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A STUDY ON TURN AROUND TIME FOR VARIOUS OPERATIONAL DELIVERY WITH RCA AND CAPA IN ONE OF THE LEADING MULTI - SPECIALITY HOSPITALS IN CHENNAI

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Abstract - Waiting time is defined as the total time that a patient spends in a facility from arrival at the registration desk until the time she/he leaves the facility or last service. TAT investigations are necessary for patient care and are performed on a regular basis. A lot of attention has been paid to quality and how to improve it. Quality is defined as a product's or service's ability to meet the customer's wants and expectations. Precision and accuracy have traditionally been connected with quality. Outpatient departments, Phlebotomy, Laboratory, and Foetal medical departments are among the operational services used to analyse TAT. Patient satisfaction can be defined as the fulfilment of a person's expectations from a service or product. When a patient arrives at the hospital, he has preconceived notions about various parts of the facility based on market trends, the hospital's image, and the cost of a particular visit. The goal of this study is to improve patient satisfaction and to determine the TAT time for various operational services supplied to patients. The data is assessed and analysed in this TAT study to determine the average waiting time at the facility. The patient flow is also assessed in order to identify any bottlenecks in the process and make recommendations to address them.

Key Words: Turn Around Time (TAT), Out Patient department TAT, Laboratory TAT, Foetal TAT, Phlebotomy TAT.

I. INTRODUCTION

The length of time it takes to finish a procedure or fulfill a request is known as turnaround time.

A. Out Patient Department

One of the most significant aspects of hospital administration is outpatient services. The OPD is the hospital's mirror, reflecting the hospital's operations and serving as the patient's first point of contact with hospital personnel.

Patients come to the OPD for a variety of reasons, including consultations, referrals, admissions, and post-discharge follow-up, not only for treatment but also to prevent and promote services. The OPD gives patients their first impression of the hospital, and it is the area where the majority of patients go.

The hospital's out patient department is located on the first and second floors. The diagnostic services are also easily accessible from this location.

B. Phlebotomy

Phlebotomy is the process of drawing blood from a vein, generally in the arm. It's also known as a blood draw or venipuncture and is used to diagnose a variety of medical disorders. Blood is usually sent to a laboratory for examination. A phlebotomist is a health-care professional who performs phlebotomy in hospitals. The first and second floors of the

hospital have a phlebotomy or sample collecting section. Patients come in to give blood and urine samples for further testing.

C. Laboratory

A medical laboratory, also known as a clinical laboratory, is a laboratory where tests are performed on clinical specimens to obtain information about a patient's health to aid in diagnosis of the disease, treatment, and prevention.

Biochemistry is the lab departments that are considered for analysis. The Laboratory department is located in the second floor of the hospital.

D. Foetal Medicine

The branch of medicine concerned with the fetus's growth, development, care, and treatment, as well as environmental factors that may harm the foetus. Foetal/fetal medicine, also known as maternal-fetal medicine (MFM), is concerned with the health of the mother and foetus before, during, and immediately after pregnancy. Perinatology is another term for foetal medicine. Different scans include:

i. Early pregnancy scan
ii. Anomaly scan
iii. Growth scan
iv. Follicular scan
v. Nuchal translucency scan
vi. Amniotic fluid index
vii. Early target scan
viii. Obstetric scan with Doppler
ix. Ultrasound pelvis scan
x. Ultrasound transe vaginal pelvis scan

The obstetrics and Gynecology department is located in sixth floor of the hospital.

The objectives of the study includes,

1) To Investigate the TAT analysis for a variety of outpatient operational care delivery.
2) To Determine the underlying root cause problem and build a fishbone diagram of OP services.
3) To Suggest recommendations and to take corrective action.

II. LITERATURE REVIEW

According to Bharati Thiagarajan, Maimoon Hajira Begam (2019)., A time and motion study (or time-motion study) is a business efficiency technique that combines Frederick Winslow Taylor's (1881 A.D) time study work with the motion study work of Frank B. Gilberth and his wife Lillian Gilbreth (1885A.D). It is an important aspect of scientific management (Taylorism). The motion study is intended to determine the best way to complete a repetitive task, whereas the time study is intended to determine how long it takes an average worker to complete a task at a normal pace. Historically, the two studies were discussed separately; today, they are generally discussed as one. The two techniques were eventually integrated and refined into a widely accepted method for improving and upgrading work systems.

According to Rocket C Hawkins (2007)., TAT is one of the most visible indicators of laboratory service and is frequently used as a key performance indicator of laboratory performance. This review summarises the literature on laboratory TAT, with a focus on the various definitions, measures, expectations, published data, associations with clinical outcomes, and approaches to improving TAT.

