Internship Training

at

U4RAD Technologies, LLP

Turnaround time of CT and MRI scans reporting at U4RAD

by

Dr Ruchi Jangra

PG/21/089

Under the guidance of

Dr Pankaj Talreja

PGDM (Hospital & Health Management)

2021-23

International Institute of Health Management ResearchNew Delhi

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The certificate is awarded to

Dr Ruchi Jangra

in recognition of having successfully completed her
Internship in the department of

OPERATIONS MANAGEMENT

and has successfully completed her Project on

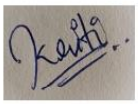
"Turnaround time of CT and MRI scans reporting at U4RAD"

At

U4RAD Technologies, LLP

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning.

We wish her all the best for future endeavors.



Sr. Manager Operations

Founder & CEO

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Dr Ruchi Jangra, student of PGDM (Hospital & Health Management) from International Institute of Health Management Research, New Delhihas undergone internship training at U4RAD Technologies, LLP from 25-01-23 to 30-04-23.

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

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

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

Mentor
IIHMR, New Delhi

Certificate of Approval

The following dissertation titled **"Turnaround time of CT and MRI scans reporting "** at **"at U4RAD"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **PGDM (Hospital & Health Management)** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

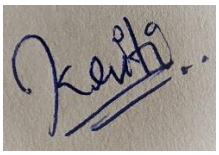
Dissertation Examination Committee
for evaluation of dissertation.

Name	Signature
Prof Ashok Agarwal	
Dr. Aman Raj Gupta	Aman Raj Gupta
Dr. Atif yousuf	

Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Ruchi Jangra,** a graduate student of the **PGDM (Hospital & Health Management)** has worked under our guidance and supervision. She is submitting this dissertation titled "Turnaround time of CT and MRI scans reporting at U4RAD" at "U4RAD Technologies, LLP" in partial fulfillment of the requirements for the award of the **PGDM (Hospital & Health Management).**

This dissertation has the requisite standard and to the best of our knowledge no part of it has beenreproduced from any other dissertation, monograph, report or book.



Dr Pankaj Talreja
Healthcare Finance Consultatnt
Associate Professor
IIHMR, Delhi

Dr Kriti Aggrawal
Senior Operations Manager
U4RAD Technologies

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH,

NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled Turnaround time of CT and MRI scans reporting at U4RAD and submitted by Dr Ruchi Jangra, PG/21/089 under the supervision of Dr Pankaj Talreja for award of PGDM (Hospital & Health Management) of the Institute carried out during the period from 25/01/23 to 30/04/2 embodies my original work and has not formed the basis for the award of any degree,diploma associate ship, fellowship, titles in this or any other Institute or other similarinstitution of higher learning.

Signature

FEEDBACK FORM

Name of the Student: Dr Ruchi Jangra

Name of the organisation in which Dissertation Has Been Completed: U4RAD Technologies, LLP

Area of Dissertation: Hospital

Attendance: 100%

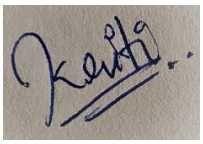
Objectives achieved: Sucessfully completed, "Turnaround Time of CT and MRI Scans reporting at U4RAD Technologies"

Deliverables: Adequate in-depth analysis of Turnaround Time using PACS software

Strengths: A very committed, sincere, cooperative, and positive nature person with strong zeal for learning.

Suggestions for Improvement: Nil.

Suggestions for Institute (course curriculum, industry interaction, placement, alumni): Vigorous industry exposure across hospitals



Signature of the Officer-in-Charge/ Organisation Mentor

DATE: 20/6/23

PLACE: Gurgaon

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PREFACE

ABSTRACT

Teleradiology has revolutionized the field of radiology by enabling the remote interpretation and reporting of medical imaging studies, such as computed tomography (CT) and magnetic resonance imaging (MRI) scans. Prompt and accurate reporting of these diagnostic studies is crucial for timely patient management and effective clinical decision-making. This abstract presents an overview of the turnaround time (TAT) associated with CT and MRI scan reporting in a teleradiology company, highlighting its importance, factors influencing TAT, and potential strategies for optimizing efficiency.

The TAT of CT and MRI scans refers to the time interval between the completion of the imaging study and the availability of the radiology report. A shorter TAT is generally desirable, as it facilitates swift diagnosis, reduces patient anxiety, and expedites appropriate treatment planning. However, achieving a short TAT can be challenging due to various factors.

Several factors contribute to the TAT of CT and MRI scan reporting in a teleradiology company. These factors include the volume and complexity of studies received, the availability of radiologists, the efficiency of image transmission and viewing systems, the prioritization of urgent cases, and the presence of quality control measures. Additionally, external factors such as time zone differences, technological issues, and

communication barriers may affect TAT in teleradiology workflows.

To optimize TAT, teleradiology companies employ various strategies. These strategies include establishing well-defined protocols and workflows, implementing efficient communication systems between radiologists and referring physicians, utilizing advanced image viewing and reporting software, ensuring appropriate staffing levels, and establishing quality assurance programs. Additionally, continuous process improvement initiatives, such as regular performance evaluations and feedback loops, can further enhance TAT in teleradiology companies.

