Summer Training

At

Aditya Birla Memorial Hospital, Pune

From date 10-5-2021 to 2-7-2021

A Report

By

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MBA 2020-22 Hospital And Health Management

Acknowledgement

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I also want to thank Dr. Neetu Purohit, Associate Professor, IIHMR university for continuously guiding me to complete this project.

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“Table Of content” -

Abbreviations

OPD – “Out Patient Department”

IPD – “In Patient Department”

X-Ray – “X Radiations”

CT – “Computed Tomography”

MRI – “Magnetic Resonance Imaging”

USG – “Ultrasound Sonography Test”

BMD – “Bone Mineral Density”

PACS – “Picture Archiving and Communication System”

ABMH – “Aditya Birla Memorial Hospital”

AI – “Artificial Intelligence”

SRS – “Speech recognition system”

(10 May to 31 May)

Introduction

Aditya Birla Memorial Hospital, Pune

Aditya Birla Memorial Hospital is a homage and tribute to past due Shri Aditya Vikram Birla. He had estimated a world-elegance health facility in India. His imaginative and prescient has taken form withinside the shape of a Medicity sprawled over sixteen acres of land. This Medicity is a fantastic distinctiveness healthcare facility to cater to the wishes of all sections of society. The health facility's mission: Compassionate Quality Healthcare. Aditya Birla Memorial Hospital is a multi-speciality tertiary health facility placed at Pimpri-Chinchwad, Pune withinside the western Indian kingdom of Maharashtra. It is Maharashtra's First National Accreditations Board for Hospital (NABH) approved health facility, and additionally India's First HACCP and ISO: 22000:2005 licensed health facility. Spread throughout sixteen acres, Aditya Birla Memorial Hospital has 500 Beds, 152 ICU Beds, thirteen Operation Theaters and a flat panel Cath Lab. The health facility employs the greatest skills withinside the clinical enterprise as complete time experts the use of ultramodern clinical era to offer excessive first-class value-powerful clinical offerings. It lays unique emphasis on preventive care in the direction of that is hosts a whole Wellness Assessment Center below one roof. Operating in a paperless and filmless environment, the health facility is dedicated to hold the very best requirements of healthcare at an cheap value.

The health facility's state-of-the-art Medical Emergency Center is geared up with 10 beds – four purple zone, 6 yellow – fortified with maximum superior lifestyles-saving centers inclusive of cardiac, trauma, pediatric bays,a unique room for infectious diseases, and mini operation theatres in the branch to manipulate all fundamental lifestyles saving procedures.

The Mother & Child unit is has current neonatal in depth care and pediatric surgical care centers. It is geared up with 4 unbiased and absolutely supplied exertions suites linked to a committed Gynaec operation theatre wherein sufferers acquire person pre and submit being

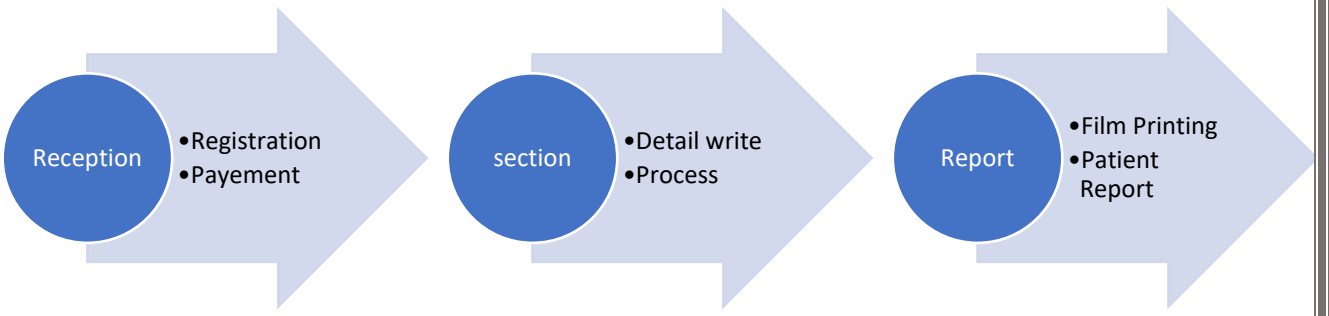
pregnant care. Its skilled gynecologists are educated to stumble on most cancers withinside the OPD itself, providing Gyne-Oncology and Urogynecology offerings for tremendously specialised care to sufferers with most cancers and urinary problems. The Mother & Child unit additionally gives Assisted Reproductive Technologies (ART) offerings, providing In Vitro Fertilization (IVF), Intracytoplasmic Sperm Injection (ICSI) and Intrauterine Insemination (IUI) in a separate check tube infant clinic.

The health facility is dedicated to hold the very best wellknown of care and reply to the wishes of the network in a compassionate manner. To offer kingdom-of-the-art, excessive first-class and value-powerful healthcare offerings and modern records to enhance and hold fitness for the wellbeing of the network. To unrelentingly pursue the introduction of fee for our customers, shareholders, personnel and society at large. To foster a healing dating primarily based totally on compassion this is felt, first-class this is measurable and value this is cheap. To emerge as companions in fitness merchandising with each segment of society.

