Internship Training

At

Rockland Hospital, Qutub Institutional Area, New Delhi

Process Mapping Of Out Patient Department Under The Project WIRES At Rockland Hospital, Qutub Institutional Area, New Delhi.

By

Dr. Ankita Valecha

Under The Guidance Of

Dr. Dinesh Chandra Jain

Post Graduate Diploma in Hospital And Health Management

Year 2012-2014

International Institute of Health Management Research

New Delhi

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ROCKLAND
HOSPITALS

Rockland Hospital, Qutab:
B-33-34, Qutab Inst. Area,
Tara Crescent Road, New Delhi-16
Tel : + 91-11-47667100 to 7499
E-mail : info@rocklandhospitals.com

Date: 8th May, 2014

To Whomsoever It May Concern

This is to certify that **Dr. Ankita Valecha**, student of **PGDHM** (Batch 2012-2014) from IIHMR, New Delhi, has successfully completed her **Internship,** at **Rockland Hospitals**, Qutab Institutional Area, New Delhi from **1st Feb to 30th April 2014**. She has effectively completed her project on "Process mapping of out patient department under the project wires" in the Department of Quality.

During this period her conduct was found to be very satisfactory. She is professionally sound, sincere and hard working. I wish her good luck in her future endeavors.

For **Rockland Hospital Ltd.**

Rashma

Rashma Nathani
Senior Manager – Human Resources

TO WHOMSOEVER MAY CONCERN

This is to certify that Dr. Ankita Valecha, student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at Rockland Hospital, Qutub Institutional Area, New Delhi from 1st February, 2014 to 30th April, 2014.

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

The Internship is in fulfillment of the course requirements.

I wish her all success in all her future endeavors.

9/5/14

Dr. A.K. Agarwal
Dean, Academics and Student Affairs
IIHMR, New Delhi

06/5/2014

Dr Dinesh Chandra Jain,
Professor,
IIHMR, New Delhi

Dr. Ankita Valecha

Certificate of Approval

The following dissertation titled **"Process Mapping Of Out Patient Department Under The Project Wires" At Rockland Hospital, Qutab Institutional Area, New Delhi** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name	Signature
Dr VK Singh	VKS
Dr. BS Singh	BSSingh
Dr. Preetha G.S	

Certificate from Dissertation Advisory Committee

This is to certify that **Dr. ANKITA VALECHA,** a graduate student of the **Post- Graduate Diploma in Health and Hospital Management** has worked under our guidance and supervision. She is submitting this dissertation titled **"PROCESS MAPPING OF THE OUT PATIENT DEPARTMENT UNDER THE PROJECT WIRES"** at **ROCKLAND HOSPITAL, QUTUB INSTITUTIONAL AREA, NEW DELHI,** in partial fulfillment of the requirements for the award of the **Post- Graduate Diploma in Health and Hospital Management.**

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

Mr. Satish Kumar,
Group Head- Quality
Rockland Hospitals,
Qutub/Dwarka/Manesar

06/5/2014

Dr Dinesh Chandra Jain
Professor,
IIHMR, New Delhi

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled "Process Mapping of the out Patient Department under the Project Wires", submitted by Dr. Ankita Valecha, Enrollment No PG/12/012, under the supervision of Dr Dinesh Chandra Jain, Professor, IIHMR, New Delhi and Mr. Satish Kumar, Group Head- Quality, Rockland **Hospitals,** for award of Postgraduate Diploma in Hospital and Health Management of the Institute, carried out during the period from 1st February, 2014 to 30th April, 2014 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

(Dr. Ankita Valecha)

Ankita Valecha

Signature 9th May, 14

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Rockland Hospital, Qutab:
B-33-34, Qutab Inst. Area,
Tara Crescent Road, New Delhi-16
Tel : + 91-11-47667100 to 7499
E-mail : info@rocklandhospitals.com

FEEDBACK FORM

Name of the Student: ANKITA VALECHA

Dissertation Organisation: ROCKLAND HOSPITAL, QUTUB

Area of Dissertation: QUALITY

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Objectives achieved: -Yes-

Deliverables:
- Mapping of As-Is-Process of OPD
- Carrying out Time Motion study
- Gap Analysis viz-a-viz As-Is-Process V/S Correct Process
- Suggestions & implementation strategy.

Strengths:
↳ Sincere, hardworking & efficient
takes ownership in completing assigned tasks.

Suggestions for Improvement: To be trained in NABH/ Quality Standards.

Signature of the Officer-in-Charge/ Organisation Mentor (Dissertation)

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Place: New Delhi

ABSTRACT

Ensuring efficient and safe patient flow through the hospital system poses a consistent problem in healthcare settings today. As demand and patient complexity increases, small inefficiencies and errors in health care delivery can cause hospital overcrowding and service delay. An inefficient layout may create problem concerning patient supervision, may increase the travel time and waiting time, and may give patients a poor overall impression of the setting. Reducing delays and making sure that patients receive the right care at the right time will have a significant beneficial effect on the quality of care patients receive.

Thus, to create a healthcare model with operational excellence at every step, Rockland Hospital, Qutub, initiated a project named WIRES. The following study done under the broad spectrum of project WIRES, mainly focuses on the process mapping of two departments Front Office & Out Patient Department of Rockland hospital, Qutab institutional Area, New Delhi to find out what are the deviations in the process which can be improved and enhanced to achieve the broad goal of quality healthcare service delivery.

A cross sectional study for the period of 3 months, Feb 14- Apr-14 was conducted in the Front Office & Out Patient Department of Rockland hospital, Qutab institutional Area, New Delhi. Two groups of patients, broadly payer wise, were selected as study population. A sample of 50 patients was observed for the purpose of process mapping the respective departments, which included 25 patients of cash category (paying consultation charges at the time of billing) and other 25 patients categorised as panel or credits patients. The sampling method adopted was random sampling and data collection technique was direct observation of patients and documentation of process times and issues observed.

ACKNOWLEDGEMENTS

First and foremost, I would like to thank my Mentors, **Dr. DC Jain**, Professor, IIHMR, New Delhi and **Mr. Satish Kumar,** Group Head-Quality, Rockland Hospitals, New Delhi**.** Without their assistance and dedicated involvement in every step throughout the project, this study would have never been accomplished. I owe a debt for their generous help, perpetual encouragement, and abundant interest in my project work and throughout the course of the training period.

I would also like to express my gratitude to **Ms. Ritu Nadeem** (Quality Manager, Rockland Hospital, Qutub Institutional Area, New Delhi), **Ms. Richa Gour** (Head Strategy and Planning, Rockland Hospitals, New Delhi), **Ms. Rashma Nathani** (Senior Manager, Training and Development, Rockland Hospitals, New Delhi), and **Ms. Pushpam Kashyap** (Group Head-Human Resource, Rockland Hospitals, New Delhi) for their kind co-operation and encouragement which help me in completion of this project.

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HOSPITAL PROFILE

ROCKLAND HOSPITALS LIMITED

- Rockland Hospitals Limited (RHL) was initially set up in Dec 2004 under the trust Foundation for Applied Research in Cancer (FARC).
- In 2007, a Management & Operations License Agreement (MOLA) was signed between RHL and FARC, as per which entire operations and management (including all debts & liabilities) of the hospital were transferred to RHL.
- RHL is currently running three hospitals
  - 100-bed facility at Qutub Institutional area
  - 103-bed facility at Dwarka launched in July2012
  - 505-bed super specialty hospital at Manesar, commissioned in Jan 2013 – IP opened in April 2013
- RHL network shall create tertiary care beds with geriatric & wellness centres, medical tourism facilities and integrate its hospitality business by state of the art Lab & Diagnostic systems.

»**Credible promoters** with a long track record in healthcare & hospitability backed by credible global investors

»**Experienced Management team** with extensive exposure of running and managing large chains of hospital.

»**Experienced Sales team** which is working on the right channel mix.

»**Established player in NCR**, providing the full range of services including general specialties and super specialties

»**Strong team of Doctors** and other medical staff. Specialty gaps are being filled and new doctors being hired for specific geographies.

»**Extensive focus on Internal Processes**. Special focus on Manpower and Branding to create a performance driven organization

»**Ready constructed assets**, expected to achieve incremental margins & returns, as occupancy and capacity stabilizes

»**Creation of RHL network** shall lead to larger scope and penetration

»**Established and good clientele** and proximity to high catchment areas

MILESTONES:

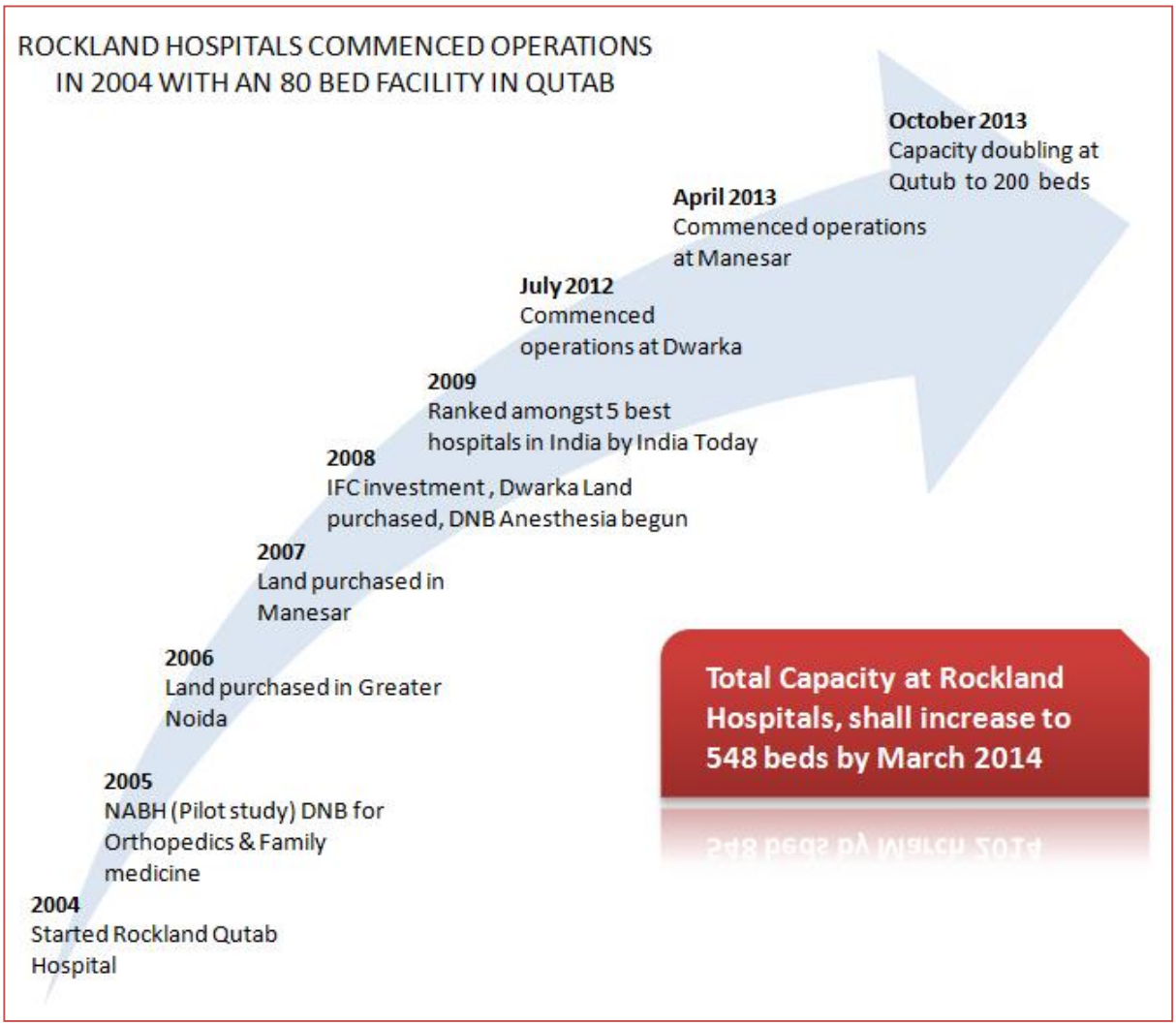

FIGURE 1.1

Quality Policy:

Quality Goal

"To establish a hospital-wide patient centric approach with a focus on patient safety and continual quality improvement in all processes and services"

Quality Objectives

- To establish measurable objectives of patient care in order to monitor, evaluate, and pursue Clinical Excellence.
- To establish continuous up-gradation of technology and human resource development activities in a congenial and safe environment.
- To improve the knowledge and skill set of all healthcare providers for enhancing the processes and performance on a continuous basis.
- To establish norms for compliance to National / International Quality Accreditation Standards.
- To establish a hospital-wide patient centric approach to improve processes for operational excellence & delivery of compassionate patient care.