The significance of TAT in teleradiology cannot be overstated. Shorter TATs lead to improved patient care, increased patient satisfaction, and enhanced overall healthcare system efficiency. By understanding the factors influencing TAT and implementing effective strategies, teleradiology companies can strive for expedited and accurate reporting of CT and MRI scans, ultimately benefiting patients, healthcare providers, and the overall healthcare ecosystem.

In conclusion, the TAT of CT and MRI scan reporting in a teleradiology company plays a pivotal role in facilitating timely and accurate diagnosis. By identifying and addressing factors that impact TAT and implementing efficient strategies, teleradiology companies can enhance their operational efficiency and deliver high-quality, prompt radiology reports, ultimately benefiting patients and healthcare providers alike.

1. DISSERTATION TRAINING

1.1. INTRODUCTION

U4RAD is revolutionizing radiology reporting with AI-assisted image analytics and a smart reporting toolkit.

They're revolutionizing remote radiology reporting by enabling process improvement, appropriate digital intervention, and selected AI (Artificial Intelligence) application to help Radiologists become more efficient. Their AI-assisted Radiology Reporting technology will result in higher-quality diagnoses and shorter turnaround times.
They want to double the productivity of radiologist reporting. They created an AI algorithm that can detect COVID 19 from a chest X-ray in a matter of seconds with >90% confidence, allowing it to be used as a Rapid Detection tool for the pandemic.

A huge pool of radiologists that U4RAD contracts with is available to its clients, who can take advantage of their expertise and experience in both general and speciality radiology. These radiologists may or may not always be on-site.

PUSHERS- DREAMERS- LEADERS:

Mr. Partha Dey

Founder and CEO

Partha Dey, Founder of Max Healthcare (Head Operations), Artemis Hospital Gurgaon (Chief Operating Officer), Apollo Gleneagles Kolkata (Center Administrator), Member of CII, HIMSS, UNDP, AMCHAM and IMAI, Pioneer in promotion of AI-Cognitive technology in healthcare, was managing healthcare vertical for IBM in India/SA, Member of CII, HIMSS, UNDP, AMCHAM and IMAI, Member of CII.

Dr. Vivek Sahi

Director

A dynamic healthcare IT professional with over 24 years of experience in clinical practice, healthcare management, quality consulting, clinical change management, and healthcare digital transformation.

He is passionate about healthcare information technology and has a unique capacity to combine clinical knowledge, healthcare management expertise, and quality management skills to clearly understand and not only resolve difficulties faced by

providers and payers, but also to assist them in developing and implementing solutions that effectively and efficiently satisfy their needs.

He's also interested in teaching physicians about EMRs and IT systems, as well as ensuring that electronic medical/health records are adopted through change management, as well as mentoring students and physicians preparing for jobs in healthcare administration and informatics.

His areas of expertise include IT Product Strategy, Mergers & Acquisitions, Product/Solution Business Planning & Development, Clinical Intelligence/Analytics Solutions, Provider & Payer Data Warehousing, EMR/HIS Configuration & Implementation, CPOE, CDSS, BCMA, Clinical Transformation, Healthcare Provider Process Optimization, CPOE, CDSS, BCMA, Clinical Transformation, Clinical Transformation, Clinical Transformation, Clinical Transformation, Clinical Transformation, Clinical Transformation, Clinical IT Training for Physicians, Project Management, and Business Development, Product sales, telemedicine, healthcare population data management, digital transformation consulting, Big Data, Artificial intelligence, and career counselling for healthcare management students.

1.2. OBSERVATIONS AND LEARNINGS

1.2.1. Refined the existing SOPs

I was given the duty of improving the operations department's policies and procedures as part of my responsibilities. To find areas for improvement and streamline procedures, this entailed a thorough assessment and analysis of current practices. I was able to identify the difficulties and bottlenecks in the department by directly collaborating with team members and stakeholders.

I focused on increasing clarity, efficiency, and compliance when I was refining policies and processes. I updated and examined documents to make sure they appropriately reflected current procedures and complied with rules and regulations. Standard operating procedures (SOPs), workflow diagrams, and instructions for various jobs and scenarios were all included in this documentation.

I wanted to increase operational effectiveness, reduce errors, and encourage uniformity in operations through this process of refining. To promote easier collaboration and efficient problem-solving, I put in place clear criteria for decision-making, escalation procedures, and communication protocols.

Overall, I intended to create a more structured, open, and productive work atmosphere by improving policies and processes within the operations department. As a result, there was an

improvement in both productivity and customer satisfaction, and a culture of following best practises was also promoted.

1.2.2. Camp Visits

We performed camp visits in Gurgaon's residential neighborhoods as part of our operations management plan to carefully monitor our operations.

These visits meant going to the residential areas where our services were being offered in person to make sure everything was running smoothly and to handle any problems.
We talked to the residents during these trips, heard their opinions, and promptly answered any questions or ideas they had.

With this practical method, we were able to monitor service delivery, evaluate the efficiency of our operations, and pinpoint opportunities for development.

We sought to create a strong sense of community, establish trust, and make sure that our services surpassed residents' needs and expectations by interacting with them directly.

These camp visits also gave us important information and statistics that helped us make decisions and improve our operations for higher client satisfaction.

1.2.3. Market Research on the UK Teleradiology companies

I observed an active and demanding industry for teleradiology in the UK during my study.

The desire for quicker diagnosis, better patient access, and cost-effective healthcare solutions have all contributed to the constantly rising demand for remote radiology services. Several well-known businesses offer a variety of services, including remote image interpretation, emergency reporting, and subspecialty consultations, in the UK teleradiology market.

