

**Is a block appointment system feasible for Kingston
public sector clinics that provide family planning
services?**

Findings from a pilot study at two clinics in Kingston, Jamaica

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October 2004

Acknowledgements

The authors would like to thank the many people who were instrumental in conducting this study.

In Jamaica, we would like to thank the nurses, community health aides, and registration clerks at both Comprehensive Health Clinic and Glen Vincent Health Clinic for implementing appointment systems. We greatly appreciate the efforts of the interviewers for their hard work in collecting the study data.

At Family Health International we greatly appreciate the assistance of Barbara Janowitz and Karen Katz for their technical guidance and helpful suggestions in writing this report.

Finally, we would like to extend our thanks to USAID/Jamaica and Washington for their financial support.

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Background

Excessive waiting time is a frequent complaint of clients in developing country health clinics. Long waiting time can result in fewer clients returning to the clinic, increased costs to clients due to foregone income, and dissatisfied staff who complain about rushed sessions with clients (Bachmann et al., 1997).

Several factors influence waiting time. In many developing countries clinics are understaffed and overloaded with clients (Bachmann et al., 1997). Late staff arrivals and uncoordinated lunch breaks increase clients' wait time. Clients also create bottlenecks by arriving *en masse* before the clinic opens in hopes of being seen that day (Keller et al., 1975; Hudgins et al., 1982).

A variety of approaches have been used to reduce waiting time. Some examples include minimizing the number of contacts a client makes during a visit and equalizing the amount of time for each contact. Also effective are measures such as staggering staff tea and lunch breaks, combining staff functions, and enforcing prompt arrival of staff (Hudgins et al., 1982; Family Planning Manager, 1992; Keller et al., 1975).

In developed countries most health providers manage client flow through some variant of an appointment system. Few studies have been conducted in developing countries to determine if appointment systems reduce waiting time. A study in a South African urban clinic used a "block appointment system" (40 patients scheduled per hour) and found that patients with acute and chronic illnesses who had appointments had shorter waits than similar patients without appointments. Results showed that the largest decrease in waiting time was due to shorter waits at the registration stage. Overall, clients and staff were happy with the system, although staff were initially resistant because they thought patients would not keep their appointments. One suggestion to improve the system was for registration staff to prepare client records the day before the client's appointment (Mahomed et al., 1998).

Two studies conducted in Jamaica showed complaints with waiting time and high client volume in the morning hours. The 1998 FHI/ISER study "Contraceptive Use Dynamics of Public Sector Family Planning Clients in Jamaica" followed women for a year to document patterns of contraceptive use and to examine factors influencing family planning use. Most women were satisfied with services they received; however, there were many complaints about waiting time. Women who were satisfied with waiting time in the clinic were two times more likely to continue family planning compared to those who reported being dissatisfied (Fox et al., 2000). A study on provider time use in public sector clinics in Jamaica found that most client visits took place in the morning. Anecdotal evidence suggested that clients were encouraged to arrive early in the morning to attend group health talks (West et al., 2001). The findings from these studies prompted the idea of implementing a pilot appointment system that spread client volume over the day. The first step was to determine if an appointment system was feasible.

Study Design

The goal of this pilot study was to determine if a block appointment system was feasible in a Jamaican public sector clinic for family planning clients. Specifically the study investigated client and provider acceptability of the block appointment system and monitored the implementation of the system.

The specific objectives of the study were:

- To explore client opinions of waiting time before the block system was implemented;
- To monitor client and provider adherence with a block appointment system;
- To explore client and clinic staff opinions and attitudes of the block appointment system; and
- To test patient flow analysis (PFA) as a method for measuring waiting time in a Jamaican public sector clinic.

The study was conducted in the Comprehensive Health Clinic (CHC) and Glen Vincent Health Clinic (GVHC), primary care facilities located in Kingston. Five clinics that participated in the FHI/ISER study were considered for the study. These two clinics were chosen because they are high-volume clinics and it is likely that clients there perceive problems with waiting time.

