dy of Process Flow, Appointment Scheduling and ıg Times in the Medical O.P.D of A Tertiary Care Cancer Research Institute.

issertation submitted in partial fulfilment of the requirements for the award of

Post-Graduate Diploma in Health and Hospital Management

by

Dr Mitu Khosla

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March 2012

Certificate of Internship Completion

TO WHOM IT MAY CONCERN

Date:..... 10.4.2012

This is to certify that Dr. Mitu Khosla has successfully completed her 3 months internship in our organization from December 19, 2011 to March 19, 2012. During this internship she has worked on Process Flow, Appointment Scheduling and Waiting times in Medical O.P.D under the guidance of me and my team at Rajiv Gandhi Cancer Institute

Comments

Very hard working, dedicated student

We wish him/her good luck for his/her future assignments

Amitabh 10.4.12

(Signature)

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Certificate of Approval

The following dissertation titled " *A Study of Appointment Scheduling and Waiting Time in the Medical O.P.D of A Tertiary Care Cancer Research Institute*" is hereby approved as a certified study in management carried out and presented in a manner satisfactory 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 Dr Mitu Khosla, 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 Study of Process Flow, Appointment Scheduling and Waiting Times in the Medical O.P.D of A Tertiary Care Cancer Research Institute* " in partial fulfilment 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.

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Abstract

A Study of Process Flow, Appointment Scheduling and Waiting Time in the Medical O.P.D of A Tertiary Care Cancer Research Institute

Dr Mitu Khosla

Introduction- "Waiting is frustrating, demoralizing, agonizing, annoying, time consuming and incredibly expensive". (Fortune 1980)

Hospitals have been forced to dramatically intensify their services because of the growing demands. In order to meet this increased demand in healthcare services, either, there must be drastic increase in number of small or medium-sized hospitals or, an expansion in the size of current hospitals. For either of the means adopted, there must be a strong focus on OPD as 80% of the demand is focused on O.P.D services. Significant improvement in performance can be achieved by managing O.P.D effectively and efficiently. To achieve this objective we need to identify the factors resulting in unnecessary waiting (and thereby wastage of the precious time resource) for patients and doctors.

The present study aimed to study waiting time in a Tertiary Care Cancer Research Institute along with factors responsible for the wastage of resources and suggest potential measures to reduce outpatient waiting time.

Method-The appointment system and the waiting times in the Medical O.P.D of RGCI were evaluated by patient tracking with special emphasis on walk-ins and patient and doctor punctuality. Other factor studied were the compliance to various policies regarding appointment booking at discharge.

Patient tracking was done in Medical O.P.D for with (759 patients) and walk-ins (300 patients). For patients with appointment, the arrival times and consultation times with respect to their appointment times were noted. In addition the gaps between the consultation pattern and patient arrival pattern were noted to identify the physician lateness as a reason for increased waiting time. In addition to the waiting times, the times needed to retrieve the records from MRD department were noted for walk-in patients. The patient classification for 1079 patients attending the O.P.D in

Jan 2012-Feb 2012 was done according to the treating unit and with/out appointment by a retrospective analysis of the O.P.D. register. 540 discharge summaries and appointment lists were analyzed to check the percentage of patients given appointment for follow-up at discharge from hospital.

Results- The ratio of patients coming with appointment has decreased when compared between Jan 2012 (56.63%) and Feb 2012(54.3%) . The patients are losing their faith on the appointment system. This is despite the fact that the waiting time in patients coming without appointment (1 Hour 48 Minute) is more than the waiting times in patients with appointment (1 Hour 25 Minute). Majority of patients (77%) come early for appointment. The perceived or the total waiting time (i.e. from the time when patients comes to the O.P.D) is much more than the true waiting time (i.e. from the time of appointment (average -8 minutes) in patients coming early for their appointment. Physicians starting O.P.D late is another significant factor in the increased waiting times. 33% of the patients are not given appointment for their follow-up at the time of their discharge. Walk-in patients constitute another important factor in increasing the waiting times. The patients are seen on a first come first seen basis despite an appointment system being in place.

Conclusions – There is an urgent need to revamp the patient and staff trust and confidence in appointment system. The appointment booking system needs to be made simpler so that patients are motivated to take prior appointments. There needs to be a system in place, so that patients with appointment are not affected/ delayed because of walk-in patients. Patients arriving early for appointment leads to an increased perceived waiting times, while in-fact they are being in average seen 8 minutes before their scheduled appointment times. Therefore patient and physician punctuality will play an important part in conserving the precious resources in the O.P.D, as well as streamlining the entire process. Change in appointment system from Individual appointment time systems to multiple block/fixed-interval will also help in reducing the patient waiting system and discouraging early arrivals on part of the patients thereby reducing the rush in the waiting halls.

Acknowledgement

I take immense pleasure in thanking Dr. A.K. Dewan, Medical Director and Dr. Amitabh Sandilium, Medical Superintendent, RGCI , for having permitted me to carry out this project work in their esteemed organization.

I wish to express my deep sense of gratitude to my Mentor and Guide, Ms. Sippy Batra, Manager Quality Department, RGCI for her able guidance and useful suggestions, which helped me in completing the project work in time. I also wish to express my deep sense of gratitude to Mrs.Minakshi Gautam, my Mentor and Guide from International Institute of Health Management Research, Delhi for her timely and able guidance in the conduct of this project work. I would also like to thank Mrs. Vaijyanti Mala, Senior Executive, Medical O.P.D, RGCI for her constant support and help in carrying out the study. Special thanks to Mr. Bitoo and Mrs Sakshi for their invaluable help in data collection.

This study would have been impossible without the invaluable help from the staff of medical O.P.D who went out of their way to help me in tracking patient movements. Words are inadequate in offering my thanks to all the staff of Medical O.P.D for their encouragement and cooperation in carrying out the project work.

Finally, yet importantly, I would like to express my heartfelt thanks to my beloved parents for their blessings, my friends/classmates for their help and wishes for the successful completion of this project.

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Abbreviations

1. HIMS – Hospital Information Management System.
2. I.P.D- Inpatient Department
3. ICU- Intensive Care Unit
4. MRD- Medical Record Department
5. O.P.D- Out Patient Department
6. RGCI- Rajiv Gandhi Cancer Institute
7. Vs – Versus

Part 1

Internship Report

Introduction to Organization and its Profile

Rajiv Gandhi Cancer Institute & Research Centre –

Rajiv Gandhi Cancer Institute & Research Centre is a Unit of Indraprastha Cancer Society which is a non-profit public society managed by a group of socially responsible, selfless, philanthropists. Indraprastha Cancer Society was formed in the year 1994 under the society's registration act, 1860. The main objectives of the Society include

- Cancer patient care,
- scientific research on all aspects of Cancer patient care,
- Scientific research to investigate the incidence, prevalence, distribution, cause, and symptoms of Cancer and to promote its cure.

RGCI started functioning on 1st July, 1996 after a soft opening was done by Hon'ble Smt. Sonia Gandhi. It was formally inaugurated by the then President of India, Dr. Shankar Dayal Sharma, in the presence of Smt. Sonia Gandhi and other dignitaries, on 20th August, 1996.

RGCI was initially started as a 152 bedded hospital. Since then it has been growing steadily and has till date never looked back. Presently it is a 241 bedded hospital, with state of the art facility for the diagnosis and treatment of cancer and is recognised as one of the premium Institutes not only in northern India but also in the entire country.

Since its inception, the institute has proven to be a Centre of excellence and has registered more than one lakh, twenty five thousand patients coming from India and abroad. This number is continuously on a rise. A large number of patients from Nepal, Bangladesh, Srilanka, and other neighbouring countries are also utilizing the facilities of the Institute.

Specialities In Rajiv Gandhi cancer Institute.

The various specialities in Rajiv Gandhi Cancer Institute are

- Multispecialty Clinic / Tumour Board - Multispecialty Clinics or Tumour Boards are forums for the interdisciplinary care of cancer patients, especially those with difficult management problems or unusual manifestations of cancer. They provide a mechanism for reaching a consensus on treatment through the empirical process of testing our opinions against one another and through facts.
- Surgical Oncology- Surgical oncologist can provide unique surgical expertise in surgical cases unfamiliar to general surgeons. Surgical Oncology department comprises of the following Sub units.
    - Head & Neck unit.
    - Breast & Thoracic unit.
    - Gastro Intestinal & Hepatobilliary.
    - Genitourinary Services.
    - Reconstructive Services
    - Neuro-Onco Surgery Services
    - Musculoskeletal services
    - Paediatric Surgical Oncology
- Uro and Gynae Oncology- The unit deals with all kinds of cancers in urology and is doing all the surgeries one can contemplate in urological oncology i.e. radical nephrectomy, extended radical nephrectomy, radical prostatectomy, radical cystoprostatectomy with Ileal Neobladder/ conduit, retroperitoneal lymph node dissection, ilioinguinal lymph node dissection HIFU for Carcinoma Prostate and many more.
- Radiation Oncology- Radiation Oncology refers to the treatment of cancer patients using radiation, which could be X-rays or Gamma rays. The department is equipped with state of the art Linear Accelerators, Simulator, High Dose Rate Remote after - loading Brachytherapy system, dedicated treatment planning computers, and Mould Room to fabricate lead shields and

templates in house. Department has been networked to CT scan and MRI with DICOM compatible image transfer capability.

- Medical Oncology- Department of Medical Oncology at Rajiv Gandhi Cancer Institute & Research Centre offers state of the art treatment modalities including autologous and allogeneic Bone Marrow Transplant. There is a substantial patient workload, which is taken care by highly qualified and experienced Medical Oncologists and Haematologist who work full time for this institute only.
- Paediatric Haematology & Oncology - The Department of Paediatric Haematology and Oncology at RGCI is unique in India as it offers comprehensive oncology care to all children up to the age of 18 years. It is a place where doctors send some of their most challenging and sick patients. The department has a dedicated team of experts in the field of paediatric haematology / oncology. The team constituted by experienced paediatric oncologists, haematologist, paediatric onco-surgeon, radiation oncologist, paediatric oncology residents and nurses, Child psychologist and playroom teacher work hard to ensure that best care is delivered to every child.
- Bone Marrow Transplantation- Rajiv Gandhi cancer institute has a 4 bedded, HEPA filtered transplant unit and a dedicated team of renowned transplant specialists and hemato-oncologists. Bone marrow transplant programme started in RGCI in 2001 and since then more than 100 transplants has been performed placing RGCI among leading transplant centres in India. Transplant is an expensive treatment, requires lot of resources but in RGCI cost of a transplant has been very affordable as compared to other private sector hospitals.
- Neuro-Oncology- The Neuro-Oncology team at RGCI & RC seeks to offer patients with brain tumours and their families a full spectrum of innovative, advanced treatments with a coordinated, team-bases approach dedicated to maximizing quality of life. The team focuses on brain and spinal cord tumours, including glibolastoma and other gliomas, primary central nervous system lymphoma, and metastases. They are also expert in managing the neurologic complication of cancer and its treatment. The team of

neurosurgeon, neurologist, radiation oncologist, nurses, social workers, nutritionists, and others work to care patients, to achieve higher cure rates and longer survival, and to chart the course of treatment for patients.

- Intensive Care Unit (ICU) - Intensive care unit is a 14- bedded unit. The unit handles more than 1200 admissions annually. The ICU is well equipped with all the necessary modern and sophisticated invasive monitors, ventilators and other necessary equipment's. The patient care involves clinical decision making according to well laid down protocols and check-lists. A dedicated team of Intensivists, Anaesthesiologists and Physicians is present in the ICU with visiting Cardiologist, Nephrologist and Chest Physicians to provide multidisciplinary care.
- Physiotherapy- In Rajiv Gandhi Cancer Institute & Research Centre restorative services are provided to cancer patients in all stages of treatments, as these may have lasting effects on physical and cognitive functions resulting in impaired functional ability. Clinically effective therapeutic modules are tailored and implemented to take quality care of special needs of cancer patients.
- Radiology Department- A well-equipped department which compares with the best in the world, with turnaround time for all reports less than 24 hours. Principal strengths are image guided interventions and crisp clinically oriented reporting practice that the clinicians love.

  Facilities available are-

  - X rays, & Computed Radiography, Multislice spiral CT Scan with CT Angiography and Virtual Endoscopy.
  - CT Guided biopsy / FNAC and other Interventional procedures.
  - Therapeutic embolization and TACE facilities.
  - Ablation for pain management.
  - Colour Doppler, US and guided procedures, Echocardiography / Doppler and Stress Echo, Transrectal Ultrasound (TRUS) and biopsy.
  - Mammography, Stereotactic Biopsy/FNAC of breast / wire localisation of non palpable lesions in the breast.
  - RF ablation of tumours in liver, lung, kidney and bone.

- Diagnostic and Interventional Gastroenterology- The following diagnostic & therapeutic procedures are available at RGCI & RC
    - Upper GI Endoscopy and biopsy – for oesophagus or stomach lesions
    - Lower GI Endoscopy and biopsy – for lesions of large intestine
    - ERCP (Endoscopic Retrograde Cholangio-pancreatography)
    - Oesophageal Stent – dilatation for impassable malignant strictures of oesophagus.
    - Colonic Stents
    - ERCP stents for malignant jaundice
    - PTBD (Percutaneous Transheptic Biliary Drainage) under guidance
    - PEG (Percutaneous Endoscopic Gastrostomy) for purpose of feeding
    - Duodenal stents in cases of unresectable pancreatic tumours with gastric outlet obstruction.
    - Sclerotherapy for variceal bleed
    - TACE (Trans Arterial Chemoembolization)
- Department of Laboratory services- the following categories of services are available in the Department of laboratory services-
    - Bio-Chemistry
    - Clinical Pathology
    - Haematology
    - Immunology
    - Microbiology
    - Serology
    - Histopathology
    - Cytopathology
    - Immunochemistry
- Department of Nuclear Medicine- The department of nuclear medicine is one of the state of the art nuclear medicine facility offering both diagnostic and therapeutic facilities. It is equipped with a GE Millennium MG Dual Head Gamma Camera with (SPECT) tomographic facilities & Siemens Bio Graph (PET-CT) Hi resolution PET with slice CT scanner.

- Anaesthesiology and Pain Management- Anaesthesia Department of Rajiv Gandhi Cancer Institute & Research Centre is well equipped with latest machines to meet the needs of all types of cancer patients and for surgeries lasting for long hours. The clientele range from the paediatric to the geriatric age group. The hospital has eight major OT's, three minor OT's and a 28 bedded post-operative ward. The department is equipped with latest Anaesthesia work stations and monitoring systems. The department is running a pain clinic which provides pain relief to cancer patients. Treatment modalities such as neurolytic nerve / plexus blocks and neuroaxial opioid therapy are being offered in terminally ill patients.
- MRI Department- MRI (Magnetic Resonance Imaging) Department, now a component of the integrated "Centre of Imaging Services" of the Institute is an exclusive facility that the Institute boasts of creating at the inception in 1996 with the sole purpose of harnessing vast potential of MRI in cancer, has been a success. The facilities available are-
    - (4D) Time resolved MR Angiography: ultra-fast tracking of different phases of circulation: arterial, venous & capillary.
    - 3D & 2D Spectroscopy: spectroscopy imaging/ chemical shift imaging (CSI): detecting & mapping distribution of important metabolites like Choline using proton (H1) spectroscopy to help distinguishing cancer from noncancerous tissue.
    - FMRI (functional MRI): Mapping functional areas responsible for motor, sensory, visual, auditory activities in brain using BOLD technique to help in the pre-operative disposition of brain tumour.
    - Tractography: mapping of nerve fibres in the brain for planning safe surgery, besides its other applications to study peripheral nerves.
    - Perfusion: T2* ultrafast imaging to assess vascularity of tissue as a marker of cancer.
    - Diffusion: Diffusion to detect brain changes in acute vascular event besides its other applications in cancer.

- Whole body MRI with a whole body suit, and the latest whole body scanning on a continuously moving table for quick, comfort & precision for cancer detection & staging both soft tissue & skeletal).
- Whole body CE MRA (MR angiography) with low contrast dose (low risk of NSF).
- Special facilities for oncology applications:
  - MR guided breast biopsy
  - Brain Biopsy facility
  - MR Compatible Ventilator

❖ Preventive Oncology- Preventive Oncology Department primarily focuses on creating awareness among the public about the need to screen for early detection of cancer. Preventive Oncology OPD provides screening for three most common cancers (Breast, Cervix, and Oral cancers) at highly subsidized rates.

❖ Telemedicine- With the active participation from the telemedicine department in RGCI , Samjhana Laboratory is providing healthcare and consultation services to individual patient for consultant opinion, diagnosis and treatment with the application of Telemedicine in Nepal.

Telemedicine comprises of document sharing, video-conferencing, remote monitoring of vital signs. The main crucial part of Telemedicine is Video Conferencing.

Departments Visited

I visited various departments of the hospital and studies their process flows during the induction period of the training. The departments visited along with their process flows are

1. Minor Operation Theatre

Location- Old Building- First Floor.

Incharge- Ward Secreatry

Staffing-

i. Nurses-

a. 3 staff in morning
b. 3 come in afternoon- total 6 nurses
c. 3 remain in evening

ii. Ward Boys

iii. House Keeping Staff.

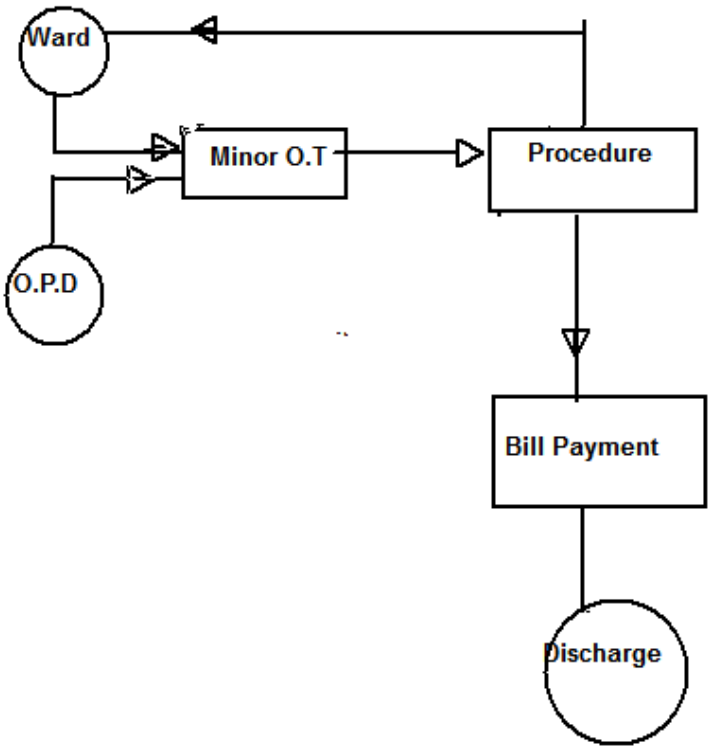
Timing – 7:30 a.m. to 7:30 p.m.

Duties of Nursing supervisor

- Scheduling- patient
- Co-ordination between patient arrival, doctor timing and Operation theatre preparedness.
- File movement – to and from Minor Operation theatre
- Sending patient for billing before discharge.

Patient Flow

Figure:1 – process flow in Minor O.T.



Nursing Staff maintains the inventory by Weekly top off system.

