

Summer Placement
In
Mazumdar Shaw Medical Center
Narayana Health City
Bommasandra, Bangalore

(April 1 to May 31st, 2015)

A Report

By
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MBA Hospital and Health Management
2014-2016

 **IIHMR UNIVERSITY**
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CERTIFICATE

This is to certify that Roopali Raghav has undergone the summer training in Mazumdar Shaw Medical Center, Narayana Health City, Bangalore from 1st April, 2015 to 31st May, 2015. The candidate herself carried out the study titled 'Introduction of an Appointment System for Better Patient Management at Opd.' Her approach of the study has been scientific and analytical.

The summer training is partial fulfillment of the course requirement recommended for the award of Masters of Business Administration in Hospital and Health Management.

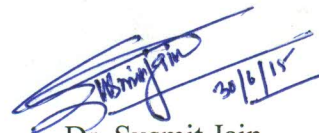
I wish her success in all her future endeavors.



Col.(Dr.)Ashok Kaushik

Dean (Academic and Student Affair)

IIHMR University



Dr. Susmit Jain

Assistant Professor

IIHMR University

Date: 31st May 2015

INTERNSHIP COMPLETION LETTER

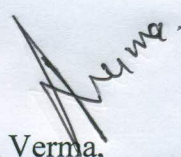
This is to certify that Dr. Roopali Raghav, pursuing her MHA First Year, from IIHMR University, Jaipur, has successfully completed internship at Narayana Health City, Bangalore from 1st April 2015 to 31st May 2015.

During the course of Internship, the intern has done project on **“INTRODUCTION OF AN EFFECTIVE APPOINTMENT SYSTEM FOR BETTER MANAGEMENT OF PATIENTS AT OPD”**, under the guidance of **Mr. Karan Dave, Manager - Operations**, at **Narayana Health City, Bangalore**.

We found her sincere, hardworking, and technically sound and result oriented. She worked well as part of a team during her tenure.

We take this opportunity to thank her and wish her all the best for her future.

For Narayana Health Pvt. Ltd.



Dr. Rakesh Verma,

Group Head – Learning & Development Department.

ACKNOWLEDGEMENT

“Strive not to be a success, but rather to be of some value”

- Albert Einstein

The study has been a novel learning experience as being a first exposure to hospital industry. This study helped in understanding and learning the hospital setup, its various departments, their functioning and their interrelations. However, none of this would have been ever possible without the priceless support of several people. I wish to take this opportunity to express my deepest gratitude to all of them who have made this endeavor a success.

I am highly obliged to Dr S.D. Gupta (Director, IIHMR Jaipur) Col. (Dr) Ashok Kaushik (Dean Academics and Student Affair, IIHMR Jaipur) for providing such a great opportunity. I am also thankful to my mentor Dr. Susmit Jain for being a constant source of guidance and support.

I own my profound gratitude to Mr. Karan Dave (Operation Manager, Mazumdar Shaw Medical Center) for his keen interest, constant guidance, encouraging appreciation and solemn advice throughout the project.

I would also like to thank Mr. Jaishankar (OPD Manager) for giving me all the information and support required to complete my summer training. I would like to extend my thanks to the management, medical and paramedical staff of Mazumdar Shaw Medical Center.

I would like to thank all the others who left their mark in the project and helped me in spite of their busy schedule and hectic work hours. Last and not least, I acknowledge the moral support of my parents, family members and friends during summer training.

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List Of Acronyms (Alphabetically)

- ALOS- Average Length of Stay
- AS- Appointment System
- ENT- Ear Nose Throat
- EPS- Electro-Physiology Study
- ERCP's- Endoscopic Retrograde Cholangio Pancreatography
- EUS- Endoscopic Ultrasound
- GDA- Ground Duty Assistant
- HDU- High Dependency Unit
- ICU- Intensive Care Unit
- IGRI- Image Guided Radiation Therapy
- IMRT- Intensity Modulated Radiation Therapy
- IPD- In-Patient Department
- IT- Information Technology
- IVF- In-Vitro Fertilization
- MCP- Manual Call Point
- MICU- Medical Intensive Care Unit
- MLC- Medico-Legal Cases
- MRD- Medical Record Department
- MRI- Magnetic Resonance Imaging
- MRN- Medical Record Number
- MSMC- Mazumdar Shaw Medical Center
- OPD- Out-Patient Department
- OT- Operation Theatre
- PACU- Post Anesthesia Care Unit
- PCC- Patient Care Coordinator
- SICU- Surgical Intensive Care Unit
- SOP- Standard Operating Procedure
- TAT- Turn Around Time
- TPA- Third Party Administrator
- TV- Television
- VMAT- Volumetric Modulated Arc Therapy

OBSERVATIONAL LEARNING

At

Mazumdar Shaw Medical Center, Narayana Health City

Bangalore

Overview of Mazumdar Shaw Medical Center, Narayana Health City

Founded in 2001 by Dr. Devi Prasad Shetty, NH had grown rapidly over the years, and is set to be transformed into the world's biggest health city, with all super specialties that the medical world offers. It houses 4 fully fledged facilities in its health city

1. NH Cardiac Center
2. NH- Multi specialty hospital and Mazumdar Shaw Cancer Center
3. Narayana Netralaya – super specialty eye hospital
4. Sparsh – Orthopedic center

To provide affordable care to the masses, NH follows a hybrid strategy of attracting paying patients by virtue of its reputation for high quality, and combining this appeal with a relentless focus on lowering its costs of health care wherever possible, so that a larger number of people could afford to seek treatment. The surplus gained from paying patients is used to subsidize procedures that are performed at or below cost for patients who cannot afford the full fee.

A brief about the history till date:

Narayana Health, one of India's largest and the world's most economical healthcare service providers has grown to a 7500 bed healthcare conglomerate in 2015 with 29 hospitals present in 17 Cities within the country. The vision of Dr. Devi Shetty is that no one should be deprived of the best healthcare, because of financial reasons. The aim is to transform the Health City into the world's biggest – with all kinds of super-specialties that the medical world offers.

Narayana Health City was established in 2001 as a 225 bed cardiac hospital. Poised in a 26 acre complex near Electronic City-the IT hub of Bangalore, the health city today is a healing splendor with 3000 beds distributed among distinct flagship hospitals in the campus. Exceptional among these are Narayana Institute of Cardiac Sciences, one of the world's largest cardiac hospitals successfully treating adults and children from across the world.

Mazumdar-Shaw Cancer Center

With the vision to provide high tech facilities to the poor and disassociate the financial status of a patient from the quality of healthcare they would receive, Dr. Devi Shetty of Narayana Hrudayalaya in association with Dr. Kiran Mazumdar Shaw of Biocon has launched the world's largest cancer hospital. This state-of-the-art cancer center has 1400 beds, latest infrastructure and equipments, internationally acclaimed faculty and affiliations with global centers of excellence in cancer care. MSCC intends to provide comprehensive and dedicated cancer care of the highest international standards with:

- 20 Operation Theatres
- 3 Elekta Linear Accelerators & Brachy Therapy, IMRT, IGRI & VMAT

- The departments include: Head & Neck Cancer, Breast Cancer, Women and Children's Cancer, Blood Cancer, Dental & Maxillo Facial Implantology, Cranio-Maxillofacial Surgery, Genetic and Stem Cell research center in association with Biocon foundation & Rotary
- This multi-specialty hospital also handles neurosurgery, neurology, pediatric, nephrology, gynecology, gastro-enterology and ENT cases.

NH aims to have 30,000 beds in the next 5 years in India to become one of the largest healthcare players in the country.

Vision

Affordable quality healthcare to the masses worldwide

Mission

Dream at Narayana Hrudayalaya is “a dream of making quality Health care available to the masses worldwide”

To make the dream a reality they commit themselves to

- 1.) Being a tertiary care referral center for complex medical and surgical problems.
- 2.) Developing a Health City Model, to be replicated nationally and internationally.
- 3.) Excelling as an Education, Training and Research Center in Medical, Paramedical and Allied Specialties.

FLOOR WISE FACILITY DISTRIBUTION

Basement

Block -A

- Radiology Department-Ct Scan , X –Ray , Ultrasound, MRI
- Nuclear Medicine
- Department Of Social Work
- Tele-radiology

Block -B

- IT Department
- Out Patient Services – Oncology

First Floor

Block -A

- Out Patient Services(Opd)
- Executive Health Check
- Executive Opd
- Pain Management
- Voice And Swallow Rehabilitation

Block -B

- Out Patient Services(Opd)
- Rheumatology
- Vascular Surgery
- PAC
- Day Care Unit
- Board Room

Second Floor

Block -A

- General Ward
1st Wing To 11th Wing
- Neuro Physio Unit

Block -B

- Semi Private Ward
- Private Rooms
- Deluxe Rooms
- Sleep Lab
- Inpatient Pharmacy Store

Third Floor

Block -A

- General Ward
HDU 1
HDU 2
4th Wing
5th Wing
6th Wing
- Isolation Ward
- Medical Intensive Care Unit (MICU)

Block -B

- Semi Private Ward
- Private Rooms
- Deluxe Rooms

Fourth Floor

Block -A

- OT Complex
- Post Anesthetic Care Unit(PACU)
- Surgical ICU(SICU)
- Tissue Repository

Block -B

- Semi Private Ward
- Private Rooms
- Deluxe Rooms
- Inpatient Pharmacy Store

Fifth Floor

Block -A

- OT Complex
- Labor Room
- Neonatal Intensive Care Unit
- Pediatric Intensive Care Unit
- Step Down Pediatric ICU
- Transplant Intensive Care Unit

Block -B

- Private Rooms
 - Semi Private Wards
 - Deluxe Rooms
 - Labor Suite
 - Colonoscopy / Procedure Rooms
 - General Ward
 - Out Patient Services
- Pediatric
- Obstetrics And Gynecology

Sixth Floor

Block -A

- Dialysis

Block -B

- Out Patient Services Of Head And Neck
- Out Patient Services Of ENT
- Out Patient Services Of Breast Oncology

Seventh Floor

Block -A

- Hematology Department

Eighth Floor

Block -A

- Corporate Office

Block -B

- Mazumdar Shaw Research Center

Clinical Specialties

- Anesthesiology
- Cranio-Maxillofacial Surgery
- Dermatology
- Diabetes and Metabolic Disorders
- ENT
- Endocrinology
- Family Medicine and Allergy Center
- Gastroenterology and Hepatology
- Surgical Gastroenterology
- General Medicine
- Genetics
- Hematology and Pediatric Oncology
- IVF
- Internal Medicine
- Medical Oncology
- Neurosurgery
- Nephrology
- Obstetrics and Gynecology
- Oncology- Head and Neck
- Oncology Breast and Oncoplastic Surgery
- Pediatric Surgery
- Pain And Palliative Care
- Physiotherapy an Rehabilitation
- Psychiatry
- Psychology
- Pulmonology/Respiratory Medicine
- Radiation Oncology
- Rheumatology
- Speech And Swallow Rehabilitation
- Thoracic Surgery
- Urology
- Vascular Surgery

Connectivity of Floors

- Lifts: There are total of ten lifts in the hospital which has different capacity.
- Stairs: There are total of eighteen staircases. Two staircases go on basement rest are to go up from ground floor.
- There are ramps connecting all the eight floors.

Fire Safety System

- There are various are safety equipment in OPD and IPD which includes
- Fire Extinguisher and Hose reel
- Hydrant System
- Fire Detection System (Smoke Detector, Heat Detector, MCP, Hooter cum Flasher, Fault isolator)
- Fire alarms (Code Red)
- Emergency fire exits – there are nine fire exits in the hospital

Different Codes

- Code Blue – Individual Disaster.
- Code Red – Fire.
- Code Grey – Internal Disaster.
- Code Pink – Baby Missing.
- Code Purple – Fight/Physical Altercation.

DEPARTMENT DETAILS

1. In-Patient Department

- IPD is distributed over four floors (2nd-5th) in B wing of the hospital
- Every bed side has :
 - Details of Consultant and nurse written on top of every bed.
 - Room Equipment checklist.
 - Important Instructions
- Every Floor has central nursing station with information board covering Designation and contact no. of
 - Duty Doctor
 - Administration Staff
 - Support Staff
- Nurses' names with shift timing and designation
- Nurses to bed ratio is 3:1
- TAT for cash a patient is 3hrs and for a cashless patient is 5hrs.
- ALOS for simple Laparoscopic surgery is 2 days.
- GDAs (Ground Duty Assistants) – 4 on every floor in every shift.

Admission Process

Patient admitted from OPD or after Doctor's consulting at other place



Patient comes to admission department



MRN for new patient is created. Old patients already have an MRN.



An estimate is drawn out and the patient is guided for selecting the relevant category of room according to the need and availability



An SOP is given to the patient and signatures are obtained for the same



Patient will be required to make an advance payment. The advance shall be adjusted against the final bill at the time of discharge. Those seeking the cashless route would have to visit the insurance desk / TPA desk for the hospitalization of the patient.



The staff will escort the patient to the allotted room/bed.

Staff

Admission Personnel – 5

Qualification Required – Graduation

On Admission Desk they also provide attendants pass to patients.

Discharge Process

The nurse will assist patient in the discharge process which may take few hours to complete the process.



Once the final bill is generated, patient is expected to clear your dues by paying cash or by a credit/debit card.



