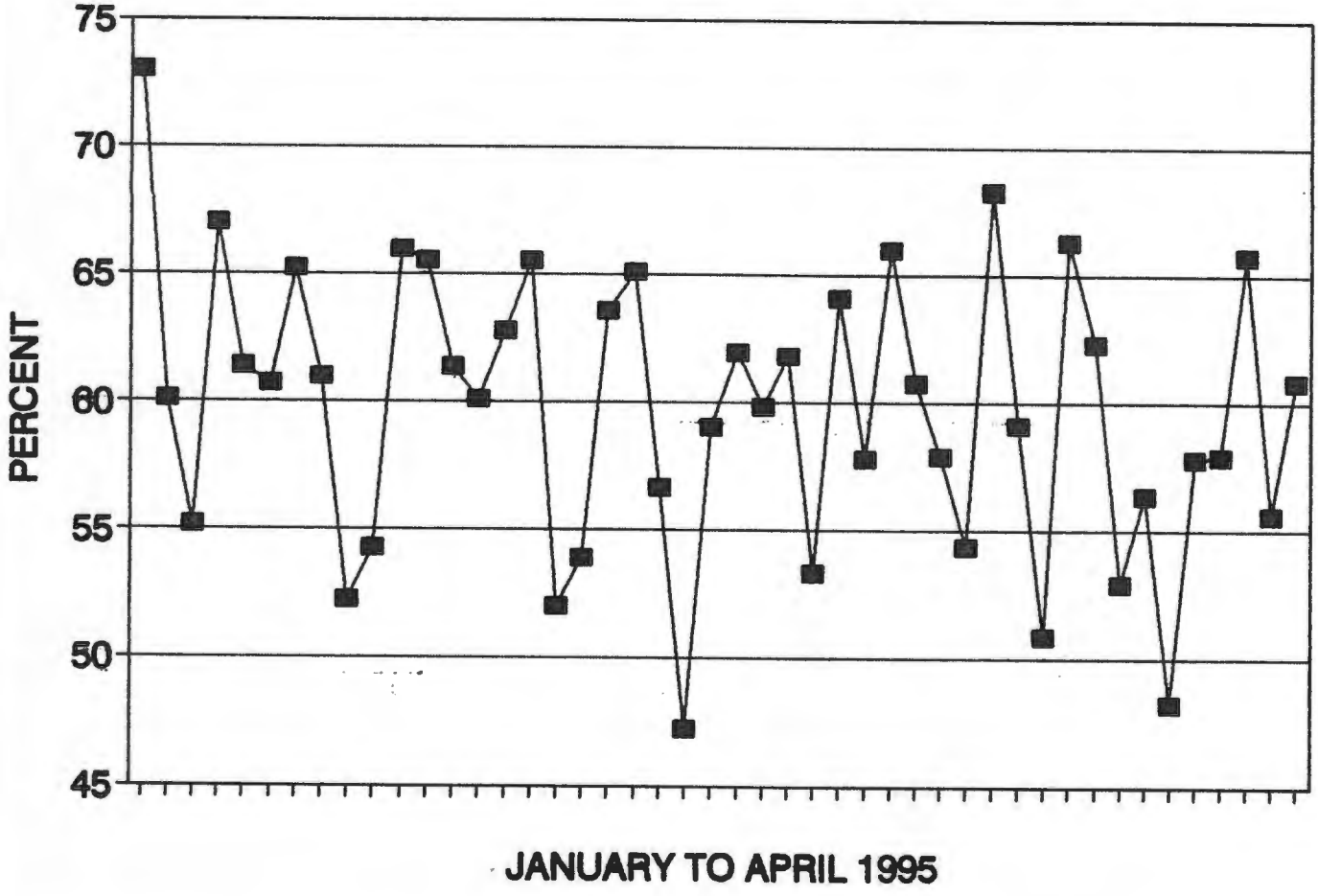


FIGURE 2

% KEEPING APPOINTMENTS (JAN-APRIL 1995)



