

**INTERNSHIP AT
ZYDUS HOSPITALS – CANCER CENTRE
AHMEDABAD
(OCTOBER 2020-JANUARY 2021)**

**Waiting Time and Turnaround Time in The Radiology
Department**

by

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MBA IN HOSPITAL AND HEALTHCARE
MANAGEMENT
(2019-2021)**



**National Forensic
Sciences University**

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PROJECT REPORT
ON
WAITING TIME AND TURN AROUND TIME IN
RADIOLOGY DEPARTMENT
AT
ZYDUS HOSPITALS – CANCER CENTRE



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PREFACE

The project report has been prepared in fulfilment of voluntary internship of MBA in Hospital and Healthcare Management, Semester 3 in the academic years 2020. For preparing the project, I have visited Zydus Hospital – Cancer Centre during the suggested duration to avail the necessary information. The blend of learning and knowledge acquired during my practical study at the hospital is presented in this Project Report. The rationale behind visiting and preparing the project report is to study the Quality Management at Radiology Department of the hospital, which includes calculating Waiting time and Turnaround time of the patient undergoing various scans and procedures.

ACKNOWLEDGEMENT

I wish to express my sincere gratitude to Dr. Medhavini, CEO and Ms. Jesintha K., Quality Associate at Zydus Hospital – Cancer Centre, Ahmedabad for giving me this opportunity to do the project at this highly esteemed organisation. I am grateful to Mr. Shival Sharma, senior executive, Operations for his advice and encouragement rendered at every stage. I am grateful to Dr. Bhavika Makwana, Medical Services for her immense guidance and support. I am grateful to the radiology staff for their support during the project. Without their encouragement and guidance this report would not have been materialized.

I am thankful to the course director, Dr. S. O. Junare and Course Coordinator Dr. Kalgi Shah and all the faculties for their support at National Forensic Sciences University.

I am thankful to the staff of hospital who contributed in the completion of this project.

Dr. Vishra Shah

N.F.S.U., Gandhinagar

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INTRODUCTION OF THE HOSPITAL

With a mission to extend World Class healthcare solutions to the community through advances in medical technology, medical research and by adopting best man management practices - Zydus Hospitals has launched its newly built flagship hospital in Ahmedabad. The facility is among Western India's largest private hospitals. The hospital complex is located in the posh western suburb of Ahmedabad, just 20 minutes from the airport and in close vicinity of most hotels and shopping malls.

Zydus Hospitals are committed to excellence and quality with an established focus on the well-being of our patients. Zydus Hospitals provide the right mix of cutting edge technology, warmth and compassionate care. Backed by the best team of medical professionals and procedures, Zydus offers the best in private healthcare in a cost effective way and also provide the highest standard of clinical skills and nursing care across an extensive range of specialities and attract world-class doctors and surgeons from leading hospitals.



Mission –

“To provide world standard healthcare solutions to the community by leveraging advances in medical research science and technology and adoption of best management practices”

Vision –

“To be leading provider in healthcare service delivery to the community. To become a most preferred destination for comprehensive medical care and treatment.

Values –

- Patient Centric
- Adaptable to change
- People-driven
- Committed to deliver
- Innovative in what we do
- Humble
- Value – driven

Accessibility –

- 16km far away from Airport
- 12 km away from Railway station

Address –

Zydus Hospitals Road,
Thaltej, SG Highway,
Ahmedabad – 380054,
Gujarat, India

SCOPE OF SERVICES AND FACILITIES

- Medical Oncology
- Haematology and Bone Marrow Transplant
- Nuclear Oncology
- Radiation Oncology
- Surgical Oncology
- High precision radiotherapy with versar HD
- First-of-its-kind 32 Slice PET CT in Western India
- Gujarat's biggest bone marrow transplant unit
- Robotic techniques for complex surgeries
- Stage-IV Peritoneal Cancer treatment using HIPEC technique
- 3D mammography with High Definition (HD) tomosynthesis
- SPECT with high definition detectors
- Fully-integrated diagnostic services with cutting-edge technology
- High dose radionuclide therapy, nuclear theranostics and precision medicine
- Scarless head and neck surgeries
- Breast reconstruction surgeries
- HDRS - unique approach to stereotactic radiosurgery
- Transparent billing and comprehensive packages
- 20-bedded day care facilities
- Neutropenic area
- Various category wise rooms including suite rooms
- Corporate desk
- Dedicated OPD wings for Medical, Surgical & Radiation departments
- Ambulance services
- Three spacious operation theatres with HEPA filters and laminar flows
- Modern anaesthesia machines with ventilation
- Comprehensive multi-channel monitors including respiratory gas and spirometry monitoring in operation theatres
- Blood gas monitoring facilities
- 25-bedded state-of-the-art ICUs
- Intensive care services in-surgical ICU for post-operative care for major extensive surgeries and in-medical ICU for other critically ill patients who may require both non-invasive and invasive ventilator support
- Cytology, Histopathology, Microbiology laboratories along with pneumatic tube system for easy transportation of collected blood samples.

RADIOLOGY DEPARTMENT

SCOPE OF SERVICES

XRAYs – Available investigations and all routine x-rays

- Radiography is one of the oldest forms of imaging examinations, and is still the most frequently used.
- This imaging technique uses low energy X-rays to produce an image of the organs and tissues.
- A typical X-ray examination lasts about 15 minutes per each area of interest, during which time several images may be taken

ULTRASOUND EXAMINATION –

- Ultrasound is an imaging examination that uses the energy of high-frequency sound waves to produce an image of the organs and tissues
- The tissues will reflect, absorb, and refract the waves differently, and these "echoes" are collected and transformed into an image
- A standard ultrasound examination may last up to 60 minutes, during which several images may be taken

- **SLICE CT SCAN –**

- CT scans use special X-rays to capture images of internal organs from several different angles
- The images are sent to a computer, which generates cross-sections of body tissues and organs
- CT imaging can uncover cancers in many parts of the body
- Ultrasound and CT scans can also be used as guidance for biopsies



- **TESLA MRI –**

- MRI uses a strong magnetic field and radio waves to create detailed images of organs and tissues within the body
- An MRI scan uses a large magnet, radio waves, and a computer to create a detailed, cross-sectional image of internal organs and structures



- **MAMMOGRAPHY –**

- First Mammography of Gujarat with High Definition (HD) Tomosynthesis
- First in Gujarat Insight 2D Technology - Synthetic 2D - 33% lower dose, 50% lesser compression force
- First in Gujarat Insight 3D Technology of Tomosynthesis Volume - 66% lesser reading and reporting time



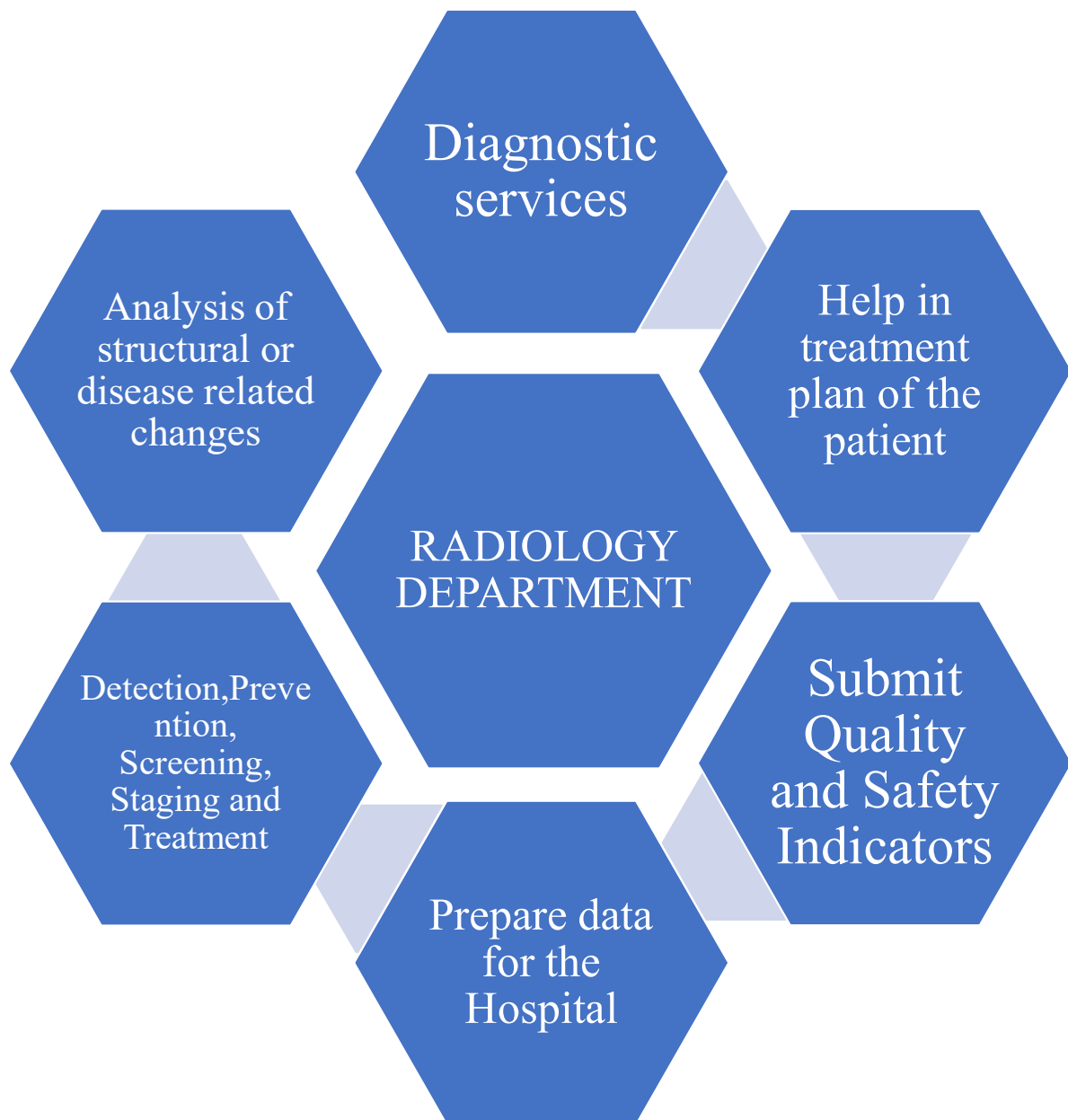
Timings of the department – 24 hours (emergency)