These businesses use cutting-edge technological platforms to safely transmit medical images and reports, enabling radiologists to diagnose and assess cases from a distance.

UK teleradiology services frequently work with a group of specialised radiologists with experience in various subspecialties to maintain high standards. Compliance with legal requirements, data security, and adherence to clinical governance frameworks are important factors for these businesses.

UK teleradiology is poised for continued expansion and is anticipated to play an increasingly important role in enhancing diagnostic capabilities and patient outcomes across the nation as the healthcare sector continues to embrace digital innovation.

1.2.4. Observations regarding Teleradiology Reporting errors

Teleradiology reporting errors can be caused by a variety of things, including technical difficulties, communication problems, and human error. These mistakes may result in incorrect diagnosis, postponed treatments, and even patient harm.

The misunderstanding of photographs, failure to spot abnormalities, incomplete or erroneous reports, and miscommunication of important results are common types of reporting errors.

Teleradiology services use quality control procedures to lessen these errors, including as peer review procedures, double reading by multiple radiologists, and continual training and education for radiologists.

Errors can also be decreased by enhancing communication channels, guaranteeing appropriate image quality, and putting in place standardised reporting templates.

To improve accuracy and patient safety, teleradiology providers must constantly monitor and assess their reporting procedures.

This will eventually ensure that the advantages of remote radiology services are maximised while the danger of reporting errors is reduced.

REPORTING ERRORS/MISS												
Location	Date	Radiologist Name	Patient Name	Modality	Part Scanned	Type of Error	Error description	Responsibility	Correction/ Review date	Corrected By (Radiologist Name)	Followed up by	Corrective action taken	Error Identified by

Figure 1.2.4.1. Checklist for Reporting errors

1.2.5. Camp Data Reconciliation

In operations management, data reconciliation for health camps is essential, and Excel is a useful tool for this task. Large amounts of information, such as patient demographics, medical histories, test results, and treatment plans, are gathered at health camps.

To ensure accuracy and consistency, this data needs to be reconciled by comparing and cross-referencing data from diverse sources.

In health camps, Excel offers a flexible platform for data reconciliation. It makes it possible to organise, manipulate, and analyse data effectively, which makes it simpler to spot differences and fix any errors. Sorting, filtering, and formula tools in Excel make it simple to compare and validate data.

Operations managers can use Excel to design spreadsheets or templates that are specifically suited to the needs of health camp data reconciliation.

Operations management can speed up the reconciliation procedure with Excel by automating some procedures and carrying out computations for data validation. They can find errors, missing data, or duplication by employing methods like VLOOKUP and conditional formatting, which facilitates effective data cleaning and validation.

The ability of Excel to create charts and graphs also helps to visualise trends and patterns within the reconciled data, facilitating strategic planning and informed decision-making.

In conclusion, Excel is an effective tool for operations management's reconciliation of health camp data. Its adaptability, ability to manipulate data, and analysis tools enable accurate and timely reconciliation, which improves the overall efficiency and productivity of health camp operations.

1.2.6. Use of PACS for E-reporting

In order to transmit medical images securely and effectively for remote interpretation, picture archiving and communication systems (PACS) are essential to telereporting.

PACS is a digital imaging system that makes it possible to electronically record, save, view, and distribute radiological images like CT and MRI scans. PACS enables the seamless transport of medical pictures from the imaging centre to the distant radiologist for interpretation and reporting in the context of telereporting.

Due to the absence of physical film or picture transfer, turnaround times are drastically shortened, and workflow effectiveness is increased.

Radiologists may access and review images remotely thanks to PACS, giving them the resources they need for precise diagnosis and reporting.

To further improve the efficiency and usability of telereporting services, PACS frequently interfaces with other teleradiology systems, such as secure image transmission and reporting platforms.

In addition to enhancing patient care by enabling prompt diagnosis, the use of PACS in telereporting fosters collaboration and extends the reach of radiological expertise across geographic borders.

2. DISSERTATION REPORT

2.1. Introduction

The length of time needed to finish a procedure is called the turnaround time. Downtime is one of the most frequently used words to describe turnaround time. Turnaround time can be easily understood as the period of time between the time a request is made or a process is initiated and the time it is finished.

Uncertainty exists on how TAT monitoring will affect the reporting process. Delays in diagnosis and treatment can result in subpar patient outcomes, which can be caused by ineffective reporting procedures. In order to find ways to boost productivity and the standard of service, it is crucial to find out whether tracking the TAT for radiological exams has a noticeable effect on the reporting procedure.

A smart reporting toolkit and AI-assisted image analyses from U4RAD are revolutionizing radiology reporting.

By making process improvement, relevant digital intervention, and chosen AI (Artificial Intelligence) apps available, they are revolutionizing remote radiological reporting and assisting radiologists in becoming more productive. With the help of their AI-assisted Radiology Reporting system, diagnoses will be made more quickly and with higher quality.

Radiologic interpretation is a complex psychophysiological and cognitive process that differs from patient to patient. According to how easily and complicatedly a case can be understood,

reporting times change accordingly. When there is an initial recognition stage of picture perception, perceptual errors can happen, increasing turnaround time and ultimately delaying reporting.

