DISSERTATION

IN

CRONUS MULTISPECIALITY HOSPITAL

"A RECOMMENDATION ON REDUCING WAITING

TIME IN THE OUT-PATIENT DEPARTMENT"

SUBMITTED BY:

Atul malik

UNDER THE GUIDANCE OF

Dr. SUMESH KUMAR

POST- GRADUATE DIPLOMA IN HOPITAL & HEALTH MANAGEMENT

NEW DELHI

(2018-2020)

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT &
RESEARCH, NEW DELHI-110075

Completion of Dissertation from organization

The certificate is awarded to

Name-Atul malik

in recognition of having successfully completed his/her
Internship in the department of

Hospital operations

And has successfully completed his/her Project on

"A RECOMMENDATION ON REDUCING WAITING TIME IN THE OUT-PATIENT DEPARTMENT"

Date 1 MARCH 2020 TO 30 APRIL 2020

Organization Cronus multispecialty hospital

He comes across as a committed, sincere & diligent person who has a
strong drive & zeal for learning.

We wish him/her all the best for future endeavors.

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Atul malik** student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at Cronus multispecialty hospital from 1 MARCH 2020 to 30 APRIL 2020.

The Candidate has successfully carried out the study designated to him during internship training and his/her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the
course requirements.

I wish him all success in all his/her future
endeavors.

Dr Pradeep K Panda   Mentor

Dean, Academics and Student Affairs

IIHMR, New Delhi   IIHMR, New Delhi

Certificate of Approval

The following dissertation titled

At Cronus multispecialty hospital is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name   Signature

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_____   _____

_____   _____
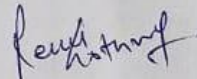
Certificate from Dissertation Advisory Committee

This is to certify that **Mr.Atul malik.** A graduate student of the **Post- Graduate Diploma in Health and Hospital Management** has worked under our guidance and supervision. He/ She is submitting this dissertation titled **"A RECOMMENDATION ON REDUCING WAITING TIME IN THE OUT-PATIENT DEPARTMENT"** at in partial fulfillment of the requirements for the award of the **Post- Graduate Diploma in Health and Hospital Management.**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Institute Mentor Name

Designation,

Organization

Organization Mentor Name
RENU GOTHWAL

Designation
DIRECTOR

Organization
CRONUS HOSPITAL

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH,

NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **"A RECOMMENDATION ON REDUCING WAITING TIME IN THE OUT-PATIENT DEPARTMENT"** and submitted by **Atul malik** Enrollment No **PG/18/102** under the supervision of **RENU GOTHWAL SINGH**

For award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from **1 MARCH 2020** to **30 APRIL 2020** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Signature

DECLARATION

I do hereby declare that the summer training project entitled **"A RECOMMENDATION ON REDUCING WAITING TIME IN THE OUT-PATIENT DEPARTMENT"** being submitted in partial fulfilment of dissertation in PGDHM programme is an authenticate record of my own work. This is an original piece of study work carried out by me under the guidance and supervision of **RENU GOTHWAL SINGH**

(DIRECTOR) at Cronus Hospital, Chattarpur , New Delhi.

I further declare that the information has been collected from genuine & authenticate resources and I have not submitted to any another institute or university for any other degree, diploma and certificate.

Atul malik

IIHMR,Delhi.

ACKNOWLEDGEMENT

It is my esteemed pleasure to present this Dissertation project report and whole heartedly thank to each and every one who helped me in this task.

I would like to express my gratitude and sincere regards to **Dr. Chetan gupta , (Managing director)** for giving me opportunity to carry out my Dissertation at cronus multispecility Hospital in Service Excellence department.

I am highly thankful to my mentor and project guide **Mrs.RENU GOTHWAL SINGH(DIRECTOR).** It is my pleasure to work under them. I am extremely grateful to RENU GOTHWAL for her keen interest, constant support and guidance throughout the training tenure and clarifying my doubts when necessary.

My sincere gratitude to **Dr. Shankar Das,** Director, International Institute of Health Management Research, New Delhi, who always have been a source of motivation and inspiration. I would also like to thank my mentor **Dr. Sumesh** at IIHMR New Delhi for providing necessary suggestions and guiding me to complete the report.

Atul malik

IIHMR New Delhi

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INTRODUCTION

Hospital is the most important institution for a society, which provides treatment to the ailing peoples of its community through it specialized medical, paramedical and nursing staffs enhanced with the help of different sophisticated and vital medical equipment's for the treatment and diagnostic purpose

According to WHO "hospitals complement and amplify the effectiveness of many other parts of the health system, providing continuous availability of services for acute and complex conditions. Hospitals concentrate scarce resources within well planned referral networks to respond efficiently to population health needs. They are an essential element of universal health coverage and will be critical to meeting the Sustainable Development Goals." [1]

Multispecialty hospital (multi = many) means the hospital which provides different services of varied number of medical specialties; like General Medicine, ENT, Ophthalmology, Cardiology, Pulmonology, Nephrology, etc.

A hospital provided various services starting from medical care of patients in outpatient and inpatient services, prevention, diagnostic service, therapeutic, accident and emergency services, rehabilitation services, education and research service.

ORGANIZATION PROFILE:

Hospital Introduction:

 Mission

To our Patients: We will align our operations around the patients and their families. We will treat all patients with confidentiality, compassion, care, and respect. We shall provide competent, innovative, and accessible care. We shall commit ourselves to continuously improving our service

quality.

  To our Employees:

We acknowledge our employees efforts in executing our mission. We will provide a safe, comfortable, and clean working environment. We respect each employee's individuality and shall listen to their concerns and suggestions. We will empower our employees with the necessary equipments and technologies. We shall provide opportunities for our employee's professional growth and development.

To our Organization:

 We are accountable and responsible for the future success, sustainability, and financial viability of our organization. We shall be active contributors in framing the future of our organization and shall be active team players. We will protect our organization's assets, resources, and interests.

To our Community:

We are responsible to our community both as an organization and as individuals. We shall show interests in the total community welfare, not just those aspects in which we have a

business interest. We shall undertake the lead in the creation of healthier lives within the community.

REVIEW OF LITERATURE

Evidence of poor and sub-par quality among hospitals has been well documented in recent years.6 In response, the federal government, foundations, and the private sector have funded research to identify best clinical practices and develop strategies to reduce medical errors and improve health outcomes. A major element of this work has involved defining and measuring quality and developing indicators of performance to compare hospitals across the country.

The cost of various options for reducing patient waiting time in an outpatient pharmacy was studied through computer simulation. The time required to complete prescription filling tasks was recorded for a baseline of five pharmacy employees: technicians A, B, and C, a typist , and a pharmacist. A fixed factorial design of 12 configurations was used in which the number of pharmacy employees was varied (one, two, or three technician As; one or two typists ; and one or two technician Bs). Patient waiting time for each configuration was determined through computer simulation. Pharmacy employee salaries were used to calculate the relative cost of six of the configurations that were predicted to reduce waiting time to less than 10

minutes. Configurations with additional technician Bs or typists, or both, exhibited reductions in total waiting time of comparable

magnitude. One of these configurations was identified as the least expensive per daily hours saved. Without disturbing the operation ofthe pharmacy, computer simulation was found useful in identifying the least expensive method of reducing patient waiting time in an outpatient pharmacy.

