



A STUDY ON TURN AROUND TIME OF REPORTS OF RADIOLOGY DEPARTMENT AT ETERNAL HEART CARE CENTRE , JAIPUR

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Introduction

- A hospital offers a varying range of acute , convalescent and terminal care using preventive, diagnostic and curative care.
- Diagnostic services - Clinical services of Pathology, Laboratory Medicine, Radiology, Nuclear Medicine etc.
- Radiology's role is central to disease management (detection, staging and treatment).
- EHCC - 250 bedded hospital , approximately 150-200 (OPD & IPD) patients on an average per day in radiology department ,four modalities – MRI , CT Scan, USG and X-Ray.

Introduction

- With nearly every hospital patient receiving diagnostic imaging services they play a prominent role in the diagnostic process.
- To provide high quality and effective patient-centered imaging services, it is essential that imaging departments provide the reporting of images in a timely manner.
- Measurement of turnaround time of reports is the most commonly adopted performance metric.
- Rapid turnaround time of reports are important both from a medical and commercial point of view.

Literature review

The most noteworthy factor hindering proficient TAT, is poor examination prioritization. Unless a radiologist knows how vital an investigation is or the conditions around a patient's condition or care, he or she can't deliver a report in the most timely manner.(1)

TAT is often considered the most significant measure of a laboratory's service and is used by many clinicians to judge its quality. Along with accuracy and reliability, timely reporting of laboratory test results is now considered an important aspect of the services provided by the clinical laboratory. (2)

A major source of physician — and patient — dissatisfaction is the lack of timely reporting of test results, especially when findings are important for clinical decision-making. In a study conducted , 95% of patients surveyed said they want to receive the results of their radiologic studies “within hours,” suggesting timely reporting is now an important factor in patient satisfaction. (3)

Standard turn around time for reports as per EHCC:

Modality	OPD	IPD
X-RAY	45 mins	1 hr.
MRI	2 hrs.	3 hrs.
CT SCAN	2 hrs.	3 hrs.
USG	30 mins	30 mins

Background

As a part of the induction programme operations and functioning of certain departments of the hospital was observed based on which a small presentation summarizing the understanding was prepared which gave direction to the study conducted.

Research Questions

- What is the actual turnaround time of the reports for the scans done in the radiology department at Eternal Heart Care Center Jaipur
- What are the possible reasons for delays, if any

Aim & Objectives

The study aims at improving quality of imaging services.

The objectives of the study are:

- To understand the reporting process flow of the Radiology department
- To calculate the TAT of reports for OPD & IPD patients after the patient goes for scan in Radiology Department
- To identify the reasons for delay in reporting if any
- To suggest the measures to improve the turnaround time of reporting

Operational definitions

- **REPORT:** A clinical and source document that provides interpretation and describes any radiological procedure conducted by a radiologist and signed as well.
- **TIME OF SCAN (T1):** Time when the patient enters the room for the scan or investigation.
- **TIME OF REPORT (T2):** Time when the finalized (signed, corrected , updated on Laboratory Information system) report is generated by the radiologist for the particular patient and investigation.
- **REPORT TURN AROUND TIME:** Time taken to generate the final report of the particular patient for the investigation/scan done after the patient goes for scan.

Methodology

- The study is Cross-sectional and Descriptive in nature
- Radiology department of EHCC
- The study was conducted during 8th March – 8th April 2018
- The participants of the study were-
 - ✓ Radiologists
 - ✓ Technicians
 - ✓ Patient Care Services / Front Office staff
 - ✓ Ground Duty Assistants
 - ✓ Typists
 - ✓ Patients

Sampling and sample size

- **Purposive Sampling (As per the footfall of the patient at the modality taken up for the study and generation of reports)**
- **Sample size: 406**
 - ✓ X-Ray = 175
 - ✓ USG = 130
 - ✓ CT Scan = 70 , MRI = 31
 - ✓ All the five radiologists of the department.
 - ✓ Both the technicians (from each shift) for MRI and CT scan and all the six technicians for X-Ray (from each shift).
 - ✓ All the five GDAs (from each shift)
 - ✓ All the four patient care services staff (from each shift)
 - ✓ All the four typists Patients visiting the radiology department for the investigation.

Sampling and sample size

Exclusion and Inclusion Criteria:

- ✓ Only OPD (PHC as well as casual OPD) patients visiting the department for the X-Ray were considered to be the part of the study.
- ✓ However for USG, MRI and CT scan both IPD and OPD patients visiting the department were considered to be the part of the study.
- ✓ Bed-side scans done like in X-Ray and USG was not considered as the part of study.
- ✓ Those patients whose reports were not generated the same day of the scan were not considered to be the part of the study.

Process

- For a day only one modality was taken up for the study.
- Also the fact that reports were not generated for all the OPD patients visiting the departments in case of X-Ray for all the days was considered while calculating the sample size.
- For determining the time of the generation of the reports particularly for X-Ray Laboratory Information System was used.
- Those cases which were not reported at the same day of the scan were not considered to be the part of the study.

Data collection methods:

PRIMARY DATA:

- ✓ Workflow diagram of the reporting
- ✓ Time study
- ✓ Direct Observation
- ✓ Conversation with the radiology department staff

SECONDARY DATA:

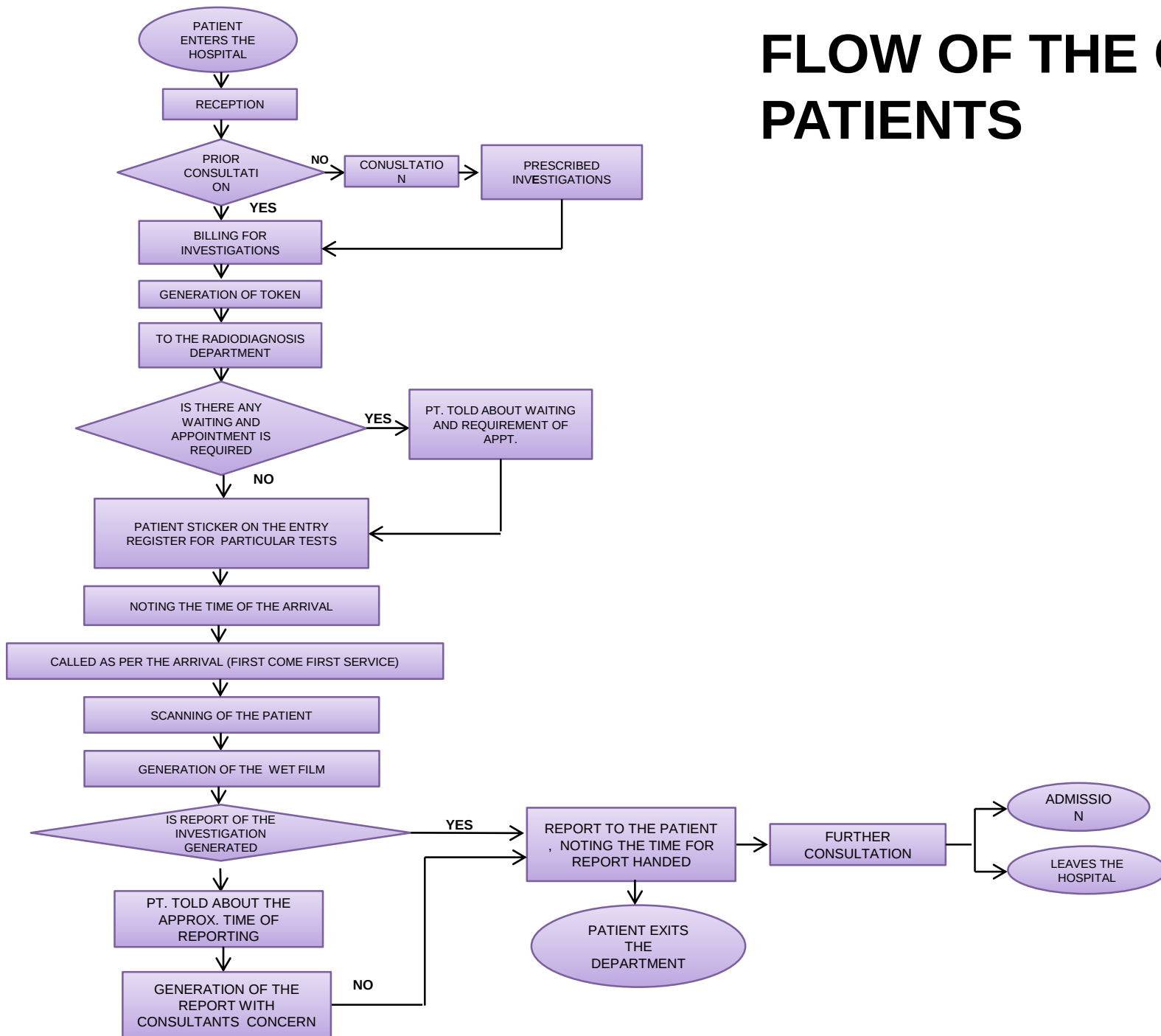
- ✓ Laboratory Information System
- ✓ Printed Reports of the Patients
- ✓ Articles and Journals in regard to the study

