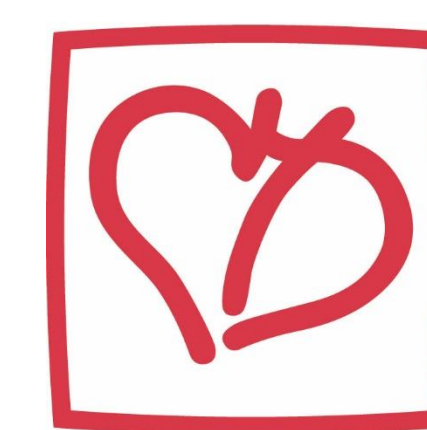




Singapore Healthcare Management 2021

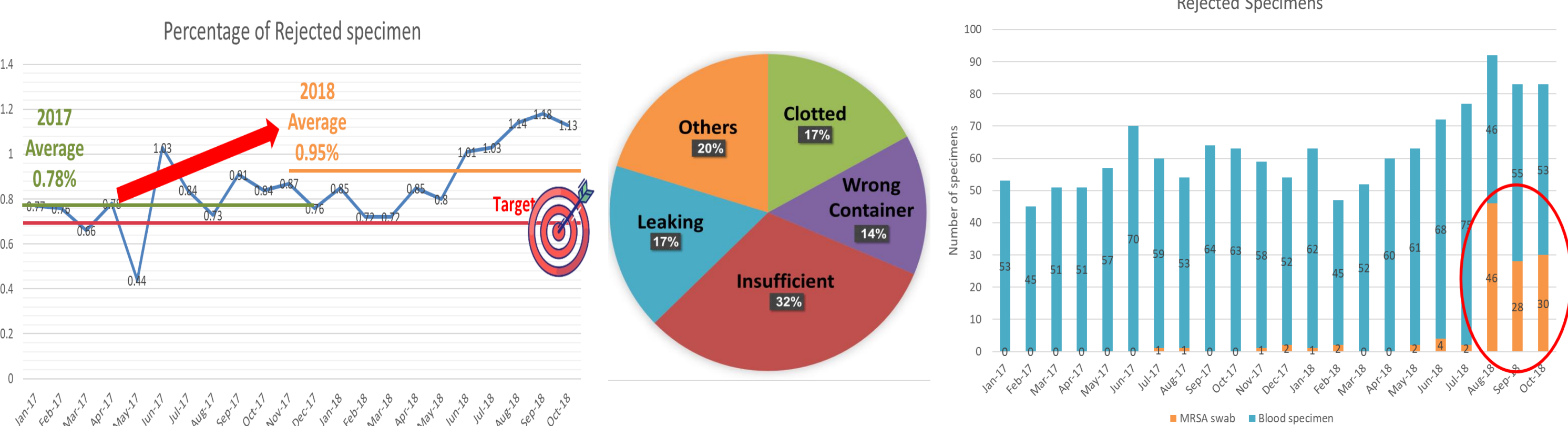
Reduce Rejected Specimen Rate

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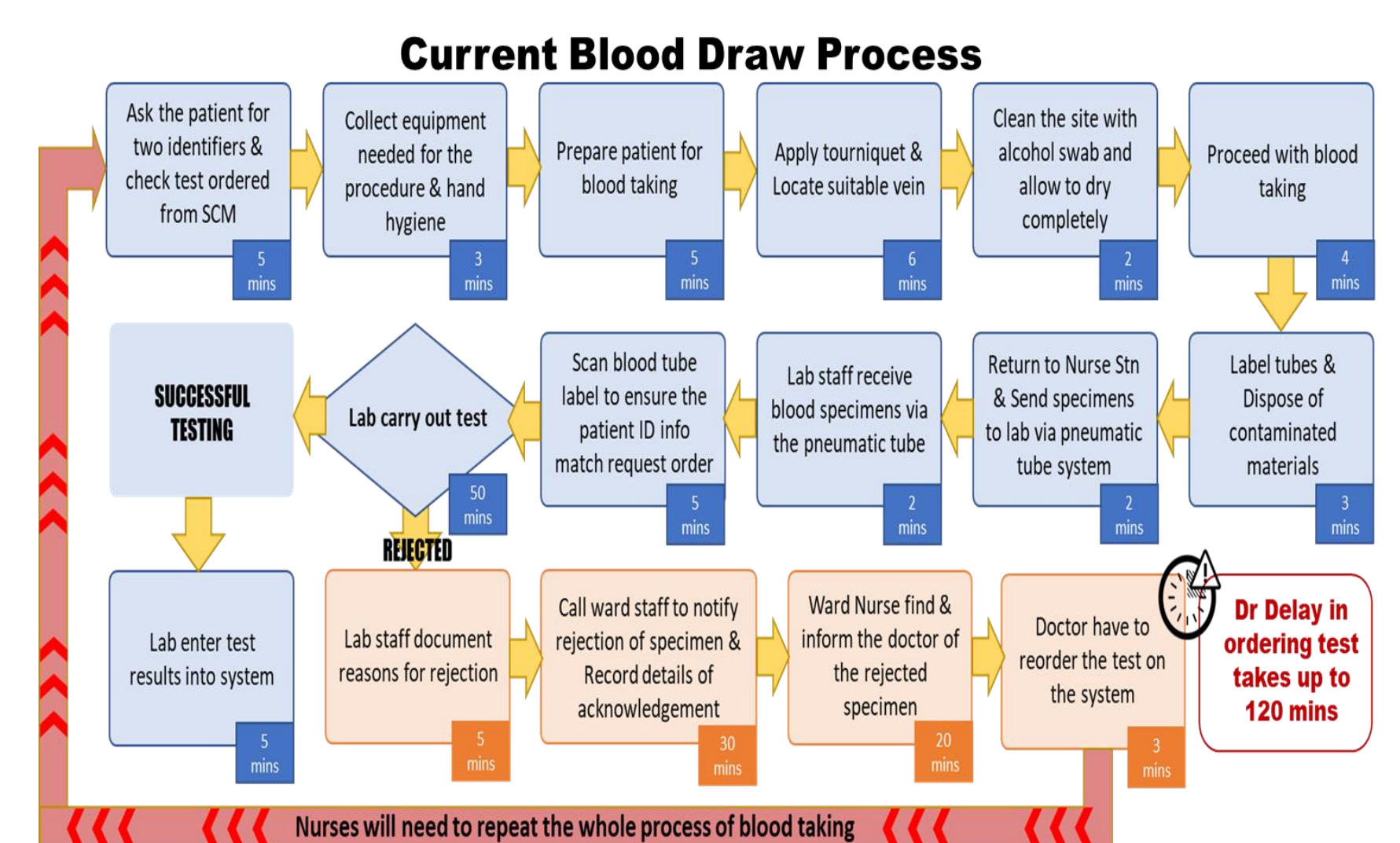
National Heart Centre Singapore
SingHealth

BACKGROUND



The number of specimen rejected by the laboratory is an area of concern. 32% of the total rejected specimen was due to insufficient specimen. 17% was due to leaking and another 17% was due to clotted specimen. The impact of rejected specimen is severe as it delays treatment, discharge time and caused unnecessary additional venipuncture for patient. The repeated blood taking process is chargeable to both the organization and patients.

On average, the blood specimen collection process takes 92 minutes to complete. In event of a rejected specimen, an additional 145 minutes is required to reorder and recollect the same specimen. This excludes an unforeseen delay of 2 hours for Doctor to reorder. This will further prolong the blood test result and delay treatment. Hence, this project targets to reduce the specimen rejection rate to 0.7%.