This report focuses on the dynamics of hospital performance: how hospitals achieve and sustain improvements over time. Case studies of four hospitals that made substantial improvements reveal a pattern: 1) a trigger such as a crisis or new leader serves as a "wake up call" that prompts the hospital to make 2) organizational and structural changes such as multidisciplinary teams, quality-related committees, and technology investments, which facilitate 3) a systematic problem-identification and problem-solving process, resulting in 4) new treatment protocols and practices, which in turn result in 5) improved outcomes. Success strengthens commitment to quality improvement and turns this temporal pattern into an ongoing cycle. The entire process reflects the establishment, growth, and reinforcement of a culture of quality.

Jack A. Meyer, Ph.D., is a health economist with more than 20 years of experience leading

health care research and consulting projects. He has directed in-depth health research projects for numerous foundations and conducted policy analysis and strategic planning for government agencies and clients in the business community. Dr. Meyer specializes in developing

and evaluating proposals to cover the uninsured at both the national and state levels. He has also focused on initiatives of both private employer groups and government to improve quality and patient safety. Prior to joining HMA, Dr. Meyer was the president of the Economic and Social Research InstituteSharon Silow-Carroll, M.B.A., M.S.W., is a health policy analyst with nearly 20 years of experience in health care research. She has specialized in health system reforms at the local, state, and national levels; strategies by hospitals to improve quality and patient centered care; public–private partnerships to improve the performance of the health care system; and efforts to meet the needs of underserved populations. Prior to joining Health Management

Associates (HMA) as a principal, she was senior vice president at the Economic and Social Research Institute (ESRI), where she directed and conducted research studies and authored numerous reports and articles on a range of health care issues.

Following the Institute of Medicine (IOM) reports, To Err Is Human and Crossing the Quality Chasm, several studies were conducted to ascertain how quality within the hospital setting could be appropriately measured. Perhaps the most far-reaching of these studies was the "High Performers Special Study" (HPSS), supported by the Centers for Medicare and Medicaid Services (CMS).

The goal of the HPSS was to develop and implement a methodology for defining quality performance and identifying high performing hospitals

and the practices and characteristics that set them apart from other hospitals. Using quantitative performance data on acute myocardial infarction (AMI), congestive heart failure (CHF), and pneumonia, the researchers identified high performing and non-high-performing hospitals throughout the nation. Based on in-depth interviews with 110 key informants at six matched pairs of high and non-high performers, four common quality improvement models of high-performing hospitals were Differentiated according to various aspects of culture, technology, responsibilities, priorities,and targets. Within these four models, the researchers further identified specific basic and high-leverage "change ideas." In addition to developing methodologies for scoring hospitals on their performance and levels of leadership effort and commitment to quality improvement, the authors found that achieving high levels of quality in hospital performance requires an approach that actively creates links between the quality improvement dimensions of responsibility/involvement/reward; communications; quality management strategies; clinical management strategies; and monitoring.

Factors behind Disparities in Quality

Once major disparities in hospital quality were acknowledged, many researchers and clinicians have tried to understand why some institutions perform better than others. They have shed some light on the role played by a number of factors, or "ingredients." For example, in a prior study we conducted for The Commonwealth Fund, we found that topperforming hospitals are distinguished from others in the following ways:

• They develop the right culture for quality to flourish;

• They attract and retain the right people to promote quality;

• They devise and update the right in-house processes for quality improvement; and

• They give staff the right tools to do the job.

A number of hospitals and health systems have put such practices in place, often supported by information technology to assist physicians and patients. Others have instituted an explicit quality-related mission and aggressive quality-related targets; emphasized selective hiring, credentialing, and re-credentialing; instituted an iterative process of discovery followed bycorrective actions and accountability; and invested in tools to abstract medical records, analyze data, and facilitate the improvement process.

The outpatient services often are the first point of contact with a hospital. It is an extremely busy area as all the patients have to pass through this area. It is important it is well managed, as the first impressions get shaped during this process.

This issue of Sitenews on the theme "eyecare outpatient management" provides an overview of the various outpatient examination processes that are there for an eye hospital both at primary and secondary level. The next section provides an overview of e-resources to help

plan the layout and the resource requirement of the outpatient department. Some of the major management challenges in outpatient management are waiting time, communication, employee behaviour for promoting service excellence, ambience for creating healing environment, and health education. Each of this is looked at to get different perspectives on how to address it in a patient friendly way. Another important aspect of OPD management is leveraging the use of information technology.

ZHU Zhecheng; HENG Bee in 2002:

This paper is focused on the factors causing long patient waiting time/clinic overtime in outpatient clinics and how to mitigate them using discrete event simulation. A two-week period of data collection is conducted in an outpatient clinic of a Singapore government hospital. Detailed time study from patient arrival to patient departure is conducted, and the possible factors causing long patient waiting time/clinic overtime are discussed. A discrete simulation model is constructed to illustrate how to improve the clinic performance by

mitigating the detected factors. Simulation and implementation results show that significant improvement is achieved if the factors are well addressedAn outpatient clinic is known as a private or public healthcare facility which is devoted to diagnoses and treatments of outpatients [1]. The types and functions of outpatient clinics cover different specialties and vary from country to country

[2]. Study in this paper is focused on outpatient clinics in Singapore, which is known as specialist outpatient clinics (SOC). SOC in Singapore are clinics associated with hospitals and medical centers. Each SOC is specialized on one type of diseases, e.g., orthopedic clinic, ear, nose and throat clinic, eye clinic, etc. An SOC mainly accepts patients referred by various sources with appointments. SOC staffs arrange an appointment for each appointment request by picking up a free slot of a specific specialist through the appointment management system.

Recent years SOCs are facing increasing pressure to handle more appointment requests than Before due to the aging and growing population

[3]. The lead time between an appointment request and the actual visit tends to be longer because the growth of SOC capacity cannot catch up with the increasing demand. In order to mitigate the increasing appointment lead time, more slots are arranged in each operating session to maintain a constant appointment lead time. However, the rising workload per session causes other problems. The overloaded clinic becomes more congested and patients have to wait longer for their consultations. There is also higher chance of overrunning session time. The increasing waiting time and overtime have negative impact on patient satisfaction and staff morale. The Out Patient Department (OPD) provides clinical services to patients without the need to stay overnight. Patients who need medical or sgical care but are not in acute emergency generally attend the OPD. In comparison to indoor care the outpatient care is relatively more convenient to patients and is less expensive. The chances of hospital-acquired infections are less.

Shortage of hospital beds in the country also encourages outpatient services to be utilized optimally. Among all departments in a hospital, the OPD caters to maximum number of patients. It is generally the first point of contact of patients and their attendants with a hospital, and thus creates first impression about the hospital services. Therefore, it has wider implications on the reputation and brand image of the hospital. Although OPD is not a major profit center of hospitals, it generates revenues indirectly through diagnostic services and admissions.

Scope of services

Clinical consultations are provided to patients in OPD. The consultations include history taking, clinical examination, diagnosing and providing prescription to patients. The support of diagnostic services like laboratories, radiology and cardiac lab etc might be required to confirm the diagnosis. Minor surgeries or procedures are also carried out in the OPD.

The patients who need indoor care are advised admissions through the OPD and thus OPD also acts as a filter for indoor admissions. Besides the curative services, certain preventive services like immunization; promotive services like dietary counseling and rehabilitative services like physiotherapy and occupation therapy are also provided in OPD of many hospitals. The OPD provides excellent opportunity for providing health education to the clients. Modern concept of Ambulatory Services encompasses wider range of services that also

include therapeutic services like dialysis, blood transfusion, chemotherapy, daycare surgeries and diagnostic services like angiography etc.