Data collection tools

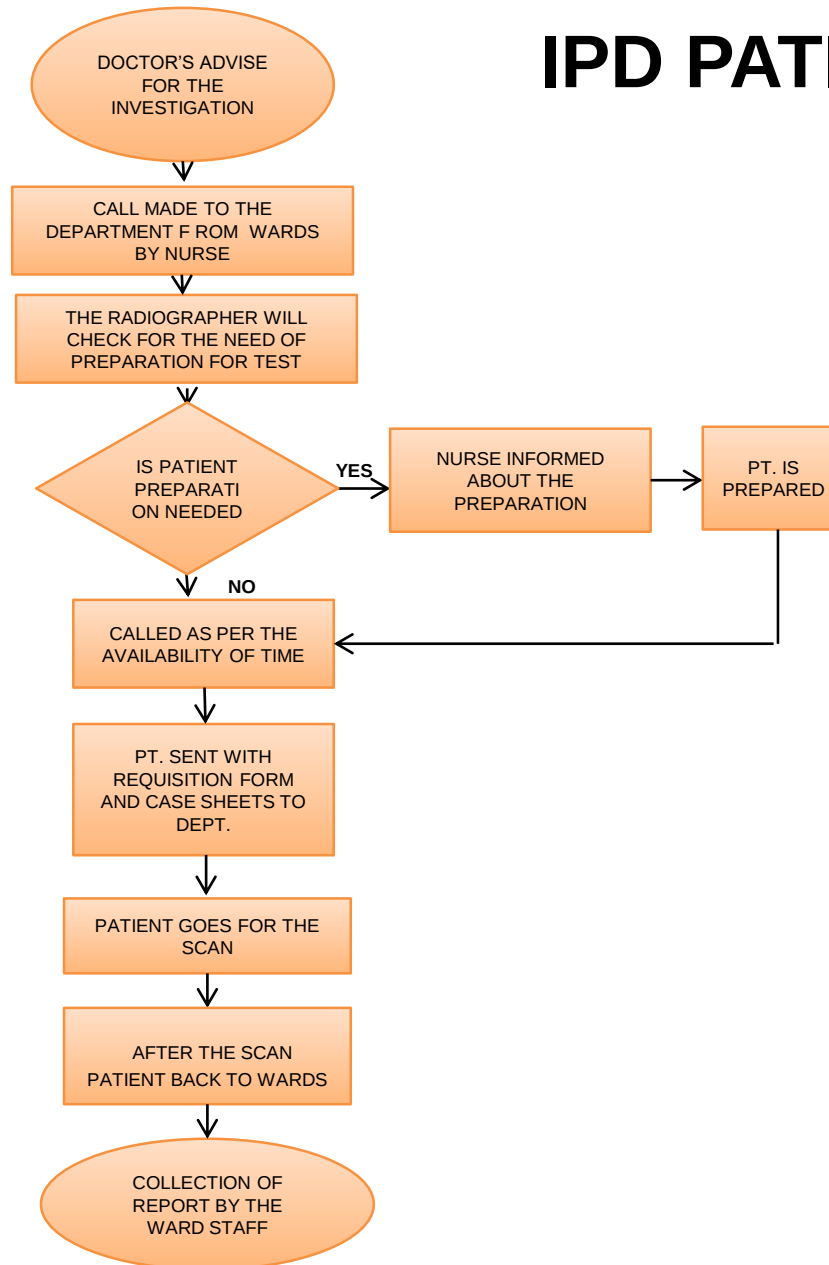
- A workflow diagram with the goal of gaining a clearer understanding of how a process work was made.
- Time study to calculate the turnaround time of the reports.
- Direct observation for understanding the routine activities of the department and flow of the patients and information