Quality Accreditations:

NABH : National Accreditation Board for Hospitals & Healthcare Providers (NABH) is a constituent board of Quality Council of India, set up to establish and operate accreditation programme for healthcare organizations. The board is structured to cater to much desired needs of the consumers and to set benchmarks for progress of health industry.

Rockland Hospital Qutub has earned the prestigious accreditation from National Accreditation Board for Hospital & Healthcare Providers. The NABH accreditation is a recognition of our commitment to provide Safe and Quality of care to our patients.

NABH Accreditation endorses our commitment in facilitating:

- Ethical, Safe and Quality patient care at the hospital which conforms to NABH Standards
- Patient and his/her family's rights are respected and are core to values
- Reinforcing a culture of continuous improvement in the organization
- Systematic, Process Driven specific objective criteria for Operational and Clinical Excellence

NABL: The National Accreditation Board for Testing and Calibration Laboratories (NABL) undertakes the assessment and accreditation of Testing and Calibration Laboratories, in accordance with the international standard ISO / IEC 17025 and ISO 15189.

The labs at Rockland Hospital Qutub has earned the prestigious accreditation from National Accreditation Board for Testing and Calibration Laboratories (NABL) in the field of medical testing. The NABL accreditation ensures that our labs continuously conforms to the stringent International Standards for Medical Testing and is also a recognition of our commitment to provide quality care to our patients.

Mission & Vision

Rockland's Vision:

'To be the most trusted health care brand nationally and internationally.'

Rockland's Mission:

To create a network of quality health care service providers up to village levels at affordable costs.'

Rockland's Culture: our work approach

"Execution is the key!" At Rockland, we firmly believe in the power of team "Output".

As true Ambassadors of the Rockland Group, we strive to become Outstanding everyday by being Goals-driven, Target-focused and determined to achieve positive results. We are motivated, ambitious, passionate and empowered people. We show pride, enthusiasm and dedication in every responsibility we take up and convert ideas, plans and strategy into actions. We have a sense of speed, urgency, accountability and constantly take initiative to make a difference in the lives of our patients. We accept responsibility for our actions and make and support our business decisions through competence, experience and good judgment. We face challenges confidently and talk solutions and innovations to stay relevant today and prepared for the future. We are committed to delivering highest quality clinical care and services to our patients. We simplify work, follow our defined Standard Operating Procedures (SOPs) and competently complete our job responsibilities. We believe that by our better understanding of changing customers' expectations and continually adapting to improve our services and processes to meet our patients' changing needs, Rockland Hospitals will continue to be amongst the best in the healthcare industry.

CORE VALUES

FIGURE 1.2

Ownership

"We believe in doing whatever to it takes for winning. Do it the best we can; do it the best it can be done. That is how we succeed at Rockland."

Spirit of Winning:
We enable individuals and teams to explore their maximum potential to achieve extra-ordinary results, and partake in the joy of celebrating team victory.

True Rockland Ambassador:

- We own the outcome and do whatever it takes to get there.
- We show determination to deliver and never give up, despite obstacles. We are always willing to go the extra mile and beyond what is expected to get the job done.
- We are passionate about winning and about our brand, services and people, thereby delivering superior value to our shareholders.
- We believe that with continual performance coaching fuelled by right attitude, desire to win, effort and appreciation, Winning is inevitable and more enjoyable;

and that failures (if any) are only learning lessons and a stepping stone towards a future win.

- We believe in healthy competition and fair play at work.

Efficiency:
"Our formula for success is Maximum Output : Maximum Productivity We live by the value of “Performance Excellence."

True Rockland Ambassador:

- We believe in working smart, pushing ourselves towards higher performance levels and optimum utilization of organization’s resources.
- We challenge ourselves to improve our productivity and create value for the end user (patients).
- We empower our talented and responsible people to take accountable decisions and to do what’s right and important.
- We do not wait to be asked or told, but proactively identify what needs to be done and act.

Teamwork

Best "Outcomes" come from working together cohesively with our customers (both internal & external)

We create synergy of our combined strengths and leverage the power of team insights to deliver enhanced service &quality medical care. Our positive team-force emanates from three important pillars of Collaboration, Communication & Respect

Collaboration:

"We excel in our individual roles, partner with each other to achieve one common goal (Rockland’s Vision) and to improve the efficiency of the whole."

True Rockland Ambassador:

- We willingly do what must be done to assist and support each other in the delivery of quality care and value to patients.
- We endeavour to build trust & dependability by promptly delivering what we say, developing productive long-term relationships with patients and each other and promote good team spirit.
- We involve each other while working together, seek ideas, readily share our experience, resources and solutions to achieve and sustain overall profitable growth of the organization.
- We are supportive of each other’s efforts, stay loyal to one another, and care for each other both personally and professionally.

Communication:
"We communicate openly, listen actively, respond promptly, resolve team conflicts readily and work towards building a participative and involved team environment."

True Rockland Ambassador:

- We give constructive feedback to each other, promptly respond to requests for assistance, stay committed to everyone's development and provide continual encouragement.
- We readily share information to keep everyone informed and updated and easily seek help when it's needed.
- We SMILE Often
- We feel free to express our ideas.
- We readily admit our mistakes.

Respect
"The way we treat each other in achieving our objectives is just as important to us as what we achieve. That's why our people enjoy working in Rockland and our patients are satisfied with us."

True Rockland Ambassador:

- We embrace diversity and value the unique competencies and contributions of different team members and agree to disagree to resolve differences of opinion.
- We are encouraged to express our opinions and use each other's ideas whenever possible and give credit where credit is due.
- We interact with mutual respect and sensitivity; we care for our people and are polite and friendly.

Integrity
"Integrity for us means being ethically unyielding, fiercely honest and inspiring trust by saying what we mean, matching our behaviours to our words and taking responsibility for our actions."

Ethics:
"We uphold our Code of Conduct, Work Ethics and Compliant behavior at the highest. At Rockland, there is no right way of doing anything wrong."

True Rockland Ambassador:

- We adhere to the highest ethical standards without exception and always act in the best interests of the organization.

- We are anti-bribery, gifts and hospitality used for our personal gains and advantages.
- We encourage reporting of any misconduct, illegal & unethical behavior, pilferage or infringement.
- We have concern for environmental resources and the community around us.

Trust:
"Developing and nurturing trusting relationships is critical to our success at Rockland."

True Rockland Ambassador:

- We create mutual trust amongst each other through our competencies, credibility, and reliability in our work execution.
- We develop a positive personal orientation by truly keeping the team's best interest at heart.
- We believe in our own capability, act responsibility, display professional etiquette, proactively manage our work time and select effective ways to delivery highest quality of work.
- In summary, we walk the talk and keep our delivery promises, our actions are consistent with our values, we do the right thing even when there is pressure not to do so, we have faith in our employees and don't doubt them and we keep confidential information confidential.

Transparency:
"We have an "open door" approach, wherein we allow others to clearly see how we operate and what actions are performed."

True Rockland Ambassador:

- We act with complete honesty and transparency, not compromising the truth and facts, and bravely stand up for what is right.
- We ensure that no patient is wrongly billed or overcharged. Any case of omission or commission in billing due to human error is dealt with full clarity.
- We endeavour to ensure that a customer has full information related to his treatment, as adequate information will only give him more choice and make him more aware and ready.

Service Excellence
"We keep the customer (internal and/or external) as the focal point of all our activities. We help customers (and business partners) achieve their needs and goals through intelligent application of our own skills, behaviours and knowledge. We deliver what we promise-and add value that goes beyond what is expected."

Patient-centricity:
Patients are the focal point of all Hospital activities and we demonstrate a strong ‘passion for the customer"

True Rockland Ambassador:

- We build confidence of our patients in the services of our organization.
- We approach service with unmatched enthusiasm and commitment.
- We take personal responsibility in resolving customer problems.
- We communicate with utmost care, compassion, attention and empathy.
- We listen to, understand and anticipate our customers’ needs - and respond promptly and efficiently.
- We have an “Outside-in Focus" – We believe that growth comes from looking at opportunity through the eyes of customers and all those we serve and treat. Taking an “outside-in" view ensures that our efforts are always relevant and that our unique talents are applied to patients and other clients’ needs.

Clinical Excellence:
"We drive medical excellence by hiring the best Clinicians, sharing of best practices, using latest clinical technologies, measuring clinical outcomes to improve our clinical processes and protocols."

True Rockland Ambassador:

- Patient Safety and Quality Medical care is paramount to us.
- We strive to be the best in quality and in everything we do.

Learning:
"We believe that People are Rockland’s brightest assets. Developing people and providing them with learning opportunities is at the heart of our efforts."

True Rockland Ambassador:

- We learn by continuously developing and deepening our knowledge of our business, needed skills and adapting to latest technology and Healthcare innovations.
- We design Learning & Growth objectives to convert business strategy into desired actions.

ROCKLAND HOSPITAL, QUTUB

FIGURE 1.3

With over 10 years for being in operations this hospital enjoys its location in South Delhi overseeing the huge green belt of Sanjay Up van extending from hospital till the Qutab Minar complex. It offers immense peace and seclusion by being in an institutional area and still being in centre of Delhi. It is well connected by road and metro (nearest metro station being 3 km from the hospital).

The hospital has got two towers, great landscape and beautiful façade it has about 2 lac sq. ft. built up area and houses 6 operation theatres, intervention Cath lab, CT, MRI and most advanced technology acquisition for its intensive care services.

The hospital stands proud for its Intervention Cardiology, Joint Replacement program, Minimal Invasive Surgery, Oncosurgery program, Intensive Care units and high end diagnostic services including 1.5T MRI.

The hospital offers choice of selecting from economy rooms to most luxurious single rooms depending on affordability of the customers. It is well recognized and credited for its services and is empanelled with all major TPA, private companies of repute and even international TPA dealing with international medical travel patients. The hospital attracts more than 1500 international patients for their specialized medical care needs in a year.

Dedicated in providing dedicated and excellent care to its patients with consultation from experts from different specialties and departments. The Center follows

international cancer treatment protocols to offer a treatment that is holistic in approach. The characteristics of the cancer determine the treatment, which may be Medical and/or Surgical Oncology, including Chemotherapy, Targeted Therapy, and Immunotherapy.

Our doctors and surgeons in the oncology department are specialists in this field and aim to provide coordinated and holistic care that is focused on the complete needs of the patients

CLINICAL SPECIALITIES

- Oncology
- Anesthesia & Pain Management
- Dietetics & Physiotherapy
- Radiology
- CT Coronary Angiogram
- CT Aortogram
- CT Peripheral Angiogram
- CT guided Biopsy /FNAC / drainage procedures
- Virtual Colonoscopy
- Bronchoscopy
- CT Enterography
- CT Enteroclysis
- CT Perfusion studies
- MR Angiogram
- MR Mammogram
- MR Spectroscopy and Perfusion Imaging
- Functional imaging
- Diffusion Tensor Imaging
- Cartigram
- MR Arthrogram
- MRI Prostate
- MR Enterography
- MR Enteroclysis
- Antenatal MR Imaging
- Body Diffusion Imaging
- Whole body MRI screening

- Laboratory Services
- A full range of routine testing for hospitals
- Collection & transportation support
- Day-to-day operations management
- Pathology Services
- Patient Results On-line (PRO)
- Point of Care Testing (POCT); and
- Quality Assurance Program.

- Obstetrics & Gynaecology

- Dental & Maxillo Facial Surgery
- Emergency Medicine & Trauma
- Pulmonology and Respiratory Medicine
- Internal Medicine
- Orthopedics & Joints
- Cardiac Sciences
- Plastic, Aesthetic & Reconstruction Surgery
- Neuro Sciences

SERVICES & AMENITIES

- Lab & Diagnostics

The lab & Diagnostic Services of Rockland Hospitals is an NABL – accredited state-of-the-art department provides comprehensive diagnostic support to their clinical counterparts with a patient-centric approach. The department boasts of qualified and experienced laboratory faculty, with sufficient senior residents and finest equipments to ensure quality laboratory testing with shortest possible turnaround time at all levels.

- Amenities

- 100 beds
- 3 Operation Theaters
- 17 Intensive Critical Units
- Capacity expansion by Oct 2013 - enhanced capacity – 200 beds, 6 OTs, 52 ICU beds

- Services

- Provide all OPD & emergency services,
- Therapeutic, life saving and curative secondary care

INTRODUCTION

.Quality improvement (QI) consists of systematic and continuous actions that lead to measurable improvement in health care services and the health status of targeted patient groups. Quality is directly linked to an organization's service delivery approach or underlying systems of care. To achieve a different level of performance (i.e., results) and improve quality, an organization's current system needs to change.