Workflow

The patients who attend the OPD may be new (who have come for the first time) or repeat patients. Majority of them pay in cash for the services whereas some corporate or insured

patients avail cashless services.

Health care providers are under a great deal of pressure to reduce costs and improve quality of services. In recent years, given the greater emphasis on preventive medicine and shorter lengths of stay, outpatient services are becoming an essential component of health care. Hospitals that cannot make their outpatient services more efficient and cost-effective find themselves in financially unviable positions in this fast-growing competitive industry.

Over the years, population has increased several folds and the greater demand and expectations of patients from hospitals are far more than what is currently being perceived.

As a result, it has become a constant rat-race to make our current systems faster. This brings about questions such as how do we measure such improvements? Is there a standard procedure?

Today lot of research is taking place to make systems that provide critical life support to work faster. For example, the NHS has introduced performance specific targets which demands 98% of the patient

enteran accident and emergency service unit, to be treated in less than 4 hours (response time).

Now the challenge is how to achieve such targets. The first thing that comes into mind is to increase the number of doctors and paramedics and the speed of the equipments in Hospitals.

This would be possible if one has unlimited resources but, since this isn't feasible in most of the cases, we would have to look at alternatives. In essence, the hospital could vary their limited number of staff at different departments according to the arrival rate and see what happens to the overall process time. However, this will prove to be time consuming and very expensive for the hospital and hence isn't feasible.

This motivates to find appropriate models that would help us to simulate and predict the behaviour of an OPD. Various studies such as simulations, statistical modelling etc have been done in this area with all of them broadly based upon queuing theory. Since its inception by A.K Erlang in 1909, this has been the basis for modelling many different systems. If modeled accurately, not only will such a model give managers an insight into optimizing their resources, but will also show them which departments are bottlenecks.

The problem of waiting is recognized as one of the major challenges of many hospitals. This problem limits hospitals from serving population who are mostly busy and want to spend

their valuable time productively. In an eye hospital where this study was carried out approximately it takes about 1 hour and thirty minutes

to serve a patient. Many research works have been done to address the long patient waiting time/clinic overtime by proposing various appointment scheduling schemes to better utilize the session time. As early as the 1950s, [4] proposed an appointment rule known as the Bailey's rule.

The basis of Bailey's rule is to book two appointments at the beginning of a session, which is known as initial block. Successive appointments are then booked one by one at a fixed interval of mean consult time. Experiments results showed that such an appointment schedule effectively utilized the session time. Similar rules were proposed in. Other than booking one patient in one time slot, some literature proposed the idea of booking multiple patients in one time slot. Proposed a rule which booked two patients in each time slot. Argued that it was better to book different number of patients in different time slots. Some literature also proposed rules with different intervals between two successive time slots. One approach is to assign different intervals based on patient types. For instance, it is a common practice to assign different intervals for new patients and follow-up patients. Another approach is to adjust the intervals according to different time of the session.

[11] pointed out that it was helpful to arrange a longer interval at the latter part of the session compared to the early part of the session. Pointed out that the intervals should follow an increase then decrease manner. A more comprehensive review of various appointment rules can be found.

One problem of above mentioned research works is that most of the proposed appointment schedules are applicable to simplified clinic scenarios. Most appointment rules treat SOC as a production line. Uncertainties considered in the appointment schedules usually include noshow appointment, late appointment, etc. However, SOC itself is a more complex system with lots of uncertainties, which should not be ignored. For instance, inefficiency may incur during the clinic session and cause extra patient waiting time/clinic overtime. By ignoring the additional uncertainties, the proposed appointment schedules are unlikely to perform well in actual practice. Simulation is widely applied to simulate the complexity and uncertainties of outpatient clinic and to test the performance of different process improvement techniques applied simulation models in queue management in outpatient clinics. Developed a simulation model to test the efficiency of different appointment schedules developed a detailed simulation model of an outpatient department. Various appointment schedules were examined to reduce patient waiting time. Studied the effects of patient and consultant punctuality on an outpatient clinic using a simulation model. [19] compared different appointment schedules through simulation to minimize patient waiting time and clinic idle time in an outpatient clinic. Conclusion was drawn from the simulation results that scheduling appointments with more variation toward the end of the

schedule helped reduce both terms.

 In this paper, actual clinic session operating data is collected and detailed analysis is conducted to detect factors and uncertainties causing long patient waiting time/clinic overtime. A discrete event simulation model is constructed to show how the clinic performance would improve if the detected factors were addressed well. New

appointment schedules are then implemented in the SOC by removing the detected factors. The implementation results show that new appointment schedules significantly outperform the original ones.

The rest of this paper is organized as follows: Workflow of an SOC and method of data collection are given. Then detailed analysis and discussion are given to detect factors causing long patient waiting time/clinic overtime. Discrete event simulation model is constructed and implementation results are analyzed in the following section. Investigates the increased waiting time costs imposed on society due to inappropriate use of the emergency department by patients seeking non-emergency or primary care. Proposes a simple economic model to illustrate the effect of this misuse at a public or not-for-profit hospital. Provides evidence that non-emergency patients contribute to lengthy delays in the ER for all classes of patients. Proposes a priority queuing model to reduce average waiting times.

C A Stone, J H Palmer, P J Saxby, and V S Devaraj in 2000:

Outpatient non-attendance is a common source of inefficiency in a health service, wasting time and resources and potentially lengthening waiting lists. A prospective audit of plastic surgery outpatient clinics was conducted during the six months from January to June 1997, to determine the clinical and demographic profile of non attainders. Of 6095 appointments 16% were not kept. Using the demographic information, we changed our follow-up guidelines to reflect risk factorsfor multiple non-attendances, and a self-referral clinic was

introduced to replace routine follow-up for high risk non-attainders. After these changes, a second audit in the same six months of 1998 revealed a non-attendance rate of 11%--i.e. 30% lower than before. Many follow-up appointments are sent inappropriately to patients who do not want further attention. This study, indicating how risk factor analysis can identify a group of patients who are unlikely to attend again after one missed appointment, may be a useful model for the reduction of outpatient non-attendance in other specialties.

According Norman T.J. Bailey:

An investigation, based on the use of random numbers, has been made into the kind of queueing process occurring in hospital out-patient departments. Special attention has been paid to the patients' waiting time and also to the time which a consultant may waste waiting for the next patient. As compared with many appointment systems at present in use, it is concluded that by suitable choice of the system to be adopted a substantial amount of the patients' waiting time may be eliminated without appreciably affecting the consultant. A recommended procedure is to give patients appointments at regular intervals, each equal to the average consultation time; the consultant commencing work when the second patient arrives. The effect of variations in the appointment interval, the number of patients attending the clinics, and the distribution of queue-size are discussed. The precision of the results obtained is also considered.

Fenghueih Huarng, Mong Hou Lee, (1996):

Overwork and overcrowding in some periods was an important issue for the out-patient department of a local hospital in Chia-Yi in Taiwan. The hospital administrators wanted to manage the patient flow effectively. Describes a study which focused on the utilization of doctors and staff in the out-patient department, the time spent in the hospital by an outpatient, and the length of the out-patient queue. Explains how a computer simulation modelwas developed to study how changes in the appointment system, staffing policies and service units would affect the observed bottleneck. The results show that the waiting time was greatly reduced and the workload of the doctor was also reduced to a reasonable rate in the overwork and overcrowding periods.

