



Does participation in an External Quality Assessment Scheme impact routine laboratory practice? A review of participant data from CMCEQAS over the last 6 years.

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Introduction and Objectives:

- Participation in an external quality assessment scheme (EQAS) is an essential aspect of ensuring accuracy of laboratory results.
- Christian Medical College Vellore initiated an EQAS for haemostasis in India from 2002 with samples were provided by UKNEQAS supported by the Katherine Dormandy Trust.
- The program was indigenized in 2004 and has grown from 36 participants in 2004 to 567 in 2015 (Figure 1). The parameters offered are shown in Table 1.
- We have supported EQAS in several other countries during this period including – Philippines, Thailand, China, Sri Lanka and South Africa.
- In this poster, we have reviewed the performance of participants over the last six years to look for evidence of improvement of laboratory practice from EQAS data.

Fig 1. Trend of number of participants (2004 – 2015)

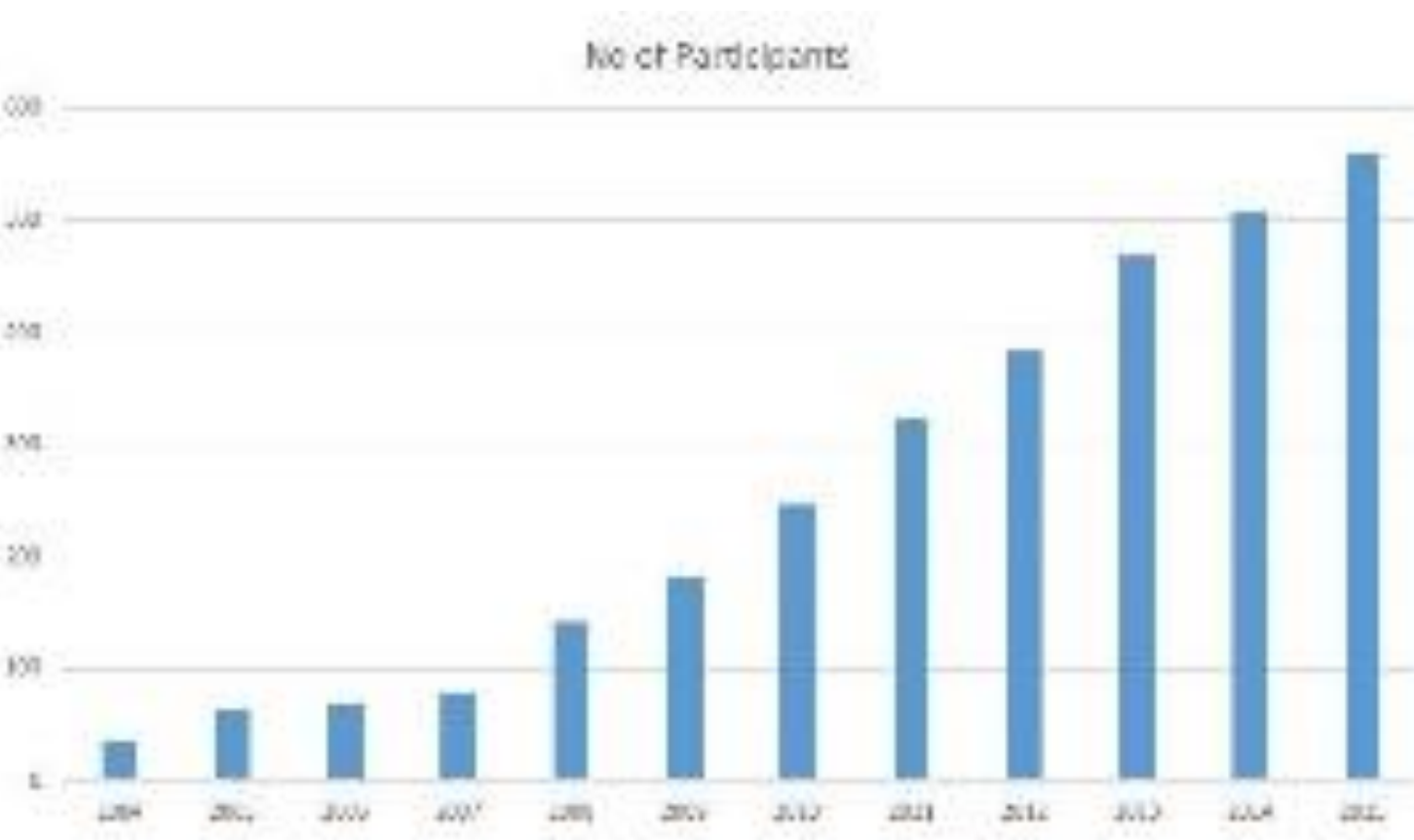


Table 1. Profile of Parameters offered

A. Basic Program
Prothrombin time (PT) & INR
Activated Partial Thromboplastin Time (APTT)
Thrombin time (TT)
Fibrinogen
B. Advanced Program
Factor VIII:C
Factor IX:C
Von Willebrand antigen
Ristocetin cofactor assay
Factor VIII Inhibitor (Annual)
Lupus anticoagulant (Challenge)

Materials and Methods:

- Participants are provided with three surveys of paired samples of lyophilized plasma, in a year.
- Statistical analysis is performed on peer groups based on reagents used to overcome matrix commutability issues.
- Assigned value, limits of acceptable performance and coefficient of variation for the peer groups are determined as per standards and individualized performance reports are provided.
- We have also provided standard protocols, support for root cause analysis for poorly performing laboratories and capacity building through workshops, educational webinars and supplements

Fig. 2A Relationship between APTT (ratio) Assigned value and Coefficient of variation (%) (2009-2010)