- For OPD patients – 9:00 AM to 8:00 PM

Radiology Faculty and Staff

- Consultant radiologist MD
- Radiology technicians
- Staff nurse
- Medical transcriptionist
- Attendants

FUNCTIONS OF RADIOLOGY DEPARTMENT



TURN AROUND TIME

- Turn-around time is the time between ordering the test/ performing the test till the time results are made available.
- TAT for different scans is as follows in Zydus Cancer Centre

X Ray/ Mammography	60 minutes
USG and Doppler Studies	45 minutes
CT Scan	120 minutes
MRI	120 minutes

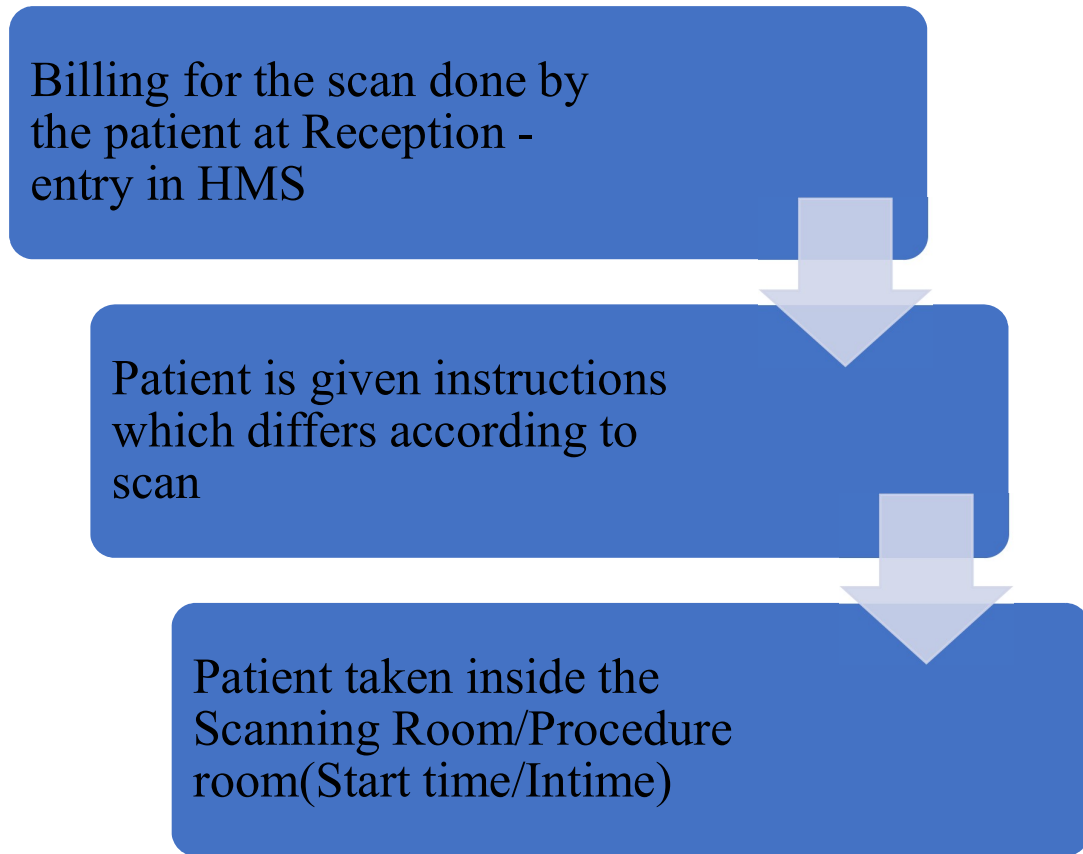
WAITING TIME

- Waiting time can be defined as time between a patient present at the radiology department till he enters the procedure/scanning area. It can also be calculated as Billing time to In time/Start time of the procedure

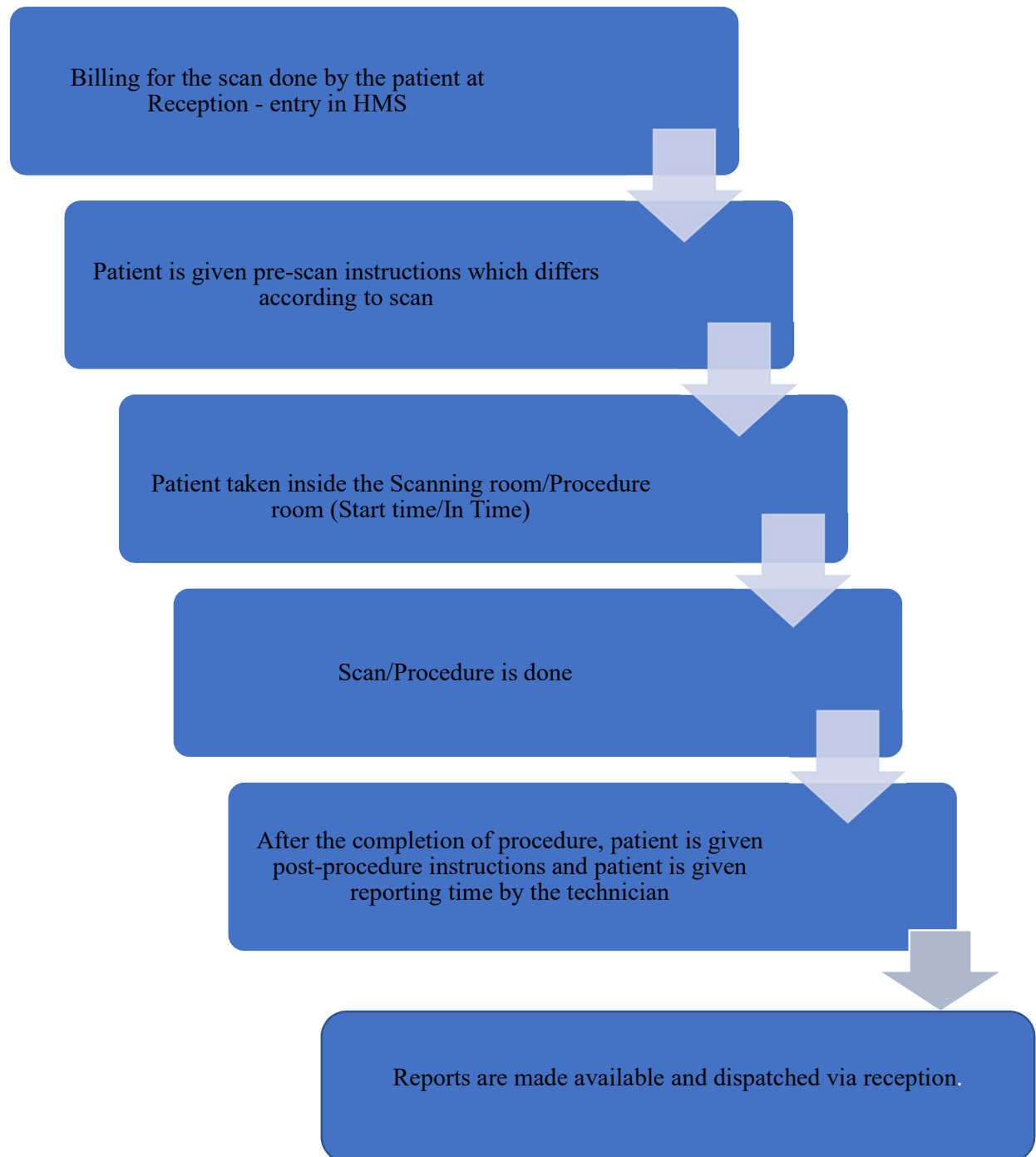
Importance of Waiting time and Turn Around Time