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The rest of this paper is organized as follows: Workflow of an SOC and method of data collection are given. Then detailed analysis and discussion are given to detect factors causing long patient waiting time/clinic overtime. Discrete event simulation model is constructed and implementation results are analyzed in the following section.

Investigates the increased waiting time costs imposed on society due to inappropriate use of the emergency department by patients seeking non-emergency or primary care. Proposes a simple economic model to illustrate the effect of this misuse at a public or not-for-profit hospital. Provides evidence that non-emergency patients contribute to lengthy delays in the ER for all classes of patients. Proposes a priority queuing model to reduce average waiting times.

OBJECTIVES AND SCOPE OF STUDY

AIM / OBJECTIVES

Fixing the objective is like identifying the star. The objective decides where we want to go, what we want to achieve and what is our goal or destination.

→ To determine the flow of patient and the average time spent at CRONUS Hospitals.

→ To identify the factors those are responsible for high waiting time at CRONUS Hospitals.

→ To recommend appropriate suggestions to optimize the waiting time at CRONUS

Hospitals

Scope:

The primary activity of the cronus hospital is providing medical, diagnostic and treatment

services and also specialized accommodation services to in-patients i.e., receiving individuals

for medical reasons, providing them with medical care on an on-going basis and offering diagnostic and treatment services.

RESERCH METHODOLOGY

Research methodology in a way is a written game plan for conducting research. Research methodology has many dimensions. It includes not only the research methods but also considers the logic behind the methods used in the context of the study and complains why only a particular method of technique has been used.

RESEARCH DESIGN: - The research design will be used in this study on both 'Descriptive' and 'exploratory'.

DATA COLLECTION METHODS:

The data will be collected using both by primary data collection methods as well as

secondary sources.

PRIMARY DATA: Most of the information will be gathered through primary sources. The

methods that will be used to collect primary data are:

 • Questionnaire

• Interview

SECONDARY DATA: secondary data will be collected through:

• Text Books

- Magazines

- Journals

- Websites

METHOD USE TO PRESENT DATA:

Data Analysis & Interpretation – Classification & tabulation transforms the raw data

collected through questionnaire in to useful information by organizing and compiling the bits

of data contained in each questionnaire i.e., observation and responses are converted in to

understandable and orderly statistics are used to organize and analyze the data:

♦ Simple tabulation of data using tally marks.

♦ Calculating the percentage of the responses.

♦ Formula used = (name of responses / total responses) * 100

Graphical analysis by means of pie charts bar graphs etc.

NUMBER OF RESPONDENTS

Total samples of 100 respondents will contact who respond to the questionnaires. SAMPLING TECHNIQUE:-

The technique will be used for conducting the study will convenience sampling technique as

sample of respondents will be chosen according to convenience.

STASTICAL TOOLS:

The tools uses in this study will MS-EXCEL, MS-WORD. MS-EXCEL use to prepare pie-

charts and graphs. MS-WORD was used to prepare or write the whole project report

ANALYSIS & INTERPRETATION

Keeping in mind the objectives of the study, the surveys were being done & following

interpretation were being drawn:

DATA ANALYSIS AND RESULT

Evaluation:-

 Keeping this point in view and to fulfill the evaluation variants of which may form the basis for objectives of the studies an attempt has been made to segment the various respondents on the basis of some aspects collected from them through questionnaire. There are depicted through tables and graphs.

The copy of questionnaire administered is enclosed and the sample size was 100 respondents are enclosed at the end of this project. All the calculations and numerical

interpretations are for 100%

1) Waiting time spent in reception for registration.

Table 1.1 Distribution of Patient view on Waiting Time spent in reception for registration

Criteria	Frequency	Percentage
<15 Min	40	40%
15 - 20 Min	26	26%
20 - 25 Min	11	11%
25 - 30 Min	18	18%
>30 Min	5	5%
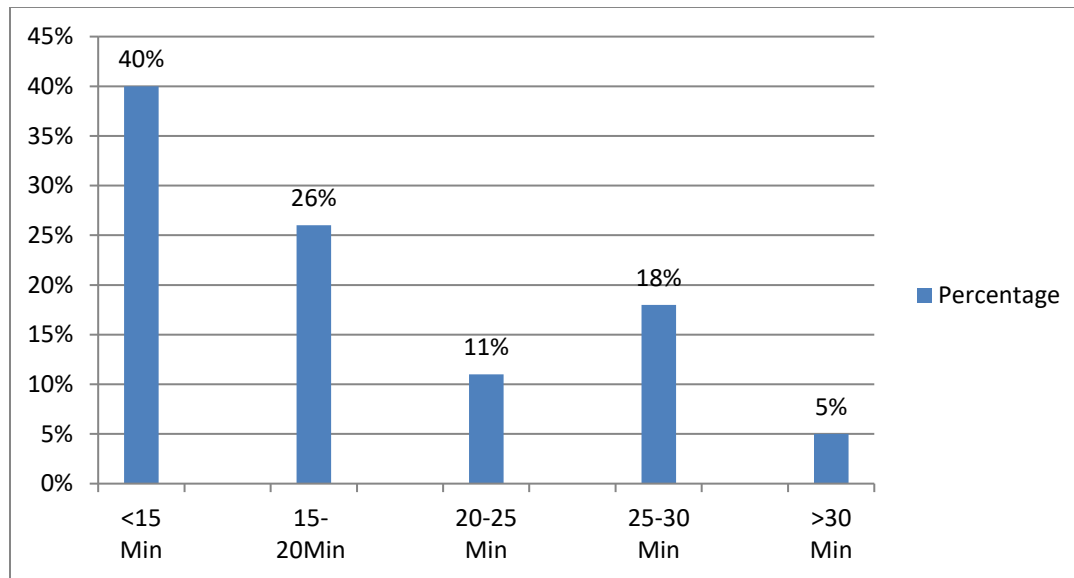
Waiting Time spent in reception for registration

It is evident from the above table that the maximum time spent by the patients in the reception for registration. Out of 100 patients, 40% patients had to wait for less than 15 min, 26% waited for 15-20 min, 11% had to wait for 20-25 min, 18% waited for 25-30 min and only 5 no. of patients had to wait for more than 30 min in the reception for registration.
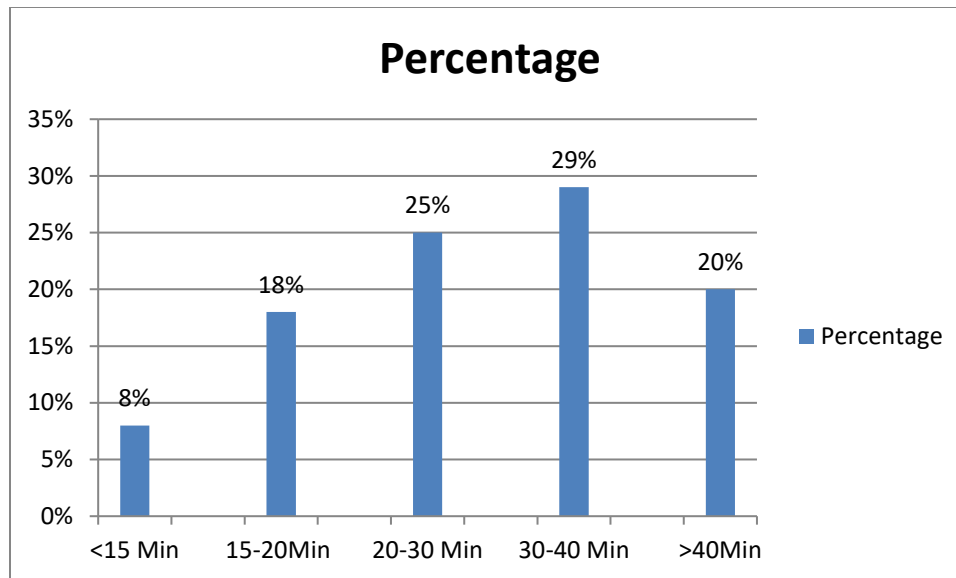
2) Waiting time for consultation.

