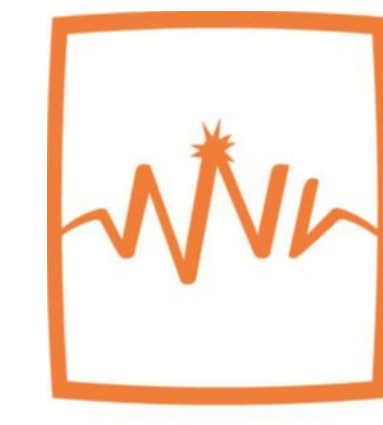




Singapore Healthcare Management 2017

To redesign the identification of haemolytic specimens, in order to reduce the occurrence of biochemistry haemolysed sample at Clinic

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Background

- Haemolysed blood samples produce unreliable results, with new clinical sample may be required to replace the haemolysed blood specimen and the collection of additional samples may delay patient care.
- In Neuroscience Clinic (NSOC), % haemolysed specimens was 20% from April 2014 to May 2015, high rates of sample haemolysis seen as a problem
- Blood haemolysed measures are made a priority due to the high possibility of haemolysed sample

Methodology

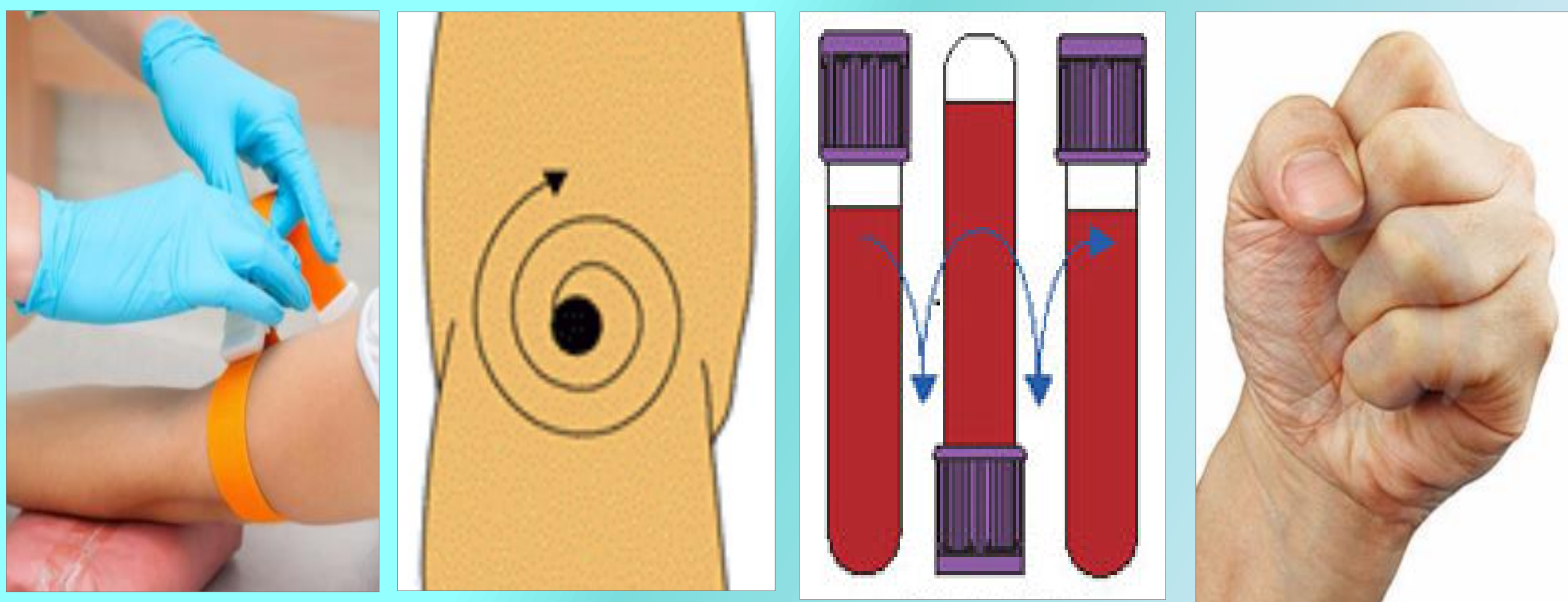


Fig. 1a. Tourniquet Application Fig. 1b. Site Cleansing Fig. 1c. Tube Inversion Fig. 1d. Dilating the veins