- Helps in understanding the total amount of time spent by the patient in the radiology department for his scans.
- Reflects the quality of care rendered by the hospital.
- Increase efficiency and effectiveness
- Performance evaluation
- To understand the process and for improving patient flow
- Improve patient safety

PROCESS OF WAITING TIME



PROCESS OF TURNAROUND TIME



STUDY OF WAITING TIME AND TURNAROUND TIME FOR THE RADIOLOGY DEPARTMENT

AIM –

- Understand whether the compliance is achieved in MRI, CT, Mammography, Xray and USG in the radiology department according to the policy of the Zydus Cancer Centre
- To identify the existing problems and help find possible solutions for the betterment of the patients and hospitals.

LOCATION –

- Radiology department, Ground floor, Zydus Cancer Centre

DURATION OF THE STUDY –

- 24-10-2020 to 24-12-2020 (October 2020 – December 2020)

SAMPLE SIZE –

- 24-10-2020 to 24-11-2020 – 201 samples
- 25-11-2020 to 24-12-2020 – 341 samples

TOOLS USED – MS-Excel, Graphs

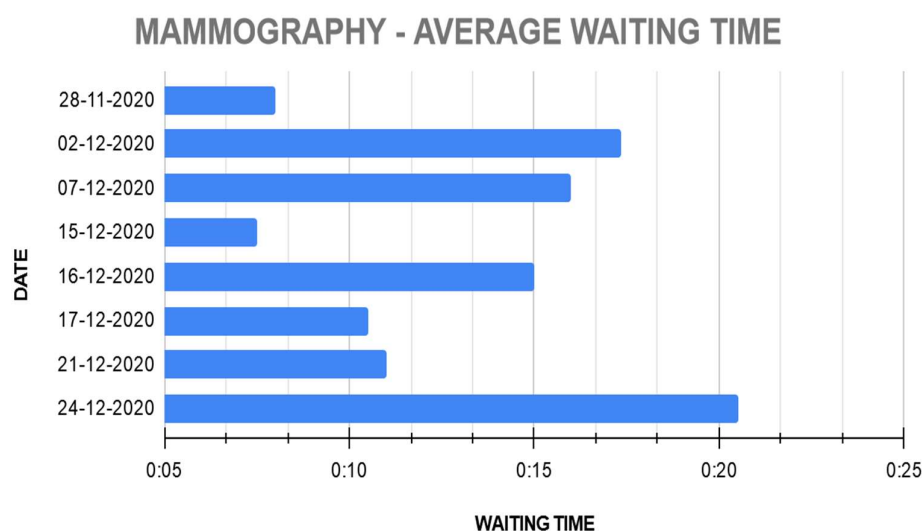
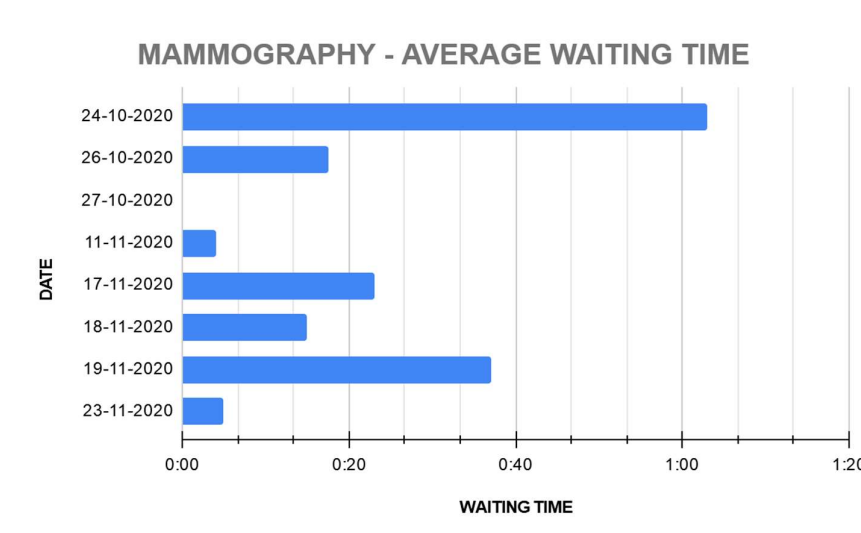
ANALYSIS AND INTERPRETATION

For analysis, waiting time and turnaround time are taken for two months

First month is 24-10-2020 to 24-11-2020

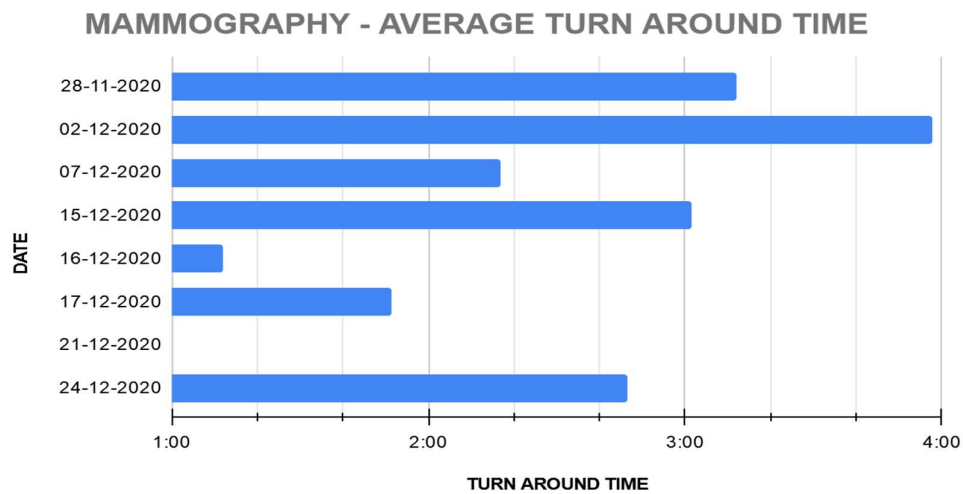
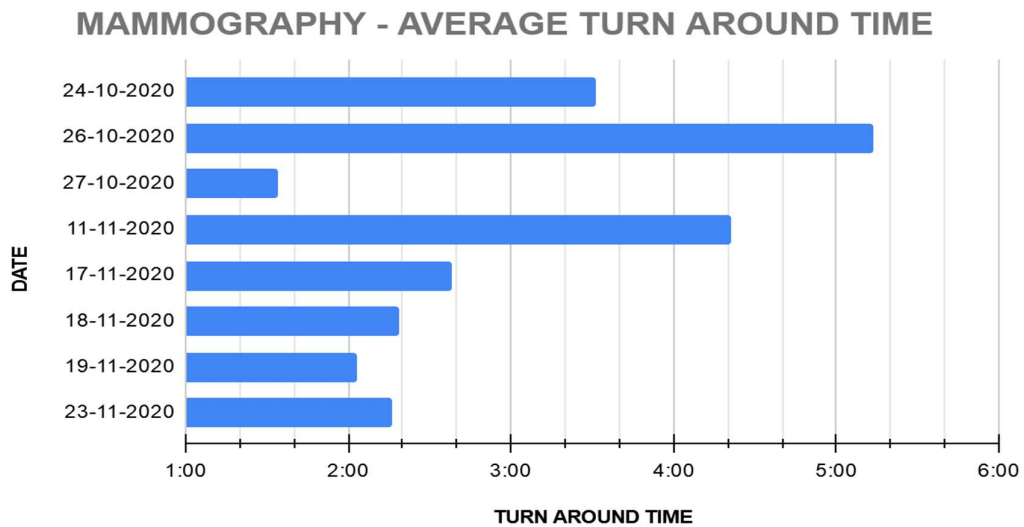
Second month is 25-11-2020 to 24-12-2020

