

## **Project Title**

Significant Improvement in Outpatient Plain Film Exam Report Turnaround Time (TAT) After Process Improvement in Radiology

## **Project Lead and Members**

Project lead: Ong Kian Boon

Project members: Dr Yeong Kuan Yuen, Dr Bernard Wee, Franco Leow, Normisah Mohd Sah, Joshua John, Chua Poh Hai, Dai Zhangyan & Maideen Osman

## **Organisation(s) Involved**

Ng Teng Fong General Hospital

## **Healthcare Family Group Involved in this Project**

Allied Health

## **Applicable Specialty or Discipline**

Radiology

## **Aims**

To reduce the report TAT for outpatient plain film exams from 93 hours to 45 hours (91%) by July 2018 and from 45 hours to 8 hours by September 2018.

## **Background**

See poster appended/ below

## **Methods**

See poster appended/ below

## **Results**

See poster appended/ below

## **Lessons Learnt**

Teamwork and effective communication between radiologists and the PACS administrator group are a catalyst for significant improvements in work processes.

The effective development and integration of the project team was essential in the success of this project. Despite the variables that contributed to the project challenges, by communicating team goals and expectations openly and effectively, these barriers were overcome.

## **Conclusion**

See poster appended/ below

## **Project Category**

Care & Process Redesign

Access to Care, Turnaround Time

## **Keywords**

Plain Film, Exam Report

## **Name and Email of Project Contact Person(s)**

Name: Ong Kian Boon

Email: [kian\\_boon\\_ong@nuhs.edu.sg](mailto:kian_boon_ong@nuhs.edu.sg)



SIGNIFICANT IMPROVEMENT IN  
OUTPATIENT PLAIN FILM EXAM REPORT  
TURNAROUND TIME (TAT) AFTER PROCESS  
IMPROVEMENT IN RADIOLOGY

- ☒

SAFETY
- ☒

QUALITY
- ☒

PATIENT  
EXPERIENCE
- ☒

PRODUCTIVITY
- ☐

COST
- ☒

TEAMWORK
- ☒

COMMUNICATION

MEMBERS: DR YEONG KUAN YUEN, DR BERNARD WEE BOON KEE, FRANCO LEOW YEONG CHEAN,  
NORMISAH MOHD SAH, JOSHUA JOHN, CHUA POH HAI, ONG KIAN BOON, DAI ZHANGYAN & MAIDEEN OSMAN