Mode of data collection:-

Observation

Standard Operating Procedure for radiology Department :-

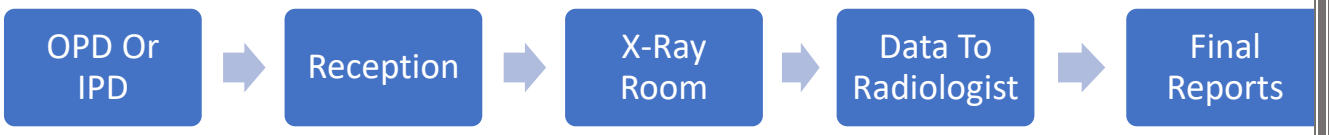


The patient first visited the OPD then the doctor will suggest him or her to radiology test or the IPD. The patient could be from the IPD or OPD.

Procedure in Radiology Department :-

- The patient will be first attended by the reception desk.
- The registration and payment done at the reception.
- Individual will be guided to the radiology lounge.
- Technician will give knowledge about the procedure and tell do's and don't.
- Fasting and indoor patients will be done early morning. Others will be schedule mid afternoon.
- The hardcopy will be assessed by the radiology, the report will be kept for typing.
- The receptionist will confirm the mode of delivery of reports once again and thank the patient.

X-Ray Room:-

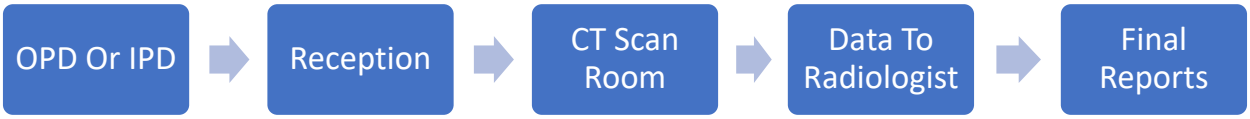


The patient reach in the X-Ray room.

Procedure :-

- Receive patient with radiology investigation request from reception.
- Before taking the X-Ray the technician will ask the patient about previous medical history. If patient is female then ask for LMP.
- The technician will enter the patient details X-Ray log book and system too.
- Technician will give instruction to patient, position the body part on which X-Ray to be taken. Then Take the X-Ray.
- Then technician will read the X-Ray in digitizer and check that whether it is perfect according to request or not.
- If it is ok then patient will be released.
- If it is not good as per the request then repeat the same procedure.
- Then it will be assign to the radiologist for reporting.
- The radiologist will examine the image and do situ dictation.
- Then send it to medical transcriptionist. He will upload report in system. Then radiologist will confirm the report.
- Then finally report will be handover to the patient.

CT Scan Room:-

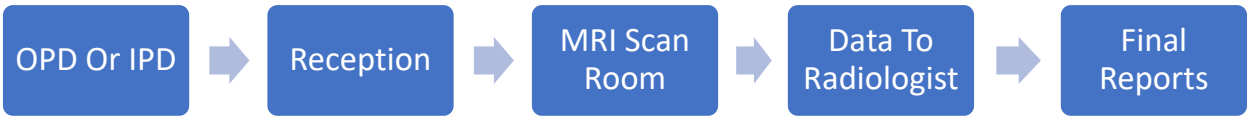


The patient reach in the CT Scan room.

Procedure :-

- Receive patient with CT investigation request from reception.
- Before investigation, the technician will ask the patient about previous medical history.
- The technician will enter the patient details CT logbook and system too.
- Technician will give instruction to patient. In case if contrast is required then patient needs to sign consent.
- Then preparation for scanning like oral contrast, pre-scan medication, IV cannulation etc. if needed.
- Record the batch no. & expiry date of contrast used.
- Then carry out CT examination scan through CT machine. Release the patient.
- After final processing the printout would be taken.
- Then it will be assign to the radiologist for reporting.
- The radiologist will examine the images and give dictation.
- Then send it to medical transcriptionist. He will upload report in system.
- Radiologist will confirm the report.
- Then finally report will be handover to the patient.

MRI Scan Room:-



The patient reach in the MRI Scan room.

Procedure :-

- Receive patient with MRI investigation request from reception.
- Before investigation, the technician will ask the patient about previous medical history.
- The technician will enter the patient details MRI logbook and system too.
- Technician will give instruction to patient and ask to remove all metallic component from the body.
- Then preparation for scanning like pre-scan medication, IV cannulation etc. if needed.
- Then take consent.
- Then carry out MRI examination scan through MRI machine. Release the patient.
- After final processing the images would be taken.
- Then it will be assign to the radiologist for reporting.
- The radiologist will examine the images and prepare report.
- Then send it to medical transcriptionist. He will upload report in system.
- Then radiologist will confirm the report.
- Then finally report will be handover to the patient.

Sonography Room:-

The patient reach in the Sonography room.

Procedure :-

- Receive patient with sonography investigation request from reception.
- Before the sonography investigation the technician will ask the patient about previous medical history give instruction to patient whether to drink water or not.
- The technician will enter the patient details in Sonography log book and USG system too.
- Diagnose the patient and release.
- Prepare the USG report.
- Then send it to medical transcriptionist. He will upload report in system.
- Report will be send to sonologist for verification.
- Then finally report will be handover to the patient.

Mammography Room:-

The patient reach in the Mammography room.

