

Work-flow Study to Achieve Process Excellence in Laboratory Services

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Background

- Expectations of a clinician or a patient from laboratory service...
 - Test availability
 - Service cost
 - Reliable & error-free results
 - **Result timeliness (TAT)**
 - Builds the perception of the overall quality, measures efficiency, major cause for *dissatisfaction*
- **Pandemic** – process disarray... needed to re-organise the sample journey & re-engage the team
- Lean process project – Jan 2022 to Feb 2023
 - 4th improvement cycle in last 8 years

Objectives *

1. To reduce the TAT of lab services from the current level
 - Reduced minutes
 - Adherence to set-benchmark
2. To remove redundant steps in the whole-testing process and improve process efficiency
3. To enhance the patient's experience and match the physician's expectations
4. To improve the engagement of the staff in the process improvement

** Rider – No additional resource*

Tools and Methods

1. Planning Phase

- Problem definition using the stakeholders' inputs (staff, patients & physicians)
- Study design including a project charter mentioning scope, sample size, methodology & expected outcomes

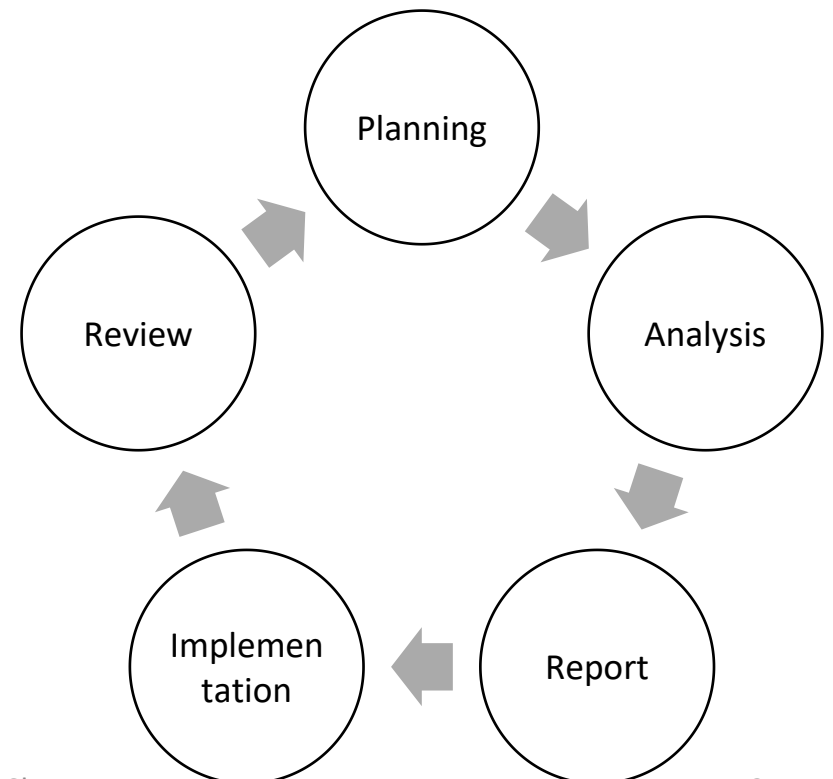
2. Analysis Phase

- Process analysis
 - Workload analysis, workflow assessment & layout evaluation
 - Sample & operator tracking by motion study
- Tools used to define & measure
 - 5S activities, Spaghetti diagrams, Value stream mapping

