

Patients' Response to Waiting Time in an Out-Patient Pharmacy at a Tertiary Care Hospital

Meena Kumari K¹, Somu², Mohan Amberkar^{1*}, Nandit P.B¹

¹Dept of Pharmacology, Kasturba Medical College, Manipal University-576104, Karnataka, India.

²Dept of Hospital Administration, Kasturba Medical College, Manipal University-576104, Karnataka, India.

ARTICLE INFO

Article history:

Received on: 18/08/2012

Revised on: 29/08/2012

Accepted on: 05/09/2012

Available online: 29/10/2012

Key words:

Out-patient Pharmacy,
waiting time,
patient queue

ABSTRACT

This study was carried on to know the average time taken from when the customer arrives in out-patient pharmacy till the collection of medicine and to know the time spent at various counters in the out-patient pharmacy. It was an observational study done on customers attending hospital pharmacy for a period of two months. Seventy out-patients were randomly selected from the population of patients who attended pharmacy. Similarly dispensing operations were observed. Workflow analysis method and stop watch techniques were used to measure patient waiting time. The various places where the customer has to wait from billing till the procurement of medicine was noted and also the total time taken. A total of 35 patients / patient attender's were observed both in the morning and in the evening. Majority of the time was consumed in billing after placing the prescription on the dispensing table. It was seen that in the morning session the waiting time for the various components of processing was less compared to the afternoon, except for the processing of the transaction time by the cashier is more in the morning (38.34±34.66) sec compared to (28.42±25.67) sec. Majority of the time was consumed in billing after placing the prescription on the dispensing table.

INTRODUCTION

The goal of every department of the hospital is to furnish the patient with the best of service at the most economical cost and the pharmacy is no exception, which is one of the most extensively used therapeutic arm of the institution (Francis, 1991 & Gibony, 1969). Hospital pharmacy has been defined as "the department or service in a hospital which is under the direction of a professionally competent, legally qualified pharmacist, and from which all medications are supplied to the nursing units and other services, where special prescriptions are filled for patients in the hospital, where prescriptions are filled for ambulatory patients and outpatients, where pharmaceuticals are manufactured in bulk, where narcotic and other prescribed drugs are dispensed, where biological drugs are stored and dispensed, where injectable preparations should be prepared and sterilized and where

professional supplies are often stocked and dispensed" (William, 1986). A fairly high percentage of the total expenditures of the hospital go for pharmaceutical services. This emphasizes the need for very careful attention to the effect that pharmaceutical services have on efficiency of both clinical and administrative services on every size hospital. A well organized pharmacy has proved to be revenue producing even in a small hospital (Francis, 1991). Patient waiting time has been defined as 'the length of time from when the patient entered the pharmacy to the time the patient actually received his or her prescription and left the pharmacy' (Afolabi, 2009). A patient's experience of waiting can influence his/her perceptions of service quality. Long waiting time has been given as a reason why some patients do not have their prescriptions filled in a particular pharmacy. A high percentage of out-patients attend the hospital pharmacy unit for their drug needs. These patients leave the various out-patient departments at various times and randomly arrive at the pharmacy. Queues form when the rate of patient arrival

* Corresponding Author

Mohan Amberkar, Associate Professor, Dept of Pharmacology,
Kasturba Medical College, Manipal University-576104, Karnataka, India.
Phone-(0820)2922365

at the pharmacy is greater than the service rate. Excessive patient waiting time undermines pharmacy efficiency. Such delay leads to patient dissatisfaction and thus may eventually result in loss of patronage in a competitive health care system. Therefore, there is a need to carry out a systematic study on patient waiting time in a pharmacy, with a view to identify the factors that affect waiting time and recommend ways of minimizing the delay.

Basic aim of pharmacy must be to provide right drug at the time at the right cost at the right place to the right patient.

AIM

1. To know the average time taken from when the customer arrives in out-patient pharmacy till the collection of medicine.
2. Time spent at various counters in the out-patient pharmacy.
3. Suggestions how this waiting time can be reduced and increase customer satisfaction.

MATERIAL & METHODS

The study was carried out between November and December 2010 at the Hospital out-patient pharmacy of Kasturba Medical College, Manipal, a University teaching hospital in South India. It was an observational study done on customers attending hospital pharmacy for a period of two months.