Procedure :-

- Receive patient with radiology investigation request from reception.
- Enter the information in mammography logbook.
- Before the mammography investigation the technician will ask the patient about previous medical history.
- The technician will enter the patient details in system and digitize the cassette.
- After processing X-Ray image check the image whether it is technically ok or not. If it is ok release the patient.
- Then send the patient for sono-mammography on requirement basis.
- Preparation of report by radiologist.
- Then send it to medical transcriptionist. He will upload report in system.
- Report will be send to radiologist for verification.
- Then finally report will be hand over to the patient.

BMD Room:-

The patient reach in the BMD room.

Procedure :-

- Receive patient with radiology investigation request from reception.
- Before the mammography investigation the technician will ask the patient about previous medical history. Enter the patient information in log book.
- The technician will ask to remove all metallic items.
- Then carryout the BMD examination and scan through the DEXA machine. Release the patient.
- After processing images will be sent to radiologist.
- After diagnosing prepare the report and send it to medical transcriptionist for final report.
- He will upload report in system.
- Report will be send to radiologist for verification.
- Then finally report will be hand over to the patient.

(1 June To 2 June)

Study of reasons of delay in report generation procedure in radiology department.

Introduction :-

Radiology reports is an crucial a part of PMR (Patient Medical Record). NABH and JCI have their reporting exercise pointers that designate how the very last file need to be generated and submitted after any radiological examination, procedure, or consultation. A restricted and incomplete preliminary file may be generated to manual the affected person's on the spot treatment, however the distinction among the preliminary file and the very last file need to be suggested quick and reliably. In the case of emergency intervention or viable negative affected person outcomes, unconventional verbal exchange is needed with the healthcare provider, his/her certain personnel, or without delay with the affected person. The documentation of this verbal exchange is obligatory, ideally withinside the file or the affected person’s clinical record. The NABH and JCI pointers permit radiologists to have a positive diploma of freedom to make medical judgments in those situations, however it's far obligatory that the body of workers and the precise time be knowledgeable of the effects of the investigation. The crucial a part of in-intensity information in radiology reviews is associated with its significance as a prison document. In-intensity documentation may be the principle bridge among radiological mistakes and the negligent care that constitutes a clinical incident, due to the fact prison agencies generally tend to expect that the absence of documentation approach that the debatable records or activities did now no longer occur.

As per the ABMH standard protocol for CT-MRI the report should done within 4 hours after completion of study and X-Ray & USG report should be done within 2 hours after completion of study. It is very helpful for the hospital to maintain effectiveness of radiology department and to ensure to get the treatment for patients in time.

Objective :-

- To find out the reasons of delay in the report generation process.
- To suggest measures for reducing time taken for generation of report.

Research Question :-

What are the reasons of delay of reports generation process in radiology department at Aditya Birla Memorial Hospital, Pune?

Rationale:-

All physicians use the information through the radiology finding reports and radiology images to treat and monitor diseases. Many major diseases and medical condition treated with help of radiology with the use concentrated radiation, ultrasound, and magnetic resonance for that radiology reports are very important.

In addition to providing a more robust report for the consumer, an interactive reporting system also allows for efficient entry of information into the report.

Method :-

Report Turnaround Time values for MRI, CT, X-Ray and USG were compared based (01 June 2021 to 26 June 2021)

Reasons delay were noted by taking interviews and observation.

Research Design :-

Descriptive Study

Sample Size :-

1549 (From 1 June to 26 June)

CT-MRI 400

X-Ray & USG 1149

Data type :-

Primary data.

