DISSERTATION REPORT

IN

مستشفى ثومبي | الفجيرة
THUMBAY HOSPITAL | FUJAIRAH

THUMBAY HOSPITAL,UAE

2022

TITLE

A TIME AND MOTION STUDY TO REDUCE WAITING TIME & IMPROVE PATIENT FLOW IN EMERGENCY DEPARTMENT

BY

SHIVANI SHARMA

POST-GRADUATE DIPLOMA IN HOSPITAL AND HEALTH MANAGEMENT

2020-2022

IIHMR DELHI | INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH

ACKNOWLEDGEMENT

Acknowledging the areas you have worked is not an admission of failure, it is an admission that you one step ahead of success.

I would like to express my gratitude to my director Dr. Shihad Khader giving me the opportunity to be a part of this Dissertation Programme. I express my gratitude towards supervisors Dr. Sudheer Krishna for providing timely guidance, inspiration & unconditional support during my summer internship.

I offer my special thanks to my mentor Dr. Sumesh Kumar, whose valuable guidance helped me in completing my Summer Internship report within the due time.

I am highly grateful to Mrs. Divya Aggarwal , Mr. Sumesh Kumar all my faculty members for giving me this opportunity to learn and add to my phenomenal experience. Without their cooperation and guidance, it would not have been possible to conduct my study and complete my training successfully.

At last, I would like to thank to my family and friends for their cooperation and motivation.

Shivani Sharma

PGDM

PG/20/075

Date 30/4/2022

To Whom It May Concern

This is certified that Ms. Shivani Sharma was working in our institution as Management Trainee from 2nd February 2022 to 30th April as a part of dissertation of her PGDHM (Hospital & Health Management) Program. She has completed the assigned project.

We wish her all the best in her future endeavors.

For Thumbay Hospital, Fujairah

Signature

DECLARATION OF APPROVAL

The accompanying Dissertation of titled **"A time and motion study to reduce waiting time & improve patient flow in emergency department in Thumbay Hospital, Fujairah."** is thus endorsed as a confirmed report in the management, carried out exhibited in a manner satisfactory to warrant its acknowledgement as an essential for the honor of Post Graduate Diploma is Health and Hospital Management for which it has been submitted. It is understood that by this endorsement the undersigned don't really embrace or support any announcement made, supposition communicated or conclusion drawn in that but approve the report just for the reason it is submitted.

NAME

Dr. Sudheer Krishna

SIGNATURE

Certificate from Dissertation advisory committee

This is to certify that Ms. Shivani Sharma, a graduate student of PGDM (Hospital & Health Management) has worked under our guidance and supervision. She is submitting this dissertation titled "**A time and motion study to reduce waiting time & improve patient flow in emergency department in Thumbay Hospital, Fujairah**" in partial fulfillment of the requirements for the ward of the PGDM(Hospital & Healthcare).

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.

Dr. Sumesh Kumar
Associate Dean
IIHMR, New Delhi

Dr. Sudheer Krishna
Operations Manager
Thumbay Hospital

Plague certificate

FEEDBACK FORM

(IIHMR MENTOR)

Name of the Student:

Ms. Elizabeth Joseph

Summer Internship Institution:

Thumbay Hospital Fujairah

Area of Summer Internship:

Pharmacy Department

Attendance:

Regular.

Objectives met: Yes

Deliverables:

Was oriented to understand actual process and to recommend possible changes in process flow

Strengths:

To learn Analytical Skills, Patient:

Suggestions for Improvement:

Analytical Skills to be Improved.

Signature of the Officer-in-Charge (Internship)

Date: 30/04/2022

Place: Thumbay Hospital Fujairah

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled "**A time and motion study to reduce waiting time & improve patient flow in emergency department in Thumbay Hospital, Fujairah**" and submitted by **Shivani Sharma** with enrolment **PG/20/075** under the supervision of **Dr. Sumesh Kumar** for award of PGDM (Hospital & Healthcare) of the institute carried out during the period from 2 Feb,2022 to 30 April embodies my original work and has not formed the basis for award of any degree, diploma associate, fellowship, titles in this or any other institute or other similar institution of higher learning.

SIGNATURE

TO WHOM IT MAY CONCERN

This is to certify that **Shivani Sharma** student of PGDM (Hospital & Health Management) from International Institute of Health Management Research, New Delhi undergone management training at Thumbay hospital from 2th FEB 2022 to 30ST APRIL 2022.

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

The Dissertation is in fulfillment of the course requirements.I wish her all success in all her future endeavors.

Dr. Sumesh Kumar
Associate Dean, Academic and Student Affairs
IIHMR, New Delhi

Mentor

IIHMR, New Delhi

TABLE OF CONTENTS

ABBREVIATIONS

Pts-	PATIENTS
JCI-	JOINT COMMISION INTERNATIONAL
ED-	EMERGENCY DEPARTMENT
LOS-	LENGTH OF STAY

INTRODUCTION OF ORGANIZATION (THUMBAY HOSPITAL FUJAIRAH)

Thumbay Chain of Hospitals is one of the largest health care providers in the region. The group focuses on three pillars Education, Healthcare and Research. Hospitals and Medical Centre in Ajman, Fujairah, Sharjah and Dubai.

At Thumbay Hospitals we aim to provide exceptional quality of care with the latest technology, highly skilled medical work force from 20 nationalities, speaking more than 50 languages, treating our guests from more than 175 nationalities worldwide with warm Arabian Hospitality. The hospital is managed by qualified professionals with a wide range of experience in hospital management.

Thumbay Hospitals are committed to provide ethical patient care focused on patient safety, high-quality care and cost-effective services.

Thumbay Hospitals are committed to integrate the latest trends in education to produce competent healthcare professionals who are sensitive to the cultural values of the clients they serve. We will strive to attain the highest of quality and accreditation standards.

Thumbay Hospital, Fujairah (previously known as GMC Hospital, Fujairah) is a multispecialty hospital provides quality care at affordable price. The hospital is equipped with various specialty departments & services supported by highly qualified and experienced doctors, technicians and trained nurses. Accreditations & Membership: The Thumbay Hospital, Fujairah is accredited to JCI and various international bodies apart from the Ministry of Health, UAE, and has credentials of being a member of other equally eminent organizations. Facilities VIP Rooms, Deluxe Rooms, General Wards, Inpatient Services, Pharmacy, Physiotherapy & Traction, all types of surgeries.

VISION

To be the leading network of academic hospitals in the Middle East.

MISSION

To provide patient centered care of the highest quality in an academic set up.

CORE VALUES

- **Excellence** – Provide clients with a consistently high level of service through benchmarking and continual improvement
- **Trust** – Ensure trust, compassion, dignity and mutual respect for colleagues and clients through open communication and dialogue.
- **Client centered** – Always be guided by the needs of our patients and clients.
- **Ethics** – Always follow ethical practices that emphasize honesty, fairness, dignity and respect for the individual.
- **Continuous learning** – Always keeping abreast with new technologies and evidence based clinical practice.