The pharmacy department is a service arm of the teaching hospital, which provides pharmaceutical services to the out-patients. It is open to patients from 8.30 am to 5 pm, but the peak hours for out-patient transactions is from 8.30 am to 1 pm daily on weekdays.

At the time of this study, the number of pharmacists working in the hospital was 7, Pharmacy associate were 4 and attendants were 2. Prescription sheets are written and duly signed sheets indicating the drug items prescribed for a particular patient. Outpatients take their prescription sheets to the pharmacist who vets the drug items before dispensing. A prescription sheet may contain one or more drug items.

Due permission was sought from relevant authorities to carry out this study at the teaching hospital. An initial interaction was made with the out-patients to establish rapport, introduced the questionnaire, sought their consent to take part in the study. A total of 70 out-patients were randomly selected from the population of patients who attended pharmacy. Similarly dispensing operations were observed.

Research instruments

The data was collected by the use of questionnaire administered on the out-patient at the pharmacy department. The questionnaire comprised of two sections, one section stating the demographic profile like age, sex, occupation, educational status and address and the second section consisting of six items designed to evaluate the extent of patient waiting time and the level of satisfaction with the quality of pharmaceutical services in the pharmacy.

Measurement of patients waiting time

Workflow analysis method and the stop watch techniques were used to measure patient waiting time (Francis, 1991). The dispensing procedure in the pharmacy was first studied and then divided into sub-components and a stopwatch was used to determine the time spent for each sub-component. The workflow analysis highlights the sequence of activities involved in the dispensing procedure. The operation starts with submission of the prescription sheet by the patient and its subsequent flow through vetting by the pharmacist for appropriateness in drug combination and dosage; billing of the prescription items, payment to the cashier and dispensing. Various sub-components of the dispensing procedure were then grouped into two i.e. "process" and "delay". A process component involved a staff member actively working on the prescription, while a "delay" component involved the prescription sheet lying idle and waiting for a staff member to work on it. The various places where the customer has to wait from billing till the procurement of medicine was noted and also the total time taken. Any barriers during the process were also identified.

Statistical Analysis

was done using SPSS version 16.0 software program for frequency distribution. Tests for statistical significance were done by using independent t-test at $p < 0.05$.

RESULTS

A total of 70 patients / patient attender's participated in the study. Males comprised 75.7% in comparison to females 24.3%. Majority of people attending the pharmacy were professionals comprising 30%, followed by businessmen 27.1%, agriculturist and home makers comprised 18.6% respectively with student population making up to 5.7%. Patients / patient attender's who visited the out-patient pharmacy majority were from outside town 74.3%, 18.6% were from within Manipal town and 7.1% were from Kerala and Andhra Pradesh. The age wise distribution of patients attending the outpatient pharmacy is 1.4% in less than 20 y age group, 27.1% in 21-30 y age group, 31.4% in 31-40 y age group, 18.6% in 41-50y age group and 21.4% in 51-90y age group. Majority of the patients / patient attender's had obtained post-secondary education (50%), followed by secondary education (35.7%) and primary education 14.3%. A total of 35 patients / patient attender's each were observed both in the morning and in the evening. Majority of the time is consumed in billing after placing the prescription on the dispensing table. It was seen that in the morning session the waiting time for the various components of processing is less compared to the afternoon, except for the processing of the transaction time by the cashier is more in the morning (38.34 ± 34.66) sec compared to (28.42 ± 25.67) sec (Table 1).

Overall the time taken was less for joining of queue till billing, waiting time in queue for cashier counter and for dispensing of the medicines.

Table 1: Observed time distribution during processing of each component of the dispensing process.

	Morning(n=35)sec	Afternoon(n=35)sec
Question 1	234.23±142.78*	401.17±346.55
Question 2	39.45±22.41	41.57±35.13
Question 3	107.66±92.92*	199.71±183.25
Question 4	38.34±34.66	28.42±25.67
Question 5	201.60±101.41*	250.83±119.75

*Indicates significant difference in time for the particular group in comparison to its respective afternoon group at $p < 0.05$.