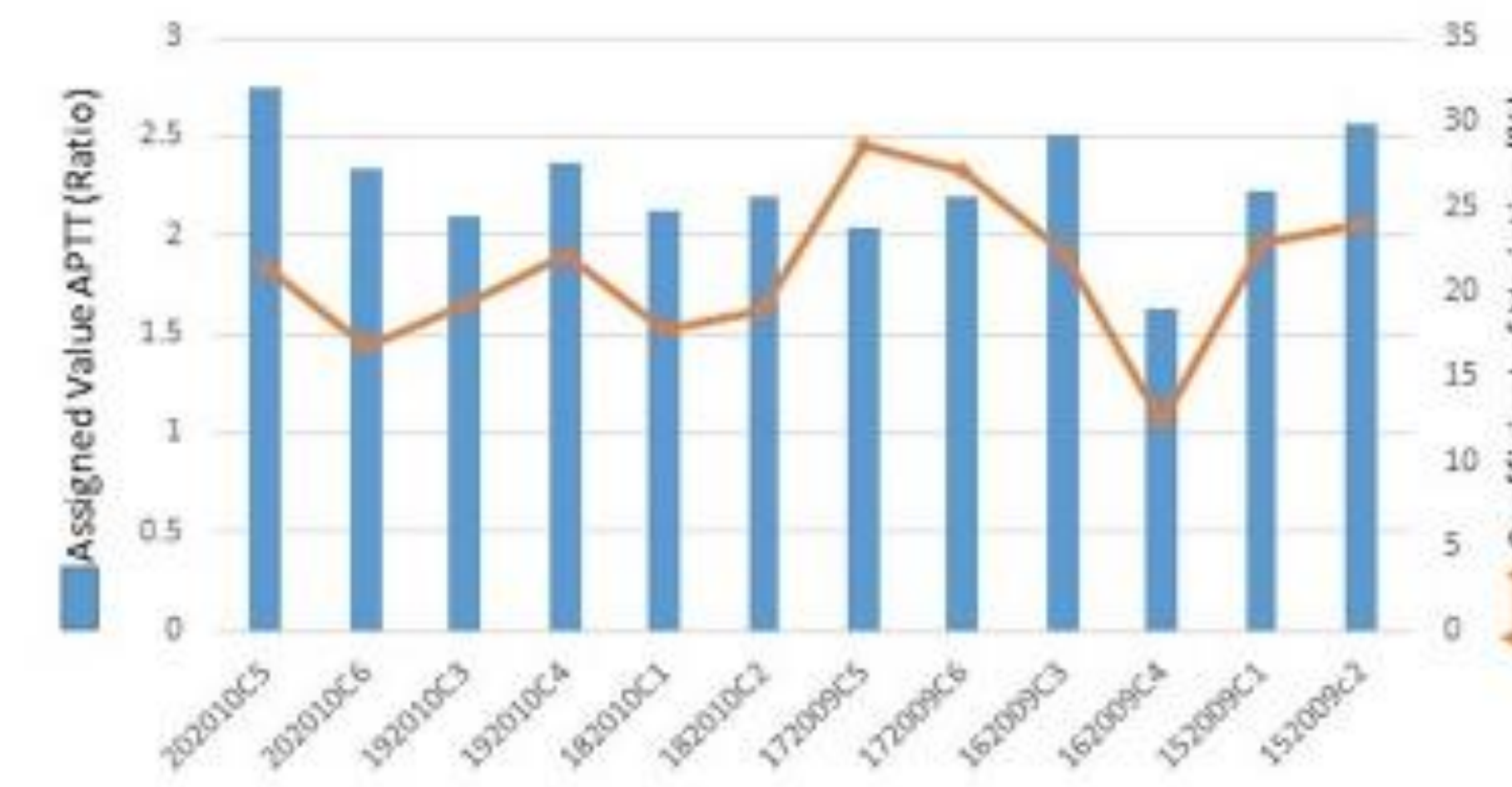


Fig.2B Relationship between APTT (time) Assigned value and Coefficient of variation (%) (2014-2015)