JANUARY TO APRIL 1995

FIGURE 3: % KEEPING APPOINTMENTS BY DAY OF THE WEEK

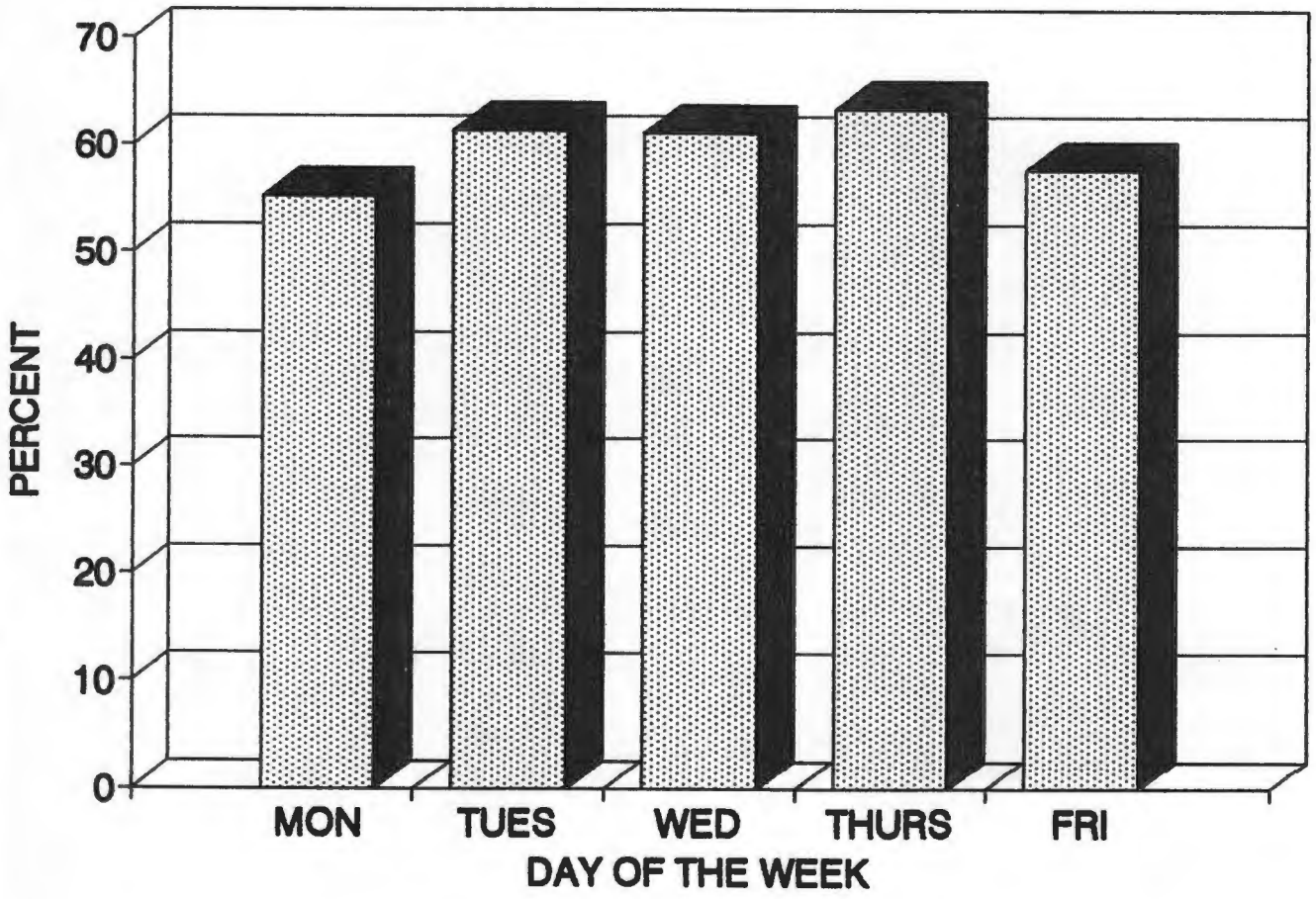


FIGURE 4: % KEEPING APPOINTMENTS BY TIME OF APPOINTMENT

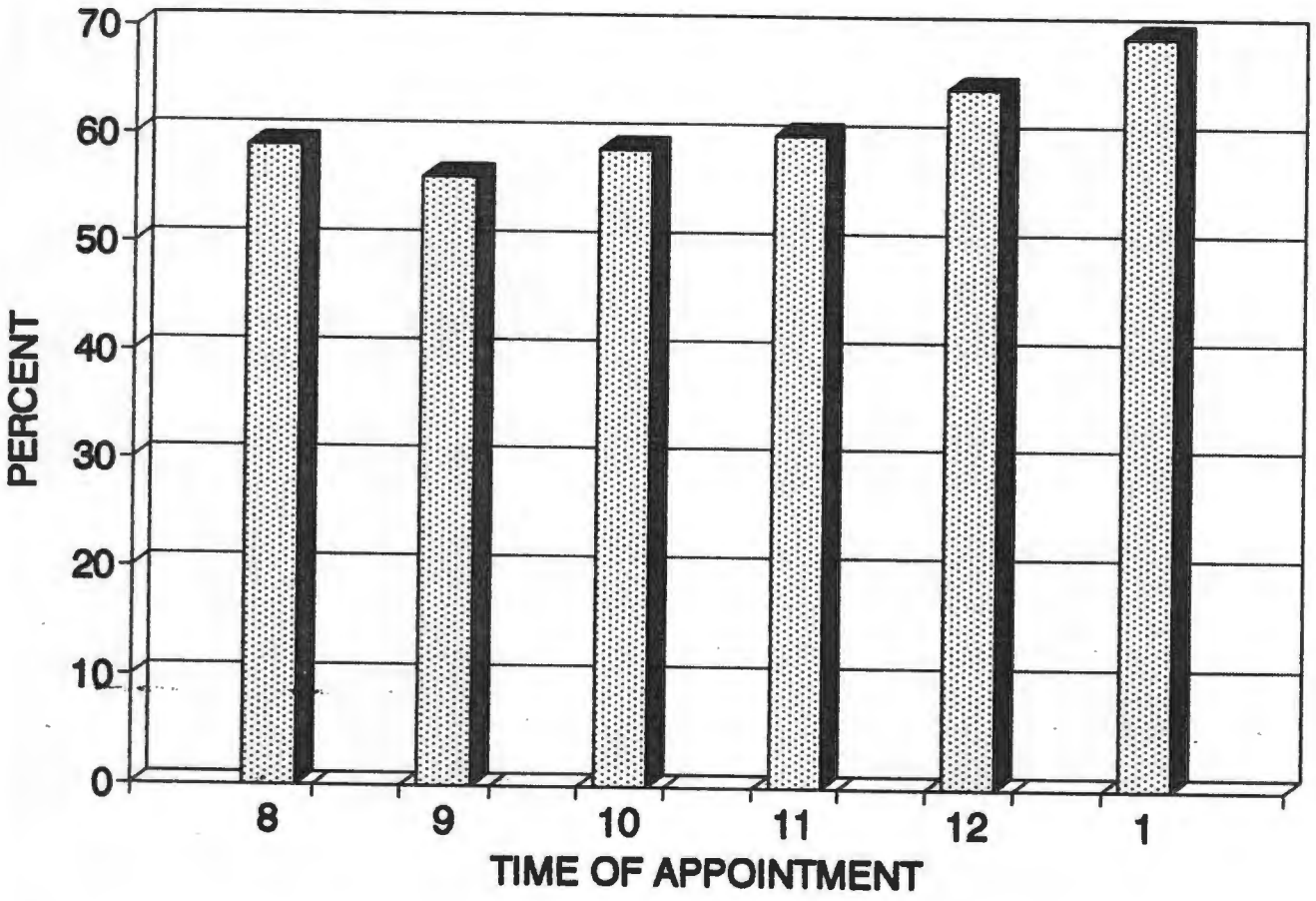


FIGURE 5
REASONS FOR PATIENT ATTENDANCES

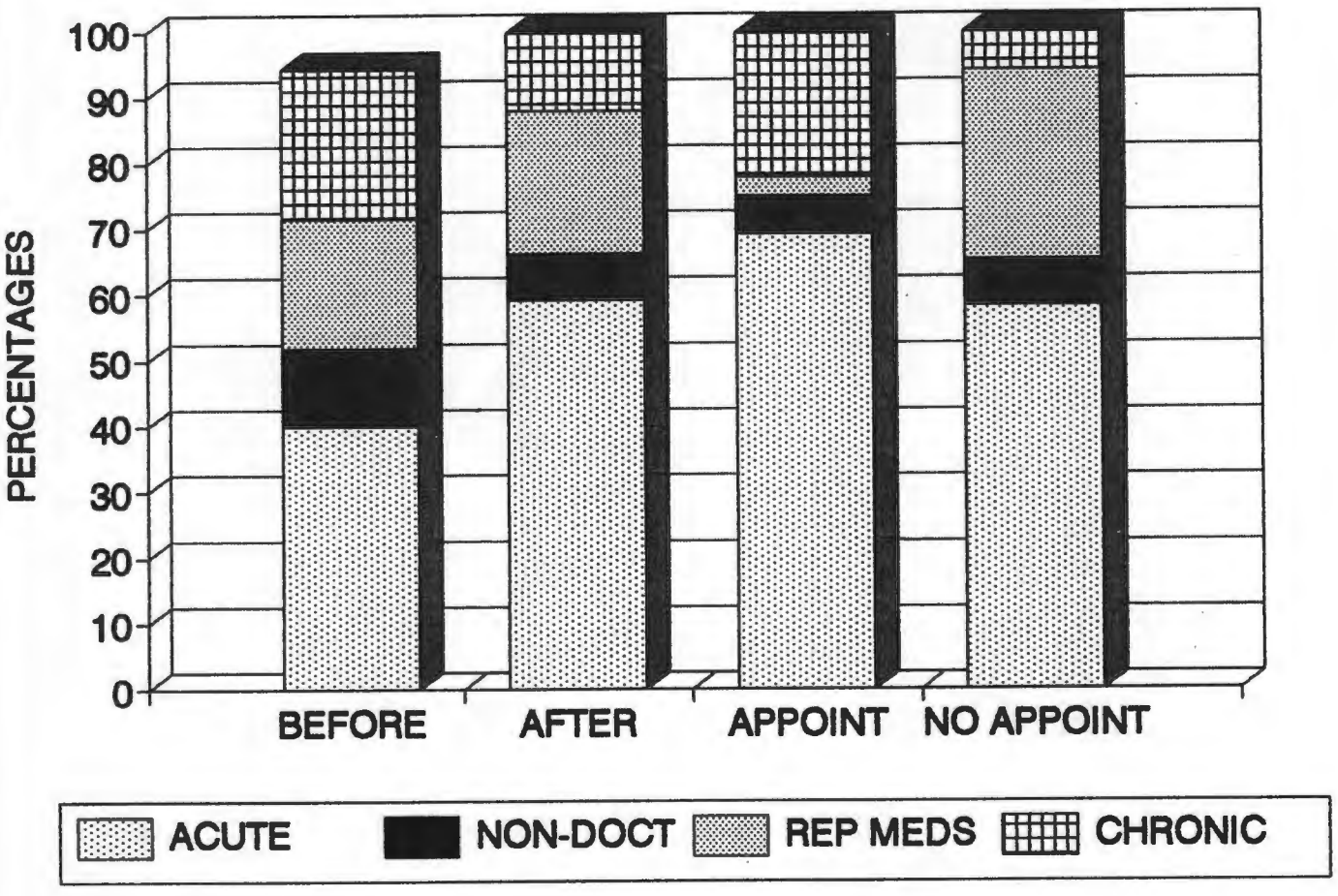


FIGURE 6

MEDIAN TIME OF REACHING SELECTED POINTS