(Fig 1) Video Source: Applied Phlebotomy Series 1 Basic Venepuncture 2nd Edition by Centre for Phlebotomy Education

1. Refresher Training

- Training video on phlebotomy best practices with slides presentation was conducted (Fig. 1)
- Handout was provided to clinic nurses for ease of reference

2a. Pre-refresher training knowledge test

- Pre-education knowledge scoring was conducted on nurses before refresher training (Fig. 2a)

2b. Return demonstration

- Return demonstration was conducted after the refresher training (base on Fig. 1)
- Nurses who failed at 1st & 2nd attempts were advised on the spot
- Senior nurses were assigned to guide the staff who failed 2 times

2c. Post refresher training knowledge test

- Post- education knowledge scoring was conducted on the same nurses after return demonstration (Fig. 2a)

Phlebotomy Training knowledge and awareness Survey			
S/N	Legend:	Before	After
1.	Prolonged tourniquet application beyond 1 minute causes haemolysis		
2.	Performing the venipuncture before the alcohol dries causes haemolysis		
3.	Site cleaning using alcohol wipe should be done in circular motion		
4.	Not inverting tubes immediately after withdrawing blood causes clotting		
5.	Inverting or shaking the tubes vigorously causes haemolysis		
6.	Fist pumping by patient causes increase in potassium and ionized calcium levels, therefore inaccurate test results		
7.	Vein tapping and slapping causes alteration to the specimen's quality		
Total			

Fig. 2a Pre & post refresher training knowledge form

3. Pneumatic Tube System

- Placement of firmer texture sponges in the pneumatic canister were tested, to reduce transportation impact (Fig. 3a)
- Labelling of sponges to avoid lost during transit (Fig. 3b)
- Plastic material is used to hold the sponge for easy removal from canister (Fig. 3b)