Table 1.2 Distribution of Patient view on Waiting Time spent in OPD for Consultation

Criteria	Frequency	Percentage
<15 Min	8	8%
15 - 20 Min	18	18%
20 - 30 Min	25	25%
30 - 40 Min	29	29%
>40 Min	20	20%

Graph 1.2 Distribution of Patient view on Waiting Time spent OPD for consultation

Percentage

Chart showing percentage of patients by waiting time:
- <15 Min: 8%
- 15-20Min: 18%
- 20-30 Min: 25%
- 30-40 Min: 29%
- >40Min: 20%

It is evident from the above table that the maximum waiting time spent by the patients in the OPD for consultation with doctors. It shows that out of 100 patients, highest is 29% patients had to wait for 30-40 and lowest 8% patient waited for less than 15 min. While 25% patient waited for 20-30 min. 18% patient waited for 15-20 min and 20% patient waited for more than 40 min in the OPD for consultation.

3) Time spent for consultation.

Table 1.3 Distribution of Patient View on Time Spent in consultation with doctors

Criteria	Frequency	Percentage
<15 Min	24	24%
15 - 20 Min	26	26%
20 - 25 Min	13	13%
25 - 30 Min	28	28%
>30 Min	9	9%

Graph 1.3 Distribution of Patient View on Time Spent in consultation with doctors
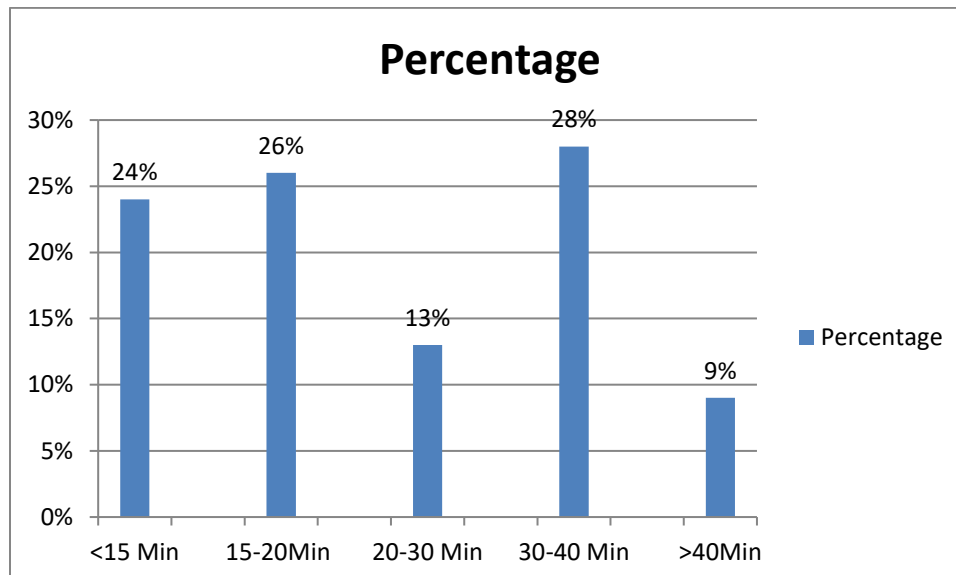
As per shown in the above graph the maximum time spent by the patient in the OPD for consultation with doctors. It show that out of 100 patients, according to 9% patients' doctors take more than 30 min for consultation , 13% patients says 20-25, 24% patients sys it takes less than 15 min and from the rest 26% patients, according to half 28% patients , doctor takes 25-30 min and 26% patients, doctors take 15-20 min in consultation.
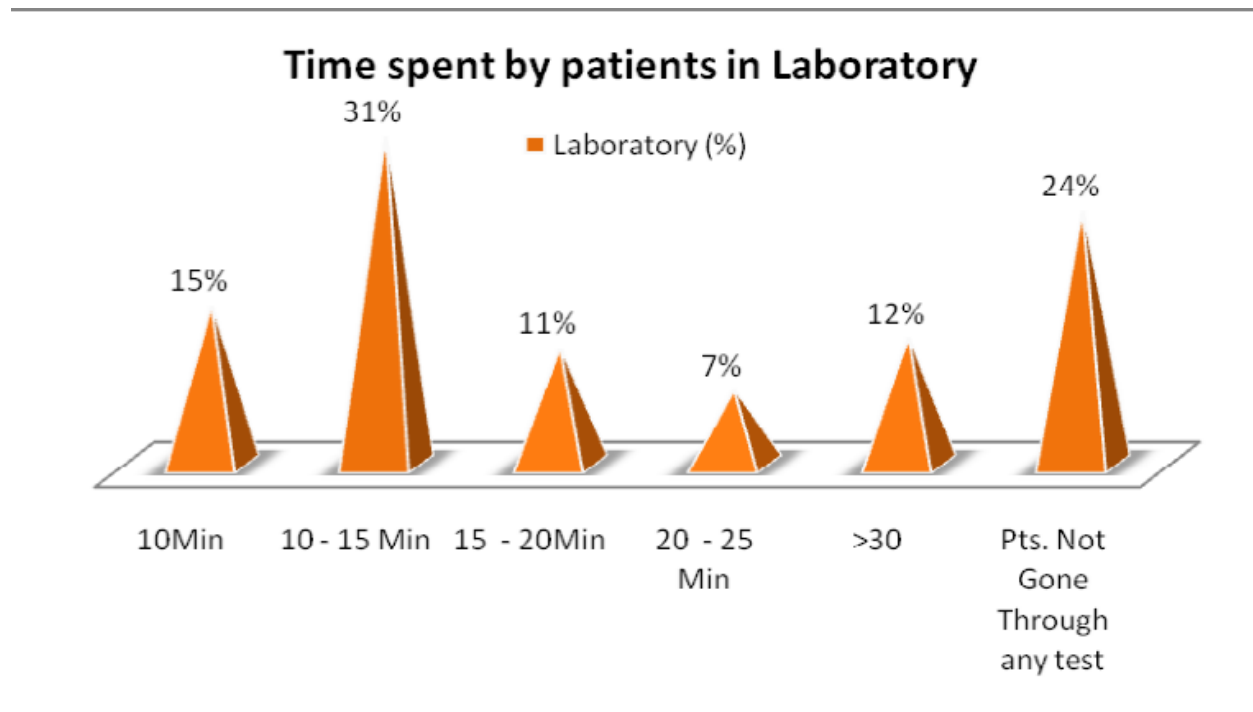
4) Time spent for investigation.