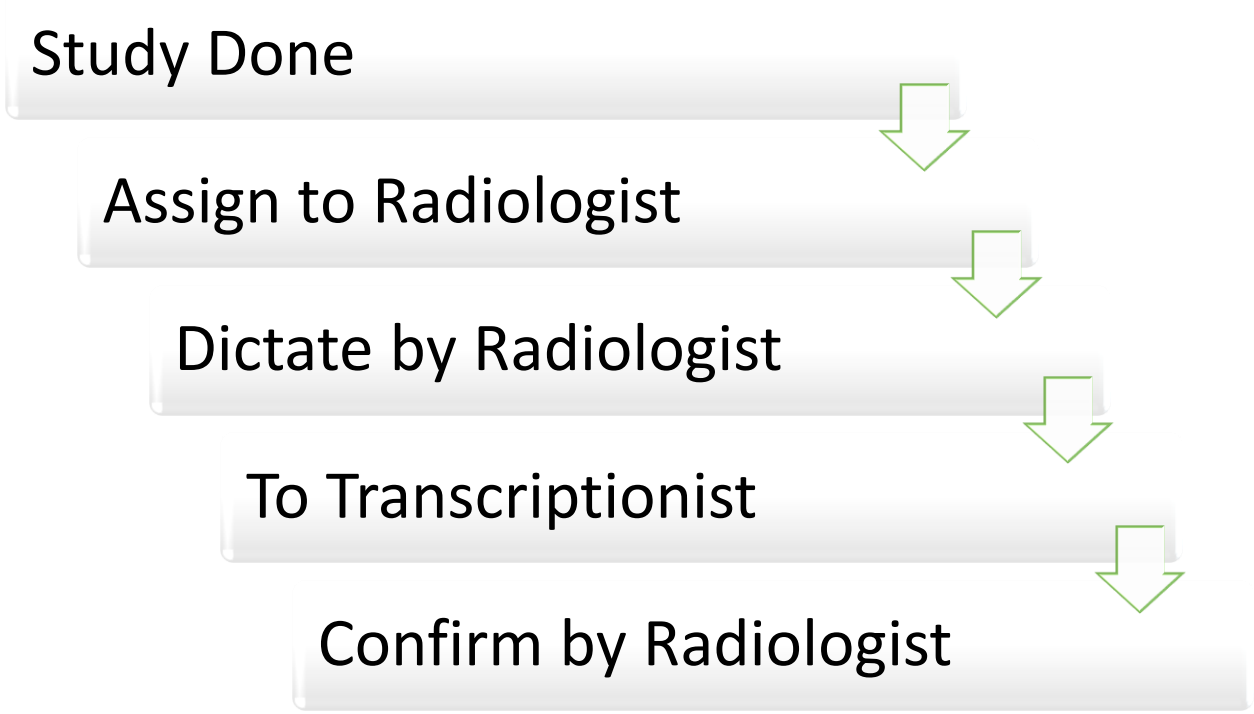
Mode Of data collection :-

From the hospital record with help of Magnum software.

Exclusion :-

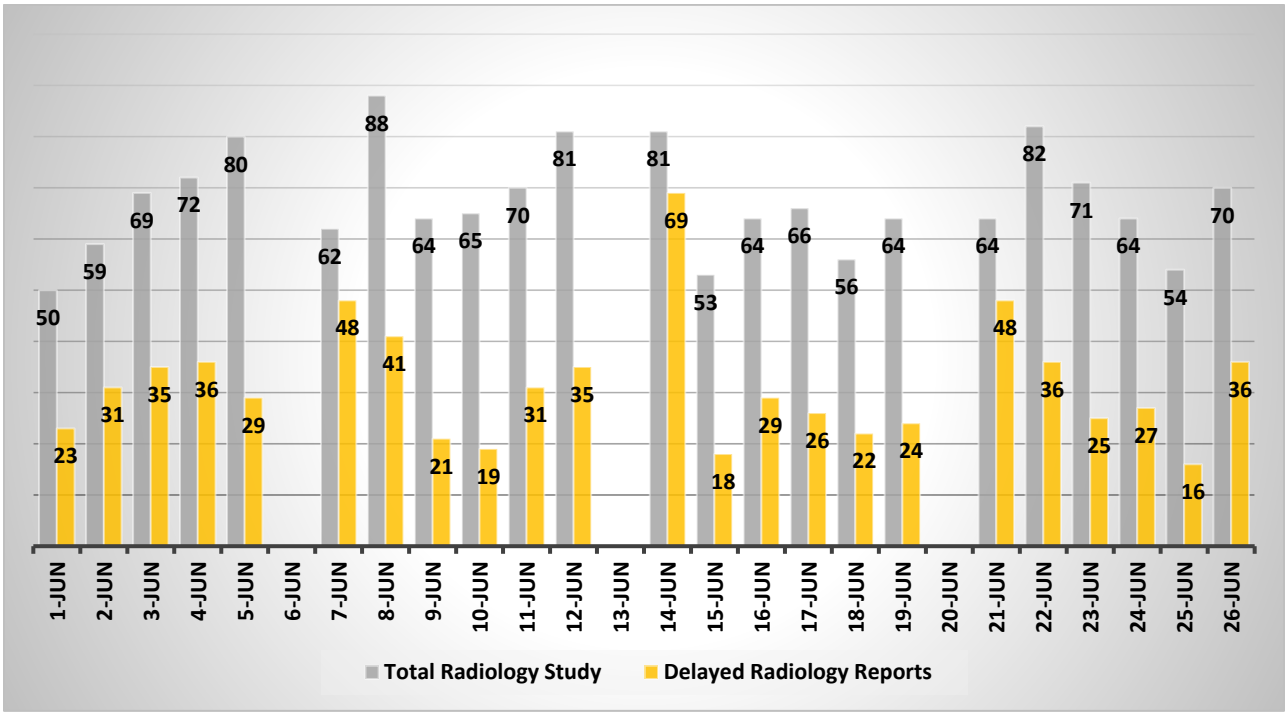
Fluoroscopy and mammography has not been included in this study because it was very difficult to collect and data as there were very few patients come for this procedure.

Reports Generation Procedure for Radiology Department at ABMH



- Study done at CT,X-Ray, MRI,BMD, Mammography or Sonography Room.
- Then the project or study assign to Radiologist for interpretation.
- It will be dictate by the radiologist to the medical transcriptionist.
- Then medical transcriptionist will type the report in system.
- Then Report will send for the confirmation by radiologist.
- Radiologist will confirm the report.
- Then it will be handover to patients.

Analysis & Interpretation



Total Radiology Studies and Delay from 1 June to 26 June.

