Enhancing Efficiency and Minimizing Turn around time in OB-GYN OPD in a private tertiary care Hospital in Kochi: A Process Improvement Study

Dissertation Submitted to

The IIHMR University, Jaipur

for the partial fulfilment for the award of the degree

Master of Business Administration (MBA)

In

Hospital and Health Management

By

Kongkita Buragohain

Under the Supervision and Guidance of

Dr. Monika Chaudhary

2023

Declaration

I hereby declare that this dissertation titled **Enhancing Efficiency and Minimizing Turnaround time in OB-GYN OPD in a private tertiary care Hospital in Kochi: A Process Improvement Study** is the bonafide record of my original researchwork. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Kongkita Buragohain

Date:

COMPLETION CERTIFICATE

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ETHICAL PRINCIPLES IN HEALTH CARE

Dated: 06-06-2023
RH/HR/1125/2023

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms. Kongkita Buragohain**, student of **MBA in Hospital & Health Management Program** from **IIHMR University Jaipur**, has successfully completed **Internship** and **Project Work** on the topic **"Enchancing Efficiency and Minimizing Turn Around Time in OB-GYN OPD"** in the Department of **Operations** of this hospital from **13-03-2023** to **03-06-2023.**

Her conduct and character during this period were found to be good.

Rajagiri Hospital, is **450** bedded super speciality tertiary care hospital, with **NABL, NABH & JCI** accreditation.

For Rajagiri Hospital,

Fr. Jijo Kadavan CMI
Director - HR

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CERTIFICATE

This is to certify that dissertation titled **Enhancing Efficiency and minimizing Turnaround time in OB-GYN OPD in tertiary care Hospital in Kochi** is a record of the research work undertaken by **Kongkita Buragohain** in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur under my guidance and supervision and her approach to the research study has been sincere, scientific, and analytical.

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ABSTRACT

The objective of the process improvement study mentioned in this dissertation was to enhance efficiency and minimise turnaround time in the Obstetrics and Gynaecology (ObGYN) Outpatient Department. The goal of the study is to improve patient care in the ObGYN OPD by analysing the present process, identifying bottlenecks, investigating optimisation options, and others.

The key results of this study demonstrated significant improvements in the efficiency and patient experience within the ObGYN OPD. Waiting times were reduced, as buffer time allowed for unexpected delays and emergencies, and the prompt start of the OPD ensured a smoother patient flow. The separate slots for scan patients improved resource utilization and reduced waiting times for both regular consultations and diagnostic procedures. Patient education and engagement initiatives enhanced communication and reduced unnecessary consultations. Strict time limits for consultations optimized patient flow and improved the utilization of healthcare providers' time. Finally, behavioural changes among healthcare staff fostered a culture of efficiency and patient-centred care.

The identified bottlenecks have been effectively addressed, and efficiency improved while waiting times reduced through this process improvement study at the ObGYN OPD. The initiatives that were put into place improved patient satisfaction and maximised resource use. To ensure continued progress, it is essential to recognise the study's flaws such as its emphasis on specific conditions and the requirement for continual monitoring and evaluation.

Key words: Turnaround time, increased efficiency, OPD, OB-Gyn behavioural changes

ACKNOWLEDGEMENT

I feel incredibly fortunate to have been given an amazing chance to undertake my summer internship at Rajagiri Hospital in Kochi. I owe a great deal of gratitude to Dr. Jayadev N, the Chief Operating Officer (COO) of the organization, for his exceptional mentorship, guidance, continuous supervision, and genuine interest in fostering my learning and pushing me to surpass my limits.

I extend my heartfelt appreciation to Dr. V.P Paily, the Head of the Department of Obstetrics and Gynaecology, for generously sharing his invaluable insights and providing unwavering support.I genuinely thank Ms. Shikha Elizabeth, the OB-Gyn Department Supervisor, for her constant assistance and attention..

The continual dedication determination, and excellent service shown by all the staff at Kochi's Rajagiri Hospital have greatly impressed me. They constantly provide the public with the highest quality services, establishing an example determination.

I would like to express my gratitude to Dr. P.R. Sodani, the President and Dean of the Indian Institute of Health Management Research (IIHMR) University in Jaipur, for giving me this opportunity.

I would like to Thank my university mentor Dr. Monika Chaudhary, assistant professor at IIHMR University for her constant support and constructive feedback which guided me in making this report a successful project.

Kongkita Buragohain

MBA in Hospital and Healthcare Management

Table of Contents:

List of Tables:

List of Figures:

ABBREVIATIONS

- **OPD:** Outpatient Department
- **TAT:** Turn Around Time
- **OB-GYN:** Obstetrics and Gynaecology
- **LSS:** Lean Six Sigma
- **PNDT:** Pre-Natal Diagnostic Technology
- **USG:** Ultra sonography
- **PAP Smear:** Papanicolaou test
- **IP:** In-Patients
- **OT:** Operation Theatre
- **UHID:** Unique Health Identification
- **HIS:** Hospital Information System
- **Sx:** Surgery
- **DNB:** Diplomate of National Board

RESEARCH TOPIC

Improving Efficiency and Reducing Turnaround Time in OB-GYN OPD in a tertiary care Hospital in Kochi: A Process Improvement Study

CHAPTER1: INTRODUCTION

A hospital's outpatient department (OPD) is a location where patients can go for non-emergency medical care. It seeks to provide immediate and effective care and acts as the main point of contact for people requiring medical assistance. Effective healthcare services are essential in today's fast-paced environment to meet the patients' growing requirements. The main goal of the OB-Gyn OPD is to offer women complete healthcare, which includes examinations on a regular basis, prenatal care, family planning, infertility treatment, gynaecological assessments, and management of several reproductive health conditions. Due to the wide range of services provided, the OPD encounters many difficulties in maximising operational effectiveness and reducing the turnaround time for patients.

Delivering high-quality healthcare services requires effectiveness and promptness above all else. A tertiary care hospital, where complicated situations and an increased patient load are typical, makes efficiency improvement even more essential. OPD's efficient functioning not only increases patient satisfaction but also makes sure that healthcare resources are used efficiently.

A woman's reproductive health, pregnancy, and childbirth are the primary concerns of the OB-GYN OPD, which serves as vital for diagnosing and managing a number of illnesses. It provides periodic examinations as well as specialised services for pregnant women, including family planning, prenatal care, and counselling.

The goal of this study is to analyse different approaches and techniques that could be applied in the OB-GYN OPD of a tertiary care hospital to boost efficiency and reduce wait times.

Turnaround Time: The time it takes a patient to get the necessary treatment from the time they arrive at the OPD until they exit is referred to as turnaround time (TAT) in the outpatient department (OPD). There are several of steps, including registration, waiting, medical treatment, evaluations, and getting the proper care or prescription. To streamline these procedures, minimise waiting times, and provide prompt healthcare services for women requiring maternity and gynaecology-related treatment, the efficiency of the OB-GYN OPD of a tertiary care hospital needs to be improved.

Because of its immediate effect on patient satisfaction and quality of service, turnaround time is crucial in the healthcare sector, particularly in hospitals. Patients may become irritated and annoyed when turnaround

time is extended due to the long waiting times they must suffer. A further consequence of the prolonged turnaround time is OPD congestion. As patients experience delays, the number of individuals waiting for their turn accumulates, which can overwhelm the healthcare facility's resources and staff. Overcrowding may result in compromised patient care, increased waiting times, and decreased patient satisfaction. By optimizing and streamlining the processes involved in OB-GYN OPD, the aim is to reduce TAT, ensuring patients receive timely medical attention and minimizing their waiting times.

Improving efficiency in the OPD involves analysing the entire patient journey, from registration to consultation, diagnostics, treatment and taking medicine from the pharmacy. Identifying bottlenecks, implementing appropriate interventions, and leveraging technological advancements can all contribute to reducing TAT. Ultimately, the goal is to enhance the overall patient experience, optimize resource utilization, and ensure timely access to high-quality obstetrics and gynaecology services in the OPD of the tertiary care hospital.

The effective and efficient OPD operation depends on the effective scheduling along with the well-trained staffs in the OPD. Organization should focus on developing a culture of empathy and compassion for every patient in the hospital. When staff shows empathy and compassion towards patients, patients feel secure, and their anxiety and stress reduce in the hospital. The operation staff in the billing desk and front desk also need to be well-versed with the customary practises. OPD supervisor should be well trained about patients' education, behaviour, turnaround time, queuing etc. It will help in management of the OPD efficiently. Patient will feel safe and will not create any scene if they understood the actual problem for delay.

Poor facility planning and space allocation, maximizing the points of contacts also plays an important role in long TAT in OPD.