Various other factors can lead to delays in turnaround time like unavailability of doctors, required reporting from a particular doctor, reviews and missing clinical history or images o scans of the patient. Delays can occur from two sides, the client who is sending the cases and the reporting radiologist. The Operations coordinator plays a vital role in managing and bridging the gaps between these two stakeholders.

For conducting this, the aim of the study was, "To study the turnaround time of reporting of CT scans and MRI scans of the patients and analysis of gaps for 3 months, from the month of Feb to April 2023, at U4RAD"

To fulfill the above aim, two objectives are there. The primary objective is "To calculate the TAT of CTs and MRIs after the case is sent by the client for reporting" which is directly related to the aim. The secondary objective was, "To identify the reasons for the delay in reporting, if any". To accomplish the results of above two objectives, the process flows and Standard of Procedures were understood.

In the end the results were analyzed with the help of "Reasons for Delay in reporting". According to the reasons of delay, recommendations were also given which can improve the TAT and enhance the business on both commercial and medical point of view.

2.2. Literature Review

Teleradiology is playing an essential part in early disease diagnosis so that patients can get the treatment started in a short span of time. It is convenient for radiologists to work even if they are miles away from the diagnostic centre/hospital.

A comprehensive literature search was conducted using electronic databases, including PubMed, Embase, and Google Scholar. The search terms included "teleradiology," "CT scan," "MRI scan," "turnaround time," and variations thereof. Relevant articles published between 2010 and 2023 were considered for inclusion.

Teleradiology is playing an important part in rural areas. Teleradiology Solutions in Bangalore, Karnataka, formed an alliance with 26 Community Healthcare Centres (CHC), District (DH), and Sub-district (SDH) hospitals in Tripura, which are more than 3000 kilometres away, with the goal of promoting early diagnosis and enhancing health care outcomes in the rural areas of northeast India. Radiographs of patients from the sites were converted into digital images using the Digital Imaging and Communications in Medicine (DICOM) standard and uploaded to a cloud-based Radiology Information System and Picture Archiving and Communication System (RIS-PACS) for interpretation by board-certified radiologists at a Teleradiology reporting hub in Bangalore. Using teleradiology over a three-year period beginning in January 2018, 78622 studies were interpreted. Both research types and all age groups were represented.

This allowed for the delivery of the best care possible during the same visit because people could consult their doctor on the same day with the report. We draw the conclusion that teleradiology has been demonstrated to be a value-added service in remote North East India's rural healthcare.

Another example is of use of Teleradiology during the COVID-19 pandemic. During the pandemic, there was a requirement for a huge number of Radiologists to check the CT/X-ray, particularly of chest cases. Teleradiology reduces the turnaround time and played a significant role.

The above two studies prove that if the turnaround time of teleradiology is reduced due to various factors like auto-allocation, AI, etc., can help patients to get quicker results and ultimately the quick start of the treatment rather than waiting for a long time for the reports.

2.3. Methodology

Study location: U4RAD Technologies LLP

Study units: Patients who had undergone CT and MRI scans.

Keywords: Radiology, Turnaround time, Reporting Process flow, TAT of reporting

Sampling Technique: Purposive Sampling

Sample size: **367** (CT- 246, MRI- 121). The sample is taken based on the average of CTs and MRIs of three months (Feb-April) and then, the sample size was calculated under study with a confidence level of 95% and margin of error of 5%.

Study Duration: 3 months (Feb-March-April, 2023)

Sampling Criteria:

Inclusion Criteria: Included the patient who went under CT and MRI scanning.

Exclusion Criteria: Excluded the patients who went under Xray Scanning, patients who were follow up cases, non-reportable cases.

Study Tool: Checklist Method

Study Analysis: Microsoft Excel

	A	B	C	D	E	F
1	SNo	CT/MRI	Study Type	Case Received Time	Clinical History Received Time	Case Reported Time
2						
3						

Figure 2.3.1. Checklist for the study

2.4. Results

After evaluating, 246 CTs, it was found out that,

- 163 cases were reported within one hour (66.2%)
- 54 cases were reported after an hour but completed before 4 hours which is the defined TAT (22%)
- 29 cases were reported after 4 hours (11.8%)