2. Day-care

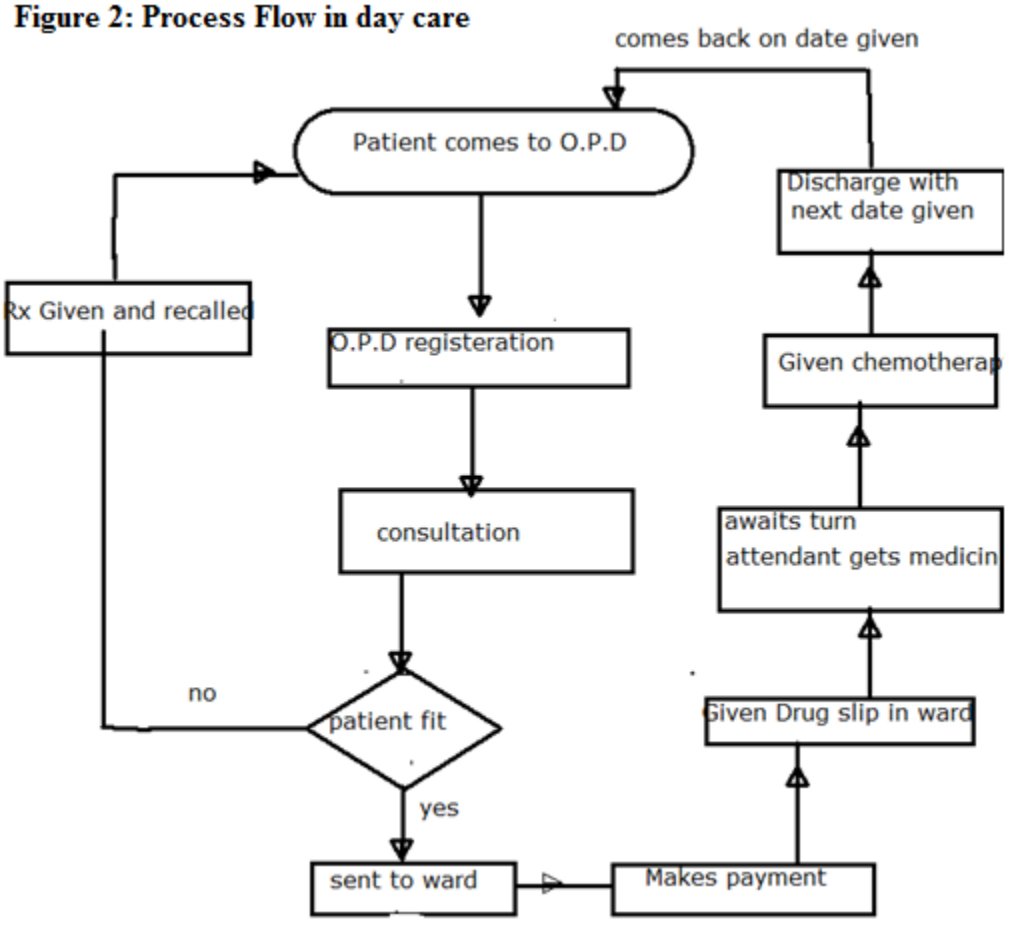
Location- New Building , First Floor.

Timing- 8:30 a.m to 10:30 p.m.

There are 32 beds in the day-care

- General ward
- Single beds-4
- Wards of 2 beds each-2

Figure 2: Process Flow in day care



The procedures being done in day-care are -

- Chemotherapy
- blood transfusions

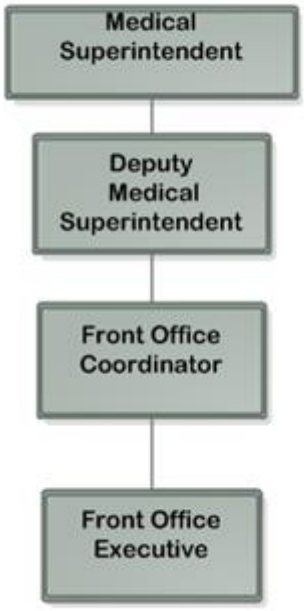
- Port Flushing

The patient Scheduling and bed distribution is based on First Come First Serve basis.

Front office

The organogram of the front office of RGCI is as follows-

Fig 3: organogram of front office



Functions performed at the front Office are

- Registration-
  - Registration of personal details of all new patients into the system
  - Issue of OPD booklet and general information booklet to the patient
  - Collection of consultant fees
  - Issue of registration card
  - Preparation of OPD file of new patients
  - Deciding about the right specialty / doctor that the patient should see
- Reception/Appointment
  - Answering patient queries
  - Giving Prior appointments for OPD consultation

- Providing financial estimates to the patients
- Pre-admission counseling

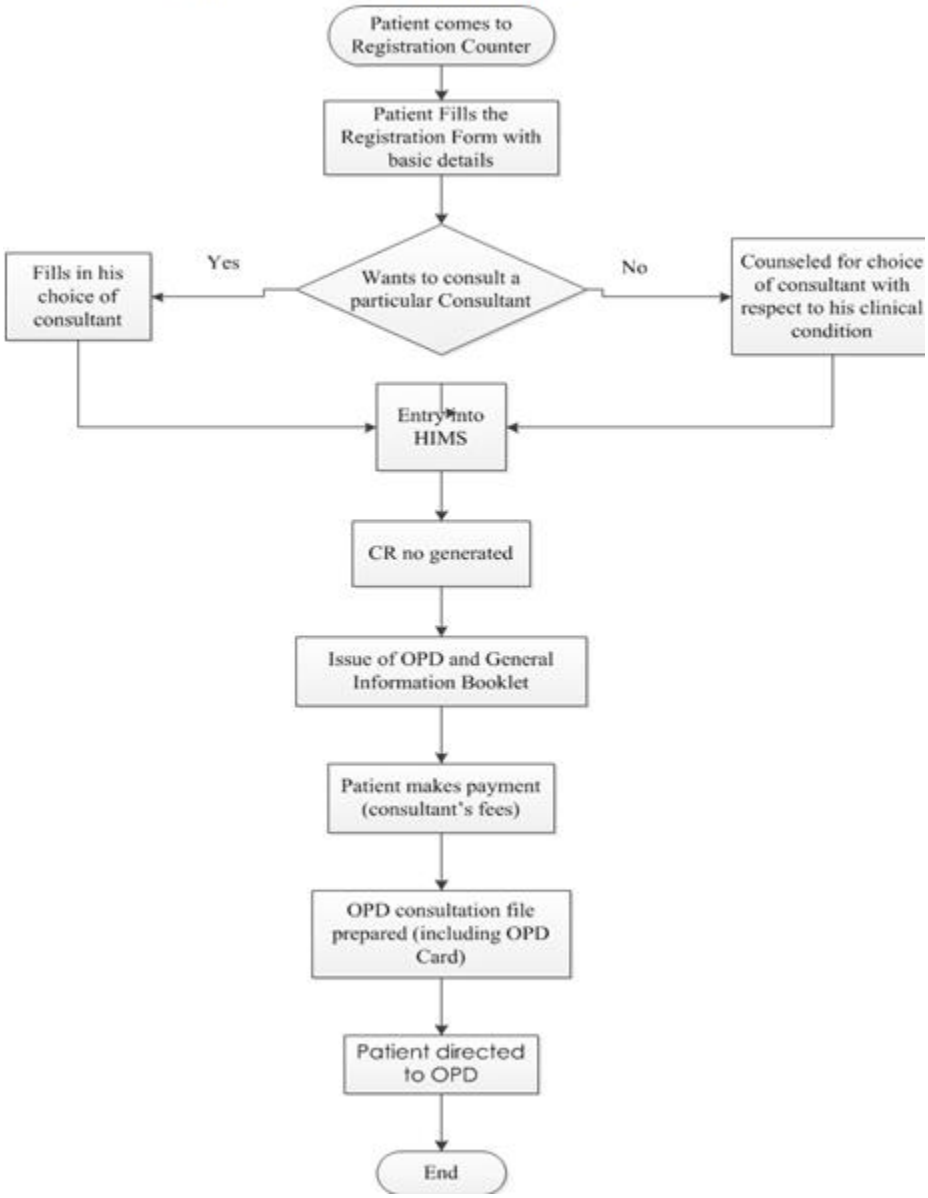
❖ Admission

- Preparation of admission documents for patients advised admission after ascertaining the bed category desired and deposit of advance
- Dispatch of In Patient file to the ward concerned
- Updating the admission list in the HIMS
- Issue of attendant and visitor passes
- Receiving transfer notes and updating in HIMS.
- Accommodating patients in wards who are shifting from SICU

Job Description of Front Desk Executives-

- Attending to patient/relative queries
- Appointment booking
- Providing Financial estimates
- Pre admission counseling
- Managing In-Patient Referrals
- Generation of CR No., OPD consultation cards and In Patient files ;
- Preparation of admission documents
- Billing (consultant fees)
- Coordination with OPD,IPD and Medical Record Department
- Issue of visitors passes
- Updating the system regarding patient movement/transfer details

Figure 4: Process Flow In Front office



MEDICAL RECORD DEPARTMENT

Medical Record Department is located in the basement of the old building.

Functions of the Medical Records Department are-

- Storage and retrieval of medical records for patient care and other authorized use

- Completion of medical records after an inpatient has been discharged or died
- Coding diseases of patients discharged or having died
- Compiling statistics of various data & services
- Providing case summary of Medico-Legal cases to police authorities & patients on written request
- Providing medical information to insurance agency on prescribed form of insurance company on written request by deceased nominee/insurance authorities
- Reporting notifiable diseases to DHS on monthly basis
- Death Registration
- Issue of medical certificates

The organogram of the MRD department is as follows.

Fig 5: Organogram of MRD

Record Retrieval-

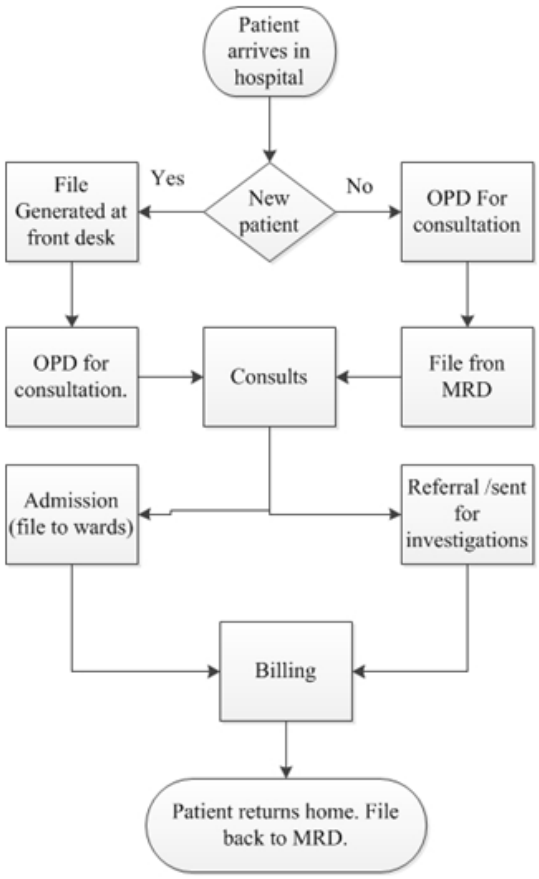
- Prior appointment list comes to MRD a day before
- Without appointment – Request received from OPD (File retrieval time =30-40 minutes for non-appointment)
- Records arranged according to CR No. in ascending order

Retention Period-

- One Year for OPD patients
- Five Years for IPD patients
- Medico-Legal cases- Forever

The process flow in MRD department is as follows-

Figure 6 : Process Flow in MRD



Job Descriptions-

- ⦿ Manager Medical Records-
- Monthly/Annual statistics
- Reports to Government agencies
- Death Registration
- ⦿ Supervisor-
- Coding of diseases according to ICD 10
- Issue of medical certificate
- Filling up prescribed form of insurance company on written request by deceased nominee/insurance authorities

Food and Beverages (F&B)

"There is no form of cookery that requires more thought and care than that intended for the diet of the sick"

Kitchen is located on the ground floor of the old building. It caters to the indoor patients, doctor dining hall and the staff dining hall. In addition the food and beverages which are available in the pantry are outsourced from a local bakery.

The functions of the F&B department are as follows-

- ☐ Patient Meal Service
- ☐ Attendant Room Service
- ☐ 24 hours services for the visitors' and staff at Coffee shop.
- ☐ Staff Meals
- ☐ Organizing In-house Functions, CMEs, Parties, Meetings**.**

The various processes taking place in the Food and Beverages department (F&B department) and the staff responsible for their checks are-

Table 1: Job Responsibilities in F& B department.

Process	Responsibility	Check	Procedure
Vegetable Receiving	Unit Manager, Manager (F & B)	Store Keeper / Chef / Supervisor	Quantity & Quality Check / Check Up For Short Supply And Non Supply
Grocery Receiving	Unit Manager, Manager (F & B)	Store Keeper / Chef	Quantity & Quality Check / Check Up For Short Supply And Non Supply
Dairy Products Receiving	Unit Manager, Manager (F & B)	Store Keeper / Chef	Quantity & Quality Check / Check Up For Short Supply And Non Supply
Vegetable Washing / Sanitation	Unit Manager, Manager (F & B)	Chef / Supervisor	Chlorotip Solution 2 Tablets In 30 Liters Of Water (50 Ppm) Wash And Allow 5-7 Minutes Contact Time
Kitchen Cleaning & Hygiene	Unit Manager, Manager (F & B)	Chef / Supervisor	Wizard Floor Washing Chemical
Staff Hygiene	Unit Manager, Manager (F & B)	Chef / Supervisor	Checking Before Starting Of Every Shift
Cooking	Unit Manager, Manager (F & B)	Chef / Supervisor	According To Time, Temperature And Menu, Using Prescribe Quality Of Ingredients
Food Tasting (Cafeteria / Visitors)	Floor Supervisor /Unit Manager, Manager (F & B)	Chef / Supervisor	Taste, Appearance, Consistency, Temperature Check

Nutritional Assessment & Re-Assessment For All The Patient	Dietician	Dietician	For All The Patients
Morning Round At All Floors	Dietician	Dietician	All The Floors Including ICU, POP & BMT
ISO , NABH And Medical Record For Staff	Dietician / Manager F & B	–	Keeping All The Medical Reports Of All The Stewards And Maintain ISO Record
Staff Briefing And Training	Dietician / Unit Manager / Manager F & B	–	Kitchen Staff , Supervisor And Stewards
Diet Counseling On References And IPD	Dietician	–	–
Patient Billing	Dietician / Manager F & B	–	–
Diets Billing Deduction	Dietician	–	Diets Billing Deduction For CGHS, ESIC And Home Diet Patient
Departmental Billing	Manager F & B / Dietician	Dietician / Manager F & B	All The Departmental Billing
Menu Planning	Dietician / Manager F & B / Unit Manager	–	Menu Planning For Staff , Patients, Doctors
Meeting And Parties	Unit Manager, Manager (F & B)	–	Arrangement For Meeting And Parties
Food Tasting (Patients)	Dietician, Manager (F & B)	Chef / Supervisor	Taste, Appearance, Consistency, Temperature Check

Services	Unit Manager, Manager (F & B)	Steward /Supervisor	Time, Tray / Area / Station Lay-Out, Presentation, Menu Check According To Service

Following checklists are being used for service quality control:

- ☐ Refrigerator & cold room temperature checklist
- ☐ Staff grooming checklist
- ☐ Staff food testing checklist
- ☐ Kitchen Cleaning Checklist
- ☐ Store Brand checklist
- ☐ Trolleys Temperature checklist
- ☐ Room Service control checklist
- ☐ Patient service time checklist
- ☐ Food Sampling Record
- ☐ Fruits and Vegetables receiving checklist
- ☐ Pest Control in Kitchen

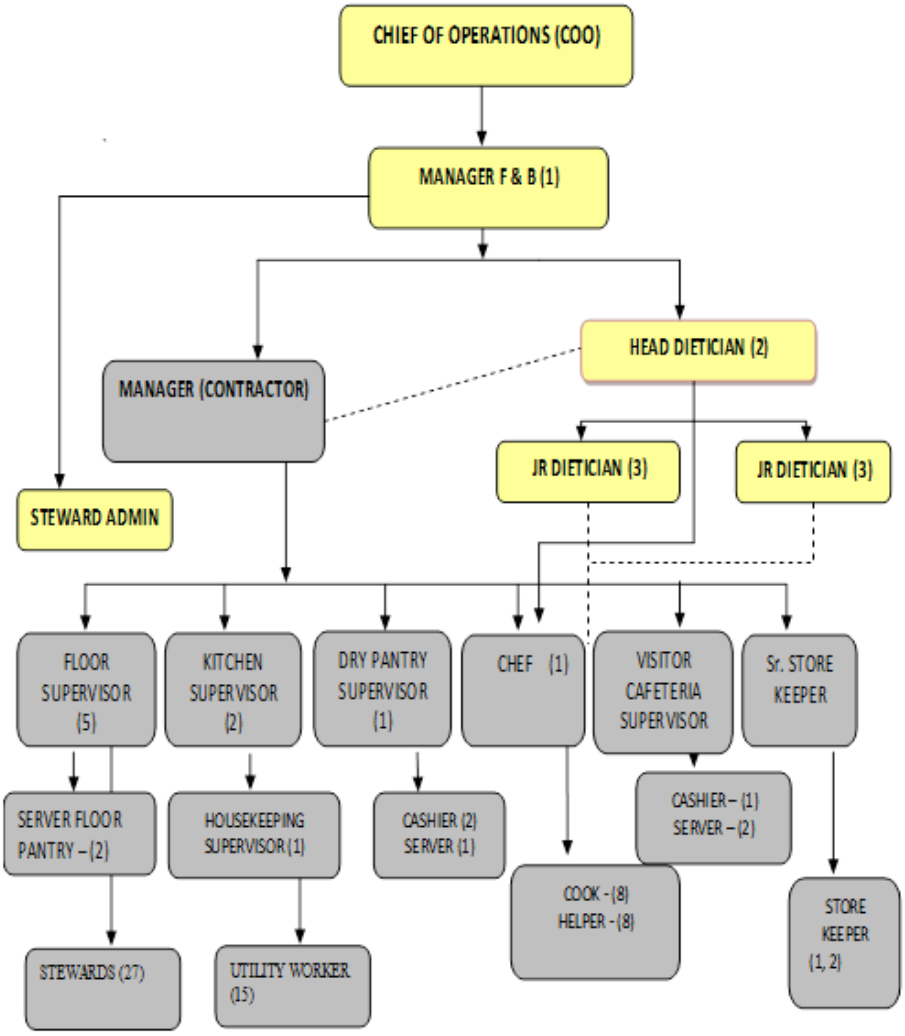
Roles of Dieticians-

- ☐ Diet Prescription and Diet Counseling .
- ☐ Diet Service – Liquid Diet Service
- ☐ Solid Diet Service - Normal , Soft
- ☐ Nutritional Assessment within 24hrs of admission and reassessment for all the patients

- ☐ Nutritionally risk group is identified and special nutritional plan is prepared.
- ☐ Reassessment is done for patients on special diets only as and when the diet is changed.
- ☐ Care of Patients – Therapeutic Diets, foods appropriate for patients condition.
- ☐ Patient and family education during the time of discharge for in patients, diet chart is provided to patients.
- ☐ Diet counseling is given to Patients as and when it is required.

The organizational layout of the F&B department is as follows-

Fig 7: organogram of F& B Deparment



In addition to visiting the departments I made a presentation on the various departments visited, identifying the areas where there was scope for appointment. I also gave my suggestions based on my observations for improvement in my presentation before the management.

I was involved in day to day management of the medical O.P.D, while doing my study. I noticed that the staff was hesitant to use HIMS for day to day jobs in the medical O.P.D resulting in lots of paperwork and duplicity of the work being done. Therefore for 4 days, I started using the available resources in the medical O.P.D. and started doing the work on the computer using excel sheets. The staff was motivated on seeing how easy their work can become by the use of technology and became more responsive to the use of HIMS.

In addition to my study I also got the chance to solve conflicts between patients and staff in the medical department, which arose primarily because of increased waiting times.

Therefore my dissertation in Rajiv Gandhi Cancer Institute was an enriching experience in which I got the chance to put into practice all I had learnt in theory in my two years of the hospital management course.

Part 2

A Study of Process Flow, Appointment Scheduling and Waiting Times in the Medical O.P.D of A Tertiary Care Cancer Research Institute

Chapter 1 - Introduction

Outpatient Department

Outpatient department or the O.P.D as is commonly known is the most important part of any hospital/ health care system. It is the first point of contact with the patient. All patients get their first impression of the hospital from the OPD. O.P.D is the first point of contact between the hospital and the community and can make or mar the reputation of the hospital. O.P.D plays an important role in reduction in morbidity and mortality.

An efficient O.P.D system helps in reducing the number of admission to the inpatient wards, thus conserving beds. It is a filter for inpatient admission, ensuring that only those patients are admitted who are most likely to benefit from such case.

The health care systems have been witnessing an increase in patient loads in the O.P.D`s. This increase is out of proportion to the increase in the resources available for the health care. This has resulted in long queues and increased waiting times in almost all the outpatient departments in the health care system.

Hall.R, et al have asserted the increasing challenge being faced by Health care systems today to deliver high quality care with limited resources. All Health Care Systems are facing increasing pressures to contain costs. Therefore developing systems to ensure the best possible patient care using the limited resources is becoming increasingly critical for hospitals and health care systems. Developing procedures to improve patient flow in order to provide timely treatment and to ensure maximum utilization of available resources are important to achieve this objective.