Define Problem, Set Aim

**Problem/Opportunity for Improvement**

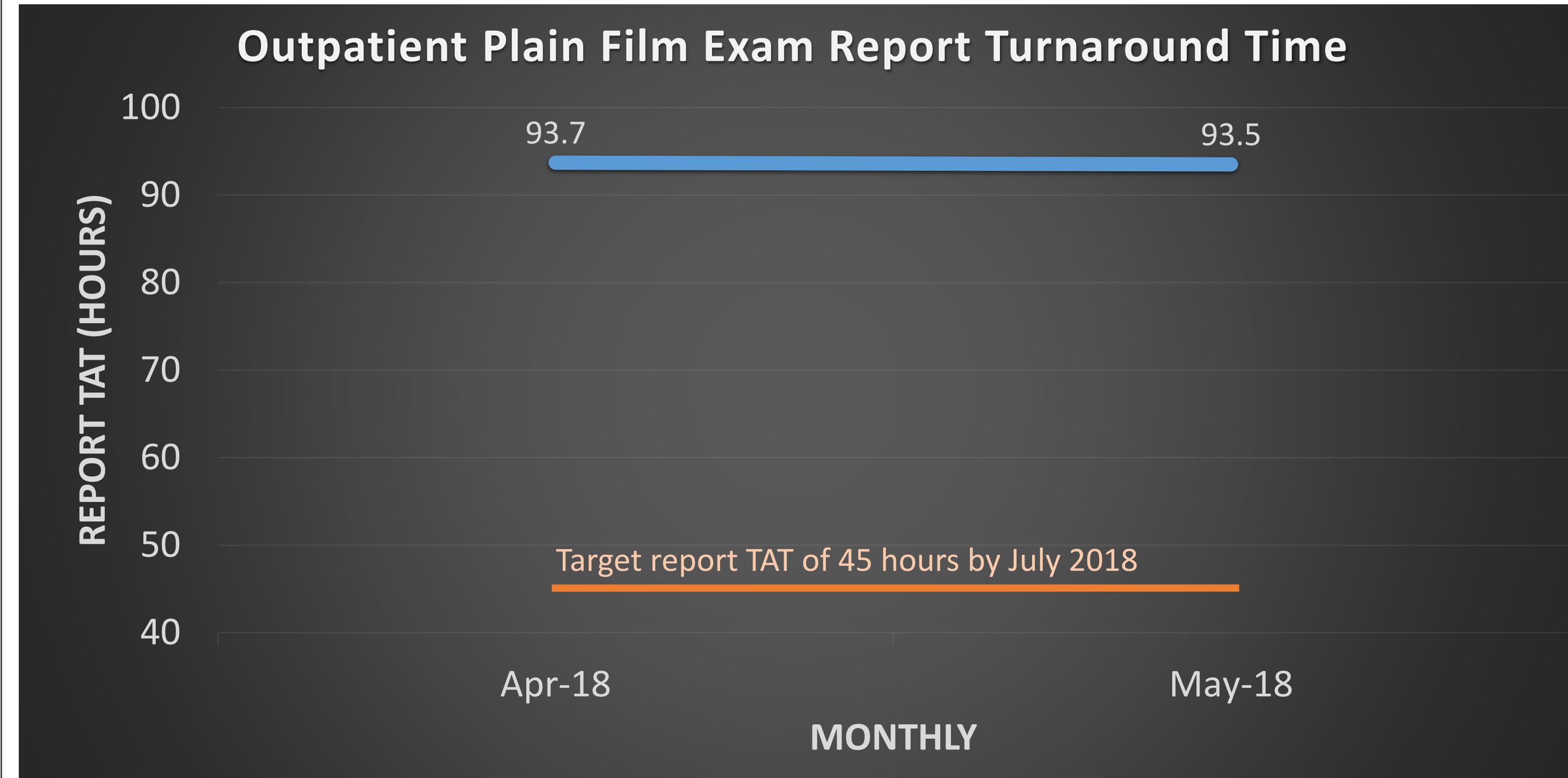
From April to May 2018, the average report turnaround time (TAT) for outpatient plain film exams was about 93 hours. Excessively long reporting times will impact patient care with potential for delayed diagnosis. Furthermore, a delayed report reduces the validity and impact of the imaging examination at the point of care and may indirectly contribute to increased healthcare costs for patients.

**Aim**

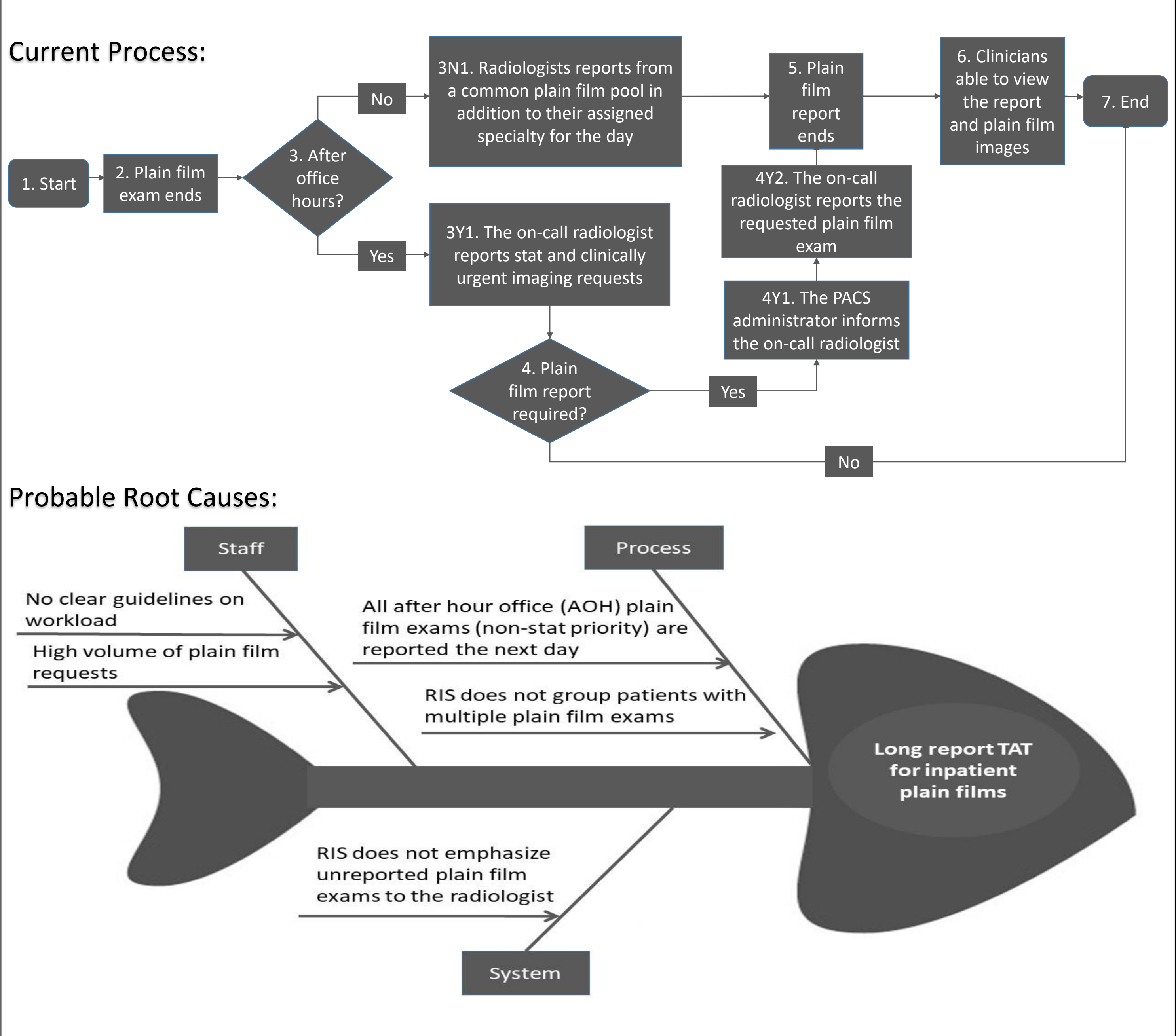
To reduce the report TAT for outpatient plain film exams from 93 hours to 45 hours (91%) by July 2018 and from 45 hours to 8 hours by September 2018