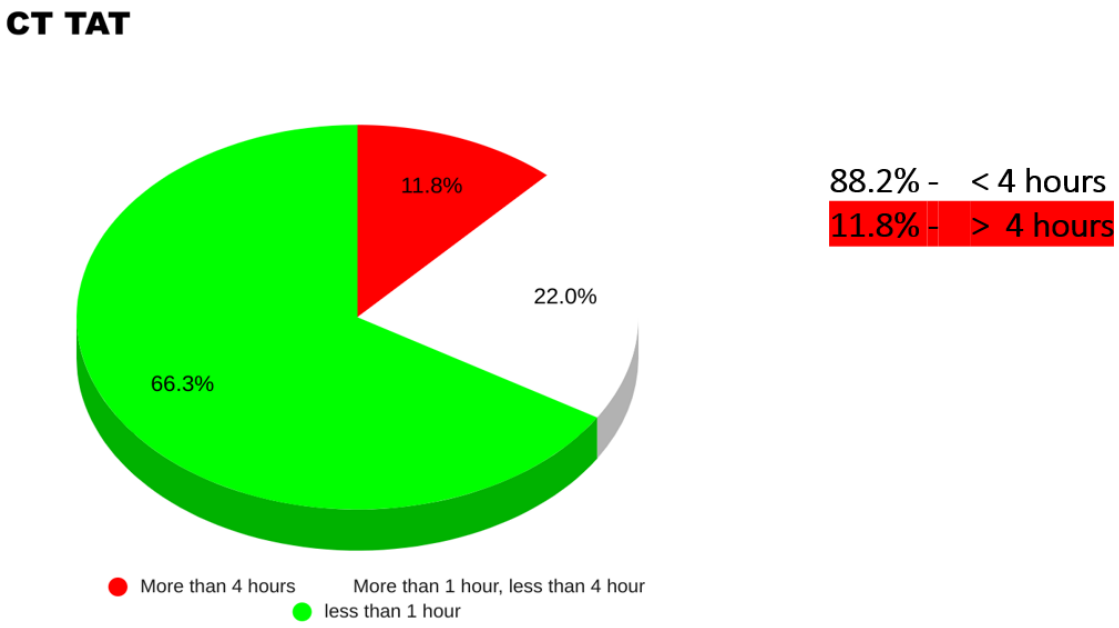


Figure 2.4.1. Results after evaluating TAT of CT scans

After evaluating, 121 MRIs, it was found out that,

- 65 cases were reported within one hour (53.7%)
- 31 cases were reported after an hour but completed before 4 hours which is the defined TAT (25.6%)
- 25 cases were reported after 4 hours (20.7%)

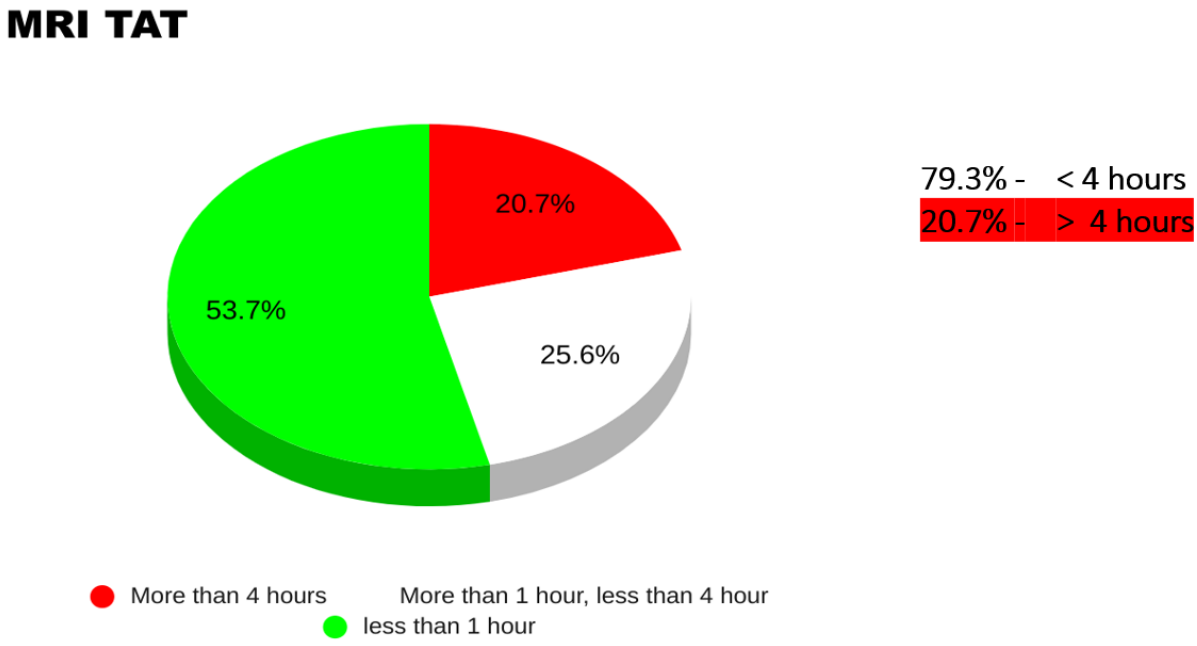


Figure 2.4.2. Results after evaluating TAT of MRI scans

Overall analysis (TAT)

- 85.3% of CTs and MRIs were reported on time without any delay
- 14.7% of CTs and MRIs were reported

