

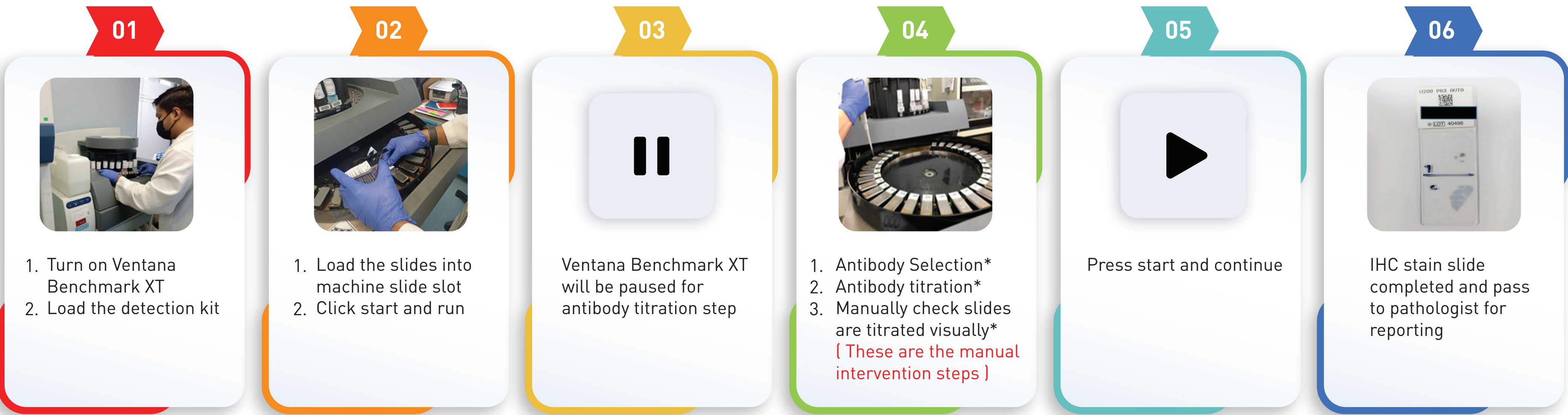
THE IMPACT OF NEW VERSION OF VENTANA BENCHMARK ULTRA MACHINE ON IMMUNOHISTOCHEMISTRY STAIN (IHC) TEST EFFICIENCY AND COST EFFECTIVENESS

Authors: Yap Peak Shyen, Jamuna Jairaman, Vijayaletchumi Marimuthu, Thilagam Subramaniam, Nelly Benjamin, Meera Kumar



Background

Sunway Medical Centre had 2 units of Ventana Benchmark XT machine for IHC stain. Ventana Benchmark XT is an automated platform with limitation in terms of batch runs and manual intervention by staff to process IHC stains. The IHC antibodies kit has in two forms either ready to use (RTU) or manually titrated by laboratory staff resulting in many steps and manual work processes that is prone to errors and inefficiency.