PNDT Form: The Pre-Natal Diagnostic Techniques (PNDT) form is an important document used by the Obstetrics and Gynecology (OB-GYN) Outpatient Department (OPD) before conducting a scan. This form plays a crucial role in ensuring the safety and compliance of prenatal diagnostic procedures.

Important details about the expecting mother, including her name, age, address, and medical history, are included on the PNDT form. It also provides information on the healthcare provider who referred the patient,

the reason for the scan, and any special instructions or safety measures that need to be taken while the procedure is being performed.

The paperwork clearly indicates the test's goal and requests the pregnant woman's authorization prior the scan can proceed. It ensures that the lady is aware of every detail of the process and its effects. The doctor conducting the scan also signs an acknowledgment on the PNDT form attesting to the procedure's compliance with government-set legal and ethical standards.

The purpose of the OB-GYN OPD is to preserve correct records and provide clarity in the prenatal diagnostic testing procedure by using the PNDT form. Additionally, by using this form, anyone can spot and stop any unethical or illegal conduct, such as determining gender, which is against the law in many nations.

Medical Social Worker: The Medical Social Worker provides counselling to expectant women in order to assist them in managing the physical, psychological in nature, and cultural challenges that can come up throughout maternity. They offer guidance on essential subjects such as early pregnancy, giving birth, nursing, care after delivery, and more. Their responsibility is to make certain that mothers-to-be feel encouraged, educated, and capable of making choices that are appropriate for both their well-being and the good health of their unborn babies.

The Medical Social Worker can help by optimising the counselling procedure to increase performance and decrease wait times in the OB-GYN OPD. They can come up with methods to plan sessions for counselling more effectively, ensuring that expectant mothers get the help they need right away without any needless delays. In the end, this may improve efficiency by reducing waiting times and using resources to their fullest.

In the OB-GYN OPD, the Medical Social Worker can also work with other medical specialists to create uniform procedures and standards for counselling expectant mothers. This can further increase productivity by ensuring reliable and efficient counselling techniques.

Quality In Healthcare: In the field of healthcare, quality plays a pivotal role in ensuring the well-being of patients and the overall effectiveness of healthcare services. Quality encompasses various dimensions, including safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity.

The significance of quality

Safety of patient: Maintaining patient safety is a crucial component of healthcare quality. It entails putting standards and precautions in place to stop infections, errors in medicine, and unwanted occurrences, protecting patients from injury.

Effectiveness of Care: Providing therapies and procedures that are supported by research and have been shown to produce favourable results is an essential part of quality care. Medical professionals can improve the efficacy of patient treatment by following the most effective practises and clinical instructions.

Patient-centred: Effective healthcare prioritises the desires and requirements of every single patient. It includes encouraging successful interaction, collaboration in making choices, and acknowledging patients' opinions and principles, all of which will eventually end up in higher satisfaction for patients and engagement.

Timeliness: For the well-being of patients and the achievement of clinical goals, quickness in the delivery of care is essential. Minimising turnaround time, including the length of time patients have to wait for visits and examinations, guarantees that individuals receive care on time, that can improve the results of their medical care.

Efficiency: Increasing effectiveness in healthcare requires making the most use of the assets at hand, improving workflow, and lowering waste. The goal of improving efficiency in operations is to benefit both patients and healthcare professionals by enabling healthcare organisations to deliver superior care, lower costs, while improving patient flow.

Equity: Accessibility to services for everyone, irrespective of their economic standing, race, or other traits, is required for healthcare to be of excellent quality. Ensuring that every individual have a fair chance to get promptly, adequate care would improve the well-being of everyone in the country.

Aim

The objective of this study is to determine areas where workflows can be improved in order to decrease turnaround time and boost the effectiveness of the OB-GYN OPD.

Research Question

How can the OB-GYN OPD operate more effectively and with shorter turnaround times while continuing to deliver the most effective available care?

Objectives

1. Analyze the existing workflow and processes in the OB-GYN OPD to identify bottlenecks and areas of inefficiency contributing to the high turnaround time.

2. Identify the key factors influencing the turnaround time in the OB GYN OPD, including patient flow, appointment scheduling, resource allocation.

3. Explore best practices and strategies implemented in other healthcare settings to improvẽ efficiency and reduce turnaround time in OB-GYN OPD.

4. Develop and propose evidence-based recommendations and interventions tailored to the specific needs of the OB-GYN OPD aiming to optimize workflow, streamline processes, and reduce turnaround time.

Rationale

In addition to receiving thorough medical care and counsel, a patient visiting a hospital expects total care from the moment of admission to the time of discharge. Patient satisfaction is negatively impacted by lengthy wait times and delays in providing care, which also puts a strain on the department's resources and productivity. Healthcare organizations can raise the standard of patient care, maximize resource usage, and boost overall operational effectiveness by enhancing these factors.

Further, the OB-GYN Outpatient Department is a crucial healthcare facility that offers women a full range of services. In order to meet the healthcare needs of women and advance favourable health outcomes, it is essential to provide prompt and effective care. This dissertation seeks to add to the corpus of knowledge on improving patient care in OB-GYN settings by concentrating on process improvement in this department.

The importance of this study rests in its ability to offer practitioners and healthcare organisations evidence-based perspectives and actionable advice. The study's conclusions and suggestions can help OB/GYN outpatient departments design and put into practise process

improvement initiatives, which will ultimately improve patient satisfaction, boost staff morale, and make better use of resources.

CHAPTER 2: REVIEW OF LITERTATURE

Sr No	Paper Title	Learnings	References	Published On
1.	Impact Of OPD Waiting Time on Patient Satisfaction	The study paper focuses on the significance of Outpatient Department (OPD) services in hospitals and how they may affect patient satisfaction and hospitalisation rates. The study emphasises how important OPD services are for offering many patients access to affordable care, and how well-managed OPD services can prevent patient misunderstanding, frustration, and overspending. In order to lessen the strain on inpatient departments, control patient flow, and ultimately improve healthcare outcomes, the study emphasises the importance of efficient and effective management of OPD services. Overall, the study offers insightful information about the importance of OPD services in hospitals and their potential to enhance healthcare delivery.	IERJ Journal. (2018). Impact of opd waiting time on patient satisfaction. Https://www.academia.edu/36959440/IMPACT_OF_OPD_WAITING_TIME_ON_PATIENT_SATISFACTION ATIENT_SATISFACTION	2016
2	OPD Waiting Time on Patient Satisfaction	Dr. Anil Pandit and his colleagues examine the connection between wait times and patient satisfaction in healthcare settings in this article. The study's objective was to examine OPD wait times and determine how they affect patient satisfaction. The study's goals were to ascertain the typical length of time patients spend in the OPD, pinpoint the causes of long waits there, investigate the reasons for delays and recommend remedies, and gauge patients' satisfaction with the OPD's offerings. This study's objectives were to determine OPD idle time, schedule opds appropriately in order to reduce peak workload, analyse and address urgent and significant reasons of increasing waiting times, and gauge patients' satisfaction with OPD services.	(N.d.). Researchgate.net. Retrieved June 1, 2023, from https://www.researchgate.net/publication/324594239_5_OPD_Waiting_Time_on_Patient_Satisfaction	2018
3	A Study on Waiting Time at The Outpatient Department of a	Research on outpatient wait times at a private secondary care hospital is presented in the paper. Data was gathered from July 1 to July 30, 2018,	(N.d.-b). Researchgate.net. Retrieved June 1, 2023, from	2019

	Private Secondary Care Hospital	across a 30-day period, as part of a study that used an observational descriptive methodology. A total of 80 patients, both new and old, were included in the study's sample size. The report offers insightful information on how long patients must wait in certain facilities. It lists numerous elements that contribute to service delivery delays and makes recommendations for how to cut down on patient wait times. To determine different stages of the procedure where patients were waiting for, the acquired data was analysed.	https://www.researchgate.net/publication/335034045_A_STUDY_ON_WAITING_TIME_AT_THE_OUTPATIENT_DEPARTMENT_OF_A_PRIVATE_SECONDARY_CARE_HOSPITAL	
4	Determinants Of Hospital Waiting Time for Outpatient Care In India: How Demographic Characteristics, Hospital Ownership, And Ambulance Arrival Affect Waiting Time	The article investigates the elements that influence outpatient waiting times in India. 830 observations were made as part of the study, which ran from May 2012 to September 2012. To determine the relationship between patient variables (such as sex, race, and age), ambulance arrival, hospital ownership, and waiting time, the authors conducted a multivariate regression analysis. Patients who arrived by ambulance saw lower wait times than those who did not, according to the study. Furthermore, waiting times were shorter for patients at private hospitals than at public ones. Patient variables (including sex, race, and age) and waiting time did not, however, significantly correlate. The study emphasises the need of lowering outpatient care waiting times in India and argues that enhancing ambulance services	View of Determinants of hospital waiting time for outpatient care in India: how demographic characteristics, hospital ownership, and ambulance arrival affect waiting time. (n.d.). Ijcmph.com. Retrieved June 1, 2023, from https://www.ijcmph.com/index.php/ijcmph/article/view/3095/2165	2018
5	A STUDY ON WAITING TIME IN VARIOUS HOSPITAL DEPARTMENTS AND RECOMMENDATIONS TO DECREASE THE WAITING TIME	The article is a study of waiting times in various hospital departments, as well as solutions to reduce them. The exploratory study includes a survey of patients in the OPD of a multi-specialty hospital in Chennai. The study size was fifty OPD patients for one month, and data was obtained using a standardised questionnaire. In SPSS, the obtained data was analysed using the percentage analysis and mean analysis methods. The study suggests	Issue-, V.-3. (n.d.). A study on waiting time in. Ijariie.com. Retrieved June 1, 2023, from http://ijariie.com/adminuploadpdf/A__STUDY_ON_WAITING_TIME_IN_VARIOUS_HOSPITAL_DEPARTMENTS_AND_RECOMMENDATIONS_TO_	2017