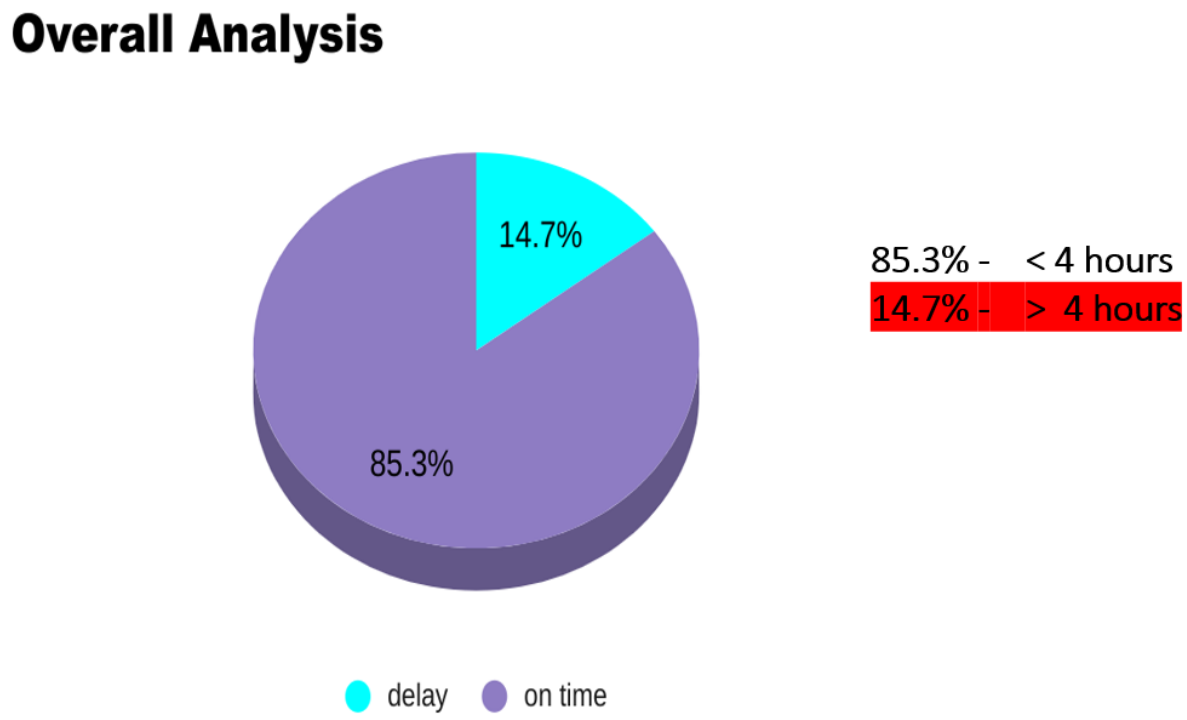
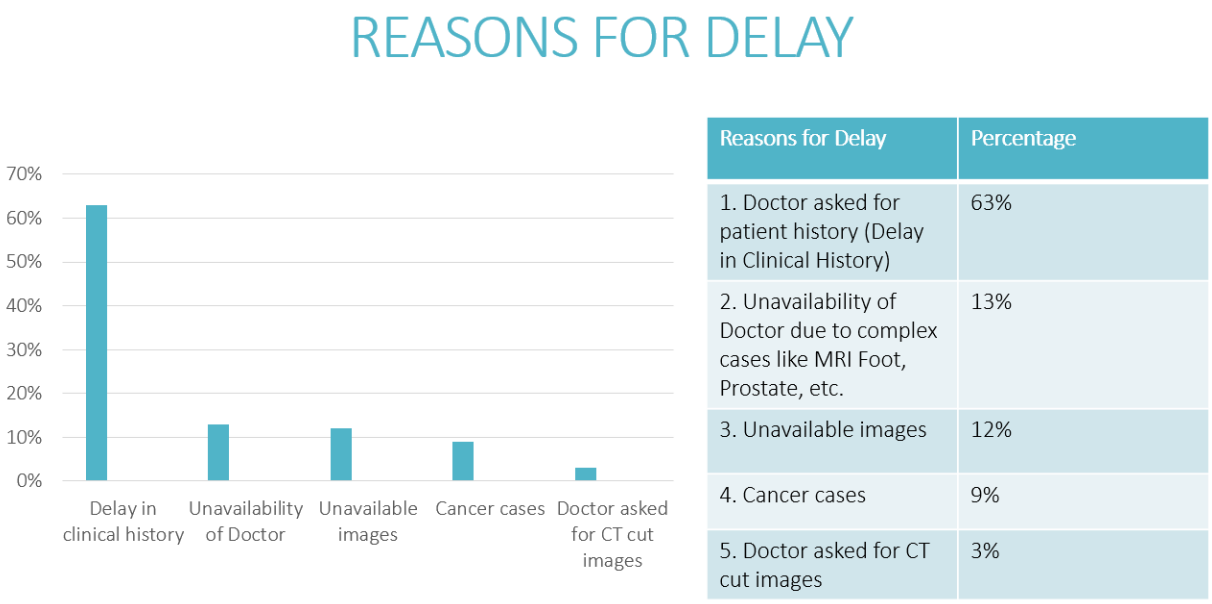


Figure 2.4.3. Results after evaluating both CT scans and MRI scans

Reasons for delay

- 5 complicated cases were there.
- 7 times, there was the unavailability of doctors for reporting.
- 34 times, Doctor asked for the patient's clinical history which led to a delay in reporting.
- 1-time doctor asked for CT cut images in order to report MRCP (Cholangiopancreatography)
- 7 times incomplete images were there.



Reasons for Delay	Percentage
1. Doctor asked for patient history (Delay in Clinical History)	63%
2. Unavailability of Doctor due to complex cases like MRI Foot, Prostate, etc.	13%
3. Unavailable images	12%
4. Cancer cases	9%
5. Doctor asked for CT cut images	3%

Figure 2.4.4. Reasons for delay (more than 4 hour)