Results & Process Flow

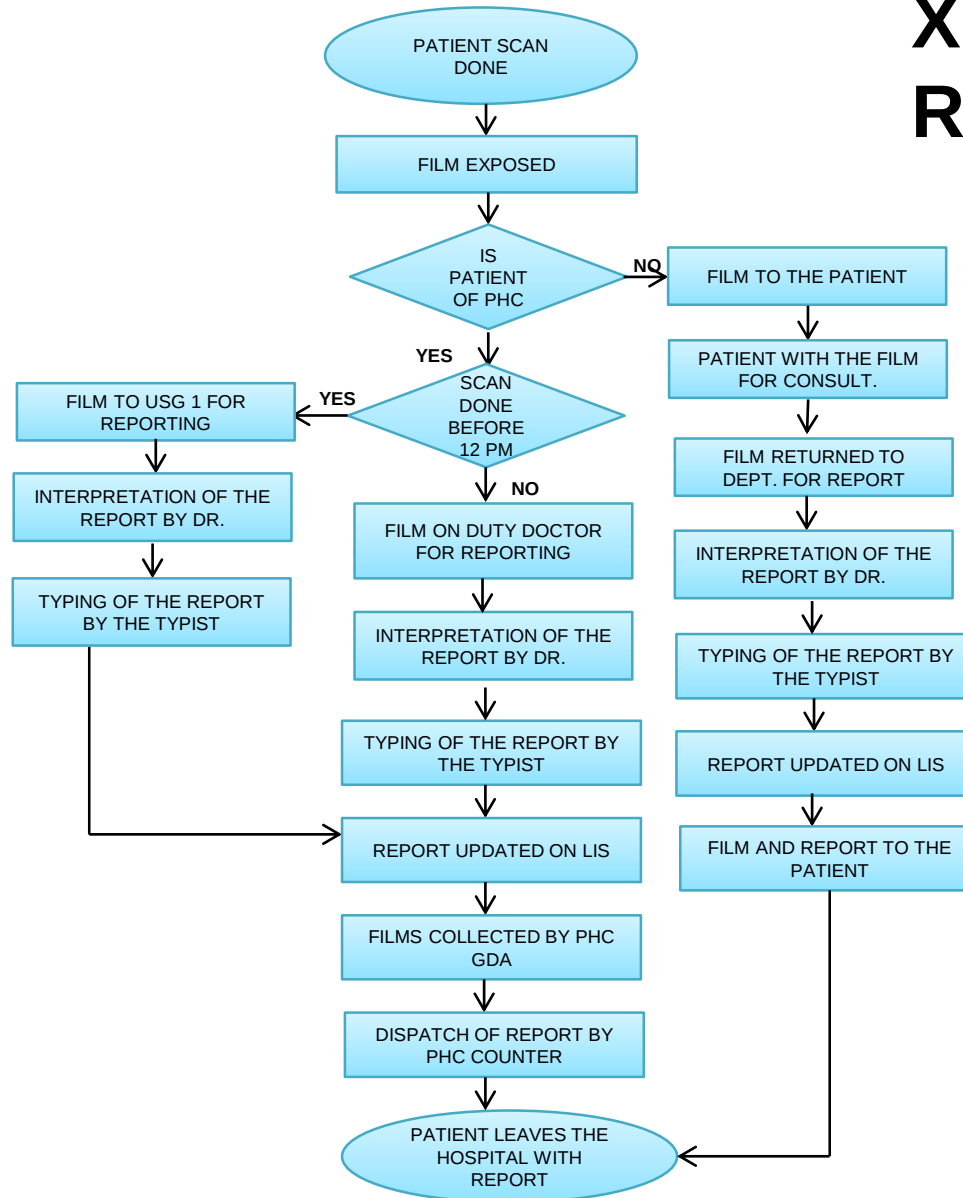
FLOW OF THE OPD PATIENTS



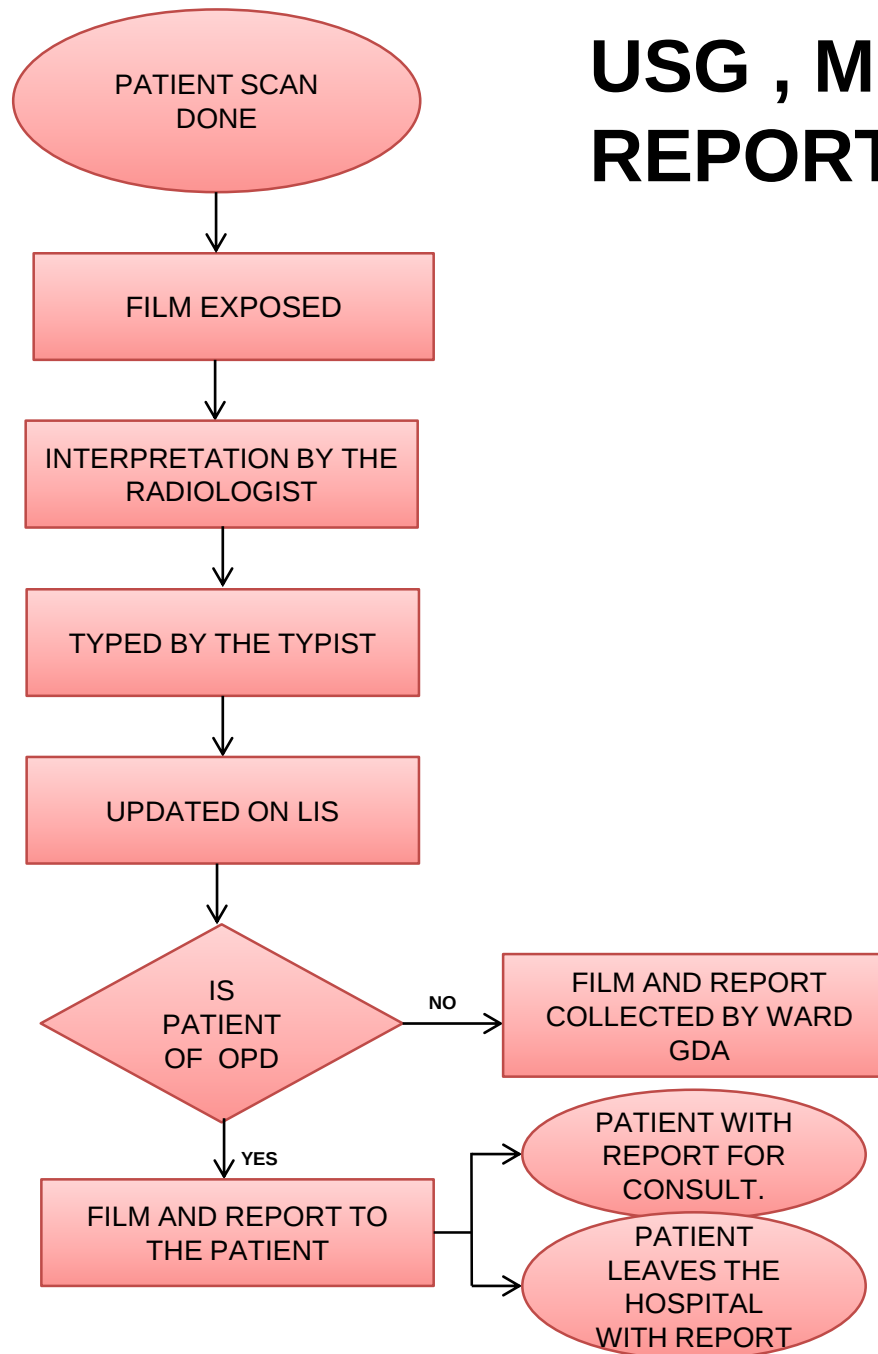
FLOW OF THE IPD PATIENTS



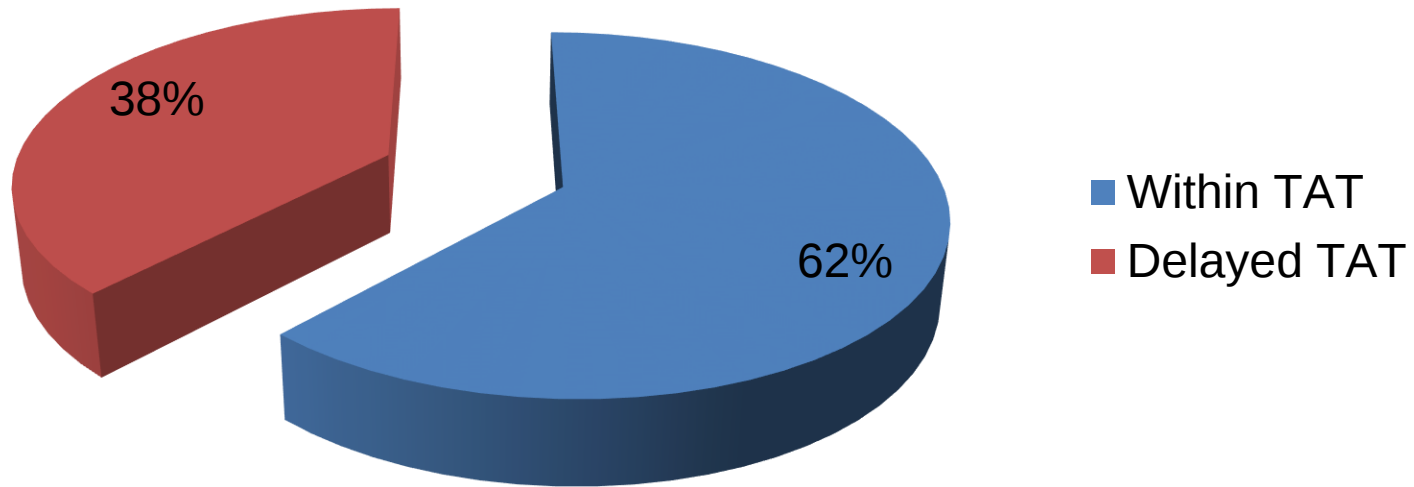
X-RAY REPORTING



USG , MRI , CT SCAN REPORTING

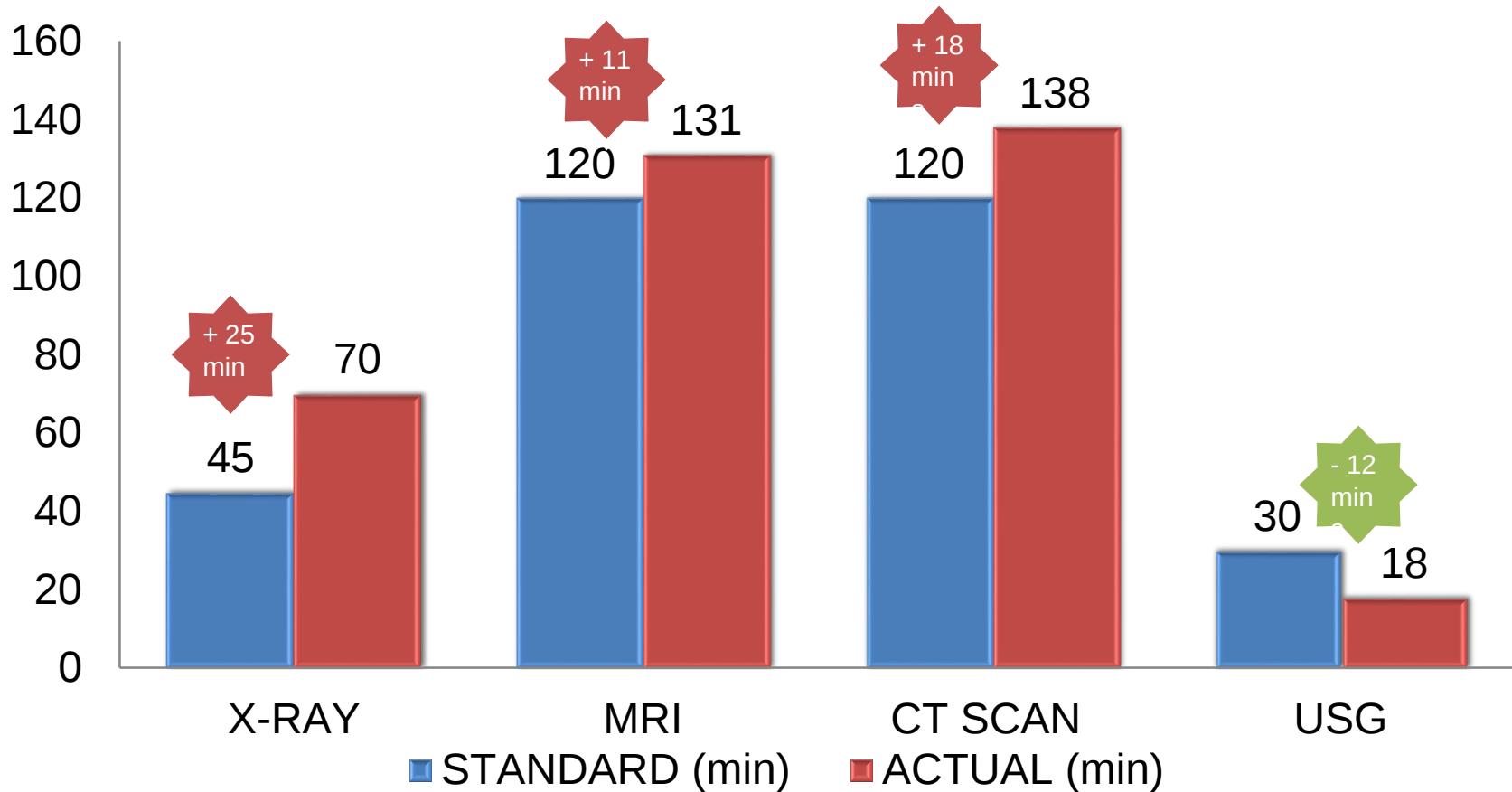