		several measures to reduce waiting time, including improving staff efficiency, increasing staff numbers during peak hours, providing better facilities for patients during their wait times, implementing technology solutions such as online registration and appointment booking systems.	DECREASE_THE_WAITING_TIME_ijariie6859.pdf	
6	Implementing Lean Six Sigma to Improve the Turnaround Time of Blood Samples in a Private Hospital of India	The article highlights the deployment of Lean Six Sigma (LSS) methodology in a private hospital in India to enhance blood sample turnaround time (TAT). During the LSS implementation, the DMAIC technique was used as a problem-solving model. The research successfully completed the first three stages of DMAIC and developed solutions based on a thorough understanding of the process's numerous challenges. After adopting these solutions, the laboratory TAT was measured again to see if it had improved. The exhaustive discussion of the causes for the problem's cause resulted in clear-cut solutions that can be successfully applied. As a result, this stage yielded numerous fruitful remedies to existing obstacles, resulting in enhanced laboratory TAT.	Alok, M., Samanta, K., Varaprasad, G., & Gurumurthy, A. (n.d.). Implementing lean six sigma to improve the turnaround. Ieomsociety.org. Retrieved June 1, 2023, from https://ieomsociety.org/proceedings/2022india/483.pdf	2022
7	**Reducing Waiting Time of Patients in Outpatient Services of Large Teaching Hospital: A Systematic Quality Approach**	In order to enhance the services offered in an outpatient department of an Indian teaching hospital, a systematic quality strategy is presented in this research. The study used high-quality methods including process mapping, FMEA, and waiting time analysis to pinpoint the causes of longer wait times and come up with remedies to shorten them. According to the findings, the average wait time for patients was cut in half from 38.5 minutes to 22.5 minutes, and the average registration time was lowered from 6.5 minutes to 3.5 minutes. According to the study, using high-quality technologies can aid in locating and eliminating waste in healthcare procedures, which would improve patient outcomes and satisfaction.	Yadav, R., & Phil, M. (n.d.). Reducing waiting time of patients in outpatient services of large teaching hospital: A systematic quality approach. Https://doi.org/10.9790/0853-1611030107	2017

		The study finds that a systematic quality strategy can assist to increase the efficacy and efficiency of healthcare services, and it suggests that other institutions adopt similar strategies to enhance their offerings.		
8	**A Strategy to Reduce the Waiting Time at the Outpatient Department of the National Hospital in Sri Lanka**	This paper explores the use of queueing theory to shorten wait times at the National Hospital of Sri Lanka's Outpatient Department (OPD). Each portion of the OPD included data on patient arrivals and service times, which the study used to predict the channels and wait times for each section. According to the report, reducing patient wait times can be accomplished by enacting measures including hiring more physicians and nurses, streamlining the appointment process, and making the most use of available resources. The study concludes that queuing theory can be a helpful tool for enhancing healthcare services and decreasing wait times in other healthcare facilities.	(N.d.-c). Researchgate.net. Retrieved June 13, 2023, from https://www.researchgate.net/publication/312219090_A_Strategy_to_Reduce_the_Waiting_Time_at_the_Outpatient_Department_of_the_National_Hospital_in_Sri_Lanka	2016

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Study type: Descriptive Cross-Sectional Study.

3.2 Research questions:
How can the efficiency of Ob-GYN OPD be improved, and the turnaround time be minimized, while maintaining the highest quality of Care.

3.3 Setting of the Study: Rajagiri Hospital, Chunangamvely,Aluva

3.4 Study Period: The study was conducted in hospital from 1th April to 25th May.

3.5 Sample Size:

1. Inclusion Criteria:

- Data collected of all the patients coming to OB-GYN OPD in the working hour (9:00-17:00)

2. Exclusion Criteria:

- All the same day cross consultation patients
- Emergency patients coming directly to the OPD without appointment followed by same day admission.
- Patients just schedule for admission

3.6 Sampling Method: The sampling technique was Non- probability Purposive Sampling.

3.7 Study Procedure:

The research process for this dissertation takes a systematic and thorough approach to analyse the current process, identify bottlenecks, explore factors responsible for prolonged waiting times in the Obstetrics and Gynaecology Outpatient Department, and develop strategies to optimise processes and improve patient care. The main objectives are to increase patient satisfaction throughout, reduce waiting times, and streamline processes. Here is an outline of the research procedure:

1. **Literature Review**: The first phase entails performing a comprehensive literature review to get a clear understanding of the current knowledge and research related to process improvement in healthcare settings, particularly in outpatient departments and ObGYN specialty. This review will aid in locating best practises, pertinent theories, and procedures used in comparable studies, laying the groundwork for the research design.

2. **Data Collection**: Data collecting is an essential phase in the research process that uses a variety of techniques to obtain a thorough grasp of the existing workflow and spot potential areas for improvement. This include first-hand observation of the OB-GYN OPD workflow, discussions with healthcare professionals and employees, and examination of electronic health information. These ways of gathering data provides insightful information on the current procedure, difficulties encountered, and potential bottlenecks causing lengthy wait times.

3. **Analysis of Current Process**: The data is thoroughly examined in order to pinpoint inefficiencies, bottlenecks, and other factors contributing to long wait times in the OB-GYN OPD. Key performance metrics like patient wait times, appointment scheduling accuracy, and staff productivity can be evaluated using statistical analysis, and visualisation approaches.

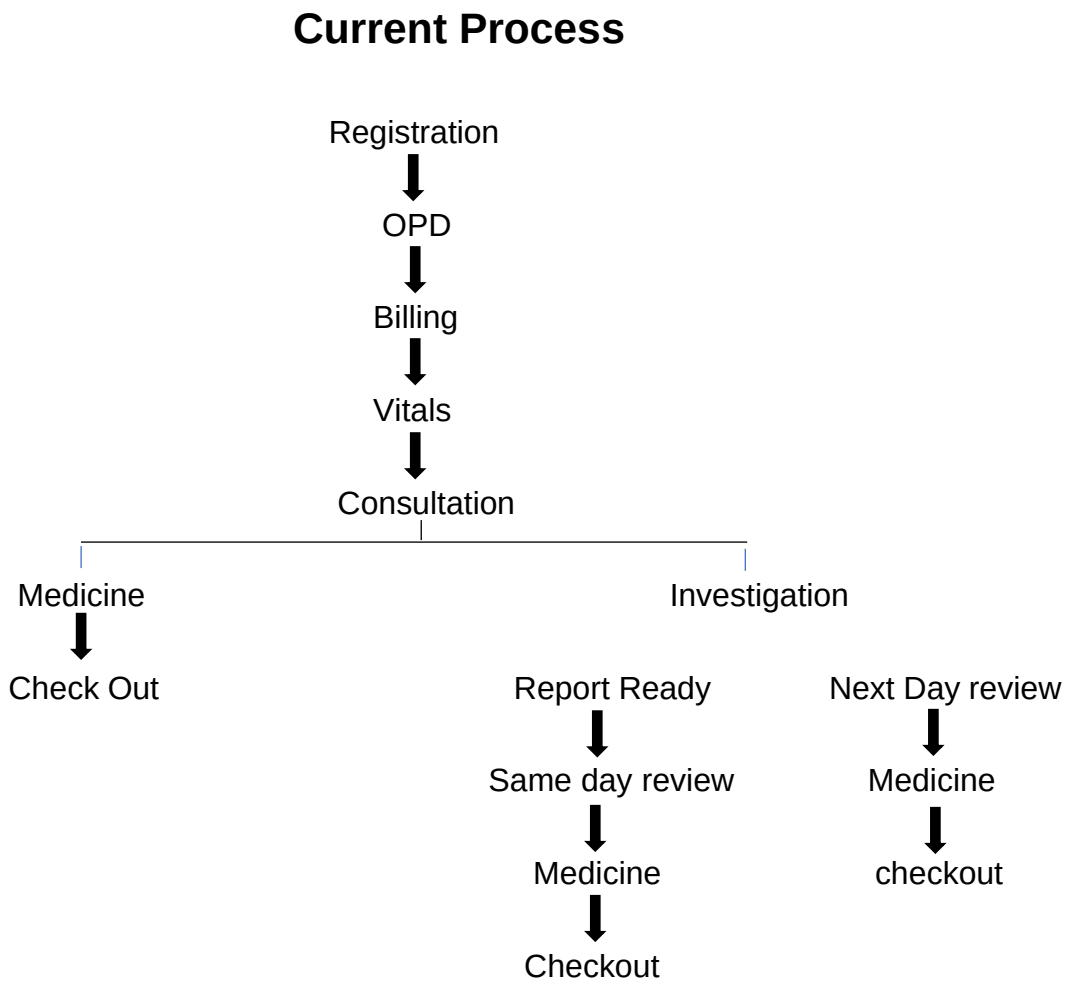


Figure:3.1

Current Appointment Slots:

09:30	11:40	14:50
09:40	11:50	15:00
09:50	12:00	15:10
10:00	12:10	15:20
10:10	12:20	15:30
10:20	12:30	15:40
10:30	12:40	15:50
10:40	12:50	16:00
10:50	Lunch Break	16:10
11:00	14:10	16:20
11:10	14:20	16:30
11:20	14:30	16:40
11:30	14:40	

Table:3.1

Total Number of slots=36

Appointment slots=29

Walk ins=7

*No buffer time in between slots

3.8 Bottlenecks:

Several bottlenecks were identified as contributing factors to extended waiting times and inefficiency during the evaluation of the current process in the Obstetrics and Gynecology (ObGYN) Outpatient Department:

1. **Appointment Scheduling**: Ineffective appointment scheduling procedures might result in overlapping appointments, extending patient wait times. This backlog may be caused by a lack of interaction between the scheduling staff and the medical personnel.

2. **Patient Flow:** At various points inside the department, such as check-in, exam rooms, diagnostic testing, or consultation rooms, there may be bottlenecks in the flow of patients. Congestion and delays may result from the improper distribution of resources, including medical personnel and examination rooms.

3. **Late start of OPD**: The first appointment at the OB-Gyn OPD is at 9:30 am. On the other hand, it has been observed that doctors typically arrive at the OPD between 10:30 and 10:45. It is one of the primary reasons for OPD's delayed launch.

4. **No Buffer time in between appointment slots**: The OB-Gyn department has a total of 36 appointment slots for each doctor, 7 of which

are for walk-in patients for a single day without any buffer time. Each slot lasts for 10 minutes, followed by an 80-minute lunch break. appointments begin at 9:30 a.m.

5. **Resource Allocation and Staffing**: Longer wait times may result from insufficient resource allocation, which includes staffing levels and equipment availability. Patient care delays are a result of insufficient staffing, skill gaps, and improper equipment maintenance, which also has an impact on the department's overall effectiveness.

6. **Information exchange and communication problems** result in delays and misunderstandings between patients, staff members, and healthcare professionals. This leads to longer wait times and ineffective care delivery as a result of ineffective departmental collaboration and inadequate information exchange about patient needs, test results, and treatment plans.

7. **Emergency and Urgent Cases**: The unpredictable nature of crises and urgent cases might impede regular operations and cause delays for scheduled appointments. Both urgent and non-urgent patients may have to wait a long time due to inadequate emergency management protocols, a lack of specialized staff, and insufficient scheduling flexibility.

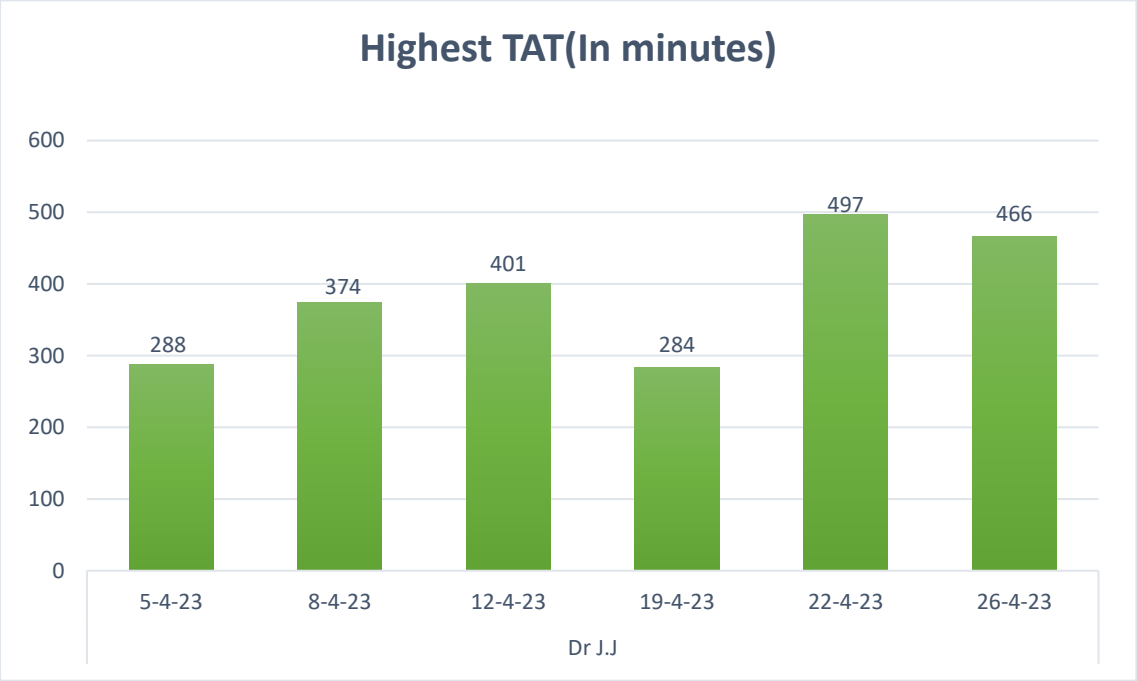
8. **Staff training and workload management**: Workload management and staff development: One of the key elements to successfully operating an OPD is providing the right training for employees. The staff should be aware of appointment times, delays, and turnaround times. To improve performance, management needs to give all employees access to adequate education.

9.**Overbooking appointments**: scheduling too many appointments, which could result in a backlog at the OPD, higher workloads for staff members, and a delay in consultation

10. **Patient engagement and education**: Inadequate Patient engagement and education may result in misconceptions, inquiries, and extra consultations, which can add to process delays. It might be confusing and inefficient if there is a lack of clear communication regarding the procedures to be followed, the expectations for the appointment, and the necessary preparations.

CHAPTER 4: DATA ANALYSIS AND INTERPRETATION

Dr J.J's highest TAT(in OPD) in the month of April:



Graph 4.1: Dr J.J's highest turnaround time in the month of April

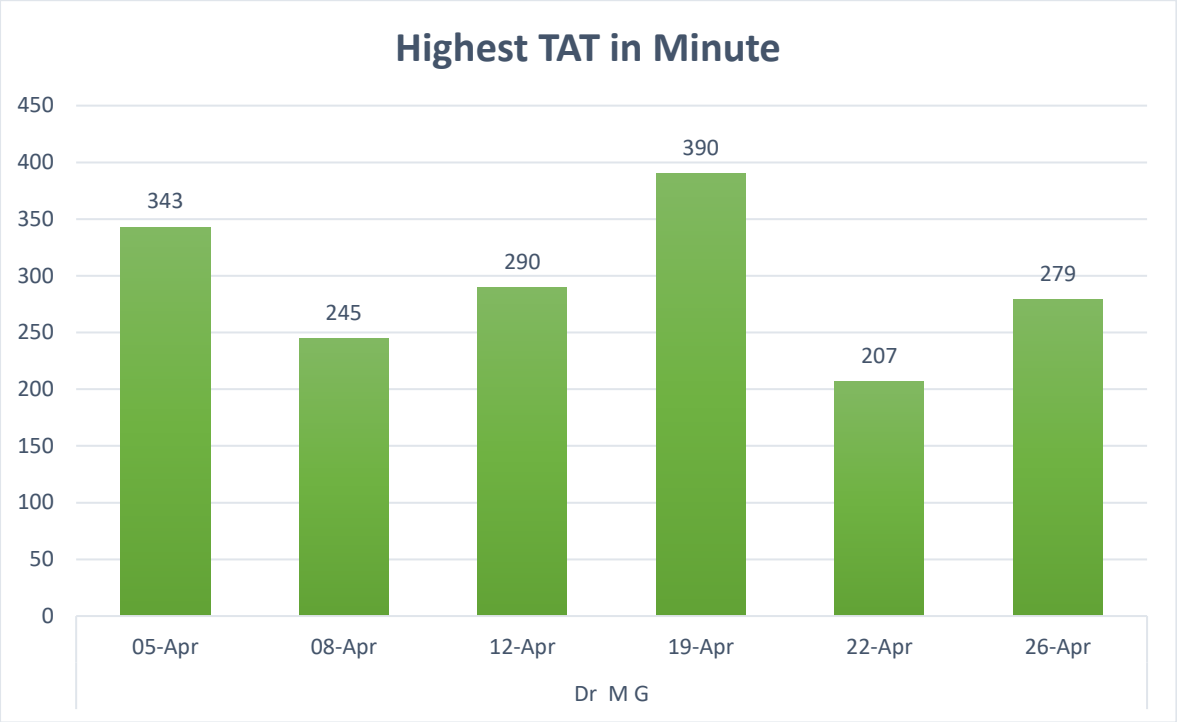
Date	Appointment time	Billing Time	Billing to Vital	Vital to consultation	Signed	TAT
5/4/23 (New)	10:10	10:01	10:35	15:23	15:26	288
8/4/23 (Follow up)	9:50	9:34	9:36	15:50	16:00	374
12/4/12 (follow up)	12:50	10:09	10:25	17:06	17:12	401
19/4/23 (New)	16:10	15:06	15:19	20:03	20:09	284
22/4/23(Follow up)	15:10	10:27	10:34	18:51	18:52	497
26/4/23 (New)	14:30	10:28	10:49	18:35	18:40	466