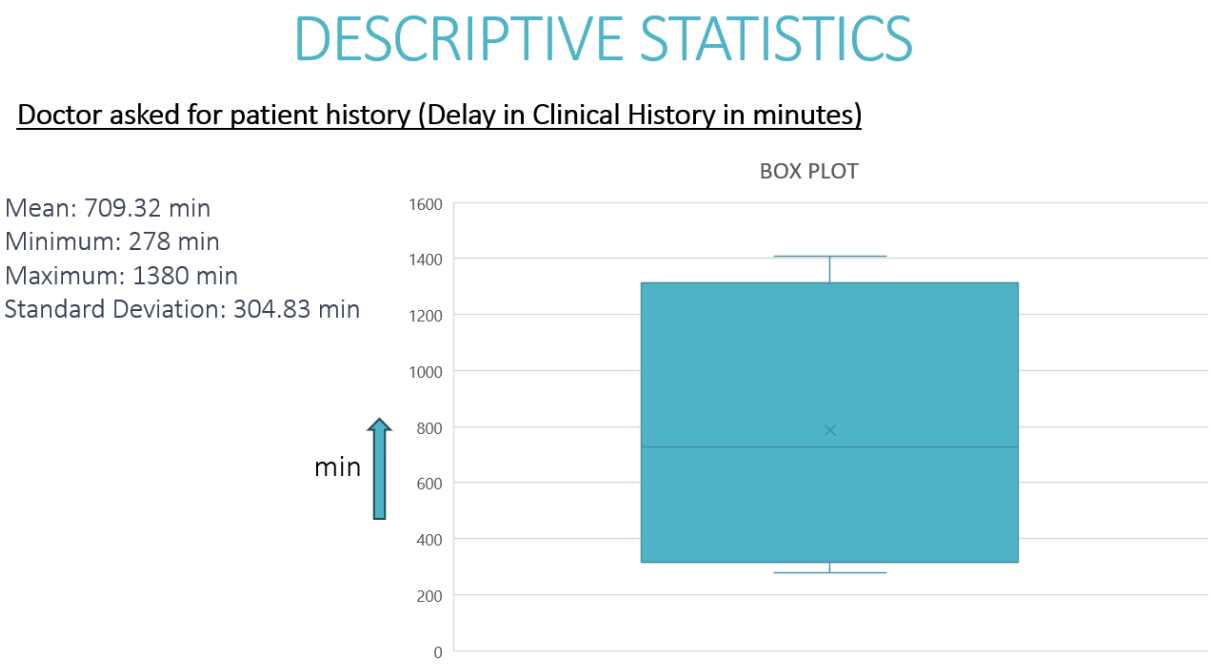


Figure 2.4.5. Above figure showing descriptive statistics for the reason of delay (Delay in Clinical history)

Clinical history was delayed in 15 MRIs and 31 CTs.

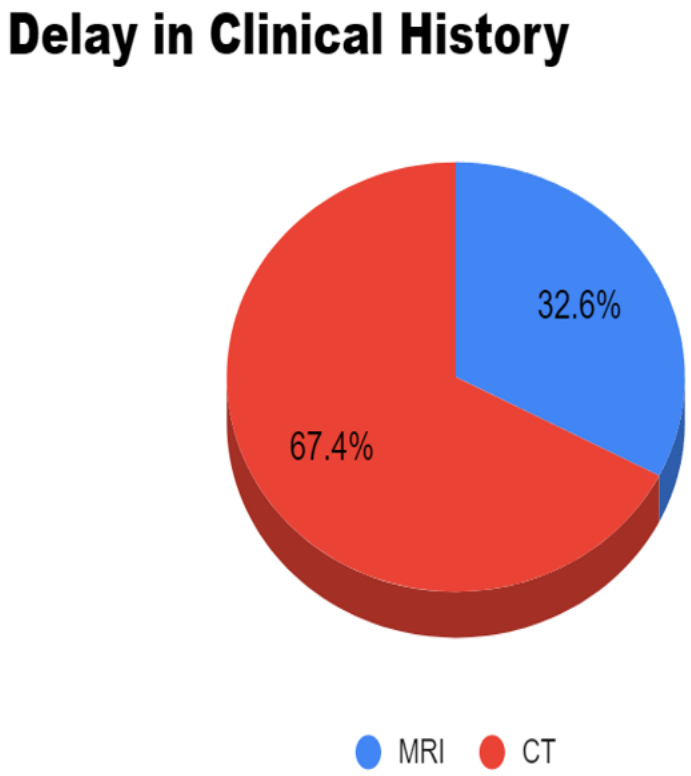


Figure 2.4.6. Delay in Clinical history from the client side

2.5. Discussion

After evaluating the above data and verifying the results, it is seen that 85.3% of the CTs and MRIs were reported on time and the rest were delayed. There is a scope for improvement in the turnaround time by making small changes in the telereporting process. Let's start with identifying the issues related to delayed reporting.

Looking at the above results, it is found that most of the cases are reported within the time limit as present in the company's policies. Out of 246 CTs, 29 cases were reported after the timeline, and out of 121 MRIs, 25 cases were reported after the timeline, i.e., 4 hours. It accounts for 11.8% of the total CTs and 20.7% of the total MRIs. The main reasons for the delay were-

1. Complicated cases, like cancer/prostate- Complicated cases like these require senior radiologists. After assigning the case to the particular radiologist, he/she is informed and is explained fully regarding the history and the degree of urgency. He/she then reports the case. Few cases have longer studies and many findings which also contributes to the delay in reporting.

   In case any case is reported by a junior radiologist, the case is rechecked by the senior radiologist in order not to miss any finding/interpretation that may lead to any kind of harm to the patient.

2. Unavailability of doctor- Few cases are reported by only a few doctors such as cases of foot, ankle, prostate, etc., and every doctor has a timing fixed for reporting. Suppose a case of an MRI foot comes in the morning and the reporting doctor is available in the afternoon, in such cases, the coordinator requests the doctor to report or inform the client of the delayed reporting. The most important thing is that there should be no harm to the patient. If the patient is in critical condition, reporting arrangements are made in order to avoid any future distress to the patient.