At both CHC and GVHC women receive family planning services on two days during the week: the designated family planning day and on postnatal days. CHC has an average of 82 family planning visits per family planning day and GVHC has an average of 70 family planning visits per family planning day. Most of the visits on this day are for resupply. Nurses at the clinics reported a consistently high volume of family planning visits on all family planning days.

The intervention was a block appointment system that attempted to distribute family planning visits throughout the day. Before the intervention there was an appointment system in which clients received date appointments. This intervention utilized the system already in place but added a specific block of time for the client's clinic visit. Family planning days were Thursday at CHC and Wednesday at GVHC. The block appointment system was only used on these days.

Methods

A combination of quantitative and qualitative methods was used to measure the acceptability of the block appointment system. These methods are described below.

1. Pre-study questionnaires

Questionnaires were administered to family planning clients to explore their perceptions and opinions of waiting time. Every third family planning client that visited each clinic on a family planning day over a two-month period was asked to participate in an interview.

2. Monitoring client utilization of the block appointment system

Monitoring of client utilization of the system was conducted to determine if clients used the block appointment system. This was accomplished by recording the number of clients who visited the clinic on their scheduled day and during their scheduled block. One researcher was responsible for noting in the appointment book if the client visited on her scheduled day and during her assigned block.

3. Provider observations

Monitoring of provider implementation of the system was conducted to determine if providers were giving time appointments and to describe the information given to clients about the new system. This was accomplished by direct observation with a checklist. The checklist consisted of a series of points that asked if the provider explained certain procedures of the new system and if they made a time appointment for the client. The researchers observed one out of every two client-provider interactions.

4. Client exit interviews

Exit interviews were conducted with clients to gain feedback about the block appointment system and opinions of waiting time. Every third family planning client on a family planning day at CHC over a period of two months was asked to participate in an interview.

5. Staff in-depth interviews

In-depth interviews with clinic staff at both clinics were conducted to receive feedback on the block appointment system, particularly to see if the system made any improvements or created any problems. Nurses, community health aides, and registration clerks at both clinics involved in the block appointment system were asked to participate.

6. Patient flow analysis

Patient flow analysis (PFA) was conducted to determine if it was a feasible method for measuring waiting time in a Jamaican public sector clinic. As patients entered the MCH clinic they were given a form. Each client carried the form with them for their entire visit. At the beginning of each interaction with a provider they gave the form to the provider. The provider recorded the start and end time of their contact and the type of service the client received. Clients returned forms to researchers as they left the clinic. The PFA also provided descriptive information on patient visits such as the amount of time spent with providers and the amount of time spent waiting for services.

Description of Implementation of the Intervention

Both clinics had existing appointment systems in which family planning clients were given appointments at three-month intervals on certain days. Three blocks, 8:30AM-10:30AM, 10:30AM-12:30PM, and 12:30PM-1:30PM were added to the existing system. Nurses asked clients at the end of their visit to come back on a certain day and during a certain block. Patients had registration/appointment cards, and appointment dates and times were recorded on this card and also recorded in an appointment book. Two to three providers at each clinic made time appointments for clients and they each had

appointment sheets for recording client names. The appointment sheets were designed so that each block was on a separate sheet and it was only possible to schedule a certain number of clients in each block. At the end of the day the providers put the appointment sheets in one binder.

Block appointment systems were started in July 2002 in CHC and August 2002 in GVHC. By November 2002 GVHC had stopped using the system.

Data collection

Data collection started in February 2002 and continued until September 2003. Table 1 summarizes all data collection methods for each clinic. First, clients were interviewed with pre-study questionnaires. This data collection took place in February-April 2002 at both clinics. A total of 141 clients at GVHC and 139 clients at CHC were interviewed.