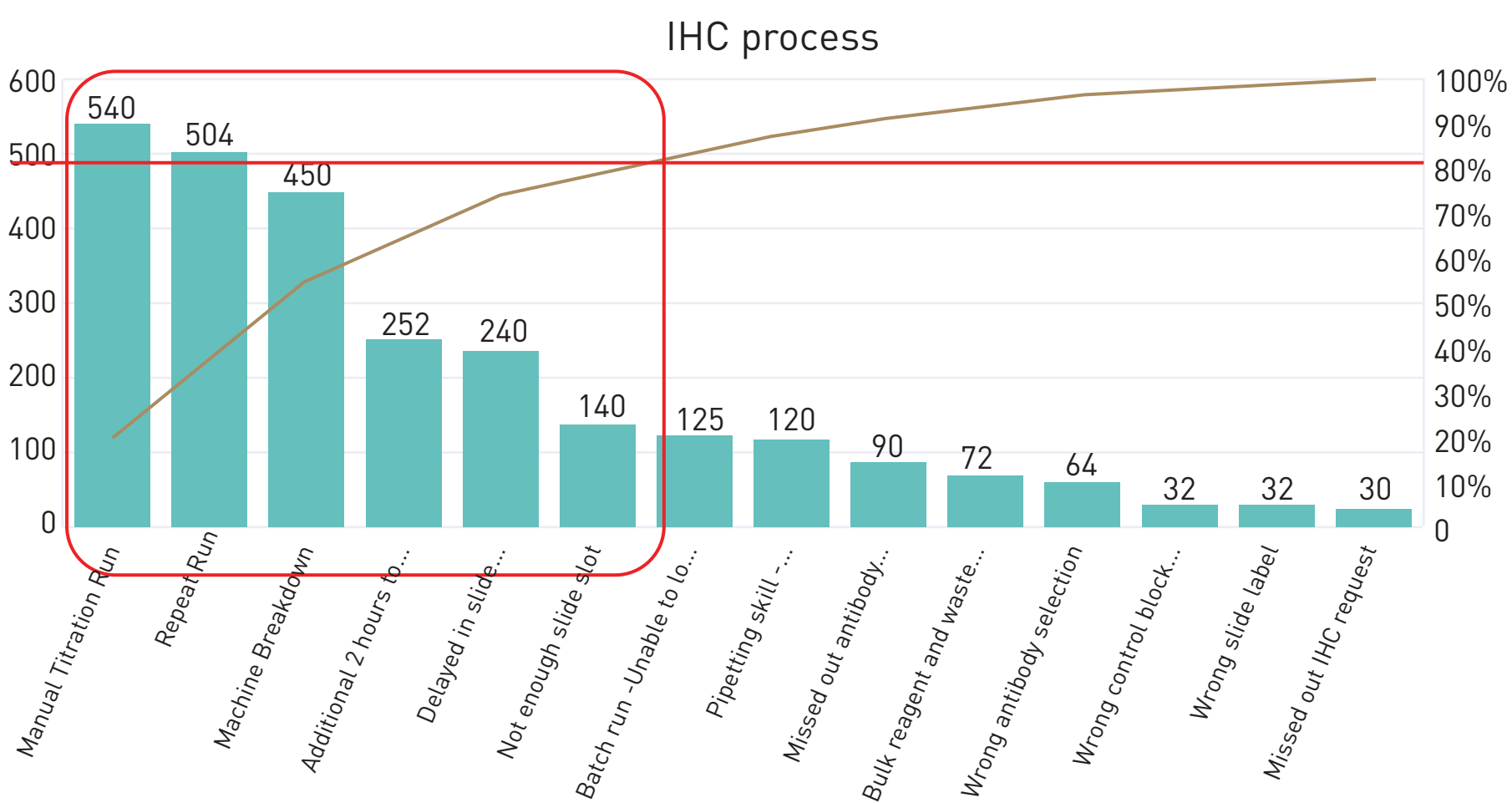


Objectives

- To reduce manual steps of processing
- To reduce overnight run processing time
- To reduce Cost of Wasted

Method

Targeting on major causes contributing to the problem



Top 6 main root causes ( causing 80% of the issues ) identified are Manual Titration Run, many repeat runs, machine breakdown, additional 2 hours of overnight run, can only batch run, limited capacity.

Action plan

Root cause

- Manual Titration
- Additional 2 Hours extension for overnight run
- Batch run - need to wait for the first batch completion
- Repeat Runs
- Frequent Break down- Old Unit
- Limited daily capacity

Action plan

Converting 70 most commonly used IHC (highest demand covering 80% of the IHC request from consultants) to full automation run.