Percentage of Reports Within & delayed TAT

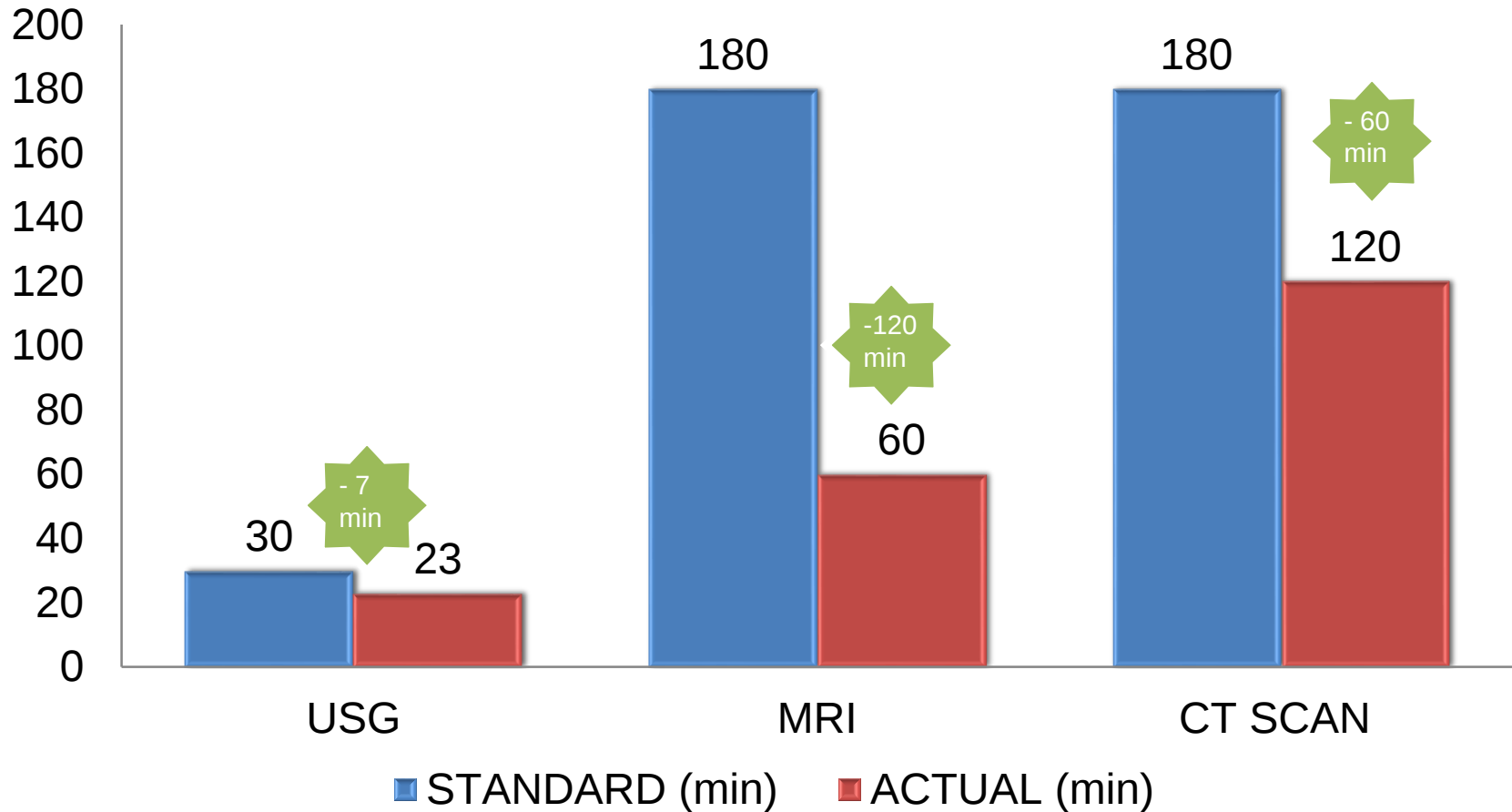


4 out of every 10 reports were delayed as can be inferred from the above chart.

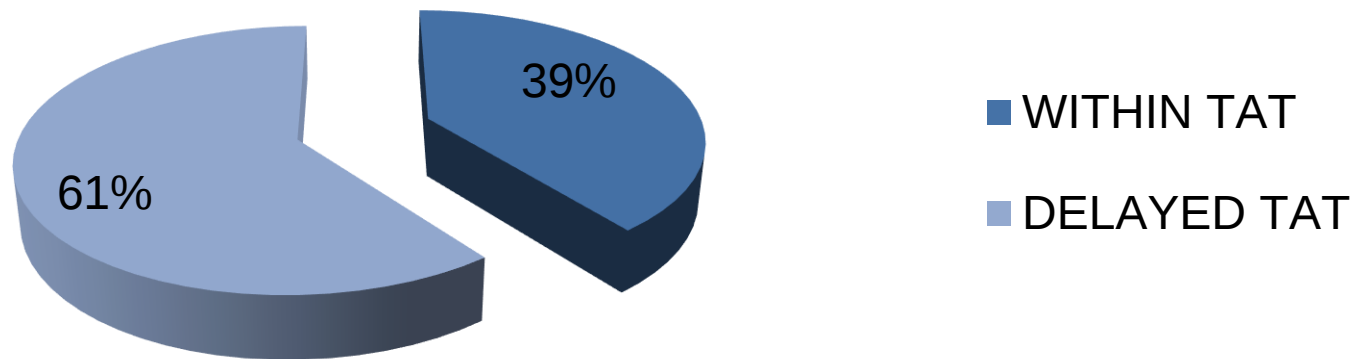
Standard vs actual reporting time (OPD)



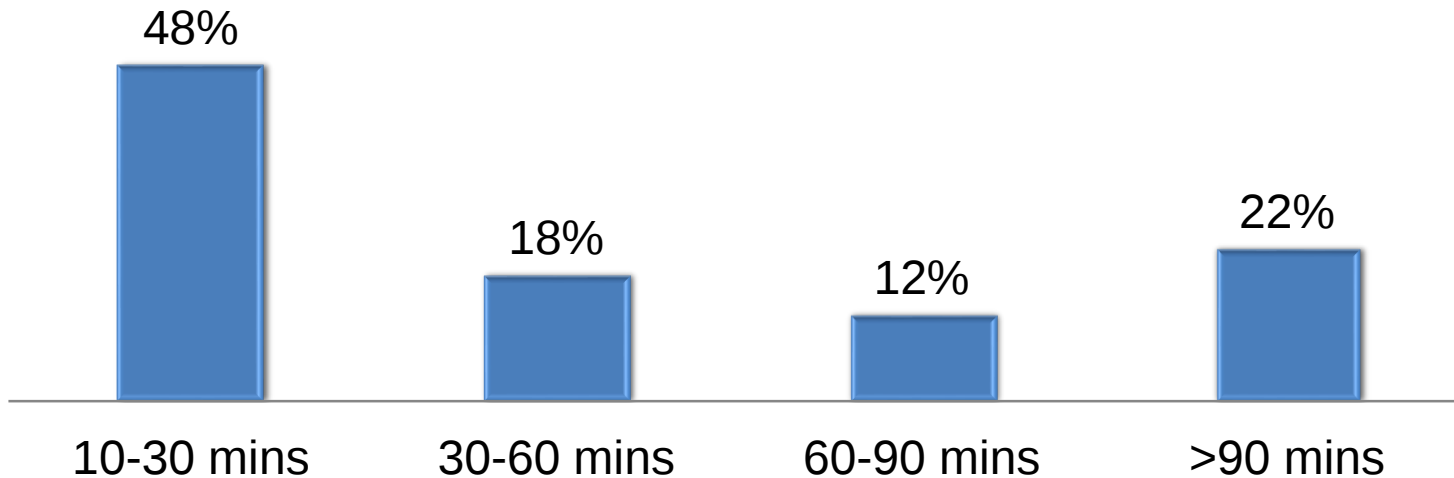
Standard vs Actual Reporting Time (IPD)