3. Report Presentation & Recommendations

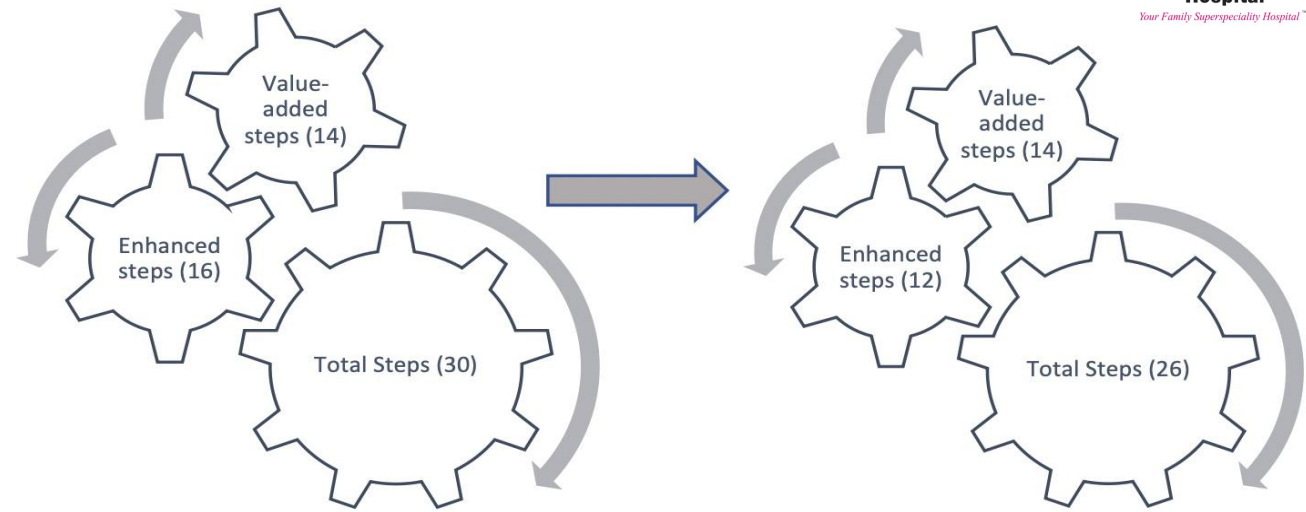
4. Implementation Stage

5. Review Stage – follow-up actions



Value-Stream Mapping

Review of value stream map guided to eliminate four non-value steps & enhance three steps



Spaghetti Diagram



Pre-study & post-study comparison of the motion study of the sample & operator

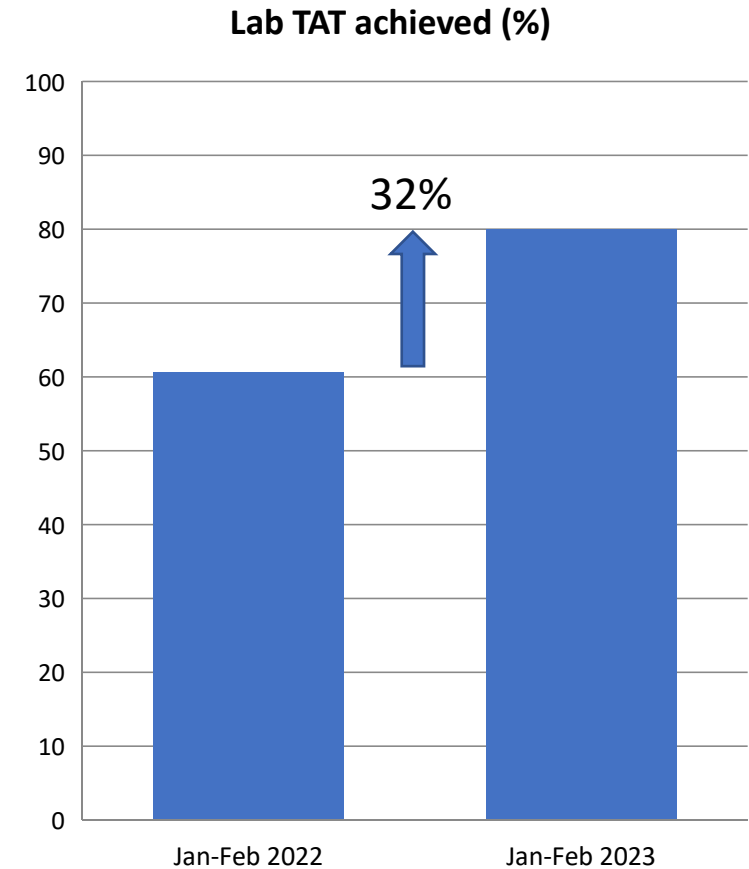
Turn-Around Time

TAT improved by over 15.3% in reduced minutes & improved by 32% in terms of samples reported within the set-benchmark, despite over 40% increase in test volume