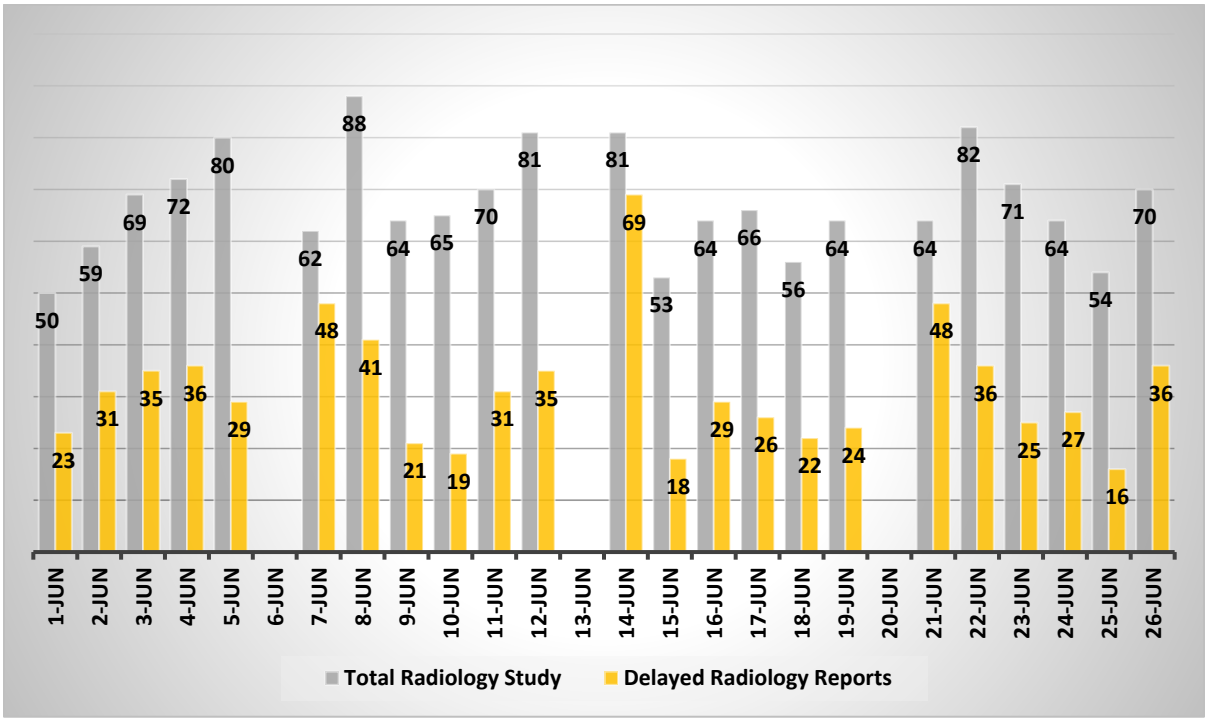
Date	Total Radiology Study	Delayed Radiology Reports	Delay %
1-Jun	50	23	46%
2-Jun	59	31	53%
3-Jun	69	35	51%
4-Jun	72	36	50%
5-Jun	80	29	36%
7-Jun	62	48	77%

8-Jun	**88**	**41**	**47%**
9-Jun	**64**	**21**	**33%**
10-Jun	**65**	**19**	**29%**
11-Jun	**70**	**31**	**44%**
12-Jun	**81**	**35**	**43%**
14-Jun	**81**	**69**	**85%**
15-Jun	**53**	**18**	**34%**
16-Jun	**64**	**29**	**45%**
17-Jun	**66**	**26**	**39%**
18-Jun	**56**	**22**	**39%**
19-Jun	**64**	**24**	**38%**
21-Jun	**64**	**48**	**75%**
22-Jun	**82**	**36**	**44%**
23-Jun	**71**	**25**	**35%**
24-Jun	**64**	**27**	**42%**
25-Jun	**54**	**16**	**30%**
26-Jun	**70**	**36**	**51%**

Delayed Reports :-

- For BMD only 1-2 used to come per day on some days there were no patients for this procedure, so there was not delay in report generation procedure.
- Above graph shows daily studies done in radiology department and delayed reports from 1 to 26 June.
- Total 1549 has been done in that 725 reports delayed i.e. 47%.
- There are more number of delay on Monday like 7, 14, and 21 June cause non availability of radiologist on Sunday.
- Studies done on Saturday and Sunday for both days report generation process starts on Monday because Sunday is weekly off for radiologist Doctors.
- The average number studies done is 67.38 and average number of delay 31.52.