After pre-study data collection finished, the block appointment systems were developed and implemented. The client utilization data collection was started in October 2002, approximately three months after appointment systems had started. This data was collected only at CHC and continued until May 2003. The data from October-December 2002 was of poor quality. At this time community health aides were responsible for recording the time clients arrived. The client arrival time was of great interest for answering the objectives so a researcher was hired to collect this data from January-May 2003. The October-December data is not included in analysis.

Provider observations were scheduled for September and November 2002. Observations of provider interactions with family planning clients took place at both clinics and four providers were observed for one day in both months. The researchers met a lot of resistance from the providers about being observed. Hence, few providers allowed researchers to observe them. This data is not presented as it describes very few of the client-provider interactions.

GVHC stopped using the block appointment system in November 2002. All future data collection was canceled at this site except for the in-depth interviews. These were conducted at GVHC in February 2003. Two public health nurses, two midwives, two community health aides and one registration clerk were interviewed.

After the block appointment system had been used for a year at CHC the exit interviews, the PFA, and in-depth interviews were conducted, taking place in July through September 2003. A total of 134 clients were interviewed with exit interviews. The PFA was conducted on one family planning day at CHC. One public health nurse, two midwives, and one registration clerk participated in in-depth interviews.

Table 1. Summary of data collection methods.

Data collection method	CHC	GVHC
Pre-study questionnaires	139 clients interviewed	141 clients interviewed
Client utilization data	20 days of data collected	Not collected
Provider observations	Not used in analysis	Not used in analysis
Staff in-depth interviews	4 staff interviewed	6 staff interviewed
PFA	One day of data collected	Not collected
Exit interviews	134 clients interviewed	Not collected

Data management and analysis

All data except for in-depth interview data was entered using Epi Info, Version 6.04 and analyzed using SAS system for Windows V8. In-depth interview data was tape recorded, transcribed in Word and analyzed in NVivo 2.0.

The primary outcome of interest was the percent of appointments kept by clients. This was calculated by dividing the number of visits made by clients on their scheduled day and block by the number of appointments scheduled for that day and block. Other descriptive analyses were also conducted including descriptions of demographic characteristics, and opinions of waiting time and the appointment system.

Results

Description of clients, their visit patterns, and appointment time preferences

The average age of clients at both clinics was 28 and they had an average of two children. Most clients were either in common law or visiting relationships. Over 60% clients in both clinics reported they were currently working.

A majority of clients visited and preferred appointment times in the morning hours. Table 2 shows that over seventy percent of clients at both clinics typically visited in the morning. About two-thirds of clients at both clinics preferred appointments in the morning hours before noon.

Table 2. Client visit patterns and appointment time preferences.

Time of visit/appointment	Glen Vincent		Comprehensive	
	Visit pattern	Appointment preference	Visit pattern	Appointment preference
	N=141	N=141	N=139	N=139
Early morning	52.9	43.3	53.5	38.8
Midmorning	24.4	22.7	17.1	25.9
Afternoon	22.7	29.8	28.7	32.4
Any time	0.0	0.7	0.8	0.7
Depends on work/school	-	3.5	-	2.2
Total	100.0	100.0	100.0	100.0

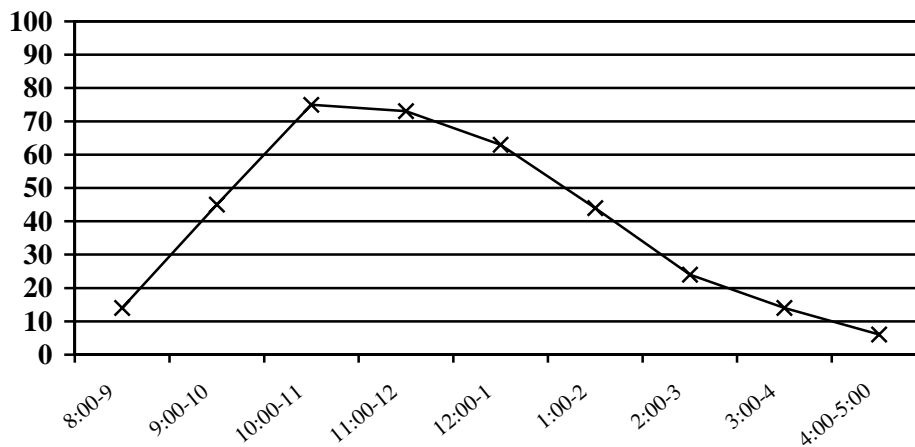
Sixty-seven percent of clients at Glen Vincent and 71% at Comprehensive reported one hour was a reasonable amount of time to spend at the clinic.