Randolph W. Hall has defined the Patient flow as the healthcare system`s ability to serve patients quickly and efficiently during their flow through the different stages of care stages of care. In a well performing system, patient flow can be as smooth as the flow of a river with no breaks and there is minimum delay in completion of each stage. However a broken system is like a road with road blocks where there is accumulation of patients. Therefore an efficient patient flow means minimum queuing by the patient while a poor patient flow means that patients have to suffer considerable delays.

Hall. R et all have outlined the consequences being faced by the various stakeholders due to the delays and increasing waiting times. The delays not only harm the patients through wasted time, but also cause unnecessary suffering and also lead to adverse medical outcomes. Health care providers also have to deal with added costs. Delays and increased waiting times lead to reduced efficiency due to the complications in patients because of the delays.

1.2- Problem Statement:

Praful B Desai (2001) estimated that at any point of time there are more than 3 million cancer patients in India and almost 1 million new cases are diagnosed with cancer every year. He has further attributed the increase in diagnosed cases of cancer to increased public knowledge and better diagnostic facilities. However, the demand for cancer care is far more than the supply in India.

Rajiv Gandhi Cancer institute is one of the oldest cancer care centres in Northern India. The institute has already registered more than one lakh, twenty five thousand patients coming from India and abroad. This number is continuously on a rise. A large number of patients from Nepal, Bangladesh, Srilanka, and other neighbouring countries are also utilizing the facilities of the Institute. The Medical O.P.D of Rajiv Gandhi cancer institute sees on an average >200 patients every day.

As a result of the imbalance between the demand and supply in cancer care, the patient load in the O.P.D`s is increasing day by day. The resources on the other hand, are almost static. These has resulted in a big rush and consequently increased

waiting times in the O.P.Ds in Rajiv Gandhi Cancer Institute. It was felt by the administration that there is a reduction in ratios of patients coming with appointment.

There has been no documented study on the waiting times and factors responsible for increasing waiting times in the organization.

1.3 Aims and Objectives:

The objectives of this study are :

1. To Study and Suggest Means to decrease the waiting time and hence increase patient satisfaction and work efficiency in Medical O.P.D of a Tertiary Care Cancer Research Institute by

   i. Process mapping of the Medical O.P.D`s of a Super Speciality, tertiary cancer care Hospital

   ii. To measure and compare the waiting times in patients coming with and without appointments

   iii. To access the percentage of patients whose appointments are fixed by the staff, once they are advised follow up at discharge.

   To Study the gaps between patient arrival times and doctor consultation times to find the effect of doctor and patient punctuality on the waiting times for the patients.

1.4 - Review of Literature:

The health care centre is usually a system of departments in constant interactions with each other. These departments must be coordinated with each other for the smooth flow of patients, specimens, employees, information, materials and pharmaceuticals. Huang (1994) concluded after a survey indicate that a major reason for patients dissatisfaction in O.P.D services is excessive waiting. Jackson (1991) concluded that patients expect reasonable waiting times in addition to clinical competence and excessive waiting times is a cause for patient dissatisfaction.

Important factors leading to good coordination and consequent smooth flows are-

- Leadership and management of the health care organization
- Facility design,
- Organizational design,
- Employee training
- Proper Recruitment.

A good coordination between the different departments is essential to reduce delays. The interfaces between different departments can be the reasons for significant delays. A patient during his visit to a health care centre may encounter waits for the following services:

- Information collection for admissions
- Diagnostics and examinations
- Procedures, surgeries and therapies
- Education
- Rehabilitation and Recuperation
- Transportation between departments
- Discharge processes

There may be some delays in patient care which are invisible and are due to waiting for ancillary services e.g.

- Transfer of medical records
- Transfer and analysis of laboratory specimens
- Filling prescriptions
- Housekeeping to prepare rooms for new patients

- Communication among departments, scheduling and decision-making in Preparation for patient arrivals
- Movement and availability of wheel chairs, gurneys, and other portable equipment
- Completion of required paperwork for internal or governmental/Legal purposes (Hall.R et.al)

Waiting time in any hospital is as an important indicator of quality and there must be a constant endeavour to decrease the waiting times. Managing waiting lines is always a great dilemma for managers who want to achieve an improved return on their investment on the operations. Customers i.e. the patients in the hospitals dislike waiting. If they have to wait for too long at hospital for service, they will either leave prematurely or never return to the hospital. Therefore this will cause decreased customer demand and consequent decrease in the revenue and profit. Longer waiting times also results in increased costs due to more customers in hospital building at any given time, which increase the needs for the resources like space for the customers to wait etc. (Singh.S)

Richard N. Rosett in his study titled "The Role of Health Insurance in the Health Services Sector" has concluded that money prices will soon be replaced by travel time and waiting time as the chief determinant of demand. The reason for decline in the value of Money price as a determinant of demand has been given as

- The secular trend in third-party coverage
- The rising opportunity cost of time
- Increase in time required to receive care
- The prospect of health insurance

Bharat.V. at al have outlined a case study of Cardiology O.P.D in Tata Main Hospital. Long waiting time in the cardiology out-patient department was a common cause of complaint. Therefore reducing the average waiting time in OPD to less than 30 minutes was taken up as an important goal by the hospital management. This

challenge was accepted by the cardiology department of the hospital. Data collection and intense brainstorming sessions to find the possible causes identified the main cause of increased waiting time as too many patients arrivals at the same time.

They drew up the analogy of congestive cardiac failure. Sudden arrival of a number of patients at same time was taken as an increase in preload. These sudden rushes of patients lead to inability of doctors to cope with sudden rushes (akin to pump failure). Therefore the treatment /solution suggested were to decrease the sudden preload of patients by putting an appointment system in place, with different patient categories having segregated time slots. This strategy worked and the overall waiting time for patients was reduced to less than 30 minutes.

Fetter and Thompson studied the patient scheduling systems in O.P.D in 1965. Here they considered seven variables which influence the waiting periods in any O.P.D. These were

- Appointment interval. (i.e The intervals between two subsequent appointments)
- Service time (i.e. the time the doctor takes for one consultation)
- Patient arrival pattern
- No-shows (i.e. the patients who book an appointment but never turn up for the consultation).
- Walk-ins (i.e. patients coming without appointments)
- Lateness of physicians
- Interruptions in service by the physicians.

They found that the waiting time increased when more number of patients was scheduled for a clinic session. They also that patient unpunctuality had an adverse effect on the waiting time. A directly relationship has been found between waiting times and the number of appointments in a clinic session by other researchers like Vissers (1979), Heaney, Howie, and Porter (1991)), and Meza (1998).

Various types of appointment times have been described.

- Block systems (in which all patients are asked to arrive before the start of the clinic), the patients are given an appointment date rather than an appointment time.
- Individual appointment time systems (in which patients are given appointments at intervals which approximate average physician service time)
- In the multiple block/fixed-interval rules, a fixed number of patients are called at the beginning of an appointment block.
- Liu and Liu (1998) described the Variable-block/fixed-interval rule in which different number of patients are assigned to a fixed appointment interval during the clinical session
- Ho and Lau (1992, 1999) introduced the Individual-block/variable-interval rule in which individual patients were given unequal appointment intervals.

Welch and Bailey pointed out that block scheduling of patients resulted in extensive waiting time. They also suggested that appointment be scheduled according to the average physician service time.

Nuffield Studies in 1952, reports have shown that physician lateness and patient arrival patterns significantly affect waiting time of the patients in O.P.D. Patient behaviour affecting the patient's delay are lateness and non-arrival (No-Shows) for appointments. J Vissers (1979) defined the variable of prepunctuality to compare the different appointment systems according to their effect on the patients' waiting time. Prepunctuality includes patient’s own earliness, physician's lateness and the characters inherent to the chosen appointment system.

Bailey (1952) found that on-time arrivals were the rule in majority of the patients. Barlow (2004) reconfirmed the above finding that most of the patients arrived on time for their appointments only around 10% of the patients were late for their appointments. Cox et.al. (1985) in his studies found almost 75% of the patients reporting on time or early for the appointments. Brahimi and Worthington (1991) also

found from their study that early arrivals were more common than late arrivals in hospitals. Onisuru et al (2003) found that patients arriving late for an appointment spent less time waiting for consultation than On-time or early patients. However patients reporting late for an appointment decreased the overall efficiency of the clinic.

White and Pike took into account patient punctuality in making a mathematical model. White and Pike suggested that when patients are punctual, an appointment scheduling scheme which two or three patients are called at the start of the clinic session. Other patients are called at a rate approximately equal to the doctor's mean consultation time. However when patients have a tendency to be non-punctual, then small blocks of three patients be scheduled with time intervals three times the average consultation period.

High levels of productivity (Tonges, 1985) and utilization of service care providers (Managed Care Weekly Digest, 2003) is essential for Cost-effective delivery of health care. No-Shows or patients not arriving for their scheduled appointments results in an increase in the provider idle time and reduction in the expected number of patients actually seen in a day. This causes a reduction in the clinic's revenues and denies other patients access to the needed services (Shonick and Klein, 1977). Bailey (1952), Bailey and Welch (1953), Ho and Lau(1992) and Welch and Bailey(1952) identified the effect of no shows on schedule performance and came to the conclusion that patients not turning up for appointments is a significant factor in schedule performance. Cayirli and Veral (2003) also found that no-shows have a significant impact on the system's performance in many health clinics.

Waiting times also differ according to the time from which it is calculated. Blanco White and Pike (1964) calculated the waiting time as the difference between the consultation starting time and the actual arrival time of the patient. Cayirli and Veral (2003) calculated the waiting time as the difference between the appointment time or arrival time, whichever was later and the consultation start time. This method does not include waiting before the time of appointment, as this waiting is not a consequence of the Appointment System. Vissers.J et al (1978), identified the fact that as the system is not responsible for patients showing up before appointment-time,

the performance of the appointment scheduling system is better represented by subtracting the time patient is early for an appointment from the total waiting time.

O'keefe (1985) concluded from his studies that even with existing appointment systems in many centres patients were not being served in order of their appointment but were being processed on a first come first served basis.

Chapter 2 - Data and Methods

The Research Design/Methodology- The study was Exploratory Descriptive in nature.

Place of study- This study was carried out in the medical O.P.D of Rajiv Gandhi cancer Institute.

Study duration- The study was carried from 11th Jan 2012 to 5thMarch 2012

11th Jan - observing the process flows of the patients. Observations started for patients coming to Medical Oncology O.P.D I and Medical Oncology O.P.D II. The Observations continued till 9th Feb 2012.

13th Jan- Observations started for patients coming to Haematology Oncology and Medical oncology Unit 4. The data recording continued till 9th Feb 2012.

10th February to 16th February- Random samples of discharge summaries of patients discharged in the interval between 1st Jan 2012 to 9th Feb 2012 were accessed to note the dates when the patients had been recalled for a review. Then the C.R. numbers of the patients were cross checked from the appointment lists to find the unit wise percentage of patients whose appointments were fixed by the staff.

16th Feb – 24th Feb - The patients coming to the Paediatric oncology O.P.D were tracked.

25th Feb – 5th March 2012 –Retrospective analysis was carried out using the data recorded in the consultation register to find the distribution of the patients coming to the medical Oncology O.P.D reception counter to find the percentage of patient distribution coming with and without appointments for different units.

Variables for Study

1) The data recorded for the patients coming to O.P.D was as follows-
    a) For patients with Appointment
        i) Time of Arrival to the Reception Counter of medical O.P.D

ii) Time of Appointment
iii) Time when the patient is first summoned to the consultation chamber of doctor.

b) For Patients without Appointment
   i) Time of Arrival to the Reception Counter of the O.P.D/ Phone call to the O.P.D informing patient intention to consult the doctor.
   ii) Time the file of the patient reaches the reception counter
   iii) Time the patient is first summoned to the consultation chamber of the doctor.

c) For New patients/ Referred patients:
   i) Time the patient and file reaches the counter.
   ii) Time of Consultation with doctor.

Only those patients for whom all the variables could be noted were included for the purpose of study.

2) The data recorded from the study of the discharge summaries were as follows-
   a) C.R. number
   b) Unit
   c) Date of admission
   d) Date of discharge
   e) Date when called to O.P.D for review
   f) Appointment fixed/not fixed for the date for review.
3) The data recorded from the retrospective analysis of the consultation register for month of Jan 2012 and Feb 2012
   a) O.P.D card number
   b) Consultant Unit
   c) Type of patient- with appointment/without appointment/referred / new patient

Sample Size-

1. Patient tracking was done for every 8th patient reporting to the Medical O.P.D. Therefore tracking was done for a total of 988 patients with appointment and 368 patients without appointment/referred patients/new patients. However the

data for patients for which all the variables could not be recorded was discarded. So the data for 759 patients with appointment and 300 patients without appointment was considered for final analysis.

2. A total of 540 discharge summaries out of total 1364 discharge summaries during the period from 1st Jan 2012 to 31st Jan 2012 were analysed.
3. The data for all the patients who had visited the medical O.P.D in the month of Jan and Feb 2012 was noted and analysed to see the Unit wise percentage of patients with and without appointment.

Data Collection Tools

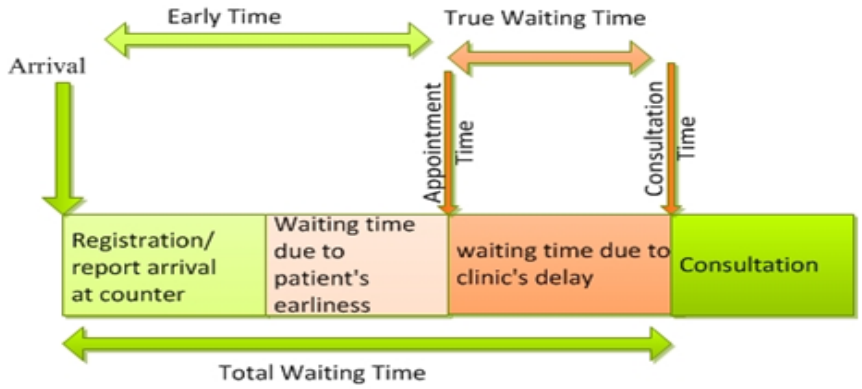
a) Pre formed Performa for patient tracking.
b) Daily Appointment List from the HIMS
c) Discharge slips of patients
d) O.P.D registers
e) Interviews with staff of the Medical O.P.D.

Tools for Analysis – The Data so collected was fed into Microsoft Excel 2010, and the analysis was done using Excel 2010. The various formulas used for the calculations and analysis were as follows-

- The patient distribution was studied to analyse the patient load on each unit in Medical O.P.D and also to study the category of patient episodes as- with appointment/without appointment/ referred patients/New patients.
- The patient arrival patterns were studied with regard to appointment times and divided into early arrivals / on time arrivals and late arrivals. For this purpose the time when the patient first reported at the Medical O.P.D counter was taken as the time of arrival.
- The waiting time in patients without appointment was calculated as Time of Consultation – Time of Arrival.
- The waiting time in patients with appointment were divided into
    1) Total waiting time = Time of Consultation – Time of Arrival
    2) True waiting time

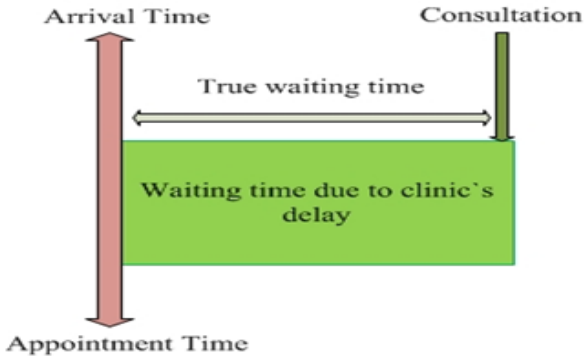
- In patients coming early (i.e. before time of appointment)→true waiting time = Time of consultation – Time of Appointment

Fig 8: Waiting Time in patients arriving before appointment time



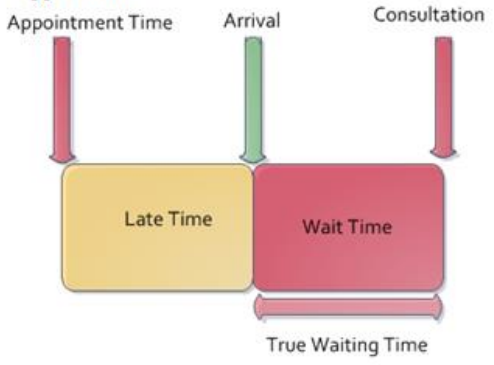
- In patients on time (i.e. Time of appointment=time of arrival)→ true waiting time= Time of consultation – Time of Appointment

Fig 9: Waiting time in patient arriving in time for appointment



- In patients Coming late (i.e. after the time of appointment)→ Time of Consultation – Time of Arrival

Fig 10 : waiting time in patients late for appointment



Data so collected was used to study the patient arrival patterns and the doctor consultation patterns to analyse Physician lateness as a cause for increased waiting times.

Chapter 3- Results and Findings

Medical O.P.D-

Medical O.P.D in Rajiv Gandhi Cancer Institute caters to an average of 200 patients per day. The medical O.P.D consists of following Units –

1. Medical unit-I
2. Medical unit-II
3. Haematology Oncology unit
4. Medical unit-IV
5. Internal Medicine.
6. Paediatrics

Functions of Medical O.P.D

The patients come to the Medical O.P.D for

i. Consultation for new patients
ii. Follow up for old patients – Routine / emergency
iii. Show laboratory reports – for routine follow up / before proceeding for chemotherapy.
iv. Renewing of prescriptions
v. Referred from other O.P.D`s (i.e. Surgical O.P.D /Radiotherapy O.P.D).

Staffing in Medical O.P.D

The staffing at the main counter is as follows.

- O.P.D coordinator
- Senior executive – 1
- Junior executives-2.
- Ward boys- 3

Table 2 : staffing in Medical Oncology O.P.D						
Unit	Senior Consultant	Consultant	D.N.B residents	Medical Assistant	Nurses	Ward-boys/girls
Med-I	1	2	2		2	1
Med- II	1	1	2		1	1
Med-IV	1	1	3		1	1
Haematology-Oncology	1	1	2	1	1	1
Internal medicine	1	1				
Paediatrics	1	1	2	1	1	1

Documentations related to patient care being done at the main O.P.D counter are as follows.

1) Patient register- i.e. the list Patients being attended to each day which includes
    a. Patients with appointment
    b. Patients without appointment
    c. Patients referred from elsewhere
    d. New patients.
2) File Movement Register – i.e. the register of file movement from Medical O.P.D`s to other department e.g. - radiotherapy/ day-care etc.
3) Sending Register- The files sent back from O.P.D to the M.R.D department at the end of the day.
4) Multi-Speciality Clinics register- the Files being taken for multi-speciality clinics.

Patient Scheduling System

i. **Appointment System**: The appointment for the doctors in advance is scheduled for slots of 5 minutes. The advance booking of the patients is done at the appointment counter on ground floor. The records of the patients with

appointment for a particular day are brought to the central reception in the morning before the start of the O.P.D.

ii. **Appointments for follow up after discharge from inpatient department -** As a protocol, appointments for follow up/review/readmission are fixed in the HIMS by the hospital staff, when a patient is discharged from the hospital.

iii. **Appointments for follow up after consultation in O.P.D**- The patient is given a slip mentioning the date when he/she is required to come back for consultation. The patient has to give the slip to the appointment counter at ground floor and get an appointment fixed in HIMS. She/he is given an automatically generated appointment slip.

iv. **Register Appointments for Medical Unit** -1 Once all the slots for appointment in a particular day for Medical Unit -1 have been booked, the name of the patient is noted in appointment register, which is maintained separately. The files of the patients whose names have been written in appointment register also are summoned from the medical records department in the morning.

v. **Without Appointment patients** – Rajiv Gandhi Cancer Institute as a principal does not refuse consultation to any patient regardless of the fact he has an appointment or not. The records of patients whose names have neither been noted in appointment register nor have been given an appointment online are summoned as and when they come to the Medical O.P.D counter.

vi. **Token System** - The patients for Medical Unit 2 and Haematology Oncology O.P.D are given tokens on first come first serve basis, when they come to the counter and their files are complete. The patients coming without appointment are given a token after the appointment patients. For e.g. if there are 12 patients with appointment for Medical Oncology Unit 2/ Haematology Oncology Unit , than a patient coming without appointment is given a token no of 13. For other O.P.D`s the patient files are maintained separately as with appointment/without appointment/ referred/new patient. The files of the patients who come first are kept on top, followed by patients who come later .

vii. There are no consultations without appointment for Haematology-oncology except with the permission of the head of the department.