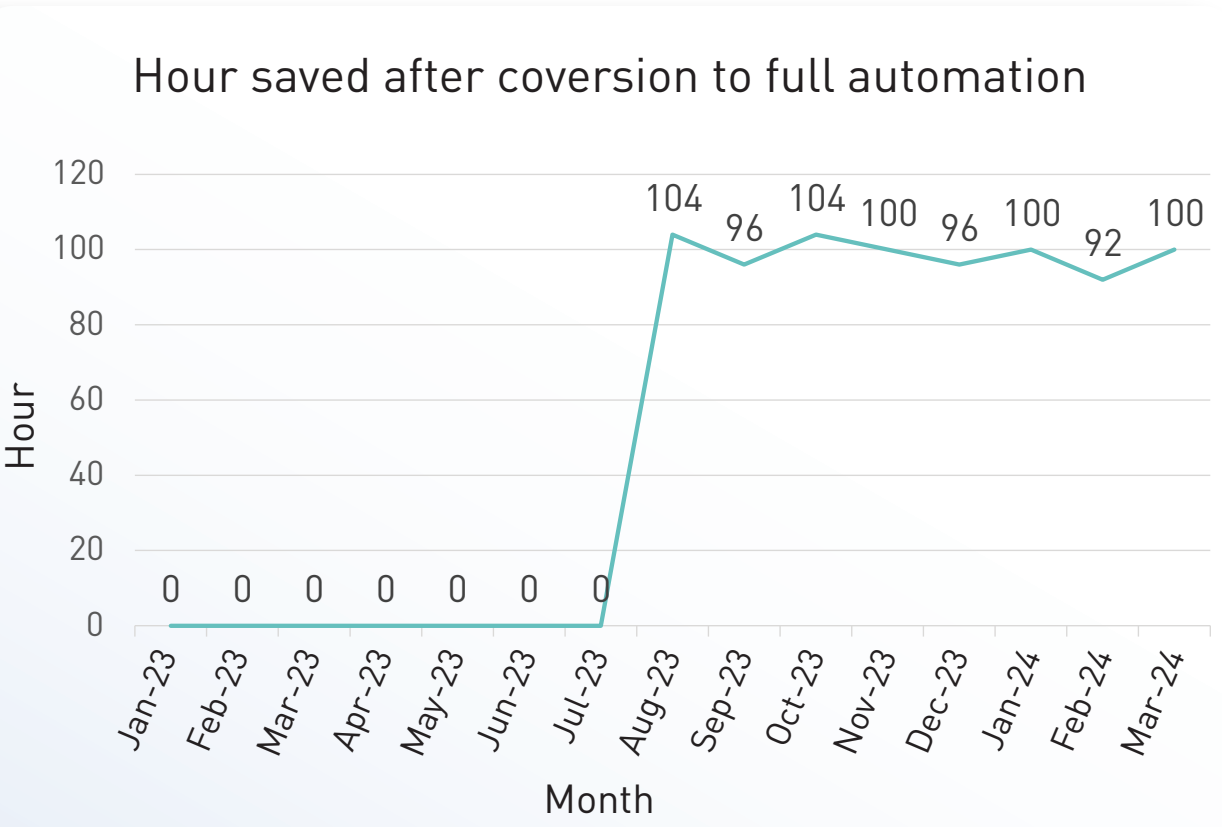
- Identify top 70 IHC antibodies to cater 80% of IHC request run in full automation.
- Purchase prep-dispenser kit from Roche to convert existing manual titration antibody kits from third party vendors to RTU ( ready to use) in Ventana Benchmark IHC platform
- Optimization of the IHC antibodies are carried out for all converted antibodies and validated by pathologist