How did providers schedule appointments?

Over the twenty-day period of data collection, 1033 family planning appointments were made at CHC. Providers scheduled most appointments for the 8:30-10:30 block (79%), with only 12% scheduled for the 10:30-12:30 block, and 9% for the 12:30-1:30 block.

An important question is: why did providers select that schedule rather than spreading out appointments over the course of the day? Unfortunately providers were not asked this question, but previous research in Kingston clinics does throw some light on this question. As shown in Figure 1, using data from a time motion study conducted in four Kingston clinics (West et al., 2001), the percentage of time that providers spent with clients was much higher during the morning and early afternoon hours. The percentage of time spent with clients was very low after 2pm. It appears that providers at CHC have a similar work pattern with 91% of appointments scheduled before 12:30. Thus, it would appear that providers scheduled appointments to match their current work pattern, that is, to schedule most appointments during the morning hours.

Figure 1. Percent contact time through the day for providers at four Kingston clinics (West et al., 2001).



In-depth interviews provided more descriptive information on how providers scheduled appointments. Providers at CHC had a very loose interpretation of the blocks. A midwife gave the following description: “We start giving out times for 8am and do them in batches of ten mostly and then we set appointments for every half hour. All the appointments go into the appointment book and that helps to control the numbers.” A public health nurse described the system somewhat differently: “It’s like eight to nine-thirty; nine-thirty to ten and so on. It runs in blocks of 1 hour and one and a half hours....so we have a good practice coming within blocks.”

When setting appointments, providers stated they asked clients for their time preference and they often gave clients the same time appointment for their next visit. A midwife at CHC described how appointments were set for clients: “First we ask you what time would be best for you and look in the appointment book to see if we can accommodate you but we try our best to work with the time you can come.” Another midwife described a similar method: “If I have somebody who usually comes 9am I don’t usually change their time unless the patient says she can’t come at that time. You try to ... give them an appointment based on the time they usually come out to the clinic. It is better to make people come at the time that suits them.”

Almost all (98%) clients interviewed had received a time appointment for their next visit. A minority (39%) reported the nurse asked them for the time they preferred, although most clients (78%) liked the time they were given.

It was unclear if clients who arrived during their appointment time received preference over clients who arrived at an unscheduled time or day. A public health nurse at CHC indicated that preference was given to clients who arrived at their appointed times: “If we find that clients are coming out of their appointments and are inconveniencing other persons then we say to them that it is not convenient to see them now and their

appointment was another time. We will see them but they will have to wait until the other people are through.” However, she later said clients were seen in the order their medical records arrived.

Did clients keep their appointments?

Table 3 shows the percent of appointments that were kept and percent of appointments not kept. The percent of appointments not kept is broken down into two categories- percent in which the client visited on the correct day and the percent in which the client did not visit. At CHC only 31% of scheduled appointments were kept by clients who visited during their scheduled time and day. Twenty-four percent of appointments were not kept but the client visited on their scheduled day, just not during their scheduled time. Forty-five percent of appointments were not kept. The clients assigned to these appointments may have visited days or weeks later than their assigned appointment but we did not track each woman to see if she visited on a later day. Clients with morning appointments were more likely to keep their appointments compared to those with afternoon appointments. Conversely, those with afternoon appointments were more likely to come at a time other than at their scheduled appointment time.