3. Doctor has asked for patient history/prescription/discharge summary- This happens either when the client has failed to send the complete documents for reporting or doctor requires a particular history for reporting of cases. In such cases, the client might take some time to send history and the case gets delayed.

   This is the most common type causing delays in reporting of cases.

4. Doctor asked for CT cut images- Few cases require CT images in order to report the MRI. If the CT cut images are not sent, then reporting gets delayed.

5. Unavailability of images- Sometimes incomplete images are seen on PACS because of two issues, internet coverage in the client's area or an issue in the PACS. In case of a lack

of internet coverage, the client is asked to reconnect to the internet and send the images. If there is an issue in PACS, then the Stradus support team is contacted for the issue in uploading the images on PACS. This might take a while and ultimately reporting gets delayed.

It is also seen that simple cases were reported very quickly than complicated cases. And complicated cases are also reported within the time limit but not all. Here lies the problem which can be resolved by applying a few methods to the process set for the telereporting.

In case there is no way to prevent the delayed reporting of any case, the client should be promptly informed about the particular case. Losing any case due to this issue is one of the ways that be easily fixed.

Teleradiology is enhancing the scope of better treatment provided to the patient and if it is completely achieved, it is a boon for the healthcare industry.

2.6. Recommendations

After analyzing the results, it is found that there is scope for improvement and a few changes can lead to better TAT in telereporting.

Some suggestions can be

1. Smart Reporting Tool - (Under development phase)

   Smart reporting tools can be one of the major sources which can reduce reporting time and ultimately a doctor can report more cases in a short span of time.

   In this smart reporting tool, an MCQ-like questionnaire will be there. For example, there is a CT head case where the patient might have some internal bleeding (haematoma). Traditionally, the doctor types the report and signs it off but it takes a longer time. What if the doctor has a few sets of questions and after ticking all of them out according to the provided scans, a report is made? Sound convenient. This is smart reporting tool. It doesn't mean if the report is done, a few minor changes can not be made. The doctor can make changes according to the need and then signs it off. It is not only saving time, but the doctor has a list of points which makes sure that no point is missed during reporting. It will help in enhancing the speed of reporting and fewer errors to rectify.

2. Integration with AI - Artificial intelligence is taking place everywhere in healthcare and is doing wonders.

In teleradiology, AI can help doctors by giving a provisional diagnosis so that the doctor can finalize the report and give the final diagnosis.

This also makes sure of fewer errors and quick reporting of the cases.

3. List of Doctors as per the complexity of case - There should be a list of doctors with every member of the operations team stating the type of cases reported by the radiologists. It should have the timings of doctors and types of cases assigned with the degree of complexity.

   This will make management easy and the same process will be followed by everyone.

4. Checking the order notes, clinical history and images of the case sent - The coordinator should make sure that the case has a proper clinical history with clearly defined order notes and complete images before assigning any case to the radiologist for reporting. In case any of the above is missing, the client should be informed and the coordinator should assign the case after the completion of all requirements. This will save the doctor's time which can be utilized in reporting other cases.

5. Reminders - Whenever a case is assigned to a doctor, dropping a message is a must which keeps the doctor in the loop that a case is assigned. In case the doctor does not

respond, drop a message again after half an hour or give a call. In case the doctor is still not responding, reassign the case immediately.

6. Brief explanation for the complex cases - If there is any case in which a comparison with the previous reports/scans is required, the doctor is informed before assigning the case. The coordinator makes sure that the old and new case, both are assigned to the doctor.

7. Divide rule - If there are many cases on the PACS, proper division of the cases among the doctors is necessary. If one doctor is assigned only complex cases, and the other doctor has more or less simple studies (where both can report all types of cases), a proper division is required. This will make the reporting fast and the burden on one particular radiologist will not be there.

8. Prior information for emergency cases - In case of any emergency case, drop a message to the doctor for reporting as soon as possible.

9. Smooth shift change- If the coordinator properly informs about the doctor's availability, emergency cases, complex cases, etc., to the next person whose shift is going to start, it

will make the shift change process easier and reporting will be in full flow without any confusion.

2.7. Conclusion

What is the main purpose of healthcare on-time provision? Better and quick treatment. On-time reporting or quick reporting does not have space for errors or missed interpretations. On-time reporting should be correct, quick and time-saving. In today's fast-moving world with a high rise in severe non-communicable diseases, correct diagnosis and better treatment are required.

Teleradiology solutions allow radiologists to have instant access to medical images over the web via secure telecom links. This reduces costs and overhead while enabling much quicker access to highly specialised medical imaging reports and consultative services. It also allows the round-the-clock coverage of cases for the patients.

India's success in tele-reporting radiology compared to the rest of the globe is largely attributable to the level of expertise of its subject matter specialists and their capacity to remain vigilant and act fast when necessary.

A quick, accurate diagnosis is crucial, especially in an emergency situation. Hence, one reason for the speedy and significant expansion of Teleradiology services in India is that most parts of the world are confronting a dearth of good radiology services and skilled radiologists.

And last but not least, Accidents and death have no fixed time and can occur at any moment. If dangerous problems at work are not addressed and eliminated, more people may endanger their lives. A quicker reaction can apply safety decisions to control dangerous situations right away.

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