- **Teamwork** – Always working together as a team and drawing strength from our diversity to serve the community.
- **Integrity** – Committed to personal and institutional integrity, make honest commitments and work consistently to honor them.

In 1998, a young and enthusiastic businessman from India founded the Thumbay Group in the UAE. He set up the UAE's first private medical college in Ajman, which later became a full-fledged medical university, the Gulf Medical University (GMU). Confronted with the challenge of providing adequate clinical training opportunities for its students, he built the first private teaching hospital in the region, which laid the foundation of Thumbay Hospitals.

Soon after Thumbay Hospital – Ajman was launched, it emerged as a popular healthcare destination in the country, encouraging Thumbay Group's healthcare division to set up a string of teaching hospitals at various locations in the UAE. This was in addition to a network of state-of-the-art family clinics 'Thumbay Clinic', a chain of pharmacies 'Thumbay Pharmacies' and a series of diagnostic centers 'Thumbay Labs' across the country.

SERVICES PROVIDED BY THE HOSPITAL

A) Emeregency services

The department of emergency is the gateway and mirror of the hospital which works round the clock. The department is responsible for the acute care patients who present without prior appointment; either by their own means or by that of an ambulance.

- 24 hour emergency services mainly Cardiac Emergency, Industrial Trauma, Surgical Emergency, Gynae/Obs Emergency, Pediatric Emergency, and Orthopedic Emergency.
- The ED provides a comprehensive emergency service to all patients presenting to the department on a 24 hour basis.
- The department accepts all patients for treatment.
- ED staff is specialized emergency healthcare providers who have advanced qualifications and experience.
- The department is able to provide rapid resuscitation, stabilization and transfer of critically ill patients

INFRASTRUCTURE	NUMBER
Doctor Room	1
GP Clinic	2
Injection Room	1 (1bed)
Triage Room	1
Observational Room	1 (2beds)
Male Examination Cubicle	1 (2beds)
Female Examination Cubicle	1 (2beds)
Procedure Room	1
Isolation Room	1
Eye Wash Room	1
Mortuary	1
Restroom male	1
Restroom female	1

B) OPD SERVICES:

- Dental
- General Surgery Urology
- Ophthalmology
- Psychiatry
- Orthopedic
- Gynecology
- Pediatrics
- Nutrition and Diet
- Cosmetology
- Physiotherapy
- Internal Medicine
- Cardiology
- Dermatology
- Front office
- Pharmacy
- Radiology
- Audiometry
- Ophthalmology

C) IPD SERVICES: It is 21 bedded hospital providing ICU services, OT , to the patient.

AWARDS:

جائـــــزة دبـــي التقديرية للجودة
DUBAI QUALITY APPRECIATION AWARD

جائـــــزة دبـــي للتنمية البشريـة
DUBAI HUMAN DEVELOPMENT AWARD

SKEA
SILVER
WINNER 2017/18

MAJOR ACCEPTING INSURANCE:

Daman
National Health Insurance Company

NEXtCARE
Your Health Managed with Care

NAS

Aafiya
Managing your care process

Al-Buhaira National Insurance Co.

almadallah
Healthcare Management

neuron

ADNIC

CHAPTER – I
INTRODUCTION

PROJECT WORK: A TIME AND MOTION STUDY TO REDUCE WAITING TIME & IMPROVE PATIENT FLOW IN THUMBAY HOSPITAL, FUJAIRAH.

1.INTRODUCTION

1.1Background

Global population growth and rising life expectancy have led to an increase in patients seeking medical attention. When the need for treatment exceeds the capacity of the hospital, the waiting period for patients is increased. Waiting time at Emergency and Outpatient Clinics is known to be one of the main problems in emergency medical care for outpatients worldwide

Time is one of the most important things to us. Time and movement study (or time movement study) is a business-oriented approach that incorporates Frederick's time learning activity.

Winslow Taylor (1881) for the moving work of Frank B. Gilberth and his colleague Lillian Gilbreth (1885). It is a major component of Taylorism.

Movement research is developed to evaluate the best way approach to remove a repetitive task while time study estimates how much time takes a worker take to complete any work assign to him. Historically these two subjects are discussed separately, previously it briefed as single topic. These two integrated and well-defined strategies into a widely accepted way that works in the implementation and improvement of any services.

This integrated approach to operating system development is used to evaluate schedules and work schedules in hospitals. The goal of the Time and Movement lesson is to find ‘normal’ or intermediate time by using qualified person who have kneen observation selected to record how much time is a person is giving to each activity. For this purpose, time and movement lessons can be used effectively in performance tests and can be used for planning purposes. Over the past decade, the number of patients seeking Outpatient Care (OPD) services has increased several times, but facilities in OPD have not increased at the same rate. The large number of patients in OPDs with limited strength creates confusion and the possibility of maltreatment. The OPD therefore needs a systematic review of its service in order to ensure its proper functioning and function. It is therefore important that a simple time and movement study of the OPD program and affordable appropriate interventions can go a long way in improving the efficiency of the hospital. Book deaths were found in time and movement research in the OPD and hospital OPD settings as a rare phenomenon. The current study was therefore conducted at the hospital's OPD clinic to determine the time taken by the hospital to determine the time taken at the various service delivery points in the inpatient department and to assess the beneficiaries' opinion about the total time spent in the hospital. OPD.

Waiting time is defined as the aggregate of the duration from registration to consultation with a physician. Patient waiting time is the duration of time from the time a patient enters a hospital to the time when a patient contacts a physician immediately. "

Waiting time from the time patients deliver the clinic appointment card or referral letters over the counter until they receive a call over the counter. During this registration period, the payment process and the division of records are done.

There were two waiting periods, the first was the time it took to see a doctor and the second was the time to get treatment. The waiting period for health services is often thought of as building a line where it is assumed that patients experience greater stress if they wait too long. Waiting can be frustrating, frustrating, and even frustrating. Uncertainty, Waiting experiences can often be seen as complex, thoughtful, and cultural.

Whether the time spent on patient registration, general doctor appointments, emergency room treatment, laboratory tests / diagnoses, procedures, obtaining the results of various tests,

The patient occurs in almost everyone who seeks medical help. It softens one of the most frustrating parts of the health care system. Waiting times for specific disease care have been considered as a major problem in many health care systems as they serve as barriers to effective patient flow.

OPDs are considered a hospital resource window and a patient's perception of a hospital begins with OPD. This view often contributes to the patient's concern to hospitalization so it is necessary to assure that OPD services provide magnificent details to the customers. It was also found that 8-10% of OPD patients needed hospitalization

Waiting time is an indicator of service quality because we evaluate several of the six quality measures, including the efficiency and effectiveness of outpatient care. Waiting times have always been a problem in outpatient clinics.