In-depth interviews with providers showed that perceptions differed among staff and were not necessarily consistent with the quantitative findings. A public health nurse estimated that “99% of them keep their appointments.” However, a midwife stated that “a lot of them [are] not keeping the appointments still.”

Table 3. Distribution of how appointments at CHC were kept.

Appointment block	8:30-10:30	10:30-12:30	12:30-1:30	Total
Scheduled appointments	815	126	92	1033
	%	%	%	%
Appointments kept by clients (visited on scheduled day and time)	32	35	17	31
Appointments not kept by clients (visited on scheduled day but not at scheduled time)	22	27	36	24
Appointments not kept	47	38	47	45
Total	100	100	100	100

How many clients visited without appointments?

Table 4 shows the distribution of all visits made during data collection. Of the 858 visits that were made during the data collection, most (65%) were made by clients with appointments who visited on their scheduled day regardless if they visited during their scheduled time block. Thirty-three percent of visits were made by clients who did not have an appointment on the day of their visit.

Table 4. Distribution of visits made during data collection at CHC.

Distribution of visits		
	N	%
Client visited and had appointment on day of visit	563	65.62
Client visited but had no appointment	288	33.57
Client visited but unknown if had appointment	7	0.82
Total visits	858	100.00

Why did clients not visit during their scheduled time and/or day?

A midwife at CHC speculated on one reason why clients may not come at their appointed time: “Some of those who come late come all 2 or 3 hours late. They just don’t care, especially if they don’t want to pay. They wait till the cashier closes and we have to see them no matter what.” The same midwife pointed out that clients who work and clients who don’t work might have perceived the appointment system differently. Those who work were more likely to keep their appointments, while for those who don’t work, “Then there are the others who don’t care and they just come whenever. Those now couldn’t care less that there is a system and the problem is most of them don’t work.”

Most (82%) of the clients interviewed for the exit interview had appointments on the day of their visit. Twenty-two clients did not have appointments. When asked why they did not come on their scheduled day the most popular response was the client had other business. Other responses were they did not have money or did not remember their appointment.

What did providers and clients like about the appointment system?

Overall most providers and clients at CHC were positive towards the system. During the in-depth interviews providers noted a number of improvements created by the appointment system. A public health nurse at CHC stated that, “The time system has allowed us to space out the day and give us a manageable situation.” A midwife at CHC added: “The new system makes everything flow better.” Another midwife stated that the appointment system made her day more structured and less stressful, “because you don’t have so many people coming in at one time. You can actually sit down and talk and get into things. You can sit and listen.”

Providers at CHC felt that the new appointment system worked better than the old numbering system. A public health nurse explained: “we use to give out numbers, but then we realized that the numbers were disappearing and were being sold at the gate, so we started the appointment system. We initiated it for family planning but we eventually did it also in the child health and ante-natal clinics which are really our larger clinics and it works.”

Ninety-five percent of clients interviewed for the exit interview reported preferring to visit the clinic with a time appointment versus visiting without a time appointment. Over 80% reported that having time appointments made their visit better.

The main reasons given for making the visit better were they were able to move more quickly through the clinic and able to organize work/other business around the time appointment. Other responses given were they didn't have to get a number, the clinic was more organized, and there were fewer crowds/arguments.

What did providers and clients not like about the system?

Providers at CHC had few complaints. A public health nurse expressed some concern that not all clients were able to attend the group talks held in the mornings on family planning days. A midwife pointed out that the appointment system was very dependent on staff attendance: "If there is not enough staff we have a big problem."

The pre-pulling of client medical records was a potential obstacle to smooth running of the system and a complaint from providers at both clinics. Providers commented that these client files were not always pre-pulled before clients arrived and this slowed down the movement of clients through the clinic. A midwife said, "they have to pre-pull the docket so the patients don't have to wait long or at least go down for them for us if they are not up at family planning. That is the only way you can stop the backing up and long wait which just cut into the next person's time." The pre-pulling of medical records was done at the discretion of the medical records officer and was not necessarily a standard procedure. Consequently, a change in medical records officer often led to a breakdown in the procedure which then had to be re-established, usually by the researcher.