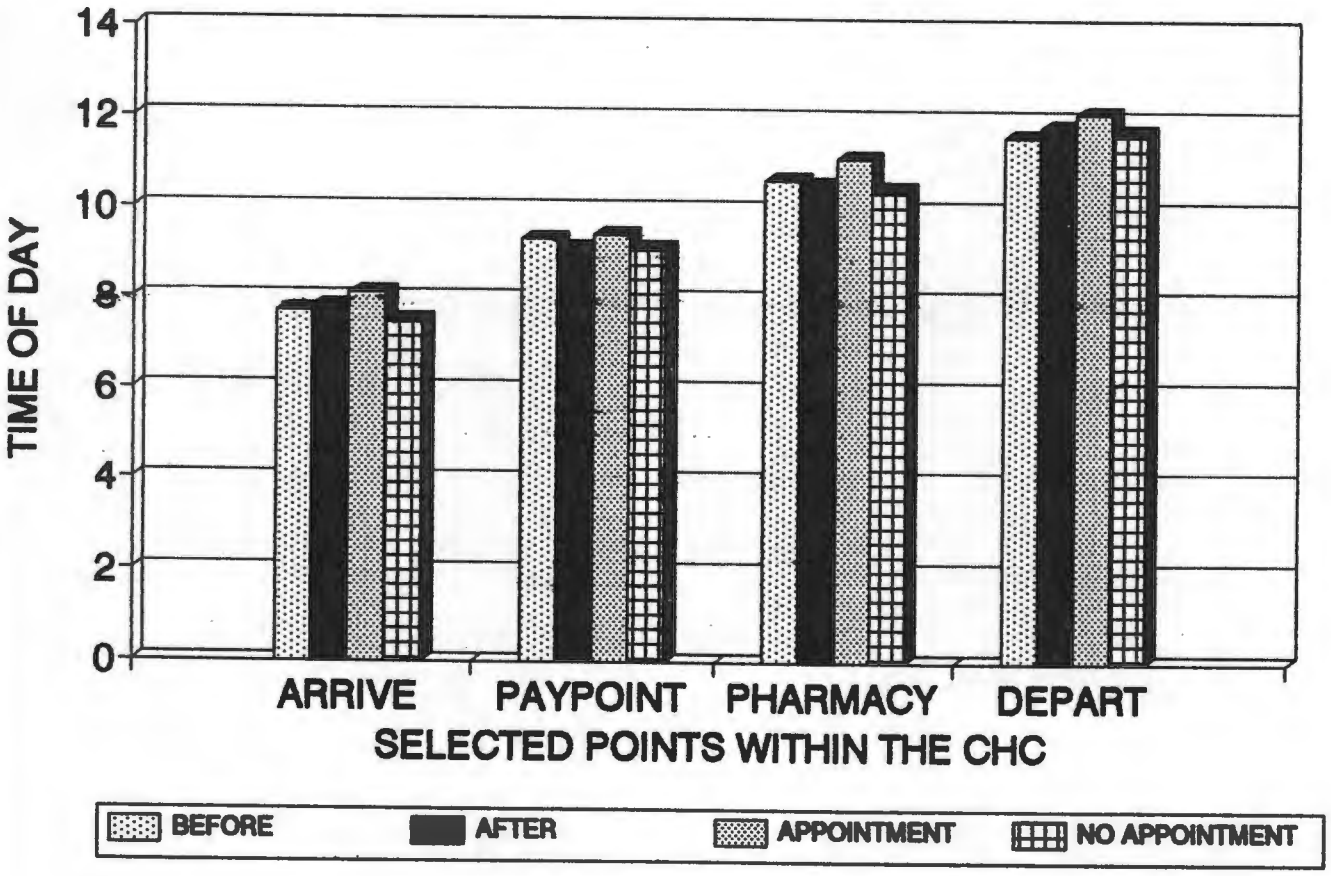


FIGURE 7: ARRIVAL AND DEPARTURE TIMES OF SELECTED CUMULATIVE PERCENTAGES

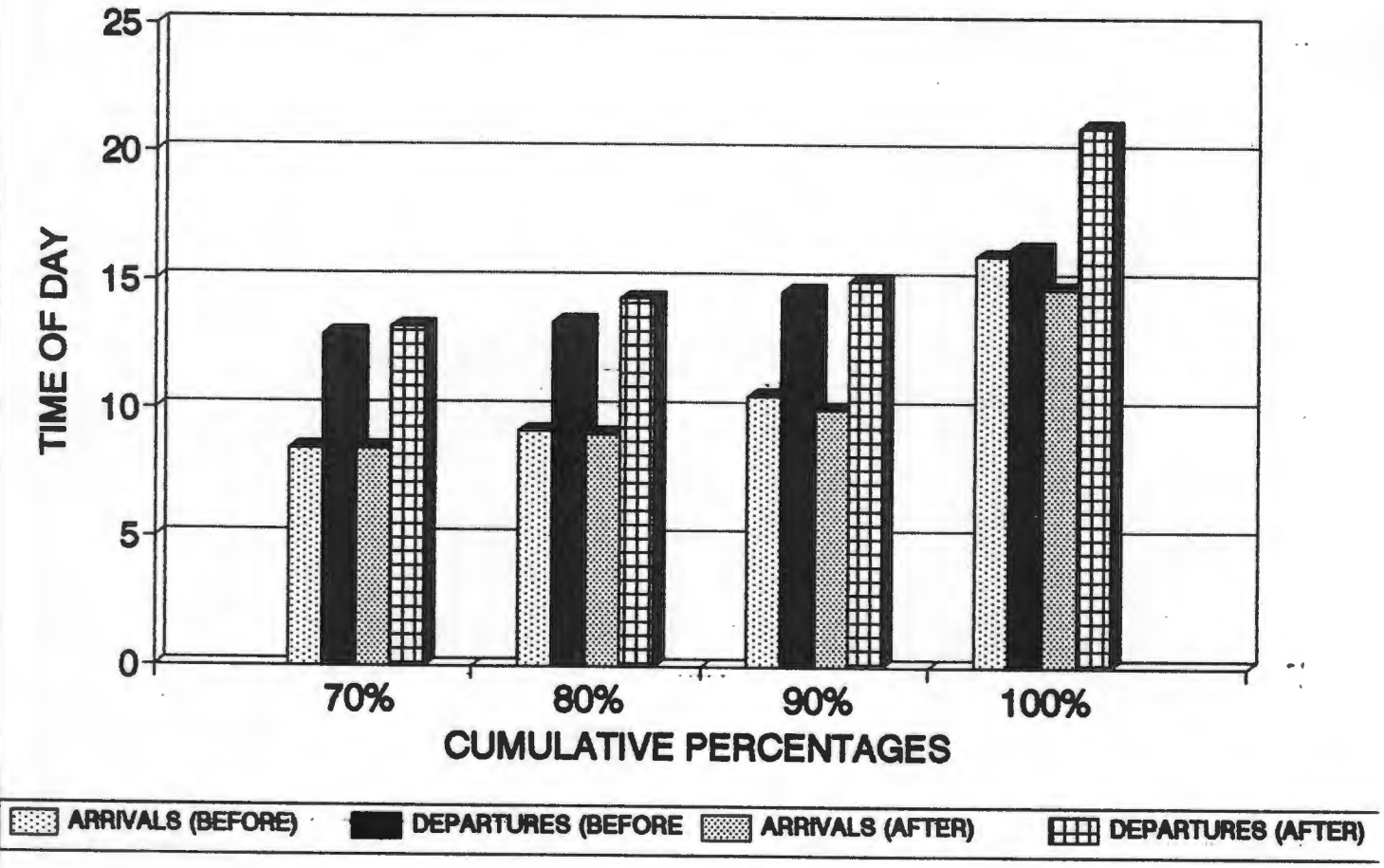


FIGURE 8
OVERALL WAITING TIMES

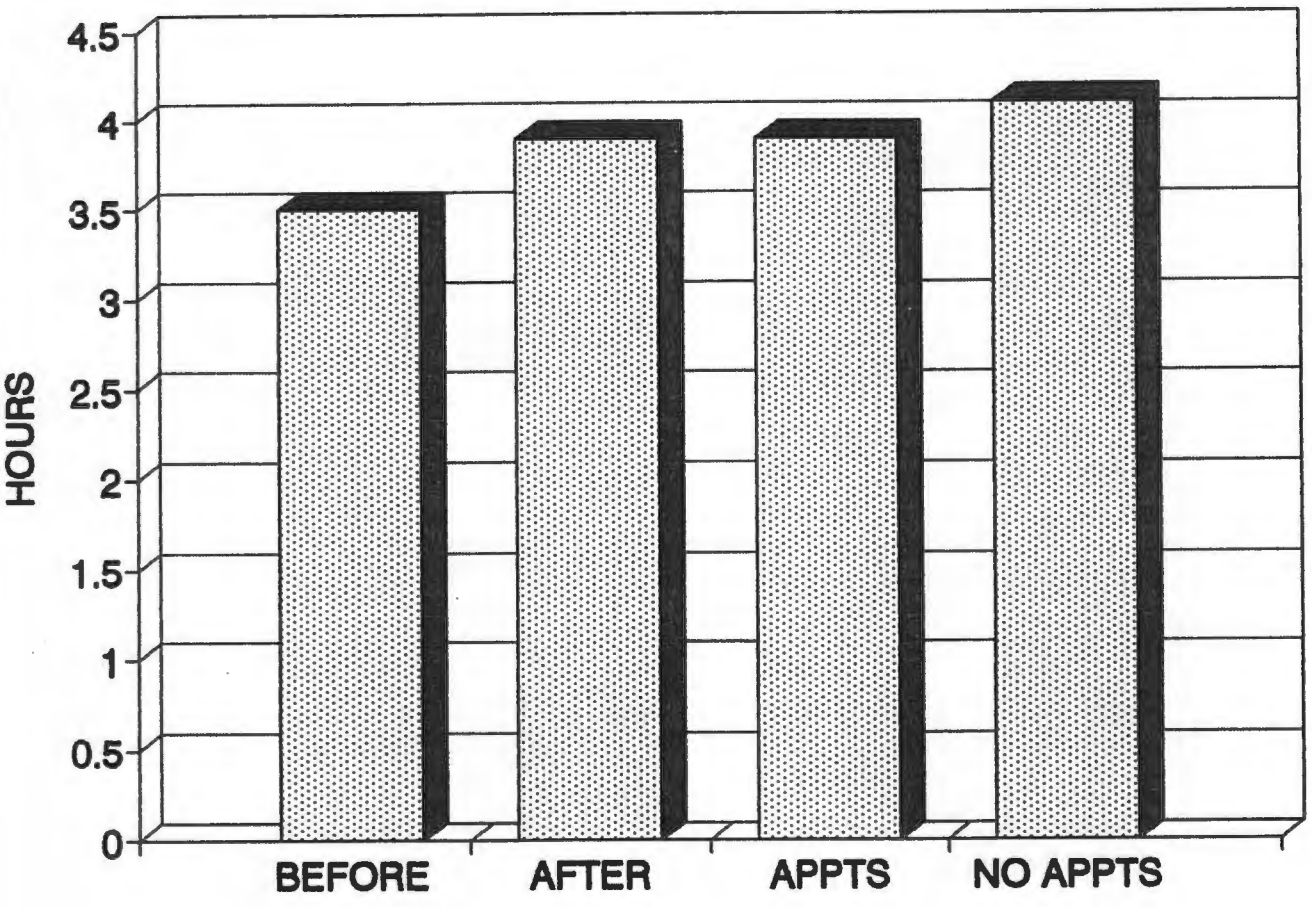


FIGURE 9
PHASES OF WAITING

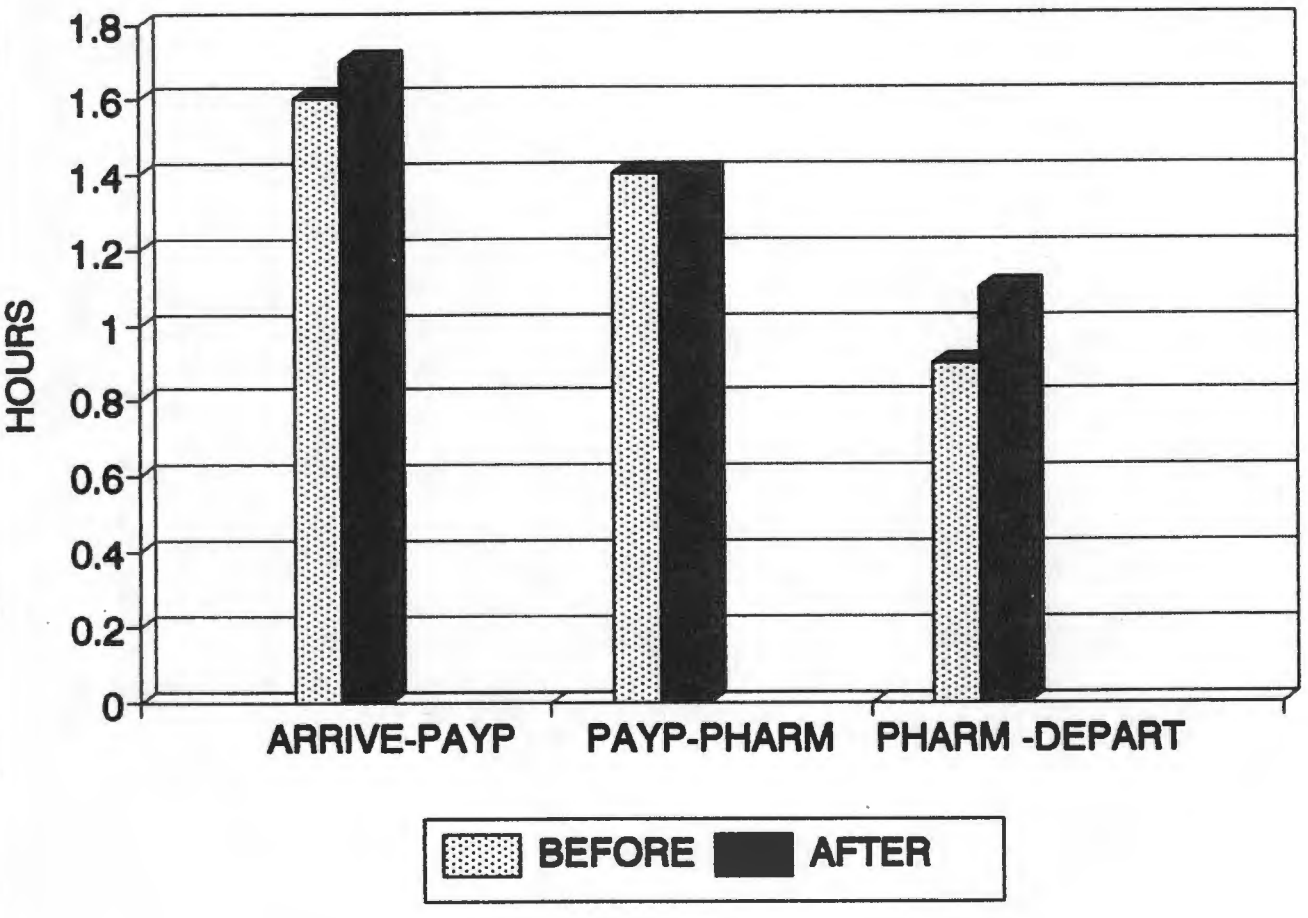


FIGURE 10
PHASES OF WAITING