1) MAMMOGRAPHY (WAITING TIME)



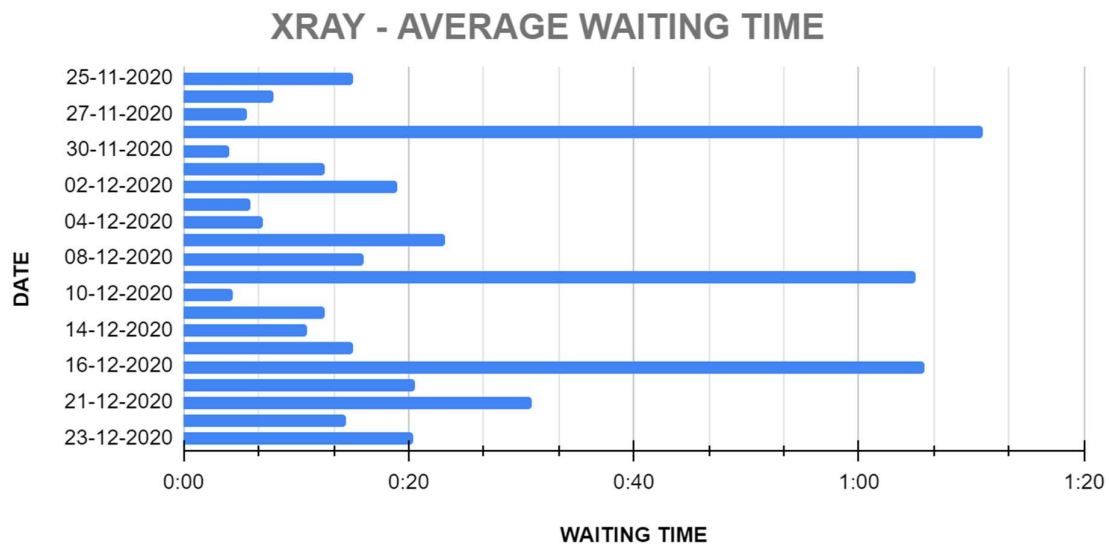
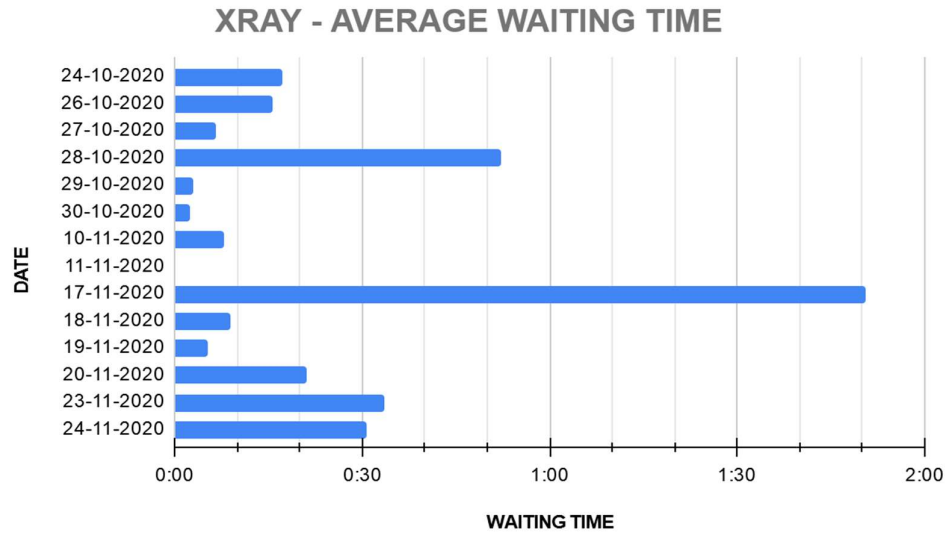
Analysis - Average waiting time from 24-10-2020 to 24-12-2020 is displayed above in the graphs. On comparison, one can observe that waiting time has decreased from October-November to November-December.

2) MAMMOGRAPHY (TURNAROUND TIME)



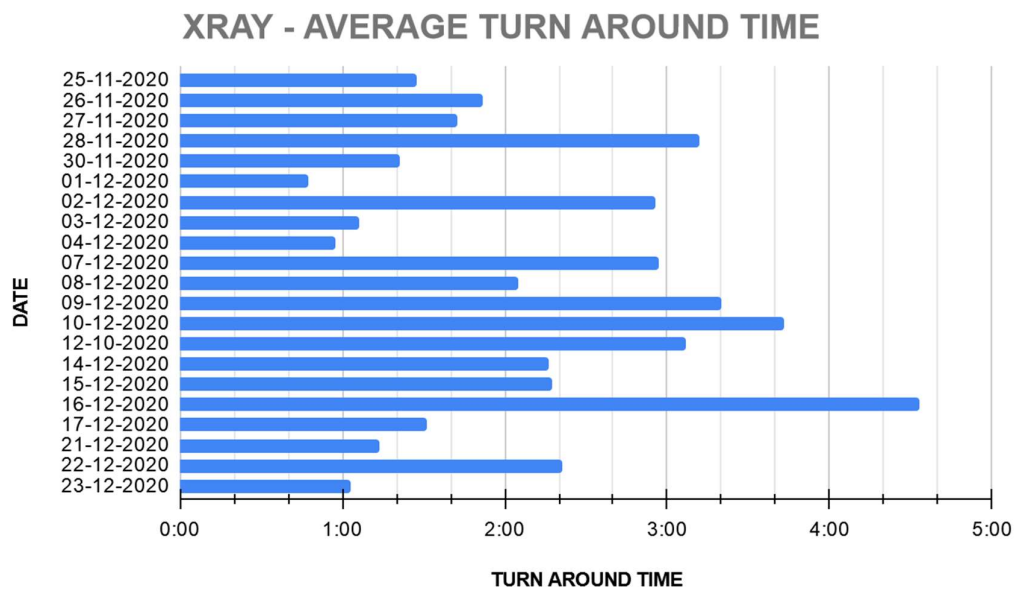
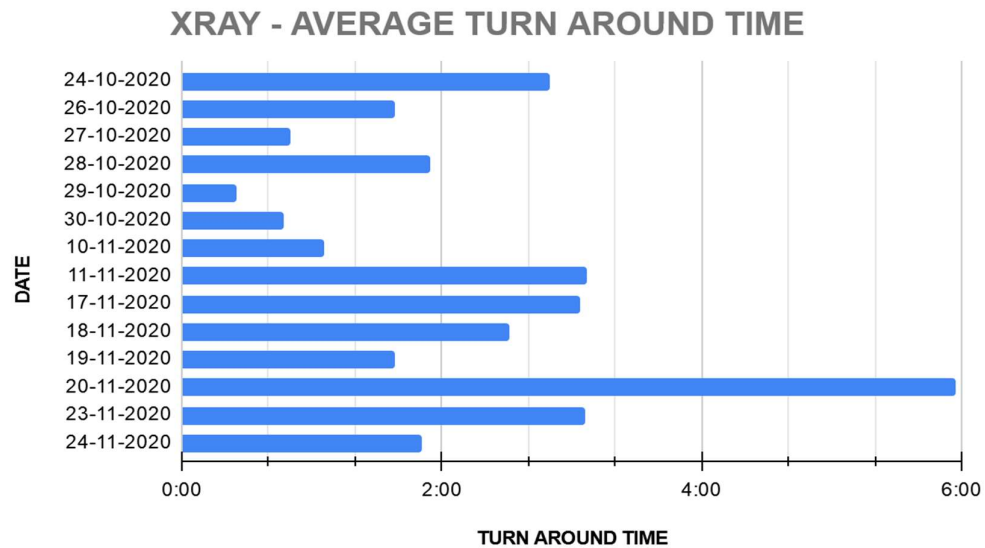
Analysis – Turnaround time for mammography can be seen where it was significantly high in first month and has decreased gradually in the next month

3) X- RAY (WAITING TIME)