Patients spend a long duration in particular health unit for the help of doctors and cooperative health specialists. The level at which wellbeing buyers are fulfilled with the care gotten is closely related to the quality of the holding up encounter. Healthcare organizations that endeavor to convey one of a kind administrations must viably oversee their hold up at the clinic.The holding up period at a patient's clinic is an critical indicator of the quality of administrations given by the clinic.

Registration time, payment process / payment /, classification / deadline /, personal services and work schedule are the indicators of patient waiting time in general outpatient departments.

Providing quality wellbeing care has ended up a worldwide objective. Healthcare administrations display one of a kind challenges due to their inborn precariousness, affectability to time, direness, and tall levels of client engagement. Healthcare suppliers have been more inquisitive about diminishing their costs and moving forward the quality of benefit since the final two decades (Boyer & Pronovost, 2010). The result has been the development of unused strategies to progress the method pointed at making strides the quality of persistent care, whereas lessening costs, expanding quiet fulfillment, killing restorative mistakes, and progressing clinical proficiency.

“Effective” service refers to the speed of care given to patients, including issues such as waiting time before consultation, length of consultation, time spent with doctors later, immediate response to emergencies, immediate drug withdrawal, and immediately after. accurate laboratory tests.

Satisfied patients often adhere to prescribed treatment and advice from physicians; they are more likely to return to receive additional care when needed and are more willing to pay for services, thus increasing their income.

Studies have appeared that the normal holding up time for clinics in Trinidad and Tobago was 2 hours and 40 min, with a separate of less than 1 to 6 hours. This long hold up some time recently meeting was seen in 48% of patients who were disappointed with healing center care for this reason.

Long waits are often cited as one factor that can reduce the use of health care by any particular community. Studies in developing countries have also shown that patients have spent 3-4 hours in the outpatient department before, seeing a doctor.

These results are in stark differentiate with the world. Long hold up some time recently treatment the mediation may result in an increment in disease and death rate or changeless incapacity, on the off chance that the understanding recoups. One of the foremost stressful things’ patients need to bargain with is waiting within the healing center. For patients who are exceptionally wiped out or in torment, this will be extraordinary test.

The length of the consultation period may affect the patient's satisfaction. Singh and his colleagues found that the test time was three minutes. They also found that 47% of patients expressed dissatisfaction with that. Long wait before consultation and the average duration of the trial were found to be a major source of dissatisfaction between Trinidad and Tobago patients.

Patient satisfaction can also be compromised by the level of services provided by laboratories, pharmacies, X-rays and the food departments. This study is therefore due to the need for periodic testing of services at health facilities.

This will enable health managers to identify errors and improve the quality of health services provided.

Clinics frequently treat OPDs as for-profit centers with a see to expanding income. In spite of the solid significance of outpatient administrations, clinics frequently confront solid complaints almost the phenomenal length of time patients are constrained to hold up compared to the genuine

time given in restorative examinations, treatment or counseling (Doyle et al., 1980). In Japan, it is frequently alluded to as ‘waiting three hours to be seen for three minutes’. Clinics, on the other hand, frequently permit a huge line of patients to maintain a strategic distance from the event of proficient inertia whereas holding up for a understanding. In this manner, measuring a patient's holding up period and counselor's dormancy is an imperative choice for OPD. Since Bailey's to begin with work (1952), numerous analysts have explored the matter.

Complaints about over-patient waiting times in OPDs are becoming increasingly common. For the purpose of helping people, it is obviously not desirable to keep patients waiting longer than they really need. On a larger scale, leading to the loss of National working time, many countries will not be able to afford it given the current human resources shortage. The term of the consultant, on the other hand, usually relates to fixed costs, which should be used more efficiently to maximize revenue. Therefore, the full use of consultant time is considered an overstatement of hospitals As a result, persistent holding up time leads to quiet disappointment and conceivable unfavorable clinical results, whereas expert sit out of gear time leads to higher costs and less utilize of assortment of assets. In this manner, clinics confront a solid have to be give both stream and reasonable OPD administrations to meet the patient's anticipated development. To improve this estimate, healthcare providers around the world have to be reorganize their frameworks by adjusting to best hones, devices, and strategies (Natarajan, 2006).

79 minutes covers only a point from the patient's admission to the hospital and clinic to pay off part of his or her debt. It does not look for a trip to the pharmacy to get medicine.

Presenting the revelations, Jobilal Vavachan, CEO and Vice President of the Aster team, said, “This is based on research we conducted internally over the past year and I believe the time spent has grown significantly during this time. In 2016 or 2017, the average time would be 45 minutes. ”

Some UAE Gulf News hospital networks spoke to them saying it takes a long time for patients now to seek advice about their illnesses. Even specialist clinics are burdened by the longevity of this visit.

Healthcare providers unanimously agree on what causes the closure - the time they spend "taking prior permits" from insurers at each step of the treatment process. Therefore, when a patient enters to see a specialist, hospitals / clinics insist that they first be examined by a general practitioner and then referred to a specialist, if necessary.

“Qualif ication should be done before consultation. We must get approval from the insurance before performing any procedure. Insurance retailers have also lost a lot of money over the past year or more with their medical policies, especially those with low-quality health insurance. They have also put pressure on hospital staff with every procedure involved in treatment ... As permits take time, the poor person is the one who uses the end. He must wait for the consent of the consultant and laboratory tests to be obtained. ”

"Generally, insurance providers try to do this with less risky cases, but still the long turnaround can be stressful for patients," he said. It creates problems as the patient is already unwell, so any delay in getting the necessary treatment can increase their discomfort and add to their stress.

1.2 STATEMENT OF PROBLEM:

The role of ED in a multidisciplinary hospital to provide timely health care to patients. To provide a fast service, there should be access to all resources on time. Each step should be completed within the allotted time. To understand the timing of the distribution of various steps, a study of time is required. ED therefore requires a systematic analysis of its services that integrates the management process and its effectiveness. It is, therefore, very important that light and dynamic study of the Department of the Injury Department is required in order to achieve further development. Time and effort to learn the two parts of the strategies that make up a career lesson. Career research can be defined as a systematic review of existing practices to improve the effective use of staff and resources and to set performance standards. How to study systematic recording and critical assessment of existing methods of development. Includes an investigation of existing or alternative methods of operation and improvement. Time course, also called job evaluation, is the use of systematic strategies to set time levels for specific tasks. It measures how long a job should take and the needs of staff and equipment for a particular method. It also helps to find out what value-added functions and non-value-added functions are. Jobs that change the size, shape, proportions, form, or function of material or information (for the first time) to the satisfaction of the customer and those customers are willing to pay are called additional services. Those jobs that consume a lot of time or resources but do not increase value in the eyes of the customer and customers who are unwilling to pay are called non-additional services.