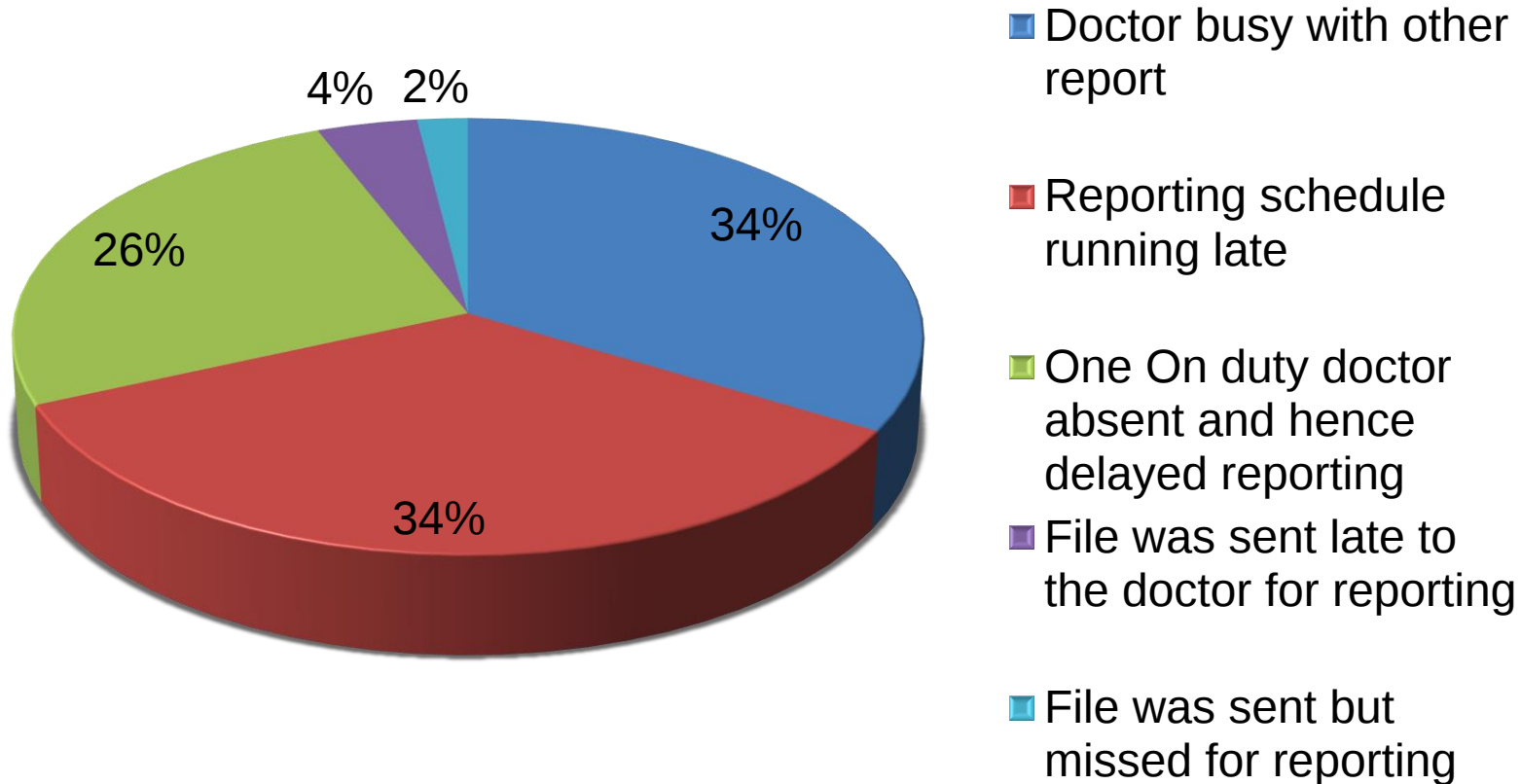
TAT status of X-Ray reports



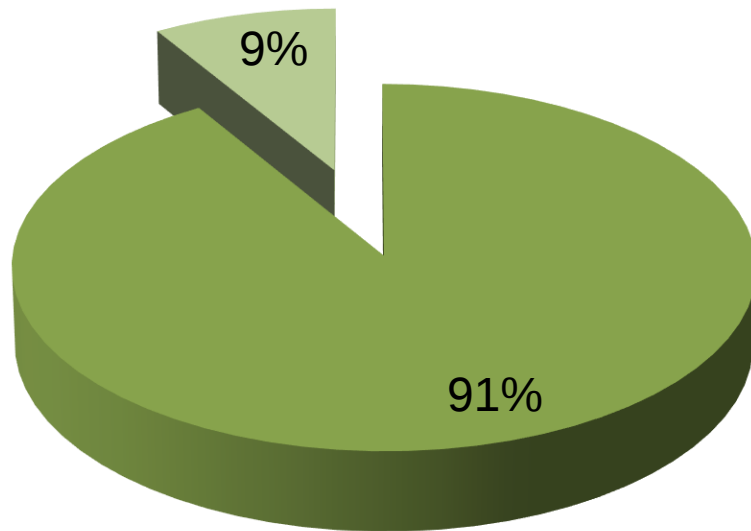
Percentage distribution of delayed TAT timings(X-Ray)



Reasons of delay for X-Ray

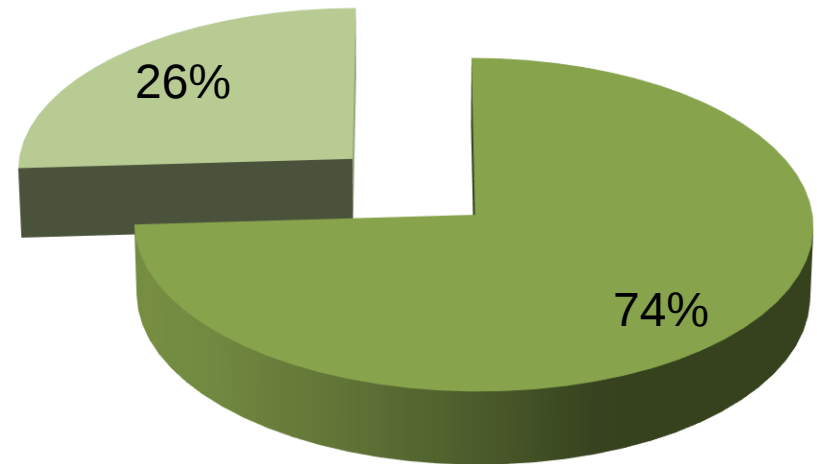


TAT Status for USG reports (OPD)