Table:4.1

Interpreration: Dr J.J's highest turnaround time is 497 minutes on 22/4/23. It was a follow up patient whose appointment time was 15:10hrs but patients came to OPD at 10:27 hrs in the morning.

Avearge TAT time for the month of April for Dr J.J is 177.68 minutes.

Dr M.G’s highest TAT(in OPD) in the month of April:



Graph:4.2: Dr M.G’s highest TAT(in OPD) in the month of April

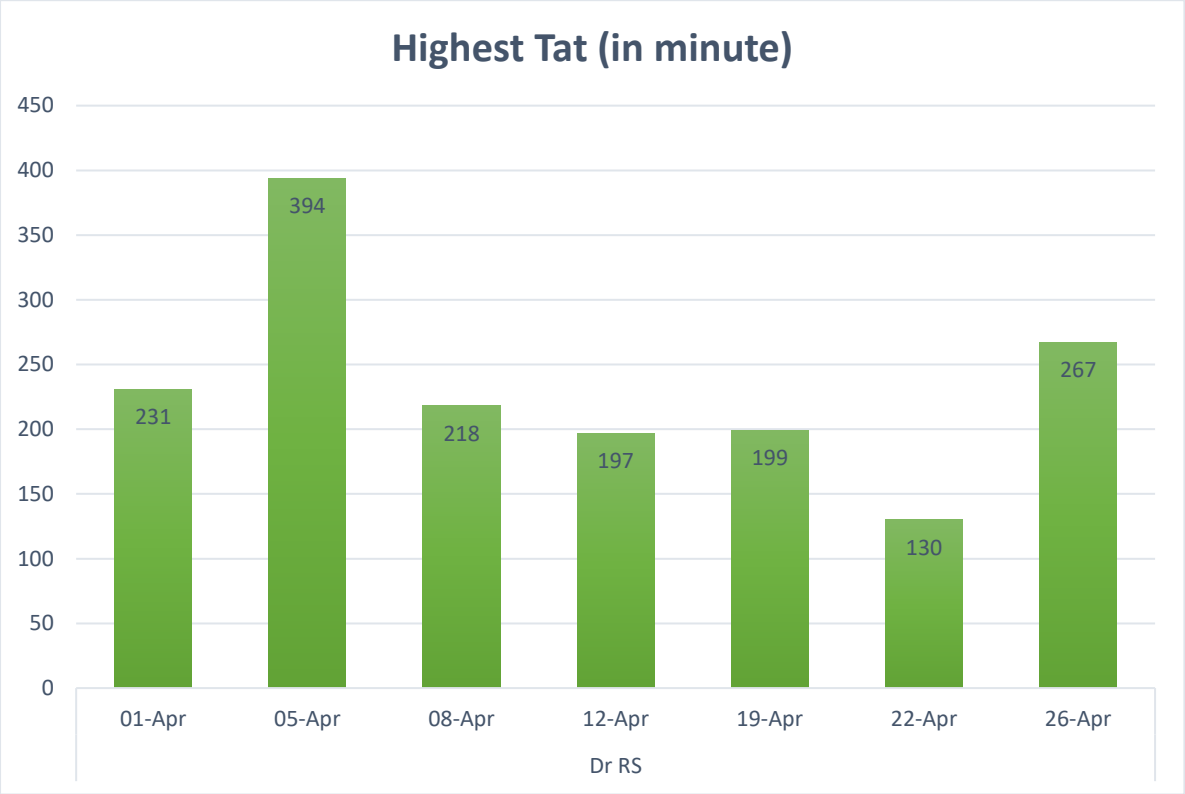
Date	Appointment time	Billing Time	Billing to vital	Vital to Consultation	Signed	TAT
5/4/23 (follow up)	15:50	11:33	11:49	17:32	17:46	343
8/4/23 (follow up)	11:00	10:59	11:25	15:19	15:34	234
12/4/23 (Followup)	12:20	10:32	10:34	15:24	15:27	290
19/4/23 (follow up)	11:00	9:35	10:38	16:58	17:02	390
22/4/23 (follow up)	15:00	12:08	12:19	15:46	17:02	207
26/4/23 (Follow up)	11:30	11:26	11:33	16:12	16:15	279

Table:4.2

Interpretation: Dr. M.G's highest TAT was 390 minutes on May 19; this corresponds to a follow-up patient who arrived over 90 minutes early for the appointment. The remaining patients with the highest TAT for the day in April are those who underwent follow-up care.

Avearge TAT time for the month of April for Dr M.G is 103.81 minutes

Dr RS's TAT for the month of April



Graph:4.3: Dr RS's highest TAT(in OPD) in the month of April

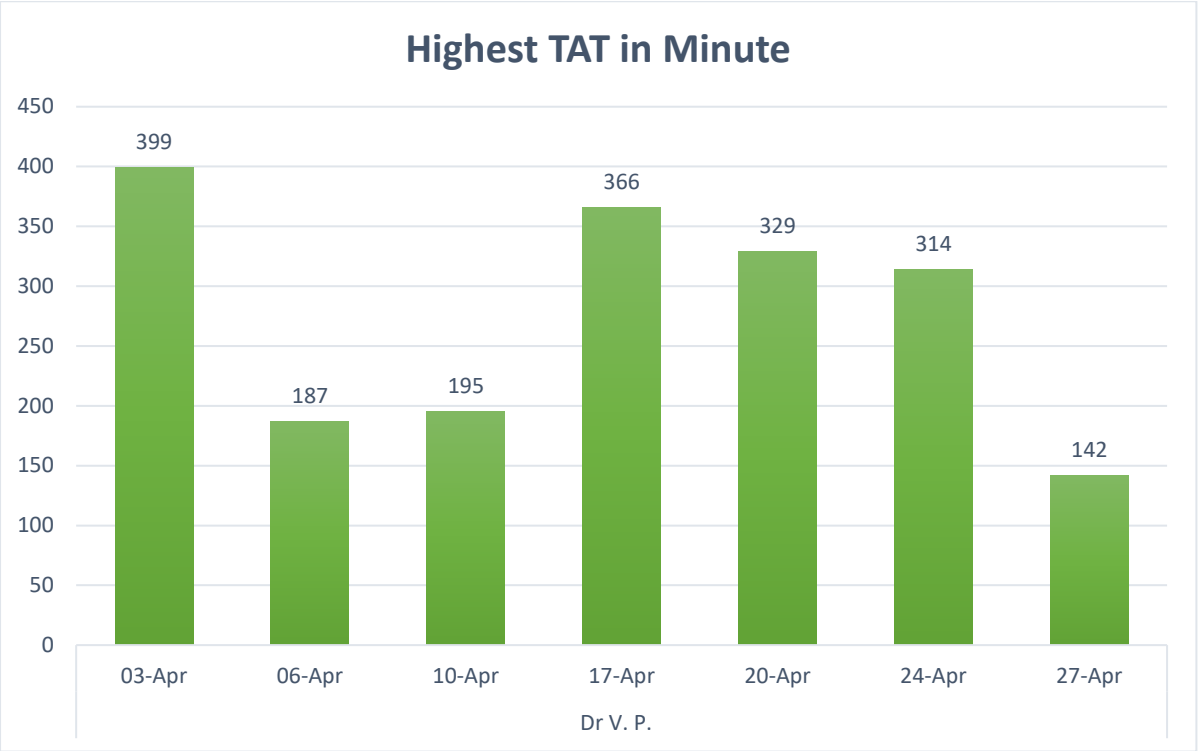
Date	Appointment time	Billing Time	Vital	Consultation	Signed	TAT
1/4/23 (follow up)	12:10	10:47	10:52	14:43	15:07	231
8/4/23(new)	10:10	9:26	9:33	13:11	14:37	218
12/4/23 (Follow up)	12:00	11:41	12:20	15:37	16:22	197
19/4/23 (follow up)	14:30	11:25	11:38	14:57	15:01	199
22/4/23 (follow up)	10:30	9:06	9:17	11:00	11:57	103
26/04/23(New)	11:50	10:39	10:53	15:20	15:21	267

Table:4.3

Interpretation: The highest TAT for Dr. RS in April is 267 minutes, according to the interpretation. The patient was a new patient. The other patients in this month with the highest TAT were mostly follow-up patients.