CT-MRI:-

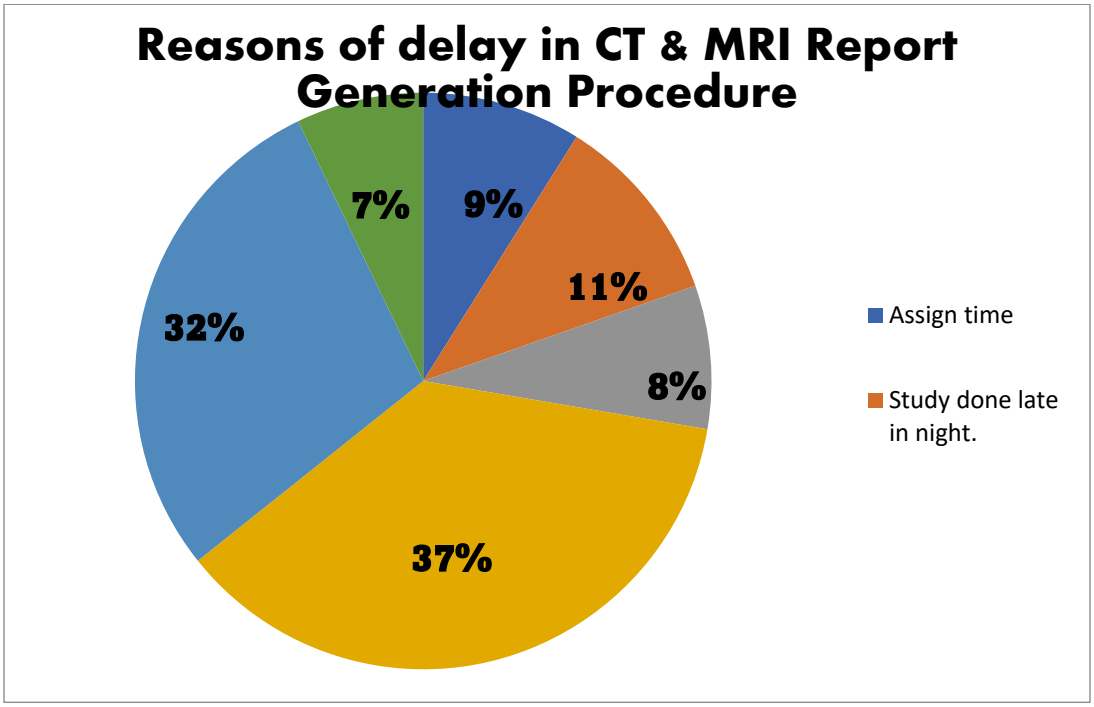


Delayed reports of CT-MRI from 1 June to 26 June.

Above graph shows the total studies done in CT-MRI during 1 June to 26 June and delayed reports. The blue line shows the total studies done of CT-MRI and the orange line shows the number of delayed reports during the period of 1 June to 26 June. In graph the number of delayed reports are more on Monday cause Sunday is weekly off of radiologist doctor so they dictate all the studies done from Saturday night to Monday mornings on Monday.

Reasons Of delaying of reports :-

After analysing the data I found some major reasons for delaying in report generation process for CT-MRI.



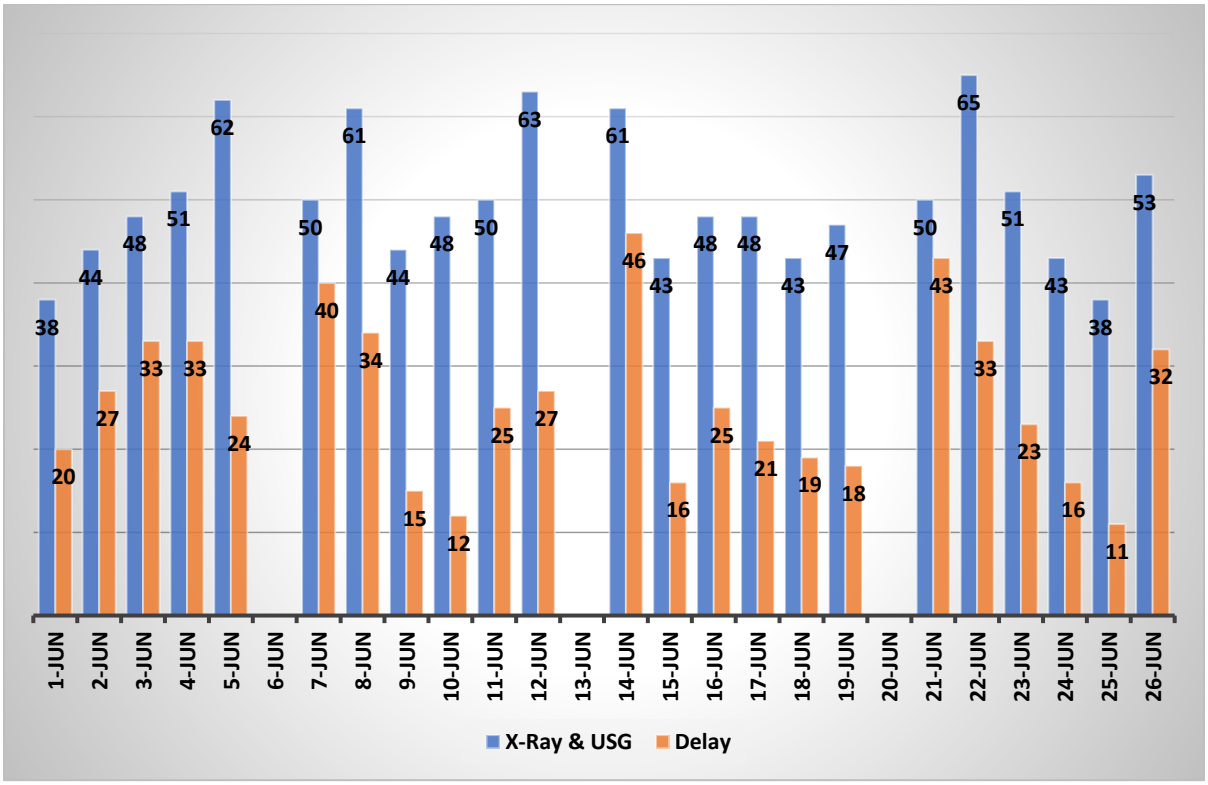
Percentage wise distribution of reason of delay of reports :-

- Assign time 9%.
- Study done late in night 11%
- Study done early in morning 8%
- Dictate time 37%
- Confirm time 32%
- System error 7%

Reasons with highest percentages are Dictate time and Confirm time that is 69% of the total delayed reports these are the main reason for delaying in report generation process other all reasons are 31% responsible for delayed reports.