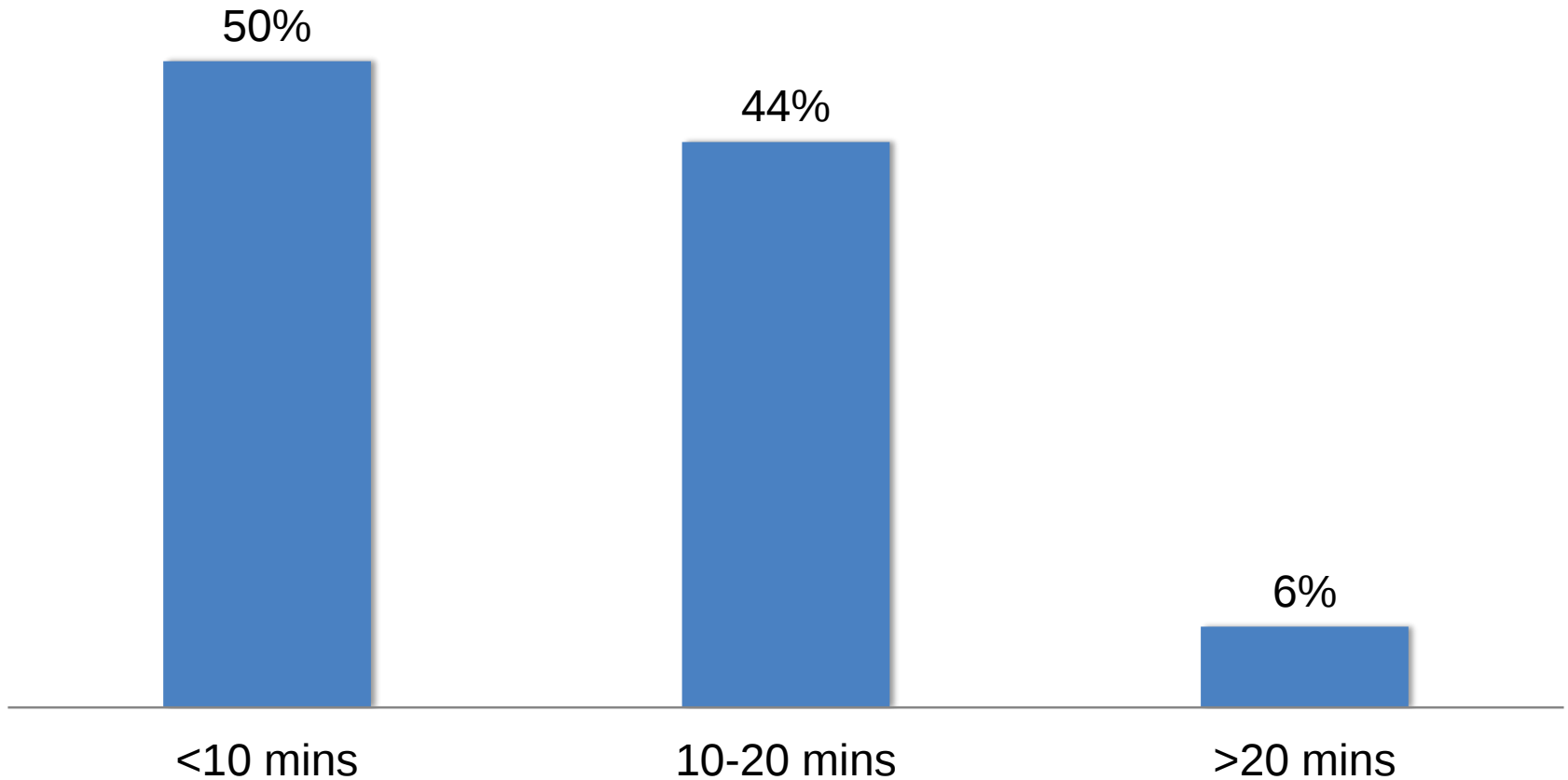
■ WITHIN TAT ■ DELAYED TAT

TAT Status for USG reports (IPD)

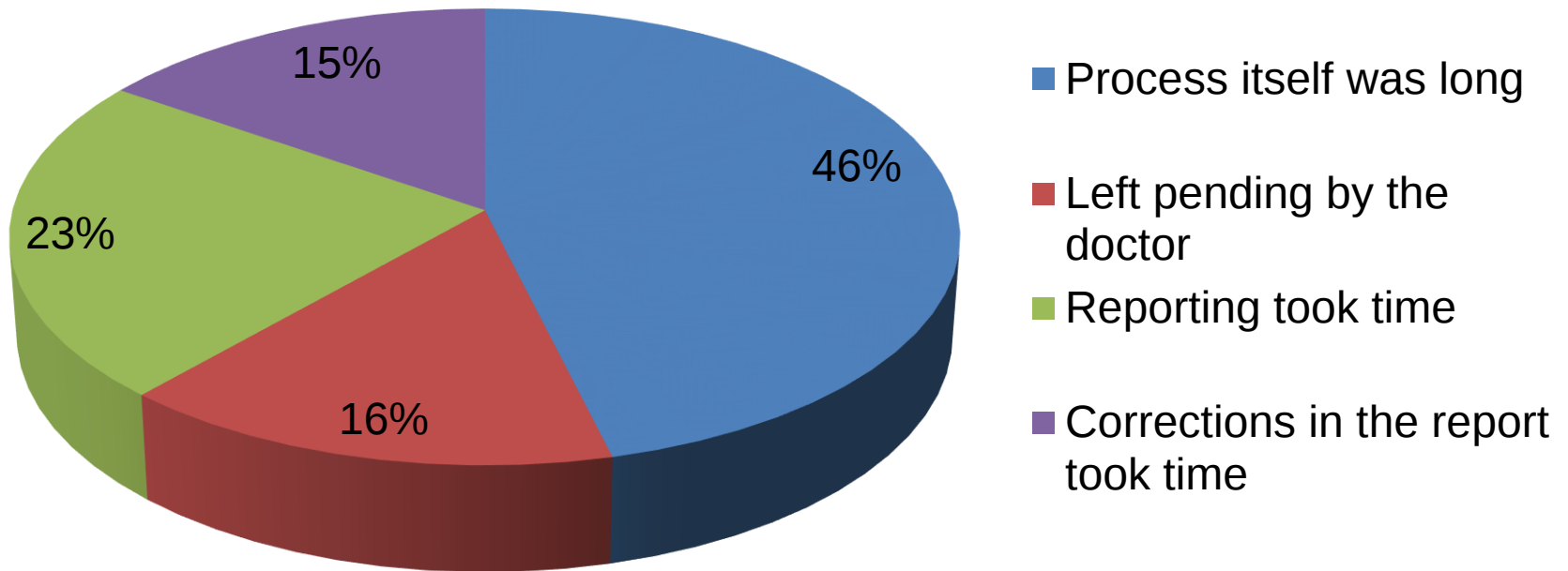


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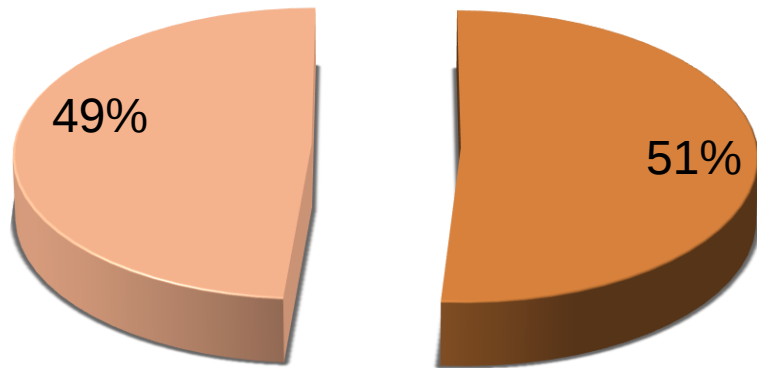
Percentage distribution of delayed TAT timings (USG)



Reasons of delay for USG

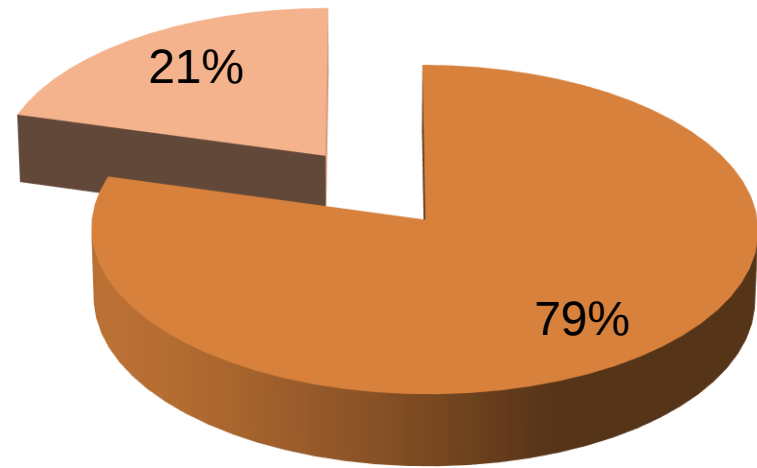


TAT Status for CT SCAN reports (OPD)