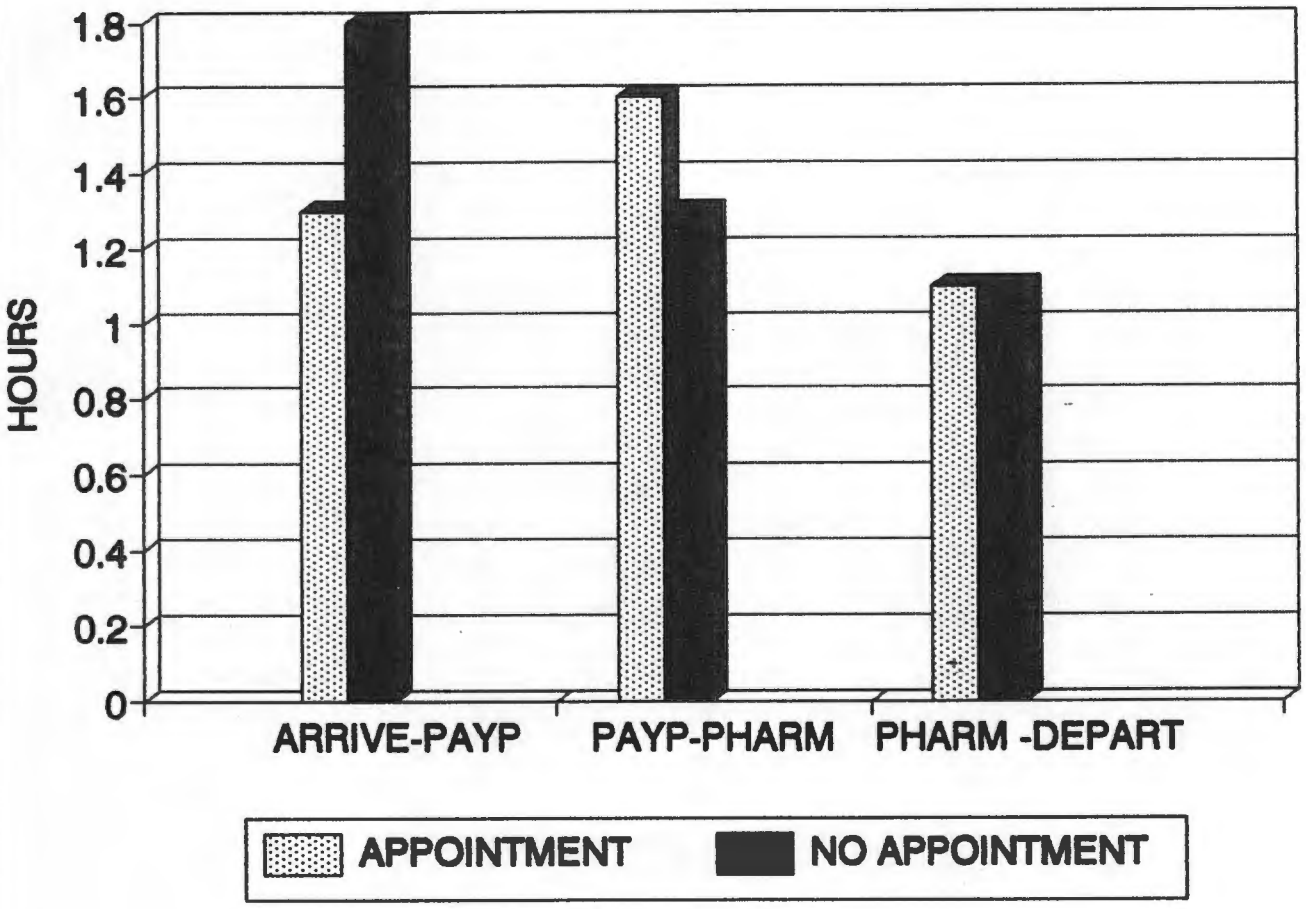


FIGURE 11
WAITING TIME BY DAY OF THE WEEK

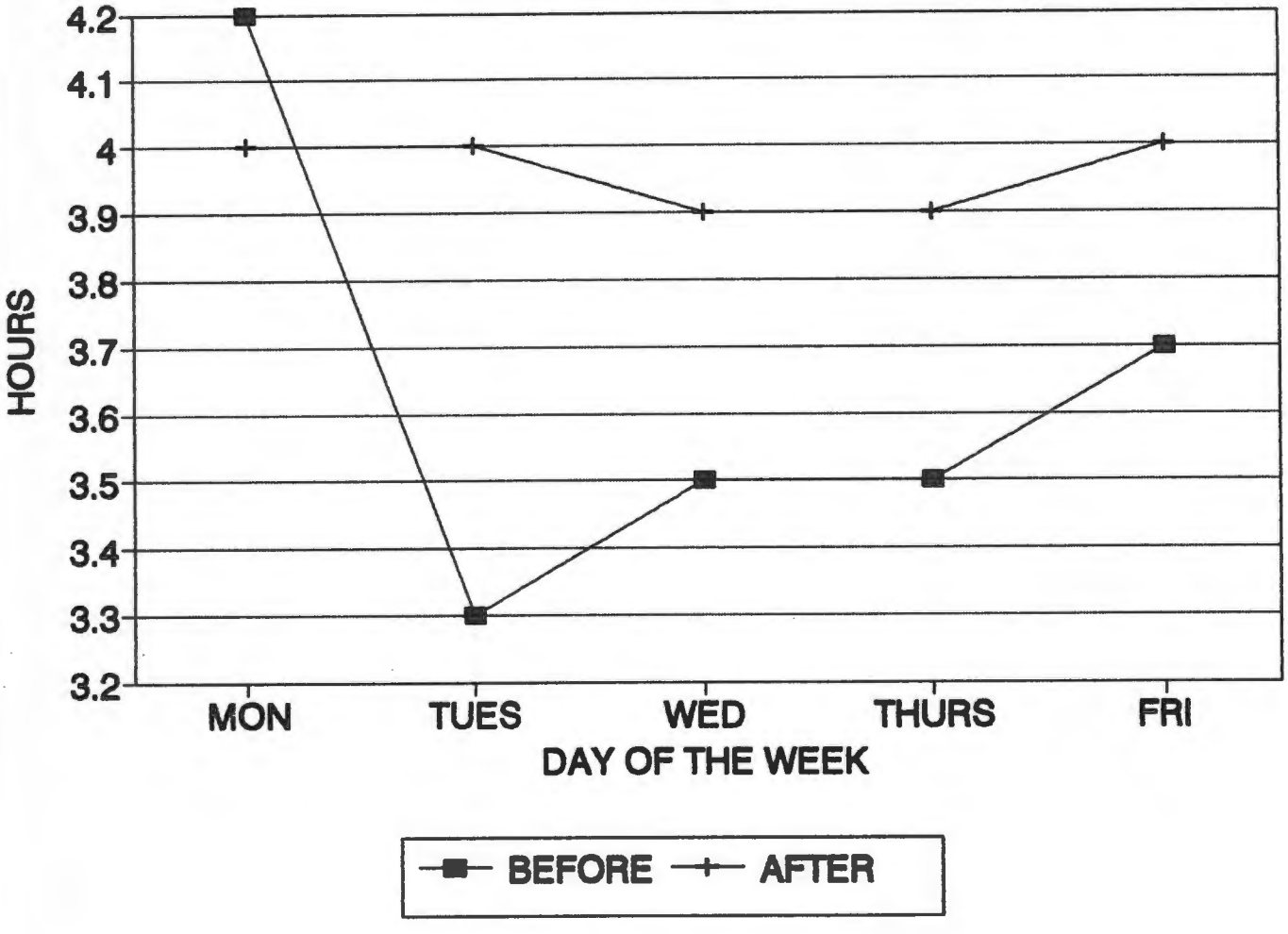


FIGURE 12
WAITING TIME BY DAY OF THE WEEK

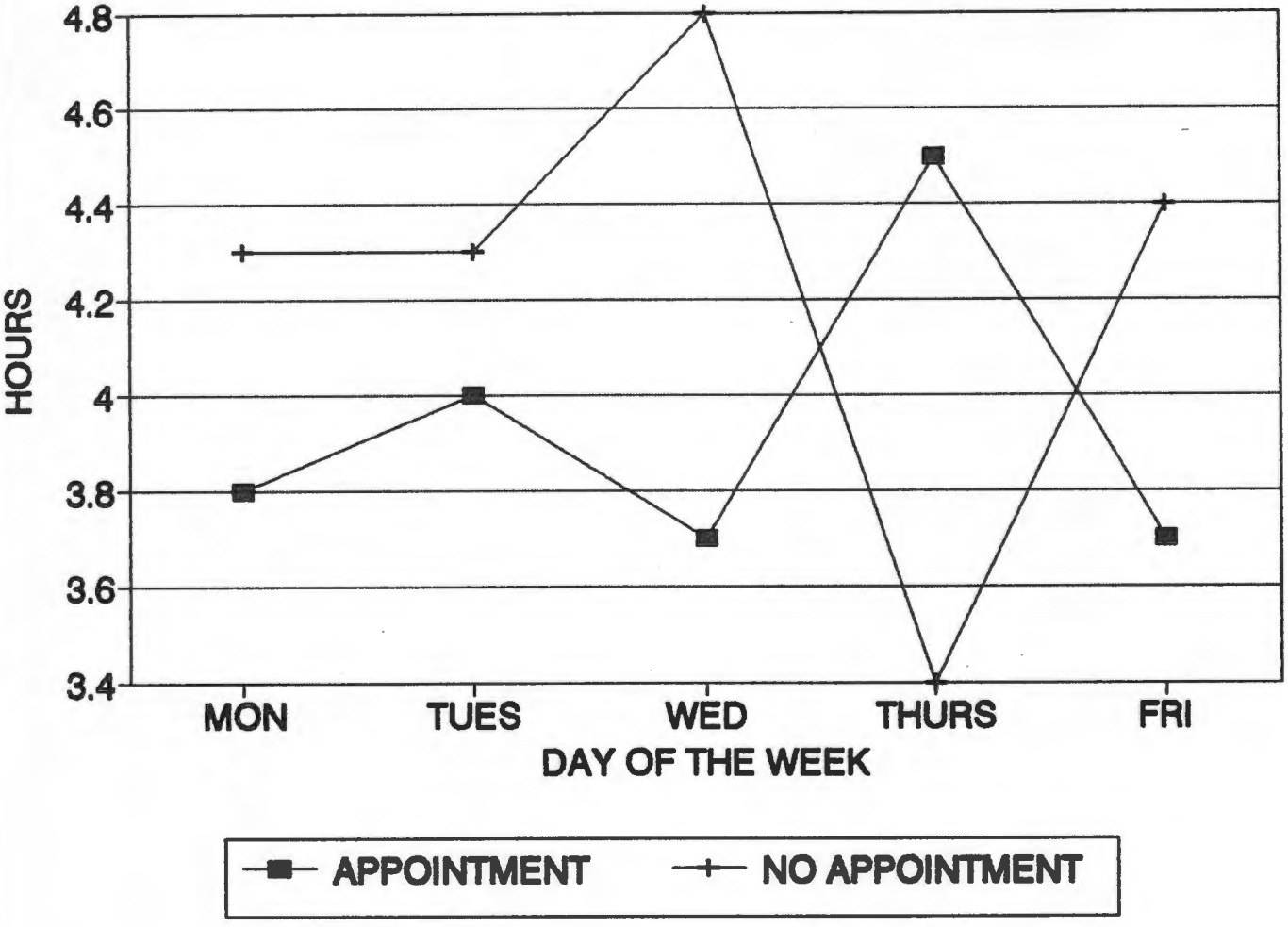


FIGURE 13
WAITING TIME BY TIME OF ARRIVAL

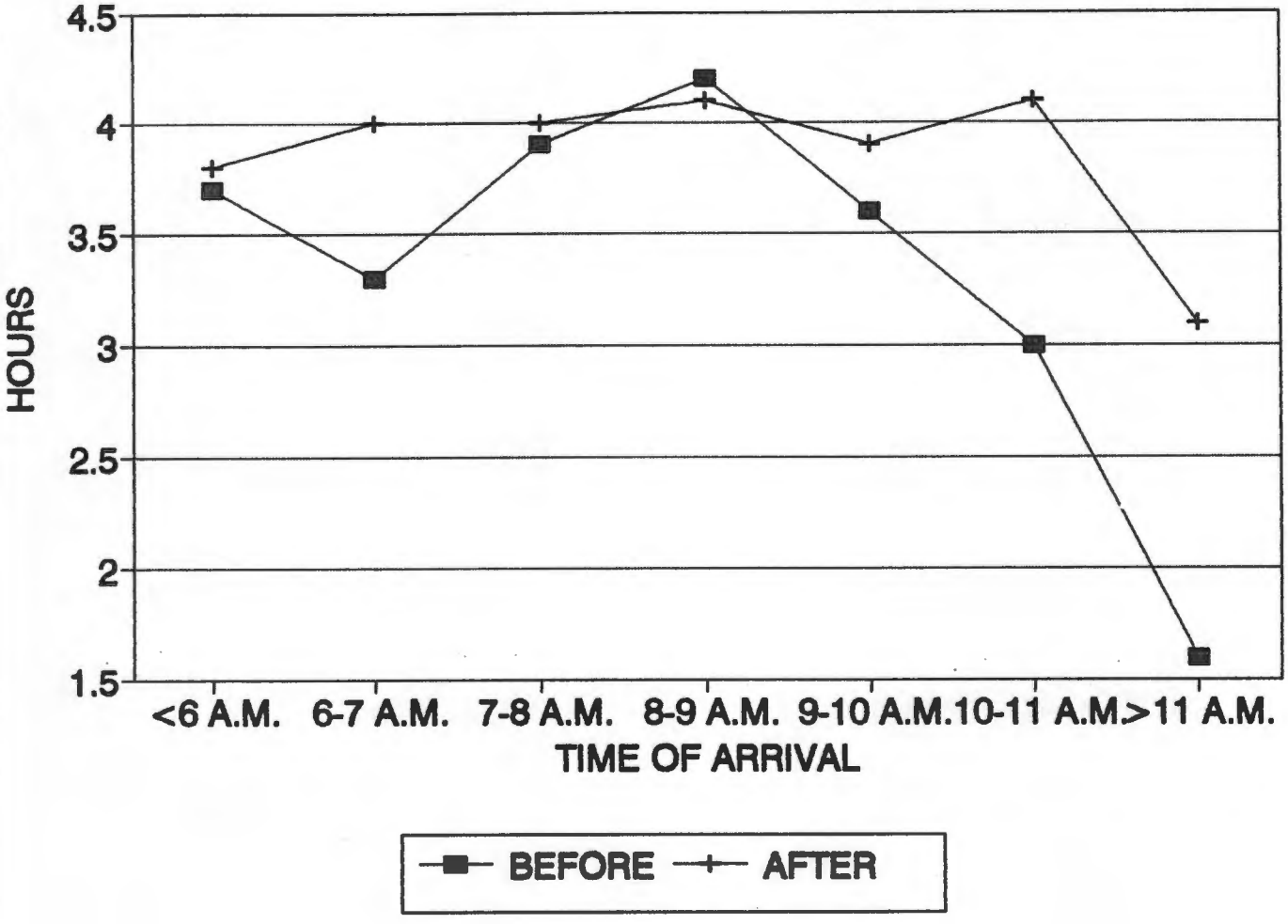


FIGURE 14
WAITING TIME BY TIME OF ARRIVAL