To make improvements, an organization needs to understand its own delivery system and key processes. The concepts behind the QI approaches recognize that both resources (inputs) and activities carried out (processes) are addressed together to ensure or improve quality of care (outputs/outcomes). **Figure** 2.1 shows how a health care delivery system consists of resources, activities, and results; these key components are also called inputs, processes, and outputs/outcomes:

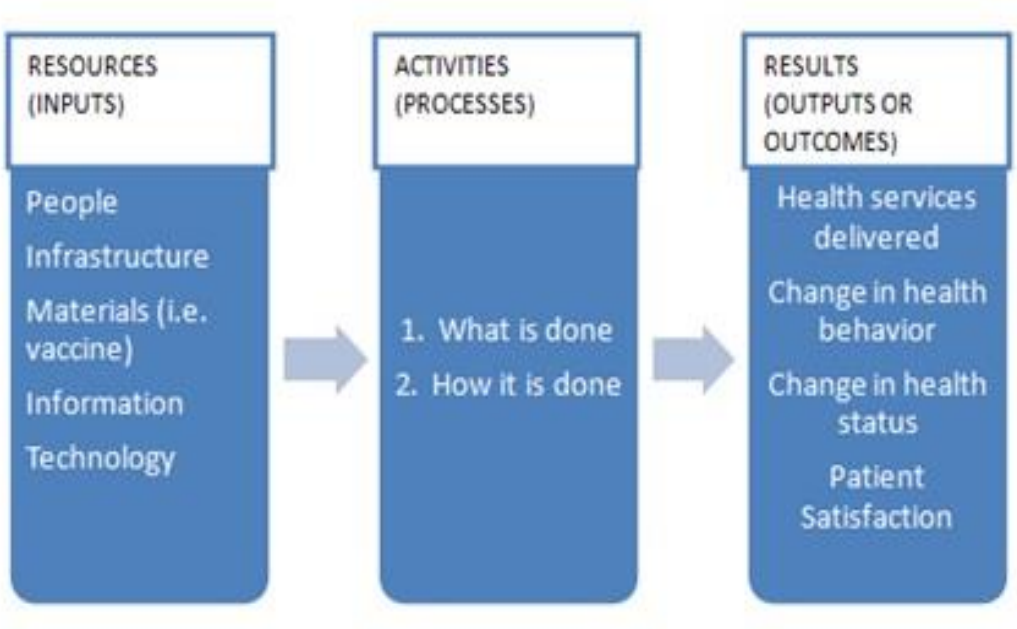

Figure 2.1: Inputs, Processes and Outputs/Outcomes

Activities or processes within a health care organization contain two major components:

1) what is done (what care is provided), and

2) how it is done (when, where, and by whom care is delivered).

Improvement can be achieved by addressing either component; however, the greatest impact for QI is when both are addressed at the same time.

Lean

Lean methodology –the basis of the world famous Toyota production model – aims to provide what the customer wants, quickly, efficiently and with as little 'waste' as possible. Its application to healthcare lies in streamlining and improving the quality of processes by minimising or eliminating waste (including unnecessary delays, re-work, inappropriate procedures and errors) and maximising what adds value to patients.

Creating a Process Map of the Current State

Process mapping technique is an ideal method to understand how patients proceed through the care delivery system. Process mapping is a tool commonly used by an organization to better understand the health care processes within its practice system. This tool gained popularity in engineering before being adapted by health care. A process map provides a visual diagram of a sequence of events that result in a particular outcome. By reviewing the steps and their sequence as to who performs each step, and how efficiently the process works, an organization can often visualize opportunities for improvement. The process mapping tool may also be used to evaluate or redesign a current process.

Process maps are an effective way to identify constraints and bottlenecks, rework (activity required to correct situations that could have been avoided) and unnecessary process steps (duplication, waste and error).It is unlikely that any one member of staff will fully understand the whole service until the process has been mapped. Process mapping is the single most useful diagnostic tool for determining where problems lie. Understanding the process from the patient perspective is essential if patient focussed service improvements are to be made.

The process map must always depict the total number of steps taken, as well as the total number of people involved, the total time taken to perform the process step, and all documents used.

Identifying Waste in the Current Process

1. Confusion: People doing the work are not confident about the best way to perform Tasks
2. Motion (Movement): Is there unnecessary (non-value-added) movement of parts, materials, or information between processes?
3. Waiting: Idle time created when people, information, equipment, or materials are not at hand
4. Processing (Extra Processing): Activities that do not add value from the patient's perspective. When unnecessary hands (and brains) touch the patient or product
5. Defects: Work that contains errors or lacks something of value. Does the process result in anything the customer would deem unacceptable?
6. Overproduction: Redundant work. Are we producing sooner, faster, or in greater quantity than the customer needs?
7. Inventory: More materials on hand than are needed to do the work.

REVIEW OF LITERATURE

Since the United Kingdom established the National Health Service in 1947, long waiting times in outpatient clinics have become infamous, as Paul and Kuljis (1995) highlight by referring to a report by Thakar and Malin (1989). To abate such excessive waiting times, Finland in 2005 fixed a legal maximum of six months between a treatment decision and its execution (Paavola, 2008).

Consequently, hospitals are under pressure to resolve situations in which waiting times for treatments have become illegally long. Decreasing waiting and treatment times can reduce costs while increasing accessibility. Hall et al. (2006) identify three goals of a healthcare system: minimisation of the cost of services; maximising convenience and access to services; maximisation of the likelihood of a positive outcome from the service. Reducing delays in healthcare contribute to these goals by reducing cost through removal of inefficiencies, improving timely access to services and reducing waiting time for needed service.

The progressive steps of outpatient's services, including multiple activities identified by the patient's experience, are important in improving processes In their text on advising healthcare organisations on ways to achieve continual improvement, Marszalek-Gaucher and Coffey (1990) advocate improvements to systems or processes for enhancing quality and cost-effectiveness. [3]

Elkhuizen et al. (2006) expressed that business process redesign is used to implement organizational transformation towards more customer-focused and cost-effective care. Hall (1989 in Hall 2006) claims that solutions to delay problems concern processes relating to service, arrival or queuing—these processes are in order of priority. That is, consider the needs of patients first. If solutions are not forthcoming, then explore changes to patterns in patient arrival. Finally, if all else fails, resort to managing queues. From the perspective of a delivery model, hospitals transform inputs to outputs through clinical, management and ancillary processes (Visors, 1998).

According to Côté (2000), once a health care facility has an understanding of its patient flow, these flows can be used to improve the facility's operation (Côté, 2000). Therefore, efficient patient flow may be a key to achieve operational efficiency in the outpatient department (Kunders, 2004).

According to Wanyenze et al. (2010) a number of factors can influence efficiency and the emergence of bottleneck in health care operation during examining operational efficiency with regard to patient flow. These factors include the volume of patients seen on the daily basis, the types of patient seen in terms of stage of care, clinic policies on frequency of patient visits, the type of provider who they should see, the size and composition of the providers and the staffing model.

In health care, the traditional concept of operational efficiency mainly deals with the work study, activity analysis and cost analysis. But now it also examines the content of activities, the potential contribution of new technologies and modalities of care on form of practice and organization. Additionally, it examines the mechanisms by which patient

flow is coordinated among outpatient, inpatient and extended care facilities in order to achieve an appropriate match of resources to patient needs (Grover, et.al., 1990).

Langabeer, in his book *Health care operation management: a quantitative approach to business and logistic*, points out the following five principles for improving operational efficiency:

1) Observe movement pattern, volume and distance travelled, and analyze the length of time to move staff, supplies and other resources through the hospital system.

2) Separate patient flow from the staff to reduce overcrowding in corridor, confusion and delay that is essential to improving patient satisfaction and operational efficiency.

3) Focus on interdepartmental movement and activities on each floor.

4) Centralize services and resources, and reduce their geographical distance from patient examinationroom to minimize number of trip and total distance travel.

5) Use optimization to minimize costs.

Here it can be noted that among the above five principles of operational efficiency, four are related to the movement and patient flow through the system. This implies that to operate hospital service delivery system efficiently, the design, planning, implementation and control of coordination mechanisms among patient flows and diagnostic and therapeutic activities are important (Vos et al, 2007).

Besides this, patient satisfaction is now considered as an operational priority and an integral part of a health care organizational culture (Cardello, 2001; Parente, et al., 2005). Although there is no definite definition about the actual dimension of satisfaction, numerous studies have cited the importance of "access" as a determinant of satisfaction (Parente, et al., 2005).

According to Murry & Tantau (1999), access refers to patient ability to seek and receive primary care in a timely manner. By decreasing the total time each patient spent to get the service in outpatient department, medical providers are able to serve more patients in the same amount of time, thereby improving operational efficiency and patient satisfaction. Therefore, it is important to optimizing the flow of patient though out the hospital system to achieve operational efficiency.

In healthcare, patient flow is a process by which patients are served through multiple stage of care. From a clinical perspective, patient flow represents the progression of a patient's health status. In contrast, from an operational perspective, patient flow means the movement of patients through a set of locations (Côté, 2000).

According to Hall (2006), patient flow represents the ability of the healthcare system to serve patients quickly and efficiently as they move through stages of care. Blockage in the flow can increase waiting and through put time creating a negative effect on the quality of service delivery (Vos, 2007).

When patient flow is handled well, it is represented by short wait at registration, examination, diagnostic testing, surgery, placement in beds, and discharge (Belson, 2010).

Thus, improving patient flow is one way of improving healthcare services. The Institute of Medicine's (IOM) which is a recognized leader and advisor on improving the Nation's health care, defines quality in health care as a direct correlation between the level of improved health services and the desired health outcomes of individuals and populations.

A "process map" visually describes the flow of activities of a process. A process flow can be defined as the sequence and interactions of related process steps, activities or tasks that make up an individual process, from beginning to end. A process map is read from left to right or from top to bottom.

Standard symbols are used within a process map to describe key process elements. These symbols come from the Unified Modelling Language or UML, which is an international standard for drawing process maps. There are many symbols that can be used.

Process maps are used to develop a better understanding of a process, to generate ideas for process improvement or stimulate discussion, build stronger communication, and — of course — to document a process. Often times a process map will highlight problems and identify bottlenecks, duplication, delays, or gaps. Process maps can help to clarify process boundaries, process ownership, process responsibilities, and effectiveness measures or process metrics. Process maps can be very effective at increasing process understanding during training.

Process maps are not limited to a single department or function. For example, the ISO 9000 Quality Management Systems standard requires some type of process map of the organization's quality processes. Mapping should be the first step in designing a process or in documenting a procedure.

This tool helps to map the whole patient journey or diagnostic pathway with a range of people who represent the different roles involved. Mapping the whole patient journey will give opportunities for improvement by visualising how the whole patient journey currently works and identifying points of inefficiency. It can capture the reality of a process and identify duplication, variation, and unnecessary steps. It also sparks good ideas and helps a team to know where to start to make improvements that will have the biggest impact for patients and staff.

It is a great way of revealing the complete process - rarely does a single healthcare worker know all the processes / people involved in the patient journey. It will help staff understand how complicated the systems can be for patients, showing how many times the patient has to wait (often unnecessarily) and how many different people a patient meets.

OBJECTIVES

1) To carry out process mapping of Out Patient Department at Rockland Hospital, Qutab Institutional area, New Delhi for:

a) To understand the patient route and functioning of OPD.

b) To identify constraints and bottlenecks, rework (activity required to correct situations that could have been avoided) and unnecessary process steps (duplication, waste and error) that add no value to process.

c) To calculate the waiting times and task times at each point of contact in the process.

2) To suggest changes required for the improvement and enhancement of the services.

METHODOLOGY

Study design: Cross sectional study

Study area: Rockland Hospital, Qutab institutional area, New Delhi

Study population: Patients coming to OPD for consultation and diagnostics.

Study period: 1th of February to 30th of April, 2014

Sample size: 50 patients coming for consultation in OPD in the study period. (25 cash patients and 25 panel patients)

Sampling method: Random sampling, every 15th patient coming for consultation during OPD hours of 9 a.m to 4 p.m.