It was observed on the initial week day i.e, Monday, the pharmacy is overcrowded compared to week end. There was delay component also but it was not measured, since it involved more manpower to observe. It was observed that the delay was at the cashier counter and at medicine collection counter.

DISCUSSION

Patient satisfaction is a worthwhile goal of health care service (Shea, 2008). It has been suggested that waiting time is the most important determinant of patient satisfaction. Waiting time statistics have become an important standard by which health care is measured. (Su, 2009; Kawakami, 2008; Kim, 2009) and long waiting times induce negative effects on the quality of the hospital. Reducing outpatients' waiting time is not only valuable for the patients but also is helpful to decrease the hospital workload.

Analysis of the data has revealed that longest waiting time occurred when the patients had to wait in the queue to pay the bills and for the collection of the medicines. At the time of the study, there was only one payment unit at the pharmacy. Increase in the number of payment units should significantly reduce the delay.

Currently a significant number of processing components involve movement from one area of the pharmacy to another. These processes included

1. Attendant taking prescription to pharmacist for billing.
2. Attendant taking prescription to cashier for payment
3. Attendant waiting for the pharmacist to dispense the medicines.

Patients may be less able to judge the technical quality of the care they receive, but they do judge their social interaction with the pharmacist. Pharmacy professionals must increase patients awareness of the value of pharmaceutical care services. Attempts should therefore be made to reduce the time on these components of dispensing so that more time could be devoted to counseling while reducing the total time spent by the patient in having their prescriptions filled.

Queuing models have been applied to the analysis of waiting lines in healthcare organisations and the goal of such analysis is to minimize the costs of waiting and to provide quantitative data to assist in system planning. In a study to identify a priority queuing model of a hospital pharmacy unit, the authors used queuing theory to evaluate waiting times in the outpatient department. The models were used to examine various design alternatives for an efficient pharmacy unit and also to give quantitative data relevant to prescription filling operations in the pharmacy. In another outpatient study the results showed that the

'process' components accounted for only a small percentage (10.5%) of the patient waiting time when compared with the 'delay' period (89.5%). This showed that the time spent on delay was quite excessive and a significant reduction in time would shorten patient waiting time, thus increasing efficiency of the outpatient pharmacy.

In the analysis of prescription dispensing in an Australian hospital pharmacy, the authors used the work measurement technique to determine standard times for all the activities involved in dispensing in- and out- patient prescriptions along with the total amount of labour required to perform the activities. Similarly, in a previous study the authors adapted a workload measurement system for the evaluation of work processes in hospital pharmacies. The method included the design of a checklist to record the various activities involved in the dispensing workflow in order to identify the operational and delay components of the process. This instrument is applicable to the measurement of both the distributive and clinical pharmacy activities related to patient care. Service rates may be increased at the payment counters in order to reduce the total patient waiting time in the pharmacies. The application of modern technology in cash transactions and accounting records may help to speed the process; for instance, the adoption of new technologies such as electronic payment and computerised recording system can help to relieve delay caused by manual operations and smoothen the dispensing process.

The paper prescription, although historically effective, has always been a somewhat painful prescribing medium for physicians, patients, and pharmacists. The biggest problem with paper prescribing for physicians is the amount of time needed to recall from memory or look up which medication and dosage to prescribe more than 20,000 products. They then must legibly write each prescription. Pharmacists deal with hundreds of prescriptions each day and must legally account for each one, must store them, and be able to retrieve them for refills. Thus, alternative ways of generating and maintaining prescriptions with computers are often sought. Computer-based writing of prescriptions by physicians addresses many of the problems posed by the paper prescription. Pharmacists would save much time not having to interpret physician's writing and save much space storing prescriptions.

The time needed for retrieval of prescriptions for refills would be greatly diminished. Implementing a new plan is costly and often requires additional changes in the current working process. The alternative is to use computer simulations to predict the impact of changes on outcomes. Computer simulation is a powerful tool that can support evidence-based health care policies and management in a risk-free environment. The use of a simulation to test alternative plans can improve efficiency at a minimal cost. The results of this case study in a community hospital indicated the usefulness of efficiency at a minimal cost.

Recommendation

1. Waiting area could be made more attractive by putting up notice boards and posters giving information to public about

health education, dangers of self medication, latest innovation and developments in the field of Hospital Pharmacy.