According to A.F Najmuddin, I.M Ibrahim, S.R Ismail (2010)., Long waiting times for treatment at the department are always the main issue that management faces, and to make matters worse, the consultation time is significantly shorter than the

waiting time. This is a common complaint among patients, and it continues to occur despite the implementation of an appointment system. The implementation of inefficient appointments and inconsistent service times contributes to patient dissatisfaction while also having a significant impact on the overall operations of healthcare. As a result, the goal of this study is to analyse the multiphase patient flow system in an Obstetrics and Gynecology Department (O&G Department) of a specialist centre by creating a simulation model that depicts the department's actual patient flow.

III. METHODOLOGY

A Descriptive research design was conducted among the patients visiting the hospital in OPD and other operational services. Descriptive study is to describe the features or behavior of a group of people.

Method of Data collection

Only primary data is used in this study.

Population

The target population consisted of all the patients for whom the tests were ordered in Laboratory, Patients visiting OPD, Phlebotomy and foetal medicine.

Sample size

It is the true representative sample of the population where the sample size is 206 patients for OPD department, 208 patients for laboratory and phlebotomy, 32 patients for foetal medicine.

Sampling Technique

The sampling technique used for the present study is simple random sampling.

Analysis Tools

The analysis used in this study is Simple percentage Analysis.

Period of Study

The period of study was made from December 2021 to March 2022.

Method of Study

The Time motion study is used in this study.

IV. ANALYSIS

1. Out Patient Department

There are six out patient departments:

Reception 1 - includes Dental, Opthalmology, Dermatology, Oncology and Liver Transplant

Reception 2 - includes Ortho, Internal Medicine, Pulmonology, General Surgery.

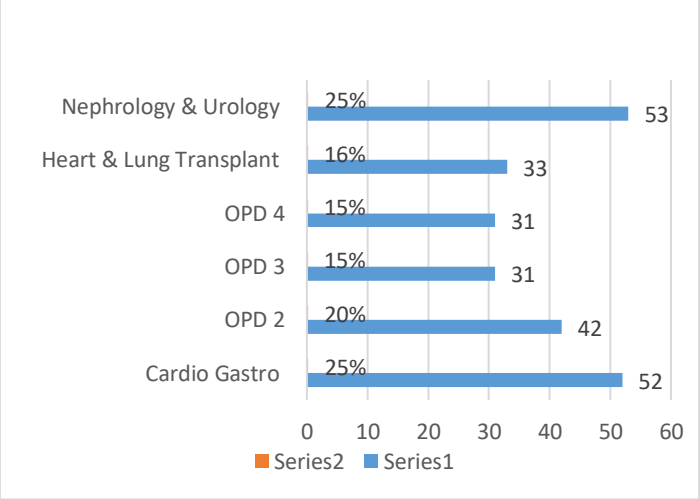
Reception 3 - includes Neuro Surgery, Spine, Psychatrist, Pediatrics, Neurology, Rheumatology.

Reception 4 - includes Cardio - Gastro sciences.

Reception 5 - includes Nephrology and Urology

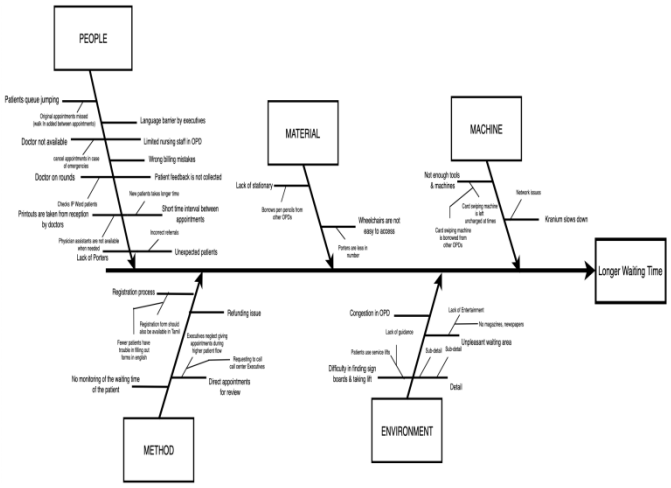
Reception 6 - includes Heart and Lung Transplant.