In-depth interviews with providers at GVHC showed some providers held beliefs that ultimately hindered the implementation of the system. Many of the providers believed their current system was fine and did not see the need to make changes to it. They also believed clients would never visit on their scheduled times. Other issues that affected the implementation of the system were that the head public health nurse was transferred for three months during the start-up of the system and that some staff never implemented the system.

Providers at GVHC were somewhat resistant to the appointment system from the beginning. When asked how they felt about the system when they first heard about it, many providers stated their current system was fine. "I am not sure I want to use the word skeptical, because the system was working it is not that we had a problem with the system that we had before. Our clients would come, they come anytime and I don't see a patient coming and waiting even an hour for a method." One provider even stated they wanted the client to have flexibility in the time they visit: "because our clients know that if they [want] their pill they can come anytime and we going to see them, as I said we make sure that the time is flexible we don't want to start to hold them to a time."

Another common belief was that clients didn't care about getting a time appointment and would not keep their time appointments. Two public health nurses at GVHC said clients

didn't really care about the time they received. One public health nurse stated: "...they say I don't know what time I want just put in a time and give me." The other nurse stated: "Because all they want is the method they don't care about the next time they come." The belief that clients would not keep their appointments was held by most of the providers at GVHC. When a community health aide was asked if she thought the appointment system would work when she was first introduced to it she responded with "no because I know those patients and they not going to stick to no time." Another nurse at GVHC stated: "Whatever time you give them they come whenever they feel like coming or when it is convenient to come on that day." When asked if there was any way to get clients to agree to come on their scheduled time the nurses at GV said it depends on the client's schedule which is often something they can't control. One nurse stated: "As I say some of them would agree to the time but as they say it depends on my shift, depends on what time I am going to have my lunch break and they can't control that."

Only fifteen clients at CHC reported problems created by the appointment system but most clients did not give a reason. The four reasons given were: staff did not start at appointment time, medical records were misplaced, sometimes later appointments finish before earlier appointments, and had to work during appointment time.

Was the PFA a feasible way to measure waiting time?

Patient flow analysis was conducted at CHC on one family planning day in July 2003 one year after the implementation of the system. It was conducted to determine if PFA was a feasible way to measure waiting time in a Jamaican public sector clinic. Nurses and clients did not have complaints about the method and the forms were very complete. Therefore, it was considered that the method was a good way to measure waiting time in the clinic.

How did clients move through the clinic?

The PFA provided descriptive information about a typical client's visit. Most of the clients had three contacts with providers, spent over an hour at the clinic, and were visiting to receive injections. Seventy-six percent of the clients had appointments on the day of PFA data collection. All clients except for two visited the clinic to receive an injection. The other two clients visited to receive pills. Typically the first contact was with a community health aide for weight/height measurements, received by 76% of clients. The second contact was either a family planning counseling session or a blood pressure measurement. The third contact was a family planning counseling session if the client had not already received one. Seventy-two percent of clients received the blood pressure service and 93% of clients received the family planning counseling session service. The average contact time was five minutes and the average amount of time spent waiting was one hour and fourteen minutes. Table 5 shows average overall amount of waiting time and the amount of waiting time before each contact.

Table 5. Average amount of time spent waiting at CHC one year after implementation of block appointment system.

	N	Mean
Total waiting in clinic	46	1:14
Wait between arrival and start of first contact	46	0:35
Wait between first and second contact	42	0:17
Wait between second and third contact	22	0:47

During the exit interviews clients at CHC were asked if the amount of time spent at the clinic was different when the clinic was using the time appointment system compared to when it was not using the system. Sixty-five percent reported the time spent was different since using the system. Eighty percent of these clients reported the time spent was shorter compared to when the clinic was not using the system. It is not known if client waiting time decreased since the clinic started using the time appointment system as waiting time was not measured prior to implementation of the system.