Replaced 1 unit of Ventana Benchmark XT to Ventana Benchmark Ultra

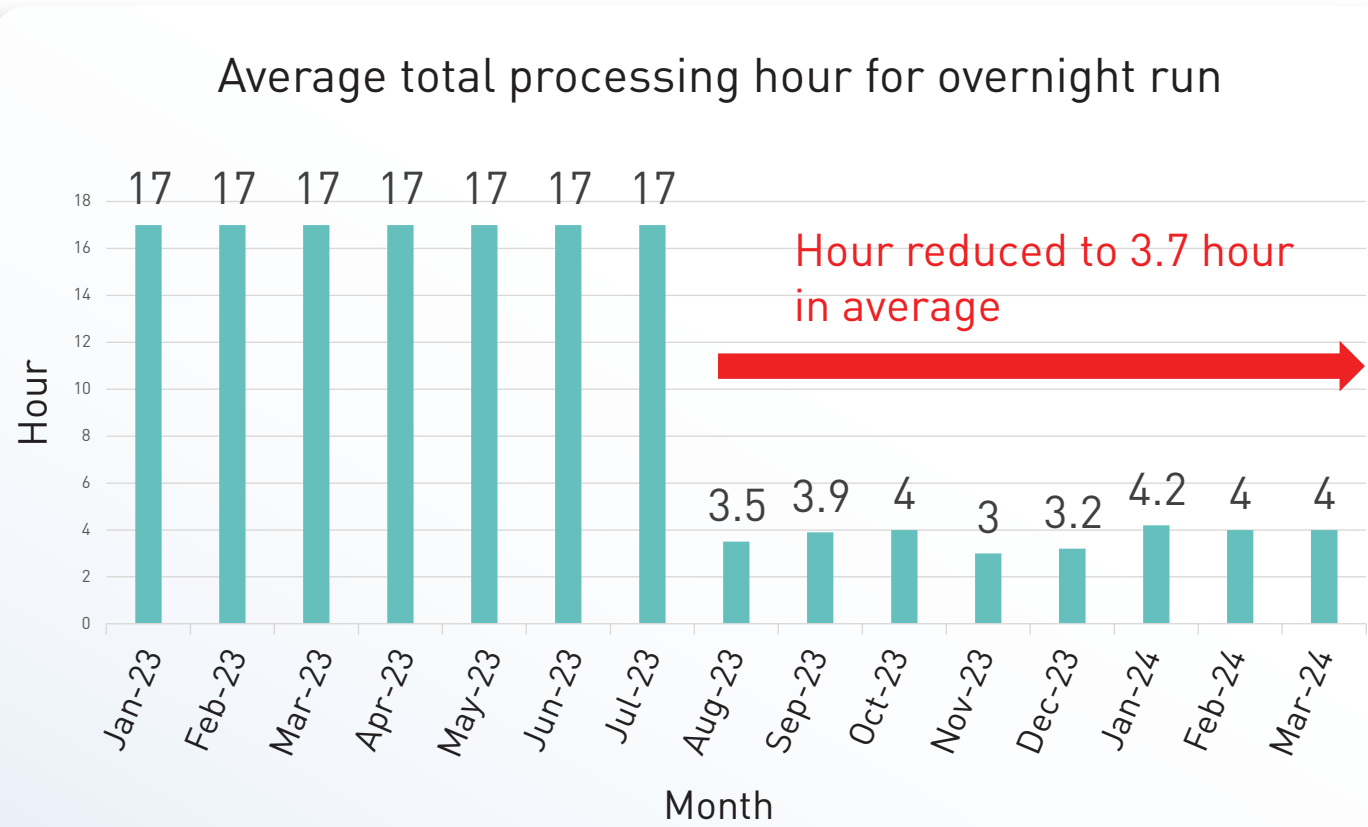
- Liaison with Roche to exchange old Ventana benchmark XT to Ultra
- New Ventana benchmark Ultra was put in place.
- Optimization of antibodies was carried out and validated by pathologist.

Able to run all the IHC request per day within the same day of request as compared to previously two days is required , in addition to that Ultra can be used to slot in urgent IHC at anytime of the run.