This usually happens because sometimes doctors are not available. They might be busy with reports or may be study has not been assigned to the on duty Doctor.

X-Ray & USG :-

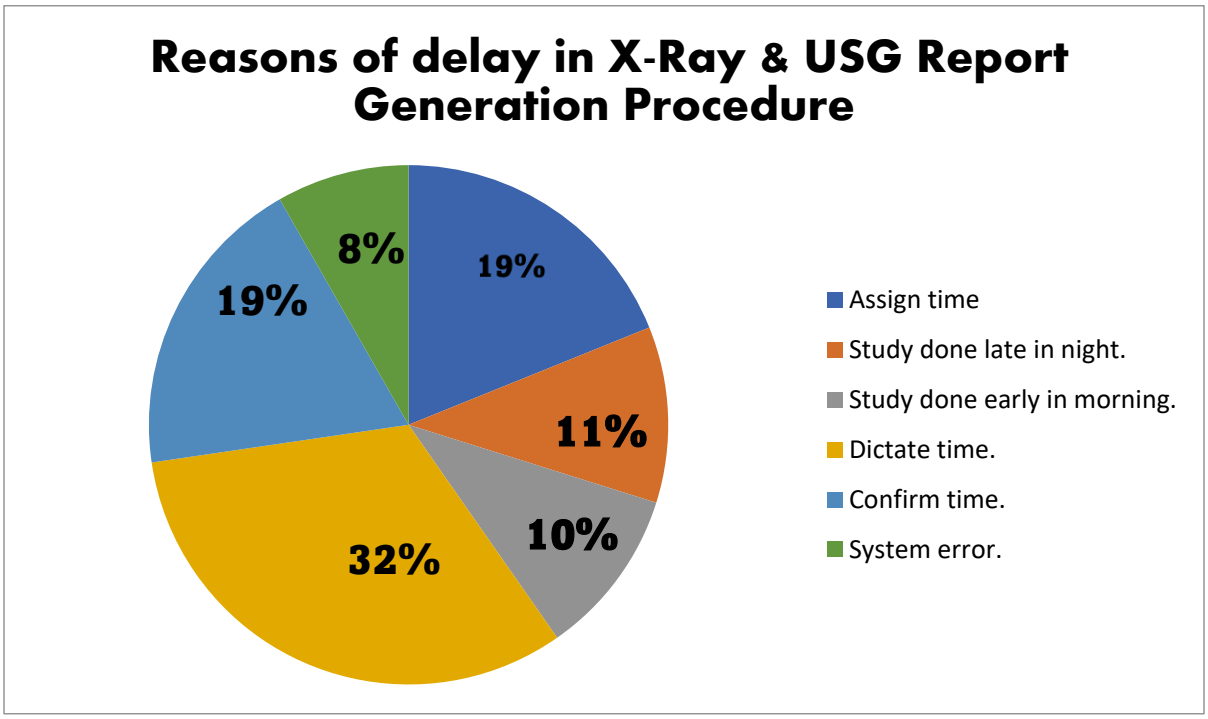


Delayed reports of X-Ray & USG from 1 June to 26 June.

Above graph shows the total studies done in X-Ray & USG during 1 June to 26 June and delayed reports. The blue line shows the total studies done of X-Ray & USG and the orange line shows the number of delayed reports during the period of 1 June to 26 June. In graph the number of delayed reports are more on Monday cause Sunday is weekly off of radiologist doctor so they dictate all the studies done from Saturday night to Monday mornings on Monday.

Reasons Of delaying of reports :-

After analysing the data I found some major reasons for delaying in report generation process for X-Ray & USG.



Percentage wise distribution of reason of delay of reports :-

- Assign time 19%
- Study done late in night 11%
- Study done early in morning 10%
- Dictate time 32%
- Confirm time 19%
- System error 8%

Reasons with highest percentages are Assign time, Dictate time, and Confirm time that is 70% of the total delayed reports these are the main reason for delaying in report generation process other all reasons are 30% responsible for delayed reports.