Sometimes the same patients have an appointment at more than one place. Than their file is present at one of the two places and is referred to the other O.P.D after their consultation at first place.

Therefore the process flow of O.P.D is as shown in Fig 11 and Fig 12. .

Fig 11. Process Flow In patients with Appointment

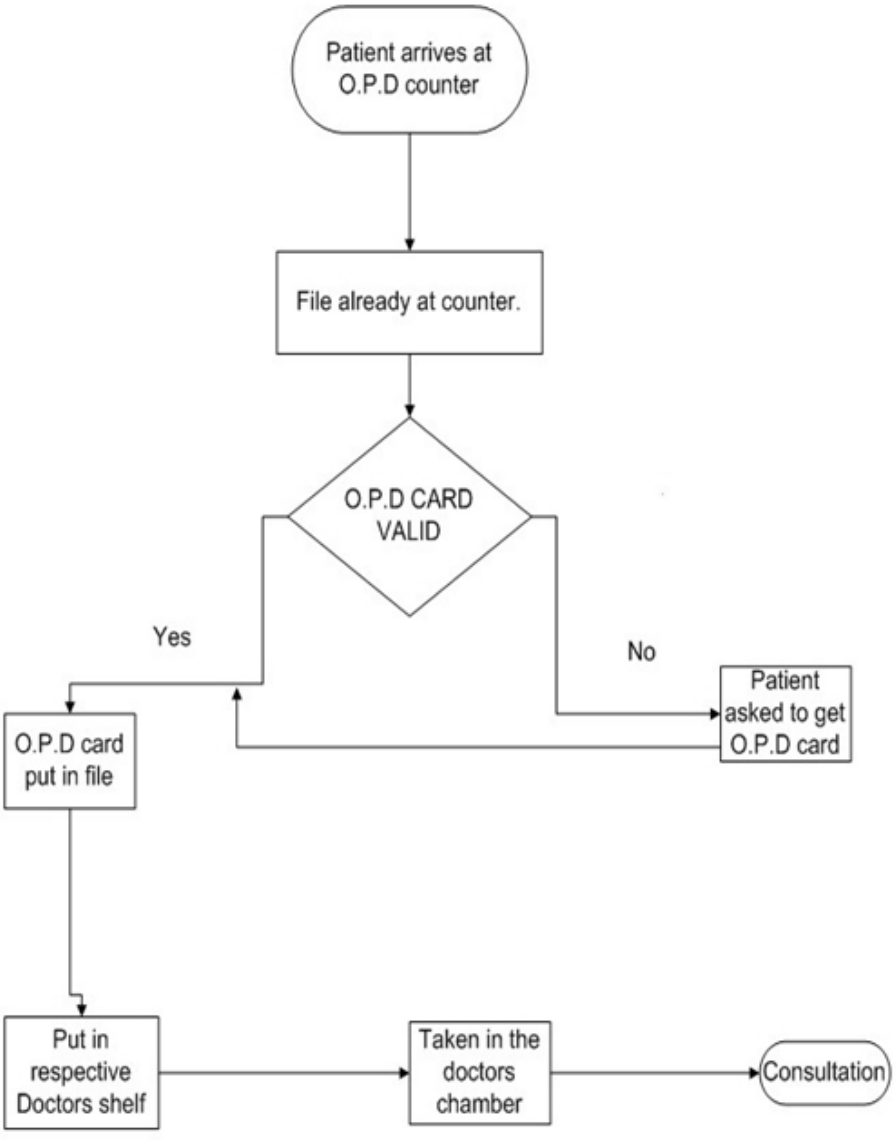
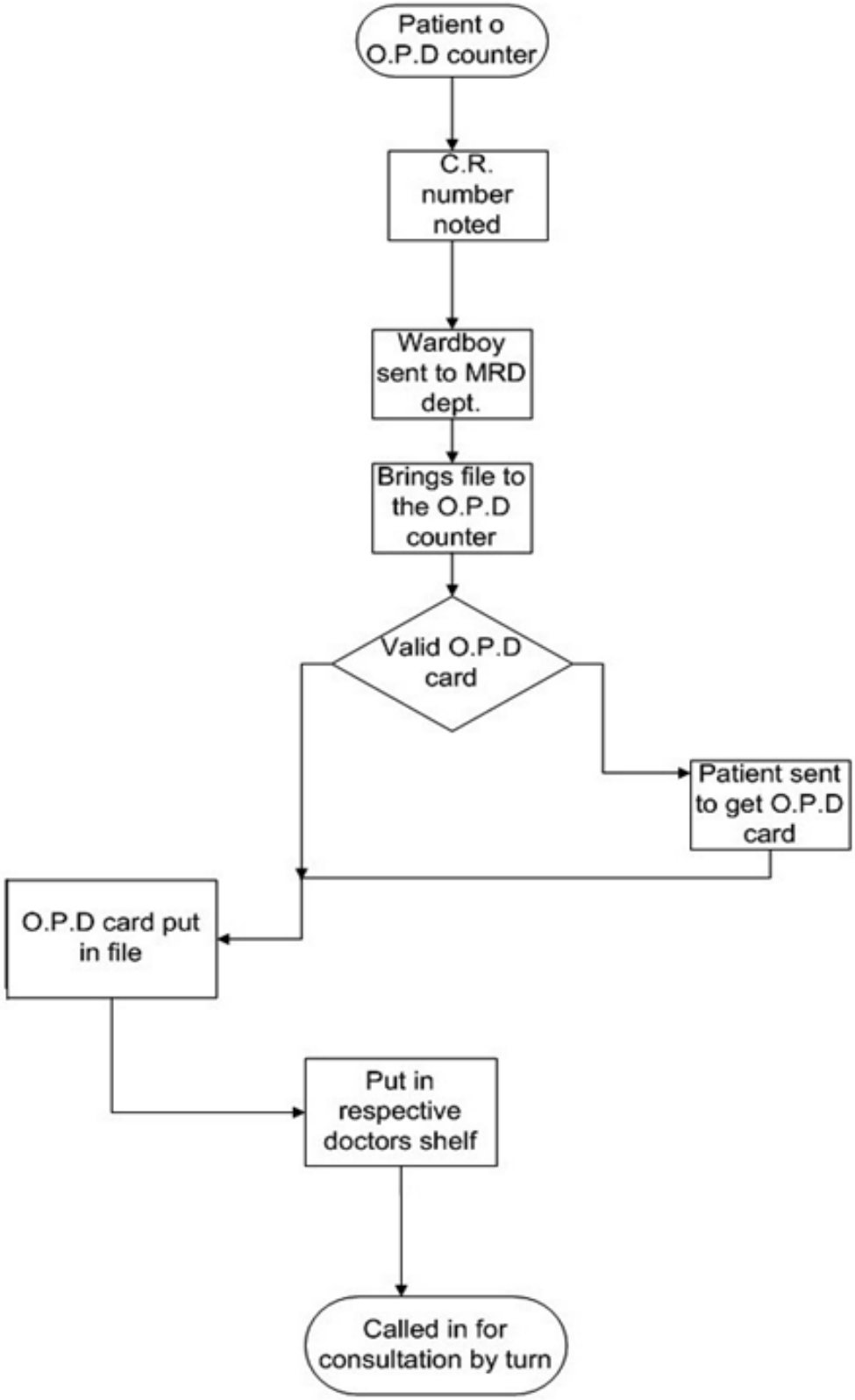


Fig 12: Process Flow in Patients without Appointment



A total of 9076 patients visited the hospital in the month of Jan and Feb 2012. The distribution of patients were as follows-

Figure 13: Unit wise Distribution of patients.

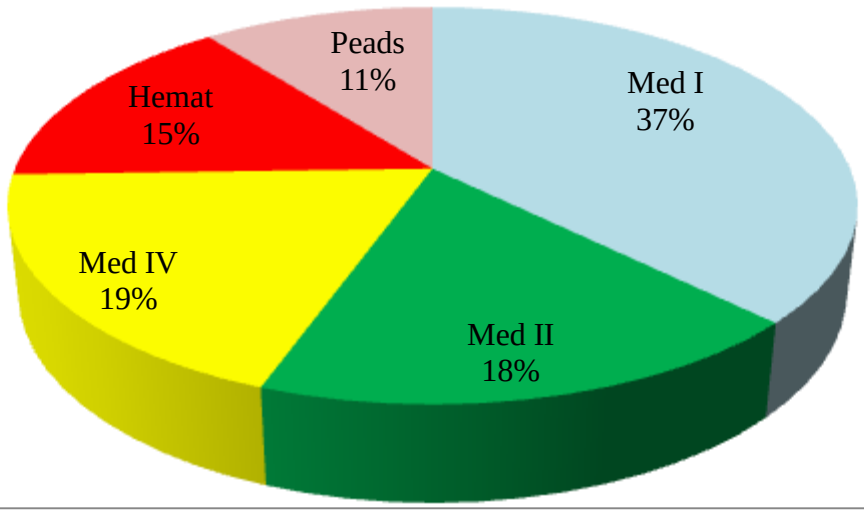
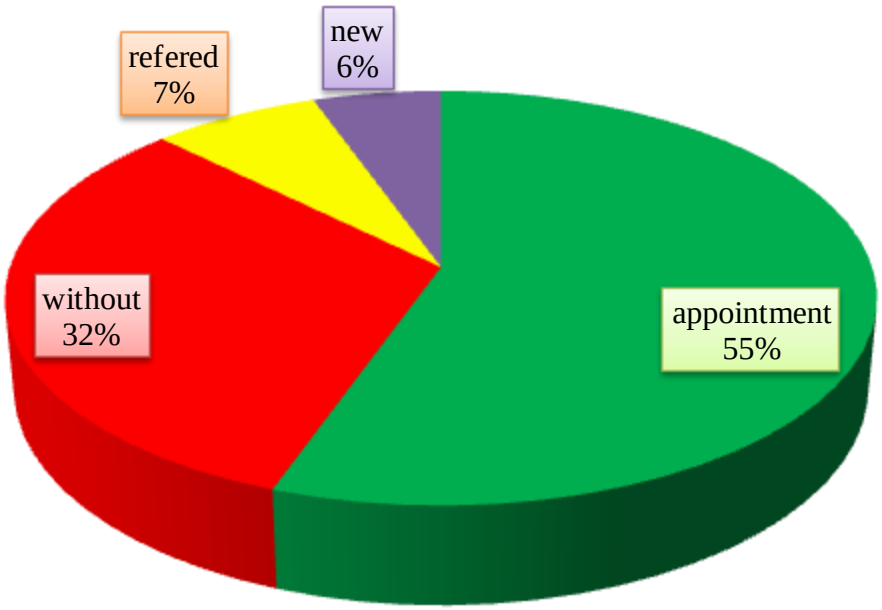
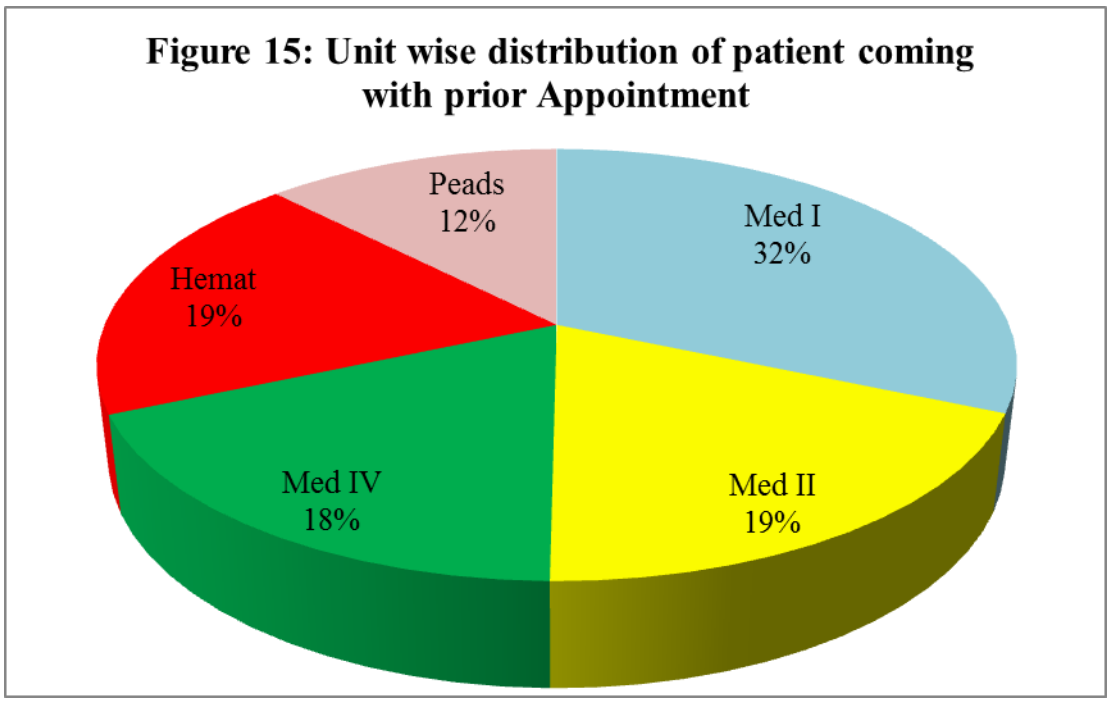


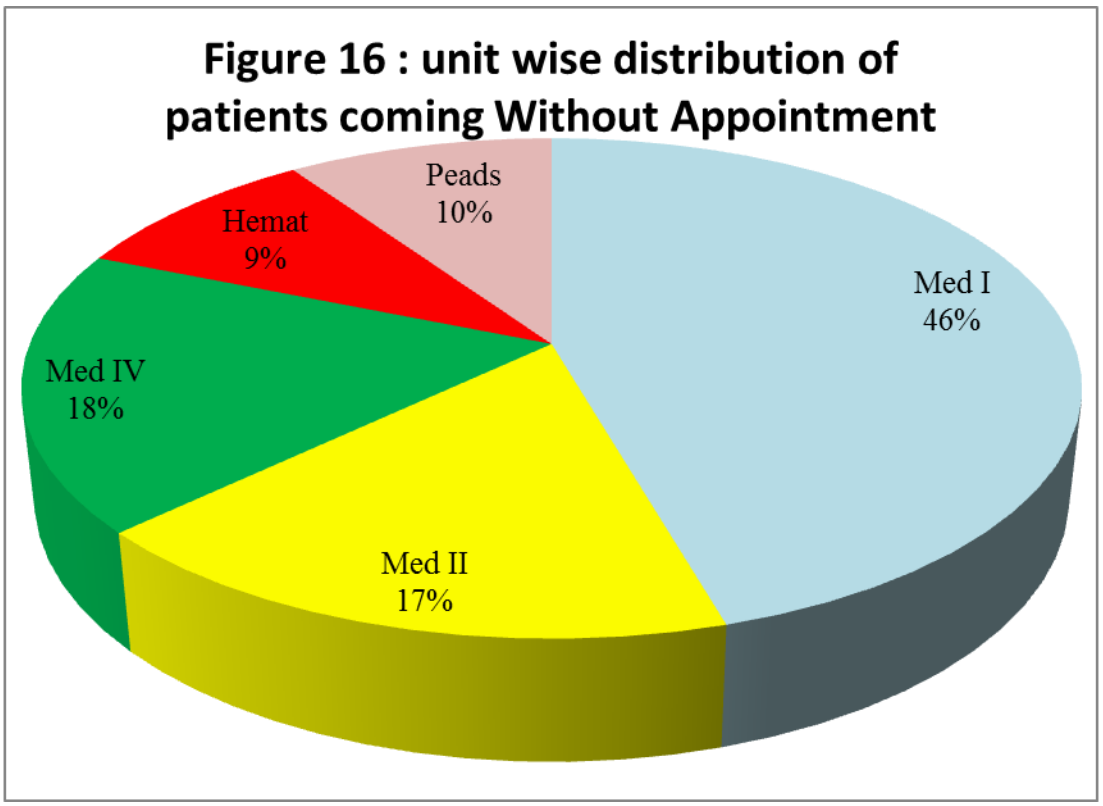
Figure 14 : Category Wise Distribution of patients.



The Unit wise distribution of patients coming without appointment was as follows.



The distribution of patients coming without appointment was as follows-



Unit wise distribution of Referred patients was as follows.

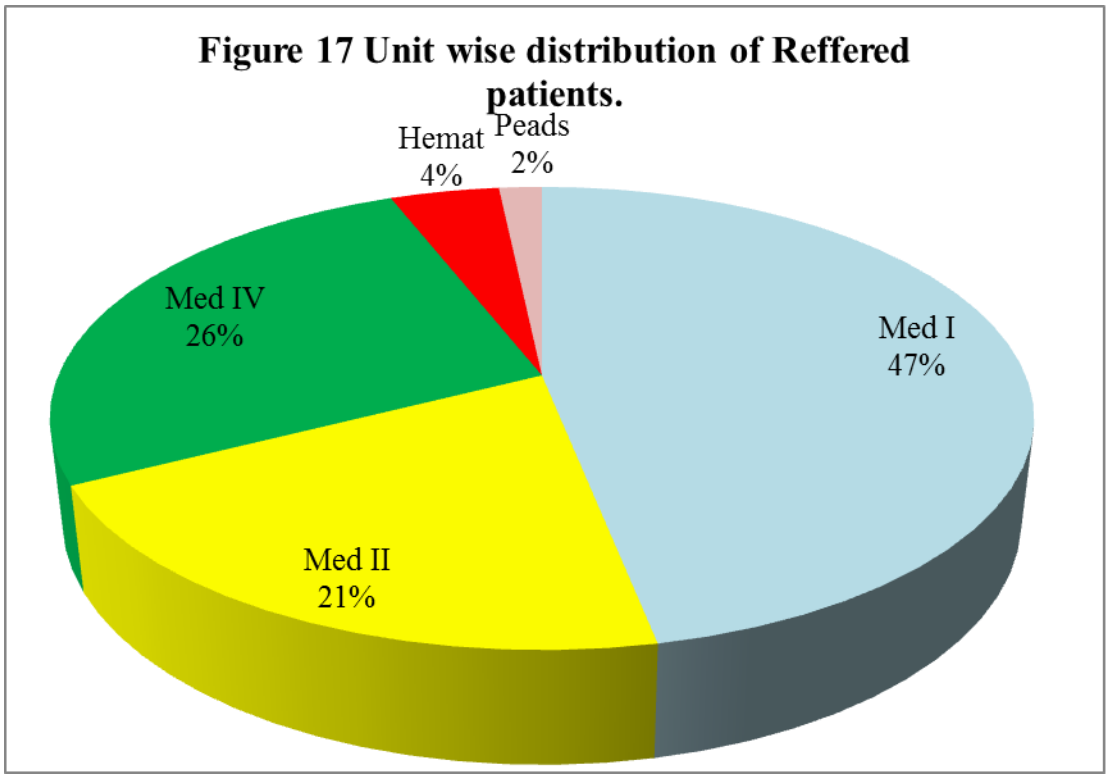


Figure 17 Unit wise distribution of Reffered patients.

Unit wise distribution for the new patients was as follows.