Table 1.4: Distribution of Patient view on time spent in Investigation.
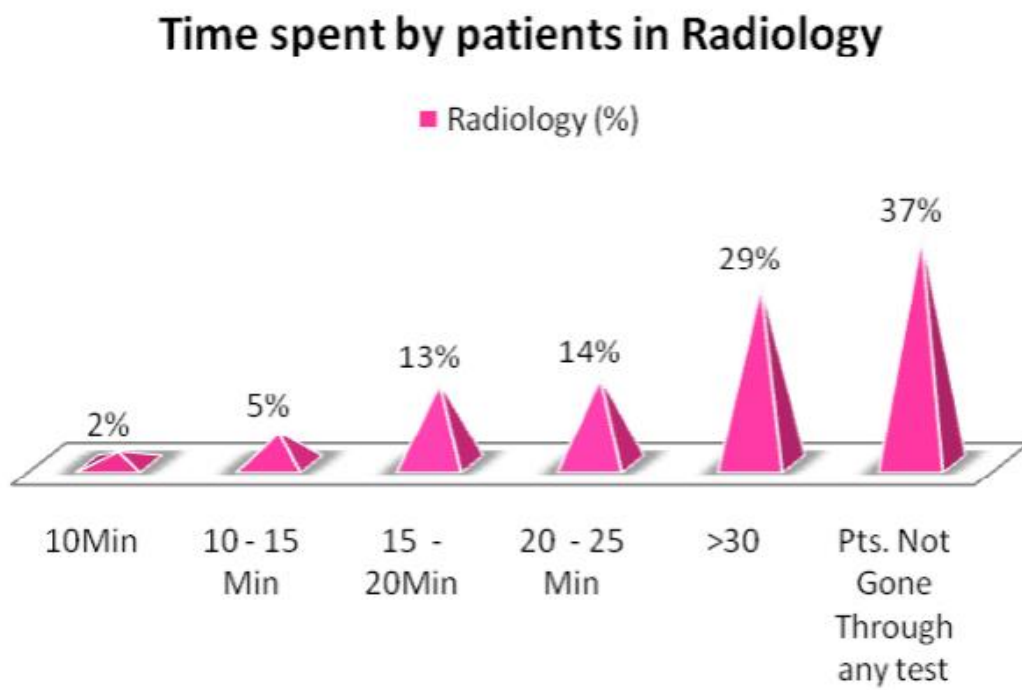
(Laboratory, Radiology, Pharmacy)

Criteria	Laboratory%	Radiology%	Pharmacy%
10Min	15(15%)	2(2%)	4(4%)
10 - 15 Min	31(31%)	5(5%)	4(4%)
15 - 20Min	11(11%)	13(13)%	13(13%)
20 - 25 Min	7(7%)	14(14%)	20(20%)
>30	12(12%)	29(29%)	47(47%)
Pts. Not Gone Through any test	24(24%)	37(37%)	12(12%)

Graph 1.4: Distribution of Patient view on time spent in Investigation.

1.4. A: Time spent by patients in Laboratory

Time spent by patients in Laboratory

■ Laboratory (%)

Category	Percentage
10Min	15%
10 - 15 Min	31%
15 - 20Min	11%
20 - 25 Min	7%
>30	12%
Pts. Not Gone Through any test	24%

1.4. B: Time spent by patients in Radiology.

Time spent by patients in Radiology

■ Radiology (%)

10Min	10 - 15 Min	15 - 20Min	20 - 25 Min	>30	Pts. Not Gone Through any test
2%	5%	13%	14%	29%	37%

1.4. C: Time spent by patients in Pharmacy.

Time spent by patients in Pharmacy

■ Pharmacy (%)

4%	10Min
4%	10 - 15 Min
13%	15 - 20Min
20%	20 - 25 Min
47%	>30
12%	Pts. Not Gone Through any test
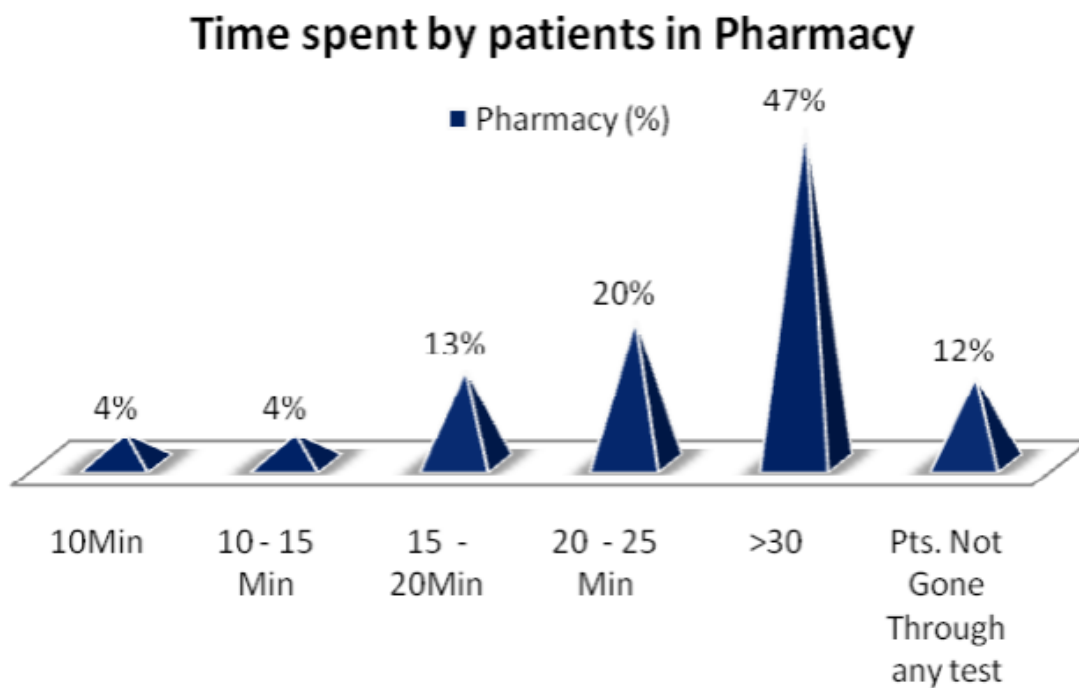
 As per shown in the above graphs the average time spent by the patients in investigation

(Laboratory, Radiology, Pharmacy).

For investigation in laboratory out of 100 patients, according to 31% patients; time taken is

10-15min. Accoridng to 15% patients, 10 min of time is taken. 11% patients had to wait for 15-20 min while for the other 12% patents it took more than 30 min and for 7% patients; it took 20-25 min. while 24% patients did not go through laboratory test.

For investigation in Radiology out of 100 patients, according to 5% patients; time taken is 10-15min. Accoridng to 2% patients, 10 min of time is taken. 13% patients had to wait for 15-20 min while for the other 29% patents it took more than 30 min and for 14% patients; it took 20-25 min. while 37% patients did not go through laboratory test.

For investigation in Pharmacy out of 100 patients, according to 4% patients; time taken is 10-15min. Accoridng to 4% patients, 10 min of time is taken. 13% patients had to wait for 15-20 min while for the other 47% patents it took more than 30 min and for 20% patients; it took 20-25 min. while 12% patients did not go through laboratory test.

5) How much time did you spend for completion of each of the following activity?