Chart I Chart showing Turn around time (TAT) for Out patient Department



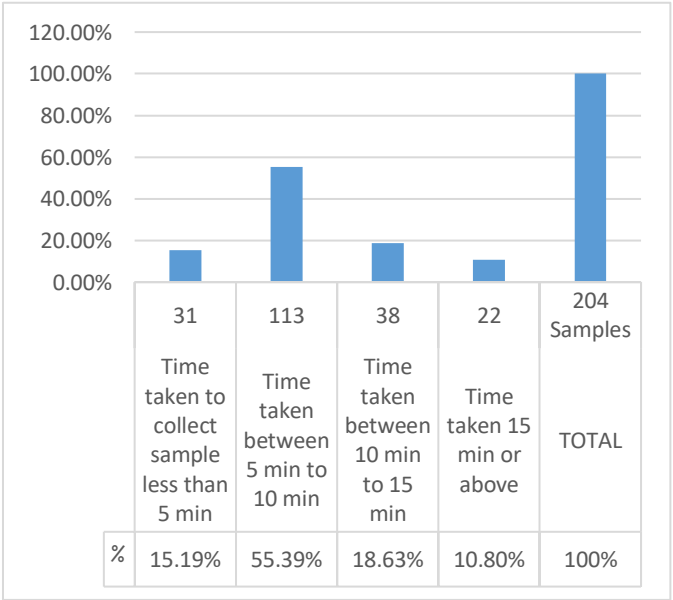
According to the above chart, Cardio - Gastro sciences OPD completes consultation (from entry to OPD till exit from OPD) in 52 min, Nephrology and Urology section completes in 53 min, whereas the OPD 3 & 4 completes consultation within 31 mins compared to OPD 4 (42 mins).

Root Cause Analysis



2. Phlebotomy

Chart I Chart showing Turn around time (TAT) for Phlebotomy Department

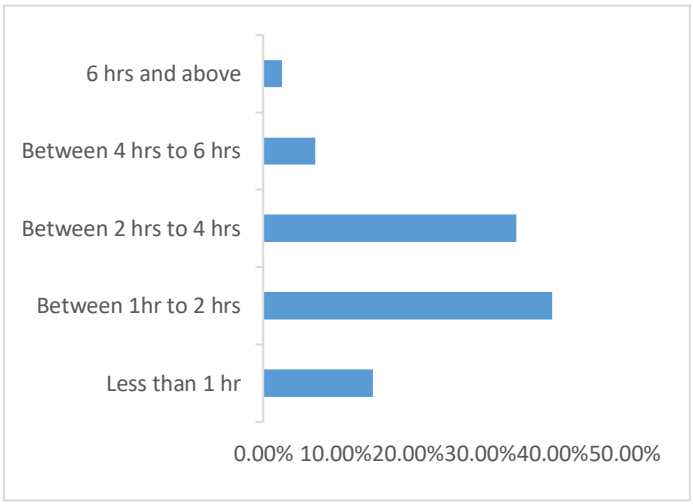


	31	113	38	22	204 Samples
	Time taken to collect sample less than 5 min	Time taken between 5 min to 10 min	Time taken between 10 min to 15 min	Time taken 15 min or above	TOTAL
%	15.19%	55.39%	18.63%	10.80%	100%

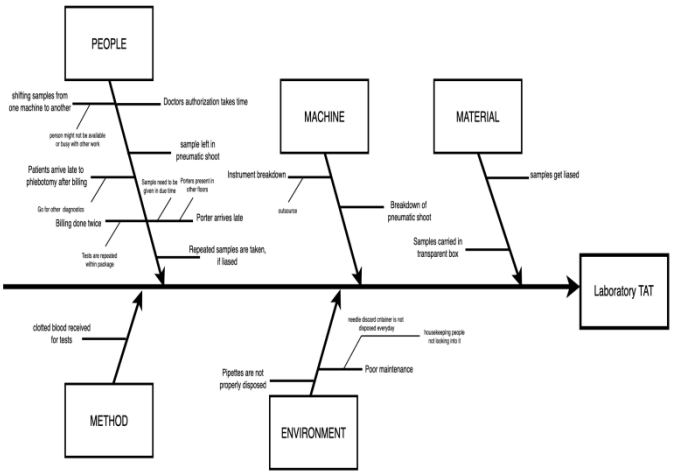
According to the above chart, 15.19% of patients took time up to less than 5 min with an average TAT of 3 min of 31 samples, 55.39% of patients took time between 5 min to 10 min with an average TAT of 8 min of 113 samples, 18.63% of patients took time between 10 min to 15 min with an average TAT of 14 min of 38 samples, and 10.80% of patients took time above 15 min with an average TAT of 18 min of 22 samples.