Fig. 3a Firmer texture sponge in canister



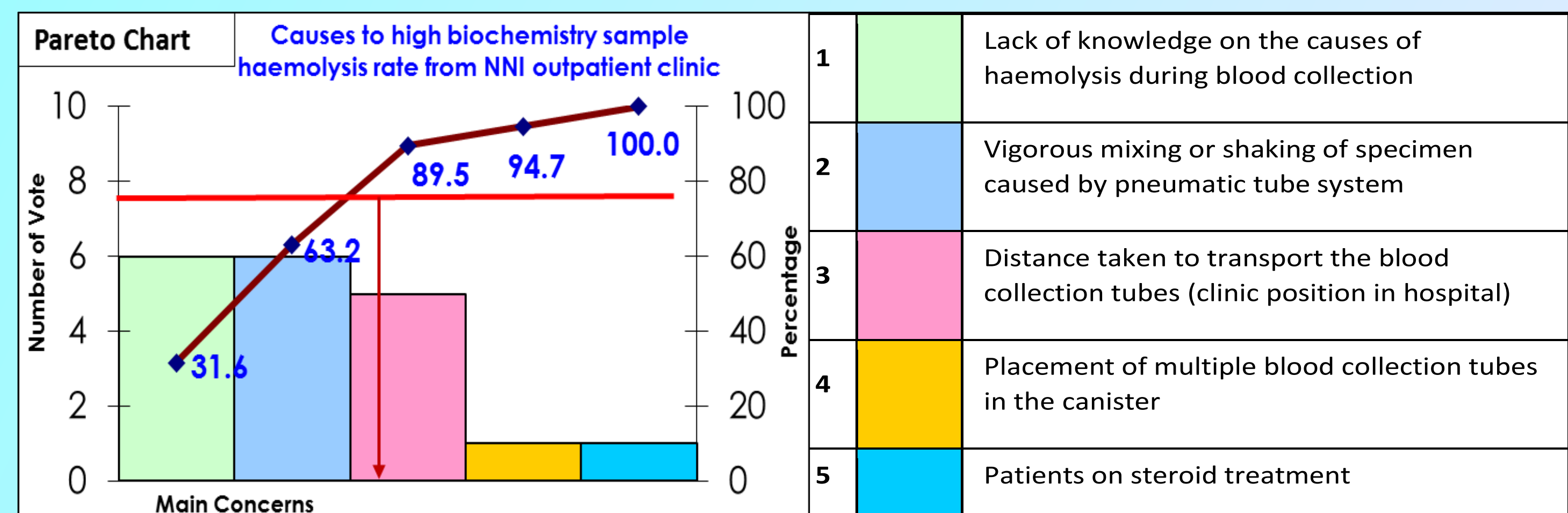
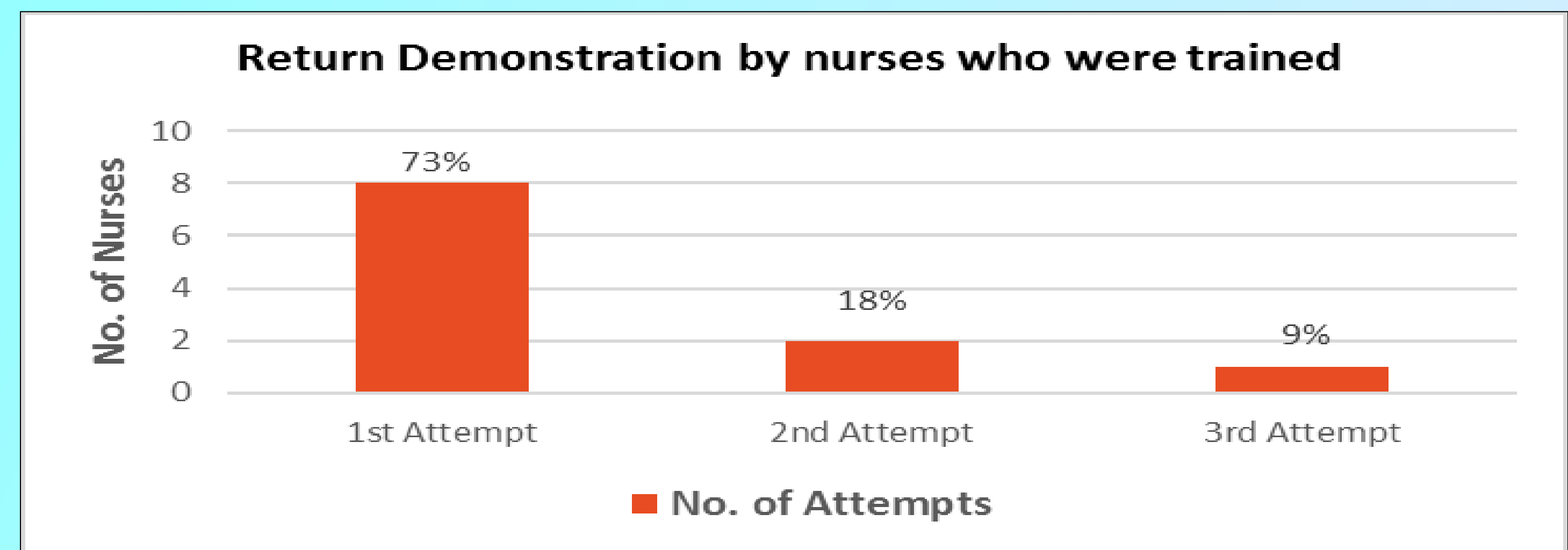
Fig. 3b Labelling of sponges