The nurse will hand over patient's discharge summary and other belongings (like thermometer, urinal bedpan, etc.--used during the course of stay).



The nurse will then explain the medication that patient needs to continue after discharge and any other follow-up instructions.



In case patient needs a medical ambulance to drop them at their home, then they need to inform the nurse and he/she will make the necessary arrangement.

2. Out-Patient Department

- OPD is distributed over five floors (basement-ground-1st floor-6th floor and 7th floor) in the Hospital.
- Every floor has a procedure room and a front desk.
- Appointments were earlier managed using the Hospital Information Management System, which is now been replaced by Qikwell. As soon as appointments are fixed, a text message is sent to the patient confirming the appointment. No walk-in patient is turned away, and staffs try to accommodate these patients between the appointments already scheduled for the day.
- Each OPD has a waiting area of a capacity to handle 50-100 patients waiting.

3. Emergency Department

Due to the unplanned nature of patient attendance, this department provides initial treatment for a broad spectrum of illness and injuries, some of which may be life threatening and require immediate attention, except for major burns. It is located at the ground floor with its own dedicated entrance and operates 24 hours a day.

Patients are either transferred to other departments or are discharged within 4 hours.

Infrastructure

- 16 bedded triage
- Doctor's working station
- Hospital information system
- Urgent care area
- Observation area
- Doctor's Work Station
- Resuscitation suite
- Store room
- Waiting area for patient's attendants is outside the department

Staffing

- Senior Consultant
- Team Leader
- Emergency Physicians
- Nurses
- Emergency Reception
- GDAs
- Paramedical staff for ambulance
- Security personnel

4. Central Sterile Supply Department

- Supportive, non-medical service department
- Provides sterile devices, equipment, to the departments like operation theatre, cath lab and others
- Service utilization
- 80% to the OT
- 10% to the Cath Lab
- 10% to Ophthalmology and E.N.T. department

Divisions of the area

- Receiving Area
- Washing Area
- Decontamination Area
- Sterilizing Area
- Sterilized Area

Process Flow

Receiving

- Checking the list and the number of equipment
- Signed received

Cleaning

- Through tap water
- Dismantled
- Soaked in enzymatic solution for 10mins in two different containers

Machine cleaning

- Dismantled equipment put into the ultrasound machine
- Dried after ultrasound machine for 10mins

Washer disinfectant

- For heavy machinery and trays
- Washed and dried in machine

Sterilization

- Reassembled, checked by the list
- Packed in a tray
- Doubled packed in inner sterile cloth outer normal cloth
- Put on a name coded sticker with a temperature color bar
- Put in to sterilizer

Manpower

- 15 staff
- 6 housekeeping staff
- Minimum of 5 people for every procedure
- One stand by person
- Requirement – 20-25 staff

Staff Training

- A month training before the person joins the department
- Once on floor, supervised for another month
- Continuous classes are organized

5. Cath Lab

Procedures done – Angiogram, PTCA, Ballooning, Stunts, Pacemaker, EPS (diagnostics and therapeutic)

Time taken

- Diagnostic – 30-45mins
- Therapeutic – 1-2hrs

Number of Procedures – 10-15 procedure done in a day including emergencies

Consent form

Filled at the time of admission in case of day care procedure, on the table in case of emergency, and in wards in case of IPD patient

22 beds and 2 isolation room

Human resource involved

- 15 staff
- 3 full time cardiologist

6. Dialysis Unit

- Day care procedure
- Bed turnaround time for a procedure 4 hours
- 11 dialysis machines
- 900+ dialysis per day
- Manpower – 14
- Inflow of Patient
 - 1) Mostly OPD
 - 2) IPD

7. Endoscopy

Located on Ground Floor B Block

- Procedures per day
 1. 20-25 Endoscopy
 2. 5-8 colonoscopy
 3. 2-3 EUS
 4. 2-5 ERCP's
- Process Flow
 1. Doctor's prescription is seen and reports are checked
 2. Vitals are measured
 3. Ultrasound is done
 4. Medicines according to the procedure are given
 5. Procedure is performed
 6. Patient is kept in observation
 7. Patients is discharged and reports are given

8. Blood Bank

NH has its own blood bank. All blood groups are available. But it is preferred that patient arranges blood through his relatives or any friend and should give replacement. Blood bank consists of

- Sample collection are / reception area: In reception area a form is given to the attendant of the patient regarding their details before he/she donates blood.
- Apheresis area: blood has several components including red blood cells, platelets and plasma. Donor apheresis is a special type of blood donation in which a specific component platelet, plasma is withdrawn from donor

- Component room: in component room the whole blood is separated into packed cells FFP and platelets.
- TTI room: it is to diagnose transfusion transmitted infections. If donor is detected positive of TTI status it means donor have potential to transmit the infection to their partner and children.
- Issue room: This room is to issue the screened blood bags.

9. Quality Assurance Department

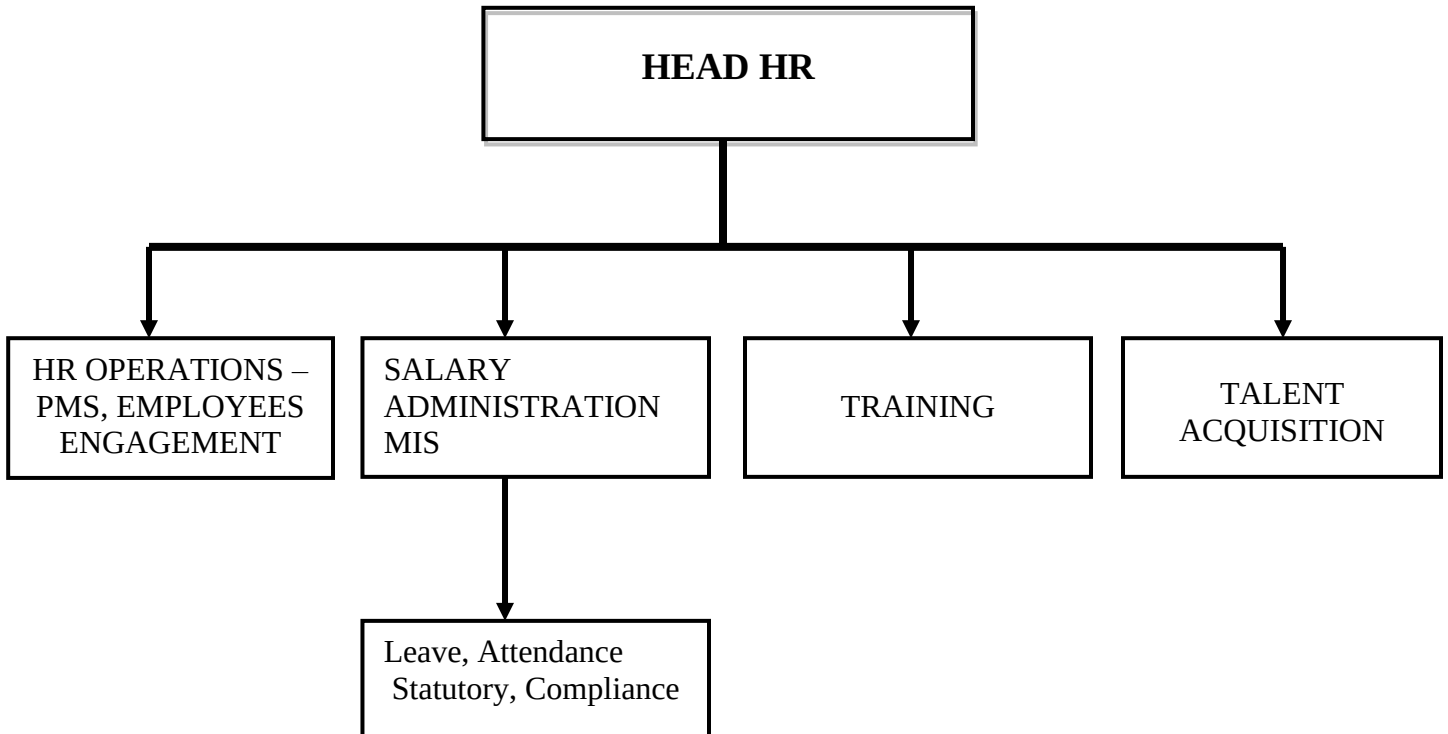
The goal of this department is to maintain and perk up the standards. Quality Assurance is the activity of providing evidence needed to establish quality in work, and the activities that require good quality are being performed effectively. All those planned or systematic actions that is necessary to provide enough confidence that a product or service will satisfy the given requirements of quality.

Documents maintained by this department include:

- SOPs
- Plans and Policies
- Manuals
- Quality Indicators
- Internal Audit and Medical Audit
- Training Record
- QA Programs
- Clinical Guidelines

10. Human Resource Department

Functional Organization Structure



The goal of the department is to ensure availability and retention of quality talent to meet the organization goals and objectives and overall growth and development of employee's orientation and functional training.

Scope of Services

- Manpower planning
- Recruitment process
- Internal job posting process
- Pre-employment health check up
- Training
- Attendance and leave management

- Appraisal and promotion process
- Statutory compliance
- Employee welfare programs
- Disciplinary actions
- Grievance control
- Payroll management
- Budgeting

11. Medical Records Department

The goal of this department is the collection of all the discharged/expired health record charts. The Medical Record Department staff ensures the confidentiality, preservation, storage and retention of the patients. Medical records are given only to authorized person with their due signature on the medical record requisition slip. It is mandatory to inform (register) birth and death cases within 21 days of occurrence to Government Bodies. All records are destructed by shredding the documents.

Medical record of discharge patient should reach the Medical Record Department in time frame of 48 hours.

Retention period of Medico-Legal Case File is 10 years. MLC, legal and death cases files are kept under lock and key in MRD.

Retention period of normal file is 5 years.

Documents maintained by the department

- IPD/OPD files receive register
- IPD file dispatch register
- OPD file dispatch register
- Death Register
- Birth Register
- Discharge Summaries

Scope of Services

- Record Collection
- Analytical Evaluation
- Storage
- Data generation
- Retrieval

12. Medical Gases

This department's chief responsibility is to ensure the timely provision of all the medical gases where ever they may be required. This department is responsible for all the inventory control of the following gases:

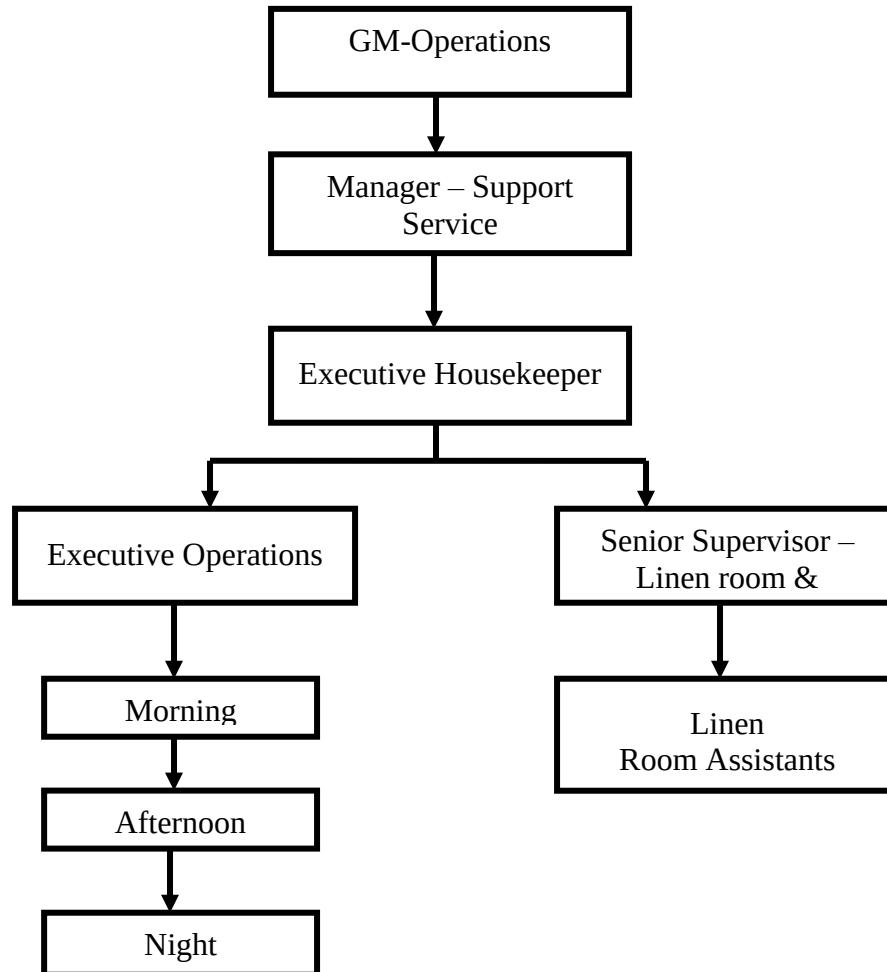
- Oxygen
- Carbon Dioxide
- Nitrous Oxide
- Compressed Air
- Nitrogen

This department is also responsible for maintaining inventories of the cylinder that may be used during patient transport. The color coding of these cylinders are