Congested within the emergency unit may be a major and growing problem that might influence quality and get to to care. Life span could be a trademark of ED blockage and an imperative portion of ED quality confirmation checking. ED LOS is by and large characterized as the time from persistent enrollment until that persistent takes off ED. LOS may be related with ED congestion of patients, decreased quiet fulfillment with ED care, emergency vehicle deviation and antagonistic clinical results. An organization with a long LOS in ED was too found to be phonetic contrasts between wellbeing care suppliers and patients. Basic time can be misplaced in ED due to need of capacity to communicate successfully in English, which contributes altogether to the increment in length of stay.

1.3 SIGNIFICANCE OF THE STUDY:

The system of health facilities, but almost always, a large % of pt. come in & out of the hospital at several times. The duration of a pts. is waiting to be seen is one of the factors affecting the use of health care and patients see long waiting times as a barrier to really getting help. In a competitively managed health care setting, patient waiting time plays a critical role in the clinician's ability to attract new business. It is difficult to sell services if people are dissatisfied during the long wait period from which the patient is entered the waiting room or consulting room until the patient was actually discharged from the hospital.

Additionally, the waiting time is a reason in keeping current service users. PS has global health care systems that address long and growing waiting times medical services. Sometimes this waiting may have a small medical effect, but excessive delays can be detrimental to the health of patients. Due to long waiting times, a large number of patients left in outpatients and the emergency department. This study is useful in all aspects of improving patient flow and thus reduces waiting time

CHAPTER- II
OBJECTIVES OF THE STUDY

2.OBJECTIVES

General objective:

- To provide quality healthcare services by reducing waiting time & improving patient flow in Emergency Department.

Specific objective:

- To measure the average time spent in different service delivery points in Emergency Department.
- To identify the gaps at various points resulting in congestion and queue.
- To suggest methods to reduce congestion & queuing in Emergency Department.

CHAPTER- III
LITERATURE REVIEW

S. No	AUTHOR	SAMPLE	METHOD	TITLE	FINDINGS
1.	A B Bindman , K Grumbach, D Keane, L Rauch, J M Luce (1991)	700 pt. Emergency department at San Francisco (Calif) General Hospital	Observational cohort	Consequences of queuing for care at a public hospital emergency department	Patients were more likely to leave as waiting times increased
2.	A J Booth, C J Harrison, G J Gardener, A J Gray (1992)	300000 People in Stockport area	A cross sectional study	Waiting times and patient satisfaction in the accident and emergency department	Department will continue to strive to improve the services. However, limitations of the staff and facilities will be the main impediments.
3.	M Ortega , M J Esteban, O Miró, M Sánchez, J Millá (2000)	patients who left the ED before medical visit over a period of 26 consecutive weeks	Prospective study	Prospective study of patients who leave the emergency department before being seen by the physician]	Patients who leave ED department before being seen by a doctor are usually young, literate, have not previously visited their community physician, and consulted for minor complaints.
4.	S Goodacre, A Webster (2005)	Waiting time data for 71,331 patients were analysed	Multivariate analysis	Who waits longest in the emergency department and who leaves without being seen	Time of presentation, rather than individual patient characteristics, seem to be the most powerful predictors of waiting time. This suggests that concerns about inequity of waiting

					times should be addressed by reorganisation of staff duty roster
5.	K Banerjea-, A O Carter (2006)	882 eligible A&E patients	cross sectional study	Waiting and interaction times for patients in a developing country accident and emergency department	The A&E could improve patient care processes by shortening waiting times, especially for laboratory results, triage, and seeing a doctor, particularly for older medicine patients.
6.	**McCarthy ML**, Zeger SL, Ding R, Levin SR, Desmond JS, Lee J, Aronsky D(2009)	ED visit and inpatient medicine occupancy data for a 1-year period at 4 EDs.	Retrospective cohort study	Crowding delays treatment and lengthens emergency department length of stay, even among high-acuity patients	crowding throughout each patient's ED visit and demonstrate its deleterious effect on the timeliness of emergency care, even for high-acuity patients.
7.	Ks Prasanna , Ma Bashith, S Sucharitha (2009)	100 patients (caretakers in pediatric patients)	A cross sectional study	Consumer Satisfaction about Hospital Services: A Study from the Outpatient Department of a Private Medical College Hospital at Mangalore	required for reduction of time spent in the pharmacy and the cost of investigations to improve consumer satisfaction.
8.	N. Elkum, M. Fahim, M. Shoukri and A. Al-Madouj (2009)	25 charts was randomly selected every day for 4 months medical record.	Retrospective study	Which patients wait longer to be seen and when? A waiting time study in the emergency department	Variability in waiting times could be addressed by more standardized triage policies, but may also be influenced by other clinical or non-clinical factors that require further investigation.

9.	Didem Av, Meltem Akk2010 as, Bulent Sivri (2010)	Patients who present to adult emergency department (ED)	Retrospective cohort study	Patient population and factors determining length of stay in adult ED of a Turkish University Medical Center	The ED overcrowding rises with increased visits and patients staying in ED who should be hospitalized.
10.	Zeynal Karaca, Herbert S Wong & Ryan L Mutter (2012)	Data on 4.9 million T&R ED visits in three states: Arizona, Massachusetts, and Utah	Retrospective cohort study	Duration of patients' visits to the hospital emergency department	The duration of T&R ED visits varied significantly by admission hour, day of the week, patient volume, patient characteristics, hospital characteristics and area characteristics
11.	Amitabha Chattopadhyay, Ritu Ghosh, Sucharita Maji, Tapobroto Guha Ray, Saibendu Kumar Lahiri (2012)	mother/caregivers attending the immunization clinics	observational cross sectional study	A time motion study in the immunization clinic of a tertiary care hospital of Kolkata, West Bengal	Time management at all levels of health care system is the need of the hour which has to be recognized and necessary steps must be taken.
12.	Sarang Deo , Stephanie M Topp, Ariel Garcia, Mallory Soldner(2012)	Outpatient and HIV services in an urban primary care facility in Lusaka	A pilot intervention	Modeling the impact of integrating HIV and outpatient health services on patient waiting times in an urban health clinic in Zambia	Controlling for these differences, integration of services, per se, would have resulted in a significant decrease in waiting times for OPD and a moderate decrease for HIV services.