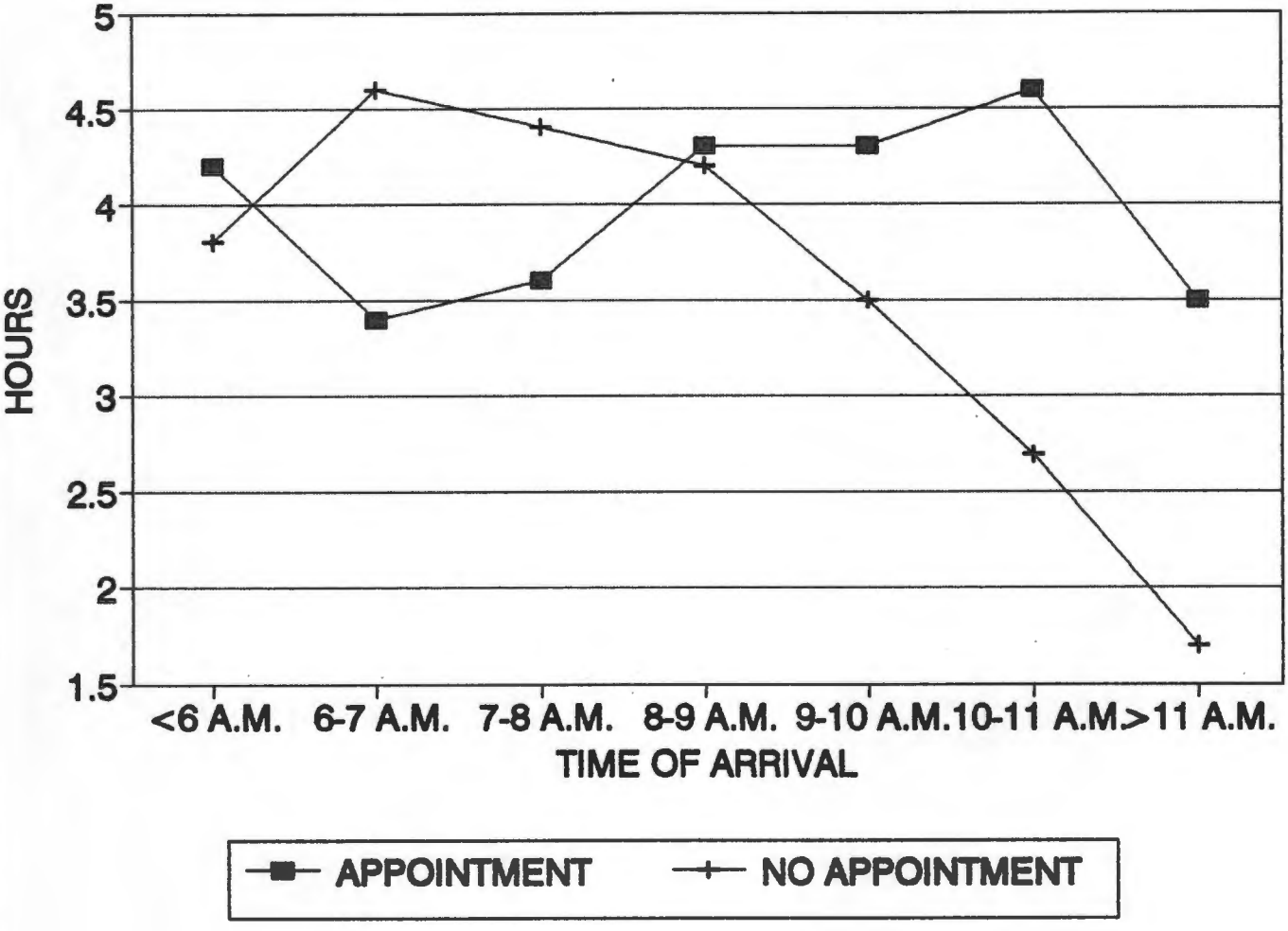


FIGURE 15
WAITING TIME BY PATIENT TYPE

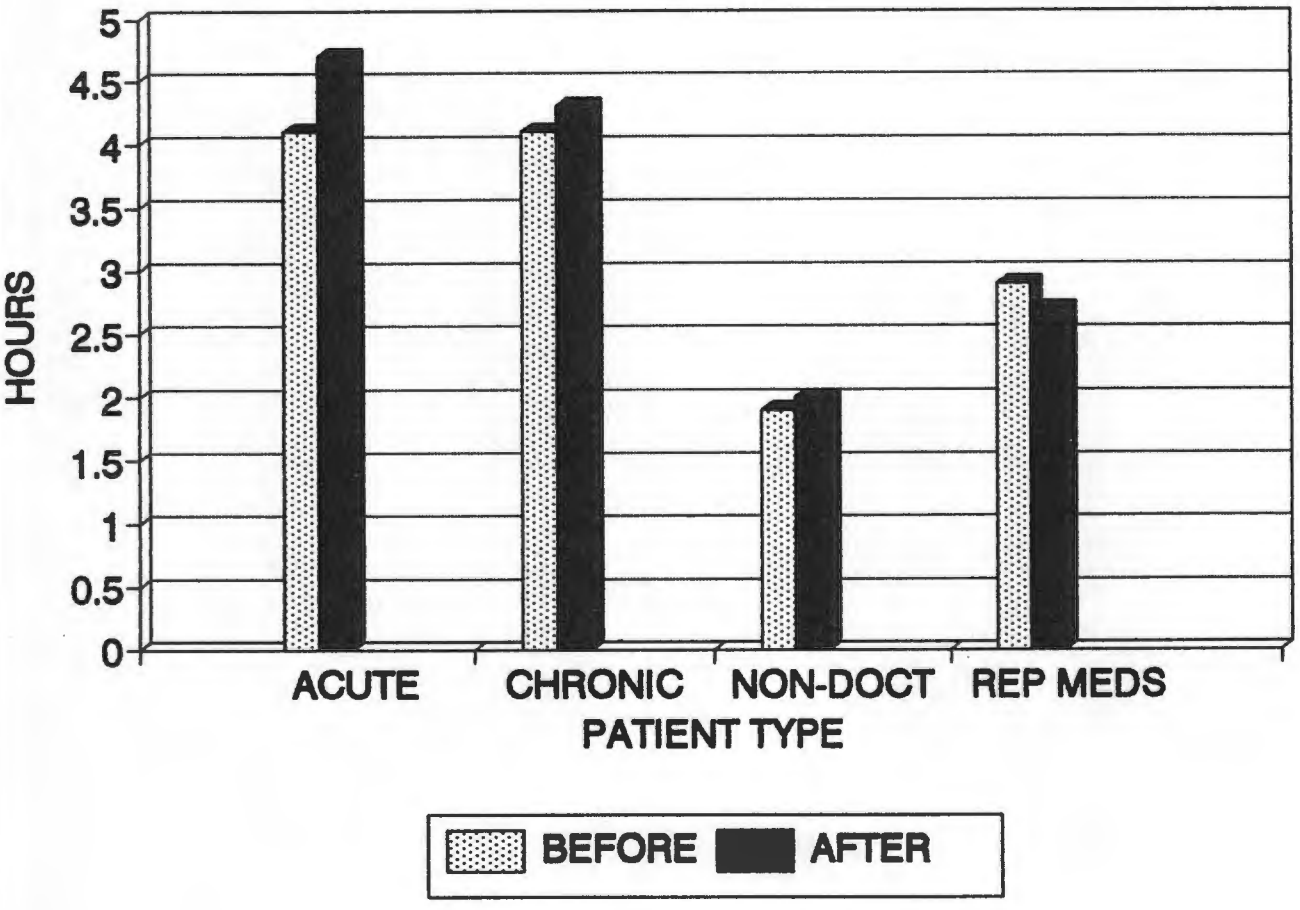
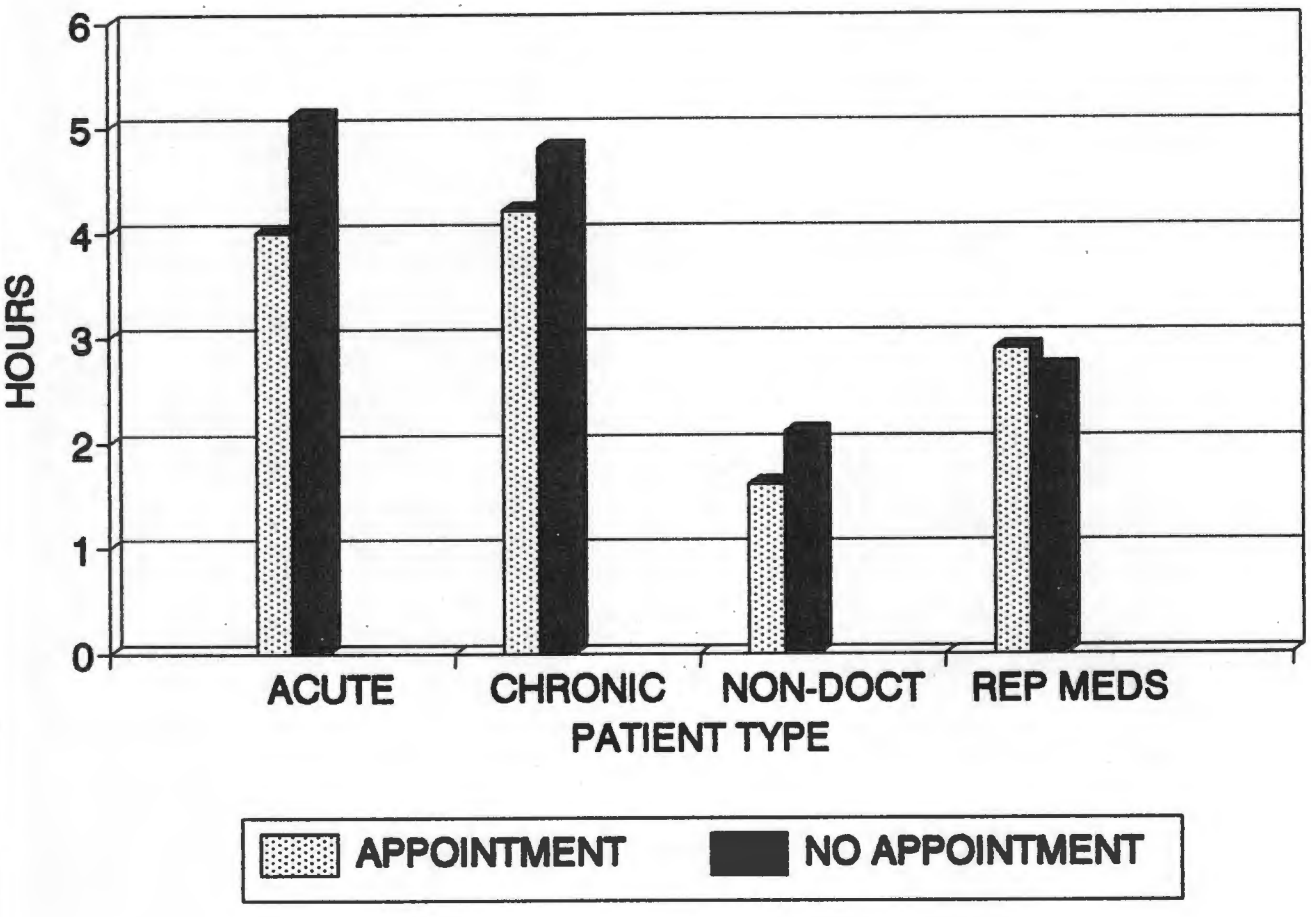


FIGURE 16
WAITING TIME BY PATIENT TYPE



ADDENDUM B

STAFF AND PATIENT INTERVIEWS, LIST OF QUOTES

Explanatory notes:

How they were interviewed:

Baseline study:

The following groups were interviewed:

All of the reception staff as one group, most of the nurses on duty on a particular day (about twenty) as one group, all the pharmacy as one group, two groups of doctors (Doctors1 and Doctors2), three groups of chronic illness patients (Patients1, Patients3 and Patients4) and an individual chronic illness patient (Patients2).