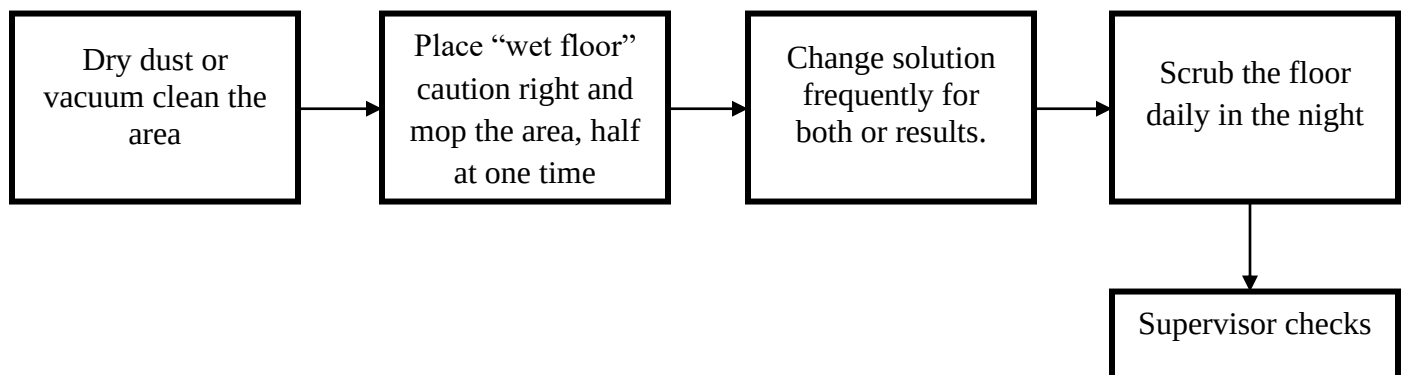
- Oxygen – Black with white neck band
- Nitrous Oxide – French Blue
- Compressed Air – Grey
- Nitrogen – Grey with black neck band
- Carbon Dioxide – Black with silver neck band

13. Housekeeping

Functional Organization Structure



Flowchart



14. Waste Management System

<u>Color</u>	<u>Waste Description</u>	<u>Disposal Method</u>
Red	Infected plastics	Autoclaving
Yellow	Human Tissue ,all gauze soaked in body fluid	Incineration
Blue	Unbroken glass bottles	Direct disposal
Black	General office waste	Direct Disposal
Green	Kitchen waste	Direct Disposal
Pink	Infected linen	Laundry

PROJECT REPORT

Introducing an Effective Appointment System for Better Patient Management at OPD

INTRODUCTION

Health care providers are under a great deal of pressure to reduce costs and improve quality of service provided. In recent years, given the greater emphasis on preventive medicine practices and the shorter lengths of stay, outpatient services are gradually becoming an essential component in health care. Hospitals that cannot make their outpatient departments more cost-effective find themselves in financially unviable positions in this fast-growing industry (Goldsmith 1989). Patient waiting times and waiting-room congestion are two of the few tangible quality elements. Well-designed appointment systems (AS) have the potential to increase the utilization of expensive personnel and equipment-based medical resources as well as reducing waiting times for patients. Surveys indicate that excessive waiting time is often the major reason for patients' dissatisfaction in outpatient services (Huang 1994), and reasonable waiting times are expected in addition to clinical competence (Jackson 1991).

Out Patient Department of Mazumdar-Shaw Medical Center

With the vision to provide high tech facilities to the poor and disassociate the financial status of a patient from the quality of healthcare they would receive, Dr. Devi Shetty of Narayana Hrudayalaya in association with Dr. Kiran Mazumdar Shaw of Biocon has launched the world's largest cancer hospital. This state-of-the-art medical center has 1400 beds, latest infrastructure and equipments, internationally acclaimed faculty and affiliations with global centers of excellence in medical care. MSMC intends to provide comprehensive and dedicated medical care of the highest international standards with

There are 34 OPD's in Mazumdar Shaw catering to around 30,000 to 35,000 out patients in a month. To manage such a huge amount of patients the hospital used the integrated information system Hinaï for maintaining a patient queue. As discussed in the study further, this system is ineffective as an appointment system and hence there arose a need for effective appointment software that would manage the OPD patients efficiently.

Qikwell is the chosen software of choice now. Already scaled in other hospitals like Manipal, Cloud 9, and many others in Bangalore, it was launched in three busy OPD's on ground floor of MSMC in April. These OPD's are Neurology, Urology and Nephrology. By the end of May this software has been scaled up to Medical oncology and Hematology, ENT, General Medicine and Pulmonology, Head and neck oncology, Breast oncology and Gynecology.

The software gathers information from the doctors, about their OPD timings and consultation time per new and follow up patients. With this information a dashboard is created with the slot timings and OPD dates. The front desk secretaries were trained about booking the appointment for patients and the working of the system. Apart from this, patients receive a message as soon as they are checked into the system by the secretary or if the appointments are booked online, for the live slots of appointment of doctors can be seen on the site. This also provides MSMC to out lay all its doctors on the net platform.

REVIEW OF LITERATURE:

Scheduled patient encounters include primary and specialty care visits, as well as elective surgeries. In each of these environments, the process of scheduling appointments (assigning a specific time when the patient is scheduled to start receiving care) is different. In addition, there are unscheduled encounters that include walk-ins and urgent or emergency cases. The former, occurring mostly in primary care clinics, can be directed to an alternate facility if the clinic in question is heavily booked. However, urgent specialty care and surgical patients often need to be treated as soon as possible.

The goal of a well designed appointment system is to deliver timely and convenient access to health services for all patients. Appointment systems also smooth work flow, reduce crowding in waiting rooms and allow health systems to honor patient and provider preferences while matching supply and demand. Each of primary care, specialty care and hospital services have certain unique features that give rise to different challenges for managing appointments.

In the primary care setting, the vast majority of patients require services that can be performed within a fixed time length.

Therefore, primary care clinics tend to divide available provider time into equal length time slots such that, by and large, patients' needs can be accommodated in a standard appointment slot. For certain types of visits that require more time, clinics may assign multiple appointment slots. The appointment scheduling problem then reduces to that of finding a suitable match among the available time slots of providers in the clinic, provider prescribed restrictions on how available slots may be filled and patients' preferences for day/time of week as well as for a particular service provider. (An example of provider restrictions on the use of available slots is the limit that many providers place on the number of physical exams or new patients that can be scheduled in any given session.)

Still, the problem of matching supply and demand is not easy because different patients have different perceptions of the urgency of their need and different day-of-week and time-of-day preference patterns. Patient service times in specialty care clinics tend to vary more depending on the patients' diagnoses and other characteristics. Therefore, provider time may not be divided into standard time slots.

Moreover, many specialty services require a referral from the primary care physician. In such cases, appointments are booked by the medical assistant of the referring doctor. Bookings may occur at periodic intervals (e.g., at the end of each day). Appointment management for specialty care clinics is further complicated because of two reasons:

- (i) The need to reserve capacity for urgent appointment requests that must be treated soon after they occur; and
- (ii) The need to realize high utilization of more-expensive specialists' time.

RESEARCH METHODOLOGY

RESEARCH QUESTION:-

How can an effective appointment system help in better management of patients at the OPD?

OBJECTIVE OF THE STUDY:-

PRIMARY:

- To assess why Hinai could not be an effective appointment system, and had to be ultimately replaced by Qikwell.

SECONDARY:

- Smooth operational functioning of Qikwell at the OPD's it was implemented and further scaling it to other OPD's through regular monitoring.

RESEARCH DESIGN:-

The Study Design used for this Project is Descriptive and Exploratory

The Data was only very closely observed and analyzed.

DURATION:-

This Study was carried out from 1st April- 31st May 2015

STUDY POPULATION:-

- Hinai assessment, Interview questionnaire was collected from 25 Front staff members from OPD where only Hinai is functionally, and Qikwell is not implemented.
- Qikwell assessment interview questionnaire was collected from 100 patients from Neurology, Urology, Nephrology, ENT and Medical Oncology.

SAMPLE SIZE:

- Hinai assessment study: 25 OPD staff, using Hinai.
- Qikwell assessment study, 100 patients from Qikwell operated OPD's were included.

SAMPLING TECHNIQUE:

Non-Probability, Purposive Sampling

DATA COLLECTION:

PRIMARY DATA:

- a.) The problems faced by Hinai as an appointment system was analyzed by conducting a questionnaire survey on 25 OPD's where the OPD staff was asked to fill the questionnaire form consisting of 10 questions.
- b.) Qikwell assessment survey was done on 100 patients from 5 Qikwell OPD's

SECONDARY DATA:

- a.) Information about Hinai was obtained and analyzed through the Bay Management Report of March 2015.
- b.) Information about Qikwell was analyzed with the help of Qikwell monthly and daily generated report, provided by Qikwell

Plan of Execution:

- Why Hinai as an appointment system is not effective?
- What are the gaps in Hinai and why Qikwell was needed?
- Operation problems faced with the implementation of Qikwell at OPD.
- Gaps were analyzed and worked upon to improve.
- Primary and secondary data was analyzed using MS Excel

D.M.A.I.C. TOOL

Define Measure Analyze Improve and Control

Six sigma DMAIC tool has been used for the study.

An effective appointment system Qikwell is chosen for better management of patients at OPD. The software was initially launched at 3 major OPD's of MSMC (April).

1. NEUROLOGY
2. NEPHROLOGY
3. UROLOGY

These OPD's were monitored operationally to make sure the smooth working of the entire system and later the software was up-scaled to other OPD's.

Step 1

D- DEFINE: PROBLEM STATEMENT

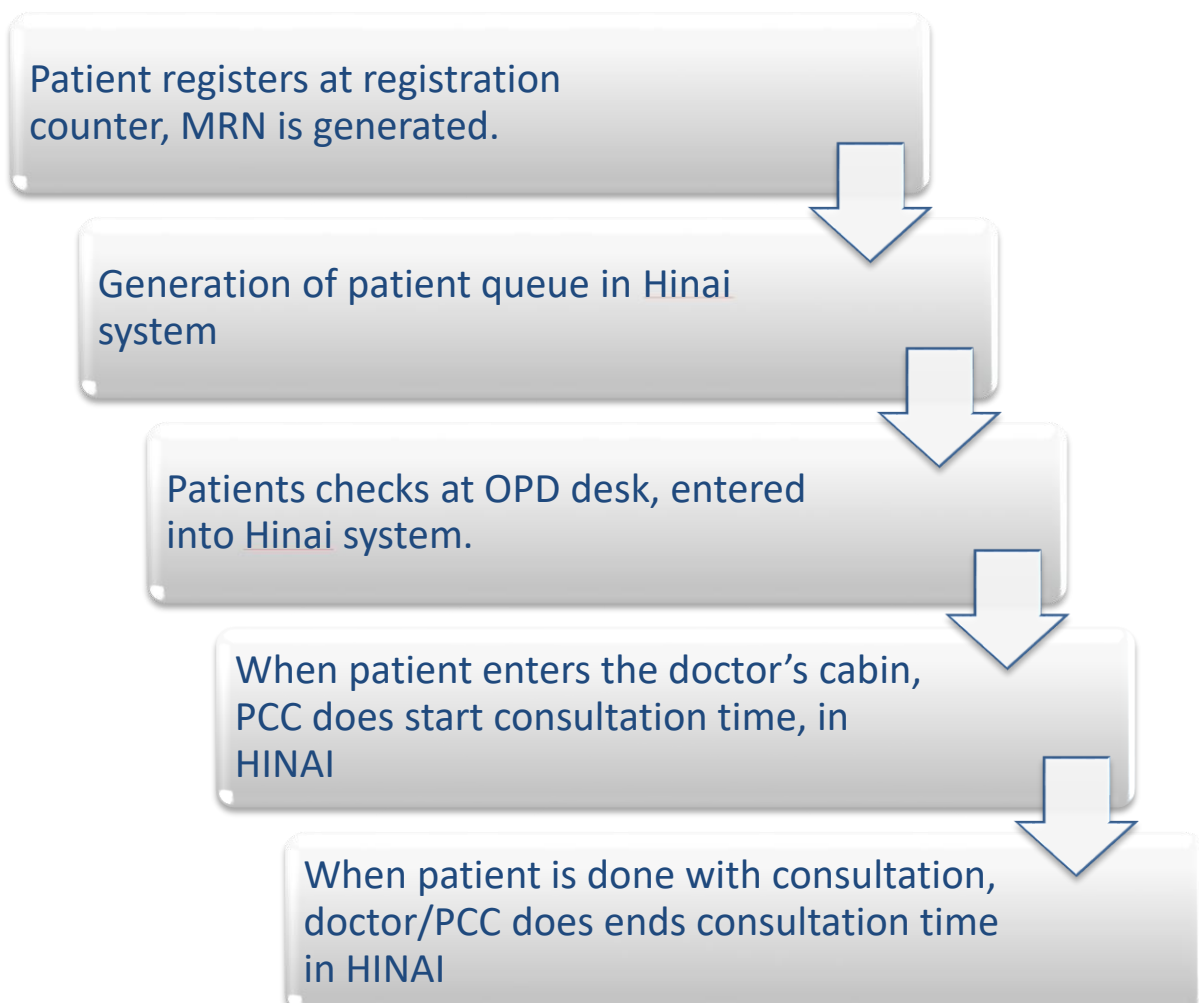
PRIMARY:

To assess why Hinaï could not be an effective appointment system, and had to be ultimately replaced by Qikwell.