Establish Measures

The PACS administrator group used 2 months of data from the Radiology Information System (RIS) to establish the baseline. Results show that the average report TAT was about 93 hours.



Analyse Problem



Select Changes

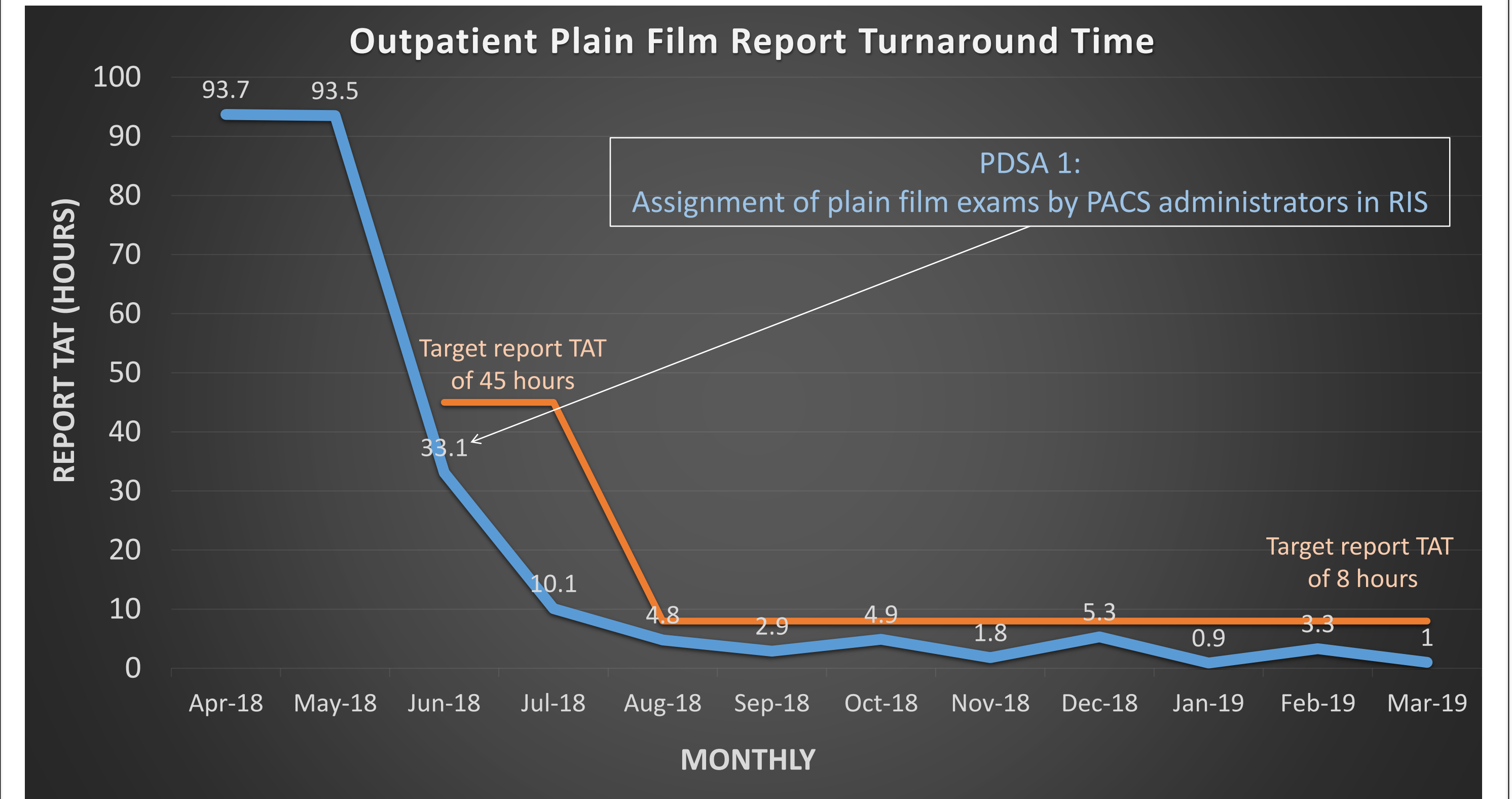
**What are all the probable solutions? Which ones are selected for testing?**