The interviews were conducted in the weeks before and after the week of the baseline collection of waiting time data.

In the followup study, the following groups were interviewed:

Two representatives from the reception, two prep room nurses, the appointment nurse, the sister-in-charge (all separately), most of the doctors as one group, all the pharmacy staff who were on duty, as one group and fifteen individual patients from the waiting room at reception (Patient1-Patient15).

Again the interviews were conducted in the weeks before and after the week of the followup collection of waiting time data.

STAFF AND PATIENT INTERVIEWS

THE BASELINE STUDY

Please note that in brackets are: explanatory notes, an indication of the context, translations from Afrikaans or the source of the quote.

Definitions

Club - a clinic for chronic illness patients (diabetics, hypertensives, asthmatics, epileptics etc).

General - acute illness patients.

Views on patient waiting times

"Patients are happy to wait". [Reception]

"They [the patients] do wait long." [Reception]

"If they come in at seven, they can't expect to be out by eight". [Reception]

"Most patients don't like the clubs, they say they wait longer, people are in a hurry". [Reception]

"People don't want to wait. They are impatient." [Reception]

"The later they come, the later they go out". [Reception]

"The old people, they are very patient." [Nurses]

"They [the patients] do wait long." [Nurses]

"The patients who attend for the theatre slate are quite content to wait". [Doctors1]

"Patients want to be here early". [Doctors2]

"At the larger hospitals, patients seldom wait shorter than four hours". [Doctors2]

"The patients who arrived with me this morning are gone long ago". [Patients1]

"Dou voor dag was ek hier [I was here very early this morning]". [Patients1]

"I wait three hours [usually]. There is a delay at the club" [Patients2]

"Gewoonlik, verlaat ek die huis 5:20 en dan is ek 11:30 terug by die huis [I usually leave home at 5:20 a.m. and then I am back home at 11:30 a.m.]. Vanoggend was ek n bietjie laat. Ek het 6:25 die huis verlaat. [This morning, I was a bit late. I left home at 6:25 a.m.]. Dit is nou 10:45 en ek het nog nie die dokter gesien nie. [It is now 10:45 a.m. and I have not seen the doctor yet.]". [Patients3]

"Ek sit van seweuur tot twaalfuur [I sit from seven o' clock to twelve o' clock {usually}]". [Patients4]

"Partykeer moet n mens terug werk toe gaan [sometimes, one must go back to work {but it is not possible}]". [Patients4]

"Ek kan vier tot vyf ure wag [I wait four to five hours [usually]". [Patients4]

Causes of long patient waiting times

"We are understaffed." [Reception]

"They [the patients] come in 200 at a time [in the morning]." [Reception]

"The manual system we have at reception is the problem". [Doctors2]

"Sort it out at the reception". [Doctors2]

"Seldom is the holdup at the doctor's door." [Doctors2]

"There is an overload of cases ". [Doctors2]

"We are understaffed". [Pharmacy]

"Ons moet wag totdat daar genoeg folders is voordat ons by die dokter uitkom [We must wait until there are enough folders [a batch] before we get to the doctor]". [Patients3]

Feelings on the new appointment system

"I'm not too happy about it. It might not be suitable because of the load." [Reception]

"Unfortunately, dit sal nie werk nie [unfortunately, it won't work]." [Reception]

"For some patients, it will work out fine". [Reception]

"The appointment system was put there to prevent doctors from running away early". [Reception]

"Somewhere, there has to be a compromise". [Reception]

"We know the hearts of the people, they are not going to accept it". [Reception]

"I don't think it will make such a difference". [Reception]

"It depends on whether we make it work". [Reception]

"The didn't consult us". [Reception]

"We can try it and see how it goes". [Reception]

"Its going to work with club patients, not with general patients". [Nurses]

"I feel it's going to take a long time for this thing to work". [Nurses]

"It will be a good thing". [Nurses]

"The new appointment system will reduce the wait of chronics." [Nurses]

"We need the co-operation of all staff members [in order to make it work]". [Nurses]

"Patients normally take a day off to attend the day hospital. If they finish earlier, they can get to do other things that they need to do." [Nurses]

"There should be two doctors designated for club patients [appointment patients]". [Doctors1]

"On the plus side, it would be nice. I could pace myself". [Doctors1]

"[In response to 'is it a good thing?'] I think so". [Doctors1]

"It will be good for patients to see the benefits of it [an appointment system]". [Doctors1]

"[There can be] no quick fix". [Doctors1]

"I don't think its going to work". [Doctors2]

"It's going to cause chaos". [Doctors2]

"Why now?". [Doctors2]

"The authorities have done no research. It's a short-sighted way dealing with the problems here". [Doctors2]

"Every patient wants to get out of here as quickly as possible". [Doctors2]

"The idea itself is good but whether it is practicable is another matter". [Doctors2]

"How many GPs in this area have appointments or have tried it and it has not worked". [Doctors2]

"We like to see them early". [Pharmacy]

"As long as it doesn't interfere with the flow [of patients]. By 10 o' clock, we would have like to have seen 120 [patients]. By 4 p.m., there should be only ten to fifteen folders left". [Pharmacy]

"It's about time". [Patients1]

"Dit sal beter wees [It will be better]". [Patients1]

"Dit gaan werk [it will work]". [Patients1]

"I think it's a splendid idea, we won't be wasting any time here". [Patients2]

"I think it will work". [patients2]

"Enige tyd is beskikbaar vir my [any time is OK for me][for an appointment]". [Patients3]

"Ek dink dit is a goeie idee [I think it is a good idea]". [Patients3]

"Ek hoef nie so lank te sit en wag nie [I don't have to sit and wait so long any more]" [Patients3]

"As daar baie is, sal dit werk [if there are many, then it will work]". [Patients3]

"As dit kom, sal ek my samewerking gee [if it comes, I will give my co-operation]". [Patients3]

"Huisvroue het verpligtinge by die huis. Afsprake in die namiddag teen tweeuur of twee dertig se kant sal ons pas. [Housewives have duties at home. Afternoon appointments at 2 or 2:30 p.m. will suit us]". [Patients3]

"As daar n appointment system is, kan ons iets uitwerk vir die kinders [if there is an appointment system, we can work out something for our kids][if we need to come to the day hospital]". [Patients3]

"Maak minder laat wag [{it will} make {us} wait less]". [Patients4]

"n Afspraak tweeuur in die middag sal a verskil maak [an appointment two o' clock in the afternoon will make a difference]" [Patients4]

"Ek stem nie saam met n appointment tweeuur. Die oggend is beter vir my. [I don't agree with a 2 p.m. appointment. The morning is better for me.]". [Patients4]

"Hulle kan huisvroue in die namiddag sit. [they can put housewives in the afternoon]". [Patients4]

<u>Views on patient compliance with appointments</u>

"Most do not keep to their current [day] appointments." [Reception]

"[In a previous appointment system], only eight out of 40 turned up." [Reception]

"You give them [the patients] an appointment and they don't turn up". [Nurses]

"They can't keep their appointment date, what still about time." [Nurses]

"A lot of patients don't keep their appointments." [Nurses]

"If they don't have money, they don't come". [Nurses]

"What is the default rate?". [Doctors1]

"Compliance on dates is very poor". [Doctors2]

"Will they come to their appointments because they don't even come on the date of their appointment. They come a week earlier, they come a week later. They default". [Pharmacy]

"They are just non-compliant [with their appointments]". [Pharmacy]

"Dit is waar [it's true], [in response to whether patients don't keep appointments]. Ek vergeet die datum somtyds [I forget the date sometimes]. As ek nie geld het nie dan kom ek nie [if I have no money, then I don't come]". [Patients1]

"As ons uitdruklik gese word om op n sekere tyd te kom, dan sal ons kom [If we are clearly told to come at a certain time, then we will come]". [Patients1]

"I think they [the patients] will stick to appointments". [Patients2]

"Die mense sal by hul appointments hou want dis vir hul eie benefit [the people will stick to their appointments because it's for their own benefit]". [Patients3]

"Ek sal meer ewerig voel om te kom want ek het nie die hele halwe dag om te sit en wag [I will feel more eager to come {if there is an appointment system} because I don't have a half a day to sit and wait]". [Patients3]

Foreseen implementation difficulties

"How are they [appointment patients] going to be accommodated at reception?". [Reception]

"Whoever comes first, feels that they must be helped first." [Reception]

"There's going to be confrontation [between appointment and non-appointment patients]". [Reception]

"Most patients want to come in the morning". [Reception]

"We can't predict the total number of general patients per day". [Reception]

"We have always worked on a first come, first served basis". [Reception]

"The older people come early". [Reception]

"It will be difficult to motivate staff". [Reception]

"Appointment patients will moan if they wait when they get to the door of the doctor." [Nurses]

"A lot of patients come late". [Nurses]

"It's going to take a long time to educate the patients." [Nurses]

"I can see a major problem. Conflict with patients who have been waiting [with no appointment]." [Doctors1]

"It takes longer to see a club patient". [Doctors1]

"Staff leave at 4.p.m." [Doctors1]

"Knowing our people, there will be bedlam [conflict between appointment and non-appointment patients]". [Doctors2]

"The big problem is unpredictability [of patient numbers attending]. Because of this, we can't accommodate an appointment system". [Doctors2]

"Most of the patients have transport which drops them off in the morning, how are we going to deal with this". [Doctors2]

"There is the problem of early closure of the pharmacy [which determines how late appointments can be made]". [Doctors2]

"We have to see all the patients by that certain time, otherwise there will be chaos outside". [Doctors2]

"You've got to extend the pharmacy". [Doctors2]