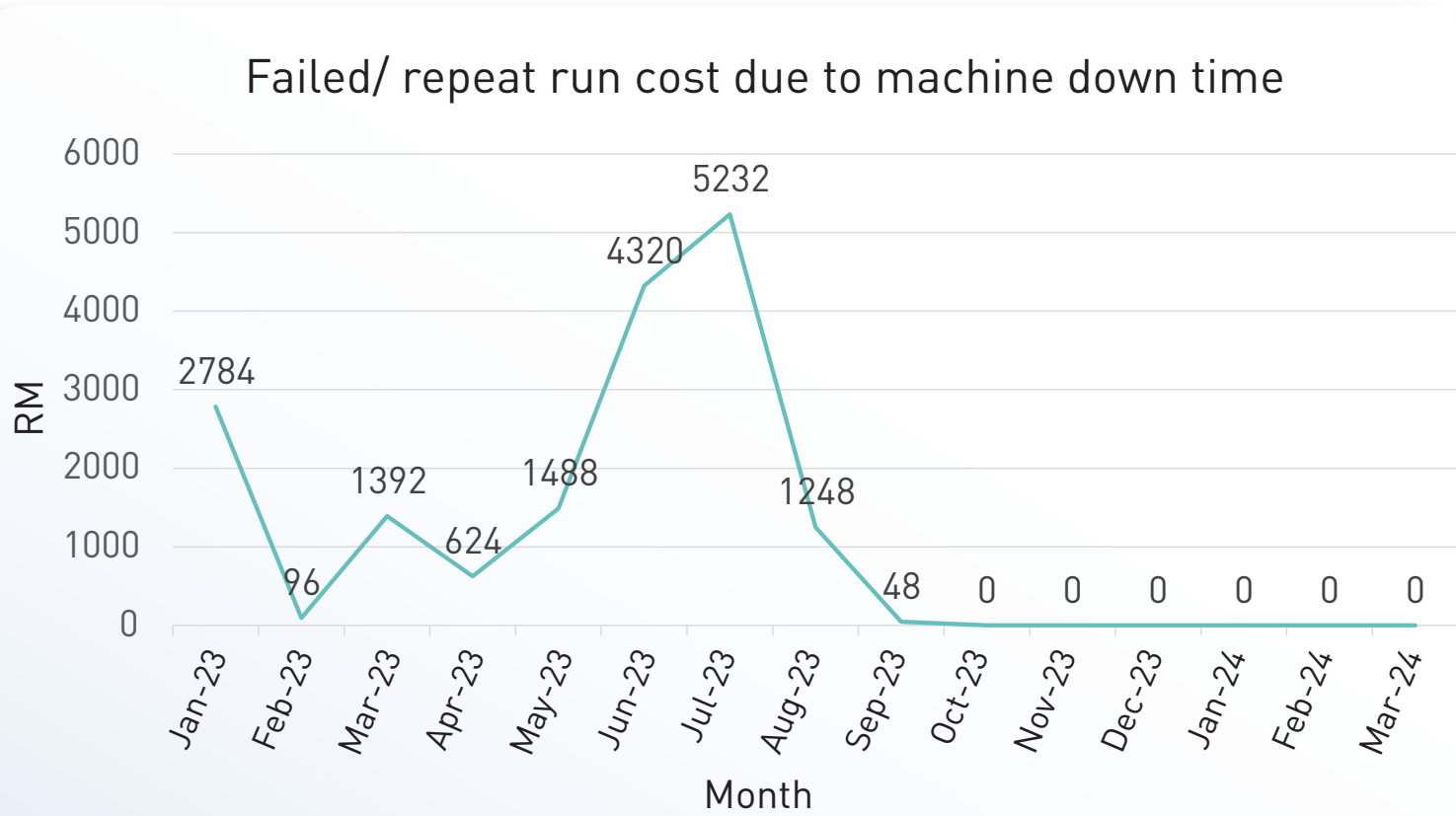
Results



By converting to full automation, 32% reduction in manual steps.



By converting to full automation, the average time for overnight run reduced to 3.7 hours



By upgrading to Ventana Benchmark Ultra, the failed run reduced to 0% ( up to current date )

Conclusion

By Upgrading to 1 unit of Ventana Benchmark Ultra and converting 70 most commonly used IHC to ready to use (RTU) antibody, we are achieving reduction in manual steps, processing hours as well as machine down time. This significant improvement in processing times allowed laboratory to introduce a new workflow – Rapid processing ( short cycle ) to improve TAT on Histopathology Examination diagnosis. Clinician can decide the patient management faster based on the Histopathology result.