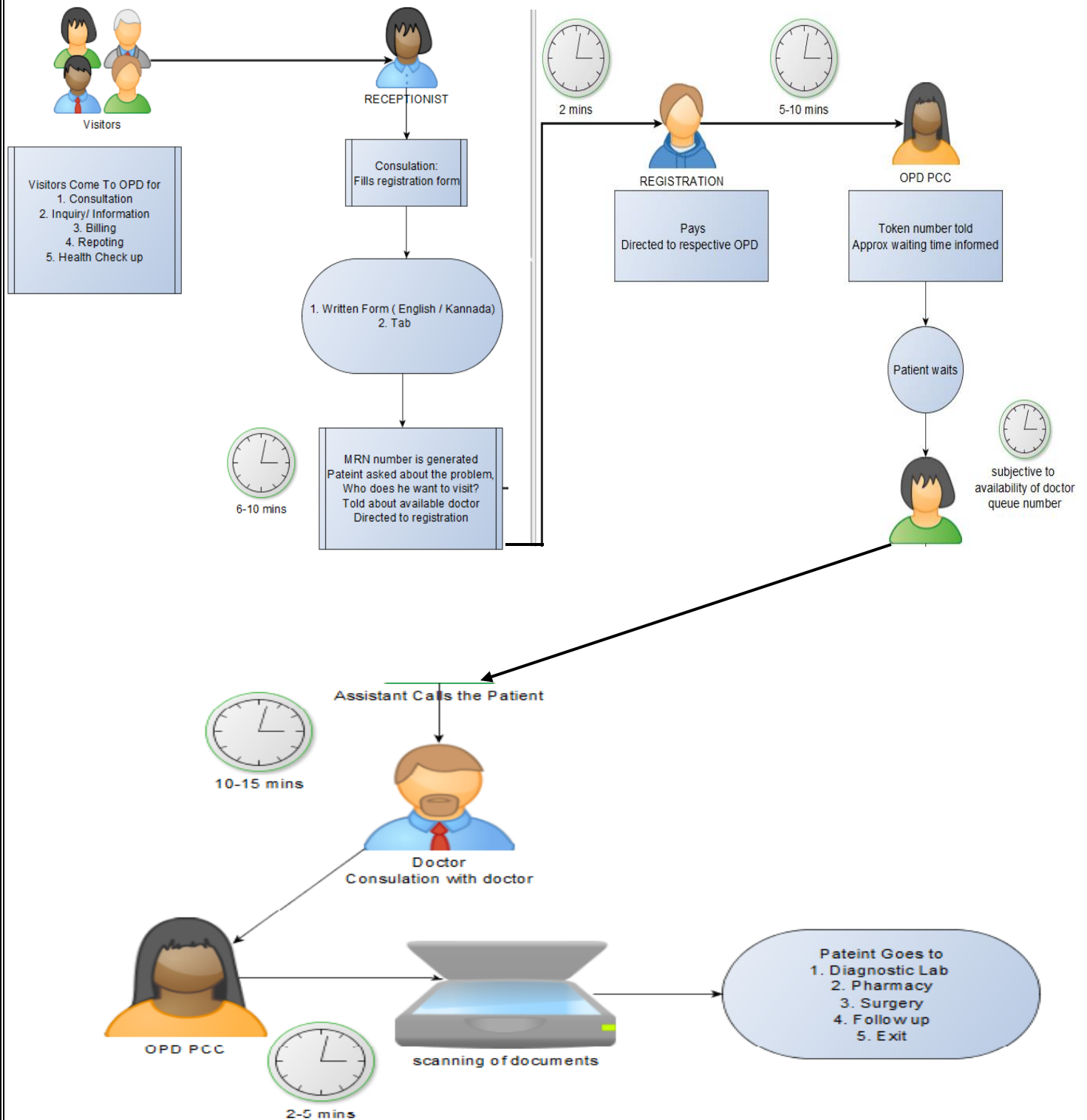
SECONDARY:

Smooth operational functioning of Qikwell at the OPD's it was implemented and further scaling it to other OPD's through regular monitoring.

WORKING OF HINAI:



OPD PROCESS FLOW

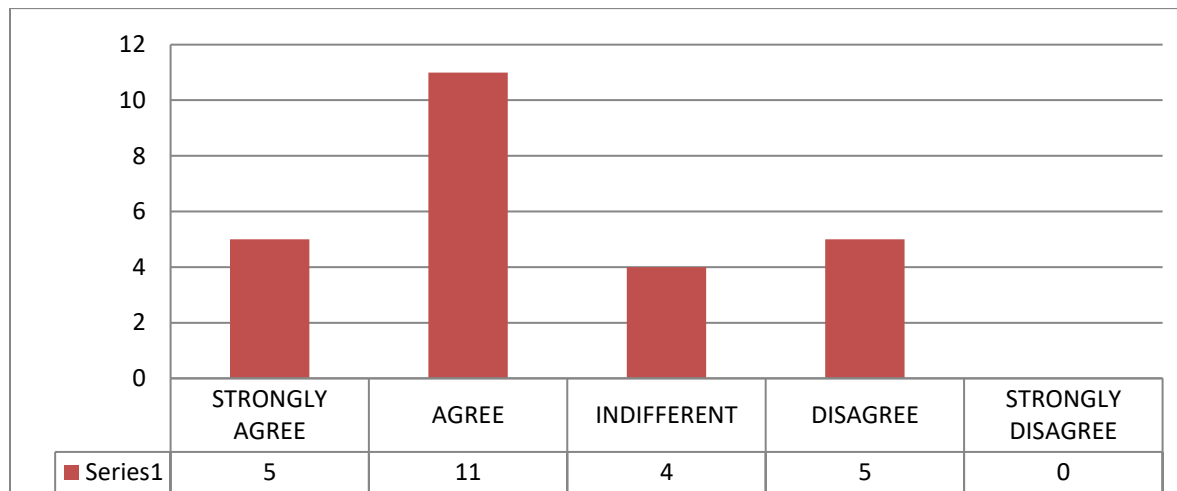


Need for an effective appointment system for a better management of patients at the OPD.

A qualitative analysis of the defects in Hinai was studied by formulating an interview questionnaire for the front desk secretaries who were not acquainted with Qikwell to acknowledge the gaps in Hinai system.

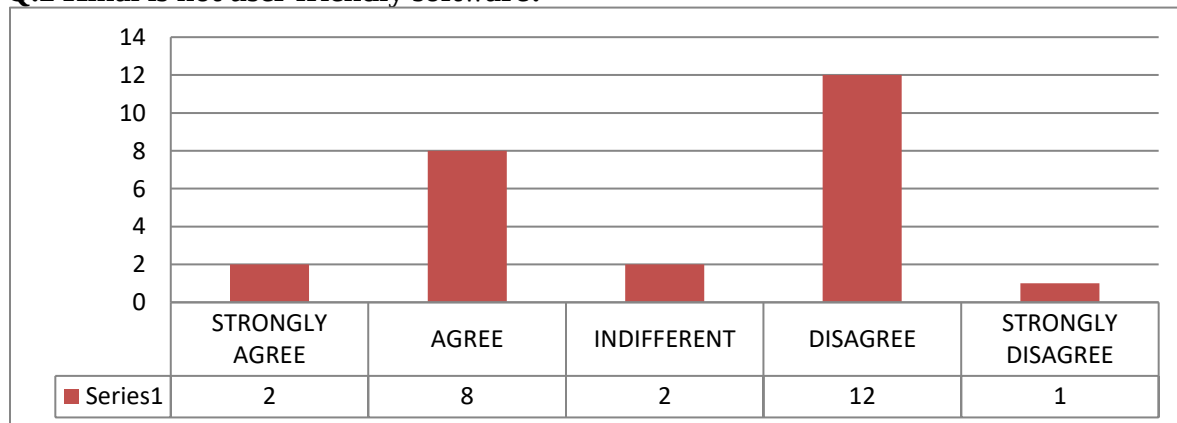
- (i) The study is confined to MSMC only.
- (ii) The study was conducted on the assumptions that the information is given by respondent all are correct.
- (iii) Sample size is restricted to 25 respondents.

Q.1. Hinai as an appointment system cannot work efficiently because it was difficult to manage start consultation time and end consultation time?



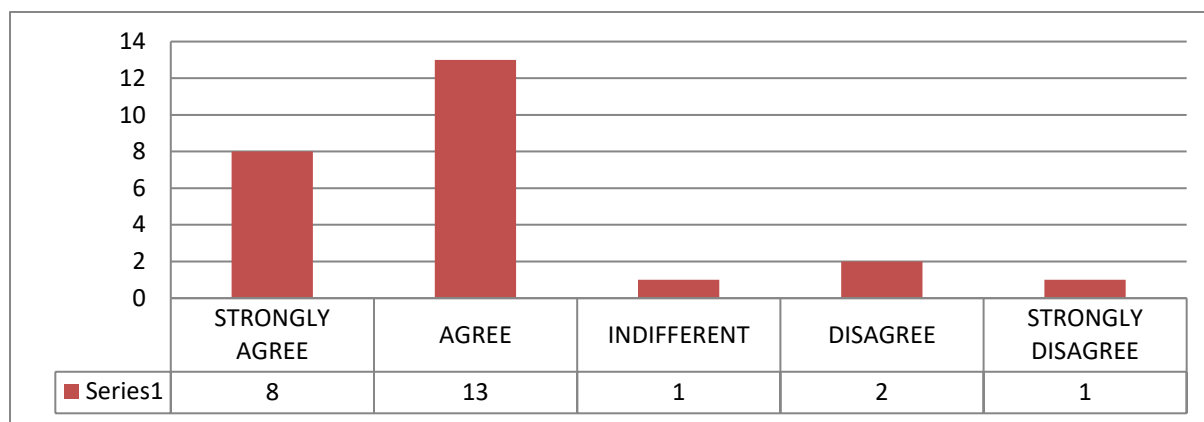
Inference: With Hinai it was difficult to manage the patient waiting queue.

Q.2 Hinai is not user friendly software?



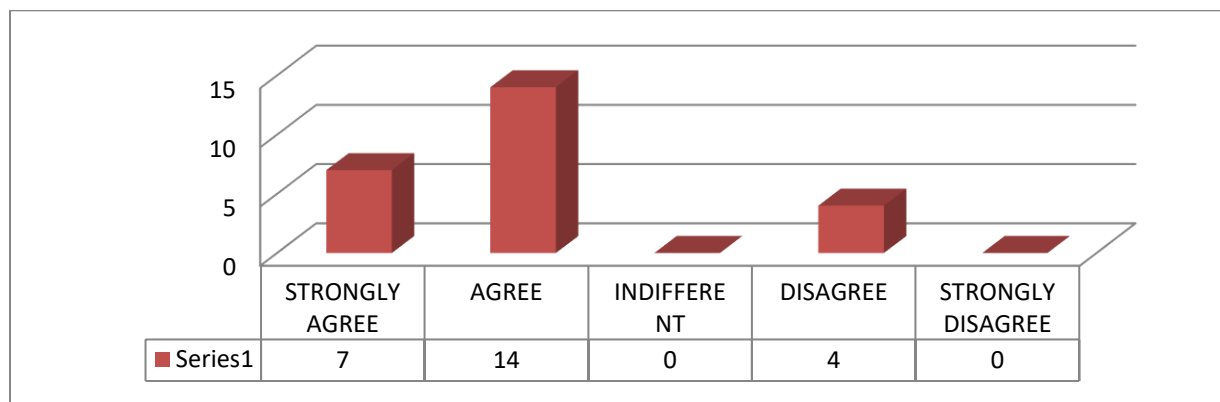
Inference: Most disagreed to the question, Hinai is user friendly software.

Q.3. Difficult to manage patients since doctors do not agree to do end consultation?



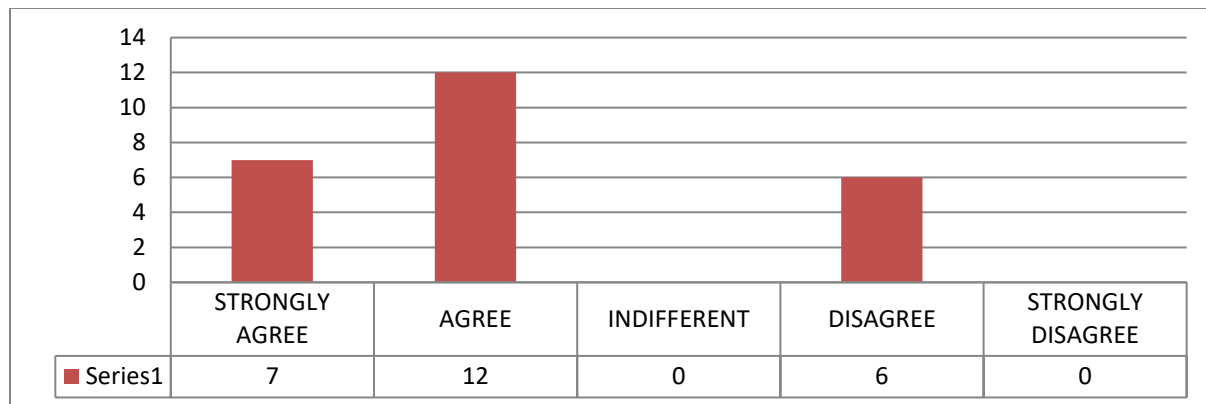
Inference: Difficult for Doctors to do end consultation as it is a multi click procedure, hence difficult for front desk staff to manage patients queue.