Discussion

The aim of this pilot study was to determine if a block appointment system was feasible by specifically looking at client and provider acceptability and utilization of the system. The system was acceptable to both providers and clients at one clinic. In this clinic providers utilized the system to fit either their schedules or client desires by scheduling most appointments for morning hours when they had usually taken place. In the other clinic the providers did not find the system acceptable and did not utilize the system. This feasibility study highlighted several important issues including staff buy-in, system implementation, and provider and client satisfaction.

The experience at GVHC highlighted the importance of staff buy-in when implementing an appointment system. In-depth interviews showed providers expressed views such as thinking their current system was fine and did not need to be changed. They also thought clients would never keep the time appointments. These provider views were probably a major factor in the abandonment of the system. If provider opinion had been gathered before implementation of the system some of the concerns could have been addressed.

The implementation of the system at CHC was somewhat weak. It was unclear if providers explained to clients that clients visiting with appointments had preference to be seen before clients visiting without appointments. It was also unclear if providers actually saw clients in this way. The possible poor explanation of the system in combination with not consistently giving clients with appointments preference, probably did not give clients a clear message to arrive during their scheduled time. This may explain why a minority of clients kept their appointments.

The new system at CHC was also implemented in a way that fit into provider and client schedules. Providers scheduled almost all appointments for the morning hours. Results from a previous time motion study showed that providers at similar clinics structured their day so that most time with clients took place in morning and noon hours leaving the afternoon for other activities. It appears providers at CHC followed a similar work schedule. It is unclear if providers scheduled appointments to fit into their schedules or client schedules.

Given the apparent lack of change it is somewhat puzzling that clients and providers both appeared to like the new system. One possible explanation was that it eliminated the old number system. It likely reduced waiting time for the first contact by spreading client load more evenly in the early morning hours but this was not measured. The PFA results show there is still room for improvement in reducing the waiting time for clients. Possibly if more clients are scheduled for later hours the client waiting time would decrease further.

This study had a number of limitations. One limitation was that GVHC stopped using the system early in the study. Another limitation was that waiting time before the appointment systems were implemented was never measured. Other limitations were that it is not known exactly what providers explained about the system, how much clients understood the system, and why a majority of appointments were scheduled for the morning hours. The results of this study may not be generalizable to other Kingston public sector clinics; however, they may shed light on similar clinics that provide similar services.

Conclusions/Recommendations

This study has shown that block appointment systems are feasible but two unanswered questions remain. The first question is: was the system set up to match usual client or provider schedules? It was not possible to distinguish if providers set up the system to meet their preferences or if they set it up to meet client preferences. The second question is: can a clinic set up a system that spreads client load more evenly through the day? This would require both providers and clients to change their work/visit schedules. Client waiting time could possibly be reduced if client load was spread more throughout the day. This would require providers to see more clients in the noon and afternoon hours.

Recommendations to improve future appointment systems follow. Three recommendations are related to implementation of appointment systems and two are related to research.

- *Staff buy-in is necessary before the system is implemented.* Staff that are responsible for implementing the system should support the intervention. If they don't support the intervention then the appointment system may never be implemented or partially implemented.

- *Pull client records the day before the client's visit.* Providers want medical records pulled before the client arrives to allow smooth movement of clients through the clinic.
- *Send a clear message that clients with appointments will be seen before clients without appointments.* Clients receive mixed messages if clients who visit without appointments are seen before clients with appointments. Positive reinforcement to clients for keeping appointments could possibly increase the number of appointments that are kept.
- *Conduct in-depth interviews before the intervention starts.* This would allow implementers to understand provider attitudes and opinions and address these before any intervention activities start.
- *Conduct a research study to determine if a system can be set up to spread client load throughout the day.* Try to schedule more appointments for later morning and noon hours and to limit the number of appointments scheduled per block. Possibly some type of incentive is needed to motivate providers to change their scheduling practices.

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