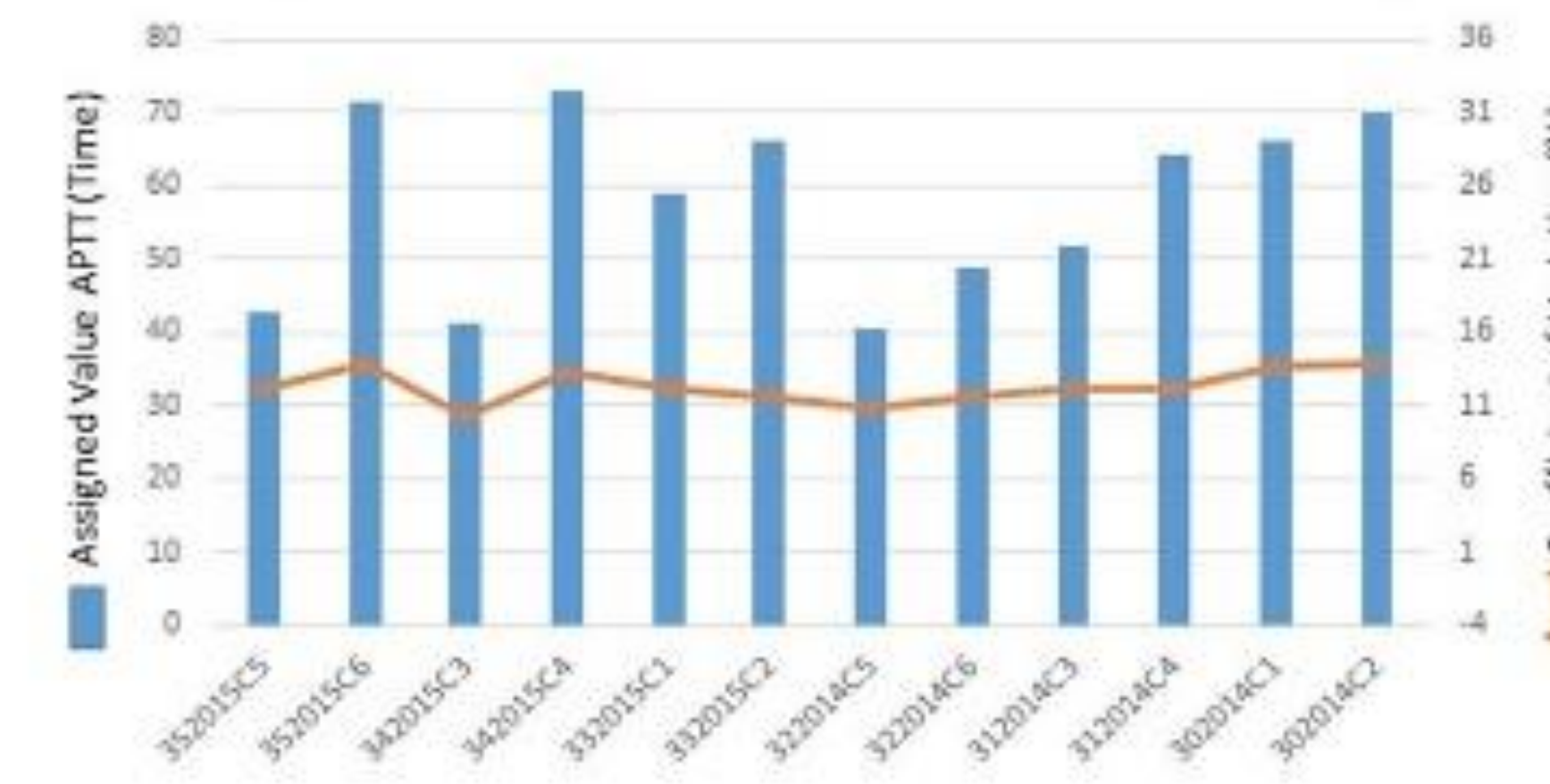


Fig. 2C Relationship between F VIII:C (%) Assigned value and Coefficient of variation (%) (2009-2010)