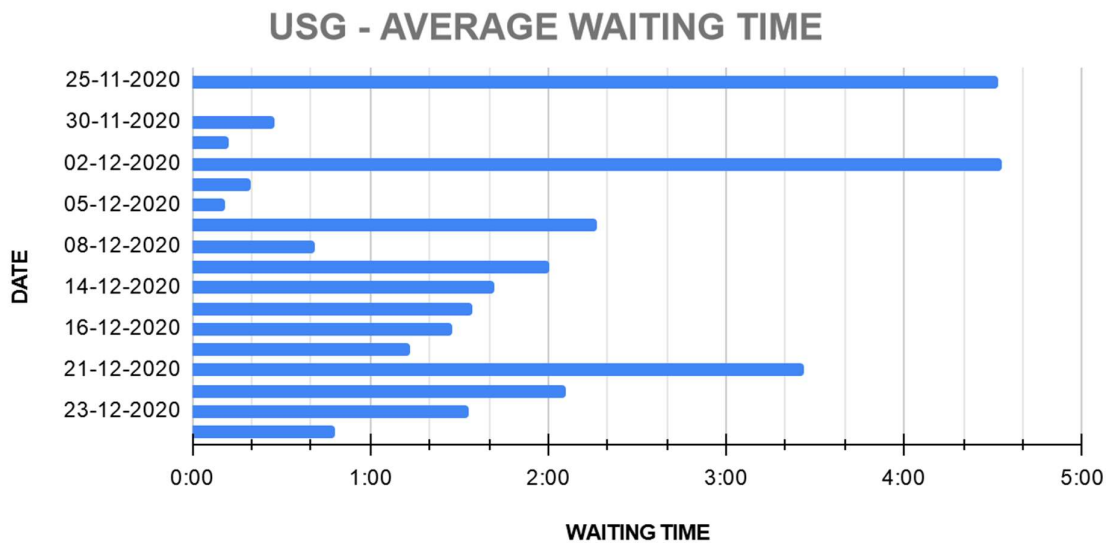
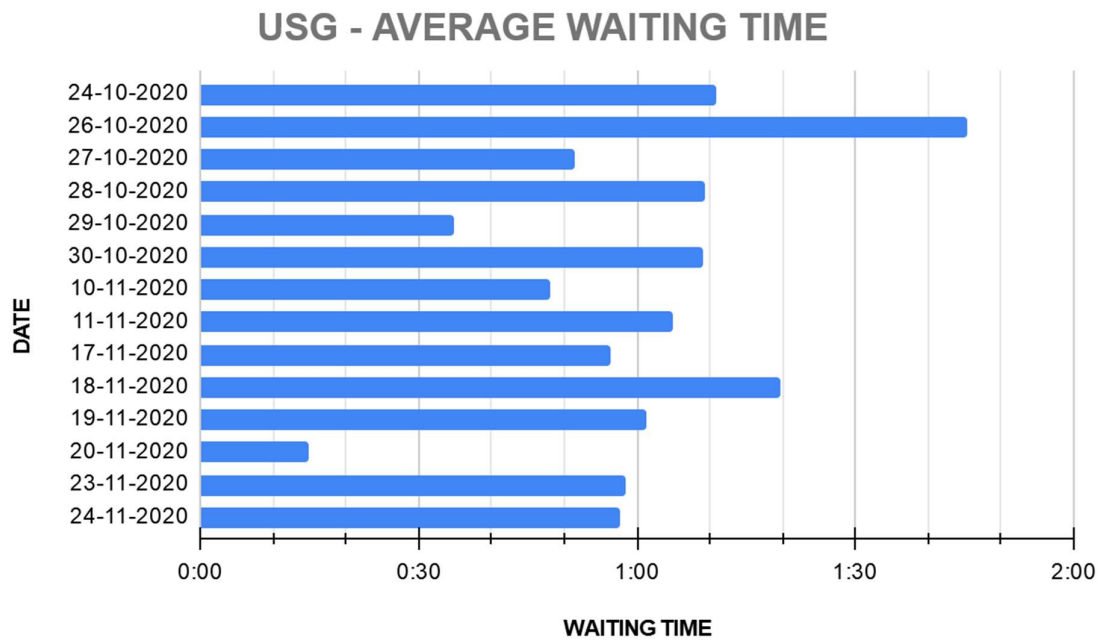
Analysis – It can be seen from the above displayed graphs that the average waiting time for x-rays has gradually decreased.

4) X-RAYS (TURN AROUND TIME)



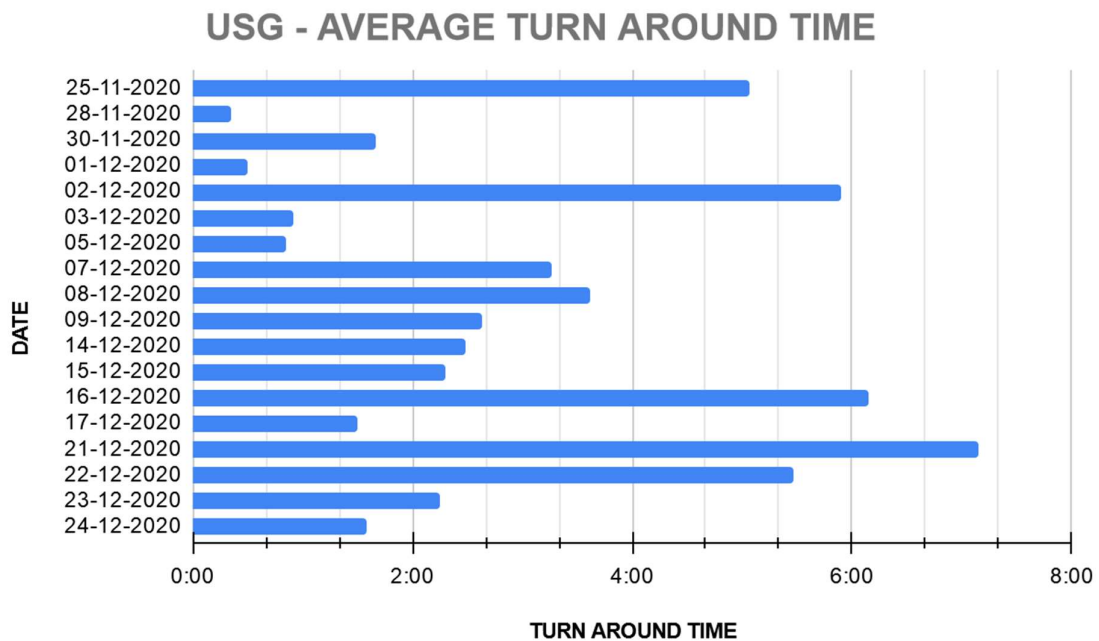
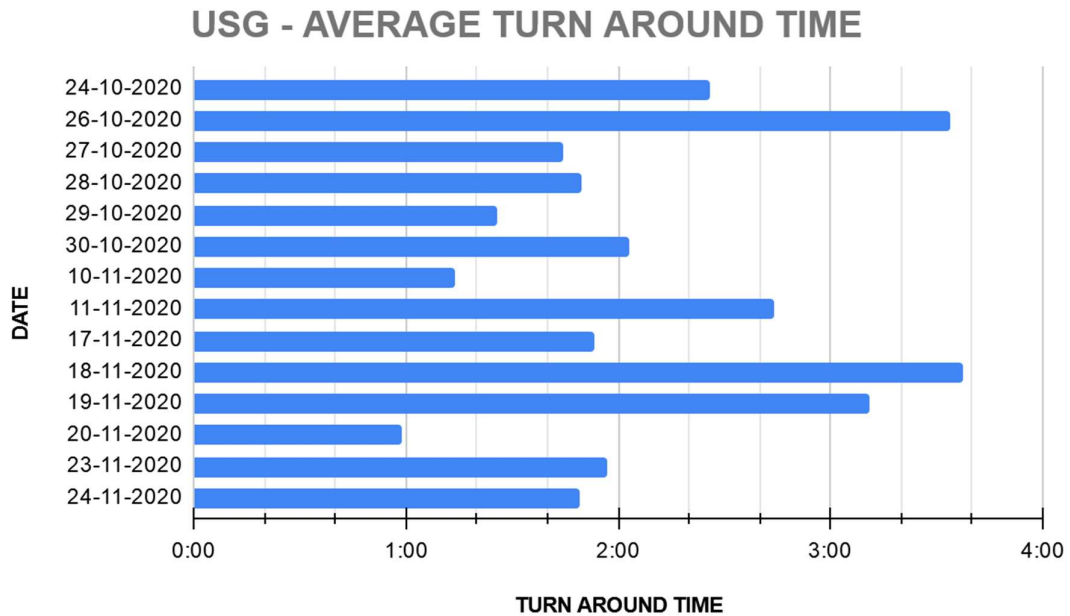
Analysis – It can be seen from the above displayed graphs that the average turnaround time for x-rays has gradually decreased.