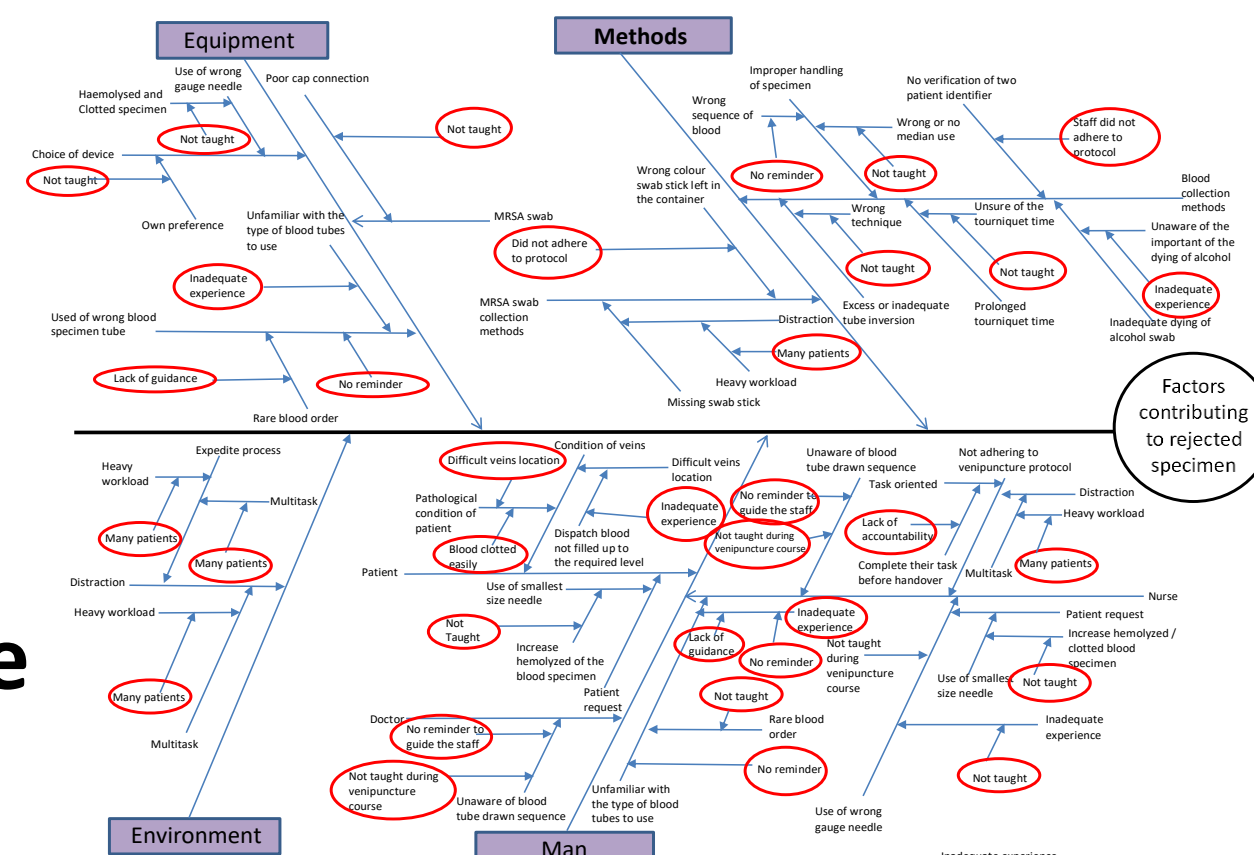


Target
Reduce Rejected Specimen to 0.7% or Less

METHODOLOGY

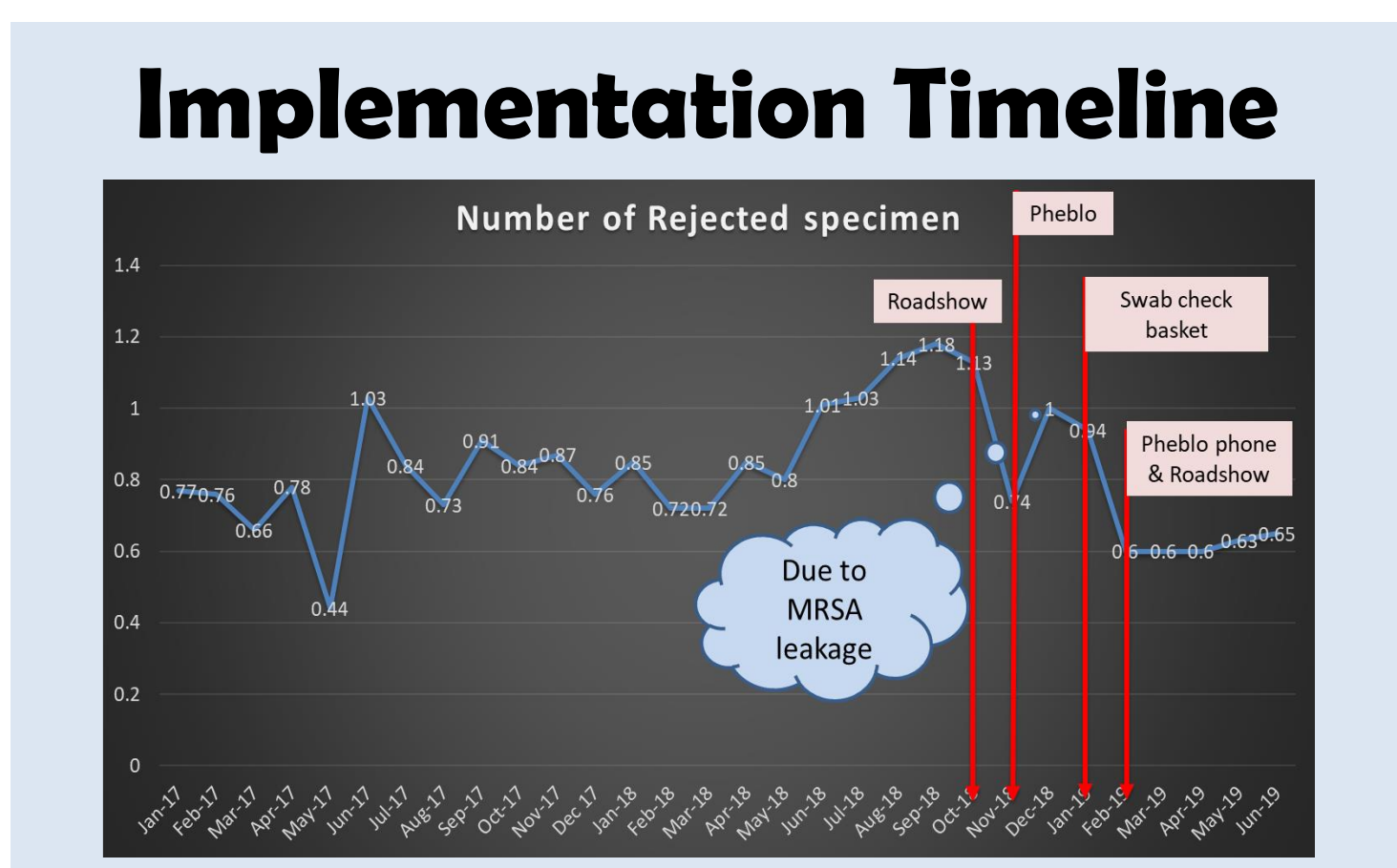
The final root causes were identified using a Cause and effect diagram and further analysed to determine the final root causes:

- 1) Inadequate experience,
- 2) Lack of guidance and
- 3) Insufficient teaching during venipuncture course resulted in knowledge deficit.



Solutions were brainstormed and discussed before going through a selection using the tree diagram.

| Areas for improvement | Possible Solutions | Analysis of Solutions |
|---|---|-----------------------|
| | | A B C Total |
| Provide guidance to inexperienced/new nurses | A) Put up poster to educate staff | 22 24 26 72 |
| | B) Assign nurse to guide other healthcare personnel during venipuncture | 10 18 26 64 |
| | C) Conduct roll call and meeting to reinforce proper collection of specimen | 22 24 28 74 |
| Increase exposure to specimen collection | A) Learning trips to other hospitals | 4 3 4 11 |
| | B) Dedicated Phlebotomist to standardize specimen collection | 28 28 28 84 |
| | C) Conduct roadshows on the effective methods of venipuncture | 22 28 28 78 |
| Improve knowledge on specimen collection | A) Provide in-service training to nurses | 22 28 24 74 |
| | B) Provide in-service training to nurses | 22 24 28 74 |
| | C) Conduct roll call and meeting to reinforce practice | 22 24 28 74 |
| Provide reminders on the types of containers to use and the amount of specimen required | A) Put up poster in clinical area | 22 28 26 76 |
| | B) Conduct audit test on nurses | 22 22 26 70 |



A multi-prong approach was used to improve the efficiency in specimen collection.

Roll call and meeting to reinforce proper collection of specimen

Posters were put up on Computers on Wheels to reinforce staff on the sequence of blood taking.

SEQUENCE OF BLOOD TAKING

Specimen bottles or tubes: Blood culture, Sodium Citrate (4), Plain (5), SST with EDT (5), Lithium Heparin (10) (8), 12 EDTA, 12 EDTA, Sodium Citrate (4), Sodium Fluoride (8)

Conduct Roadshow to re-educate on the process of specimen collection.

Standardizing specimen taking
Up-skill Patient Care Assistant as designated phlebotomist

Samples placed at the pneumatic tube for visibility and comparison.