Avearge TAT time for the month of April for Dr RS is 71.79 minutes.

Dr V P's TAT for the month of April



Graph:4.4: Dr VP's highest TAT(in OPD) in the month of April

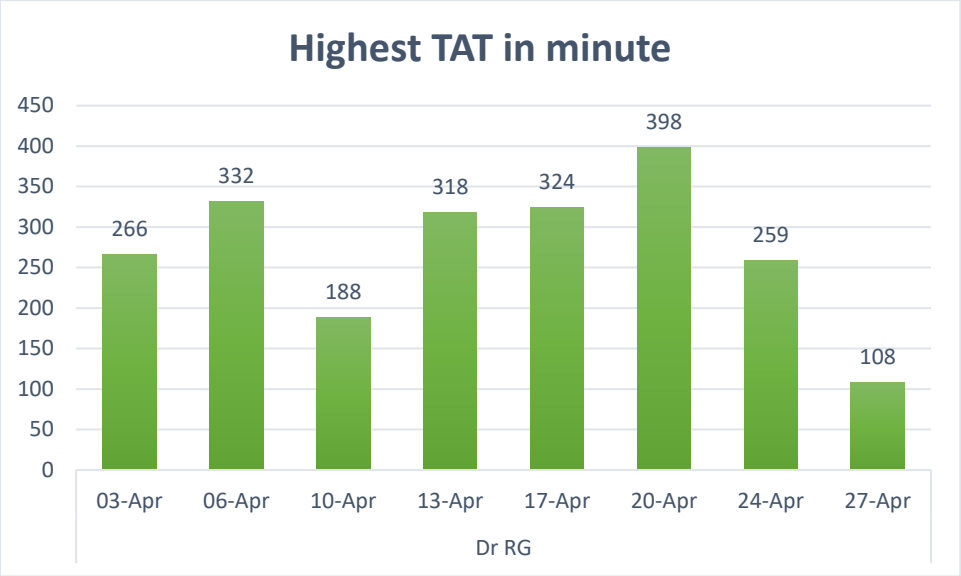
Date	Appointment time	Billing time	Billing to Vital	Vital to consultation	Signed	TAT (Min)
3/4/23 (New)	10:30	10:17	10:29	17:08	17:14	399
6/4/23 (New)	11:00	12:06	13:01	16:08	_	187
10/04/23 (New)	10:40	10:19	10:21	13:36	13:43	195
17/4/23 (New)	16:50	10:20	10:29	16:35	16:42	366
20/4/23 (follow up)	16:10	10:33	10:53	16:22	16:26	329
24/4/23 (New)	12:40	9:45	9:55	15:09	15:49	314
27/4/23 (New)	11:30	10:11	10:18	12:40	12:45	142

Table:4.4

Interpretation: The maximum TAT for Dr. VP in April is 399 minutes. The patient was a new walk-in patient. The majority of patients experiencing significant TATs for doctors' appointments are fresh walk-in patients.

Avearge TAT time for the month of April for Dr VP is 98 minutes.

Dr RG's Highest TAT for April



Graph:4.5: Dr RG's highest TAT(in OPD) in the month of April

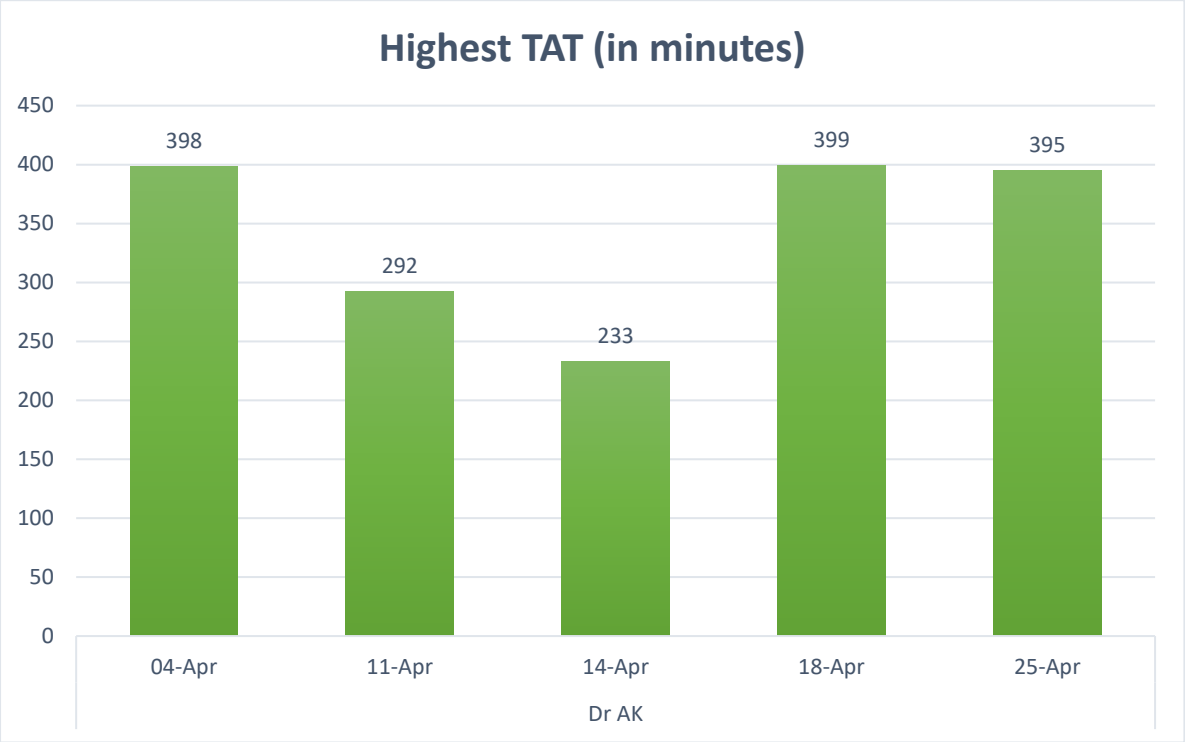
Date	Appointment time	Billing time	Billing to vital	Vital to consultation	Signed	TAT (Minute)
3/4/23 (follow up)	16:30	9:55	11:24	15:50	15:55	266
6/4/23 (New)	11:00	10:52	11:02	16:34	14:47	332
10/4/23 (new)	12:40	9:18	10:39	13:47	13:57	188
13/4/23 (Follow Up)	15:10	10:39	10:50	16:08	16:12	318

Table:4.5

Interpretation: According to the interpretation, Dr. RG's highest TAT in April was 332 minutes. The specific patient was a fresh walk-in.

Avearge TAT time for the month of April is for Dr. RG is 103.81 minutes.