Data collection tool: Checklist of timings

Data collection technique: Tracing technique (tracking and observation of out-patients from entry to exit)

Data analysis: Microsoft Excel, Microsoft Visio

VARIABLES:

1) Hands off: number of times the patient is passed from one person to another.
2) Task times: the approximate time taken for each step.
3) Wait times: the approximate time between each step.
4) Total time: the approximate time between the first and last step.
5) Value adding activities

DATA ANALYSIS AND RESULTS

PATIENT FLOW PAYER WISE FROM OCT 13- NOV 13

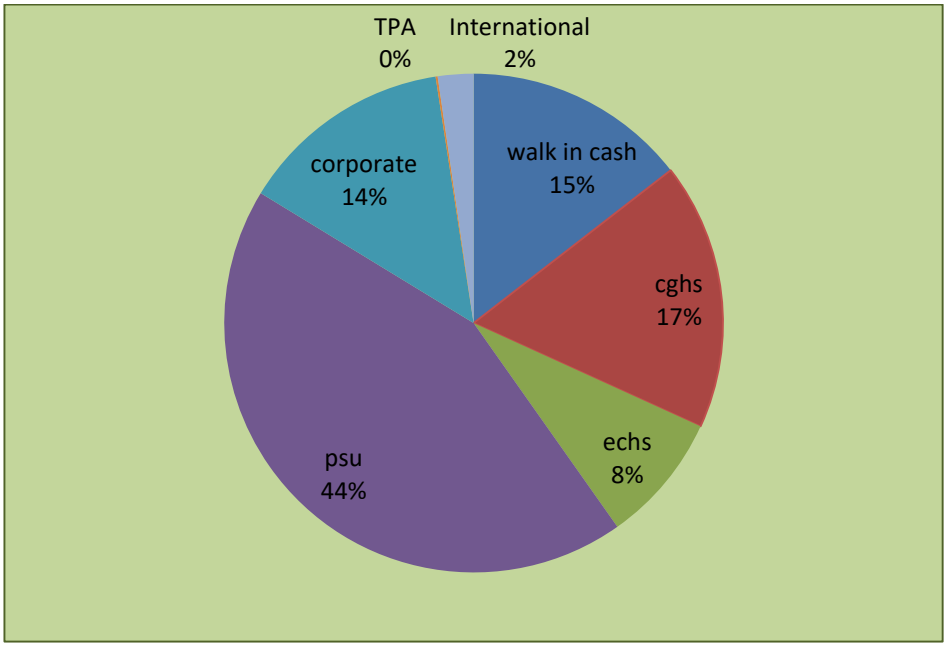

Figure: 6.1 OPD breakup payer wise for Oct 13

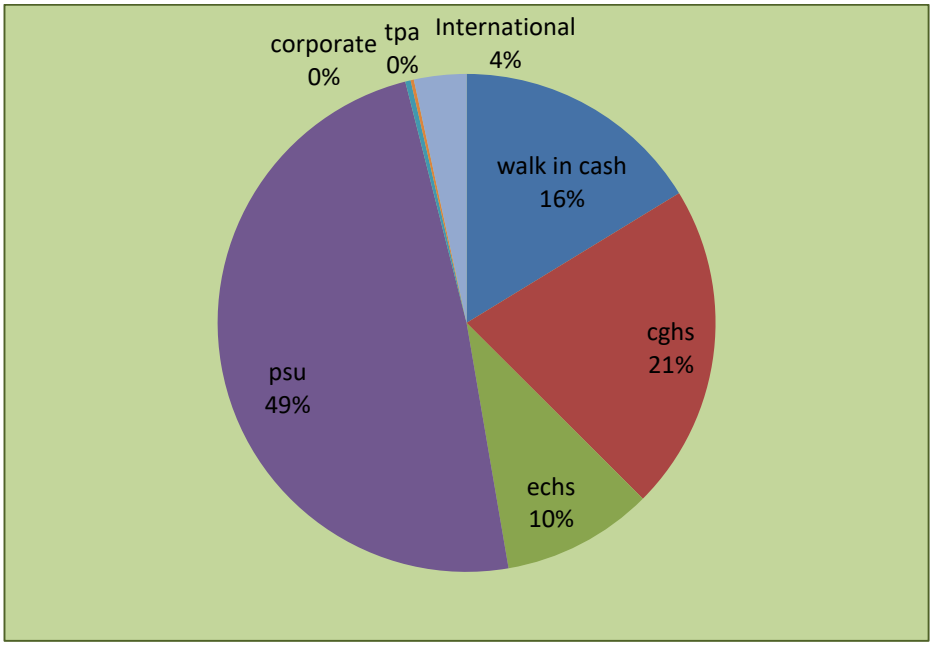

Figure:6.2 OPD breakup payer wise for Nov 13

FLOWCHART REPRESENTING PATIENT FLOW PROCESS OF THE OPD OF ROCKLAND HOSPITAL

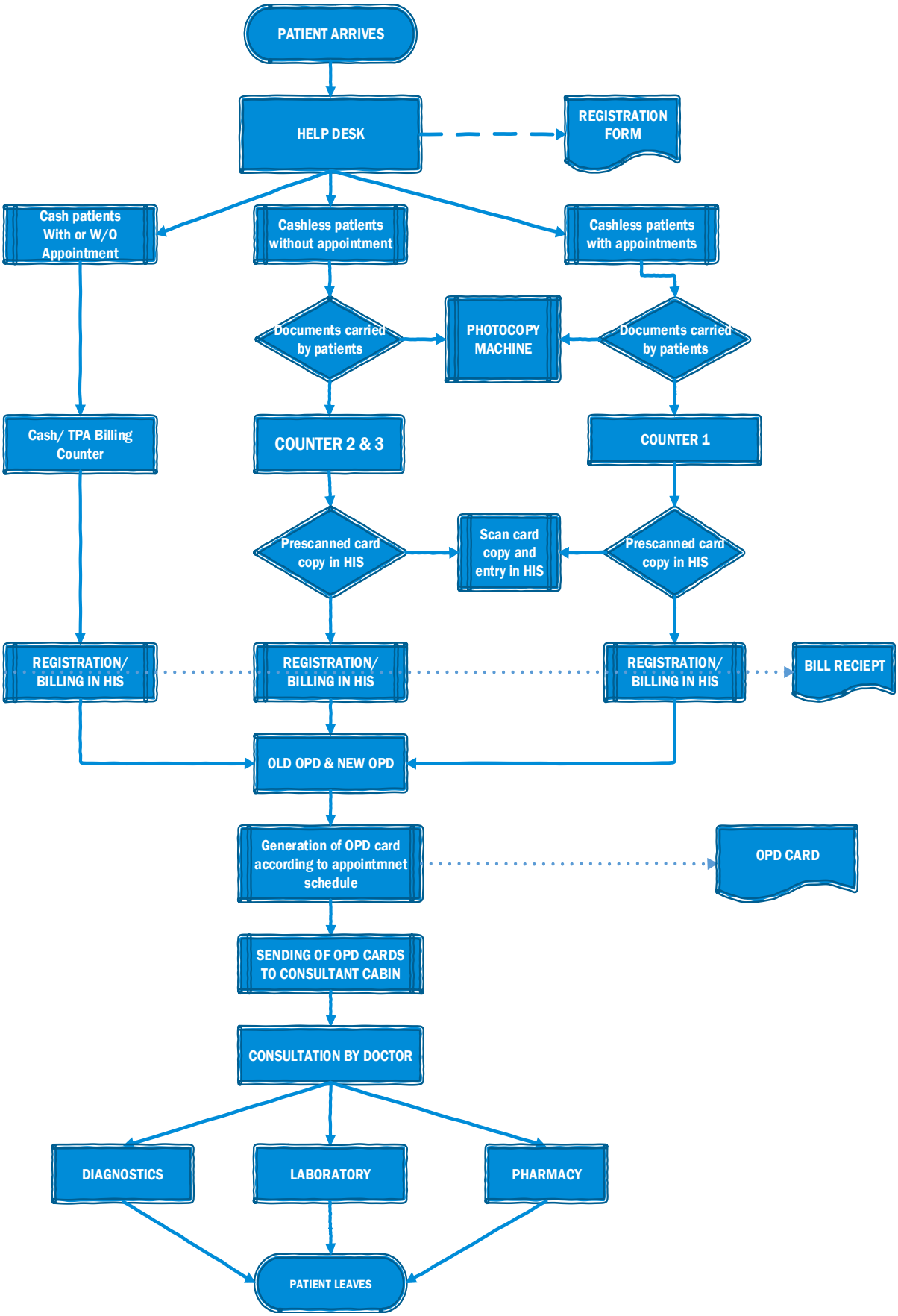

Figure 6.3

WAITING TIME FOR PANEL PATIENTS

Table 6.1

ACTIVITIES	AVERAGE IN MINUTES
HELP DESK	2.10
CONSULTATION BILLING	25.26
GENERATION OF OPD CARD	2.13
CONSULTATION BY DOCTOR	46.16

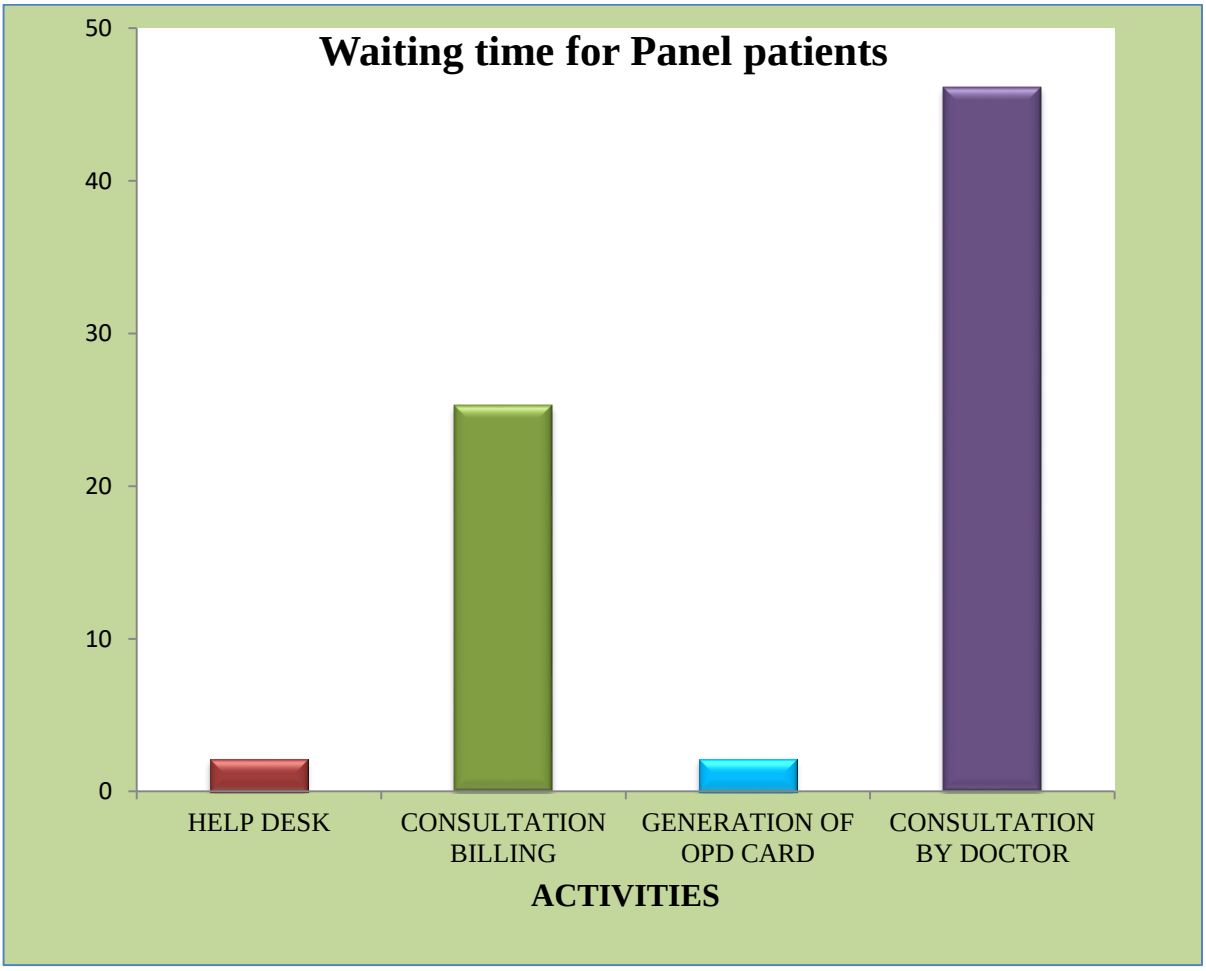

Figure 6.4

WAITING TIME FOR CASH PATIENTS

Table 6.2

ACTIVITIES	AVERAGE IN MINUTES
HELP DESK	1.00
CONSULTATION BILLING	14.11
GENERATION OF OPD CARD	2.09
CONSULTATION BY DOCTOR	40.18