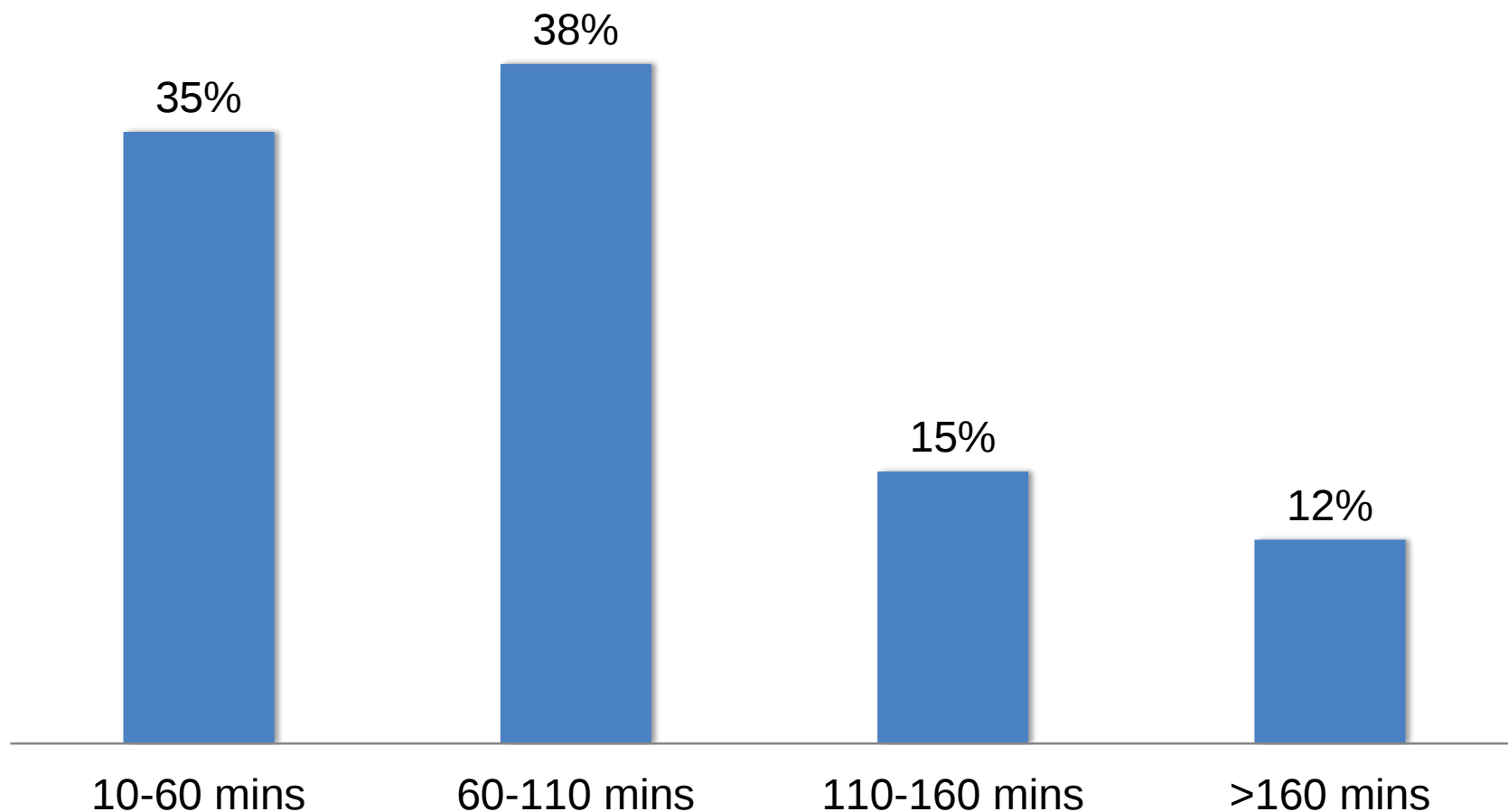
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TAT Status for CT SCAN reports (IPD)

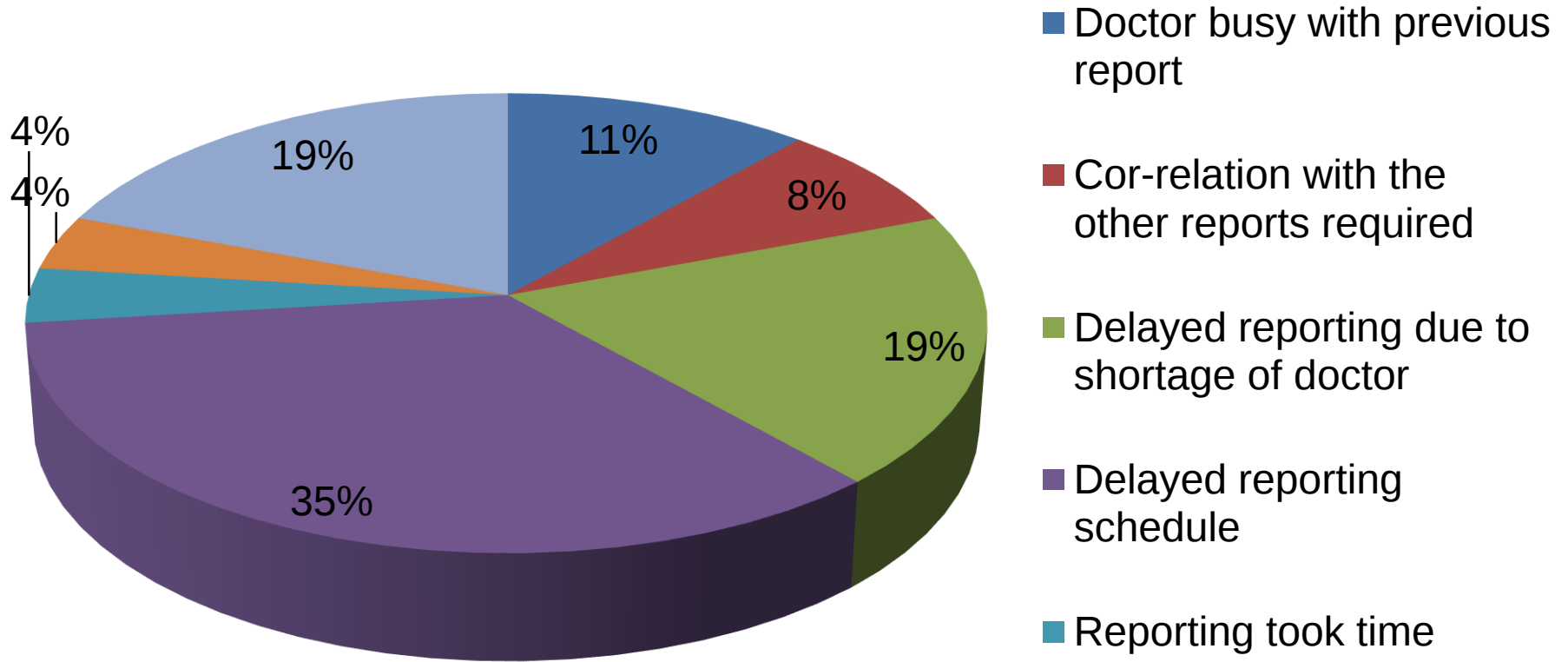


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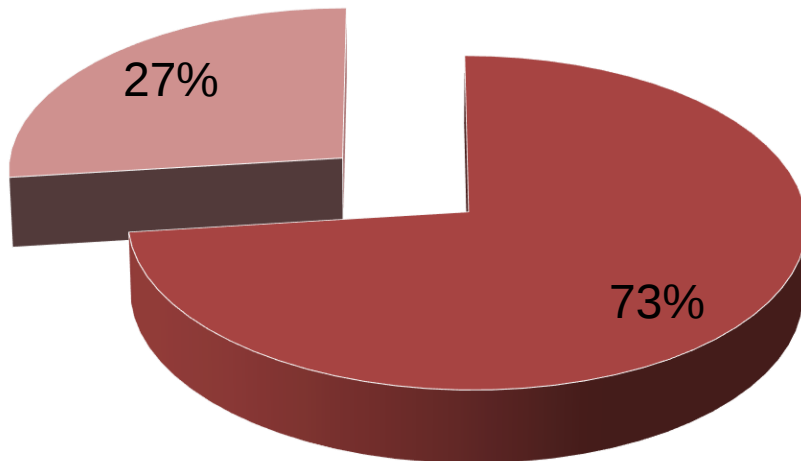
Percentage distribution of delayed TAT timings(CT SCAN)