5) USG (WAITING TIME)



Analysis – From the displayed graphs, it can be seen that average waiting time has increased by almost 2 hours.

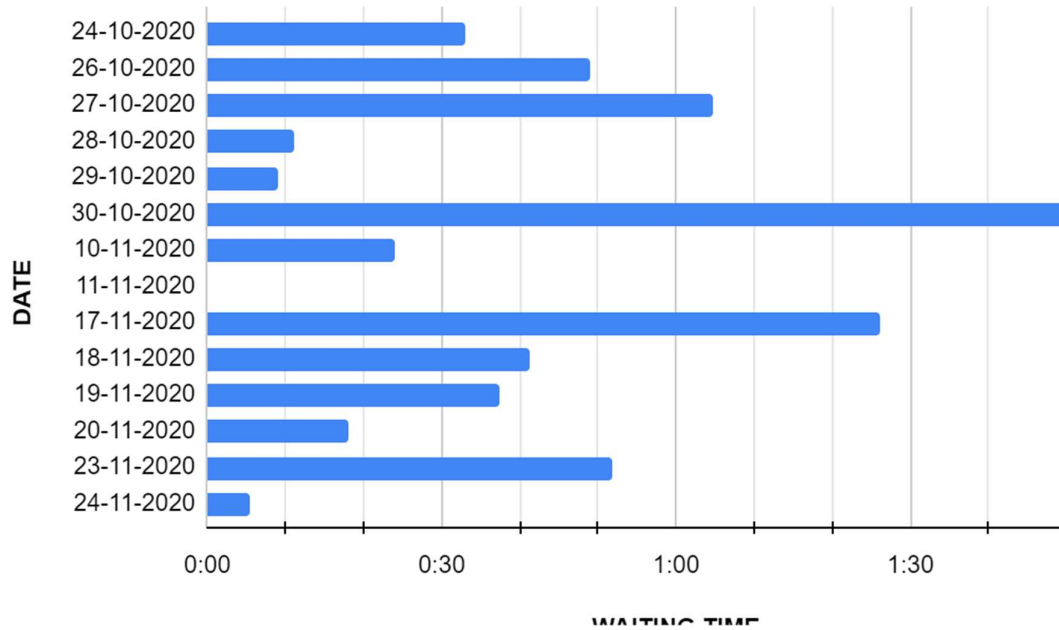
6) USG (TURNAROUND TIME)



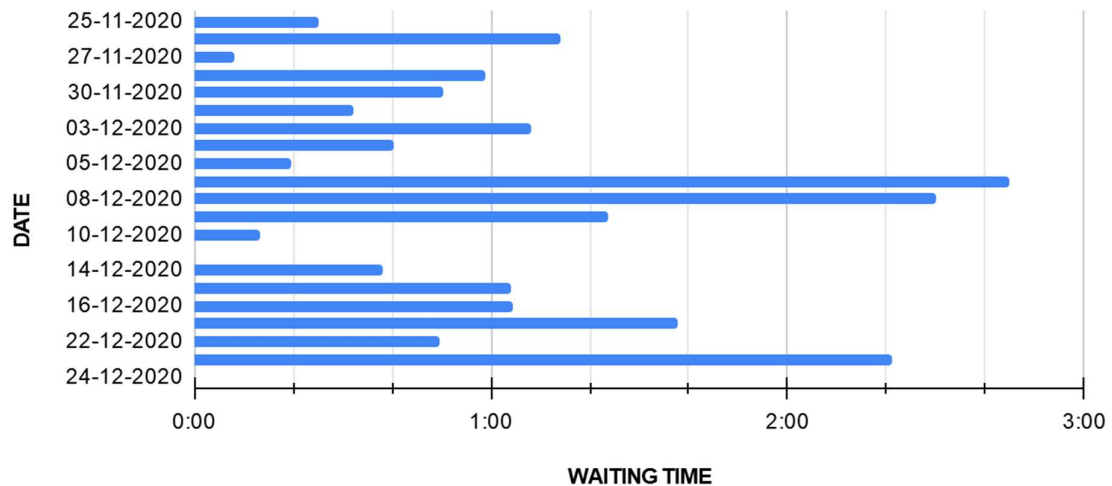
Analysis – As displayed in the above graphs, Turnaround time for USG procedures has increased by a greater margin of almost 2 and half hours.

7) CT SCAN (WAITING TIME)

CT - AVERAGE WAITING TIME

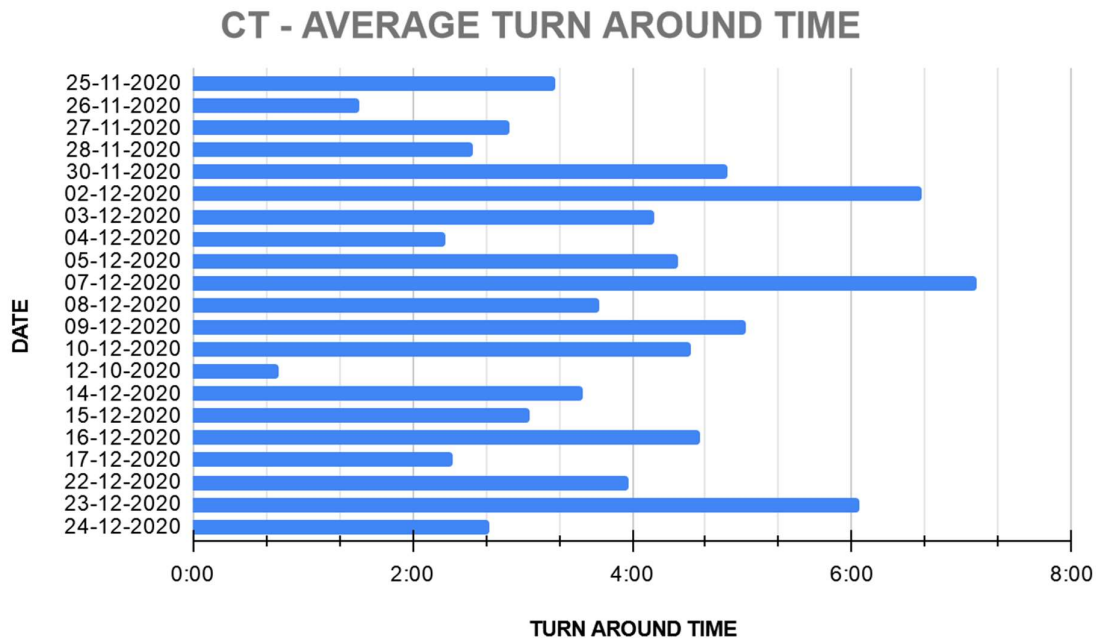
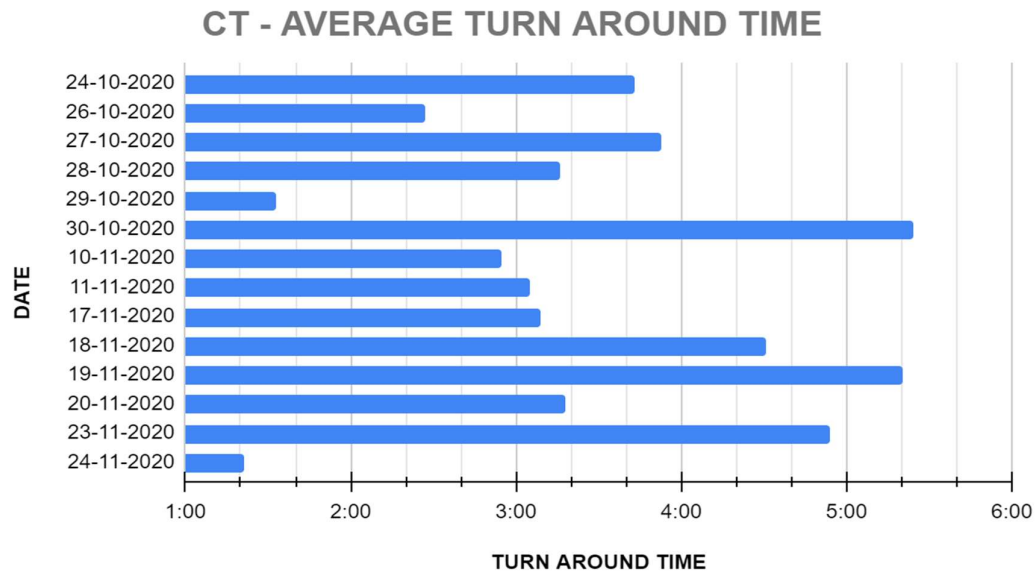