13.	E A A Teviu , M Aikins, T I Abdulai, S Sackey, P Boni, E Afari, F Wurapa (2012)	Municipal Hospital	Intervention study	Improving medical records filing in a municipal hospital in Ghana	a defined medical records filing system with adequate training, logistics and regular monitoring and supervision minimises issuance of multiple folders and misfiling.
14.	Shawn M Varney, Toni E Vargas, Rebecca L Pitotti, Vikhyat S Bebarta (2012)	A total of 508 surveys	Cross-Sectional Survey	Reasons military patients with primary care access leave an emergency department waiting room before seeing a provider	Long wait times were the primary reason that patients left before seeing a provider, despite having ready access to care. Respondents attributed long wait times to patient volume and inadequate staffing. Regular updates on wait times and material for entertainment may improve the waiting experience and reduce LWOBS.
15.	Ibrahim Mahmoud-, Xiang-Yu Hou-, Kevin Chu, Michele Clark (2013)	Queensland state-wide hospital EDs dataset	A secondary data analysis	Language affects length of stay in emergency departments in Queensland public hospitals	here is a close relationship between the language spoken at home and the LOS at EDs, indicating that language could be an important predictor of prolonged LOS in EDs and improving language services might reduce LOS and ease overcrowding in EDs in Queensland's public hospitals.

					increased significantly.
20.	Logandran Naidoo, Ozayr H Mahomed (2016)	a rural district hospital	Action research study	Impact of Lean on patient cycle and waiting times at a rural district hospital in KwaZulu-Nata	All six service nodes showed a reduction in cycle times and waiting times between the baseline assessment and post-Lean implementation measurement.
21.	Xiaoqing Li, Dan Tian, Weihua Li, Bin Dong, Hansong Wang, Jiajun Yuan, Biru Li,Lei Shi, Xulin Lin, Liebin Zhao and Shijian Liu (2017)	59,041 high-quality EMRs	a retrospective cohort study	Artificial intelligence-assisted reduction in patients' waiting time for outpatient process	waiting times were significantly reduced in AI-assisted outpatient service process. AI can not only improve medical service but also potentially play a transformative role in the design of processes for enhancing the patient flow
22.	Andres Luque Ramos, Falk Hoffmann , Ove Spreckelsen (2018)	5618 pt. data	cross sectional study	Waiting times in primary care depending on insurance scheme in Germany	Primary care in Germany is readily accessible with generally short waiting times. However, barriers in access to the health care system affect a certain part of patients depending on insurance status, age and region of residence. Ways to improve the access need to be studied

CHAPTER- IV
METHODOLOGY

4.METHODOLOGY

It was a time motion study using direct observation combined with time registration such as eye tracking and manual tracking and digital time recording. The data was collected around a period of 30 days from 26 March to 20 April.

As the tool used is direct observation randomization cannot be followed because the one patient has to be observed for the timings from registration till the patient leave the hospital after availing the services. 7-8 patient on daily basis is observed in the emergency department of the hospital.

The process flow was observed from the point of the patient came to the reception into the emergency department and the time when the patient leaves. From the data collected it was observed that the average number of patients attending emergency day is approximately 50.

The patient arrival time to the registration, triage, to see the doctoor, billing, medication administration time, insurance approval, pharmacy time when the patient go from hospital were recorded. The collected data was analyzed to find the various points in the process where the patients were waiting for long period of time. The waiting time in turn influenced the turnaround time (TAT).

Based on the data collected, both average wait times were calculated. The data was compiled and analyzed using Microsoft Office Excel.

Type of study: Quantitative study

Location of study: Emergency Department in Thumbay Hospital Fujairah.

Duration of study: 20 March – 10th June 2022

Study population: Patients come for services in Emergency Department

Data Type: Primary & Secondary Data

Data collection method: Direct observation

Sampling method: Convenient sampling

Sample Size: 200

Average target population (average patient coming to emergency department) /minimum sample requirement =1500/200 = 7.5

Ethical consideration

The study was conducted after receiving permission from a hospital, Thumbay Hospital Fujairah, UAE. All the necessary information about the purpose of the investigation and how it responds to the respondent with a guarantee of confidentiality.

All participants were provided with written information explaining the purpose of the study and their right to privacy and confidentiality. Participant informed that they may not directly benefit from participating in the study, but their participation may help improve the quality of care for the project.

CHAPTER- V
DATA ANALYSIS

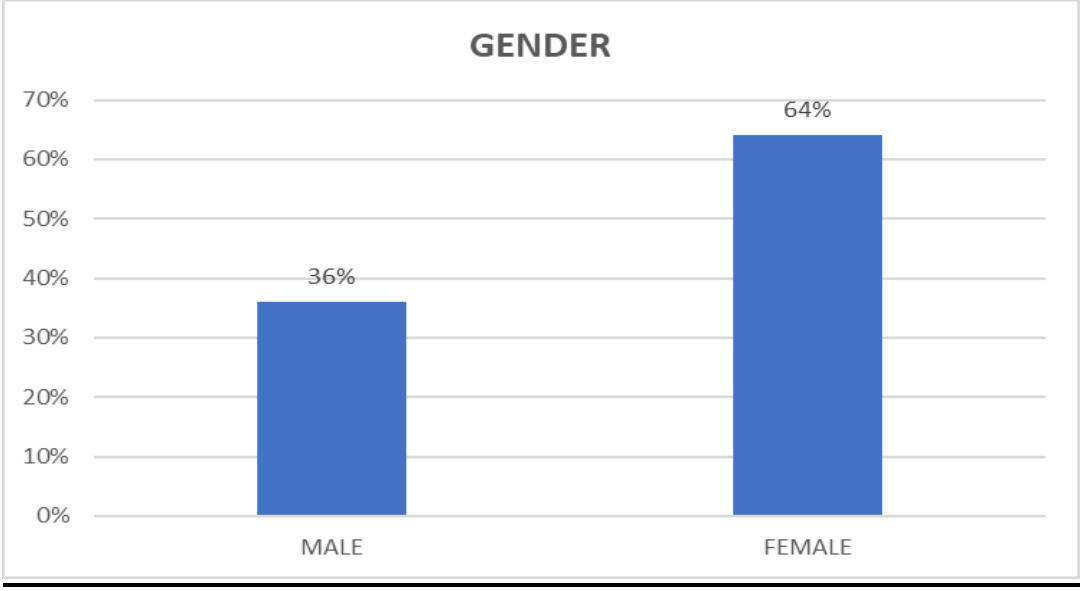
DATA ANALYSIS

DEMOGRAPHIC DATA

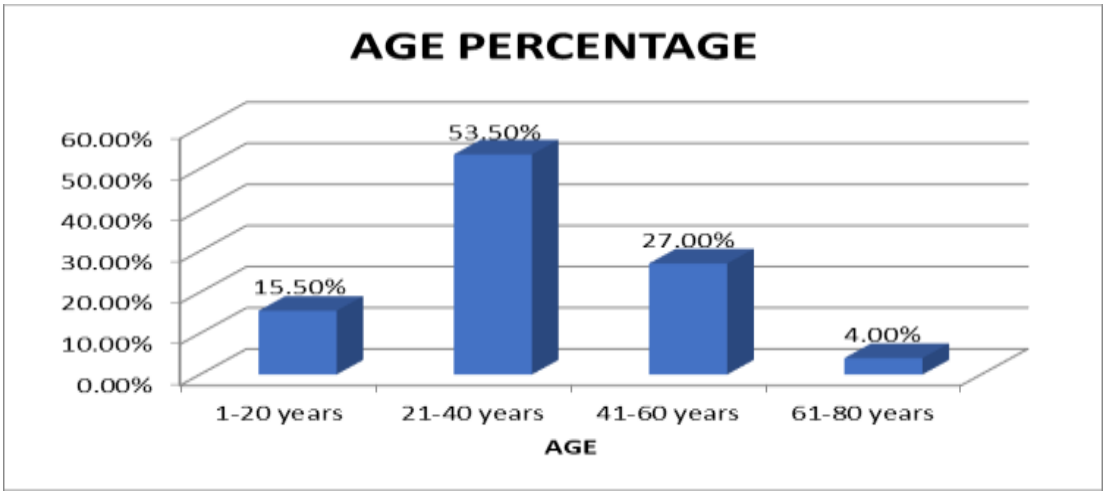
Table:1 This table shows frequency and percentage of gender, age, nationality & insurance.