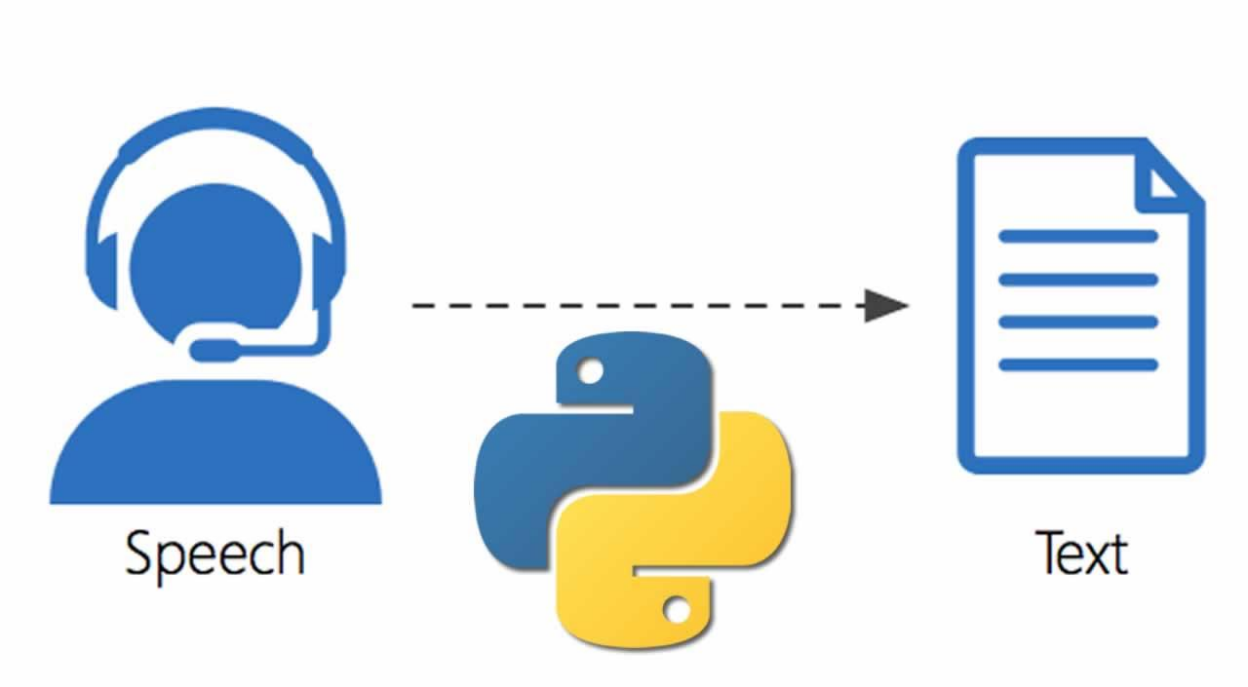
Dictate time and confirm time is depend on radiologist doctor and Assign time depend on radiology technician it is fault of technician. After asking to technician that why there is delay in assign time. He answered that sometimes he is not able to send the images to doctor and also not able to assign the study.

Recommendation

After analyzing the data from 1 June to 26 June 2021, it was found that many technicians assigned the study to only one or two radiologists so it created problem as one radiologist had increased workload as compared to others. The solution for this is to distribute the studies to all radiologist equally so that there won't be delay in generation and dispatching of reports.

Dictate time is extra for that we are able to put in force AI primarily based totally SRS (Speech reputation System). Traditionally, the system of reports era begins off evolved while the radiologist dictates the case and create an audio record file. This is dispatched to the clinical transcriptionist, who converts the dictated audio file into the words, to create a initial report. Then the initial reviews reviewed with the aid of using radiologist then receive or

verify the file. This manner does take lot of time.



After Installation of SRS the radiologist would be able to dictate the case and edit it if necessary, then confirm it all at once. This procedure will reduce the report generation time by 30-40 minutes.

There is rule when one radiologist dictates the case then only that radiologist who has dictated case can only confirm the report after completion typing of that report by the medical transcriptionist , no other radiologist has that right to confirm that report. As the confirm time is one of the huge reason of delaying in report generation procedure the IT team can allow or give rights to all radiologist to confirm each others reports.

Routine follow up by the HOD to check whether study has been assigned or not to radiologist.

As there is higher number delay in reporting on Monday to tackle this issue we hire some new radiologist to work on Sunday or ask few to radiologists to work on Sundays also.

Conclusion

After all the results were studied carefully some of the reasons of delaying in generation report in radiology department are dictate time, confirm time, unavailability of radiologist on time, and assign time. Out of these reasons according to the findings all these reasons can resolved to avoid delay and reduce the report generation time, which in return will improve the overall further patients' treatment. Our major focus should be on avoiding the unnecessary delays like assign time and confirm time. To avoid these delays, we should improve communication between the coordinators.

Technological advancement would be going to help a lot to increase the overall efficiency without any sacrifice in quality of reports.

References

https://www.appliedradiology.com/

https://www.ajronline.org/doi/10.2214/AJR.17.18721

Annexure

Time Schedule :-

Sr. No.	Name Of department	Date(s) of visit	% of time spent	Interacted with (Name & Designation)
1	Radiology Reception	12 to 14 May2021	6.38 %	Jaya Shelar (Receptionist)
2	X-Ray Room	15 & 17 May 2021	4.25%	Alfred Fernandes (X-Ray Technician)
3	CT Room	18 & 19 May 2021	4.25%	Datta Khade (CT Technician)
4	MRI Room	20 & 21 May 2021	4.25%	Shrikant Bhosale (MRI Technician)
5	USG Room	22 & 24 May 2021	4.25%	Radha Waghmare (Sister)
6	Mammography Room	25 & 26 May 2021	4.25%	Sunita S. (Mammo Technician)
7	BMD Room	27 & 28 May 2021	4.25%	Amit Shalu (BMD Technician)
8	Report Generation Room	29 & 31 May 2021	4.25%	Imran Shaikh (Medical Transcriptionist)
9	Radiology Department	1 June to 2 July 2021	53.19%	Vandana Patel (Radiology Department)