"The number of acute patients is unpredictable". [Pharmacy]

"Other patients will object to [appointment] patients getting priority." [Pharmacy]

"It takes longer to fill out the script of a club patient [will affect afternoon appointments]". [Pharmacy]

Alternative solutions

"Another [day] hospital." [Nurses]

"Double the number of doctors". [Doctors1]

"Improve patient flow. That's the solution". [Doctors2]

"More staff". [Doctors2]

"Streamline the flow". [Doctors2]

"A sessional appointment in the morning". [Doctors2]

General

"The people work hard here". [Reception]

"The club patients are very demanding". [Nurses]

"After two [p.m.], we are exhausted". [Doctors1]

"It's stressful work. We are drained by 2 p.m. We are not able to take a break." [Doctors2]

"We are not practising medicine here, it's a supermarket system". [Doctors2]

"It's very taxing. It's frustrating [working here]". [Doctors2]

" Doctors speed up their consultation time [when there is a long queue outside". [Doctors2]

"The cutoff is at 11 o' clock. That's it for the day". [Pharmacy]

"I try to be here as early as possible". [Patients2]

"The amount of stress [due to waiting] can work on your ailments". [Patients2]

THE FOLLOW UP STUDY

Comments on the appointment system

"There were problems at first but it is coming right now". [Reception]

"Patients took a while to adjust". [Reception]

"There was initially squabbles amongst patients [conflict over first come first served]". [Reception]

"A lot of patients prefer not to make appointments". [Reception]

"We can't say we happy with the way it is working". [Reception]

"There is no conflict amongst patients now except sometimes at the paypoint". [Reception]

"Appointments are given till one p.m." [Reception]

"Patients must be motivated [to use the appointment system]". [Reception]

"My feeling is that it is the same as taking them all at one window [instead of as there is now a special window for appointment patients]." [Reception]

"The doctors and the patients want the system to continue". [Reception]

"It is definitely much better than the last time [than it was before the implementation of the appointment system]". [Reception]

"I think the system is working well but there are still a few problems". [Appointment nurse]

"It definitely does reduce the wait of patients except if the patient's folder gets lost". [Appointment nurse]

"A quota is booked for the day. We make our bookings till 12 [midday]. [Why only till twelve?] I can't elaborate on this". [Appointment nurse]

"The appointment system is working". [Prep room nurses]

"It is worthwhile to have an appointment system. The patients wait less". [Prep room nurses]

"At the moment, it's the best [it could be]. I don't see how it can be improved." [Prep room nurses]

"The patients accept it. They are happier". [Prep room nurses]

"I think we are doing as much as possible." [Sister-in-charge]

"In the beginning it was shaky. It's picking up now. it needs to be given time". [Sister-in-charge]

"There has been some improvement in staff and patient relations." [Sister-in-charge]

"When there was conflict [among patients], the security and social worker helped to improve the situation". [Sister-in-charge]

"It's good that there is an appointment system. It helps to regulate the flow of patients". [Doctors]

"The discipline of the appointment system has improved patient compliance especially of chronics". [Doctors]

"It makes our jobs easier". [Doctors]

"It helps to force through the idea that it saves time". [Doctors]

"At the beginning, there was a bit of conflict. Now, the general awareness of the system has increased and the vast majority make use of it". [Doctors]

"Helps with followup care". [Doctors]

"It has given order to the chaos that existed here before". [Doctors]

"The appointment system is one of the factors that has contributed to improvements here". [Doctors]

"It doesn't affect us". [Pharmacy]

"Ek dink nie dat dit werk nie. Ek wag dieselfde tyd. [I don't think it is working. I wait the same amount of time]". [Patient1]

"Al die sisteems werk in favour van die werkers hier [all the systems work in favour of the staff here]. It's in favour of the nurses, not the patients. That's why it doesn't work." [Patient2]

"Werk dieselfde uit [it works out the same]". [Patient3]

"Werk nie altyd uit nie [it does not always work out]". [Patient5]

"Dis meestal kroniese patiente wat appointments maak [it's mainly chronic patients who make appointments." [Patient7]

"Ek maak nooit appointments nie. Ek het niks teen appointments nie. Dit gaan baie gouere vir hulle, net by die chemist moet hulle wag. Ek wag nooit lank nie. [I never make appointments. I have nothing against appointments. It goes much quicker for them {those with appointments} except that they must wait at the dispensary. I never wait long]." [Patient8]

"Partykeer werk dit [it works sometimes]." [Patient9]

"Die wagtyd is beter. As u betyds kom, word u gehelp [the waiting period is better. If you come on time, you are helped [by the staff]." [Patient10]

"I don't wait long". [Patient12]

"I think it's very nice. It shortens the waiting time." [Patient13]

"There's no advantage having an appointment." [Patient14]

Problem areas

"Patients either don't come or are late". [Reception]

"The telephone system, the lines are blocked by patients making appointments". [Reception]

"Patients coming too early for their appointments expect to be helped [early]". [Reception]

"[Appointment] patients wait long at the pharmacy" [Reception]

"A lot [of patients] doesn't turn up for their appointments. [Why?] Due to unforeseen circumstances or... having no bus fare or... having no money for the fees or... if they are feeling better". [Appointment nurse]

"Most people don't turn up [for their appointments]" [Prep room nurses]

"There is conflict between appointment and non-appointment patients because the appointment system patients get preference". [Prep room nurses]

"A lot of patients come late [for their appointments] and expect to be seen". [Sister-in-charge]

"[Why do appointment patients get no special treatment at the pharmacy?] There's not enough staff [there]". [Sister-in-charge]

"Appointment patients' files sometimes get lost in the pile of folders". [Doctors]

"[Appointment] patients don't come on time". [Doctors]

"We get abuse from patients who have not made appointments". [Doctors]

"Afternoon appointments would be no problem if the logistics of the reception and pharmacy are worked out [to accommodate afternoon appointments]. There may be resistance to this from patients themselves. Morning appointments are booked up first". [Doctors]

"Reception staff are resistant [to getting the folders out the day before]. Patients don't turn up [for their appointments]". [Doctors]

"Generally there is staff resistance at all levels. It is difficult to educate the patients." [Doctors]

"Patients are complaining. They want to have an appointment at the pharmacy." [Pharmacy]

"The wait at the pharmacy is the same. In fact waiting time is increasing". [Pharmacy]

"Mense wat na jou gekom het word eerste gehelp [people who arrive after you are helped first]". [Patient1]

"Mense wat appointment maak, word nie voorkeur gegee nie [people who make appointments, don't get preference]." [Patient1]

"Mense sonder appointments is eerste by die chemist [people without appointments are the first to reach the dispensary]". [Patient1]

"We come one hour early. Why? The other patients go ahead [who arrive after us]." [Patient2]

"Mense wat nie appointment het nie gaat huis toe voor hulle wat appointment het [people without appointments go home before those with appointments." [Patient3]

"Mense wat lank agter my gekom het is weg voor my [people who came long after me, have left before me]". [Patient5]

"Mense gaan voor jou in wat na jou gekom het [People who came in after you, are seen to before you". [Patient7]

"What's the point of making an appointment if they only look for your folder once you get here." [Patient9]

"There is not enough staff at reception". [Patient11]

<u>Suggested improvements</u>

"We need to increase the number of patients booked per hour". [Doctors]

"Folders need to be got out the day before". [Doctors]

"Appointment patients should get preferential treatment throughout the system including the dispensary. They [the dispensary] have agreed to a special window [for appointment patients]". [Doctors]

"There needs to be continuity of care. There's nothing worse than seeing someone else's patient two weeks later". [Doctors]

"[To accommodate patients at the pharmacy] It must be thought through. They should hand in their folders separately and there should be a separate window for them." [Pharmacy]

"We need more hatches". [Pharmacy]

"Gee n nommetjie [give a number][as people arrive so that they may be helped in the order in which they have arrived]". [Patient1]

"Kies Groote Schuur's se sisteem [choose Groote Schuur's system]. There is only one doctor's name on the card. Die file is gereed as ek daar kom [the file is ready when I get there]. [Patient2]

"A special doctor should see to appointment patients". [Patient2]

"Appointment patiente moet voorkeur kry [appointment patients should get preference]". [Patient7]

"At Groote Schuur, the folder is prepared [in advance], u sien a spesifieke dokter [you see a specific doctor] en dit gaan gouere daar [it goes quicker there]." [Patient9]

"Have a special person for bookings only [at reception]". [Patient11]

"Prepare the folders in advance. Get them out the day before." [Patient15]

Alternative solutions

"There needs to be more hospitals in [this area]". [Reception]

"What we need is a bigger waiting room [at the pharmacy] with TV etc and make the benches more comfortable". [Pharmacy]

"Increase the number of staff and the size of the dispensary as it is already congested with staff". [Pharmacy]

"[There should be] more hospitals, satellite clinics [in this area]." [Pharmacy]

General

"The idea is to get everyone to make appointments but I am not sure how that will work". [Reception]

"Work load has increased [since the introduction of the appointment system]." [Pharmacy]

"Our limit is 40 folders per hour." [Pharmacy]

"There is a forum in the day hospital. As soon as it [our complaints] gets sent to a higher level, there is no feedback." [Pharmacy]

"I am here usually at 5:30 [a.m.] and I get home at 11 o' clock." [Patient3]

"It's totally unfair. I get here at ten to five [a.m.] and I leave at twelve [noon]. It depends on who you know. People should have tags. First come, first served." [Patient4]

"I've got patience to wait. They attended to me quickly. If you come late, you get helped late." [Patient12]

"The attitude of staff is a problem". [Patient13]

Light relief

"Te veel teatime en lunch time [too much teatime and lunchtime]. Ek hoop nie daars n kamera daarin nie, ou broer [I hope there's no camera in there [the tape-recorder], my brother." [Patient6]