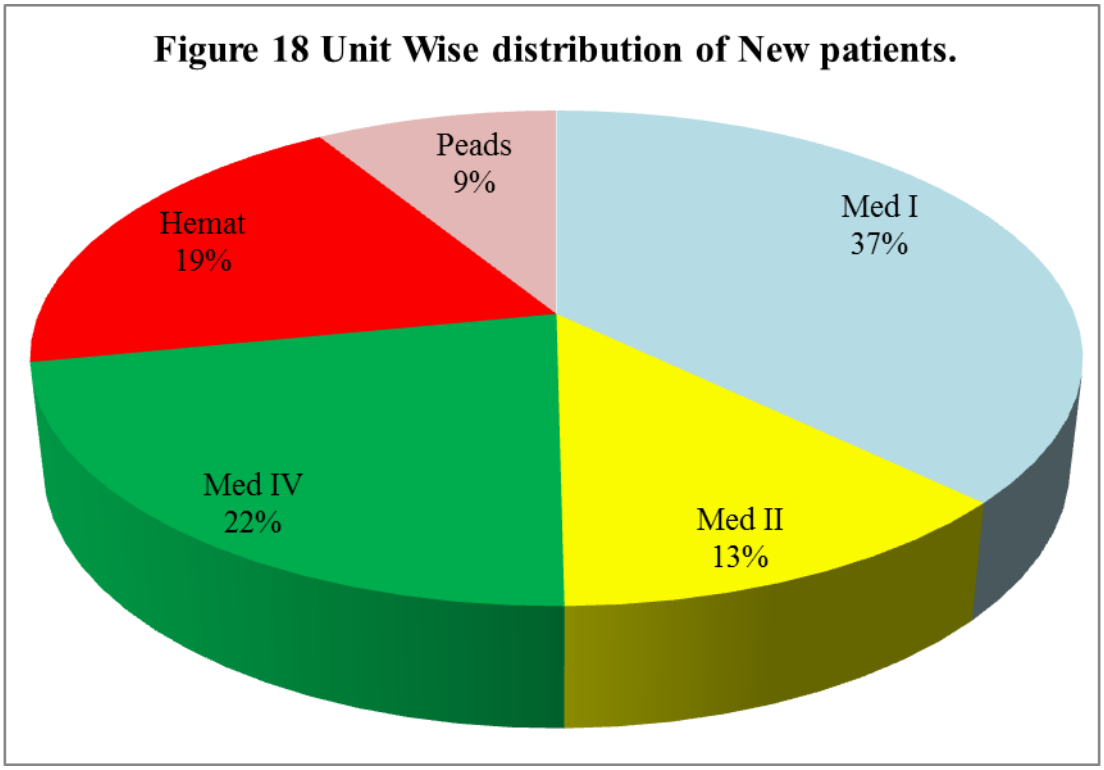
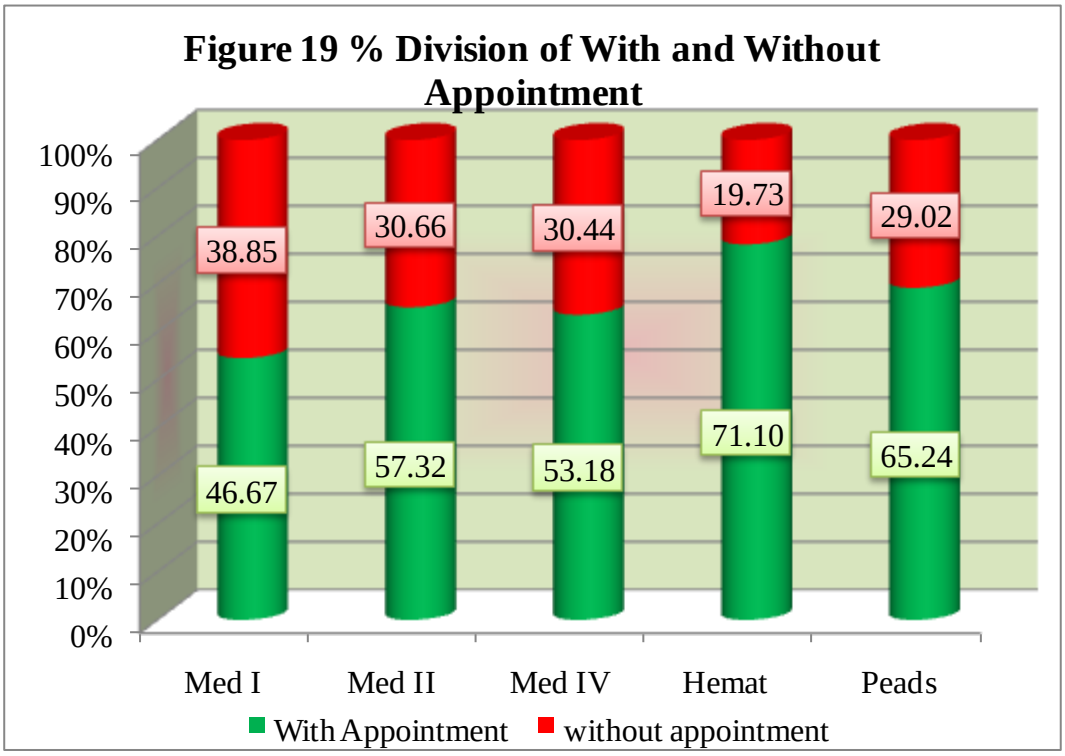
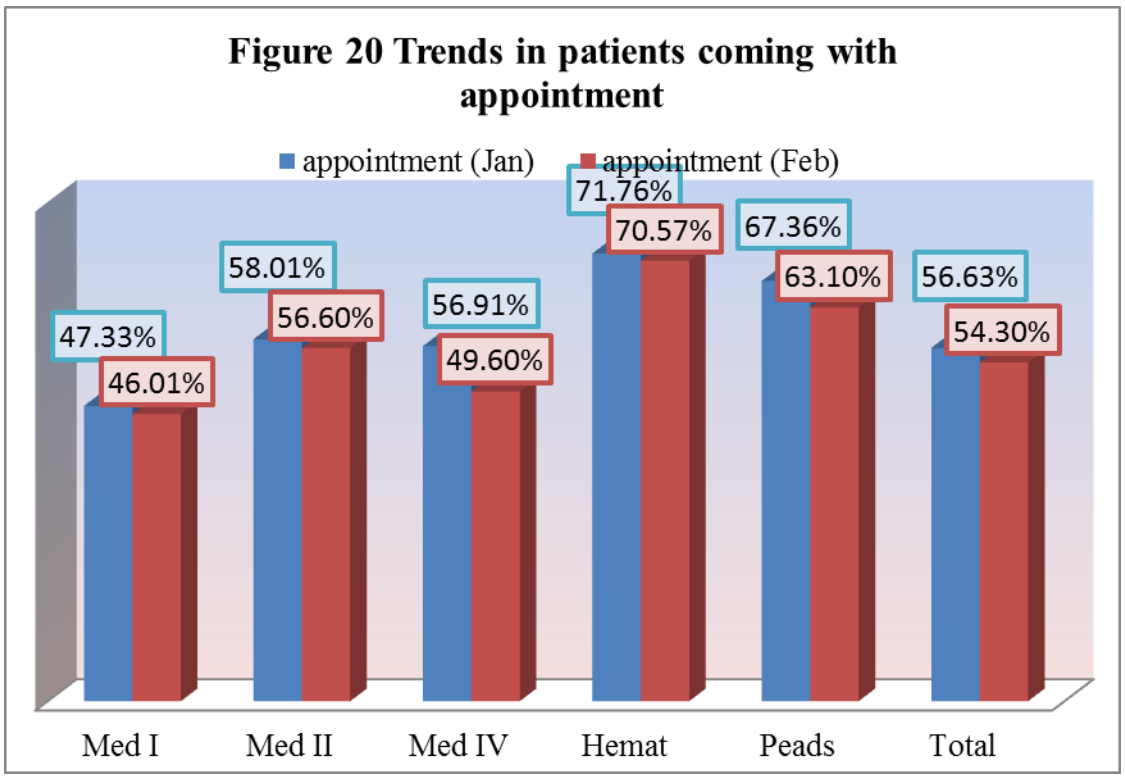


Figure 18 Unit Wise distribution of New patients.

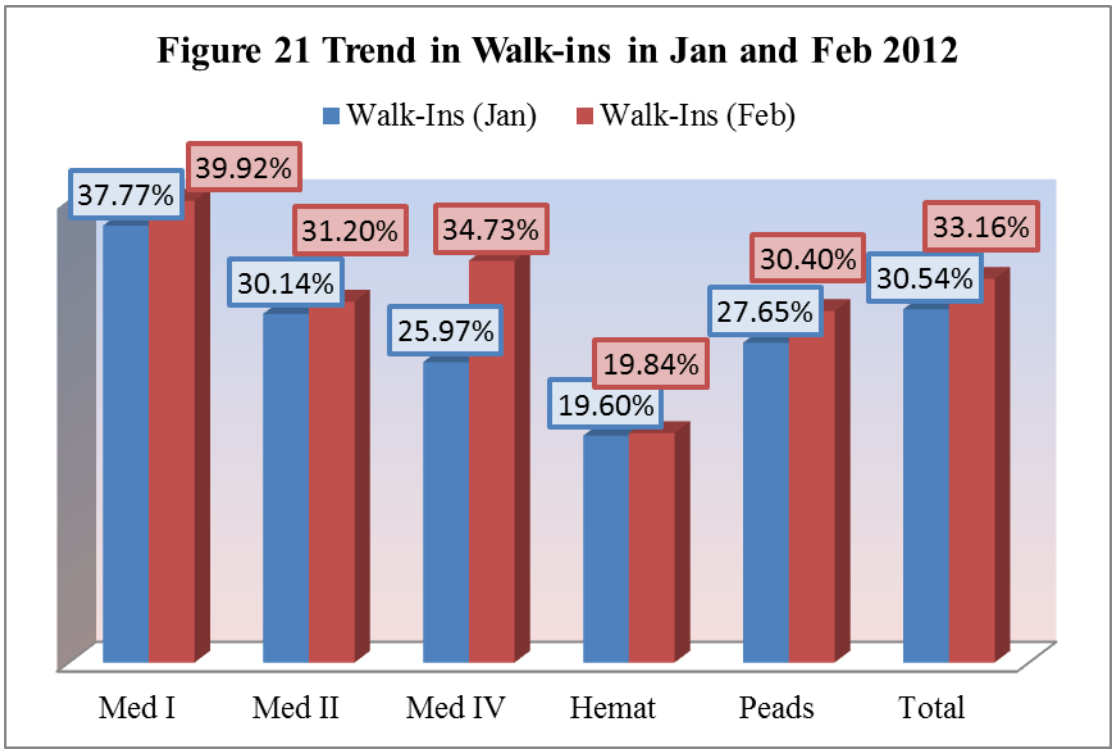
Category of patients in each Unit is as follows-



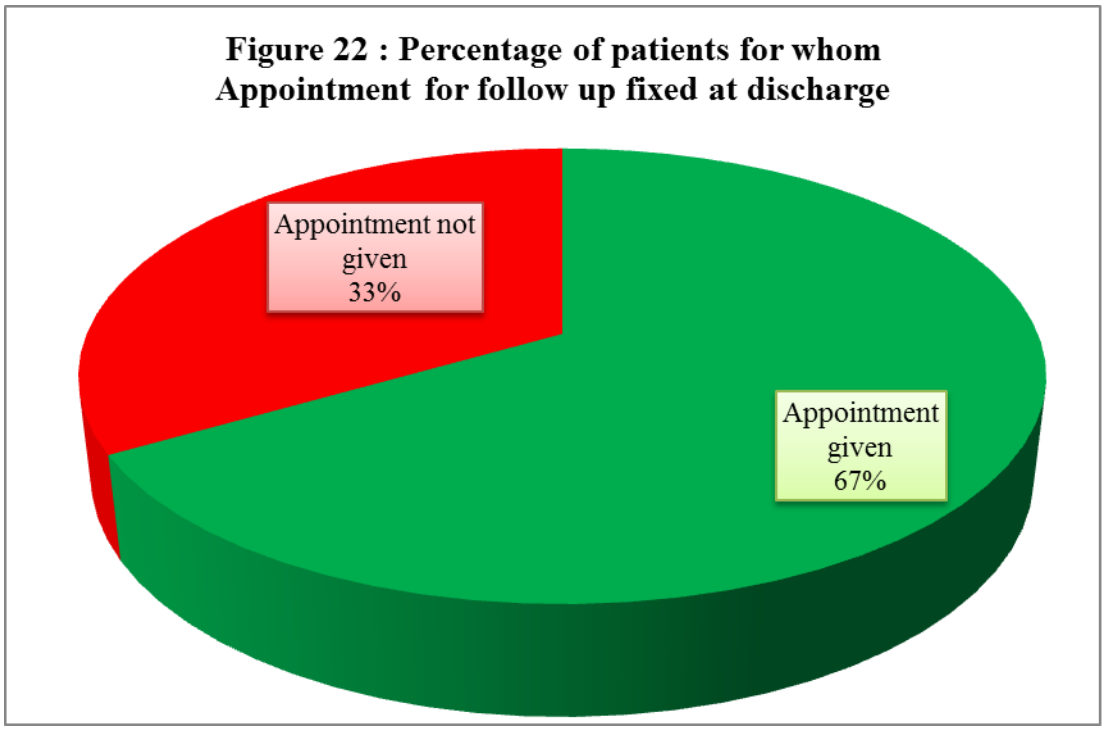
Trends in patients coming with appointment in Months of Jan/Feb 2012.



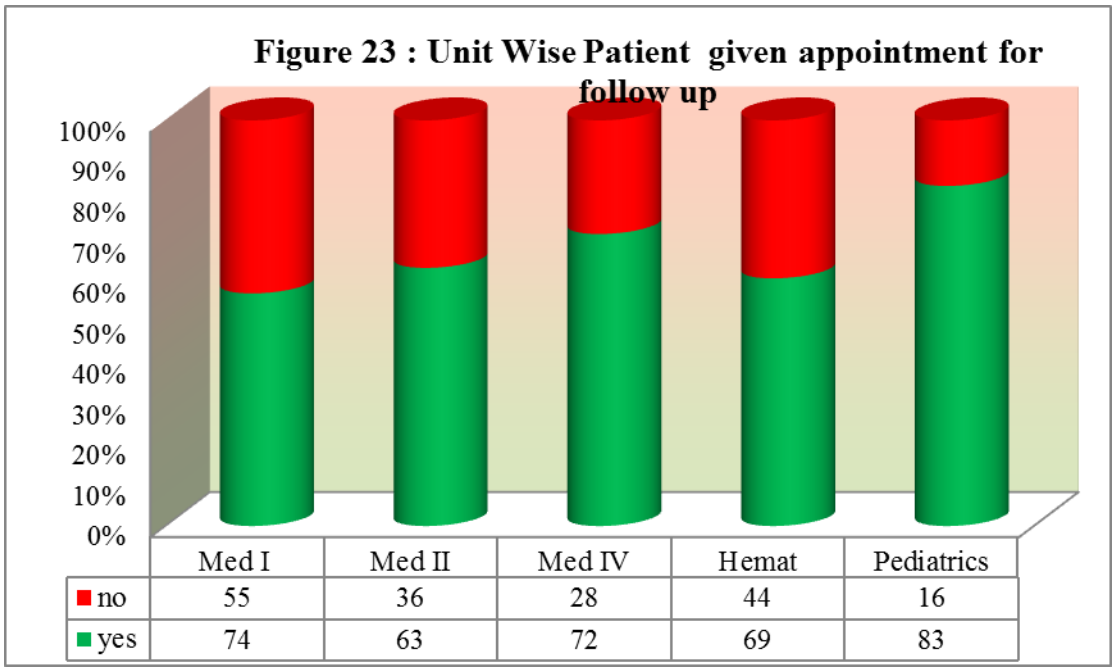
Trends in patients coming without appointment in months of Jan/Feb 2012



The percentage of patients given appointment for follow up at discharge is at follows.

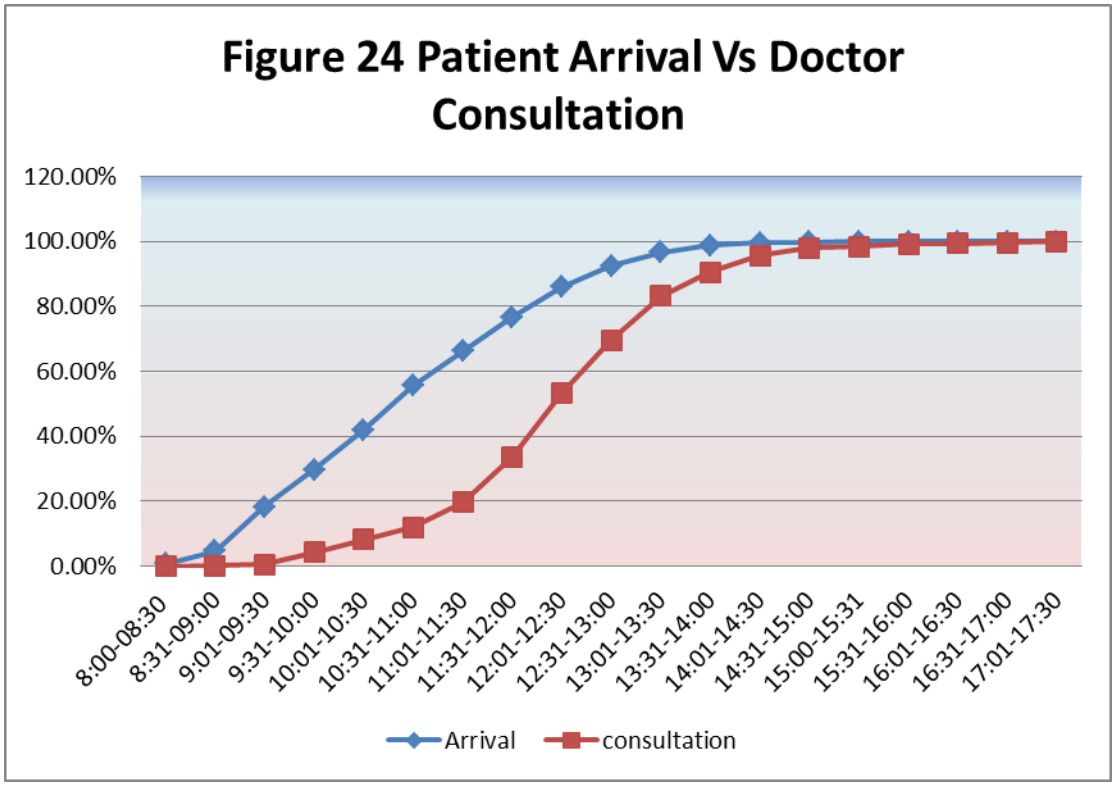


Distribution of patients given/not given appointments for follow up were as follows