Aims

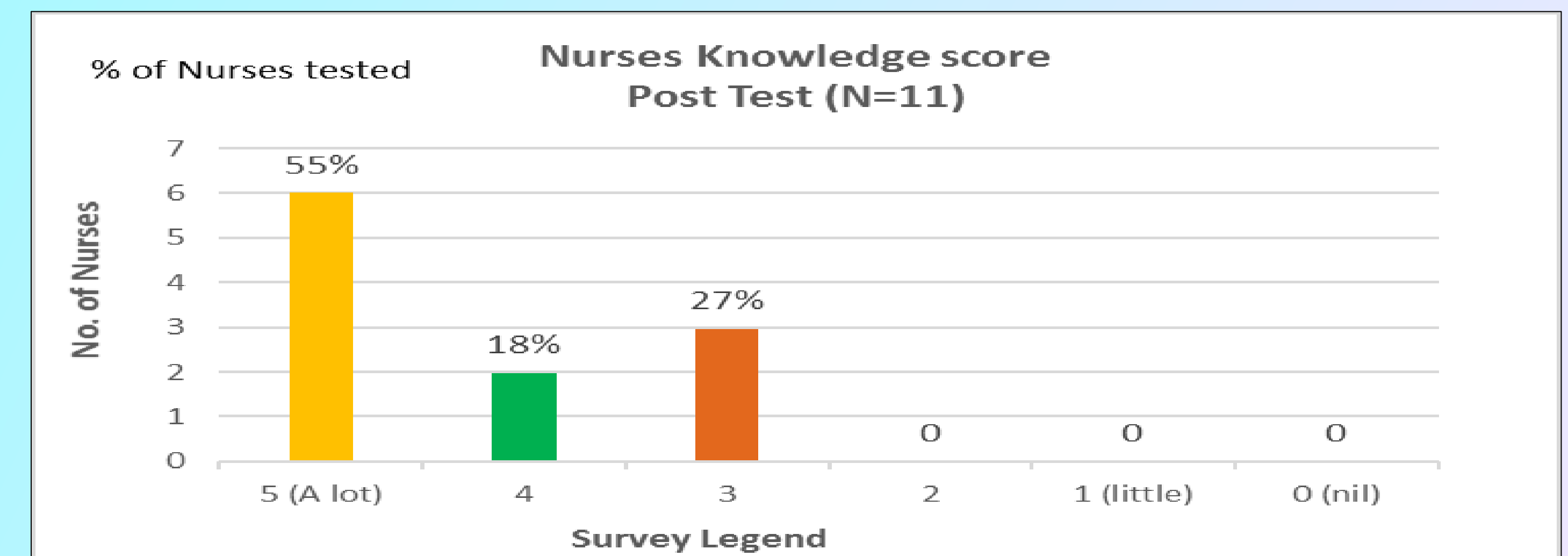
To **reduce biochemistry haemolysed sample occurrences** at the clinic, through **phlebotomy best practices refresher training** for nurses and **added firmer texture sponges in the canister** that identifies to reduce the haemolysis rates.

Outcome:

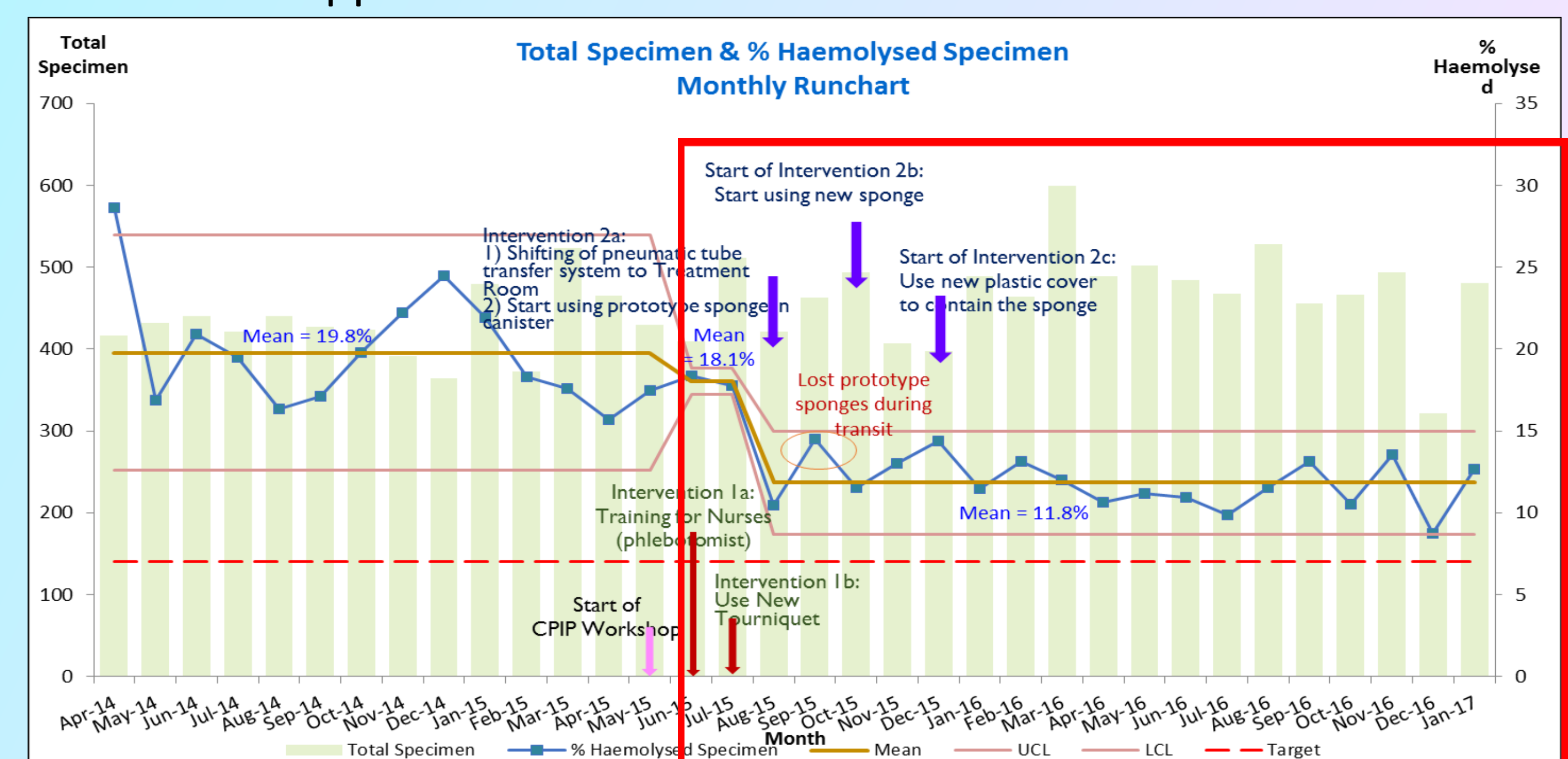
Results of Blood Haemolysed Measures



Effect of refresher training on phlebotomy practice: 55% of nurses complied that training had enhanced their knowledge and awareness



Time between monthly haemolysis rate: Significant dropped of 5.7% haemolysis rate from **18.1% to 12.4%** (between July 2015 to Jan 2016), and further dropped to **11.8%** as of December 2016



Conclusion

We will continue to **monitor hemolysis rate** on a monthly basis, and **comply with the utilization of sponges in the canister** as to reduce the hemolysis rate and for sustainability

Future Planning

Incorporate the best practices training (ie. video training) during orientation for newcomers who will be doing phlebotomy. Sharing of the utilization of sponges in canister across SingHealth if there is further reduction to the haemolysed results