Pre-study & post-study comparison of the average TAT in terms of minutes

15.3% ↑



Pre-study & post-study comparison of the number of samples achieving the target TAT

Discussion

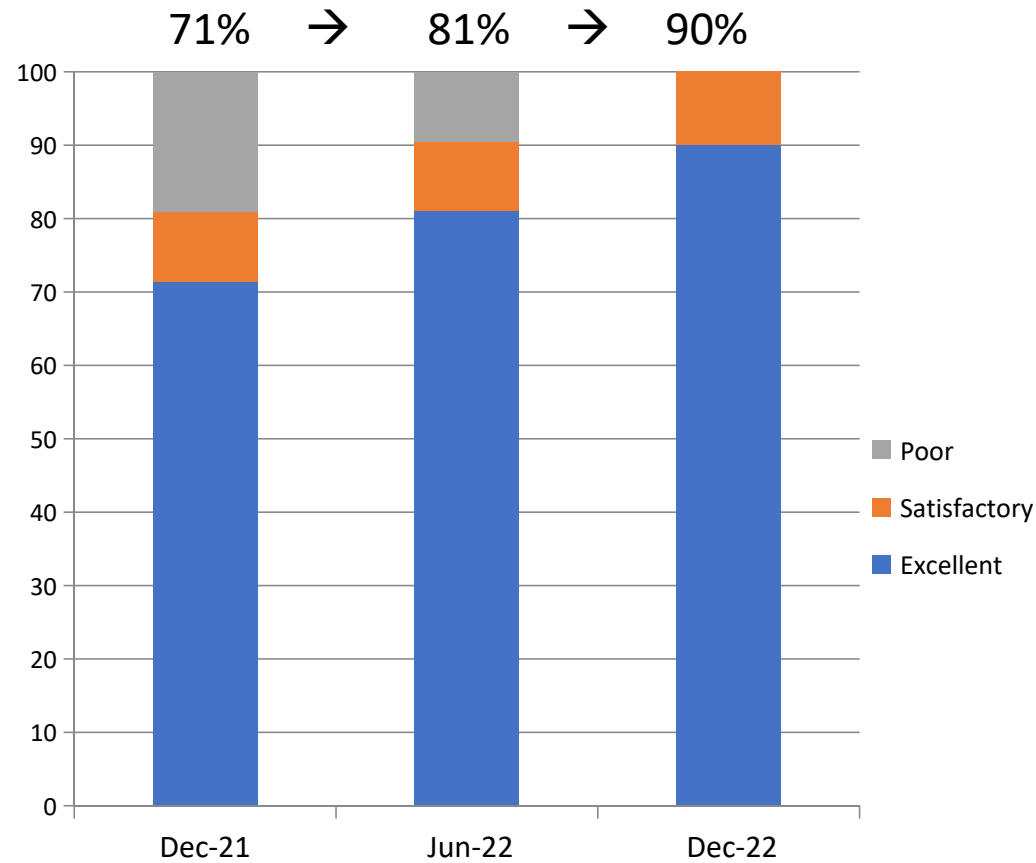
- 5S activities were implemented to improve the working environment
 - Re-designing manpower & re-scheduling of the QC & maintenance to non-peak period
- Eliminated few non-value-added steps (e.g. result saving step) & improved on other steps (e.g. frequency of runner)
- ‘Team huddle’ every Monday to discuss the lab-related issues or ideas relating to process improvement
 - Senior executive mandated to take rounds of the entire facility & interact with other staff (*Gemba*)
- An engaged staff can result in an improved patient experience
- A committed leadership was crucial for supporting a continual improvement project