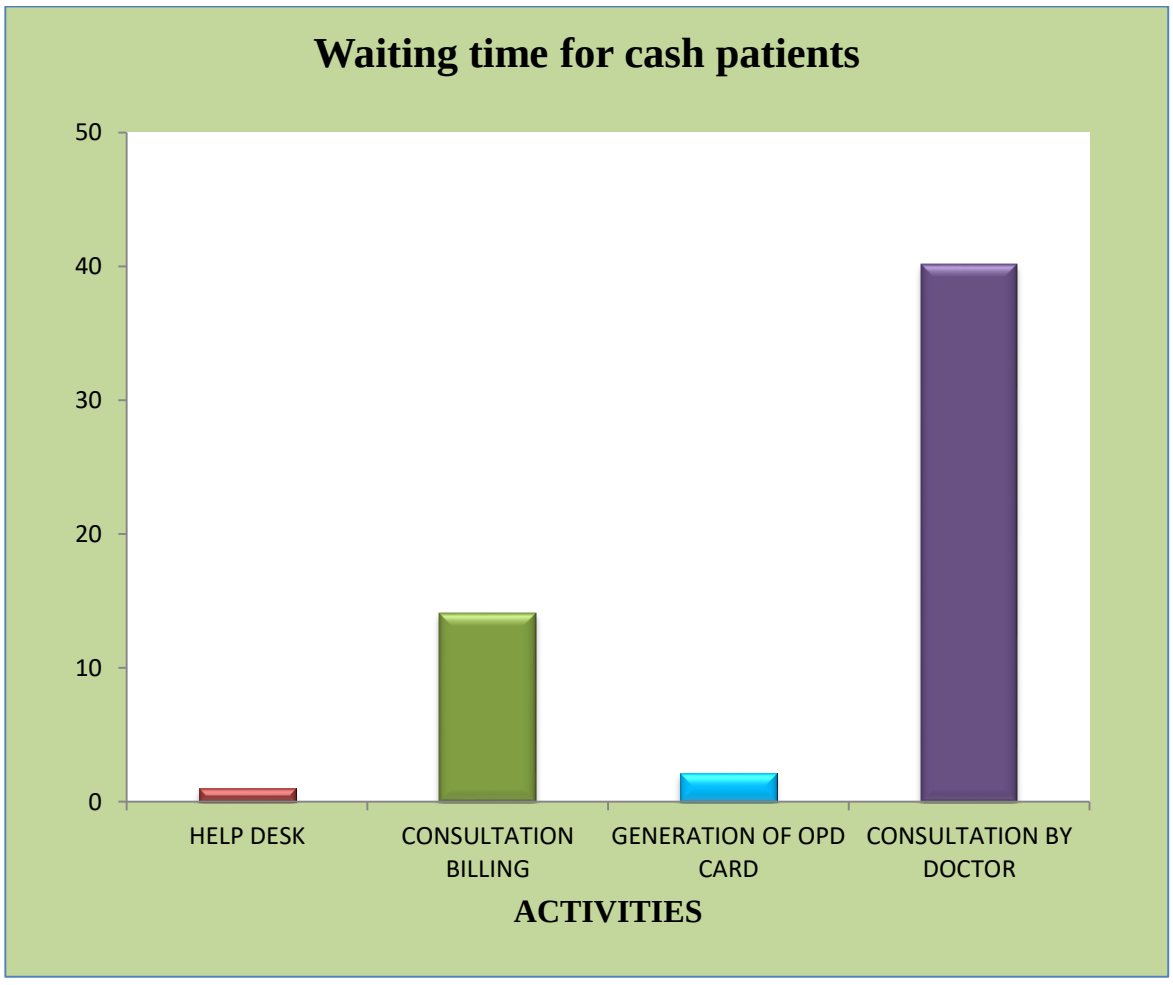

Figure 6.5

TASK TIMES FOR PANEL PATEINTS

Table 6.3

ACTIVITY	AVERAGE
HELP DESK:	5.44
CONSULTATION BILLING	14.35
GENERATION OF OPD CARD	1.12
SENDING OF OPD CARD TO CONSULTANT CABIN	1.41
CONSULTATION BY DOCTOR	8.53

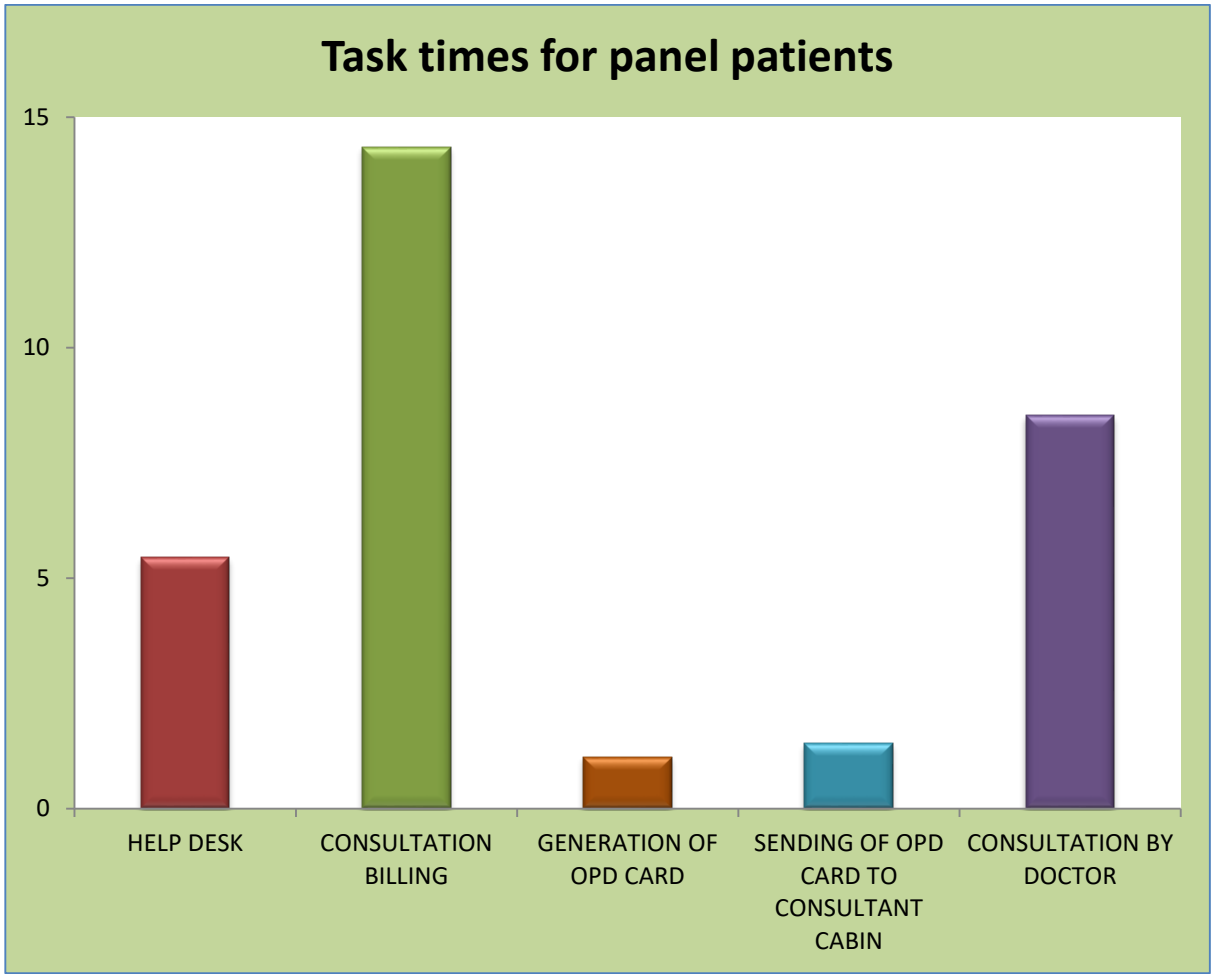

Figure 6.6

In the above table task times for each activity for panel patients is shown. Chart shows that maximum time is spent in billing for consultation. Help desk also takes approx 5-6 minutes.

TASK TIMINGS FOR CASH PATIENTS

Table 6.4

ACTIVITY	AVERAGE
HELP DESK	2.24
CONSULTATION BILLING	5.22
GENERATION OF OPD CARD	1.09
SENDING OF OPD CARD TO CONSULTANT CABIN	1.47
CONSULTATION BY DOCTOR	8.25

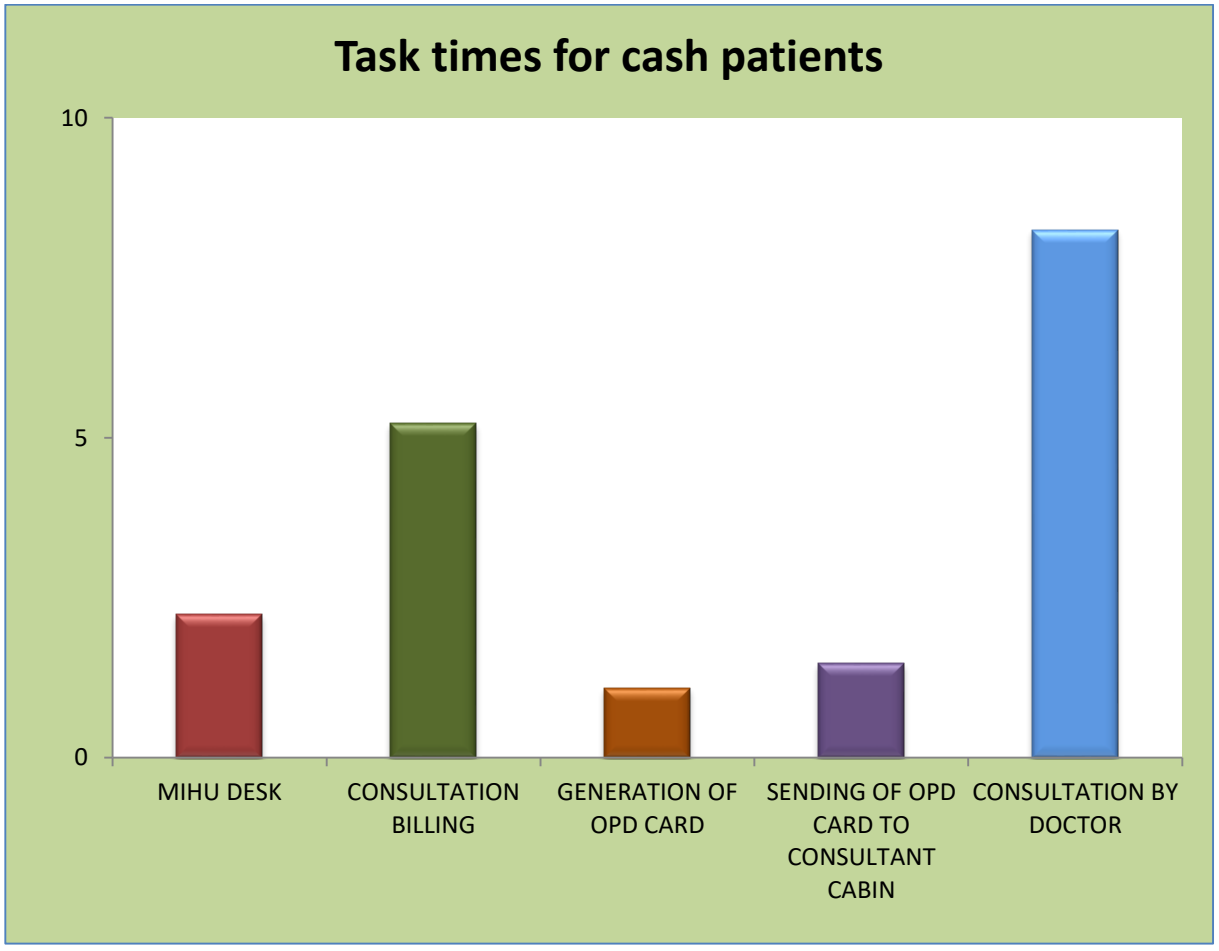

Figure 6.7

In the above table task times for each activity for cash patients is shown. Chart shows that maximum time is spent in billing for consultation.