- Air conditioning of entire pharmacy area required, as people feel suffocated due to overcongestion in peak hours of transaction.
- Token system can be introduced, instead of giving the patient two copies of bills, he can be given token with number, the copies of bill can be directly passed on to the cashier by billing pharmacist with a token number written on it. According to his/her token number cashier calls the patient and settles the bill with paid seal on it to collect the drug at dispensing counter, this helps in preventing people from jumping the queue.
- To allow any one person in queue to purchase the medicines rather than allowing the other attendants also to join them. A small wait area could be made for other patient attenders.
- To clearly specify the queues for refunding and those for initial purchase of medicines.
- To increase the payment counters to two, to reduce the burden of overcrowding.
- Tell the attenders about the other retail pharmacies in the hospital. To have a facility before joining the queue to inform the patients whether the prescribed medicines are available in the pharmacy, this could reduce the burden of joining the queue for billing.

CONCLUSION

Strategies that could significantly speed the process of service delivery like queuing models can be adopted to minimise the costs of waiting and to provide quantitative data to assist in system planning. So that more time could be devoted to counselling of the patients.

ACKNOWLEDGEMENT

I acknowledge Sikkim Manipal University for allowing me to take up this project work.

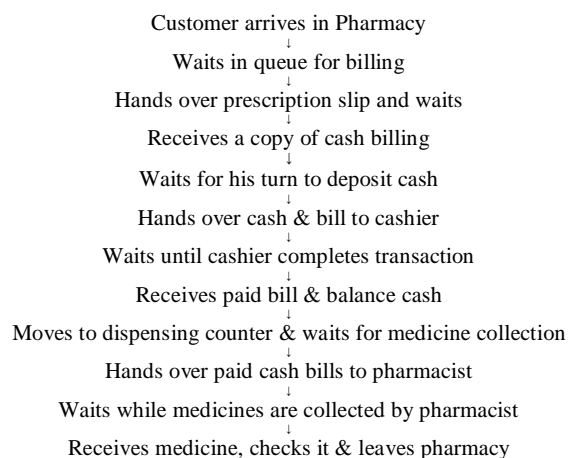


Fig. 1 Process flow chart for prescription dispensing to outpatients.

REFERENCES

- Afolabi MO, Oyebisi TO, ErhunWO. Pharmacists' views of operational problems in hospital pharmacies in Southwestern Nigeria. *The Journal of Medicine Use in Developing Countries* 2009;1(4):14-24.
- Francis CM, Hospital Administration, first edition, New Delhi, Jaypee Brothers 1991.
- McGibony Jr. Principles of Hospital Administration, second edition, New York, G. Putnam & sons. 1969.
- Kawakami J, Hopman WM, Smith-Tryon R, Siemens DR. Measurement of surgical wait times in a universal health care system. *Can Urol Assoc J.* 2008; 2: 597-603. 19.
- Kim YK, Song KE, Lee WK. Reducing patient waiting time for the outpatient phlebotomy service using six sigma. *Korea J Lab Med.* 2009; 29: 171-177.
- Shea AM, Curtis LH, Hammill BG, DiMartino LD, Abernethy AP, Schulman KA. Association between the medicare modernization act of 2003 and patient wait times and travel distance for chemotherapy. *JAMA.* 2008; 300: 189-196.
- Su HY, Sykes PH, Su HY, Sykes PH. Waiting times for gynaecological cancer surgery. *N Z Med J.* 2009; 122: 26-33.
- William E. Hassan. Jr. Hospital Pharmacy, 5th edition, Lea & Febigar publication. 1986; 20.

How to cite this article:

Meena Kumari K, Somu, Mohan Amberkar, Nandit P.B. Patients' response to waiting time in an out-patient pharmacy at a tertiary care hospital. *J App Pharm Sci.* 2012; 2 (10): 090-093.

Appendix-I

Patient/attendants name-

Age-

Sex-

Occupation-

Education status-

Address-

- Time taken from joining of queue till billing
- Time taken for billing after placing prescription on dispensing table
- Time taken to wait at cashier counter
- Time taken for the cashier to complete the transaction.
- Time taken from bill being paid till medicines are received.