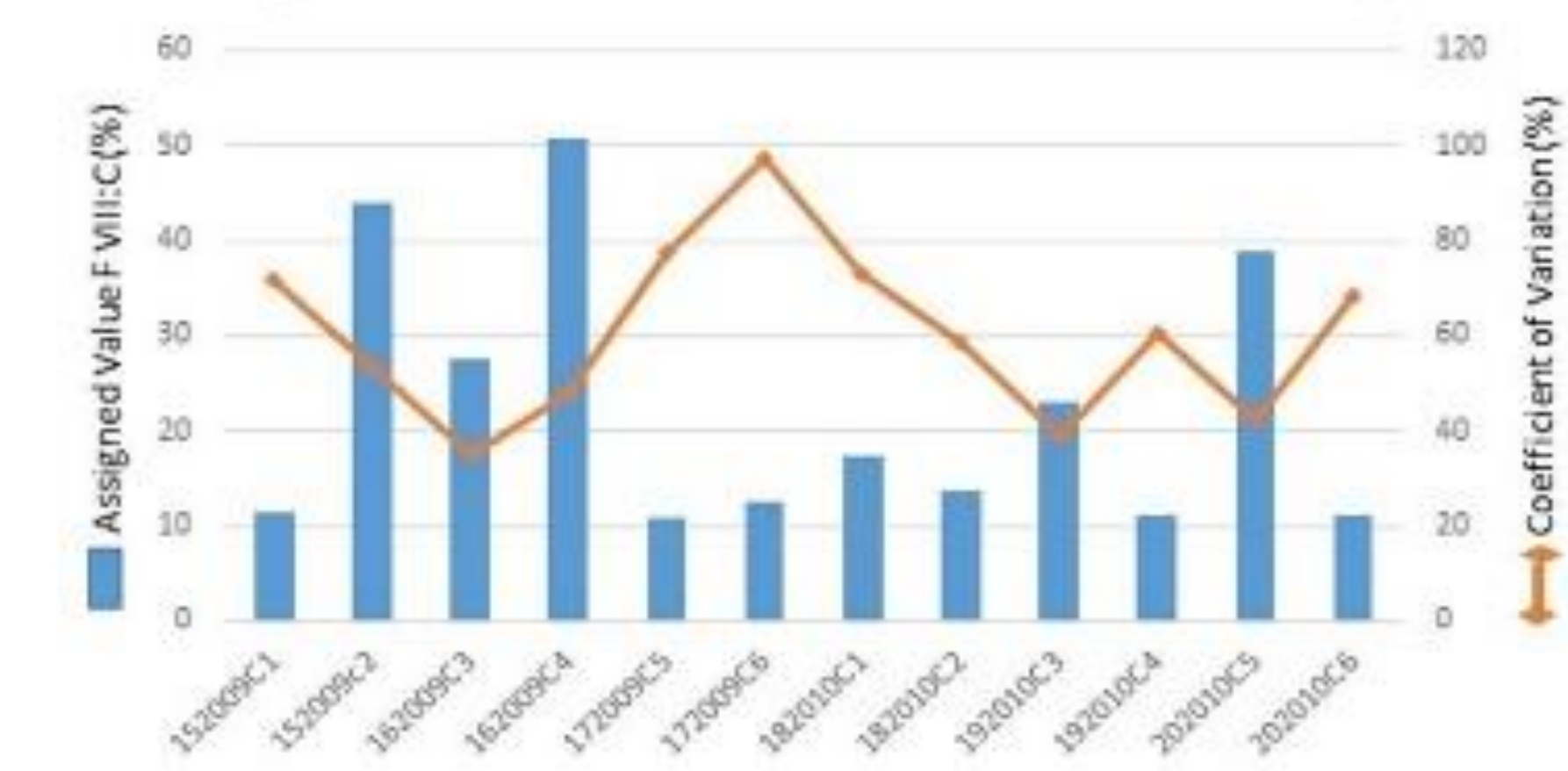