24Hour Phlebotomist on-call to attend to specimen taking requests

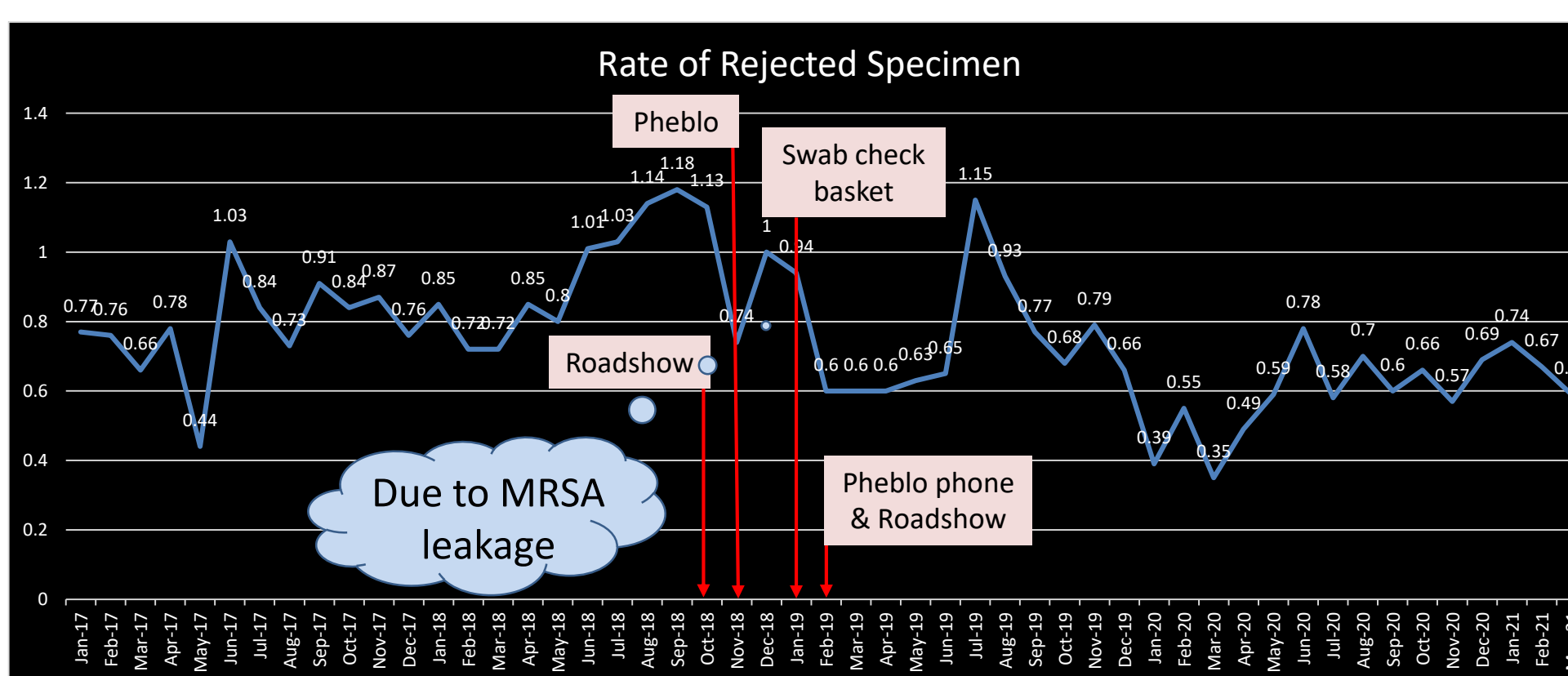
Phlebotomist no. 98752321

Weekly data collection & sharing during roll call to determine any trend of the rejected specimens

Additional Checks on specimen by ward clerks & Nurses.