CT - AVERAGE WAITING TIME



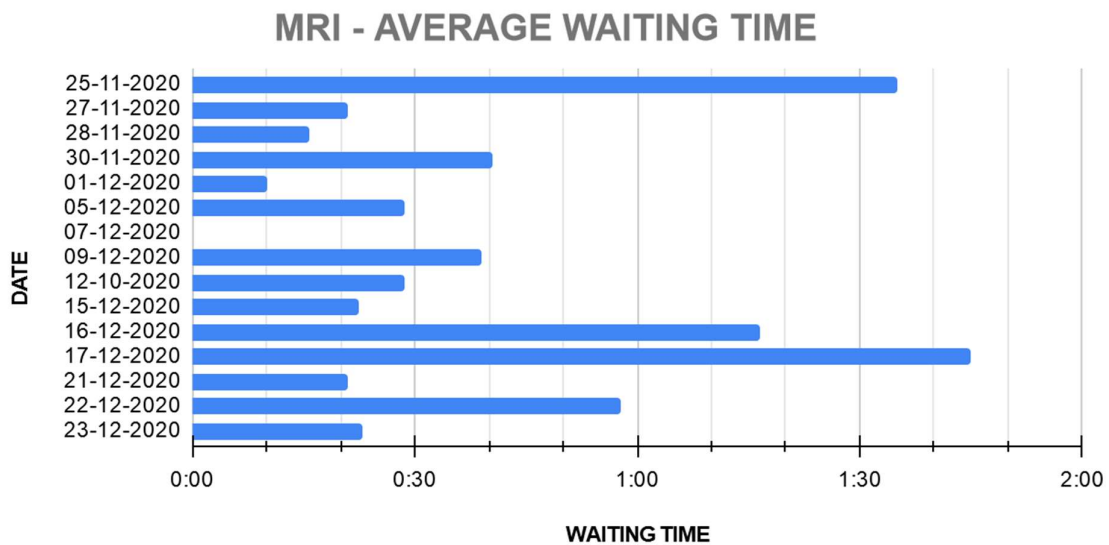
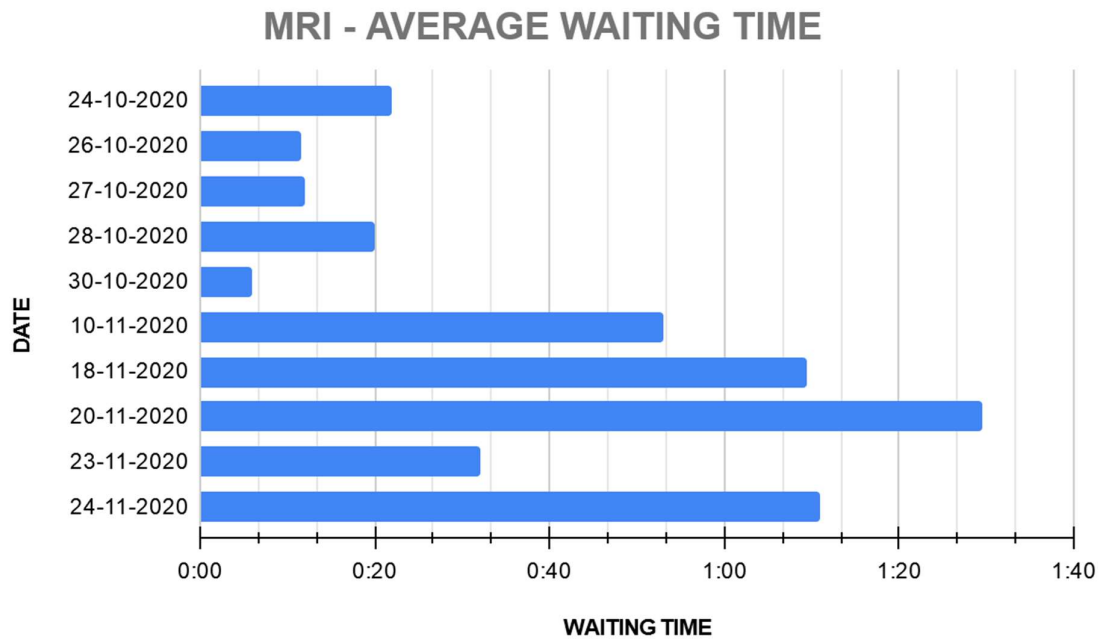
Analysis – From the above displayed graphs, it can be observed that waiting time has gradually increased by the margin of almost 1.5 hours.

8) CT SCAN (TURNAROUND TIME)



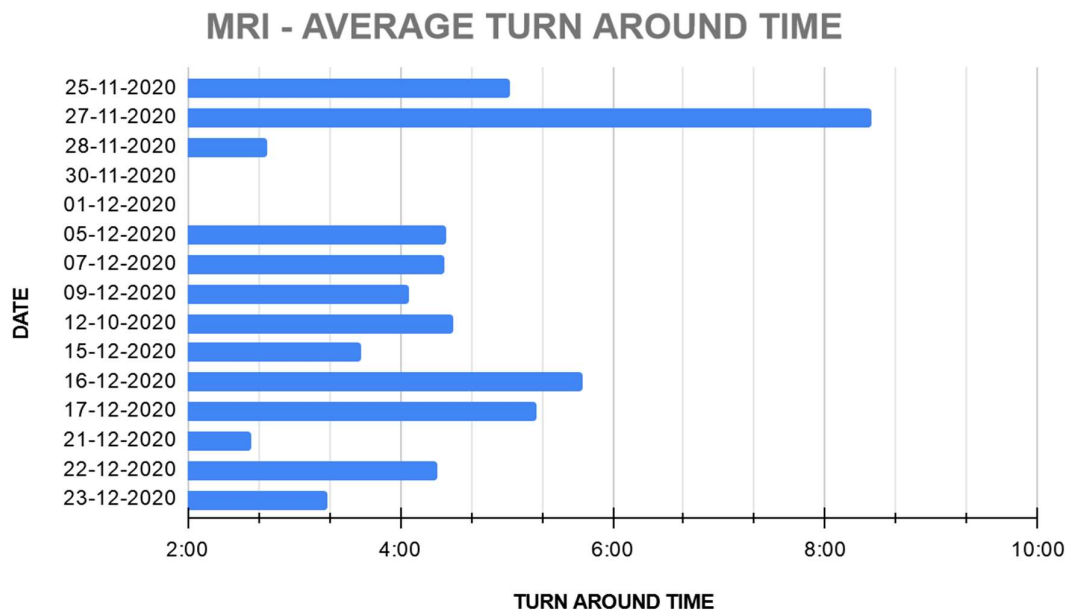
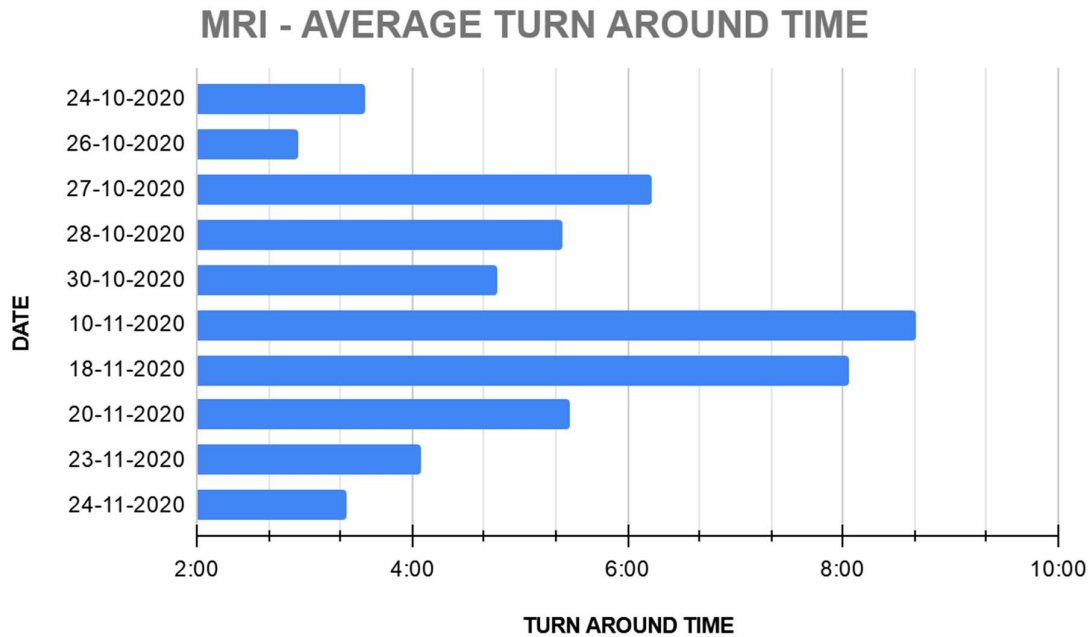
Analysis – From the above displayed graphs, it can be seen that average turnaround time has increased by almost 2.5 hours from the previous month.