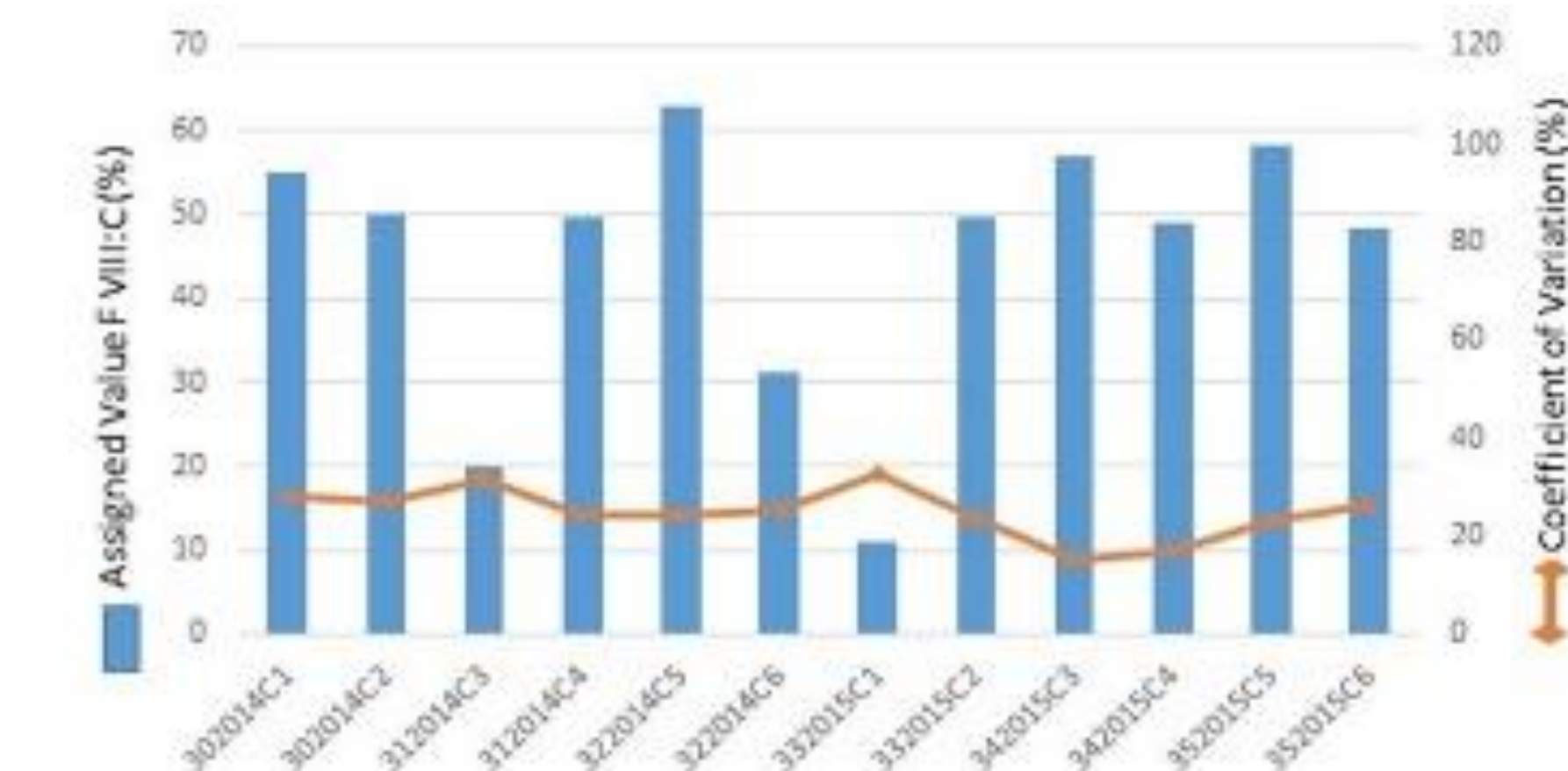