REJECTED SPECIMEN: Swab 6, 6, 2, 5; Seal 2, 1, 1, 1

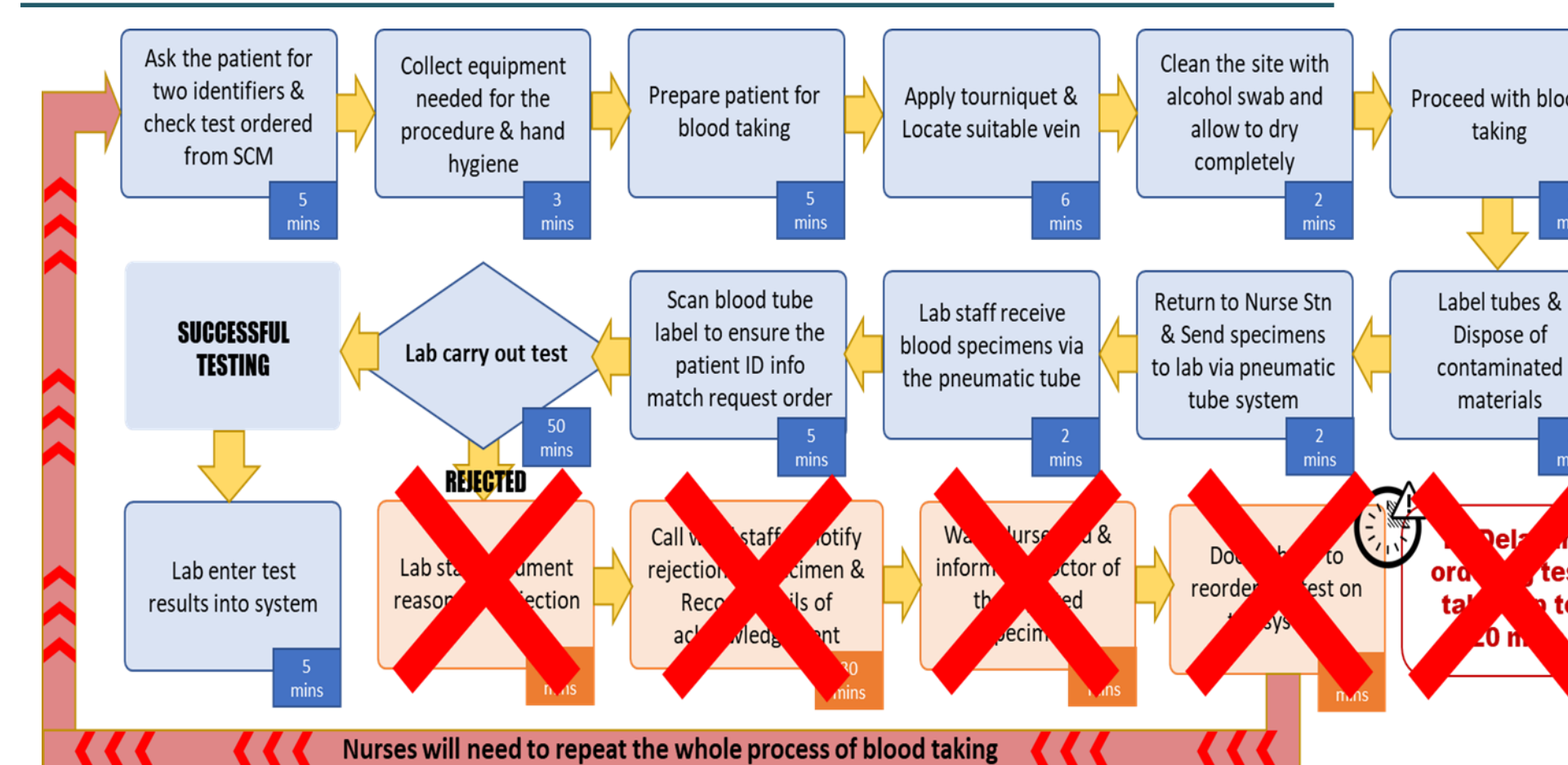
RESULTS



Average Mean After Implementation

0.65%

2. Time Saved with New Process



749 HOURS Per Annum

Time Saved from 1 less Rejected Specimen = 145min
Average Improvement in Number of Rejected Specimen = 310/ Annum

3. Cost Savings with the Reduction in Rejected Specimen

Leakage Specimen \$1888.39 + Insufficient Specimen \$4704 + Clotted Specimen \$1079.61

Total Cost Savings Per Annum = \$7672

Intangible Benefits

- Improved Hospital Experience for Patients
- Timely Treatment and Appropriate Care for Patients
- Enhanced Teamwork for Holistic Patient Care
- Improved Patient Satisfaction
- Reduced Unnecessary Complaints and Potential Lawsuits
- Maintain Professional Image of Hospital

SUSTENANCE

- Monthly data provided by the laboratory to monitor the specimen rejection rate
- Roll call and ward meeting to reinforce the calling of phlebotomist for blood taking
- Rejected specimen reported in monthly Management meeting
- Regular feedback from stakeholders