Q.4. Appointment system through Hinai has no benefit to patient?



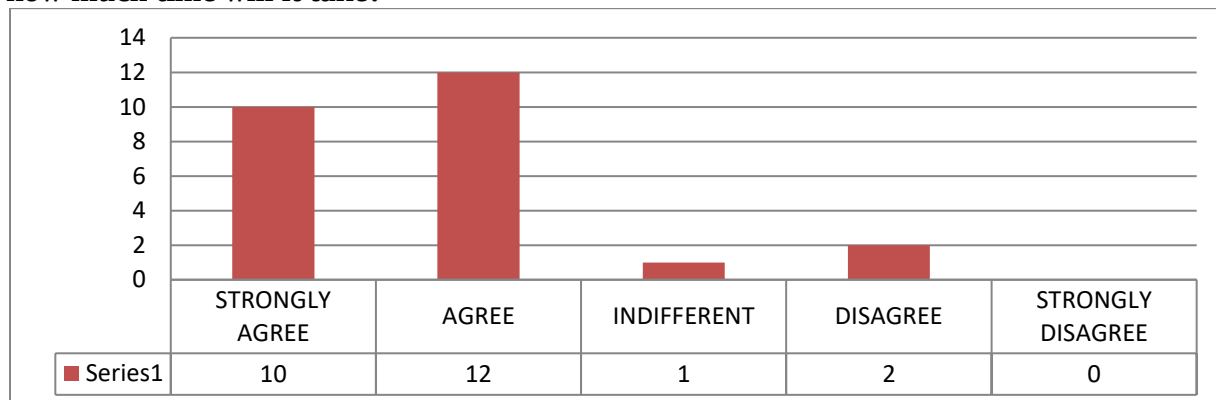
Inference: Appointment system through Hinai has no benefit to patients.

Q.5 Patient is always anxious about appointment as no fixed time could be given to him?



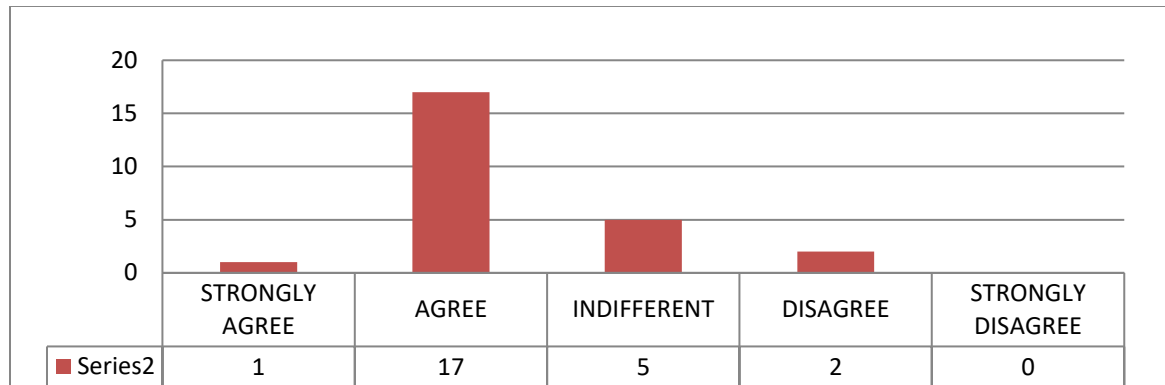
Inference: With the use of Hinai, fixed appointment time could not be given, and hence patient is anxious regarding appointment timing.

Q.6 Patient kept coming to OPD desk inquiring about when will they see the doctor, and how much time will it take?



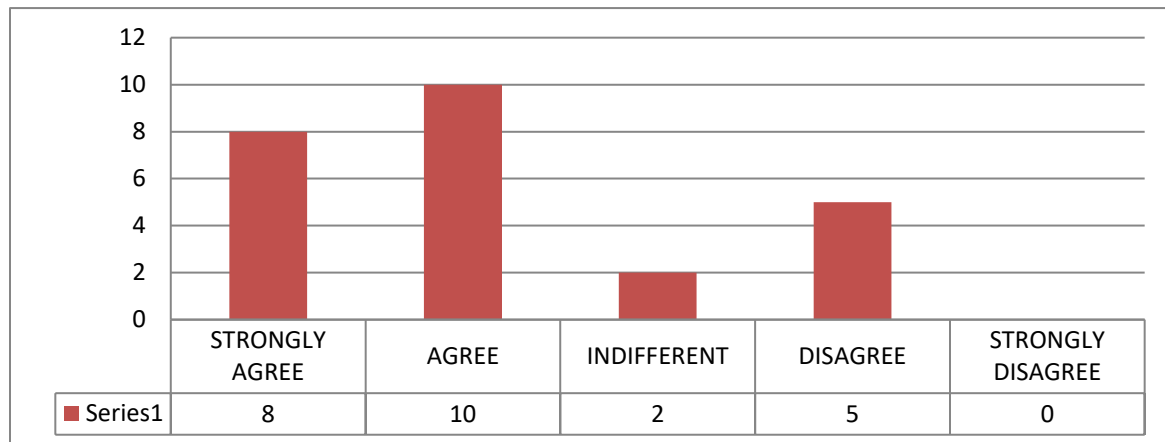
Inference: Using Hinai as an appointment system, patient is always anxious and worried about appointment timing.

Q.7 Hinai led to congestion at OPD?



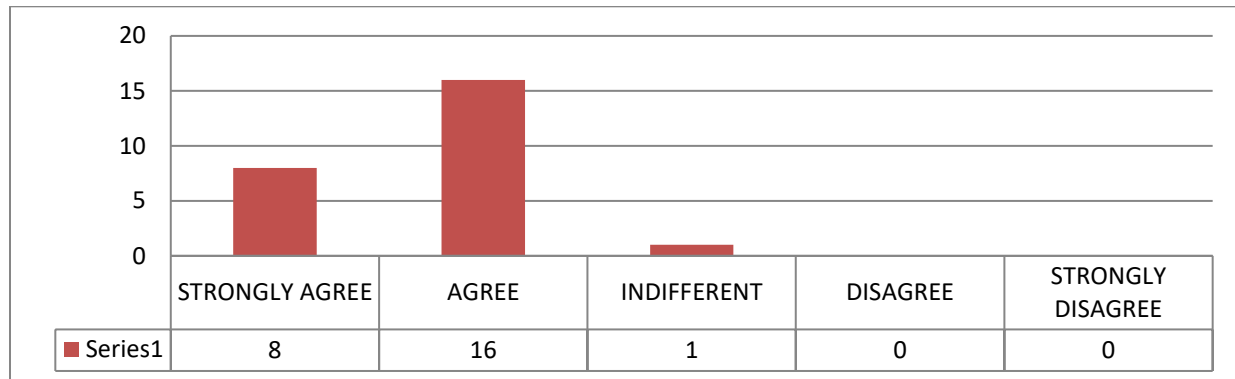
Inference: Hinai is not effective appointment software for managing patients at OPD.

Q.8 Hinai did not allow patients to get in direct touch with doctors or vice versa?



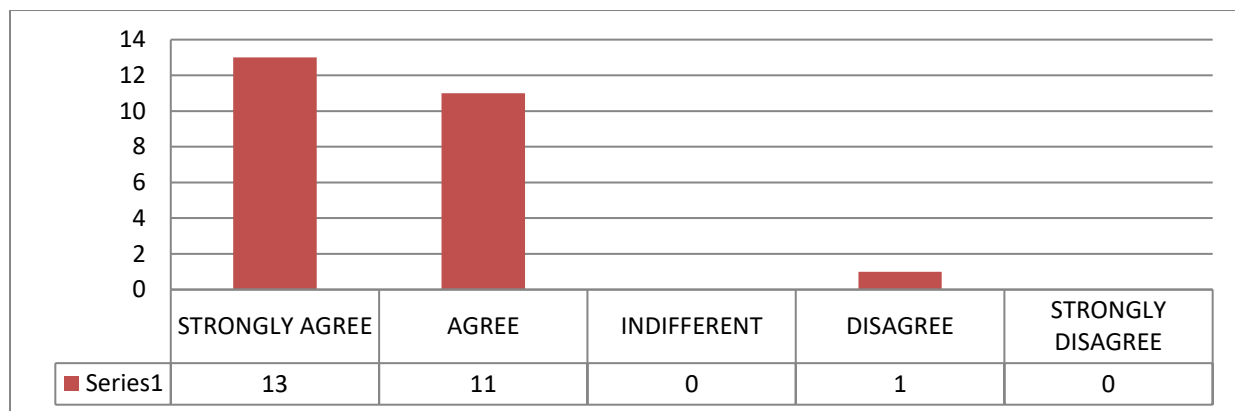
Inference: Hinai did not allow exchange of information between patient and doctor through the system.

Q.9 Effective appointment system will reduce patient-patient and patient-OPD staff conflicts?



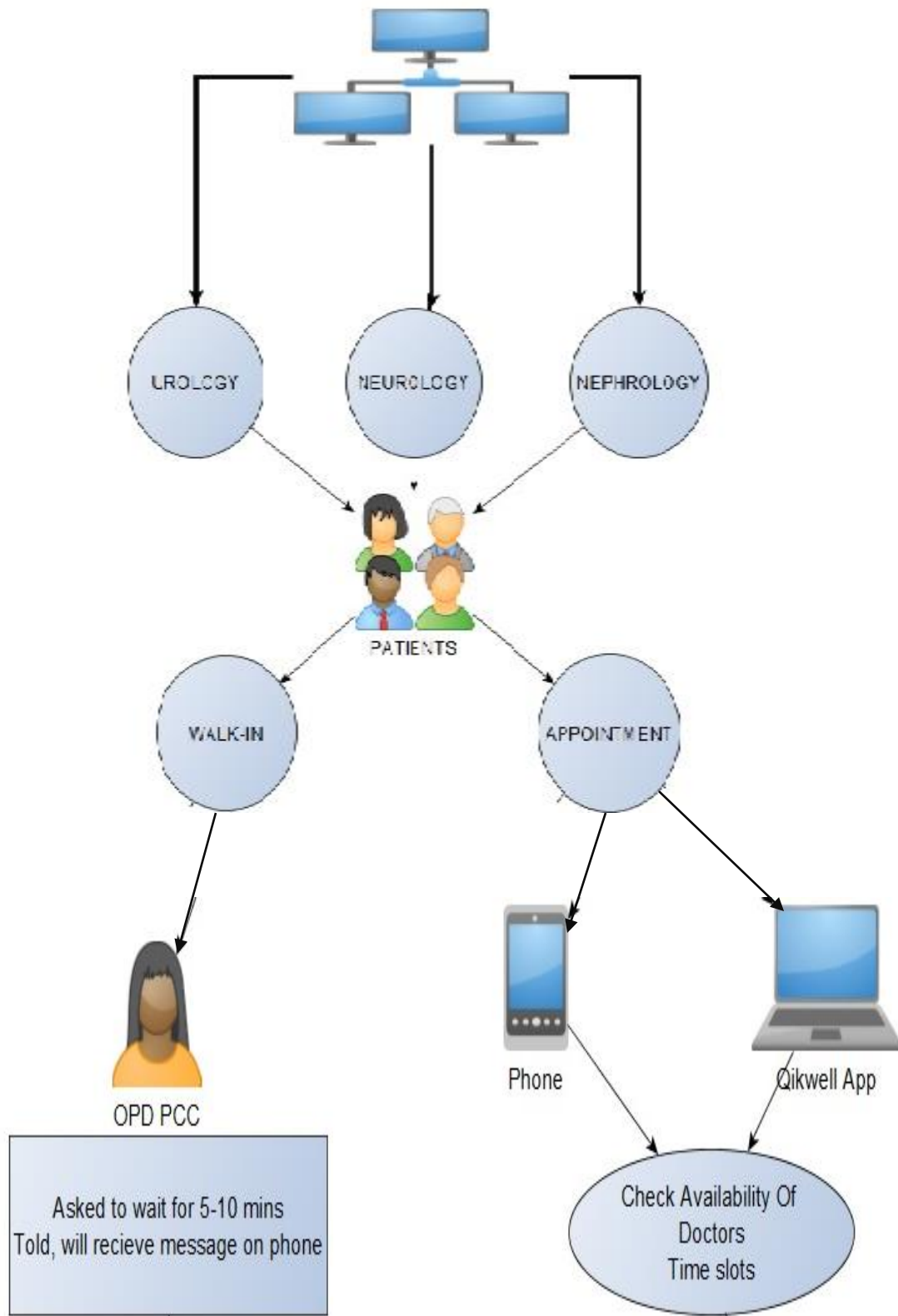
Inference: An effective appointment system will significantly reduce patient-patient, patient-OPD staff conflicts.