Fig. 2D Relationship between F VIII:C (%) Assigned value and Coefficient of variation (%) (2014-2015)



Results:

- The figure displays the trend of Coefficient of Variation for APTT and Factor VIII:C related to the Assigned Value for all participants between 2009-10 and 2014-15. (Fig. 2A-D)
- At the inception of the program, we used the APTT ratio for evaluation of results. As the standard (ISO17043:2010) requires that we evaluate parameters in a format reported by laboratories, we changed over to analysing APTT time in seconds as reportable for patients, from the year 2011
- There is a decrease in the coefficient of variation (%) when compared between the period 2009-10 and 2014-15.
- This appears to be evidence of harmonization of laboratory practice as evidenced by the decreasing coefficient of variation among participants for APTT that is better demonstrated among peer groups (Fig. 3 A, B)

Fig. 3A Trend of coefficient of Variation (%) of APTT (ratio) for peer groups (2009-2010)

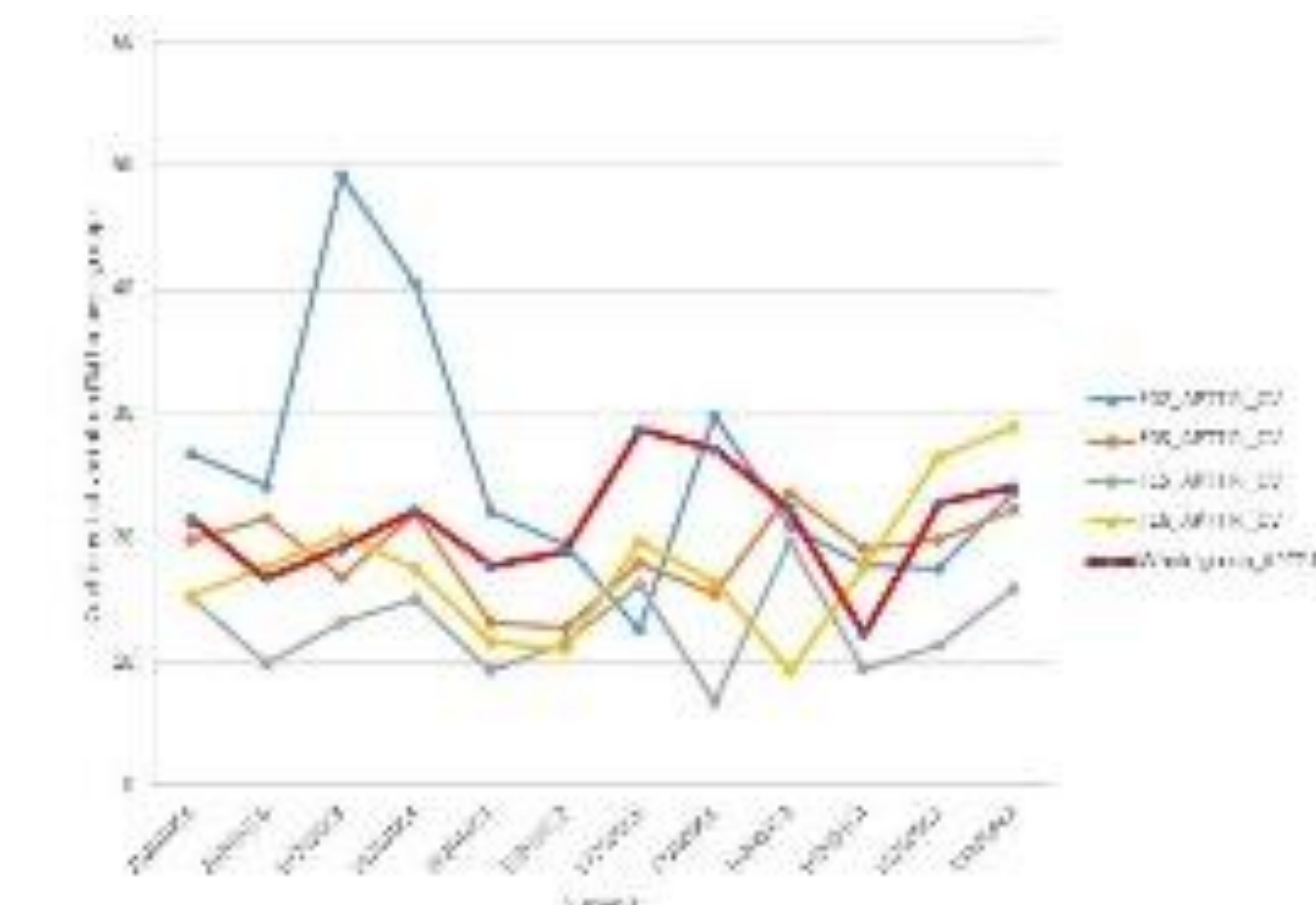
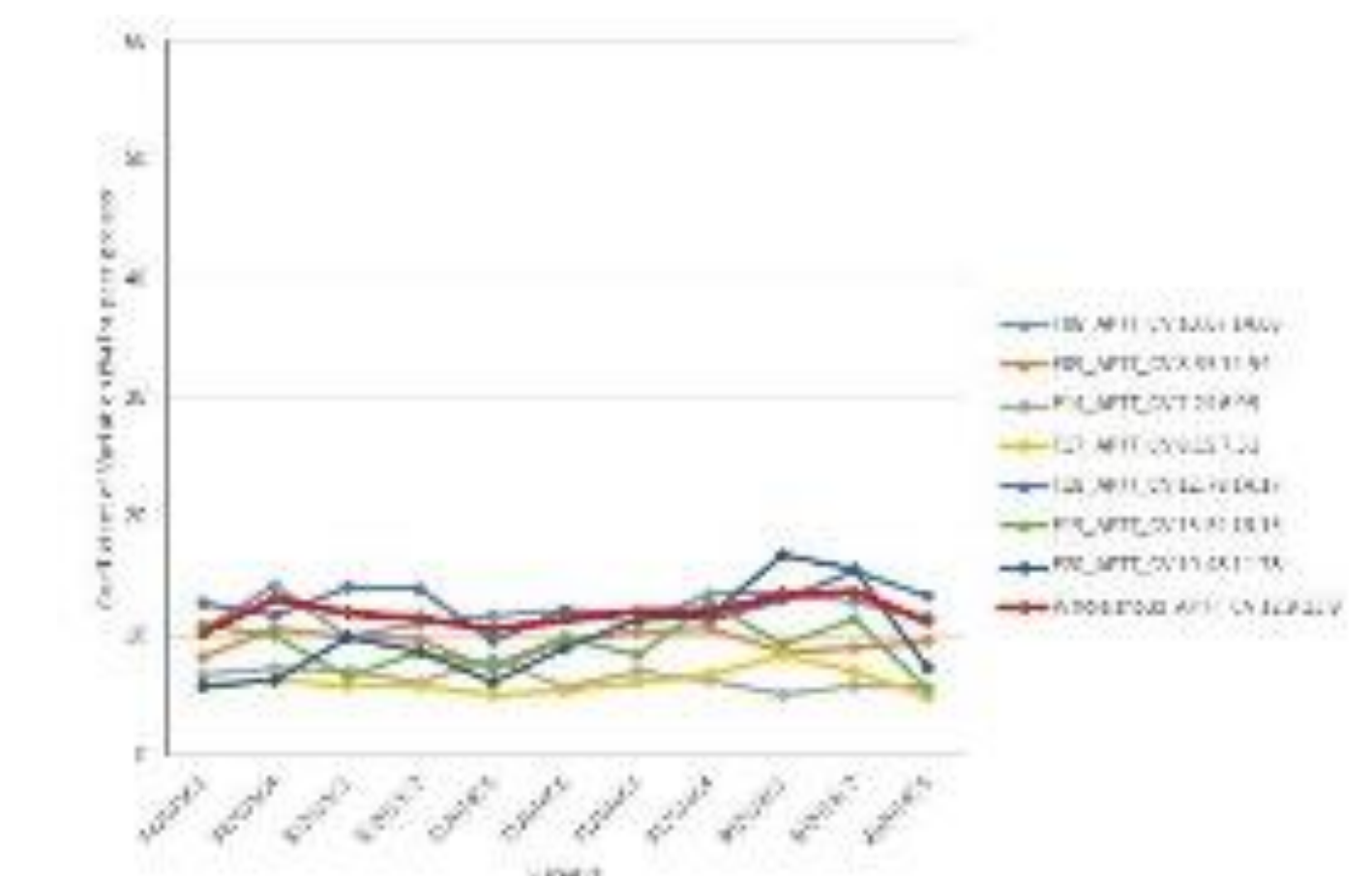


Fig. 3B Trend of coefficient of variation (%) of APTT (secs) for peer groups (2014-2015)



Conclusion:

- It is possible to initiate and sustain and EQAS program in a low cost environment.
- Besides providing information regarding inaccuracy of results directly to participants, EQAS and the educational activities associated with it can positively impact overall laboratory performance.
- There appears to be improvement of laboratory practice as evidenced by decreasing coefficient variation for both APTT and Factor VIII:C.
- More developing countries should be encouraged to develop such programs.

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