Reasons of delay for CT SCAN

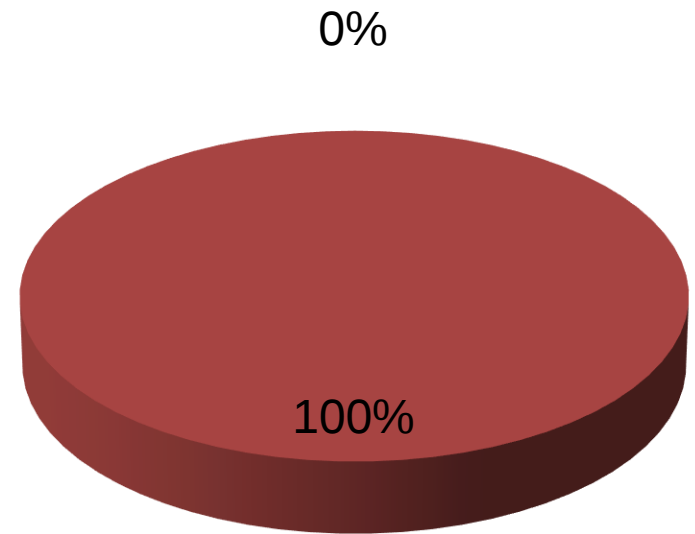


**TAT Status for MRI
reports (OPD)**



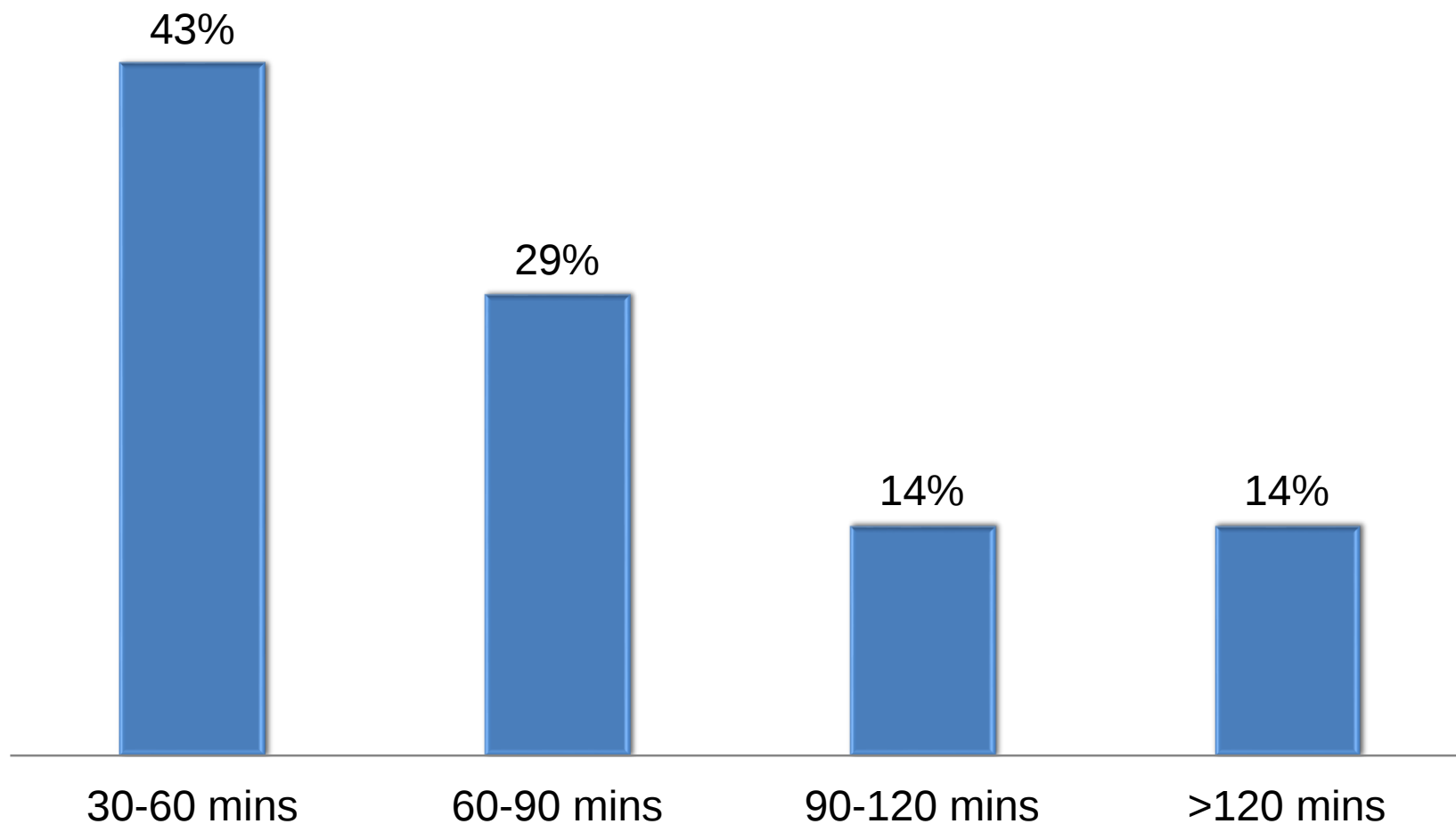
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**TAT Status for MRI
reports (IPD)**

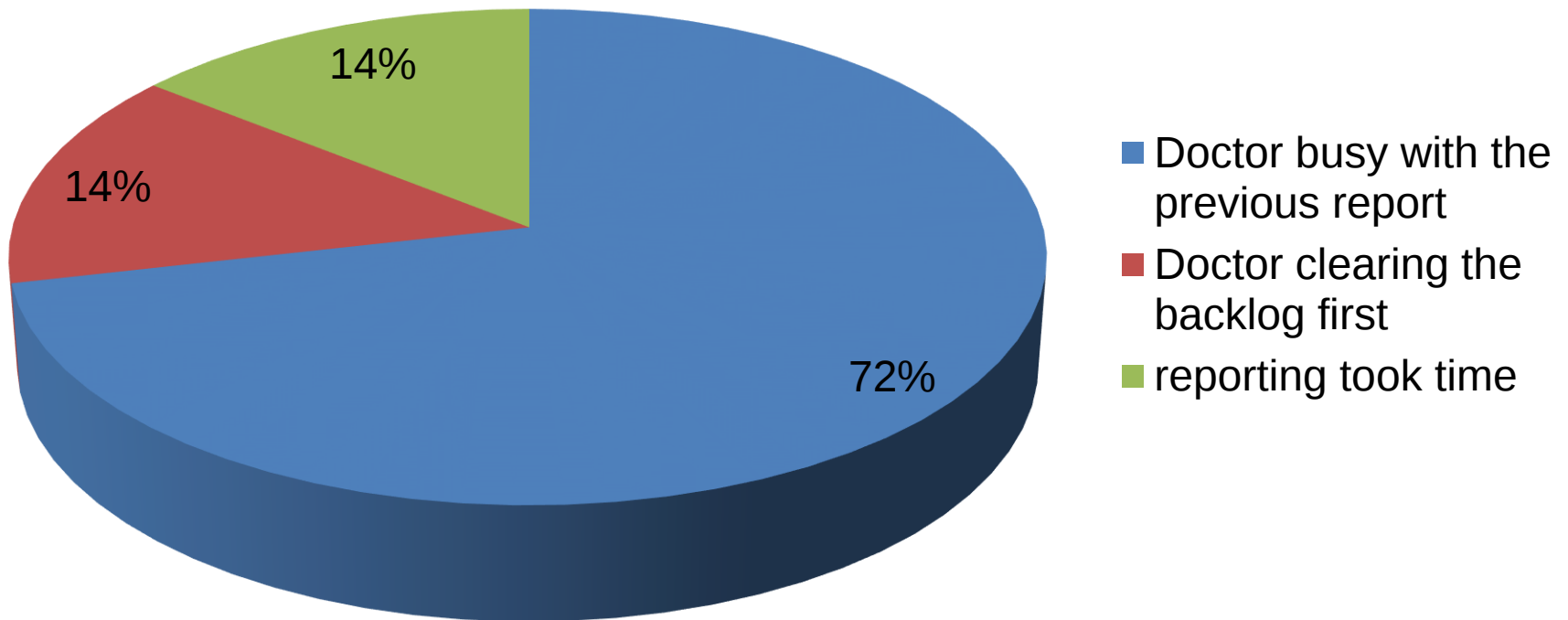


■ WITHIN TAT ■ DELAYED TAT

Percentage distribution of delayed TAT timings (MRI)



Reasons of delay for MRI



Discussion

- More delays in X-ray and CT Scan Unit because of the duty doctor being busy with other report or with the previous report .
- With the reference of the available literature this can be attributed to the lack of prioritization while reporting.
- Other reason for delay were:
 - ✓ process being too long
 - ✓ reporting took time
 - ✓ clearing the backlog
 - ✓ delayed reporting schedule
 - ✓ shortage of doctor
 - ✓ file sent late for reporting
 - ✓ reporting being missed.

Discussion

- The standards given for the reporting however varied from patient to patient and radiologist to radiologist.
- Another interesting finding from the study was IPD reporting time was below the standard timings and hence suggests that the OPD reporting needs more
- Lack of availability of all the radiologists during the peak hours due to different shift timings.
- Complicated X-Ray reporting

Conclusion

- Although delay was majorly seen in relation to X-Ray and CT scan reporting however TAT of reporting for other modalities seemed to be in control.
- Further interventions and changes can enhance the process and can bring down the reporting time.
- This will at the end can improve the overall experience of the patients visiting the department and will smoothen the functioning as well.

Suggestions

- Changes in the shift of the doctors . (analyzing the patient footfall from 7pm – 8 pm)
- TAT alerts when reports are nearing their deadline so that they can be re-assigned as needed .
- Regular audits at least once a month for unreported imaging investigation.
- Report to be completed at the same day of the scan.

Suggestions

- IPD patients should be given specific time slots so as to avoid delay for reporting of OPD patients.
- Monthly and quarterly reports for systems to gauge the overall performance of their radiology and identify areas that need improvement.
- Voice recognition and digital transcription software can be used for the speedy reporting process.

References (Article, Journal, Website)

1. Radiology Turnaround Times: Are They Ever Fast Enough?
| Diagnostic Imaging
2. Wankar AD. Study of determination of laboratory turnaround time in tertiary care hospital in India. International Journal of Research in Medical Sciences. 2017 Jan 26;2(4):1396-401.
3. Radisphereradiology.com

***THANK
YOU***