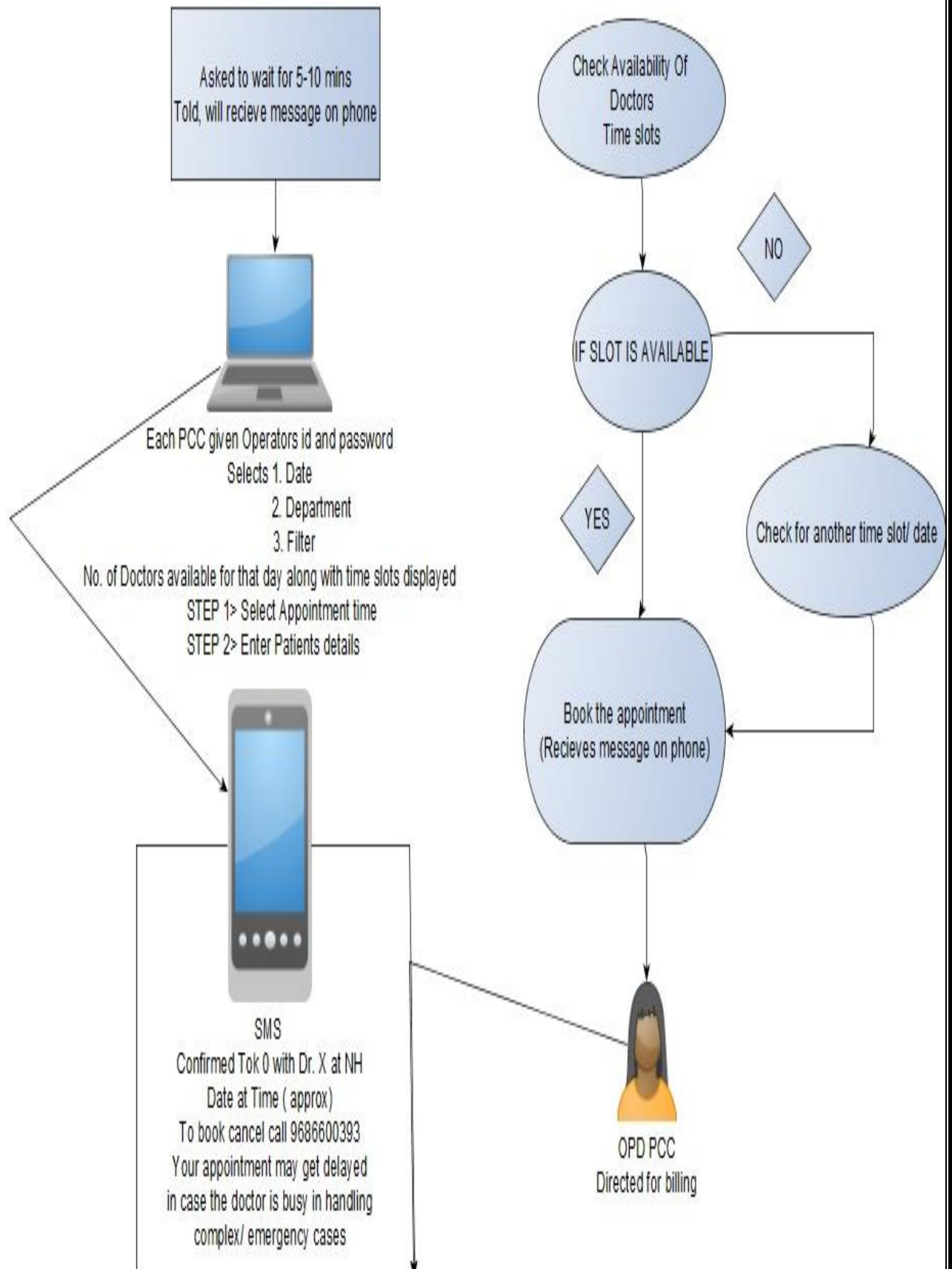
Q.10 Appointment system is required for better time management of both patients and OPD staff?

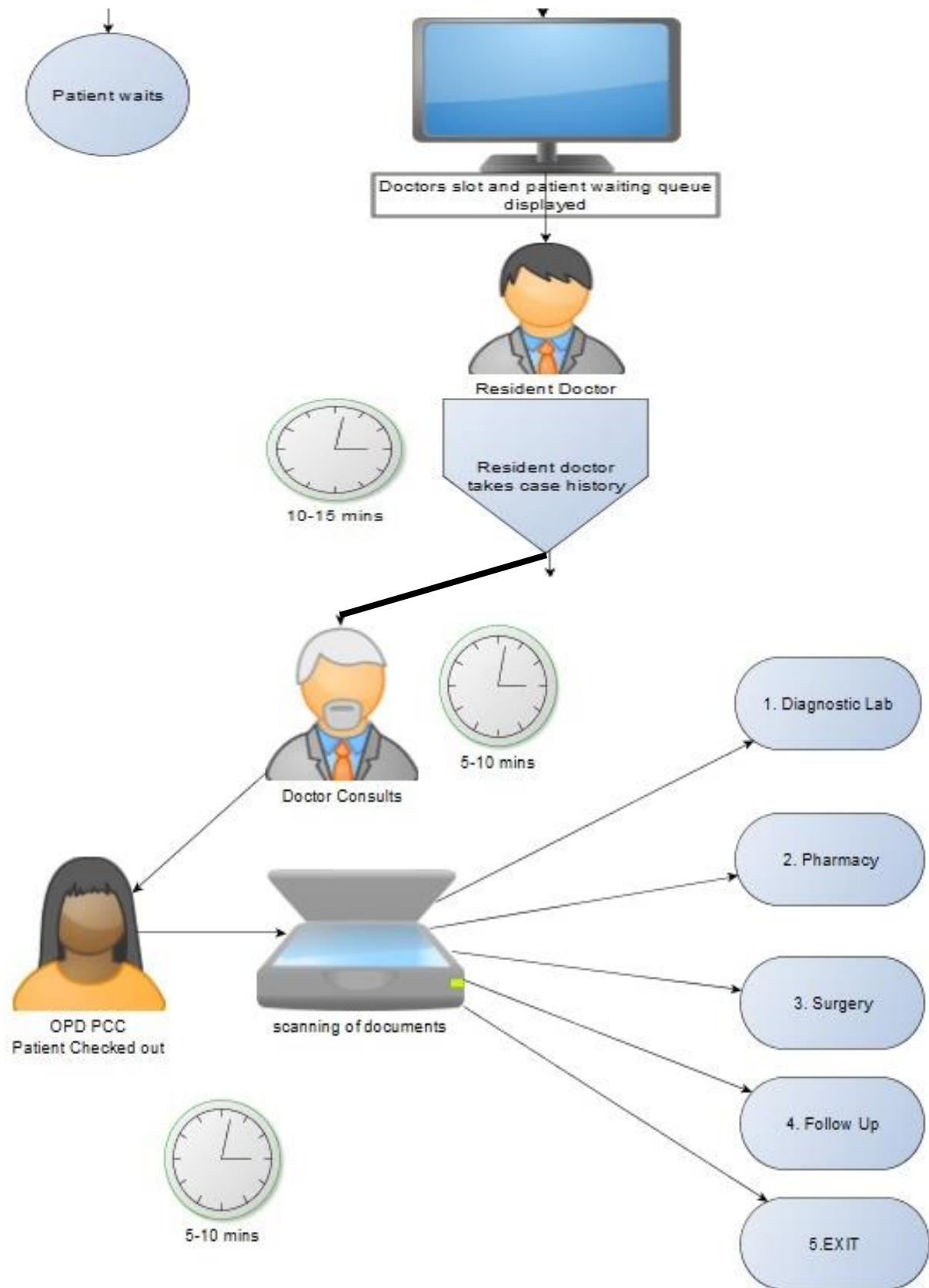


Inference: An effective appointment system is required for better management of patients at OPD.

PROCESS FLOW OF QIKWELL







STEP 2

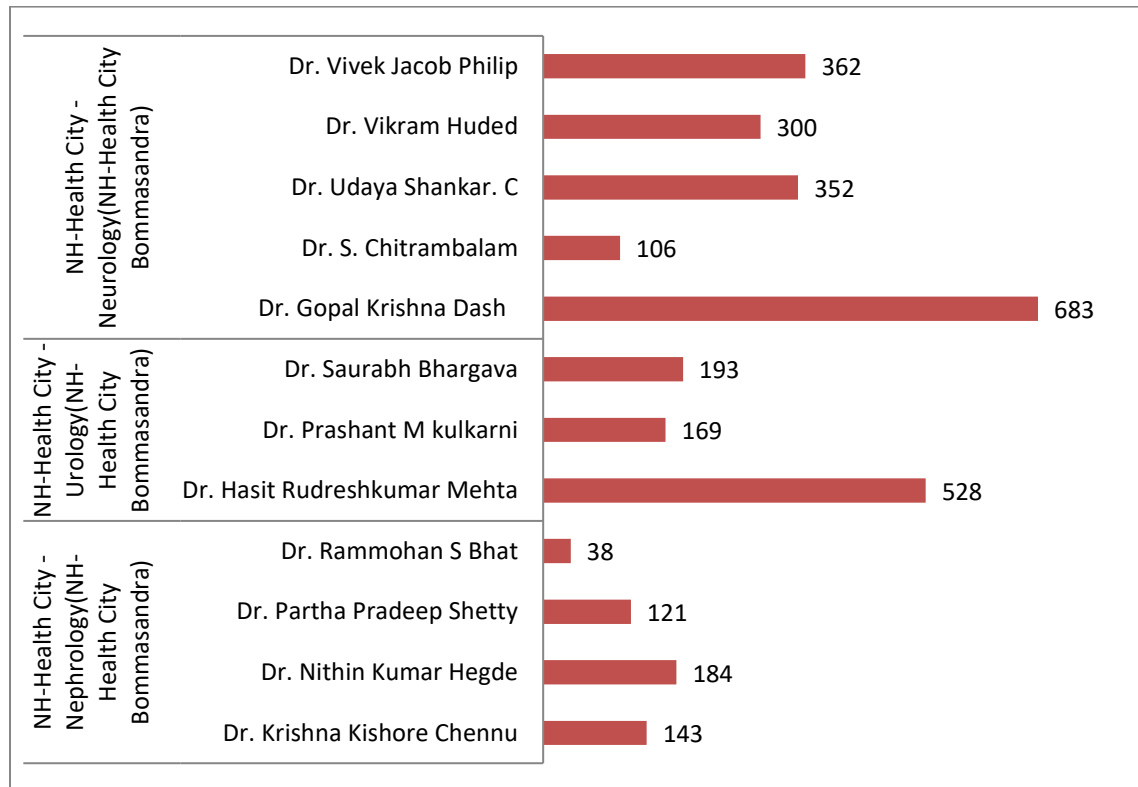
Measure

A Qikwell monthly report for April was measured for different parameters

- 1.) Number of walk-in and appointment patient's
- 2.) Waiting time to see the doctor, i.e. from check in till appointment time
- 3.) Time taken from appointment time till check out
- 4.) Total waiting time, i.e. check in and check out
- 5.) Total number of times, check out was not done for both walk-in and appointment patients

1. Total No. Of Patients (Appointment and Walk-in)

April-May

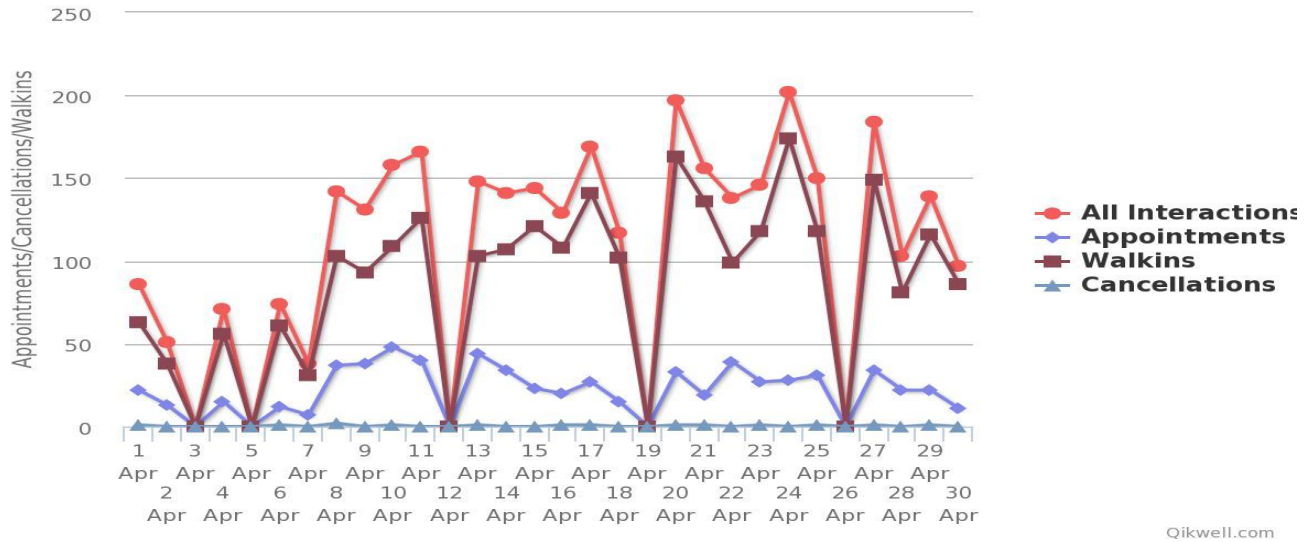


Inference: Dr. Gopalkrishna Dash receives maximum number of patients of all the doctors.

Neurology receives the maximum share of patient load.