	Med I	Med II	Med IV	Hemat	Pediatrics
no	55	36	28	44	16
yes	74	63	72	69	83

Patient Arrival Vs Doctor Consultation timings



Unit Wise Patient Arrival and Doctor Consultation Patterns

Figure 25 Patient Arrival Vs Doctor Consultation in Hemat - Oncology

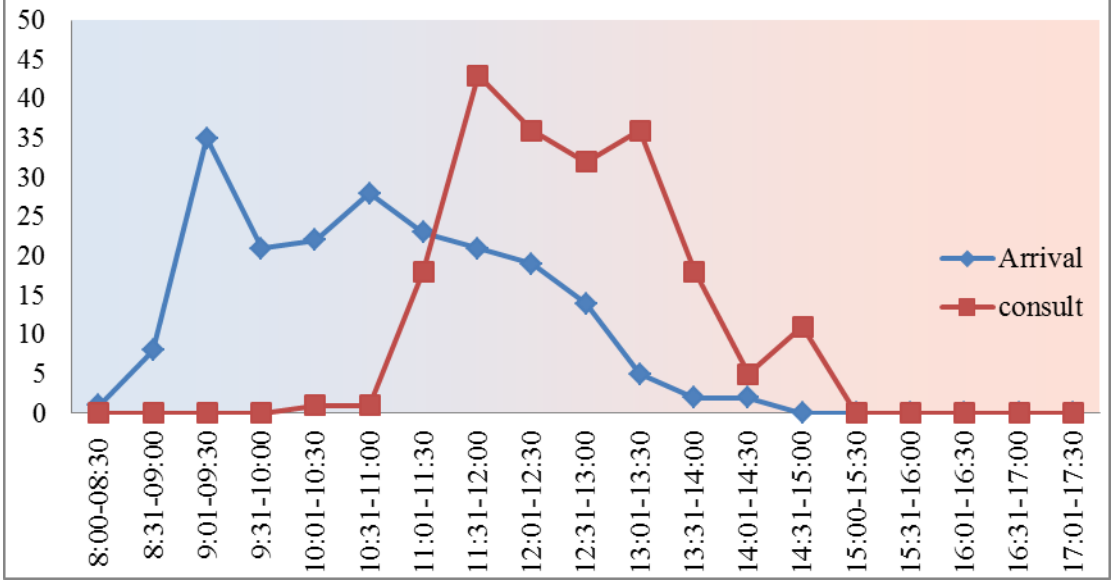
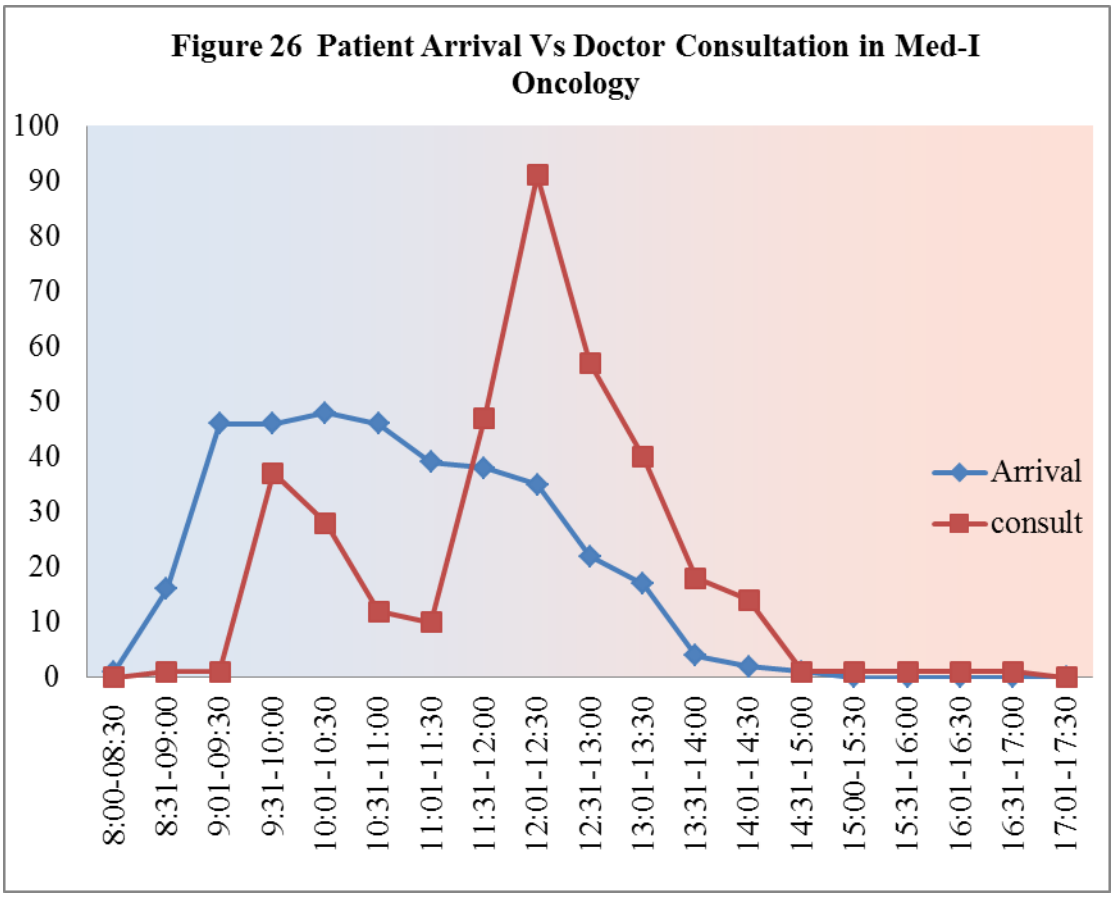


Figure 26 Patient Arrival Vs Doctor Consultation in Med-I Oncology



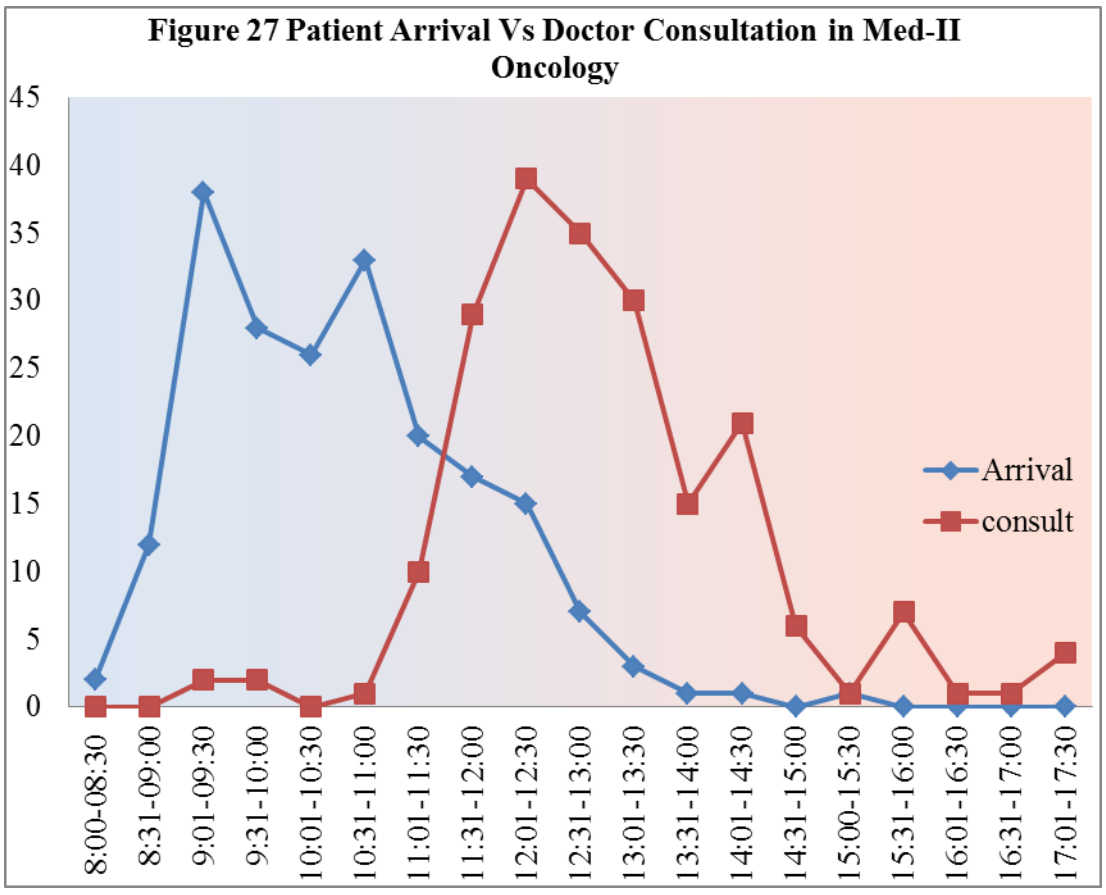


Figure 27 Patient Arrival Vs Doctor Consultation in Med-II Oncology

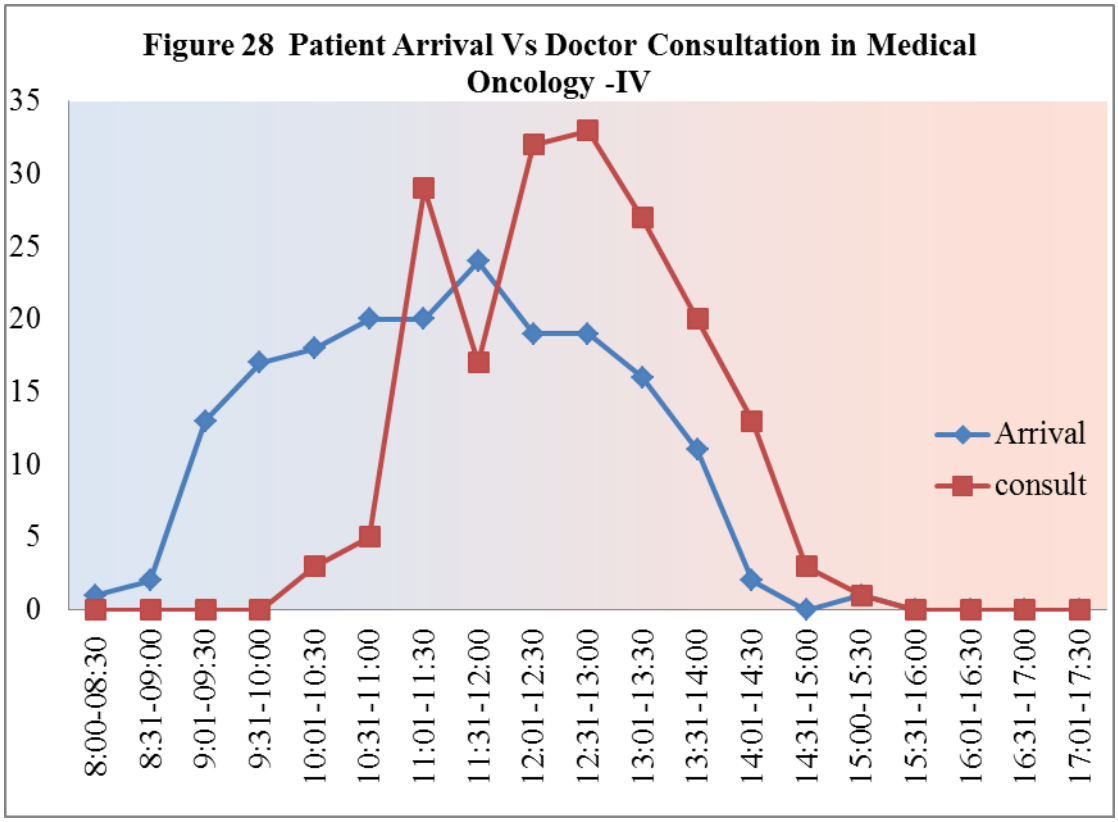
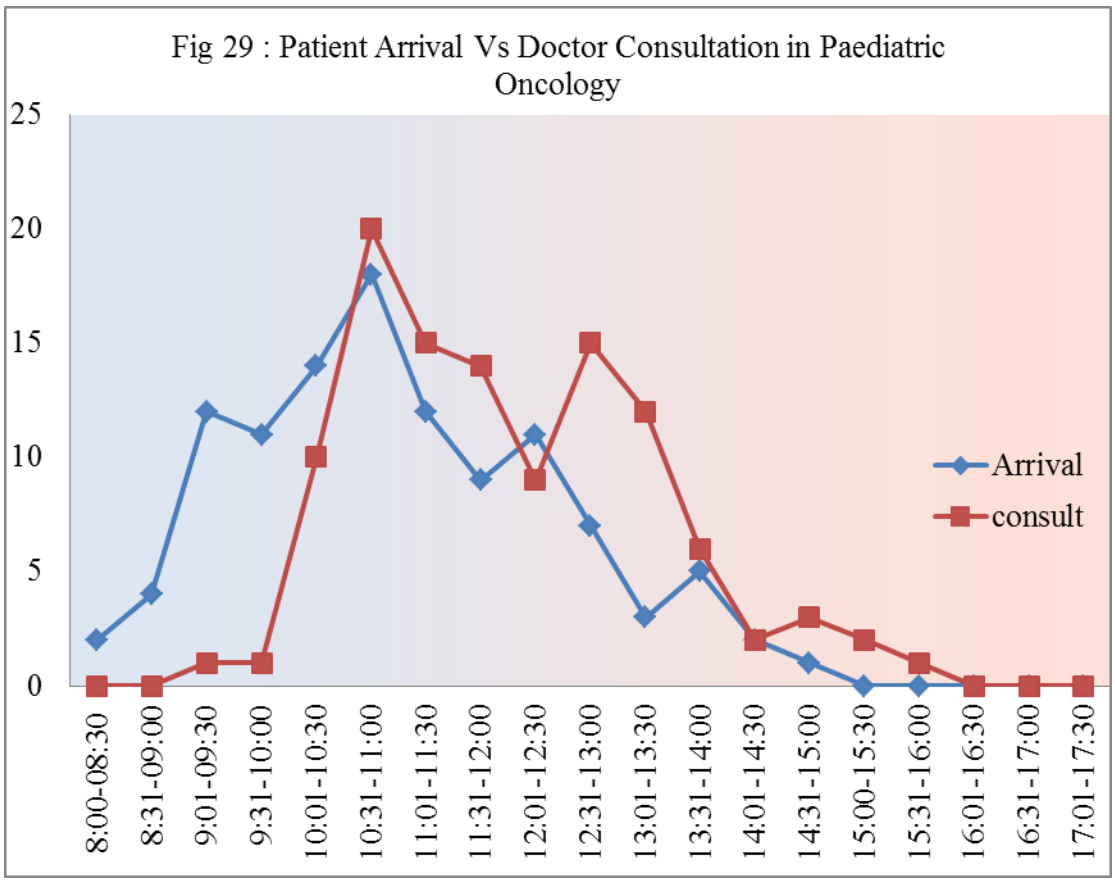
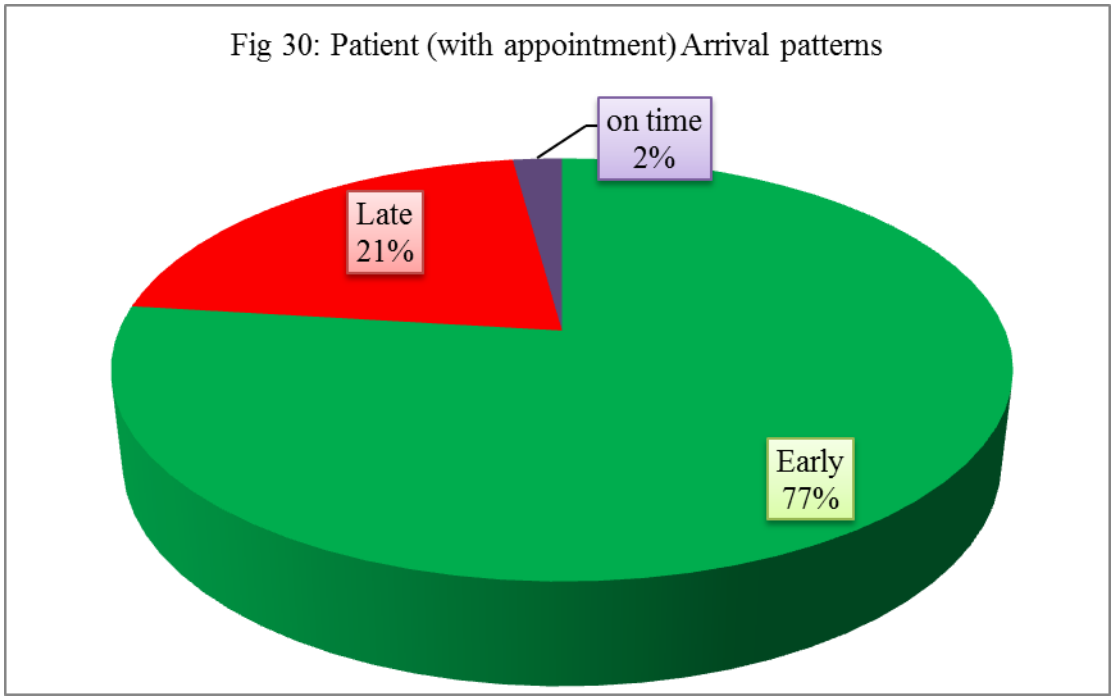


Figure 28 Patient Arrival Vs Doctor Consultation in Medical Oncology -IV



Patient Arrival patterns with respect to time of Appointment

The arrival time of the patients in respect to the appointment time was as follows.

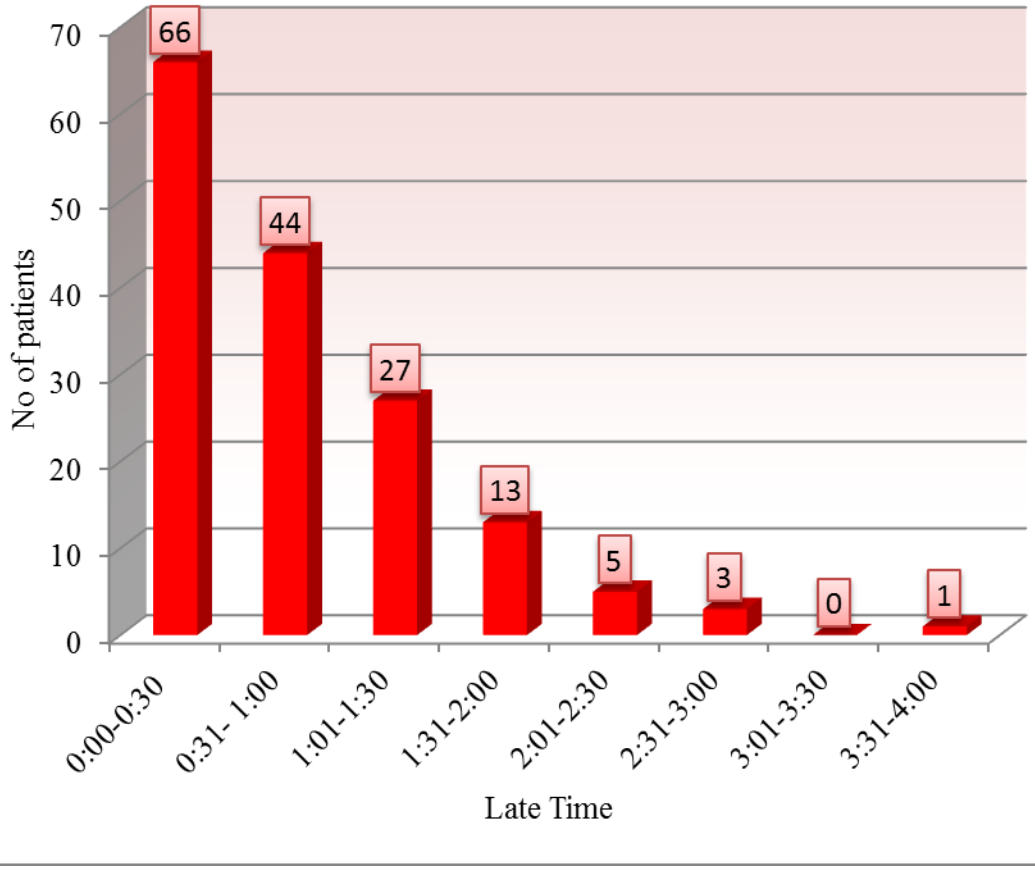


The late arrival times were as follows- 159 patients came late for their appointment by an average of 49 minutes.

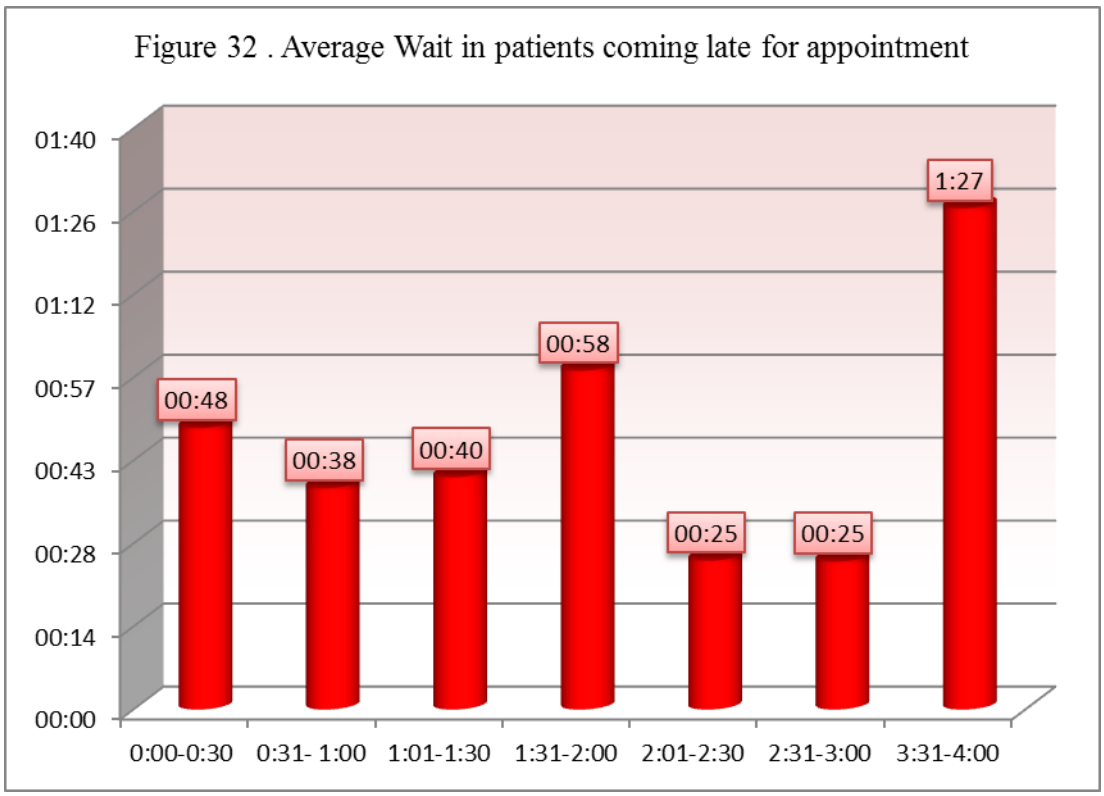
The distribution of late arrivals was follows:

Table 3 : Patient distribution of late arrivals	
Late by (Hours)	No of patients
0:00-0:30	66
0:31- 1:00	44
1:01-1:30	27
1:31-2:00	13
2:01-2:30	5
2:31-3:00	2
3:01-3:30	0
3:30-4:00	1

Figure 31 . Patient distribution of late arrivals



The waiting time for patients with respect to the time they were late for appointment was follows-



The early arrivals were as follows.