- Standardized request nomenclature
- Scrutinize phlebotomy practices
- Use bar codes
- Use of vacuum tube system
- Use of plasma & gel separator tubes
- Analysis directly from primary container
- Adequacy of backup
- Automatic repeats & dilutions
- Efficient QC procedures
- Bidirectional interface
- Evaluate specimen flow
- Monitor TAT
- Track & eliminate errors

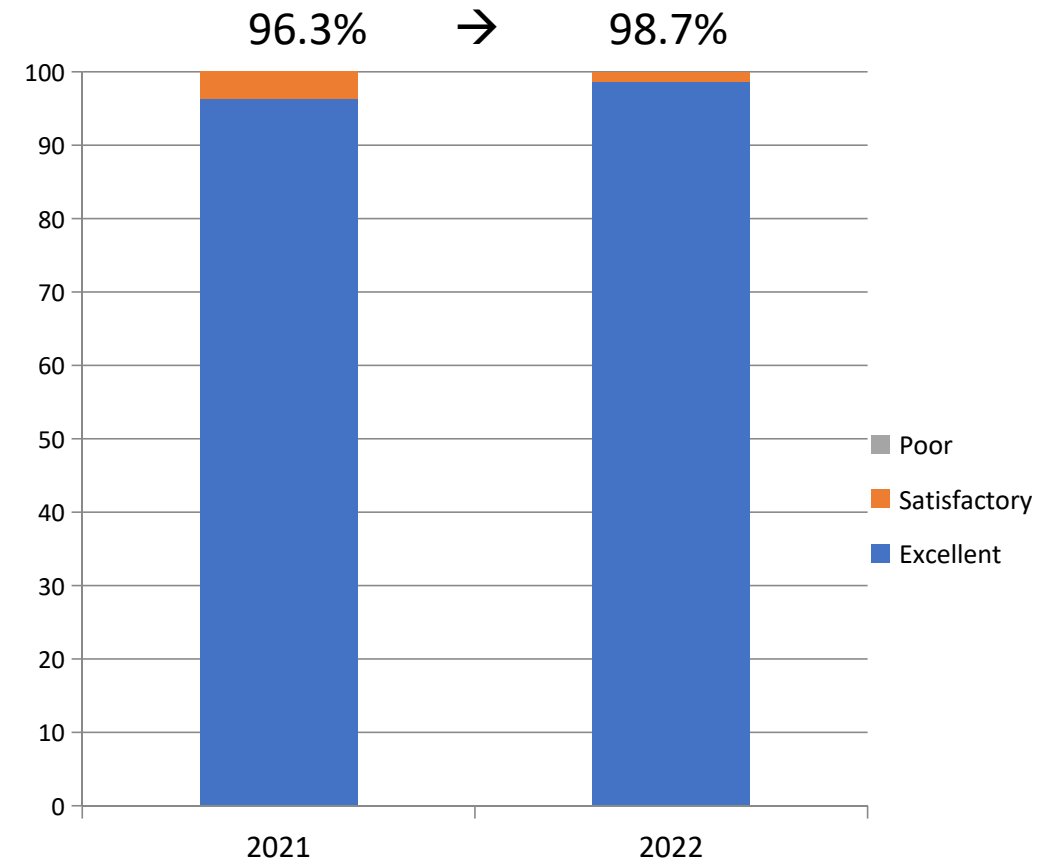
Conclusion

- Continued improvement cycles result in creating a culture of *lean*, employee engagement & helps in optimal utilization of resources
- Lab TAT improved by 15.3% in reduced minutes & by 32% in terms of samples reported within set-benchmark *despite over 40% increase in volume*
- Sustaining process improvement can be done only if it is not an **act** but a **habit** which is cultivated
- Final outcome is the better rating by end-users based on their experience of **timely** test results

Feedback Surveys



a) Doctor's Feedback Survey on Lab Report TAT



b) Overall Patient Satisfaction Survey

Survey for doctors & patients showed significantly improved ratings over the previous survey

Thank-you