SEX n =200		
	FREQUENCY	PERCENTAGE
MALE	72	36
FEMALE	128	64
AGE(Years)		
1-20	31	31
21-40	107	54
41-60	54	27
60-80	8	4
NATIONALITY n=200		
AFGANISTAN	1	0.5
BAHRAIN	1	0.5
BANGLADESH	7	3.5
COMOROS	2	1
EGYPT	6	3
FILIPINO	7	3.5
INDIA	83	41.5
JORDAN	4	2
LEBENON	1	0.5
NEPAL	5	2.5
OMAN	3	1.5
PAKISTAN	11	5.5
SRI LANKA	4	2
SUDAN	2	1
SYRIA	1	0.5
THAILAND	1	0.5
UAE	61	30.5
INSURANCE n=200		
ADNIC	3	1.5
AL BUHAIRA	20	10
AL MADALLAHA	6	3
ALICO	1	0.5
AXA	3	1.5
DAMAN	6	3
FAZZA	3	1.5
HEALTHNET	2	1
INAYAH	7	3.5

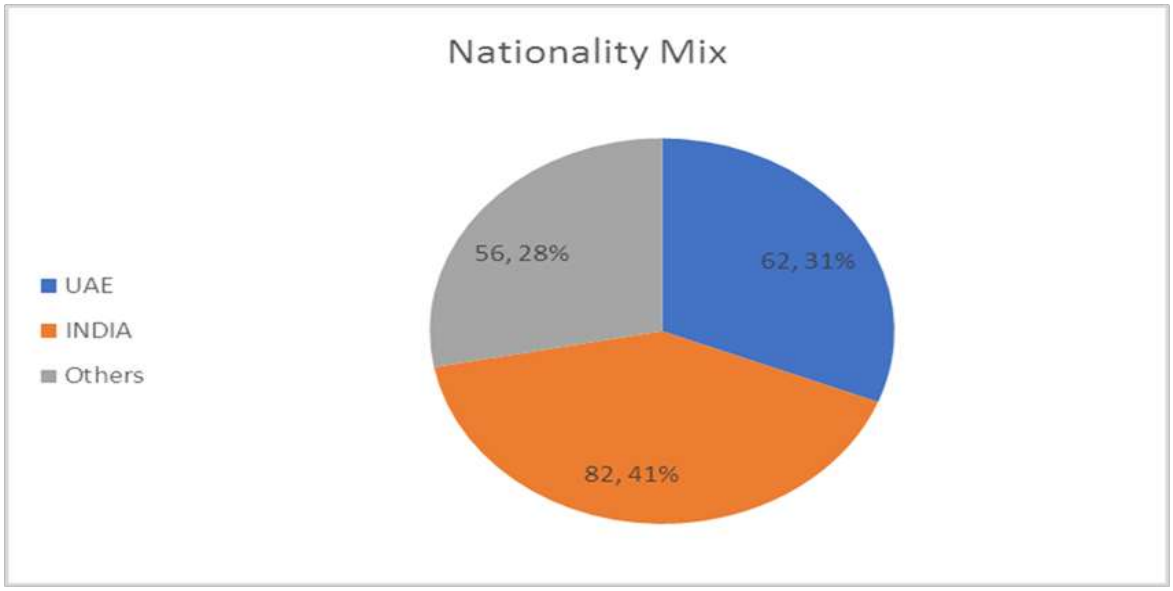
MILITARY HOMATAL WATAN	15	7.5
NAS	52	26
NEURON	4	2
NEXTCARE	20	10
RED CRESCENT	7	3.5
SELF	51	25.5



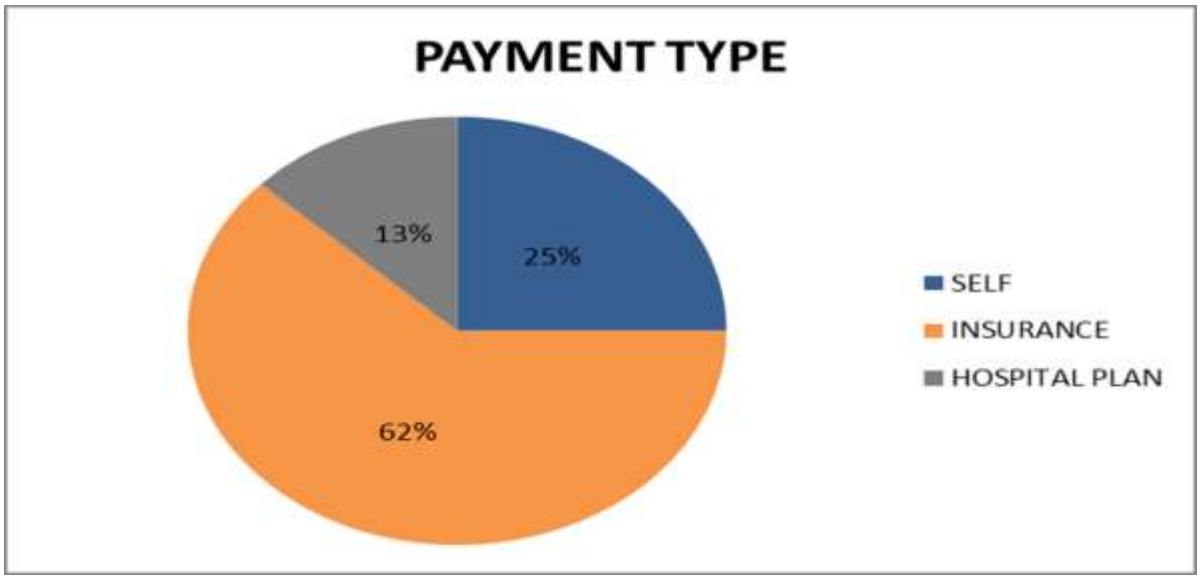
Dia 1. Graph shows the percentage of female and participated in the study.