585 patients arrived before their appointment time. The early arrivals were on an average by 1 hour and 45 minutes. The breakup of early arrivals were as follows.

Table 4 : Break up of patients arriving early	
Early (Hours)	No of patients
0:00-0:30	104
0:31- 1:00	96
1:01-1:30	81
1:31-2:00	73
2:01-2:30	60
2:31-3:00	72
3:01-3:30	47
3:31-4:00	31

4:01-4:30	12
4:31-5:00	7
> 5:00	1

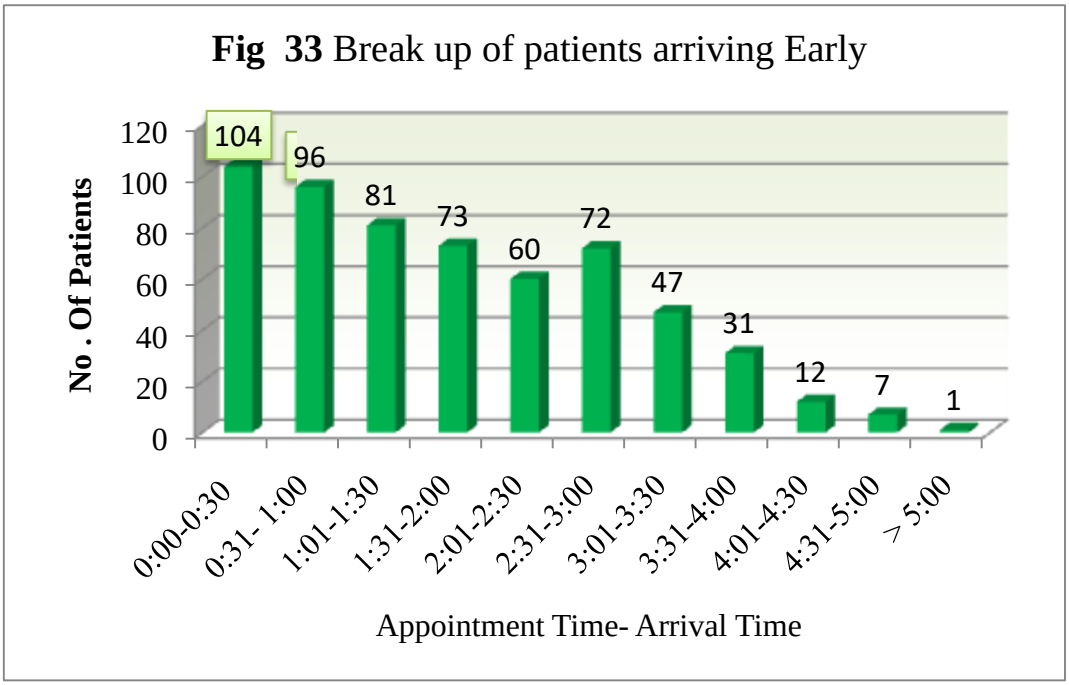


Fig 33 Break up of patients arriving Early

The total waiting time for patients coming with appointment with respect to their arrival times were as follows.

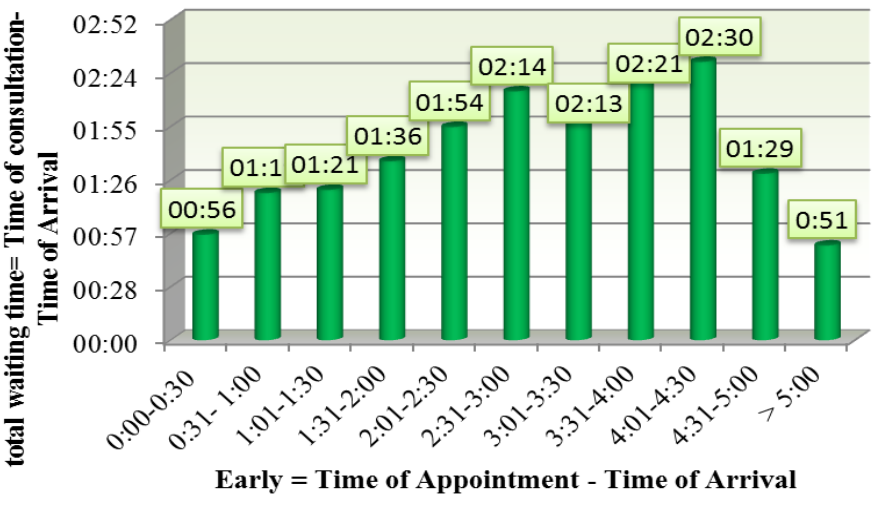
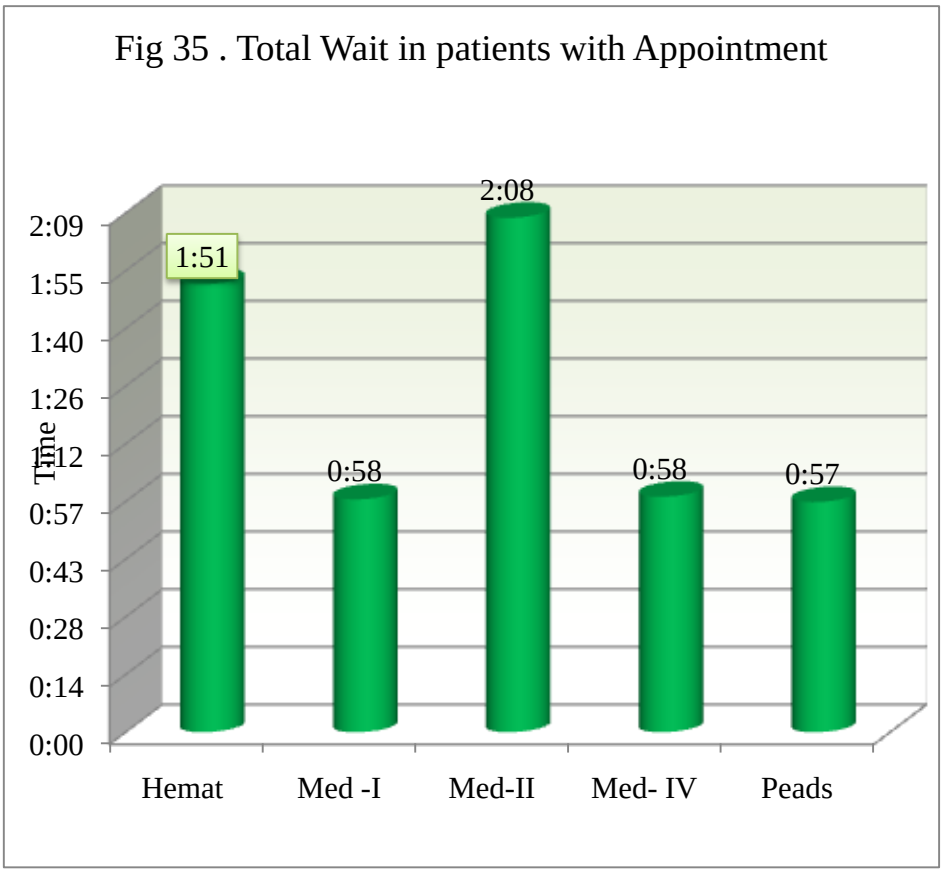


Fig 34 Average Total Waiting Time in patients arriving early

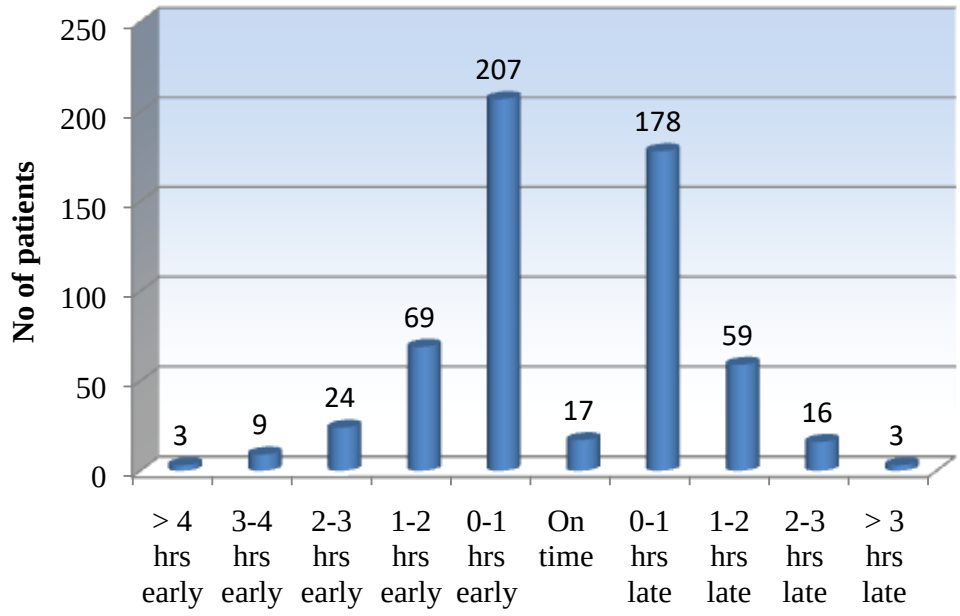
Table 5 Total wait in patients With appointment	
Unit	Total wait in patients With appointment (Hours)
Haematology	1:51
Med I	0:58
Med II	2:08
Med IV	0:58
Paediatrics	0:57

Fig 35 . Total Wait in patients with Appointment



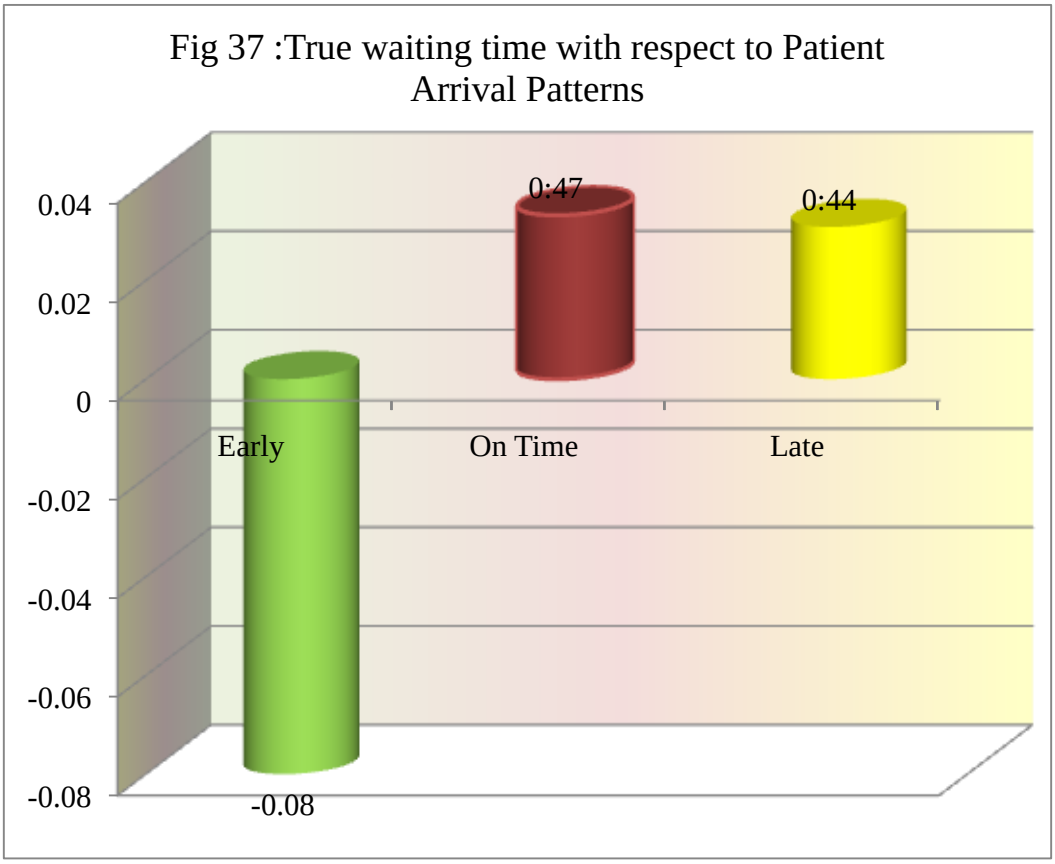
The Waiting times for patients coming early, with respect to their appointment time was as follows

Fig 36 . True waiting times with respect to no of patients coming Early



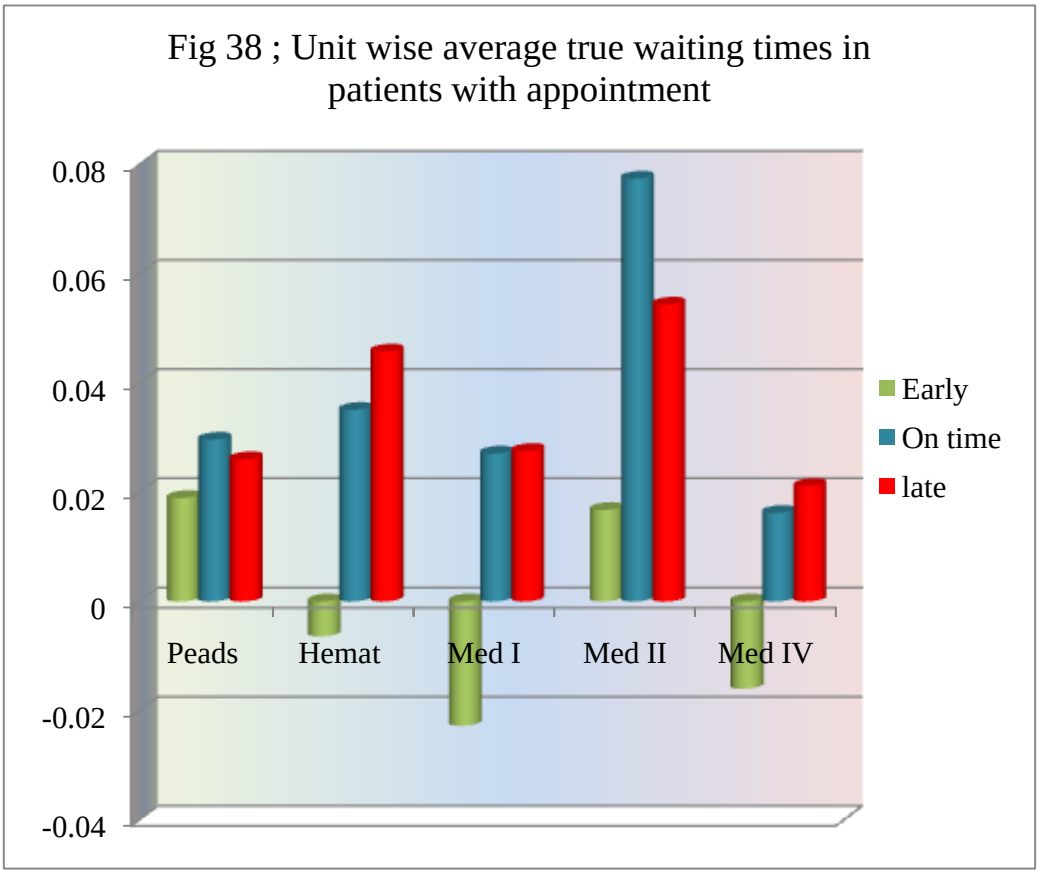
The true waiting time was as follows =

Table 6 : True waiting time with respect to Patient Arrival Patterns	
Patient Arrival Times	True Waiting time (Minutes)
Early (Time of consultation – Time of Appointment)	-0:08
On Time (Time of consultation – Time of Appointment)	0:47
Late (Time of consultation – Time of Arrival)	0:44
Average True Waiting Time	0:04



The Unit wise average true waiting times in patients with appointment are as follows

Table 7 : Unit wise average true waiting times in patients with appointment			
Unit	Early	On time	late
Paediatrics	00:27:15	00:42:40	00:37:30
Hemato-oncology	-00:09:11	00:50:30	01:05:54
Med I	-00:32:44	00:39:00	00:39:41
Med II	00:24:07	01:51:30	01:18:18
Med IV	-00:23:01	00:23:20	00:30:27



The true waiting time with respect to early arrival times were as follows-

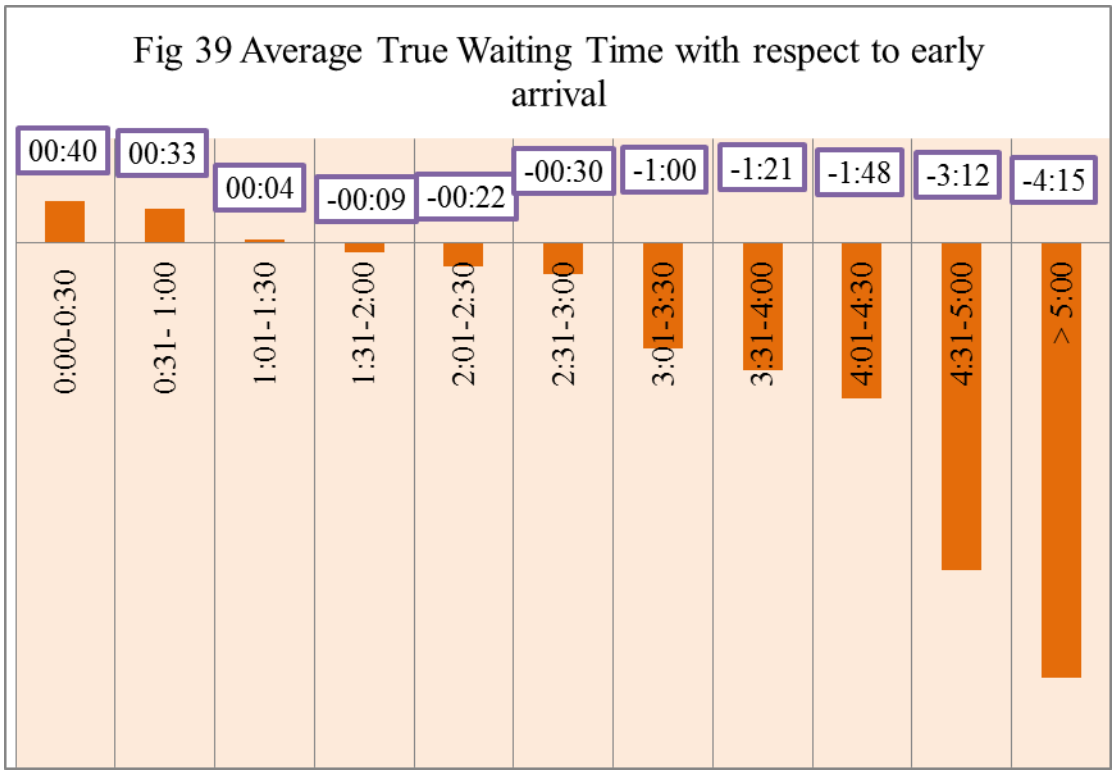


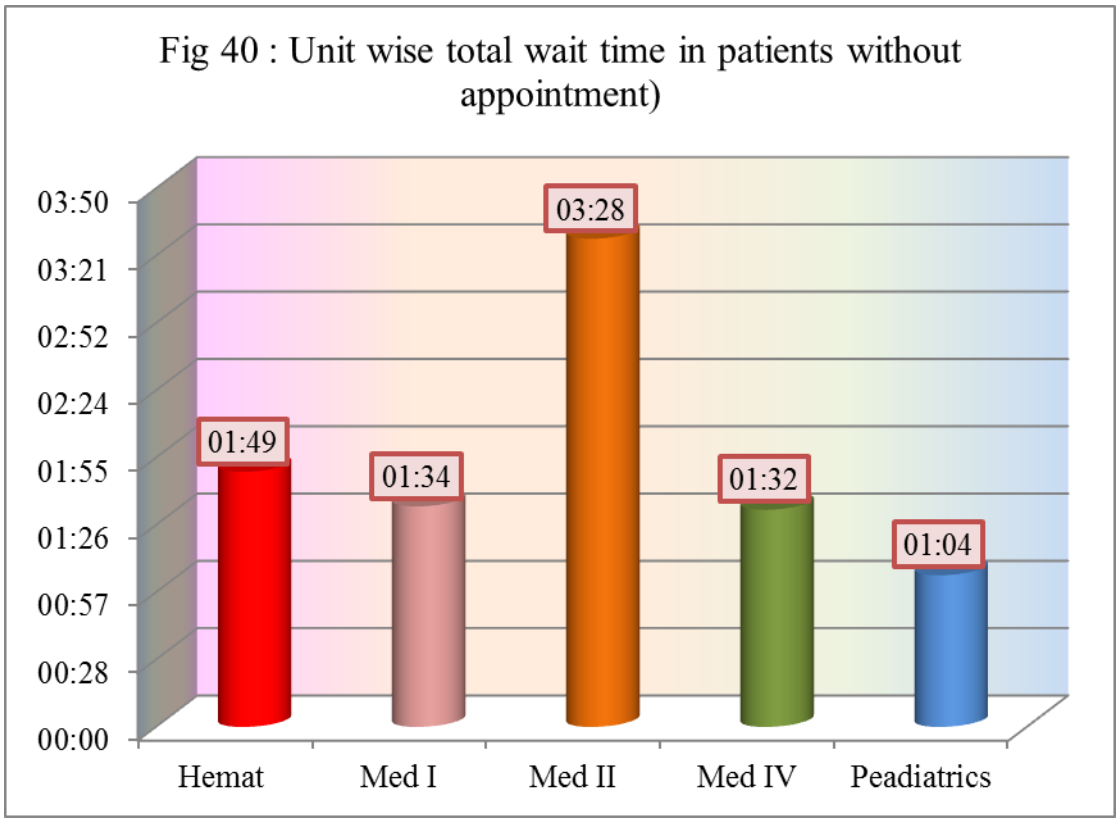
Fig 39 Average True Waiting Time with respect to early arrival

Waiting time in Patients Coming without Appointment

299 patients who came for consultation without appointment were tracked. The average wait for file was 27 Minutes. The average total waiting time for the patients coming without appointment was 1 hour 48 minutes.