COMPARISON OF TASK TIMES FOR CASH V/S PANEL PATIENTS

Table 6.5

ACTIVITY IN MINUTES	CASH	PANEL
MIHU DESK	2.24	5.44
CONSULTATION BILLING	5.22	14.35
GENERATION OF OPD CARD	1.09	1.12
SENDING OF OPD CARD TO CONSULTANT CABIN	1.47	1.41
CONSULTATION BY DOCTOR	8.25	8.53

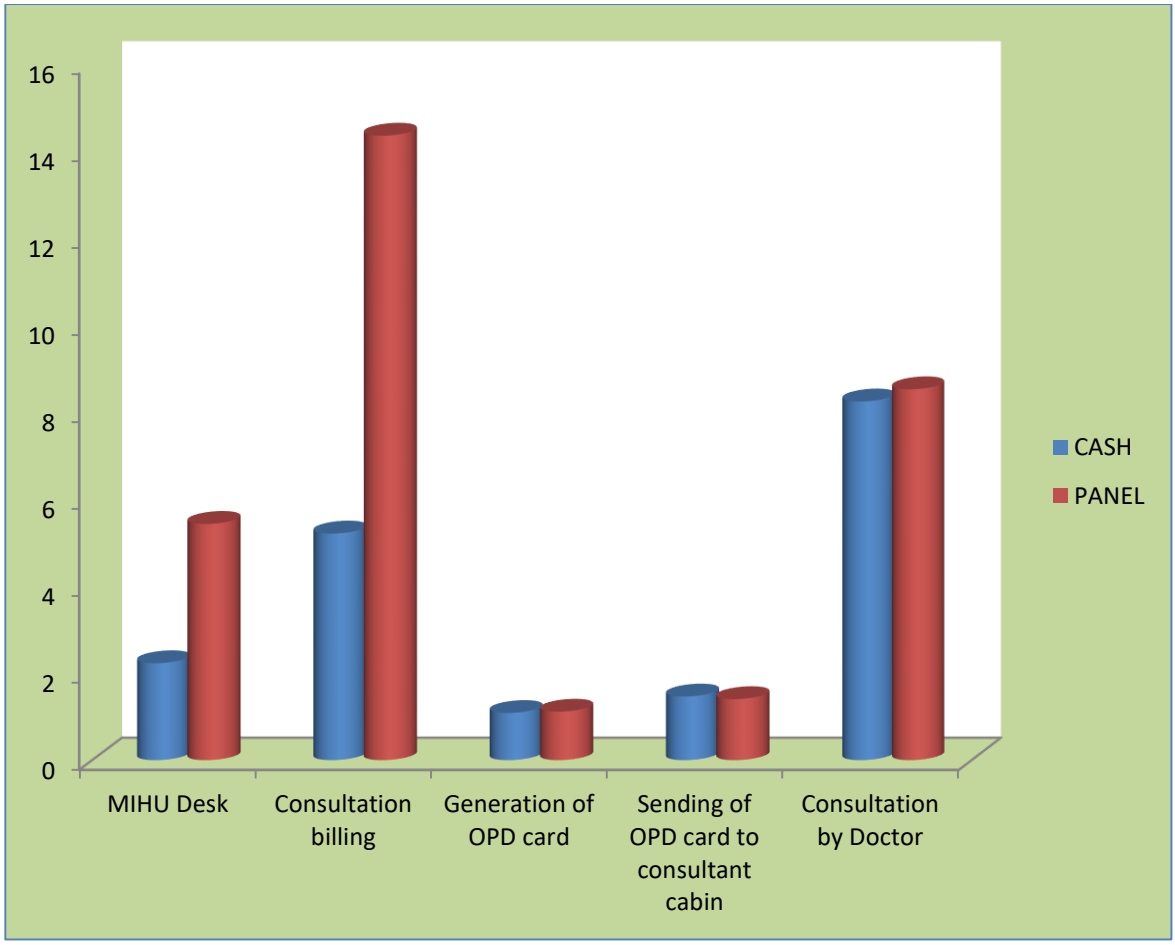

Figure 6.8

Task timings for consultation billing is much higher as compared to cash patients. Every activity takes longer time to complete for panel patients.

COMPARISON BETWEEN WAITING TIMES OF PANEL V/S CASH PATIENTS

Table 6.6

ACTIVITY	CASH	PANEL
HELP DESK	1.00	2.10
CONSULTATION BILLING	14.11	25.26
GENERATION OF OPD CARD	2.09	2.13
CONSULTATION BY DOCTOR	40.18	46.16

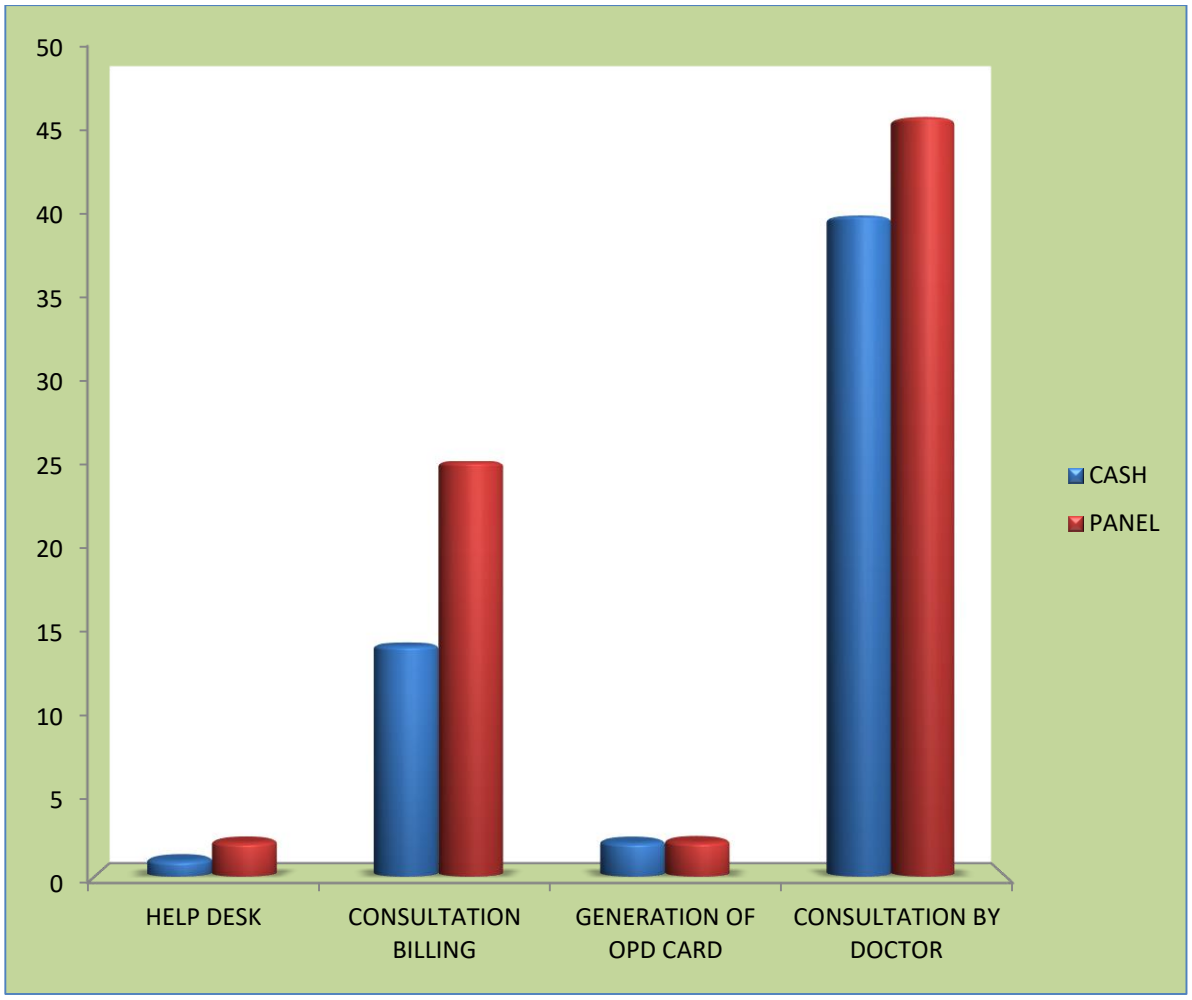

Figure 6.9

The above graph does the comparative analysis of waiting times for cash vs panel patients for each activity. It shows that for consultation billing panel patients have to wait for more than 15 minutes in queue while cash patients also wait for 8- 10 minutes in queue.

NUMBER OF HANDS-OFFS IN THE PROCESS

The following presentation shows the number of times a patient is passed from one person to other in the process of consulting a doctor in OPD.

There are approx 10 hands off in the overall process.

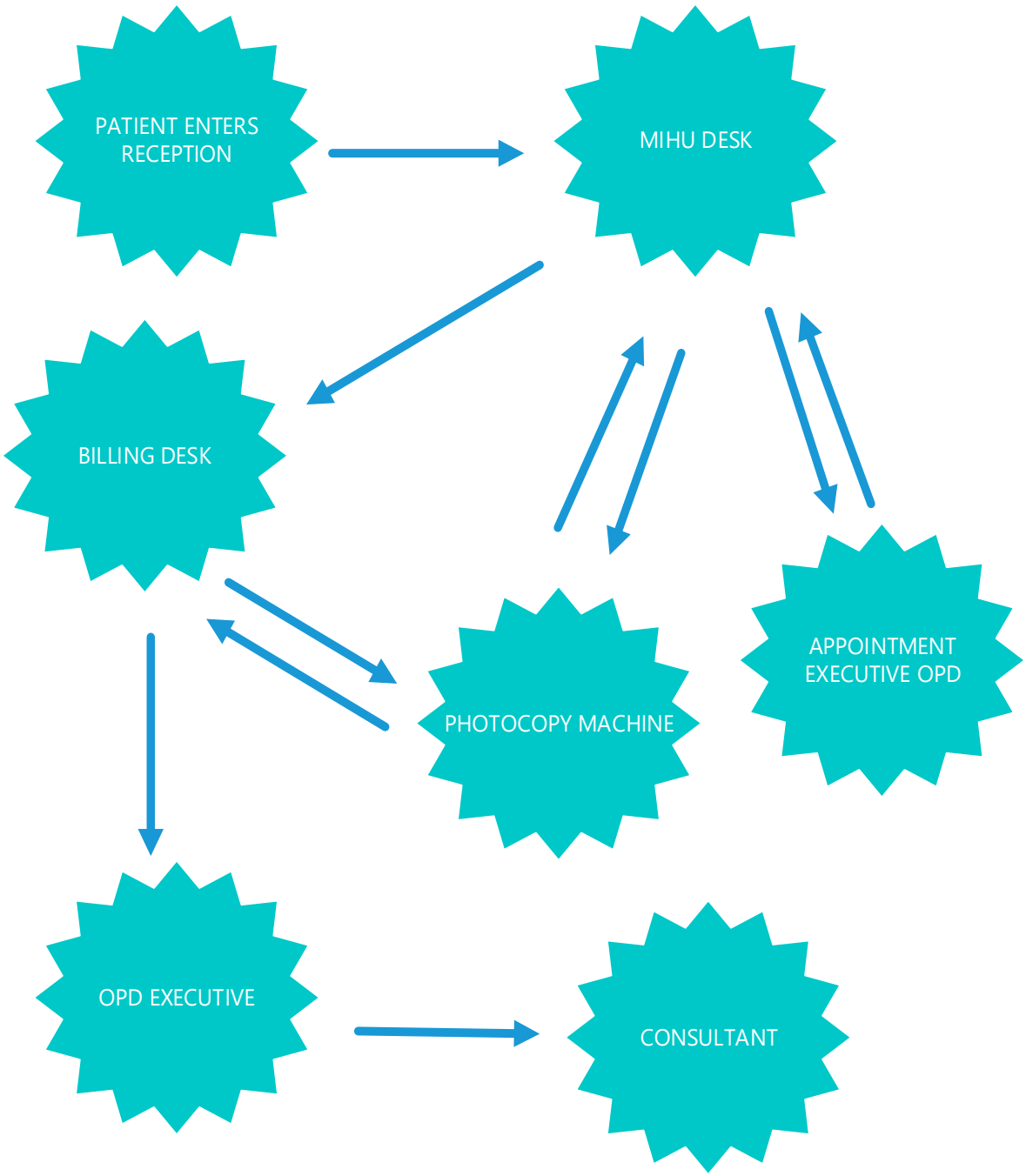

Figure 6.10

PROCESS BOTTLENECKS

The process that takes the longest time to complete referred to as the 'rate limiting step or task' in a process.