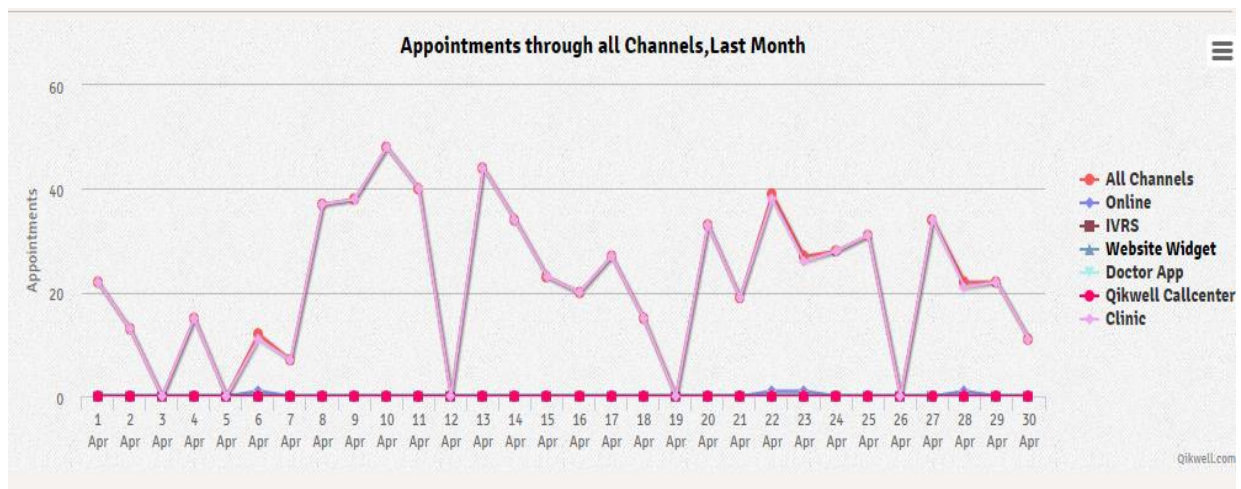
2. Total No. Of Appointments/ Cancellations/Walk-ins

Appointments/Cancellations/Walkins,Last Month



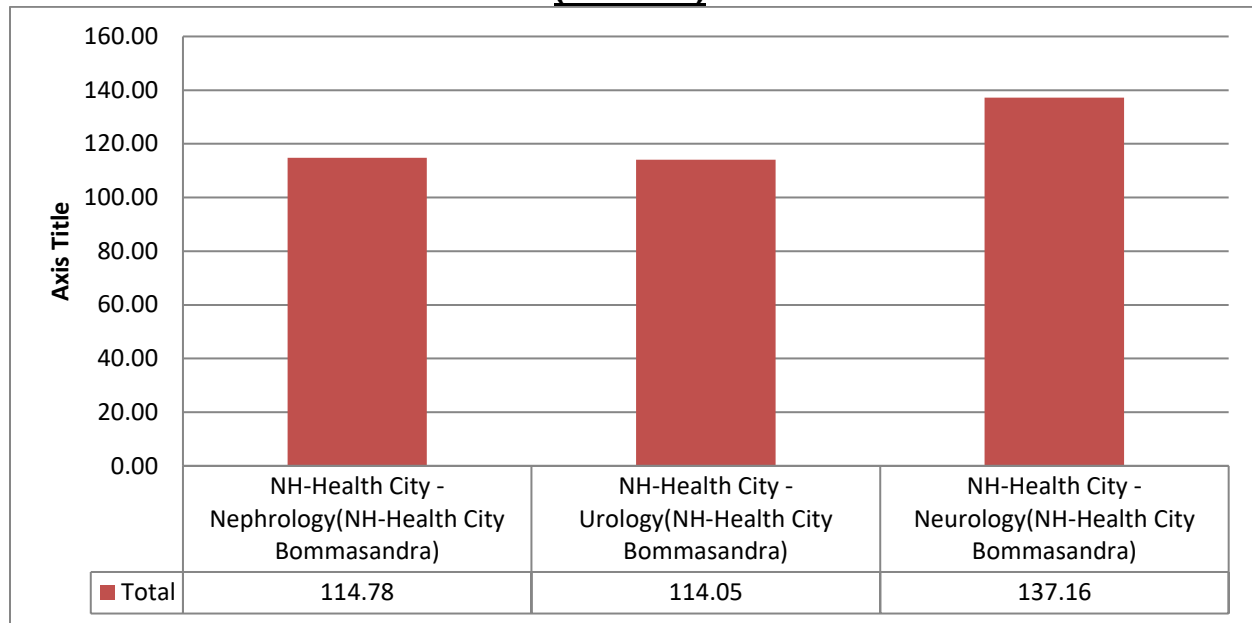
Inference: OPD manages walk-in patients more than appointment patients

3. Appointments booked, last month



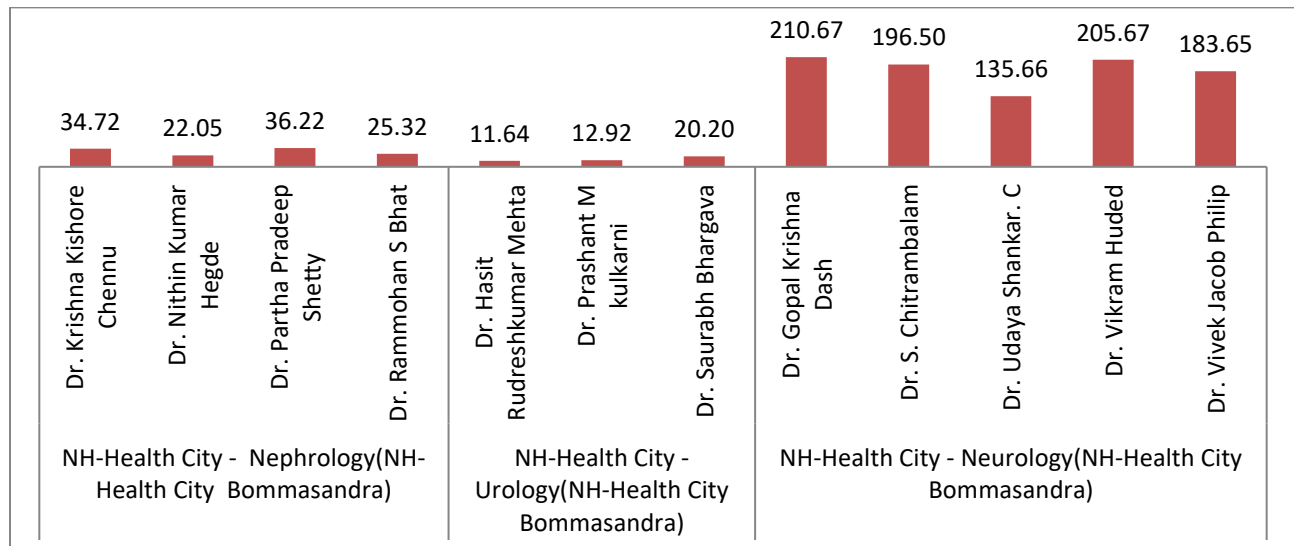
Inference: Most of the appointments are booked at the hospital OPD's only. Patients still do not book appointments through website or phone.

4.Average waiting time to see the doctor Check in to Appointment time, (minutes)



Inference: Patients have to wait the maximum in Neurology department to see the doctor, from the appointment time.

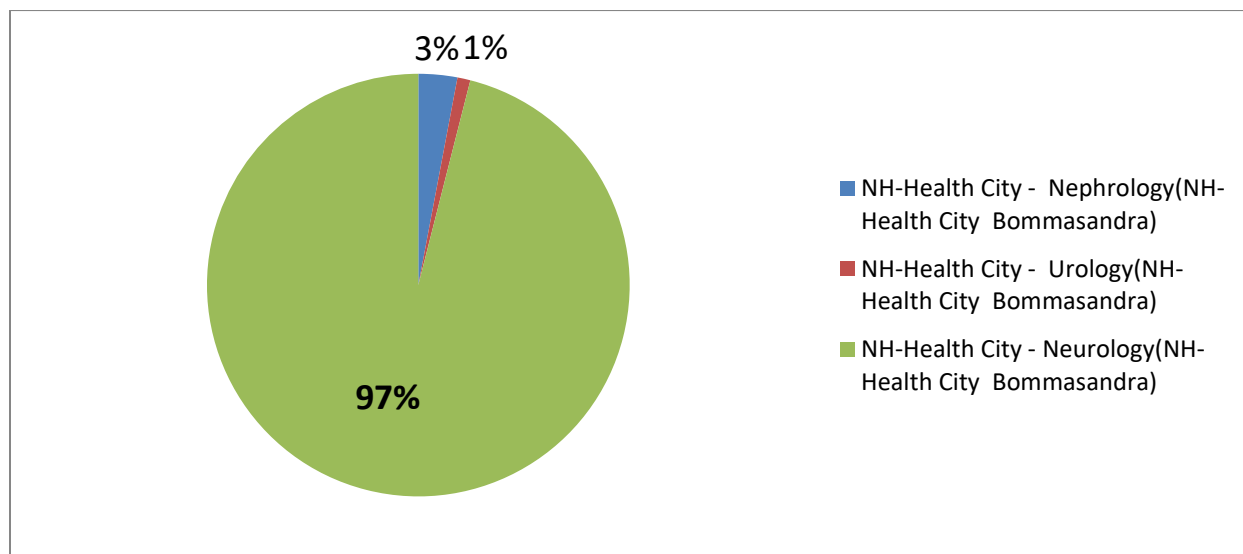
5. Total Waiting Time (Check in- Done Time, minutes) April



Inference: Dr. Dash and Neurology Dept. have the maximum waiting time for patients.

6. Total No. Of Times Check Out Was Not Done For Appointment Patients

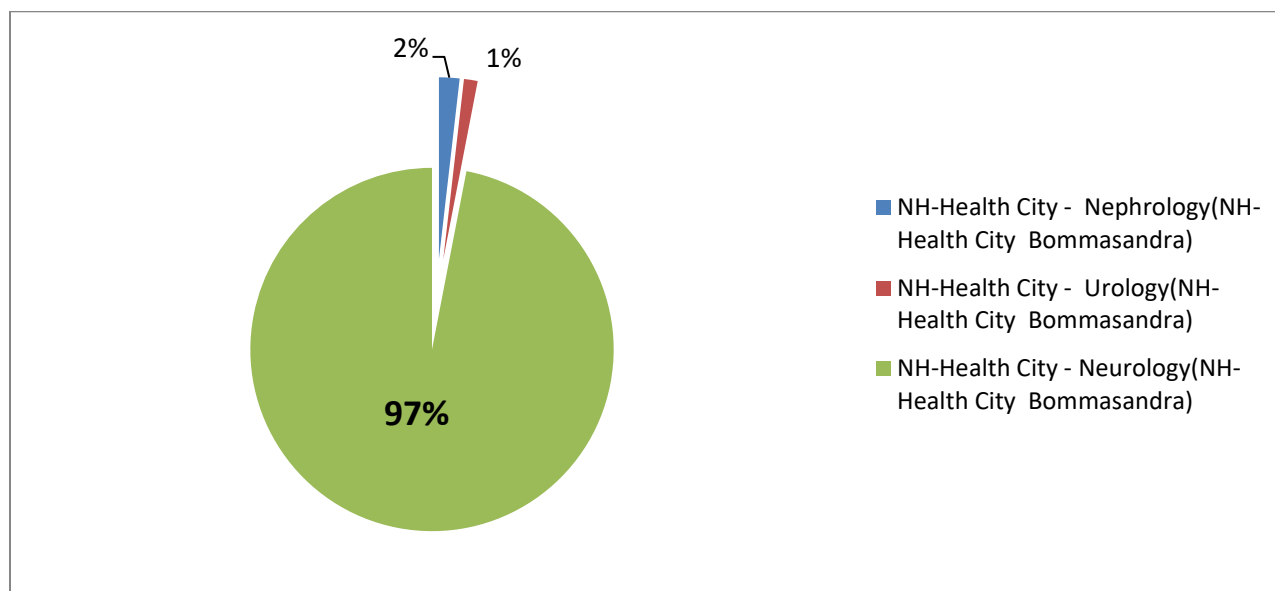
(Department Wise) APRIL



Inference: Check out for patients in Neurology is not done.

7. Total No. Of Time Check Out Was Not Done For Walk-in Patients

(Department Wise) April



Inference: Neurology department check out was not done for walk in patients for the maximum number of times.

STEP 3

ANALYZE

A qualitative analysis of the Qikwell assessment was conducted on 100 patients from Qikwell operated OPD's. The study was conducted with the sole purpose of finding the short-coming's in Qikwell software operationally and otherwise.

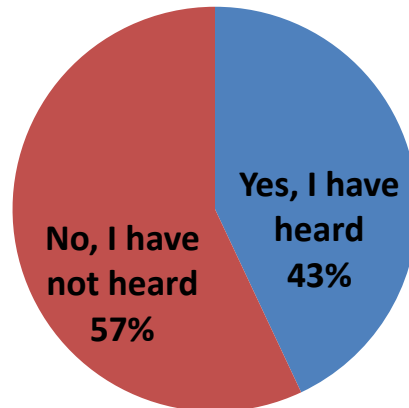
ASSUMPTION IN THE STUDY:

- (i) The study is confined to MSMC only. The study was conducted in Qikwell operating OPD's i.e. Neurology, Urology, Nephrology, ENT, and Medical Oncology.
- (ii) The study was conducted on the assumptions that the information is given by respondent all are correct.
- (iii) Sample size is restricted to 100 respondents.
- (iv) Help of front desk staff was taken for patients who could not understand the English questionnaire.