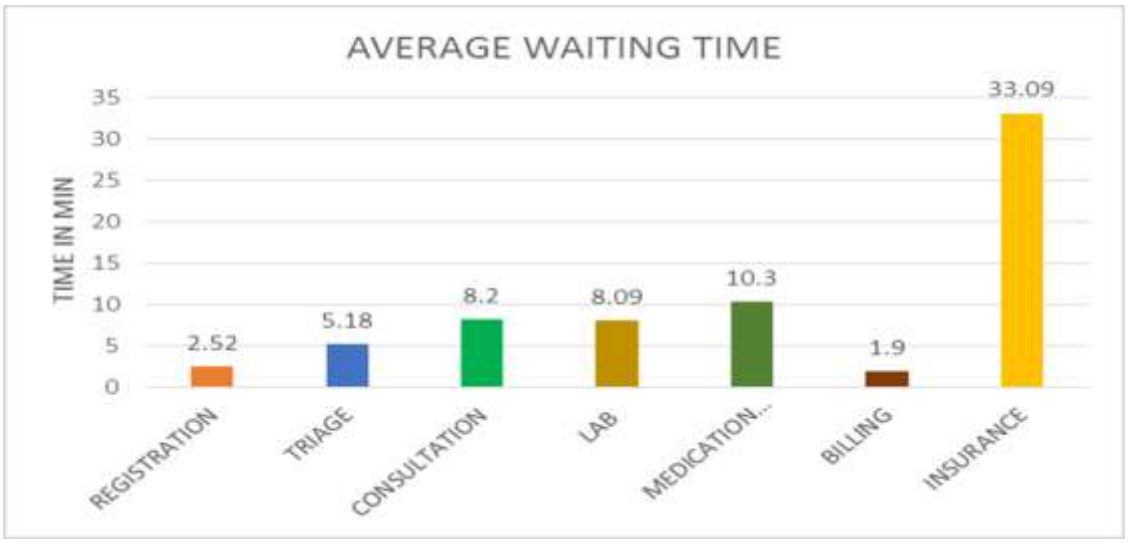
Día 2: This graph shows the percentage of age participated in the study.



Dia 3: This pie chart shows the different nationality patient is coming to hospital for treatment.



Dia 4:This pie chart shows the percentage of type of payment .



Dia 5: This graph shows the TAT of separate desk.

To understanding the gap the patient flow was observed from the patient entry to the Patient leave the hospital. It is shown in the flow chart:

This is the existing pt. flow in emergency department. Patient come to the registration desk for following services:

- ✓ **Emergency Cases**
- ✓ **Doctor Consultation**
- ✓ **Collection of Report**
- ✓ **Dressing**
- ✓ **Injection Administration**
- ✓ **For Approval of Injections and Lab Tests**

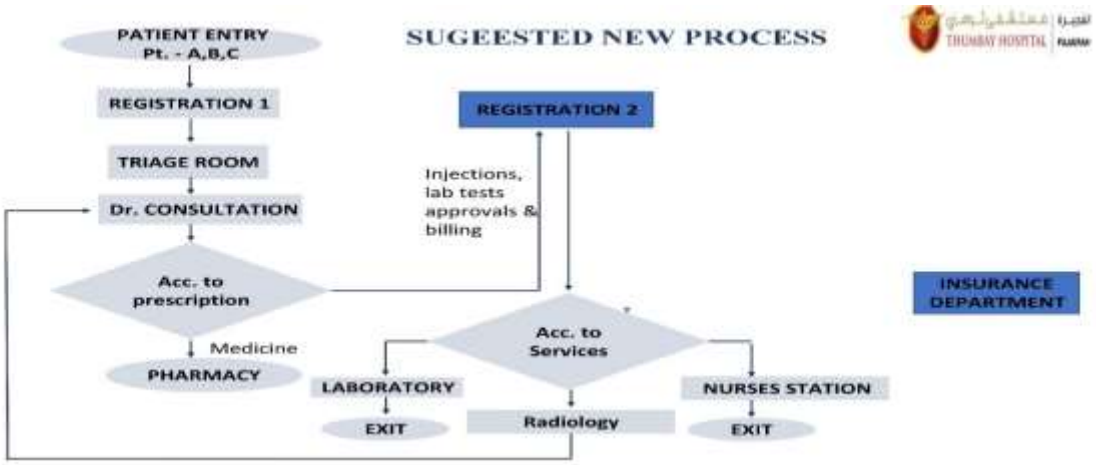
After registration pt. wait for triage after triaging pt. wait for the dr. consultation then dr. prescribes in the system and give the printed paper for medicine (pt. will go to pharmacy for taking medicine), lab but for the injections pt. first go to nursing station, nurses will enter the injection in the system again and give print paper to the patient for billing on the registration another pt. is there now for registration, billing, printing the lab reports, so now the who come for injections billing he have to wait or to break the queue after that pt. will go to the nurse's station show billing paper, after this nurse will prepare medicine and administer to the patient.

Meanwhile, other pt. is waiting for the triage to be done. if triage waiting time increase further process get stop. After injection administration pt. have the hospital. Patient who has insurance they have to the insurance department for the approval for getting the services for this they have to wait.

The observed gaps and challenges in the patient flow are:

- **Delay in triage.**
- **Overlapping in registration queue for billing & approvals.**
- **Delay in triage.**

To overcome for this problem new patient flow was explained.



Methods to reduce congestion & queuing in Emergency Department.

1. The Need for a Help Desk: The establishment of a Help Desk outside the outdoor building will be of great help to people, who are helpless and confused about where the various calculators are going.

2. Proper Use of Symptoms: With new additions and removal of hospital services, new and better symptoms will definitely help new patients. This will reduce congestion as a condition in the tunnel.

3. Online or Mobile Registration Application: The hospital may also start an online appointment channel. This will reduce congestion in the emergency and OPD and patient waiting times.

4. Display system: Token display system should be used for line management. A plan to demonstrate access to doctors and medication should be in place when approved.

5. Appropriate time to please Medical Representatives: Time should be announced and indicated for this purpose.

6. Arrangements for seating and arrangements for tea, coffee, newspaper, magazine, TV etc in the waiting area: Arrangements for seating in the waiting area are very small compared to the current rush. Proper patient planning will definitely be fun and especially satisfying in the summer.

7. Additional Doctor-Patient Ratio: Many staff members are important including nurses, paramedics to reduce overcrowding.

8. Token display system: Especially pt. forgetting to take the token of the lab services after the billing should go back to pick up the token, patient. The presence of a token machine near the laboratory can reduce congestion.

9.The Registration and Billing Counter should be separate: It helps to reduce the patient waiting period for payment.

10. Digital Accreditation is managed digitally: No patient should go to the Insurance Department. All insurance authorizations must be digitally managed.

CHAPTER- VI
INTERPRETATION OF DATA

6.Interpretation

In this study 72 (36%) men and 128 (64%) women participated in this hospital providing all the services for all patients of all ages to come for treatment, in this study it was noted that most of them are between the ages of 20-40 (53.5%) & 41 -60yrs (27%) come for treatment.

Mostly Indians (41%) in the UAE (31%) of nationality come to the hospital for treatment and the other nationalities are Afghanistan, Bahrain, Comoros, Egypt, Nepal, Oman, Sudan, Syria, Jordan, Sri Lanka etc. who provide quality and secure services.