TOTAL TIME AT EVERY STEP IN THE PROCESS FOR THE PANEL PATIENTS:

Table 6.7

STEP	TOTAL TIME AT EACH STEP
MIHU	7.54
Billing	40.01
Card Generation in OPD	5.06
Consultation	55.09
Total time	108.10

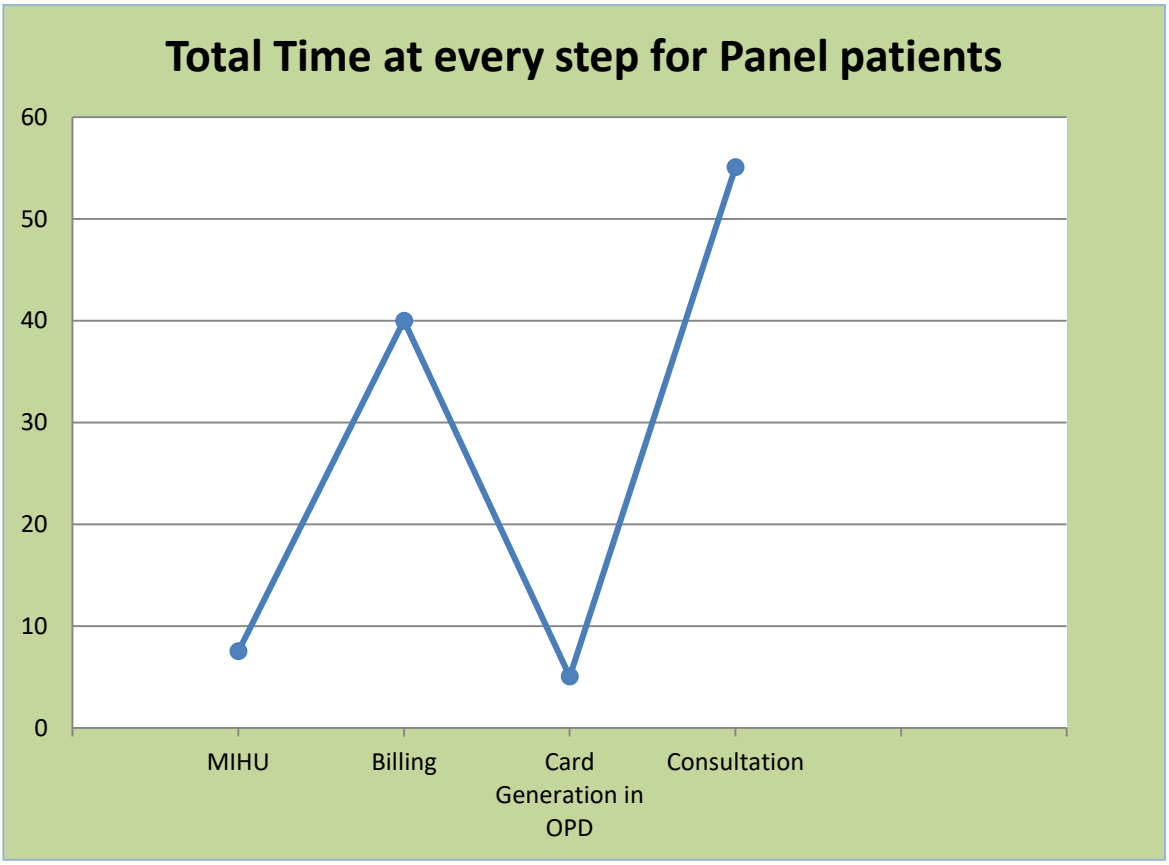

Figure 6.11

TOTAL TIME AT EVERY STEP IN THE PROCESS FOR THE CASH PATIENTS:

Table 6.8

STEP	TOTAL TIME AT EACH STEP
MIHU	3.24
Billing	19.33
Card Generation in OPD	5.05
Consultation	48.43
Total time	76.05

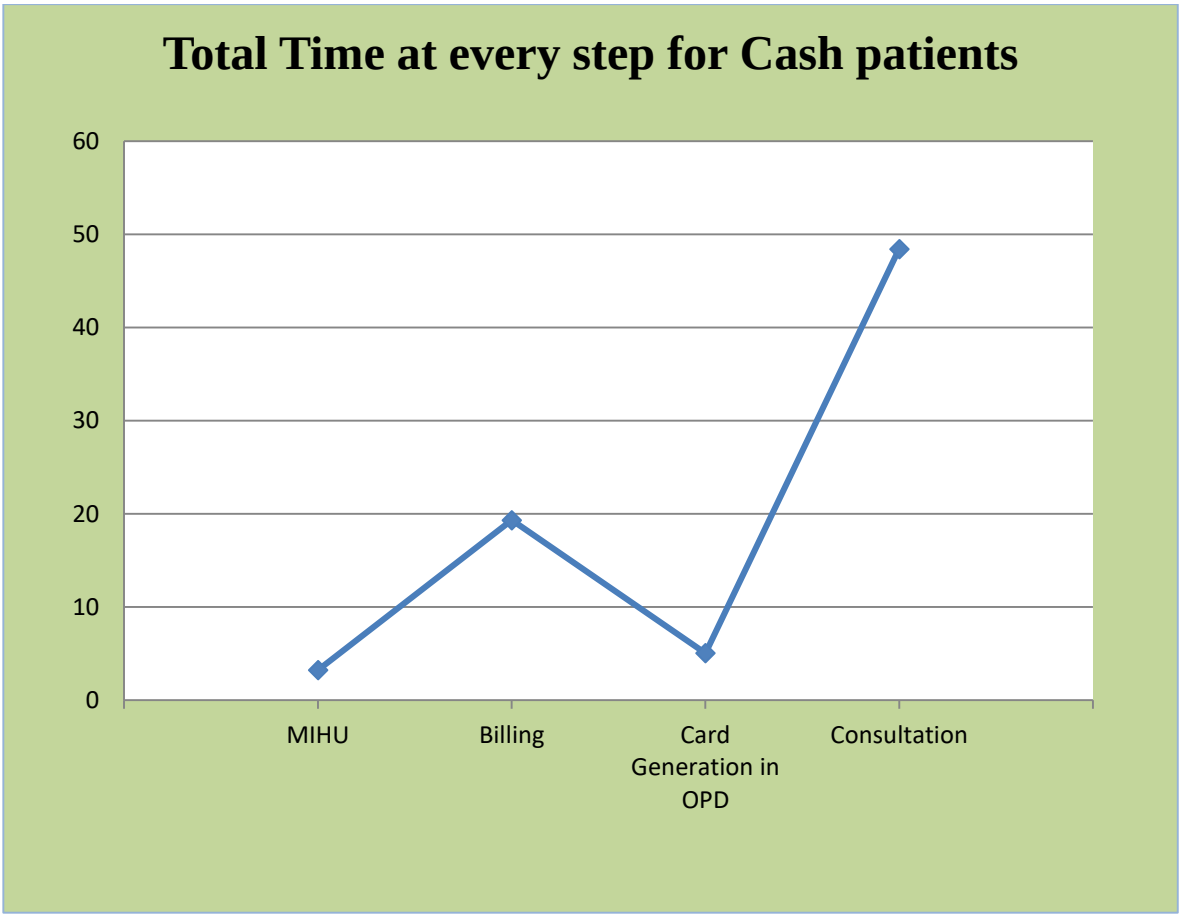

Figure 6.12

The above graphs shows the rate limiting steps are billing and consultation by doctor as they take maximum time to finish.

ROOT CAUSE ANALYSIS OF INCREASED WAITING TIME AND TASK TIMES IN THE PROCESS

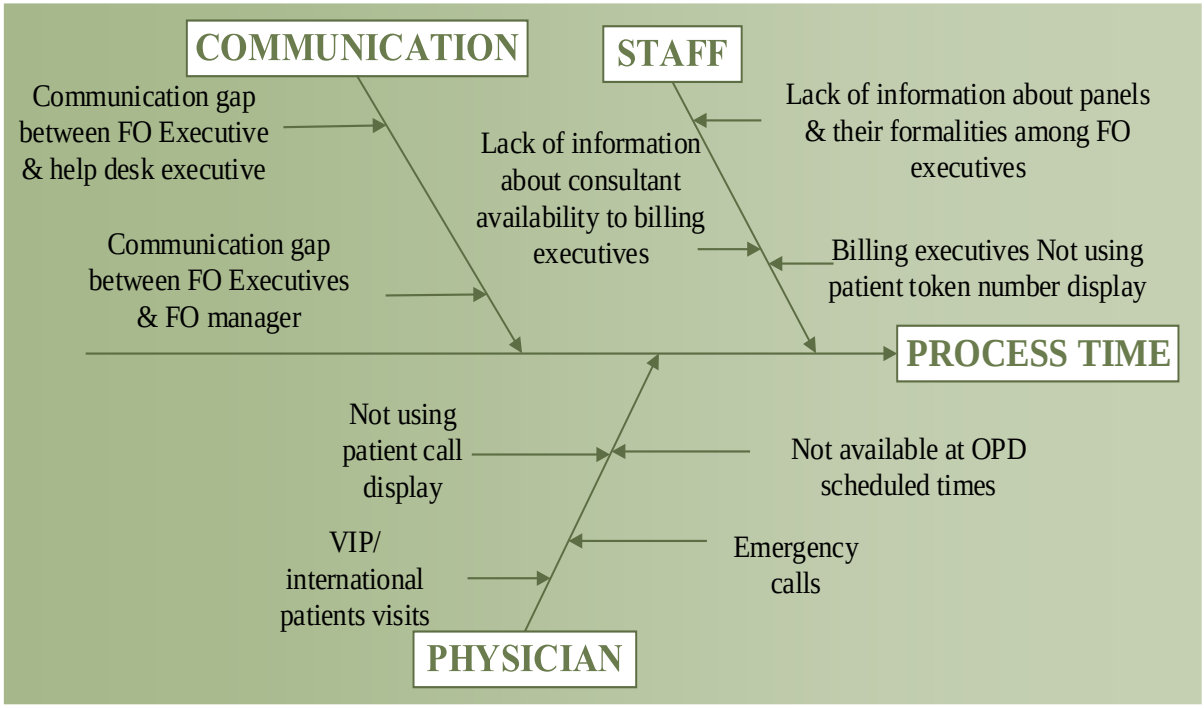

Figure 6.13

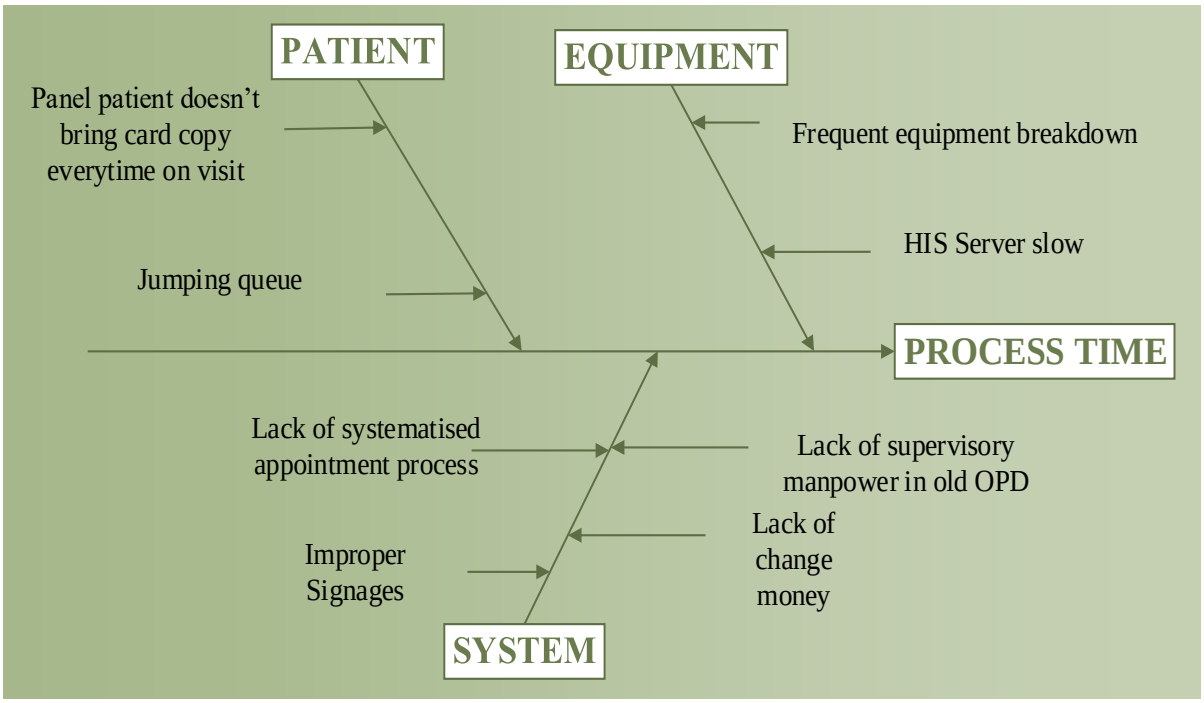

Figure 6.14

GAP ANALYSIS OF PROBLEMS IN THE PROCESS

TABLE 6.8

Problem	Root Cause
Overcrowding at help desk	• Signage not visible • Lack of space • Handled by Single staff
Long queue at billing counters	• Redundant Token system for display of patient's number for billing. • Counters not utilised according to defined category. • Lack of space for sitting of patients • Frequent slowing down of HIS server • Printer/scanner and other IT hardware breakdown frequently during peak hours
Overcrowding in Old OPD v/s New OPD	• Major clinical specialities placed in old OPD • Diagnostic billing of same specialties in their respective OPD • Consultants coming late for OPD • Consultants going for IPD rounds during OPD hours • Patient call display redundant leads to queuing in front of doctors chamber.
Dissatisfaction among panel patients	• Lack of appropriate information on formalities in case of panel billing • Have to get panel card & related documents photocopies on every visit.