Root Cause	Potential Solutions
No work process for unreported AOH plain films exams to be grouped and distributed equally among the radiologists for reporting	1 Picture Archiving and Communications Systems (PACS) administrators to assist in grouping and assignment of plain film exams to radiologists 2 Weekend plain film exams will be equally distributed among all the radiologists on Monday morning 3 Weekday plain film exams (Tuesday to Friday) will be distributed within a quota among the radiologists in each specialty

Do Last	Do First 1
Do Next 2, 3	Never Do

Test & Implement Changes

CYCLE	PLAN	DO	STUDY	ACT
1	<ul style="list-style-type: none"><li>PACS administrators configured specific filters (in the form of drop-down menus) in RIS; allowing radiologists to view their assigned plain film and specialty workload quickly</li><li>PACS administrators will be rostered to group and assign the AOH inpatient plain film exams in RIS for the radiologists</li><li>Discussion and feedback between radiologists and PACS administrators on the amount of daily distributed workload</li></ul>	<ul style="list-style-type: none"><li>Plain film exams will be assigned 1 hour before the start of weekday office hours</li><li>Multiple plain film exams for a single patient will be assigned to one radiologist</li><li>The report TAT will be continued to be captured for the next 9 months to track the effectiveness of the intervention</li><li>Radiologists and PACS administrators working as a team to balance the assignment ratio</li></ul>	<ul style="list-style-type: none"><li>A significant drop for report TAT from 93 hours to about 33 hours in the first month of implementation</li><li>This was followed by another significant drop to about 10 hours which exceeded our target of 45 hours in the second month of implementation</li><li>From August 2018, the report TAT was consistently averaging about 3 hours. This exceeded our second target of 8 hours.</li></ul>	<ul style="list-style-type: none"><li>Adopt changes due to positive results</li><li>The team will continue to monitor if further tweaks to the distribution and assignment ratio to radiologists will further improve the report TAT of AOH plain film exams</li></ul>



Spread Changes, Learning Points

- Spread Change Strategies:
- The PACS administrator group will continue to collaborate with radiologists to investigate improvement opportunities for plain film exams assignment workflow in the inpatient and emergency department setting.
- Key Learning Points:
- Report TAT is strongly tied to hospital patient satisfaction, physician satisfaction, patient throughput.
  - This successful quality improvement initiative by the Radiology Department reduces overall clinical risk for the hospital, provide a timelier tool to help clinicians with management, diagnosis and reduce unnecessary delays.
  - Teamwork and effective communication between radiologists and the PACS administrator group are a catalyst for significant improvements in work processes.
  - The effective development and integration of the project team was essential in the success of this project. Despite the variables that contributed to the project challenges, by communicating team goals and expectations openly and effectively, these barriers were overcome.