Dr AKs Highest TAT (in minute) for the month of April



Graph:4.6: Dr AK's highest TAT(in OPD) in the month of April

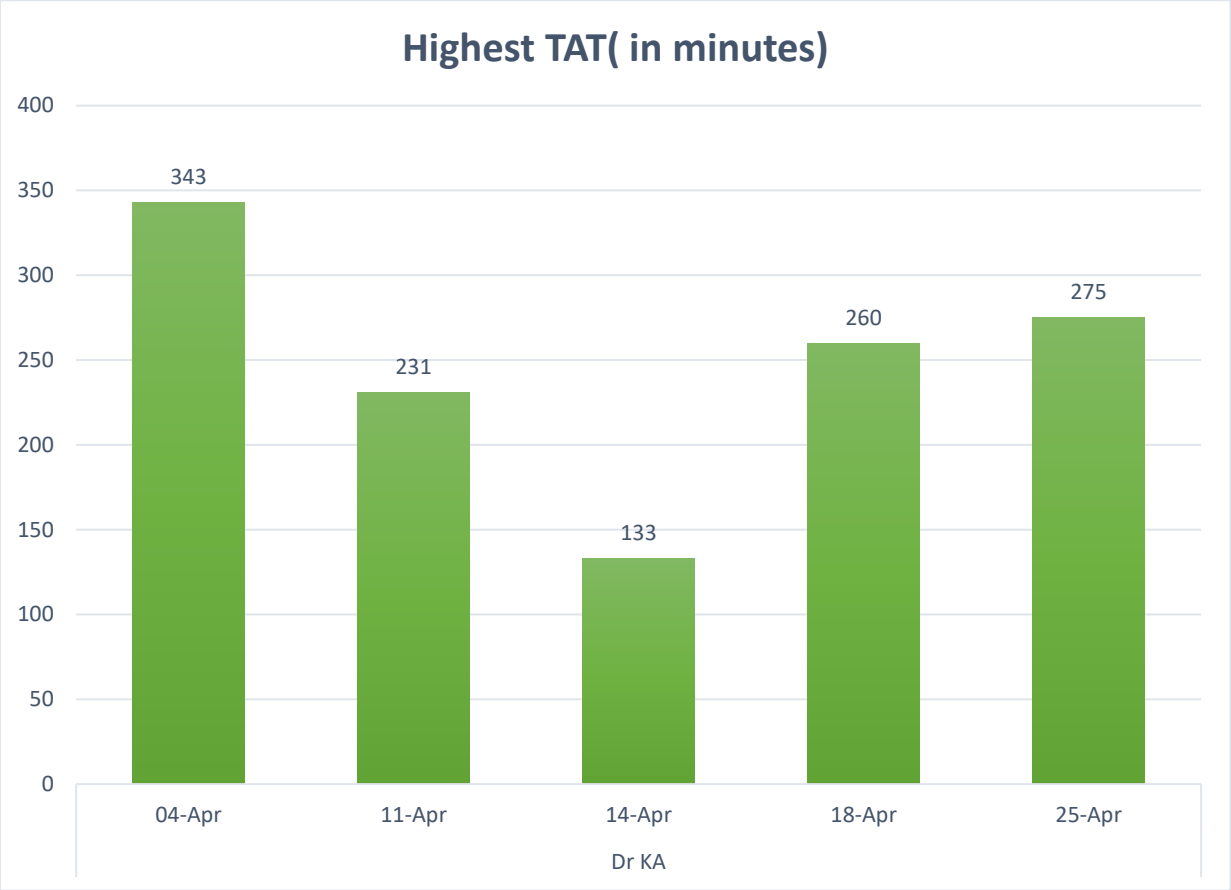
Date	Appointment time	Billing time	Billing to Vital	Vital to Consultation	Signed	TAT (Minute)
4/4/23 (Follow up)	15:10	10:38	11:01	17:39	17:41	398
11/4/23 (Follow up)	14:50	10:06	10:22	15:14	15:41	292
14/4/23 (Follow up)	14:30	10:53	11:14	15:07	15:17	233
18/4/23 (New)	11:00	10:29	10:56	17:34	17:35	399
25/4/23 (Follow up)	10:30	11:29	11:44	18:19	18:21	395

Table:4.6

Interpretation: The longest TAT for Dr. AK's occurred on April 18, 23, at 399 minutes. The patient was a new walk-in. The majority of patients with a significant TAT were follow-up patients.

Avearge TAT time for the month of April for Dr. RG is 98 minutes.

Dr KA's Highest TAT in the month of April (In minutes)



Graph:4.7: Dr KA's highest TAT(in OPD) in the month of April

Date	Appointment time	Billing time	`Billing to vitals	Vitals to consultation	Signed	TAT (In minute)
4/4/23 (Follow up)	14:00	9:36	9:37	15:20	15:24	343
11/4/23 (New)	12:00	10:32	11:00	14:51	14:59	231
14/4/23 (New)	14:40	8:51	9:38	11:51	11:57	133
18/4/23 (Follow up)	12:50	10:25	10:43	15:03	15:04	260
25/4/23 (Follow up)	15:00	10:23	10:31	15:06	15:08	275

Table:4.7

Interpretation: Dr. KA's longest TAT was 343 minutes. The patient was a follow-up patient who arrived at the OPD approximately three hours and thirty minutes before their scheduled appointment.

Avearge TAT time for the month of April for Dr. RG is 70 minutes.

Patient Foot fall Report for the month of April:

Doctor Name	New Patient	Follow up	PHC	Total
Dr A.K	102	314	11	427
Dr K.A	90	128	0	218
Dr J.J	70	229	0	299
Dr R.G	121	259	1	381
Dr R.S	114	165	53	332
Dr.M.G	114	301	0	415
Dr V.P	90	260	61	411
Total	701	1656	126	2483

Table:4.8

CHAPTER 5: PROCESS IMPROVEMENT RECOMMENDATION

Exploration of Strategies: Based on the analysis's findings, strategies are investigated to improve the OB-GYN OPD's workflow and patient care. As part of the strategies, the patient flow could be redesigned, administrative duties should be streamlined, scheduling processes can be optimised, and channels of communication between healthcare professionals could be enhanced.

Modified Appointment slots:

09:30	12:40
09:40	12:50
09:50	Lunch break (60 minutes)
10:00	14:00
10:10	14:10
Buffer time (10 minutes)	14:20
10:30	14:30
10:40	14:40
10:50	Buffer time (10 minutes)
11:00	15:00
11:10	15:10
Buffer time (10 minutes)	15:20
11:30	15:30
11:40	15:40
11:50	Buffer time (10 minutes)
12:00	16:00
12:10	16:10
Buffer time (10 minutes)	16:20
12:20	16:30
12:30	16:40

- Total 34 appointments slots could be arranged according to the new modified appointment slots.
- Initial 4 patients of Growth scan, which takes only 10 minutes per patients.
- Then next 2 walk in patients new, since operation staff always call the patient for consultation according to the appointment time. Usually walk in patients come to OPD in the morning hours.
- Follow up appointments slot should start from 10:20 onwards.

(Since mostly doctors start OPDs after 10:30am)

- OPD should start on time.
- Junior/ On call doctor for walk in patients (In case of delay).
- First morning half patients should leave the hospital by 14:30hrs, more delay than this should be recorded and investigated as soon as possible.
- Better Queuing techniques to avoid the unnecessary crowd in the billing counter.
- Patients call to doctor's room should be done using automated token caller.
- Electronic display appointment token number should be installed.

Study Tool: MS Excel

The data used in the study was entered into a defined Excel sheet.

Data Collection: Secondary Data Collection Technique, data collection was done with the help of HMIS.

i. Collecting patients UHID No., Name of patient, appointment time, billing time, billing to vital time, Vital to consultation time, Consultant signature time, along with TAT
ii. Staff interview was done.

5.1 Factors Responsible for prolonged waiting time in OPD

a) **Late start of OPD**: Doctor usually starts OPD by 10;30-10:45 whereas appointment starts from 9:30am.
b) **Internal meeting:** For all the OB-Gyn Doctors, there is an internal meeting from 8:30 in the morning.
c) **IP Patients**: After the internal meeting, doctors visit IP patients in the hospital. Because of the Internal meeting followed by IP Visits, these two factors play an important role in delay start of OPD.
d) **Medical Emergencies and Unexpected Events:** Situations that call for quick treatment, such as medical emergencies, could disrupt the OPD's schedule. Due to the requirement to prioritize urgent cases over regular appointments, such emergencies may cause delays, extending wait times for patients who aren't dealing with an emergency.
e) **Inadequate staff training:** Lack of Staff Training: Longer wait times could be a result of an absence of training for employees and

healthcare providers regarding how to manage patient flow, optimize processes, and efficiently use existing resources. Staff members could be provided with the expertise and skills they require to manage patient appointments, prioritize patients, and deliver care on schedule with the help of appropriate education**.**

f) **Resource allocation:** Longer wait times in the OPD could be a result of inadequate staffing levels, which include medical staff, nurses, and support professionals. Healthcare personnel might become overburdened if the volume of patients exceeds the number of workers on hand, which could cause delays in providing care.
g) **Ineffective Appointment Scheduling**: When appointment scheduling procedures are not properly handled, they may lead to overbooking or an unequal allocation of appointments throughout the day. As a result, there are often long lines in the waiting room and delays in receiving service. Long wait times could also be a result of insufficient appointment times or spaced-out schedules.
h) **High Patient Volume**: The number of patients seeking care in a brief period of time can overwhelm the OPD's staff and resources. Patient volume could increase as a result of things like population growth, rising service demand, or insufficient capacity planning.
i) **Complexity of Cases**: Some patients demand additional time and attention due to the complex nature of their conditions or the requirement for specialized care. Other patients waiting to be seen might get delayed if these difficult cases require additional consultations, testing, or procedures.
j) **Delays in Accessing Additional Services:** The amount of time patients must wait in the OPD for additional facilities like laboratory tests, radiology imaging, or specialist consultations could vary. Patients could have to wait a long time before getting an accurate diagnosis or treatment plan if these services are not easily accessible or if there are delays in getting test results or consultations.
k) **Communication Challenges**: Healthcare employees, staff members, and patients could encounter delays in care as a result of poor communication and information exchange. Patients could experience longer wait times if they are not informed clearly and promptly regarding their appointments, test results, and treatment recommendations.