Problem	Root Cause
Dissatisfaction among cash patients	• Have to wait for more than 2 hours for getting consultation. • Counter dedicated for cash billing. preoccupied by panel patients • Card swipe machine breakdown frequently. • Weak appointments system management in the process. • No one responsible for solving their queries complains leading to confusion.
Dissatisfaction among staff	• Lack of coordination among executives • Lack of proper supervision from senior managerial staff of concerned department. • Lack of information on availability of consultants during OPD hours. • Improper information on requirements of panels attached.
Unmet Quality standards	• Lack of standardised signage system of the concerned departments • Proper sorting, storage, standardisation of materials like papers, stationary items, cash money, OPD cards etc lacking in system.

IDENTIFICATION OF NON VALUE ADDING ACTIVITIES AND THEIR IMPACT IN THE PROCESS:

TABLE 6.9

Non value adding activities in the process	Average Time taken for non value adding steps	Impacts
Token distribution by help desk executive	35 seconds	Increases task times and waiting times
Sending patients for getting photocopy of documents more than twice.	2 minutes	Increases process task times
Prescription cards generation in OPD(stamping and writing date & concerned doctor on hospital letter head)	1.30 minutes	Increases a whole new step in the process
Unavailability of change money with the billing executives	-	Increases task times and waiting times
Patients having prior appointments with the doctor are not given preference	-	Dissatisfaction among patients regarding appointment process.
Old OPD lacks OPD in charge	-	No responsible authority to entertain patient leads to dissatisfaction among patients
Improper signage system	-	Increases over all process times

DISCUSSION

The Figure 6.1 & 6.2 shows broad breakup of OPD footfalls payer wise according to which the flow of the process is designed. 65% to 80% patients' footfall is from various PSU's, ECHS and CGHS, while only 20% to 31% of patients are walk in cash, TPA, corporate and international. Although it is seen the volume is far more from the panels but even than walk in cash/TPA and corporate patients are major sources of revenue. Thus in order to achieve efficient delivery of services in less time, the process is designed in an effective way.

Flowchart in Figure 6.3 shows the actual map of the patient flow in the process. It can be seen that to cater both the groups different counters are in place. For large volume of panel patients 3 dedicated counters are in place out of which one is only dedicated for patients with appointments. There is separate counter for Cash/TPA patients to give them immediate service without delay. The OPD's are divided into new and old blocks according to the speciality of clinical services. Even the system is designed in an efficient way, yet due to many constraints and bottlenecks the process is not able to deliver an effective result i.e. satisfaction among patients. These can be seen in the detailed analysis of waiting time and task times. The hospital has defined its quality objective as waiting time for billing consultation not more than 15 minutes and after billing not more than 30 minutes, but deviations are seen in the analysis.

Waiting for consultation by the specialist takes maximum time for both the cash and panel patients, majorly due to unavailability of doctors on the scheduled OPD hours. Billing for consultation for panel patients takes a much longer time to complete. It can be attributed to the fact there is heavy documentation work for these types of patients, also the slow response of the HIS server seen many times during the study period contributed to be a major reason. The billing task times and waiting times for cash patients is also high because sometimes the counter was preoccupied by the panel patients and sometimes due to issues like swipe machines not accepting cards, or unavailability of change cash. In-coordination of work between the help desk executives, billing executives and OPD executives also gave rise to longer process times.

Root cause analysis of the increased process times in Figure 6.13 & 6.14 shows various causes in detail. Figure 6.10 shows the total number of times the patient is transferred from one desk to other. It can be seen that sending a patient for photocopy of documents increases the number of steps in the process, also the waiting time is also increased as sometimes patient has to leave the queue for the task.

The rate limiting step for in the whole process is consultation with the doctor. This step needs special attention and improvements are required here. It can be done with instructions to the doctors to follow OPD schedules strictly or adhering to the appointments system very strictly both for the patients and consultants.

Table 6.9 shows the non value adding activities in the whole process and their impacts. The non value adding activities are those that add no value either to the process or to the patients. Modification or removing these steps can create a more efficient service delivery system.

SUGGESSTIONS/ RECOMMENDATIONS

1. Resource optimization

- There should be minimum 2 executives assigned at reception desk for better management of tasks. Currently single staff has to manage queries, check for patients appointments, guiding patients for billing, address PA system etc. This will also serve as beneficial at time of absence of one staff from desk, other would be available. Moreover the staff at reception counter should be young, energetic & presentable which is currently lacking in the process.
- The front office and billing staff should have shifts scheduled at different counters so that they can manage well even at times of staff crunch. Further this will break monotony of work leading to better management of work.

2. Strict scheduling of OPD hours

- Consultants should follow OPD schedules as per designated times at all days to avoid unnecessary waiting times for patients.
- The doctors should complete their rounds early in the morning, i.e. from 7.30 a.m. to 9 a.m. They should start their OP consultations from 9 a.m. and send patients for investigations and ask them to come the next morning for review.

3. Strengthening of the Appointments system

- There should be a staggered system of appointments. This will ensure that patients come to see the doctors evenly and there will be orderliness. Thus there will be less crowding of new and old patients.
- Strict appointments should be in process for panel patients.
- Alternate methods of appointments like email appointments, online appointments and SMS should be utilised thoroughly.
- One day prior to appointment patients should be informed about their slots via telephone reminders.

4. Creating an information centre

- Good dispersal of information regarding availability, timings and charges of doctors can be done via the hospital website to inform the patient in advance.
- Requirements in case of panel patients with reference to their panels can be displayed on hospital website or communicated to them through other means like signages, hospital call centres etc.

5. **Trained to Soothe**

- The front office executives should also have a good knowledge of the process in whole.
- A 'Patient Relations Executive' should always be available in the OPD area for the patient's convenience and to resolve any issues on the spot.
- FO Staff should be frequently trained on associated panels and their requirements as it could save process time while handling queries regarding billing of such patients.

6. **Remodelling patient flow**

- Provision for photocopy machine should be made near to reception and billing counters to avoid unnecessary hands-off during patient's journey as well as to reduce time.
- Counters for panel patients should be placed entirely at different area of facility so as to avoid overcrowding at reception.
- Further streamlining of the OPD area can be achieved by segregating OPD patients into corporate/walk-ins and appointments.

7. **Informed Technology**

- Token system for billing should be revived with necessary changes, as it will help in reducing queue building at the counters by avoiding frequent enquiry.
- Electronic Patient Call Display System to display turn in OPD should also be revived to avoid overcrowding.
- Newer technologies like smart cards for quick patient records retrieval, Express registration interactive kiosks for patients to feed in their personal details can be implemented.

8. **Make it an Experience**

- Non value adding activities should be eliminated/ modified from the overall process.
- Signage should be made more visible and in dual language at all areas in OPD & FO.
- Providing magazines, newspapers and installing a television in the waiting room and supplying coffee, tea or water would delight the patients. These may not cost much, but the patients will put up with the waiting time.

CONCLUSION

Current problems and challenges for hospitals today include the fact that they are slow to implement change, their patient flows are ineffective, and they need to increase patient and employee satisfaction and revenue while decreasing costs and waiting times. Since competition between hospitals has risen, it is essential for them to change and focus on continuous improvement processes and retaining current patients. One of the areas for improvement includes the decreased patient satisfaction that accompanies high waiting times. This also directly influences and increases cost while decreasing much needed revenue for the hospital. Errors are serious problems in a hospital setting and can result in an adverse event that leads to very unfavourable outcomes for the patient.

The various systems throughout the hospital that affect patient flow include information technology, the facility, clinical, registration and billing.

This study not only aims to find out the deviations in the process but also to reduce and eliminate the following types of waste: confusion, motion (movement), waiting, extra processing, defects, overproduction, and inventory from the process in the long run under the project WIRES.

While the study was limited to the scope of generating deviations in the process and the non value adding activities, but with strong zeal of getting things improved and implemented many changes were started immediately the suggestions have been made. These include redesigning of hospital signages, utility improvements in front office for better management of materials and inventory, regular training of OPD and billing executives, designating WIRES Champions among staff and assigning them responsibilities etc.

Still in the long run, there is much room for improvement and that although a goal of waiting time not more than 45 minutes seems unfathomable, it is in fact highly attainable given the correct tools and implementation methods.

Rockland Hospital has full support of upper management in its quest to implement initiatives and best practices that will provide the tools and solutions for its patient flow issues.

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24. NHS Improvement – www.improvement.nhs.uk
25. NHS Institute for Innovatio and Improvement –www.institute.nhs.uk

APPENDIX

TASK TIMINGS PANEL PATIENTS															
ACTIVITY	**Pat. 1**	**Pat. 2**	**Pat. 3**	**Pat. 4**	**Pat. 5**	**Pat. 6**	**Pat. 7**	**Pat. 8**	**Pat. 9**	**Pat. 10**	**Pat. 11**	**Pat. 12**	**Pat. 13**	**Pat. 14**	**Pat. 15**
HELP DESK:															
REGISTRATION															
PHOTOCOPY OF DOCUMENTS															
CHECKING FOR APPOINTMENTS															
VERIFICATION OF DOCUMENTS															
DISTRIBUTION OF TOKENS															
CONSULTATION BILLING Scaning of documents Entry in HIS Biling															
GENERATION OF OPD CARD															
SENDING OF OPD CARD TO CNSLTANT CABIN															
CONSULTATION BY DOCTOR															

TASK TIMINGS CASH PATIENTS															
ACTIVITY	**Pat. 1**	**Pat. 2**	**Pat. 3**	**Pat. 4**	**Pat. 5**	**Pat. 6**	**Pat. 7**	**Pat. 8**	**Pat. 9**	**Pat. 10**	**Pat. 11**	**Pat. 12**	**Pat. 13**	**Pat. 14**	**Pat. 15**
REGISTRATION															
CONSULTATION BILLING															
GENERATION OF OPD CARD															
CONSULTATION BY DOCTOR															

WAITING TIMINGS PANEL PATIENTS															
ACTIVITY	**Pat. 1**	**Pat. 2**	**Pat. 3**	**Pat. 4**	**Pat. 5**	**Pat. 6**	**Pat. 7**	**Pat. 8**	**Pat. 9**	**Pat. 10**	**Pat. 11**	**Pat. 12**	**Pat. 13**	**Pat. 14**	**Pat. 15**
HELP DESK:															
REGISTRATION															
PHOTOCOPY OF DOCUMENTS															
CHECKING FOR APPOINTMENTS															
VERIFICATION OF DOCUMENTS															
DISTRIBUTION OF TOKENS															
CONSULTATION BILLING Scaning of documents Entry in HIS Biling															
GENERATION OF OPD CARD															
SENDING OF OPD CARD TO CNSLTANT CABIN															
CONSULTATION BY DOCTOR															

WAITING TIMINGS CASH PATIENTS															
ACTIVITY	**Pat. 1**	**Pat. 2**	**Pat. 3**	**Pat. 4**	**Pat. 5**	**Pat. 6**	**Pat. 7**	**Pat. 8**	**Pat. 9**	**Pat. 10**	**Pat. 11**	**Pat. 12**	**Pat. 13**	**Pat. 14**	**Pat. 15**
REGISTRATION															
CONSULTATION BILLING															
GENERATION OF OPD CARD															
CONSULTATION BY DOCTOR															