Table 1.5: Distribution of Patient View on Time Spent in Billing, Cash Payment and collection of reports.
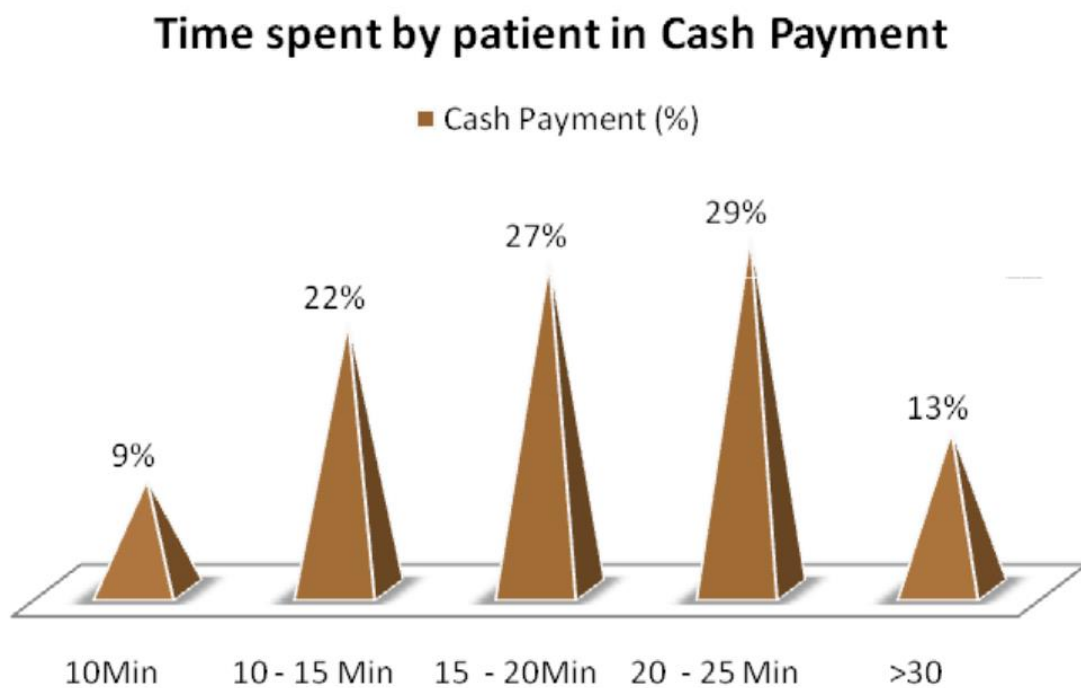
Criteria	Billing %	Cash payment %	Collection of report %
10Min	11(11%)	9(9%)	31(31%)
10 - 15 Min	9(9%)	22(22%)	36(36%)
15 - 20Min	28(28%)	27(27)%	20(20%)
20 - 25 Min	38(38%)	29(29%)	13(13%)
>30	14(14%)	13(13%)	0(0%)

Graph 1.5: Distribution of Patient View on Time Spent in Billing, Cash Payment and collection of reports.
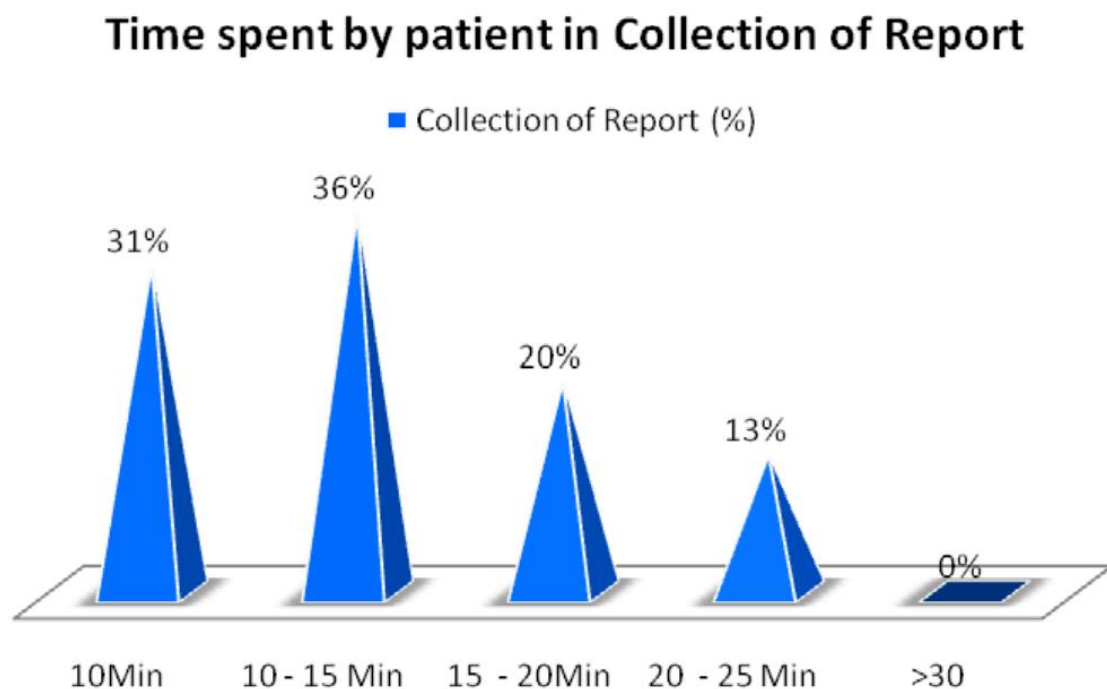
1.5. A: Time spent by Patient in Billing.
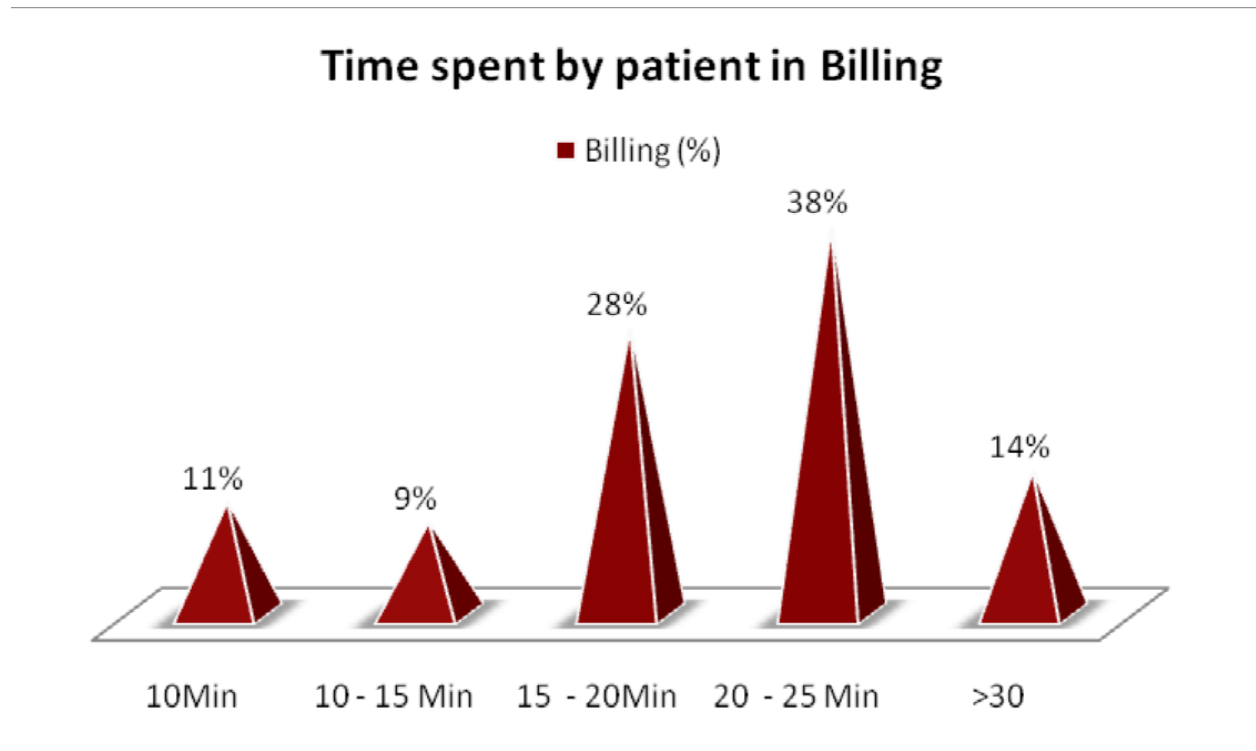
1.5. B: Time spent by Patient in Cash Payment.