5.2 Limitation of the Study

- Data was collected for 1 month only.
- Language barriers
- Could not find the actual reason for the highest Turnaround time for that particular month.

- Could not gather the actual number of IP patients and labor room details.

5.3 Recommendation

The following recommendations are put forward to improve efficiency, minimize wait times, and enhance overall patient care in the Obstetrics and Gynecology Outpatient Department based on the results and analysis obtained during the dissertation study:

1. **Introduce Buffer Time**: Provide extra time between patient appointments to allow for unexpected interruptions or emergencies. Buffer time allows the department to more effectively handle unexpected situations without severely affecting the next patient appointments, minimizing waiting times and maintaining a more efficient patient flow.
2. **Ensure prompt start of OPD:** Strictly adhere to the OPD's stated start time to ensure prompt functioning. In order minimize delays and optimize patient flow throughout the day, healthcare professionals and staff should be ready to receive patients at the time scheduled.
3. **Provide Dedicated Time Slots for Patients Requiring Scan**: Establish specific time slots for patients requiring ultrasound scans or other types of diagnostic imaging treatments. By separating the visits, the OPD's patient flow would be streamlined and delays from these procedures will be minimized.
4. **Minimize Overbooking**: Reducing overbooking will result in exact and efficient appointment scheduling. Implement methods that precisely foresee the amount of time required to complete each patient visit, allowing ample time for consultations, examinations, and vital treatments. Waiting times can be significantly reduced and each patient can receive timely, focused attention by healthcare professionals provided scheduling is avoided.
5. **Maintain Proper Consultation Time frame**: Ensure that scheduled consultation times are strictly adhered to. Healthcare professionals should try to start and wrap up consultations on time in order to ensure that patients receive their scheduled time without additional delays. A more efficient patient flow will be facilitated by effective time management during consultations.
6. **Continuous Staff training**: Process optimization, patient management, and effective communication should all be covered in

regular training sessions for healthcare professionals and staff members. They will have the skills and knowledge from this ongoing training to identify inefficiencies, make recommendations for improvements, and actively engage in improving the overall effectiveness and patient care in the OB-GYN Outpatient Department.

7. **Reduce Variables and Standardize Procedures**: Recognize and reduce factors that increase wait times, like inconsistent assessment processes or variations in the arrangement of patient assessments. Establish clear protocols and standardize procedures to ensure efficient patient management throughout the OPD.
8. **Promote Behavioral Changes of Healthcare Staff**: Encourage the medical personnel to work efficiently, be accountable, and have patients as their top priority. Promote continuous enhancement and highlight the value of promptness, clear communication, and compassionate care. To assist personnel become more proficient at time management, patient engagement, and process optimization, provide training and support.

It is essential to highlight that cooperation between medical professionals, staff, and administrative workers is necessary for the successful implementation of these recommendations. Procedures for regular evaluation, assessment, and feedback should be established in order to evaluate the results of the interventions and make the necessary modifications.

CHAPTER 6: DISCUSSION

Through a process improvement study, the dissertation focused on improving efficiency and minimising turnaround time in the Obstetrics and Gynaecology (ObGYN) Outpatient Department. The main findings, implications limitations, and recommendations for the study's progress are outlined in the discussion.

Several bottlenecks and variables creating higher wait times in the OB-GYN OPD have been found after reviewing the current process. Major challenges were ineffective patient flow, restricted staffing, poor instruction for employees, poor staff communication, complicated administrative procedures, and emergencies. These results indicate that the study's findings have significance as well as reliable since they are consistent with the current state of information on healthcare process improvement.

The dissertation's recommendations provide feasible approaches for tackling the challenges that have been identified. It was recommended to allocate buffer time, ensure that the OPD starts on time, set up specific slots for scan patients, improve patient education and engagement, minimize overbooking, create limits on time for consultations, reduce variables, and encourage behavioral changes in healthcare workers. The OB-GYN OPD can use the above recommendations as an outline to increase efficiency, minimize wait times, and enhance patient satisfaction.

Buffer time implementation and timely OPD commencement may minimize the effect of unanticipated holdups and emergencies, minimizing interruptions to the scheduled appointments. It is more efficient to schedule separate appointments for scan patients, which also declines wait times for diagnostic procedures and routine consultations. Enhancing patient education and engagement encourages active patient involvement in their treatment, eliminating the need for unnecessary consultations and accelerating the procedure. Patient flow is optimized, and time can be utilized by healthcare practitioners effectively through minimizing overbooking and enforcing time constraints on consultations. Patients are managed more consistently and effectively by reducing variables and standardizing procedures. Finally, encouraging behavioral modifications among healthcare workers helps to create an environment that is efficient, transparent, and patient-focused.

Although the recommendations offer achievable improvements, it is essential to acknowledge the study's drawbacks. The challenges and dynamics of various medical facilities may not have been sufficiently captured by the study because it was restricted to one particular OB-GYN outpatient department. The findings might not be broadly applicable, and each healthcare organization's particular setting should be considered

into account when making recommendations. The recommendations require collaboration, resources, and support of stakeholders, which could be challenging in certain instances.

CHAPTER 7: CONCLUSION

In conclusion, the primary objective of this dissertation was to perform a process enhancement study in order to improve efficiency and minimize turnaround time in the obstetrics and gynecology Outpatient Department. Significant conclusions have been obtained through the analysis of the current process, the identification of bottlenecks, and the investigation of methods to streamline operations while enhancing patient care.

The outcome of this study has identified a number of variables that contribute to longer wait times in the OB-GYN OPD, including ineffective patient flow, limited staffing levels, poor communication. Effective solutions have been provided to overcome these challenges and improve efficiency through the recommendations established, such as incorporating buffer time, setting up specific slots for scan patients, improving patient education and involvement, and encouraging behavioral changes among healthcare staff.

It is essential to recognize that healthcare professionals, staff members, and administrative individuals must work jointly and be committed for these concepts to be implemented effectively. To determine their efficacy and ensure improvements that last, it will be essential to constantly monitor and evaluate the deployed interventions and make the required adjustments.

CHAPTER 8: REFERRENCES

1. Alok, M., Samanta, K., Varaprasad, G., & Gurumurthy, A. (n.d.). Implementing lean six sigma to improve the turnaround. Ieomsociety.org. Retrieved June 1, 2023, from https://ieomsociety.org/proceedings/2022india/483.pdf
2. IERJ Journal. (2018). Impact of opd waiting time on patient satisfaction. https://www.academia.edu/36959440/IMPACT_OF_OPD_WAITING_TIME_ON_PATIENT_SATISFACTION
3. (N.d.). Researchgate.net. Retrieved June 1, 2023, from https://www.researchgate.net/publication/324594239_5_OPD_Waiting_Time_on_Patient_Satisfaction
4. (N.d.-b). Researchgate.net. Retrieved June 1, 2023, from https://www.researchgate.net/publication/335034045_A_STUDY_ON_WAITING_TIME_AT_THE_OUTPATIENT_DEPARTMENT_OF_A_PRIVATE_SECONDARY_CARE_HOSPITAL
5. View of Determinants of hospital waiting time for outpatient care in India: how demographic characteristics, hospital ownership, and ambulance arrival affect waiting time. (n.d.). Ijcmph.com. Retrieved June 1, 2023, from https://www.ijcmph.com/index.php/ijcmph/article/view/3095/2165
6. Issue-, V.-3. (n.d.). A study on waiting time in. Ijariie.com. Retrieved June 1, 2023, from http://ijariie.com/AdminUploadPdf/A__STUDY_ON_WAITING_TIME_IN_VARIOUS_HOSPITAL_DEPARTMENTS_AND_RECOMMENDATIONS_TO_DECREASE_THE_WAITING_TIME_ijariie6859.pdf
7. Yadav, R., & Phil, M. (n.d.). Reducing waiting time of patients in outpatient services of large teaching hospital: A systematic quality approach. https://doi.org/10.9790/0853-1611030107
8. (N.d.-c). Researchgate.net. Retrieved June 13, 2023, from https://www.researchgate.net/publication/312219090_A_Strategy_to_Reduce_the_Waiting_Time_at_the_Outpatient_Department_of_the_National_Hospital_in_Sri_Lanka