Without insurance in the UAE survival is difficult to take care of in hospital. It is compulsory to have insurance living here but the problem facing the patient is to wait for the approval period in order to receive the services.

The average time is higher for insurance authorization and payment service. In order to minimize payment services if the action taken by analyzing the gaps in the congestion of queue can be reduced.

Conclusion

The current study has highlighted some areas that the hospital should consider. Many factors contribute to the inability to provide patients with quality services such as waiting time, waiting time and lack of signal system.

The hospital is facing a very critical area for human health. The patient comes to the hospital to receive treatment at a higher cost.

Limitations

Cannot observe all patient coming to hospital.

REFERENCES

References

Booth AJ, Harrison CJ, Gardener GJ, Gray AJ. Waiting times and patient satisfaction in the accident and emergency department. Emergency Medicine Journal. 1992 Jun 1;9(2):162–8

Banerjea K. Waiting and interaction times for patients in a developing country accident and emergency department. Emergency Medicine Journal. 2006 Apr 1;23(4):286–90.

Prasanna K, Bashith M, Sucharitha S. Consumer satisfaction about hospital services: A study from the outpatient department of a private medical college hospital at Mangalore. Indian Journal of Community Medicine. 2009;34(2):156

Ay D, Akkas M, Sivri B. Patient population and factors determining length of stay in adult ED of a Turkish University Medical Center. The American Journal of Emergency Medicine. 2010 Mar;28(3):325–30

McCarthy ML, Zeger SL, Ding R, Levin SR, Desmond JS, Lee J, et al. Crowding Delays Treatment and Lengthens Emergency Department Length of Stay, Even Among High-Acuity Patients. Annals of Emergency Medicine. 2009 Oct;54(4):492-503.e4

Varney SM, Vargas TE, Pitotti RL, Bebarta VS. Reasons Military Patients With Primary Care Access Leave an Emergency Department Waiting Room Before Seeing a Provider. Southern Medical Journal. 2012 Oct;105(10):538–42.

Mahmoud I, Hou X, Chu K, Clark M. Language affects length of stay in emergency departments in Queensland public hospitals. World Journal of Emergency Medicine [Internet]. 2013 [cited 2020 May 4];4(1):5–9.

Capuano F, Lot A-S, Sagnes-Raffy C, Ferrua M, Brun-Ney D, Leleu H, et al. Factors associated with the length of stay of patients discharged from emergency department in France. European Journal of Emergency Medicine. 2015 Apr;22(2):92–8.

Houston C, Sanchez L, Fischer C, Volz K, Wolfe R. Waiting for Triage: Unmeasured Time in Patient Flow. Western Journal of Emergency Medicine. 2015 Jan 1;16(1):39–42.

Naidoo L, Mahomed OH. Impact of Lean on patient cycle and waiting times at a rural district hospital in KwaZulu-Natal. African Journal of Primary Health Care & Family Medicine. 2016 Jul 26;8(1)

Sun J, Lin Q, Zhao P, Zhang Q, Xu K, Chen H, et al. Reducing waiting time and raising outpatient satisfaction in a Chinese public tertiary general hospital-an interrupted time series study. BMC Public Health [Internet]. 2017 Aug 22;17(1)

Luque Ramos A, Hoffmann F, Spreckelsen O. Waiting times in primary care depending on insurance scheme in Germany. BMC Health Services Research. 2018 Mar 20;18(1).

Hussain A, Asif M, Jameel A, Hwang J. Measuring OPD Patient Satisfaction with Different Service Delivery Aspects at Public Hospitals in Pakistan. International Journal of Environmental Research and Public Health. 2019 Jul 2;16(13):2340S

Vezyridis, P., & Timmons, S. National targets, process transformation and local consequences in an NHS emergency department (ED): a qualitative study. (2014). BMC emergency medicine, 14, 12.

30. Olson M, Pandya N. Public Insurance Status Negatively Affects Access to Care in Pediatric Patients With Meniscal Injury. Orthop J Sports Med. 2021 Jan 22;9(1):2325967120979989. doi: 10.1177/2325967120979989. PMID: 33553460; PMCID: PMC7841673

Bindman, A. B. "Consequences of Queuing for Care at a Public Hospital Emergency Department." *JAMA: The Journal of the American Medical Association*, vol. 266, no. 8, 28 Aug. 1991, pp. 1091–1096, 10.1001/jama.266.8.1091. Accessed 15 June 2022

Booth, A J, et al. "Waiting Times and Patient Satisfaction in the Accident and Emergency Department." *Emergency Medicine Journal*, vol. 9, no. 2, 1 June 1992, pp. 162–168, 10.1136/emj.9.2.162. Accessed 24 Oct. 2019

Banerjea, K. "Waiting and Interaction Times for Patients in a Developing Country Accident and Emergency Department." *Emergency Medicine Journal*, vol. 23, no. 4, 1 Apr. 2006, pp. 286–290, 10.1136/emj.2005.024695

McCarthy, Melissa L., et al. "Crowding Delays Treatment and Lengthens Emergency Department Length of Stay, Even among High-Acuity Patients." *Annals of Emergency Medicine*, vol. 54, no. 4, Oct. 2009, pp. 492-503.e4, 10.1016/j.annemergmed.2009.03.006

Ay, Didem, et al. "Patient Population and Factors Determining Length of Stay in Adult ED of a Turkish University Medical Center." *The American Journal of Emergency Medicine*, vol. 28, no. 3, Mar. 2010, pp. 325–330, 10.1016/j.ajem.2008.12.011. Accessed 15 June 2022

Manna DN, Samsuzzaman DM, Das DS. A time motion study in the OPD clinic of a rural hospital of West Bengal. IOSR Journal of Dental and Medical Sciences. 2014;13(7):34–7

Houston C, Sanchez L, Fischer C, Volz K, Wolfe R. Waiting for Triage: Unmeasured Time in Patient Flow. Western Journal of Emergency Medicine. 2015 Jan 1;16(1):39–42

ANEXXURE

TOOLS FOR THE STUDY

(A)

Date:

DEMOGRAPHIC DATA:

Hospital Id:

Gender: Age:

Nationality: Insurance name:

Department: Time started:

Time Finished:

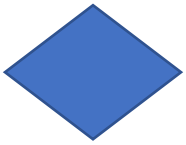
TIME RECORDING SHEET:

Arrival time for registration	Triage Timing	Consultation Timing	Billing timing	Medication administration Timing	Insurance approval Timing	Lab Timing

(B)

PROCESS FLOW CHART:

To Understand the patient flow and reducing the waiting time of the patient. Some symbols are used in flow chart:

S.no	Symbols	Function
1.	 OVAL	Represents a start or end point.
2.	ARROWS	It shows relationship between the representative shape
3.	 RECTANGLE	Represent a process
4.	 DECISION	Represents where 2 -3 alternatives are present.