2. Laboratory

Chart I Chart showing Turn around time (TAT) for Laboratory Department

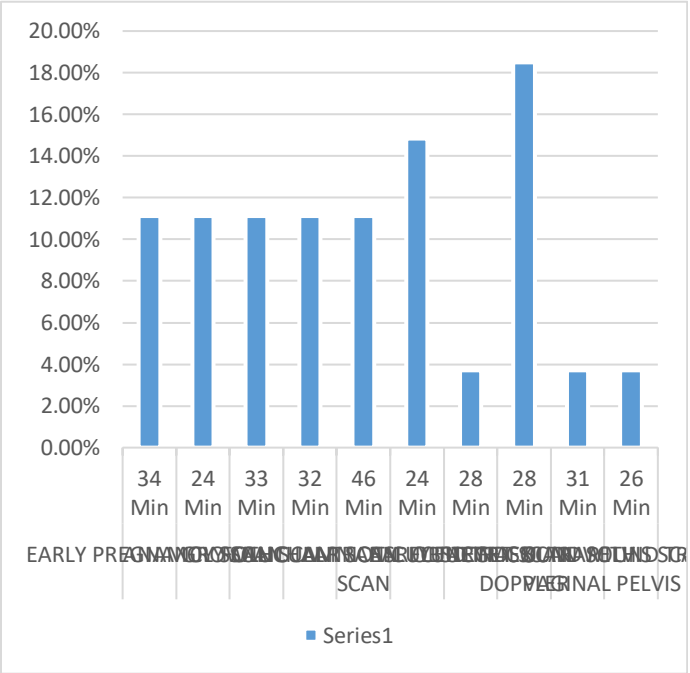


The above chart shows 15.17 % of samples move less than 1 hr from sample acknowledgment till authorization, 40 % between 1 hr to 2 hrs and 35 % between 2 hrs to 4 hrs.

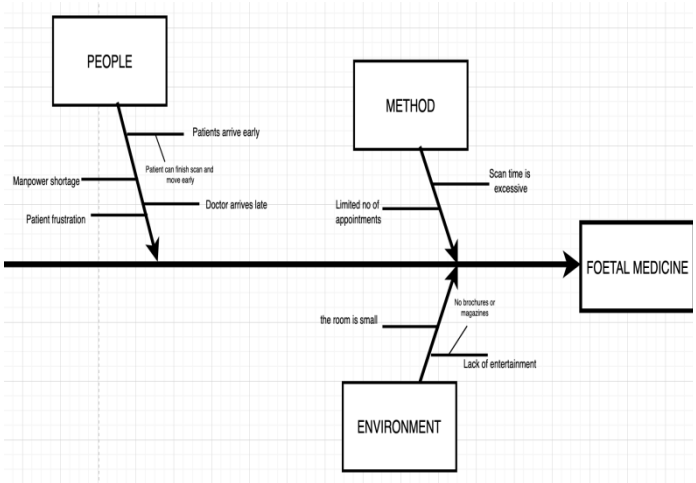


3. Foetal Medicine

Chart I Chart showing Turn around time (TAT) for Foetal Medicine Department



According to the above chart, 16.67 % of obstetric scan with doppler has 28 min scan time, 13.30 % of amniotic fluid index scan takes 24 min scan time where as other scans takes 25 min to 30 min with 10 %. and 3.34 % of ultrasound scan takes time for 31 min.



V. MAJOR FINDINGS AND RECOMMENDATIONS

- In Out patient department, The Cardio Gastro Sciences OPD has a longer TAT time 53 mins than other OPDs because patients must undergo specific tests before consulting a doctor.
- In the Phlebotomy department, almost all patients' samples are collected between 5 and 10 minutes, with an average TAT of 8 minutes because patients show up soon after billing.
  In the laboratory, 40 percent of samples are acknowledged and authorised within 1 to 2 hours, as doctor authorization may be delayed.
- In the Foetal Medicine Department, most of the scan time takes within 35 mins. All the scans depends on the position of the baby hence increasing the scan time for twins or more.

Recommendations for OPD

- Improving the communication facility which help to reduce waiting time of patient
- Usage of Patient portal can be increased
- Providing more telehealth solutions in order to reduce patient waiting time a the hospital.
- Arranging magazines, newspapers, sudoko puzzles, join-the-dots puzzles, and so on, to pass the time.

Recommendations for Phlebotomy & Laboratory

- For the sample collection area, at least one porter can be assembled individually for both 1st floor and 2nd floor. (porter facility can be increased)
- Regular calibration and maintenance of instruments by the biomedical department.

Recommendations for Foetal Medicine

Puzzles, periodicals, healthfacts books, foetal quotations, and other activities might be provided in the department to keep the attendees occupied while the scan is being performed in order to avoid boring environment.

VI. CONCLUSION

The researchers have described TAT in a variety of ways. TAT is defined as a series of nine steps: ordering, collection, identification, transport, preparation, analysis, reporting, interpretation, and action. The term therapeutic TAT refers to the time between when a test is requested and when a therapeutic decision is made. TAT is classified as pre-analytical, analytical, or post-analytical based on the stages of sample processing. One-on-one interviews were conducted with patients/attendants in registration areas, eminent consultants' OPDs, the laboratory, the radiology waiting area, and the pharmacy queues.

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