9) MRI (WAITING TIME)



Analysis – From the above displayed graphs, it can be observed that average waiting time has increased by a margin of 30 minutes.

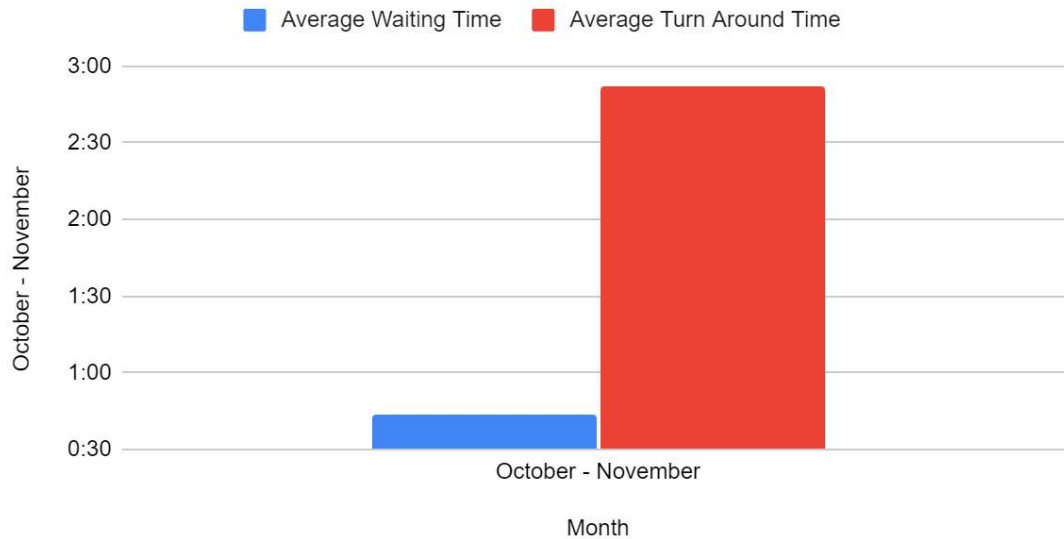
10) MRI (TURNAROUND TIME)



Analysis – It can be analysed from the graphs that turnaround time has decreased for MRI scans except for that for 27-11-2020

Comparison for 24-10-2020 to 24-11-2020

Comparison of Average Waiting time vs Average Turnaround Time

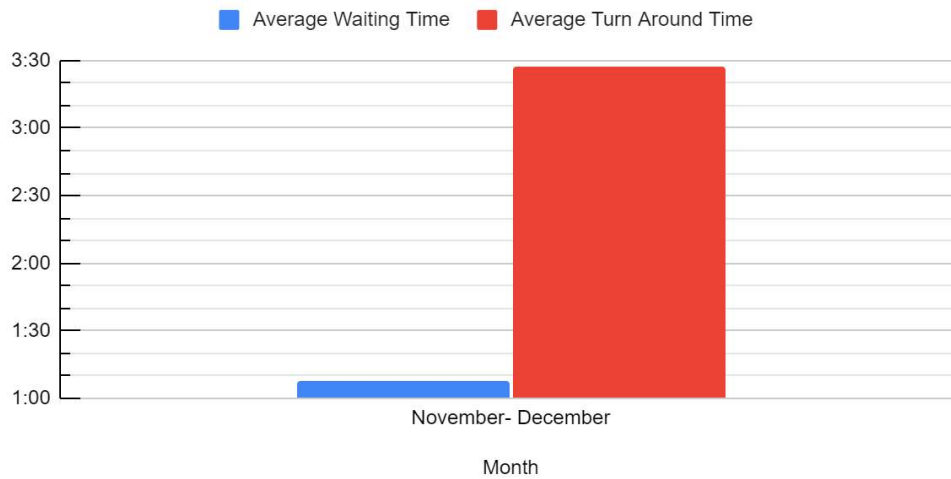


Month	Average waiting time	Average turnaround time
October – November	0:43	2:51

Analysis – As seen in the above graph, average waiting time for the 24-10-2020 to 24-11-2020 is 43 minutes and average turnaround time is 2 hours 51 minutes.

Comparison for 25-11-2020 to 24-12-2020

Comparison of Average Waiting Time vs Average Turn Around Time



Month	Average waiting time	Average Turnaround time
November-December	1:08	3:27

Analysis – As seen in the above graph, average waiting time for the 25-11-2020 to 24-12-2020 is 1 hour 8 minutes and average turnaround time is 3 hours 27 minutes.

Hence, it can be observed that both average waiting time and average turnaround time has increased from month 1(October-November) to month 2(November-December).

OBSERVATIONS

1) Billing and OPD

- Sometimes billing is done later after the procedure/scans are done in the department as there might be changes in the procedure after consultation with the radiologist and the concerned doctor.
- Sometimes there is communication gap which leads to increase in time or delay in the procedure/scans. For an instance, a call will be done by the person who is doing billing of the patient and radiology technician will ask them to send the patient, but patient reaches the department after a while (30-45 minutes later).
- Sometimes, files and records of patient is given to the radiology technician but billing is not yet done even if there is no change in order of scans/procedure.
- Sometimes billing is done but as patient does not have laboratory workup done such as creatinine level is not known, the scans cannot be further done. Hence, increasing the waiting time for the patient.

2) Billing and IP

- Billing is done for the IP patient for scans/procedure but patient is not shifted to the radiology department.
- Billing is not done but a call is received by radiology technician from IP staff, hence patient reaches the department and even after giving multiple reminders billing is not done.
- Communication gap between the staff - multiple reminders to different staff such as nurses, doctor on call is given for shifting the patient to radiology department is given by technician but of no avail.
- Sometimes, patient is shifted late even though it has been said to technician that the scans are urgent.
- Diagnosis or other details is not written in the remarks when billing is done from IP.
- Patient is shifted but medical records of other old scans and file is not brought with the patients which leads to delay in taking exact previous history of the patient.

3) Different scans

- **CT SCAN** – Delay occurs when a contrast study has to be done and patient is asked to drink the contrast solution after the billing is done which increases the waiting period for OPD patients.
- **MRI SCAN** – Delay occurs when a contrast study has to be done and patient is asked to drink the contrast solution after the billing is done. Even delay occurs because some scans such takes at least more than 1 hour to complete.
- **MAMMOGRAPHY**- Mammography is followed by USG and hence if the nurse, doctor and USG machine is occupied then waiting period for the patient increases after mammography is over.
- **BIOPSY** – Biopsy can be guided by CT or USG and hence sometimes different scans such as XRAY, plain CT, USG screening is done prior which increases patients waiting time.
- **USG** – Patient has to wait at least one hour or more because of the USG requirement of having full bladder hence increasing the patient waiting time as most of the patients from OPD or those who have not taken prior appointment face this delay.

4) Laboratory

- Blood collection is done after billing for some scans which increases waiting time of the patient as it takes at least 45 minutes for the reports.

5) Day-care

- Patients who are admitted in day-care for their treatments do have various scans but sometimes billing for their procedures are done but due to ongoing chemotherapy treatment they cannot be shifted to radiology department for scans, hence turnaround time increases.

RECOMMENDATIONS

- Proper scheduling for scans from the customer care desk in amalgamation with the radiology department.
- Waiting time can be decreased for the patient if the billing is done after laboratory workup is completed and reports are received.
- Communication must be increased between nursing staff on the ward floors and staff in the radiology department.
- Regular induction and training of the radiology staff.
- A Co-ordinator can be appointed who can schedule scans, schedule appointments, answers call and queries from consultants, nursing staff, day-care, ICU and OT
- A process should be developed to delay an increase in waiting and turnaround time.

SR. NO.	MRN	PATIENT NAME	CONSULTANT NAME	PROCEDURE	PHYSICAL ENTRY	BILLING TIME	START TIME	END TIME	REPORTING TIME	TAT	CONSENT TAKEN	ENTRY IN SERVICE SHEET
Q												