Unit wise breakup of total wait time in patients without appointment was as follows.

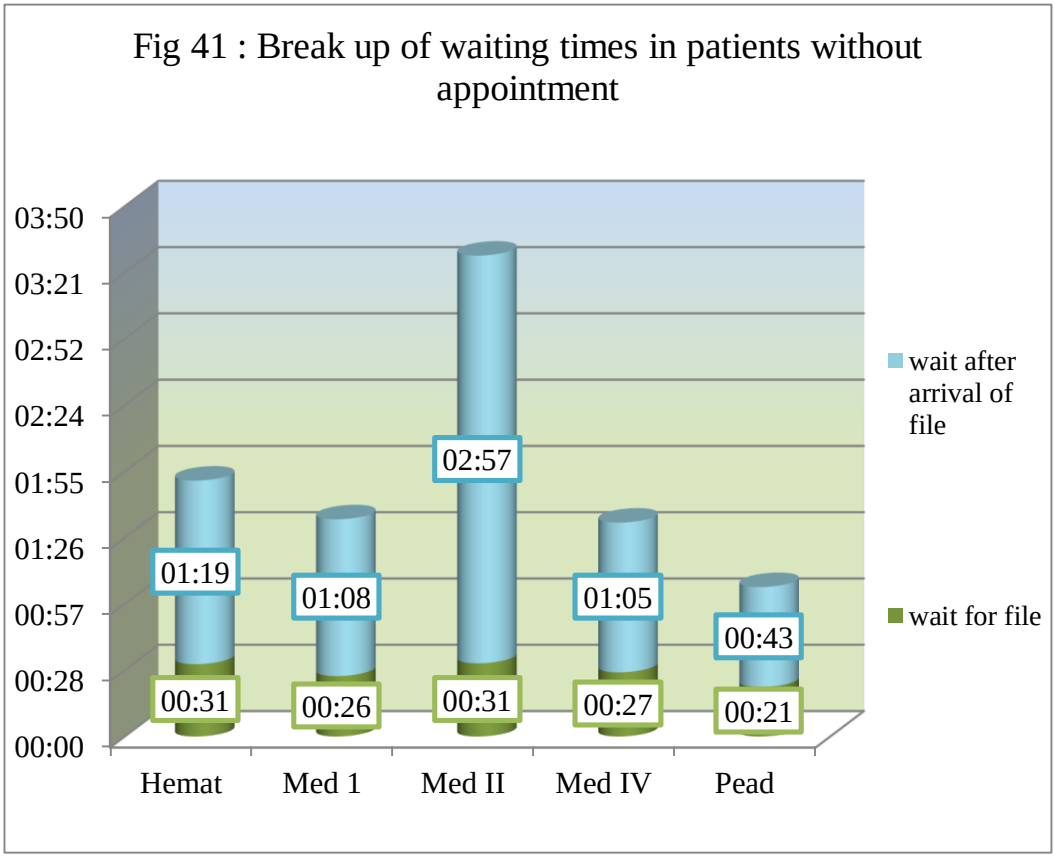
Table 8 : Unit wise total wait time in patients without appointment	
Unit	Total wait (Hours)
Haematology	01:49
Med I	01:34
Med II	03:28
Med IV	01:32
Paediatrics	01:04



The waiting time in patients without appointment can be further divided into

1. The time from arrival of patient to the time the file is brought to Medical O.P.D counter from M.R.D.
2. The time from arrival of file to the time for consultation by doctor.

Table 9 : Unit Wise breakup of total wait time in patients Without Appointment			
Unit	Wait For File	Wait After Arrival Of File	Total Wait
Hemato-Oncology	0:31:27	1:19:46	1:49:12
Med Oncology-1	0:26:15	1:08:10	1:34:25
Med Oncology-II	0:31:49	2:57:10	3:28:59
Med Oncology IV	0:27:54	1:05:04	1:32:58
Paediatric Oncology	0:21:28	0:43:28	1:04:57



Therefore the total waiting time in patients with and without appointments were as follows.

Table 10. Total Waiting Time In Patients With And Without Appointments		
	Total Wait	
Unit	With	Without
Haematology Oncology	1:51	01:49
Med I	0:58	01:34
Med II	2:08	03:28
Med IV	0:58	01:32
Paediatric Oncology	0:57	01:04

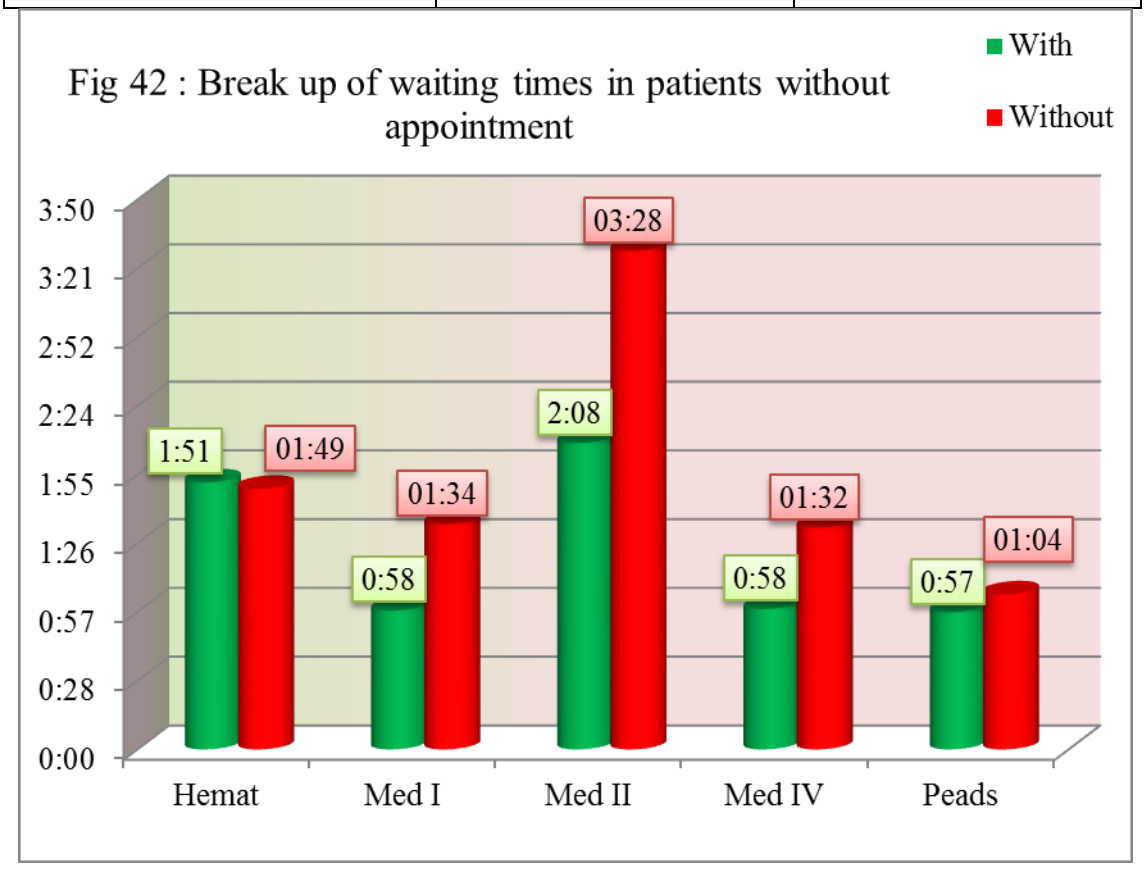


Fig 42 : Break up of waiting times in patients without appointment

Major Findings:

1. Medical unit I sees the maximum no of patients, seeing almost 37% of the total patient load.
2. 55% of the patients come with a prior appointment, while 32% of the patients come without appointment, 7% were patients referred from elsewhere in the hospital and 6% were new patients.
3. 32% of the total patients coming with appointment come to Med Oncology I, while 46% of the total patients coming without appointment come to Med Oncology 1
4. 71% of the patient coming to Hemato-oncology come with a prior appointment, while only 20% of the patient coming to Hemato Oncology come without appointment
5. 33% of the patients are not given appointments for follow up via the HIMS, at the time of their discharge. Maximum percentage of patients given appointment at time of discharge for follow up is in Paediatric unit, while the minimum percentage of patients given appointment is for Medical Unit I.
6. 77% patients come early for their appointment (average 1 hour and 45 minutes before appointment time), while 21% come late for the appointment (average 49 minutes after the appointment time)
7. Total waiting time in patients with appointment (i.e Time of Consultation- Time of arrival) is maximum for Med-Oncology unit –II (2 hours and 8 minutes). The minimum total waiting time in patients with appointment is in Paediatric- Oncology unit (57 minutes) , closely followed by Med IV and Med I unit at (58 Minutes)
8. Average Total waiting time increases with the increase in time by which the patient has come before appointment time. However the true waiting time (Time of consultation- Time of Arrival) is inversely proportional to the time by which the patient has come before the appointment time.
9. The patients coming with appointment are on an average seen 4 minutes before their actual appointment time. Patients coming early for the appointment are seen on an average 8 minutes before the fixed appointment

time, while patients coming late are seen on an average 44 minutes after their arrival.

10. The minimum true waiting time for patient coming early for the appointment is for Med-Oncology-I (32 minutes and 44 seconds before their appointment time). The maximum true waiting time for patient coming late for their appointment is for Med-Oncology-II (1 Hour 18 minutes after their arrival in O.P.D)
11. The maximum waiting time in patients coming with appointment is for med-Oncology unit-II (3 Hours and 28 Minutes), and minimum waiting time for patient coming without appointment is for Paediatric Oncology Unit (1 hour and 4 Minutes).
12. The time to retrieve the records from the Medical Record Department is almost constant in Med Oncology unit I (26 minutes), Med Oncology Unit-II (31 Minutes), Medical Oncology Unit IV(27 minutes) and Haematology – Oncology Unit (31 Minutes) . However it is less in case of Paediatric Oncology (21 Minutes).
13. Doctor lateness for appointments is one of the major reasons for increased patient waiting times.

Limitation of the Study: All the patients coming to the O.P.D could not be tracked because on many occasions the patients were ushered in by the attendants without their name being called out /token being displayed. The times noted were when the patients were first summoned to the O.P.D. Similarly, if a patient wanted to re-consult the doctor after initial consultation, only the timing of first consultation was noted.

Chapter-4 Discussion

The purpose of this study was to study the appointment scheduling, patient population (with appointment, without appointment, referred or new), patient arrival patterns, physician consultation patterns and the waiting times in the medical O.P.D of a Tertiary Care Cancer Institute. A cancer institute is different from other tertiary care hospitals because of two reasons

I. Cancer is a chronic disease and patients have to come to the hospital time and again for a long time. Moreover most of the visits can be planned once the treatment plan has been made, and therefore it is not difficult to re-enforce the appointment system.

II. Diagnosis of cancer results in intense trauma and anxiety to the patient and his /her family members and often results in emotions running high. An increased waiting time adds to the trauma the patient and the family are facing.

The patients are called at fixed intervals of five minutes each in RGCI, despite the fact that the consultation time is much more than five minutes especially in private O.P.D. This in addition to the fact that the O.P.D usually starts much later than the scheduled time because of morning rounds, classes etc and this resulted in a lot of backlog, which went on increasing.

The study showed that more than 70% patients arrived early for their appointment, which was in accordance with the findings of various earlier studies e.g. Bailey (1952), Cox et.al(1985), Brahimi and Worthington (1991). However early arrivals lead to increased perceived waiting times, as patients calculated their waiting time from the time they enter the O.P.D and not from the time of appointment. Early arrivals also lead to crowding in the O.P.D. waiting area with resultant increased burden on available resources and overall less satisfaction amongst the patients.

One of the reasons which can explain the early arrivals is that patients were called in for their consultation on first come first serve basis, and not according to their appointment time. Therefore patients know that they will be seen before the appointment time if they arrive to the hospital early.

According to information gathered from staff during unstructured interviews, they had tried in past to implement strictly the appointment system, with patients being sent for their consultation only at the time of their appointment. However the system failed because of no-shows, walk-ins and increased time taken during the consultation. Therefore I have suggested the implementation of multiple blocks fixed interval system, so that time slots left empty by no-shows can be utilized for new patients, referred patients, walk-ins etc.

The findings of my study also showed the same results as those of the findings of Onisuru et al (2003) that patients arriving late for their appointment had to spend less time waiting for their consultation.

The appointment slots start from 09:30 a.m. for almost all the units except Med-4 oncology where the slots start from 11:30 a.m., while the consultants usually start the consultation after 11:30 a.m. This coupled with the tendency of patients to arrive early for their appointment leads to an increased waiting time for the patients.

The time taken for consultation is more than the time slot given for appointment. However this factor has not been considered in this study because usually there were at least two consultants simultaneously seeing patients. DNB students also were assisting the consultants in the consultations. Therefore once the consultation started, it reached a peak very quickly.

A further analysis of the consultation patterns of the individual consultants can further help to redefine the appointments slots according to the average time taken for consultation by each consultant.

Chapter 5- Conclusion and Recommendations

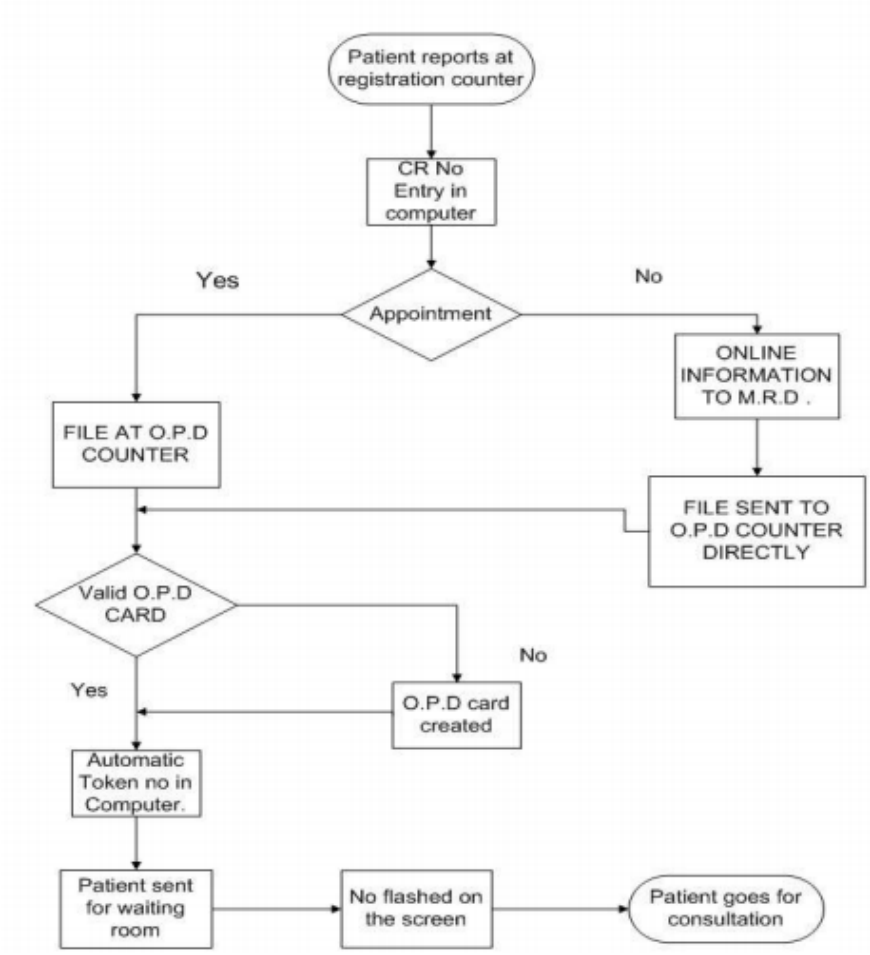
Conclusions

- Adherence to appointment system needs to be increased by Staff and Patients.
- Early arrivals lead to increased perceived waiting times.
- Waiting time is more in patients without appointment.
- Doctors starting O.P.D after the scheduled time is a factor causing increased waiting times for patients.

Recommendations

- Strict enforcement of policy to book appointments at discharge.
- Appointment scheduling simpler for O.P.D follow ups – i.e. the staff employed with each doctor can keep track of the dates when patients have been called for review and enter this into the HIMS appointment system in the afternoon. The appointment desk should be near to the O.P.D`s
- Multiple block/fixed-interval – i.e. a fixed number of patients are called at fixed intervals. For e.g. 20 patients can be called at hourly slots.
- Appointment slots can be fixed according to type of consultation -
    - 9:00-11:30- Clearance for day-care admissions for chemotherapy etc. by D.N.B student /Junior Consultant
    - 11:30- 4:00- Routine consultations by Senior Consultants and team.
    - 4:00-5:30- Investigation reviews.
- No patient must be seen before their appointment time as far as possible to discourage very early arrivals. This can be done by filling in empty slots/ slots for no-shows in the following order of priority-
    - New patients
    - Referred patients
    - Patient late for appointment
    - Without appointment patient.
    - Patient Early for their appointment
- The doctor arrival time must be synchronized with appointment scheduling and the gap between doctor arrival and the first appointment must be filled up.

- The O.P.D card can be made available at the respective O.P.D counter. The billing for consultation should be track off via HIMS, and patients who have to pay the consultation can go to billing counter only for billing purposes.
- Increase patient's belief in the appointment system. This can be done by pre-planning well before time the staff holidays, conferences, professional development programmes etc. before booking of appointments, and in case of emergency telephonic intimation to patients about cancellation of their appointment with new appointment time.
- Any patient arriving very early for the appointment should be sent away politely and asked to come back for their appointment at the scheduled time. For e.g. they can be sent for investigations, to be done if any, or to the cafeteria. However this must be done only after asserting that there is no emergency. In case of emergencies the patients should be referred to casualty rather than making them wait in the O.P.D
- Recommended Patient Flow for O.P.D –



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