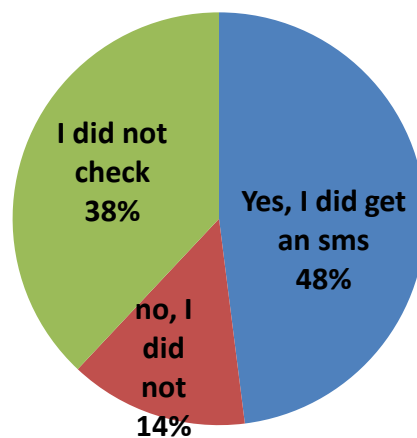
After this study, a root cause analysis is done to find out the actual causes of the dysfunctioning of the Qikwell system.

Q.1 Have you heard about Qikwell appointment system from the OPD staff ?

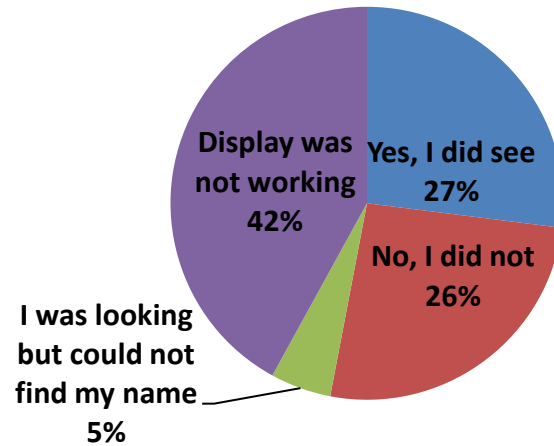
■ yes, I have heard ■ no, I have not heard



Q.2 Did u get an sms, notifying your appointment time with the doctor?

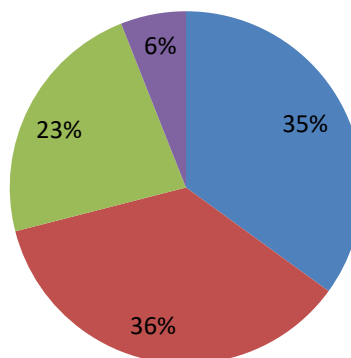


Q.3 Did you see your name on the display screen?

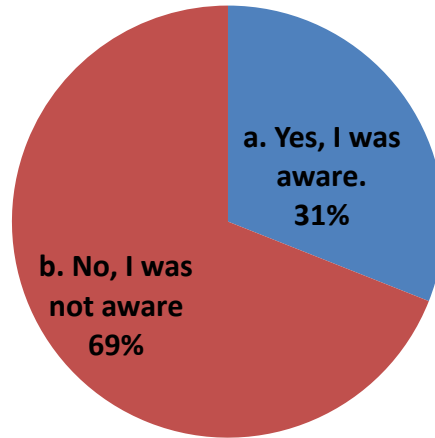


Q4. Did u see the doctor on the scheduled appointment time?

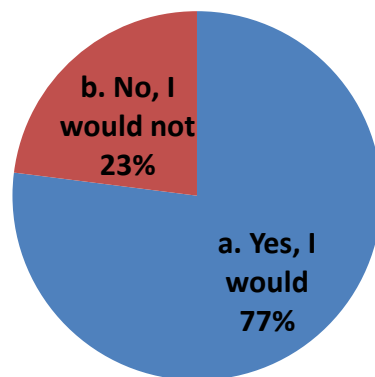
- a. Yes, I met the doctor on time ■ b No, I met the doctor before time
■ c. No, I met the doctor late. ■ d. I did not see the doctor at all



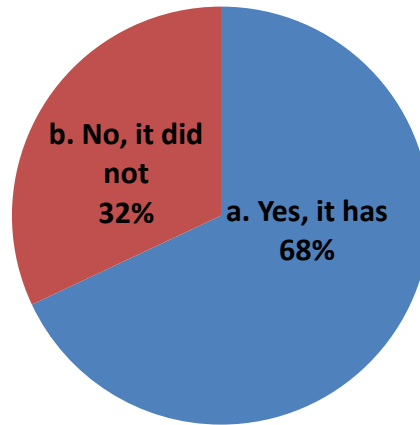
Q.5 Did u know u could book an appointment with the doctor online?



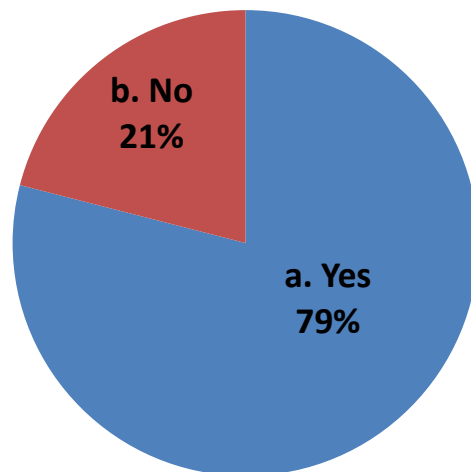
Q.6 Would you want to book an appointment prior?



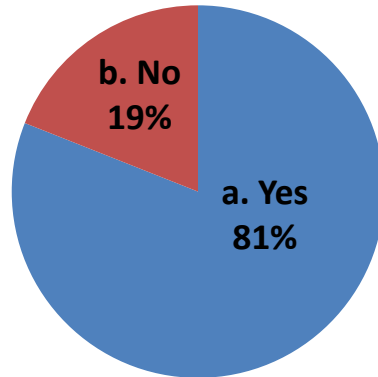
Q.7 This system helped you in reducing your waiting time and anxiety to see the doctor?



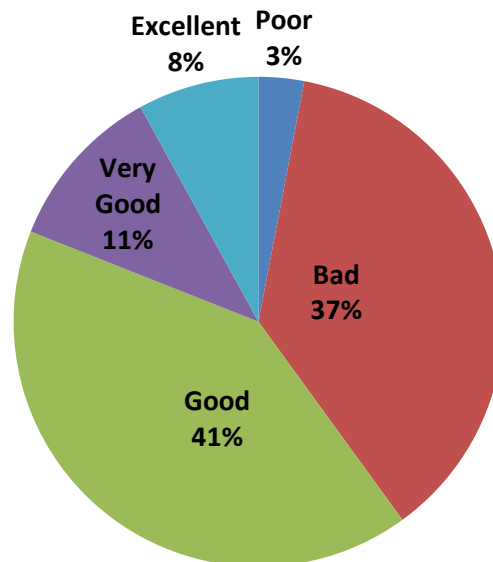
Q.8 Do you think this system is more organized to manage patients?



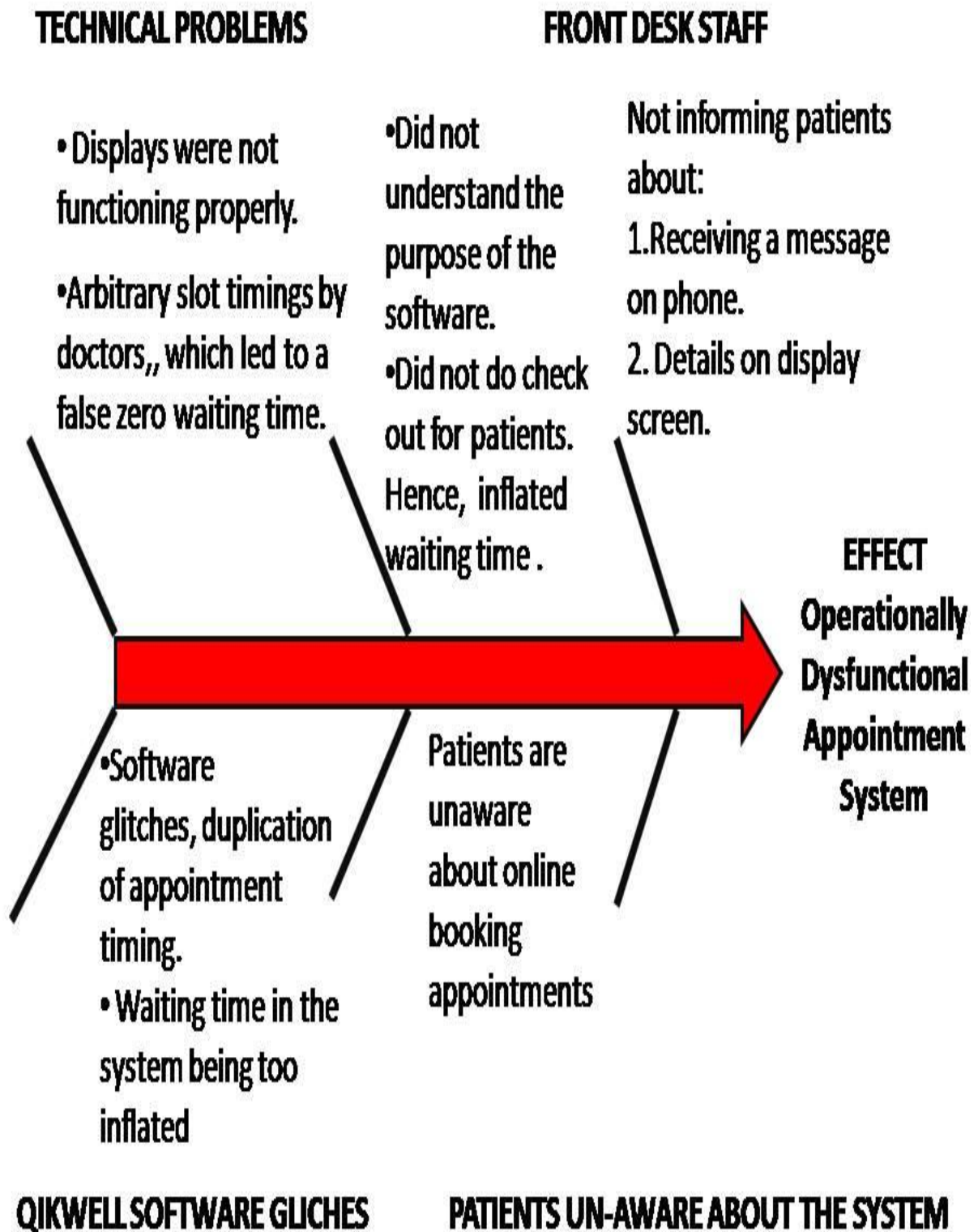
Q.9 Are you happy with the overall experience the hospital had to provide?



Q.10. How much would you rate the hospital from your over-all experience?



ROOT CAUSE ANALYSIS



STEP 4

IMPROVE

After thorough analysis of the causes contributing to the improper functioning of Qikwell at the OPD system, various steps were taken to counter-act them. These are as follows.

A.) Re-Training of Front Desk staff:

A proper re-training of the Front Desk staff is done, explaining them the purpose and utility of the appointment system. They have been trained to ask the patients to check their phones for messages and routinely check the display for the appointment details with the respective doctor.

They have been trained to open different window tabs with the filtered list of patients for respective doctors to carry out check out.

B.) The slot timing for Dr. GopalKrishna Dash, of Neurology has been reduced from 15 mins to 10 mins, hence now the waiting time period for patients won't be a false zero.

C.) Mobile application of Qikwell has been installed for almost all doctors making it easier for them to track their patients, get in touch with them about reports or other queries without disclosing their number to the patients. They can also do the check out for the patients, if they wish to not do so, the front desk staff has been trained to take care of this task.

D.) A staff sister has been appointed in neurology for doing the check out for patients for Dr. Gopal-Krishna Dash. This has inevitably reduced the workload on front desk staff.

E.) The TV displays have been connected with proper wifi (router) connection. With cooperation from Qikwell, the pie of the display screen will be changed within a week and the displays could be monitored from the Qikwell office itself.

F.)The system timing of all computers on OPD has been checked and corrected, since the waiting time is calculated from the current system timing. Hence no false reading will be shown now.

STEP 5

CONTROL

A proper monitoring of the Qikwell operated OPD is required before scaling it to other OPD's.

Following are the recommendations for proper working of the Qikwell system

1. Before scaling the software to other OPD's first it should be stabilized and closely monitored in the existing ones.
2. Stand outs and leaflets at OPD's have been requested to be installed and given to patients both in English and Kannada so that the people are aware about the Online booking procedure and the live slots for the doctors.
3. A timely check through the dashboard can be done by the higher management or the OPD in charge for tracking system use, patient waiting time and checking for other glitches.
4. A monthly report of Qikwell should be analyzed on a regular bases for finding errors in the waiting time that could arise either from arbitrary slot timings given by doctors, in which case it should be changed from consent with doctor, or from the front desk staff not using the system properly.
5. The front desk staff should be rewarded with moral encouragement through certificates of appreciation for following the system well. This will ensure that they adhere to the new system.

ETHICAL CONSIDERATIONS:

The privacy of participants was protected by numerical coding to keep the responses and their identity confidential.

All study data was kept confidential.

Participants were told summary data will be disseminated to the professional community, but it will not disclose identity of respondents.

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