Time spent by patient in Cash Payment

■ Cash Payment (%)

9% — 10Min
22% — 10 - 15 Min
27% — 15 - 20Min
29% — 20 - 25 Min
13% — >30

1.5. C: Time spent by Patient in collection of reports.

Time spent by patient in Collection of Report

■ Collection of Report (%)

36%

31%

20%

13%

0%

10Min   10 - 15 Min   15 - 20Min   20 - 25 Min   >30

As per shown in the above graph the average time spent by patient in billing, cash payment

and collection of reports. For Billing, out of 100 patients, the highest 38% patients, waited for 20-25 min and least 9% waited for 10-15min.

The second highest is 28% patients, which had to wait for 15-20min, 11% patients waited for 10min and 14% patients waited for more than 30 min.

For Cash Payment, out of 100 patients, the highest 29% patients, waited for 20-25 min and least 9% waited for 10min. The second highest is 27% patients, which had to wait for 15-20min, 22% patients waited for 10-15min and 13% patients waited for more than 30 min.

For Collection of reports, out of 100 patients, the highest 36% patients, waited for 10-15 min and least 0% waited for >30min. The second highest is 31% patients, which had to wait for

10min, 20% patients waited for 15-20min **and 13% patients waited for more than 20-25 min.**
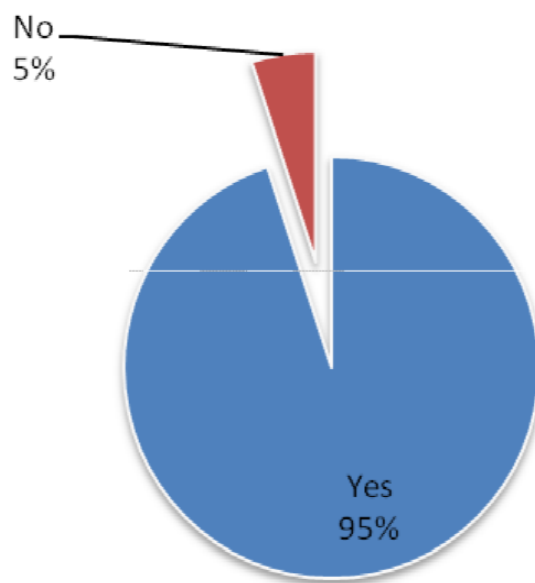
Q6. Were the staffs punctual in attending to your needs?

Table 1.6: Staff's Punctuality on Attending to Patient's needs.

Criteria	Frequency	Percentage
Yes	95	95%
No	5	5%

Graph 1.6: Staff's Punctuality on Attending to Patient's needs.

The patients view on punctuality of the staffs in attending to their needs,. Out of 100 patients, 95% patients agreed that staffs are Punctual in attending to the patients' needs and 5% patients disagreed to this.

CONCLUSION

Patients attending each hospital are responsible for spreading the good image of the hospital and therefore satisfaction of patients attending the hospital is equally important for hospital management. Various studies about outpatient service have elicited problems like overcrowding, delay in consultation, proper behaviour of the staff etc. The study reveals the average spend by the patients and also expresses their view towards the hospital and hospital's services provided by the hospital and the total consumed on each activity. In this study, it was found patients constitute of all age groups and genders among which most of them were females. Study depicts that average no. of patients coming to OPD each day as walk-in is more in comparison to the appointment patients.

Administrative staffs are quite concerned towards the patient's expectation. They serve the suggestion box for patients and make sure to respond to the suggestion satisfactorily. Queuing method is followed for reducing waiting time in OPD. Study depicts that OPD always starts

on time and the doctors mostly comes on time. Patients also come on scheduled appointment time sometimes getting delayed.

Since Reception centre being the primary bottleneck of the system, by increasing another server here, the system may be made to work in steady state.

• The possibility of clubbing function of Reception centre with the registration may also be explored since this could cut down one additional node and a total process time of 10 minutes approximately for each patient.

• Advanced simulations using simulators would help the administrators to visually see what happens when we change the resources in the system. In healthcare Queue modeling can be applied in the areas wherever queue is involved such as rationing, scheduling, Bed allocation, laboratory design, and so on.

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QUESTIONNAIRE

Dear Respondents,

I am Atul malik a student of Post Graduate Diploma in Health And Hospital Management , as a part of my curriculum; I am to take a research Project on "A RECOMMENDATION ON REDUCING WAITING TIME IN THE OUT-PATIENT DEPARTMENTCRONUS HOSPITAL" To enable to undertake above mentioned study, I request you to give your fair views. Your insights and perspective are important and valuable for my research.

Policy on Confidentiality: Please feel free to give your honest responses. The confidentiality of the information provided by the respondent is completely assured.

Name : …………………………….

Age : …………………………….

Sex : …………………………….

Address : …………………………….

Gender : …………………………….

Contact No. : …………………………….

FOR PATIENTS

Section - I

Waiting Time:

1 Waiting time spent in reception for registration.

a. <15 Min

b. 15 - 20 Min

c. 20 - 25 Min

d. 25 - 30 Min e. >30 Min

2 Waiting time for consultation.

a. <15 Min

b. 15 - 20 Min

c. 20 - 30 Min

d. 30 - 40 Min

e. >40 Min

3 Time spent for consultation.

 a. <15 Min

b. 15 - 20 Min

c. 20 - 25 Min

d. 25 - 30 Min

e. >30 Min

4 Time spent for investigation.

 Laboratory

 a. 10Min

b. 10 - 15 Min

c. 15 - 20Min

d. 20 - 25 Min

Radiology

 a. 10Min

b. 10 - 15 Min

c. 15 - 20Min

d. 20 - 25 Min

Pharmacy

a. 10Min

b. 10 - 15 Min

c. 15 - 20Min

d. 20 - 25 Min

5 How much time did you spend for completion of each of the following activity?

Billing:

a. 10Min

b. 10 - 15 Min

c. 15 - 20Min

d. 20 - 25 Min

Cash Payment:

a.10Min

b. 10 - 15 Min

c. 15 - 20Min

d. 20 - 25 Min

Collection Reports:

 a. 10Min

b. 10 - 15 Min

c. 15 - 20Min

d. 20 - 25 Min

Q6. Were the staffs punctual in attending to your needs

a. Yes

b. No